



P2288

**ADDENDUM ENVIRONMENTAL IMPACT ASSESSMENT REPORT  
VOLUME 3: APPENDICES**

**CHAPTER 8 ADDENDUM APPENDICES**

**RIVERINE COMMUNITY PARK**

**LIFFORD-STRABANE**

**APRIL 2022**



the paul hogarth company



**Comhairle Contae  
Dhún na nGall**  
Donegal County Council



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## Appendix 8-1

### Screening for Appropriate Assessment



# Lifford and Strabane Proposed Riverine Community Park



## Screening for Appropriate Assessment

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## Screening for Appropriate Assessment

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# 1. INTRODUCTION

The Riverine Community Park project, under the auspices of Donegal County Council proposes to create thirty acres of new community park space and infrastructure at Lifford and Strabane. This project proposes to create a neutral, shared space by utilising agricultural land and wetland lying along either side of the border. It will span both sides of the River Foyle and be connected by a new pedestrian and cycle bridge.

The location of the proposed development site is presented in **Figure 1-1** while the site layout and Design Concept is presented in **Appendix A**.

It is intended that the information contained within this document will inform Article 6(3) Appropriate Assessment process completed by the Competent Authority; i.e. An Bord Pleanála.

## 1.1 Legislative Context for Appropriate Assessment

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as “The Habitats Directive”, provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000.

Natura 2000 sites are defined under the Habitats Directive (Article 3) as a coherent European ecological network of special areas of conservation, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. In Ireland, these sites are designated as European Sites and include Special Protection Areas (SPAs), established under the EU Birds Directive (79/409/EEC, as codified by 2009/147/EC) for birds and Special Areas of Conservation (SACs), established under the Habitats Directive 92/43/EEC for habitats and species.

The Habitats Directive has been transposed into Irish law by Part XAB of the Planning and Development Act, 2000 - 2015 and the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011) as amended.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to adversely affect the integrity of European Sites (Annex 1.1).

Article 6(3) establishes the requirement for Appropriate Assessment (AA):

Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.



Article 6(3) of the Habitats Directive, transposed into Irish Law relevant to this project includes Part XAB of the Planning and Development Act, 2000-2019 and the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Natura 2000 sites in Ireland (herein referred to as European sites) that form part of the Natura 2000 network of protected sites include Special Areas of Conservation (SACs) designated due to their significant ecological importance for species and habitats protected under Annexes I and II respectively of the Habitats Directive, and Special Protected Areas (SPAs), designated for the protection of populations and habitats of bird species protected under the EU Birds Directive (Council Directive 2009/409/EEC). Features for which SACs and SPAs are designated are termed Qualifying Interests and Special Conservation Interests respectively. Collectively, Qualifying Interests and Special Conservation Interests are herein referred to as Qualifying Features.

As this project is not necessary for the management of any European Site, An Bord Pleanála as the competent authority, is obliged to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with other plans or projects, is likely to have a significant effect on European Sites.

The staged assessment process undertaken to meet Article 6(3) obligations is described in **Section 2** below.

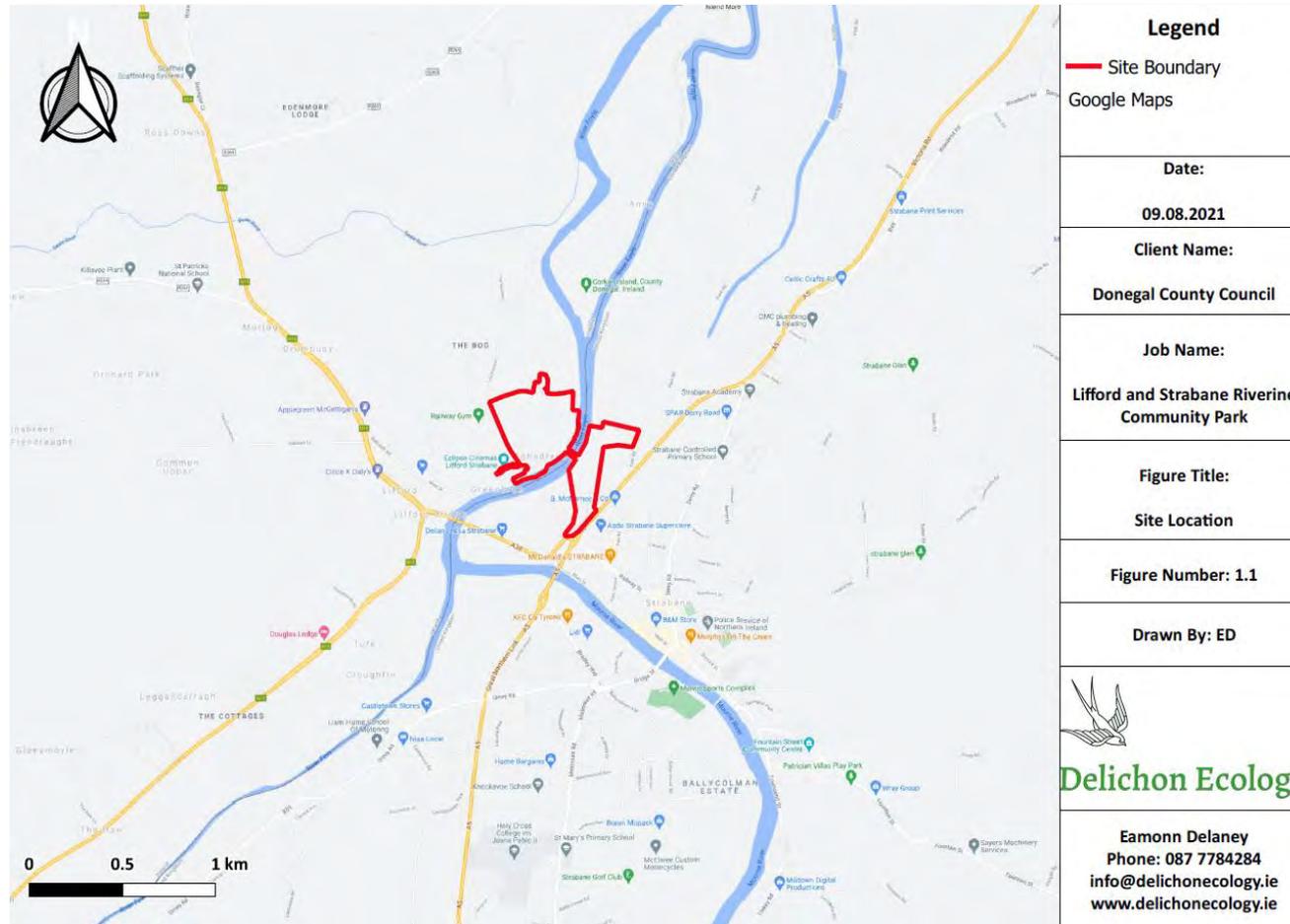


Figure 1-1: Location of Proposed Riverine Community Park



## 2 METHODOLOGY

### 2.1.1 Stage 1 – Screening for Appropriate Assessment

Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3):

Whether a plan or project is directly connected to or necessary for the management of the site, and whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). Screening should be undertaken without the inclusion of mitigation, unless potential impacts clearly can be avoided through the modification or redesign of the plan or project, in which case the screening process is repeated on the altered plan. The greatest level of evidence and justification will be needed in circumstances when the process ends at screening stage on grounds of no impact.

### 2.1.2 Stage 2 – Appropriate Assessment (Natura Impact Statement)

The aim of Stage 2 of the AA process is to identify any adverse impacts that the plan or project might have on the integrity of relevant European sites. As part of the assessment, a key consideration is 'in combination' effects with other plans or projects. Where adverse impacts are identified, mitigation measures can be proposed that would avoid, reduce or remedy any such negative impacts and the plan or project should then be amended accordingly, thereby avoiding the need to progress to Step 3.

This stage considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a European site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The proponent of the plan or project will be required to submit a Natura Impact Statement, i.e. the report of a targeted professional scientific examination of the plan or project and the relevant European sites, to identify and characterise any possible implications for the site in view of the site's conservation objectives, taking account of in-combination effects. This should provide information to enable the public authority to carry out the AA.

The information required in a Natura Impact Statement, is outlined in Regulation 42(5) (a) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) as amended, as follows:

A Natura Impact Statement shall, in addition to addressing the issues referred to in the interpretation contained in Regulation 2(1), include such information or data as the public authority considers necessary, and specifies in a notice given under paragraph (3), to enable it to ascertain if the plan or project will affect the integrity of the site.

Where appropriate, a Natura Impact Statement shall include, in addition—

- i. the alternative solutions that have been considered and the reasons why they have not been adopted,



- ii. the imperative reasons of overriding public interest that are being relied upon to indicate that the plan or project should proceed notwithstanding that it may adversely affect the integrity of a European site,
- iii. the compensatory measures that are being proposed.

If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to Stage 3, or the plan or project should be abandoned. The competent authority must make a determination to that effect before proceeding to the next stage.

### **2.1.3 Guidance**

This Screening for AA and NIS report has been prepared with regard to the relevant provisions of the EU Council Directive 92/43/EEC and Ireland's EU (Birds and Natural Habitats) Regulations 2011 (as amended).

The methodology followed for this assessment has had regard to the following guidance and legislation:

- Dodd A.M., Cleary B.E., Dawkins J.S., Ferry C.D. and Williams G.M. (2008) The Appropriate Assessment of Plans in Northern Ireland: a guide to why, when and how to do it. The RSPB, Sandy.
- DoEHLG (2009, rev. 2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government;
- Section 4, Part 1 of Volume 11 of the DMRB (HD44/09).
- European Commission (EC) (2018), Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats Directive' 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- EC (2002) Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- EC (2007a) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. European Commission;
- EC, (2007b), Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. European Commission;
- EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission;
- EC (2021) Assessment of Plans and Projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- Chartered Institute of Ecology and Environmental Management (CIEEM) Version 1.1 (September 2019), Guidelines for Ecological Impact Assessment in the UK and Ireland;
- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments. Unpublished NPWS report;



- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments. Unpublished NPWS report;
- Office of the Planning Regulator (OPR) (2021) Practice Note PN01 - Appropriate Assessment Screening for Development Management.
- The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 as amended;
- The European Communities (Birds and Natural Habitats) Regulations 2011 as amended;
- The Planning and Development Act 2000-2019;
- The Planning and Development Regulations 2001-2019; and
- Recent Irish, Northern Irish and European case law on the Habitats Directive.

#### 2.1.4 Information Consulted for this Report

This assessment has been informed by the following sources of data:

- Information on the location, nature and design of the proposed project as provided by the client;
- Department of Housing, Planning, Community and Local Government (DHPCLG) online land-use mapping ([www.myplan.ie/en/index.html](http://www.myplan.ie/en/index.html));
- Office of Public Works (OPW) National Flood Hazard Mapping website ([www.floodmaps.ie](http://www.floodmaps.ie))
- Environmental Protection Agency (EPA) geoportal mapping tool (<https://gis.epa.ie/EPAMaps/>);
- National Parks and Wildlife Service protected site and species information and data (<https://www.npws.ie/protected-sites>);
- Department of Agriculture, Environment and Rural Affairs for information and data on designated sites in Northern Ireland <https://www.daera-ni.gov.uk/landing-pages/protected-areas>;
- National Biodiversity Data Centre ([www.biodiversityireland.ie](http://www.biodiversityireland.ie)); and
- Ordnance Survey of Ireland mapping and aerial photography ([www.osi.ie](http://www.osi.ie)).



## 3 STAGE 1 – SCREENING FOR APPROPRIATE ASSESSMENT

This section provides the information required for the competent authority (An Bord Pleanála) to undertake a Screening for AA and determine in view of best scientific knowledge, whether the proposed works, individually or in combination with other plans and projects, is likely to have a significant effect on the European site. Specifically, it aims to:

- Provide information on, and assess the potential for the proposed works to significantly impact on European sites; and
- Determine whether the activities proposed, alone or in combination with other projects, are likely to have significant effects on European sites in view of their Conservation Objectives.

This screening assessment provides information to address the following elements:

1. Description of the plan or project, and local site or plan area characteristics. The description covers the full scope of the proposed plan or project (i.e. deconstruction phase and operational phase).
2. Description of the receiving environment setting of the proposed plan or project and its surrounds.
3. Identification of relevant European sites within the projects the potential zone of influence. A preliminary assessment to determine connectivity between the proposed works and receptors (i.e. European sites and/ or features for which the sites are designated). Where connectivity exists, the receptors in question are brought forward in the screening assessment process.
4. For receptors that exhibit potential connectivity to the proposed work a screening assessment is undertaken to establish whether the plan or project is likely to have a direct, indirect or cumulative effect on receptors based on a consideration of likely impacts (i.e. an assessment of significance of effect).
5. Screening statement with conclusions on whether or not an AA is necessary for the relevant a Qualifying Feature.

### 3.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 11.69 hectares in total, with approximately 5.73 acres on the Lifford side and 5.96 acres on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused halting site, with the rest of the site consisting of woodland.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



### **3.2 General Description of Proposed Development**

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways and cycleways, wetlands supported by car parking provision.

The project will comprise the creation of new community park infrastructure in excess of twenty-five acres by utilising agricultural land and wetlands lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events.
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
- Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
- River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane.
- Family Space incorporating unique play experience, designed to support children focused events & related programming.

Ancillary works are also required for pre-construction ground investigations, provision of slipway car parking and associated surface water attenuation and the upgrade and integration of existing and proposed stormwater and drainage services. These elements are as follows:

- Proposals for storm water management accommodation works on the Lifford side of the study area. Site runoff from open grassland areas will be managed via a piped drainage network draining at several points into the Deele\_010 watercourse and a contributory drainage channel located near the northern and north-western boundary of the study area.



- Proposals for three car parking spaces at the proposed slipway on the Lifford side of the study area. The car park will drain to a oil-water interceptor, with the interceptor outfall discharging to the sub surface via a soakaway.
- Car park to be located within the former halting site and within the A5 WTC Vesting Boundary. The relocation of the car park to the halting site will involve SuDS design comprising permeable hard surfacing across the car park, with underlying granular collection system, delivering infiltrated runoff to the Park Road Drain via a suitably-sized full retention interceptor and hence discharging to the River Foyle via the Nancy Burn. Lighting of the car park will provide a minimum average horizontal illuminance of 10 lux, with lux levels not exceeding 1 lux at the perimeter of the car park. This 1 lux level was agreed with NIEA as being acceptable with regards to impact to bats.
- Ground Investigation - Geotechnical Investigation Boreholes to be drilled at the Lifford Bridge Crossing Site (Crane Platform / Crane Working Pad) during the construction phase to assist in determining foundation designs and associated dimensions.

Other ancillary works and arrangements associated with the project are as follows:

- Re-positioning of a section of the existing Flood Embankment on the Lifford side of the development.
- The widening of sections of the existing flood embankment in Lifford to allow for the construction of a cycle path.
- The widening of sections of the existing flood and railway embankments in Strabane to allow for the construction of a cycle path.
- The creation of a new access road into the Lifford site, incorporating SUDS drainage systems (swale discharging to main SuDs Scheme serving Riverine development).
- Some small areas of land contamination remediation are required to make the Strabane area of the site suitable for the proposed end use due to risks posed to human health from contaminants (including asbestos). This will involve small scale excavation and off-site removal of contaminated soils in a small number of areas, and reinstatement of the ground with clean imported materials.

### **3.2.1 Proposed Site Design**

Sustainable development is central to the design, delivery and implementation ethos of both Donegal County Council (DCC) and Derry City and Strabane District Council (DCSDC). It is proposed to design an iconic park to create a welcoming, person centred environment which will optimise the opportunity for person-to-person interaction.

It is proposed to reuse earth material for landform rather than removal off site in order to reduce carbon emissions and landfill. Sustainable Urban Drainage Design System (SUDS) will be employed to harvest rainwater, allow for containment of run-off and deploy attenuation measures for hard surfaces. Mitigation measures will be put in place, through consultation with Loughs Agency to ensure that the River Foyle remains unaffected throughout the construction and lifespan of the proposed development.



The following elements are to be incorporated into the final design of the proposal in order to minimise environmental impact:

- The use of timber from sustainable sources must be considered.
- The use of loose ground cover to facilitate water percolation and minimal impact on the natural water flow to the River must also be considered.
- Orientation of the pavilion building to maximise solar gain for space heating and use of a green sedum roof or similar for energy efficiency and positive impacts for pollinating insects.
- Use of site contours for new path networks to minimize site impact and the carbon footprint of new path infrastructure.
- Conservation of the wetland areas with proactive biodiversity and environmental training programmes to encourage its enhancement and protection.

The design must primarily optimise the use and mix of space in terms of functional space, circulation space and provision for services both planned at this stage and flexible in terms of future re-designation of areas.

The proposed Park will be developed on lands adjacent to and partially within the River Finn SAC (Site Code: IE0002301) and River Foyle and Tributaries (Site Code: UK0030320). The proposed bridge crossing will be within both SAC's. The site layout and Design Concept is presented in **Appendix A**.

### 3.3 European Sites within the Project Zone of Influence

This stage of the screening for AA process describes European Sites within the Zone of Influence (Zoi) of the proposed project. A 15km buffer zone of influence (Zoi) has been chosen as a precautionary measure, to ensure that all potentially affected European Sites are included in the screening process, which is in line with Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG, 2009, rev. 2010).

The integrity of a European Site (referred to in Article 6.3 of the EU Habitats Directive) is determined based on the Conservation Status of the features (habitats and/ or species) for which SACs and SPAs are designated. The Qualifying Interests (QI) and Special Conservation Interests (SCIs) for protected sites have been obtained through a review of the Conservation Objectives documents available from the NPWS website [www.npws.ie](http://www.npws.ie).

There are four European sites located within 15km of the proposed works (See **Figure 3.1**), these are as follows:

- River Finn SAC (002301),
- River Foyle and Tributaries SAC (UK0030320),
- Moneygal Bog SAC (UK0030211), and
- Owenkillew River SAC (UK0030233).

The site also supports remote hydrological connectivity (>32km downstream) to two European Sites; i.e. Lough Foyle SPA UK9020031 and Lough Foyle SPA 004087.

The proposed development site is located 16.6km south-east of the Lough Swilly SPA (004075). There is no hydrological connectivity between the proposed development site and this European Site. With



the exception of Greylag Goose, the proposed development site is located outside of the core foraging range<sup>1</sup> for the SCI species for which this European Site has been designated. However correspondence from the Development Applications Unit of the Department of Local Housing, Government and Heritage noted that Whooper Swan and geese species, SCI species for Lough Swilly SPA utilises the River Finn corridor as a 'refuge, commuting corridor and navigational route'. In addition, Whooper Swan roosting grounds were highlighted by DAU to the south of the site that may be linked to local European sites; Lough Swilly SPA and Lough Foyle SPA. To that end, these European Sites, situated outside of the 15km buffer zone will be considered further in this Screening for Appropriate Assessment.

In addition, consultation received from Northern Ireland Environment Agency (NIEA) recommended that the following ranges should be used when screening likely significant effects for either Harbour (common) Seal or Grey Seals:

- All SACs within 135km of the project should be screened for Grey Seals (*Halichoerus grypus*), and
- All SACs within 50km should be screened for Harbour Seals (*Phoca vitulina*).

To this end, there are two SACs that support Grey Seal or Harbour Seal as feature of Qualifying Interest within 135km and 50km respectively; i.e. the Maidens SAC (located 108km west) and Donegal Bay (Murvagh) SAC (located 46km west/south-west).

The assessment of connectivity between the European Sites and the proposed works follows the potential source-pathway-receptor model, which identifies the source of likely significant impacts, if any, the pathway (land, air, hydrological, hydrogeological pathways, etc) along which those impacts may be transferred from the source to the receiving environmental receptors (i.e. European Sites and/or features for which the sites are designated).

Where it is evident that there is no connectivity between the proposed work and receptors (i.e. European Sites and/or features for which the sites are designated), the receptors are excluded from the AA process. Similarly, where connectivity exists between the proposed work and receptors but is deemed not to result in likely significant effects to the receptor, the receptor can be screened out (i.e. likely significant effects to receptors excluded; receptor not considered further in AA process).

In contrast to the above, where it is not possible to exclude likely significant effects on the basis of best scientific knowledge, a more detailed scientific assessment of the proposed works is required which focuses on the European Sites likely to be affected and the relevant designated feature in question.

**Figure 3-1** shows the European sites within the Zone of Influence (Zoi) of the proposed development site while **Figure 3-2** displays the European sites in closer proximity to the study area. **Table 3-1**

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<sup>1</sup> In accordance with Scottish Natural Heritage (SNH) Guidance on assessing connectivity with SPA sites. Scottish Natural Heritage. (2017) 'Assessing Connectivity with Special Protection Areas (SPA's). SNH, Battleby, Scotland. Available online at: <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf>



provides details on the distance and connectivity of European Sites within the Zone of Influence (Zoi) of the proposed works.



Table 3-1: European Sites within the proposed development’s Zone of Influence

Site Code	Site Name	Qualifying Features / Special Conservation Interest Species	Distance from Study Area	Connectivity
002301	River Finn SAC	1106 Atlantic Salmon <i>Salmo salar</i> 1355 Otter <i>Lutra lutra</i> 3110 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> 7130 Blanket bogs (* if active bog) 7140 Transition mires and quaking bogs	The proposed development is partially located within this European Site.	Direct and indirect connectivity as the proposed development is partially located within this European Site.
UK0030320	River Foyle and Tributaries SAC	1106 Atlantic Salmon <i>Salmo salar</i> 3206 Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation 1355 Otter <i>Lutra lutra</i>	The proposed development is partially located within this European Site.	Direct and indirect connectivity as the proposed development is partially located within this European Site.
UK0030211	Moneygal Bog SAC	7110 Active raised bog*	This European Site is located 13.6km south-west of the proposed development.	No potential for connectivity due to distance and absence of viable ecological vectors.



Site Code	Site Name	Qualifying Features / Special Conservation Interest Species	Distance from Study Area	Connectivity
UK0030233	Owenkillev River SAC	1029 Fresh Water Pearl Mussel <i>Margaritifera margaritifera</i> 3260 Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation 91A0 Old Sessile Oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 91D0 Bog Woodland 1355 Otter <i>Lutra lutra</i> 1106 Atlantic Salmon <i>Salmo salar</i>	This European Site is located 13.9km south-east of the proposed development.	Located upstream of the works. There is no potential for connectivity due to distance and absence of viable ecological vectors.
UK9020031	Lough Foyle SPA	A037 Bewick's Swan <i>Cygnus columbianus bewickii</i> A038 Whooper Swan <i>Cygnus cygnus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i>	>32km downstream via the River Finn.	Potential tenuous hydrological connectivity via the waters of the River Finn. Also the proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study area during the site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA. To that end, this European Site is considered further in this Screening for Appropriate Assessment.
004087	Lough Foyle SPA	A001 Red-throated Diver <i>Gavia stellata</i>	>32km downstream via the River Finn.	Potential tenuous hydrological connectivity via the waters of the River Finn. Also the proposed development



Site Code	Site Name	Qualifying Features / Special Conservation Interest Species	Distance from Study Area	Connectivity
		A005 Great Crested Grebe <i>Podiceps cristatus</i> A037 Bewick's Swan <i>Cygnus columbianus bewickii</i> A038 Whooper Swan <i>Cygnus cygnus</i> A043 Greylag Goose <i>Anser anser</i> A046 Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A050 Wigeon <i>Anas penelope</i> A052 Teal <i>Anas crecca</i> A053 Mallard <i>Anas platyrhynchos</i> A063 Eider <i>Somateria mollissima</i> A069 Red-breasted Merganser <i>Mergus serrator</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A142 Lapwing <i>Vanellus vanellus</i>		<p>area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study areas during the site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA. In addition, Whooper Swan roosting grounds were highlighted by DAU to the south of the development site. These Whooper Swan flocks may be linked to European sites for which Whooper Swan is a SCI species; Lough Foyle SPA. To that end, this European Site is considered further in this Screening for Appropriate Assessment.</p>



Site Code	Site Name	Qualifying Features / Special Conservation Interest Species	Distance from Study Area	Connectivity
		A143 Knot <i>Calidris canutus</i> A149 Dunlin <i>Calidris alpina alpina</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A182 Common Gull <i>Larus canus</i> A184 Herring Gull <i>Larus argentatus</i> A999 Wetlands		
004075	Lough Swilly SPA	A005 Great Crested Grebe <i>Podiceps cristatus</i> A028 Grey Heron <i>Ardea cinerea</i> A038 Whooper Swan <i>Cygnus cygnus</i> A043 Greylag Goose <i>Anser anser</i> A048 Shelduck <i>Tadorna tadorna</i> A050 Wigeon <i>Anas penelope</i> A052 Teal <i>Anas crecca</i>	16.6km north-west	The proposed development site is located 16.6km from Lough Swilly SPA (004075). There is no hydrological connectivity between the proposed development site and this European Site. With the exception of Greylag Goose, the proposed development site is located outside of the core foraging range for the SCI species for which this European Site has been designated. However correspondence from the Development Applications Unit of the Department of Local Housing, Government and Heritage noted that Whooper Swan and geese species, SCI species for Lough Swilly SPA utilises the River Finn corridor as a 'refuge, commuting corridor and



Site Code	Site Name	Qualifying Features / Special Conservation Interest Species	Distance from Study Area	Connectivity
		A053 Mallard <i>Anas platyrhynchos</i> A056 Shoveler <i>Anas clypeata</i> A062 Scaup <i>Aythya marila</i> A067 Goldeneye <i>Bucephala clangula</i> A069 Red-breasted Merganser <i>Mergus serrator</i> A125 Coot <i>Fulica atra</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A143 Knot <i>Calidris canutus</i> A149 Dunlin <i>Calidris alpina</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A164 Greenshank <i>Tringa nebularia</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A182 Common Gull <i>Larus canus</i> A191 Sandwich Tern <i>Sterna sandvicensis</i> A193 Common Tern <i>Sterna hirundo</i>		navigational route'. In addition, Whooper Swan roosting grounds were highlighted by DAU to the south of the development site. These Whooper Swan flocks may be linked to European sites for which Whooper Swan is a SCI species; Lough Swilly SPA and Lough Foyle SPA. To that end, this European Site is considered further in this Screening for Appropriate Assessment.



Site Code	Site Name	Qualifying Features / Special Conservation Interest Species	Distance from Study Area	Connectivity
		A395 Greenland White-fronted goose <i>Anser albifrons flavirostris</i> A999 Wetlands & Waterbirds		
UK0030384	The Maidens SAC	1170 Reefs 1110 Sandbanks which are slightly covered by sea water all the time 1364 Grey Seal <i>Halichoerus grypus</i>	108km east	Very tenuous remote connectivity via coastal and estuarine waters off the Donegal Coast and the Northern Ireland coastline.
000133	Donegal Bay (Murvagh) SAC	1140 Mudflats and sandflats not covered by seawater at low tide 1365 Harbour Seal <i>Phoca vitulina</i> 2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes') 2190 Humid dune slacks	46km west / south-west	Very tenuous remote connectivity via coastal and estuarine waters off the Donegal Coast and the Northern Ireland coastline.



### 3.3.1 Summary of Connectivity Analysis

The proposed development site supports is partially located within / overlaps two European Sites; i.e. River Finn SAC (002301) and River Foyle and Tributaries SAC (UK0030320). The proposed development site does not support connectivity with any other European Sites within the project Zone of Influence.

Two Special Protection Areas, Lough Foyle SPA (Site Code: UK9020031)<sup>2</sup> and Lough Foyle SPA (Site Code: 004087)<sup>3</sup> are located more than 32km downstream of the proposed development site (See Figure 3.3). The proposed riverine community park supports remote and very tenuous connectivity to these European Sites via the River Finn. The distance between the proposed development site and the dilutional capacity of the watercourses, waterbodies and the large transitional waterbody of Lough Foyle are likely to remove the potential any of significant effects, direct or indirect to the SCI species of Lough Foyle SPA as a result of water borne pollutants. In addition, the proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study areas during the site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA.

The proposed development site is located 16.6km south-east of the Lough Swilly SPA (004075). There is no hydrological connectivity between the proposed development site and this European Site. With the exception of Greylag Goose, the proposed development site is located outside of the core foraging range for the SCI species for which this European Site has been designated. However correspondence from the Development Applications Unit of the Department of Local Housing, Government and Heritage noted that Whooper Swan and geese species, SCI species for Lough Swilly SPA utilises the River Finn corridor as a 'refuge, commuting corridor and navigational route'. Whooper Swan roosting grounds have also been identified by the DAU to the south of the development site. These Whooper Swan flocks may be linked to European sites for which Whooper Swan is a SCI species; Lough Swilly SPA. To that end, this European Site is considered further in this Screening for Appropriate Assessment.

In addition, the proposed project also supports remote and very tenuous connectivity to two European Sites that support Grey Seal and Harbour Seal as features of Qualifying Interest. These are the Maidens SAC (UK0030384) and Donegal Bay (Murvagh) SAC (000133).

Due to this remote and tenuous connectivity between the proposed development and these European Sites, the potential effects associated with the proposed development and need for best practice measures and mitigation measures should be considered further.

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<sup>2</sup> Designated in Northern Ireland

<sup>3</sup> Designated in the Republic of Ireland

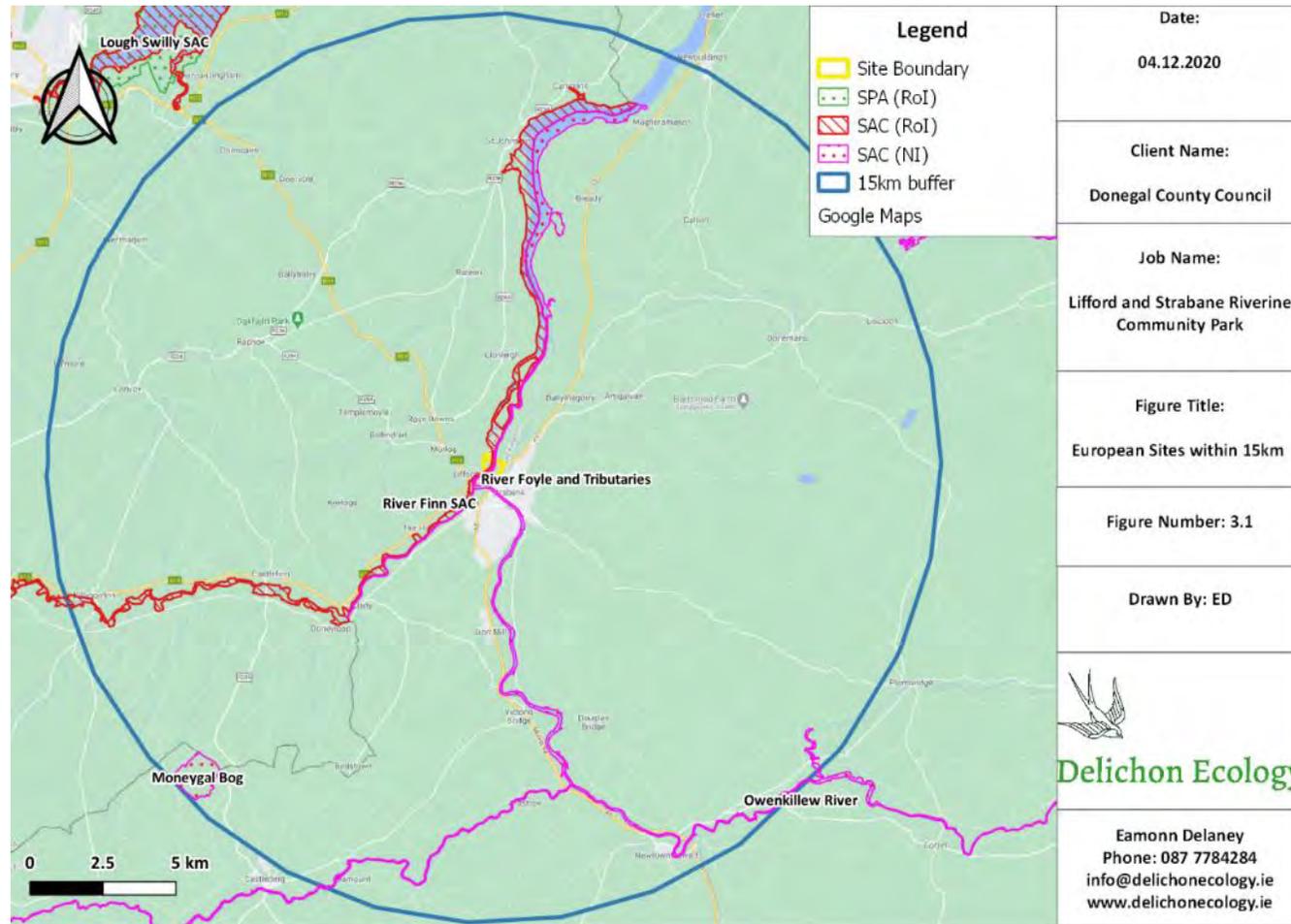


Figure 3-1: European Sites within 15km of the proposed Riverine Community Park

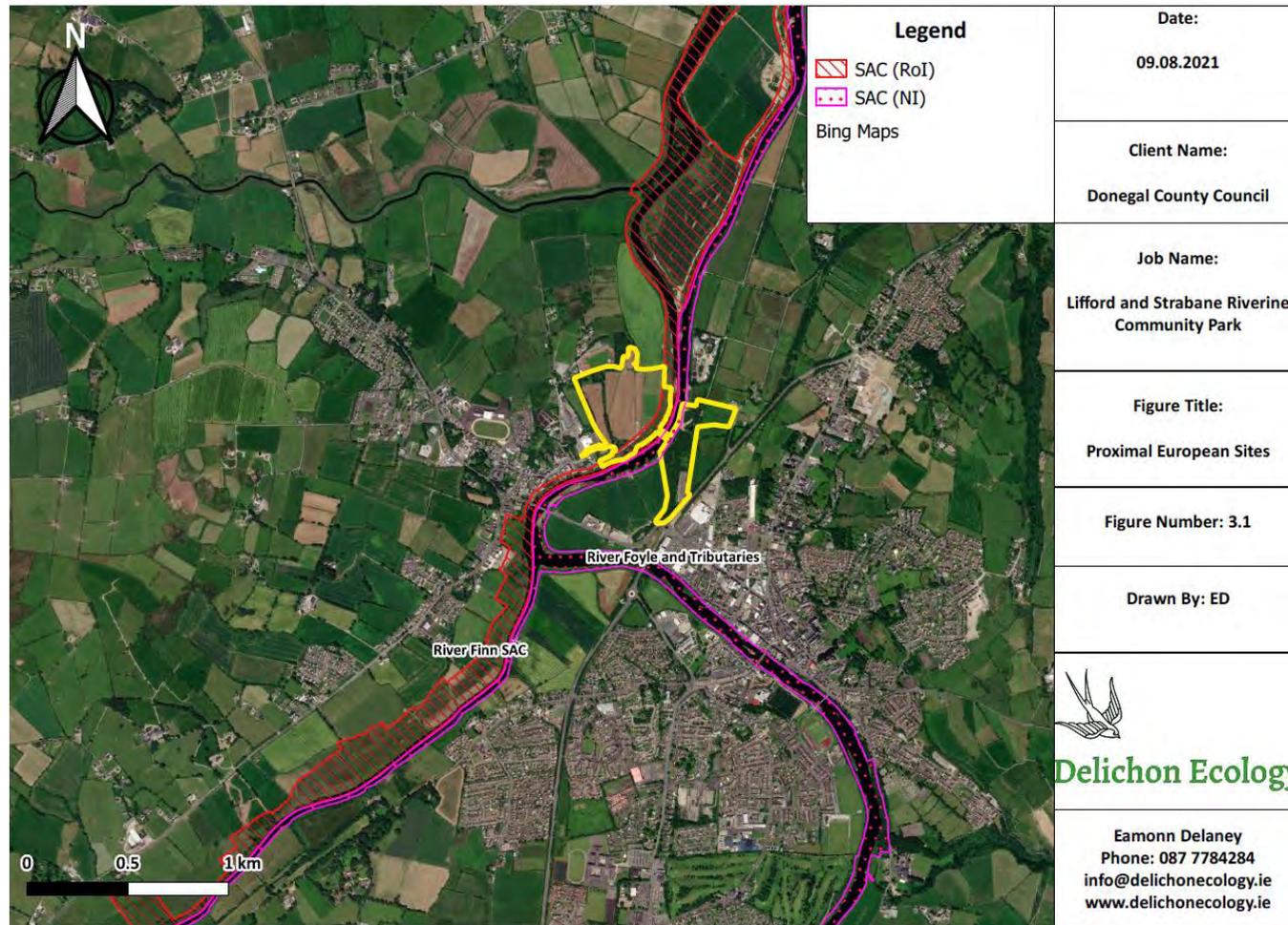


Figure 3-2: European Sites within proximity of the proposed Riverine Community Park

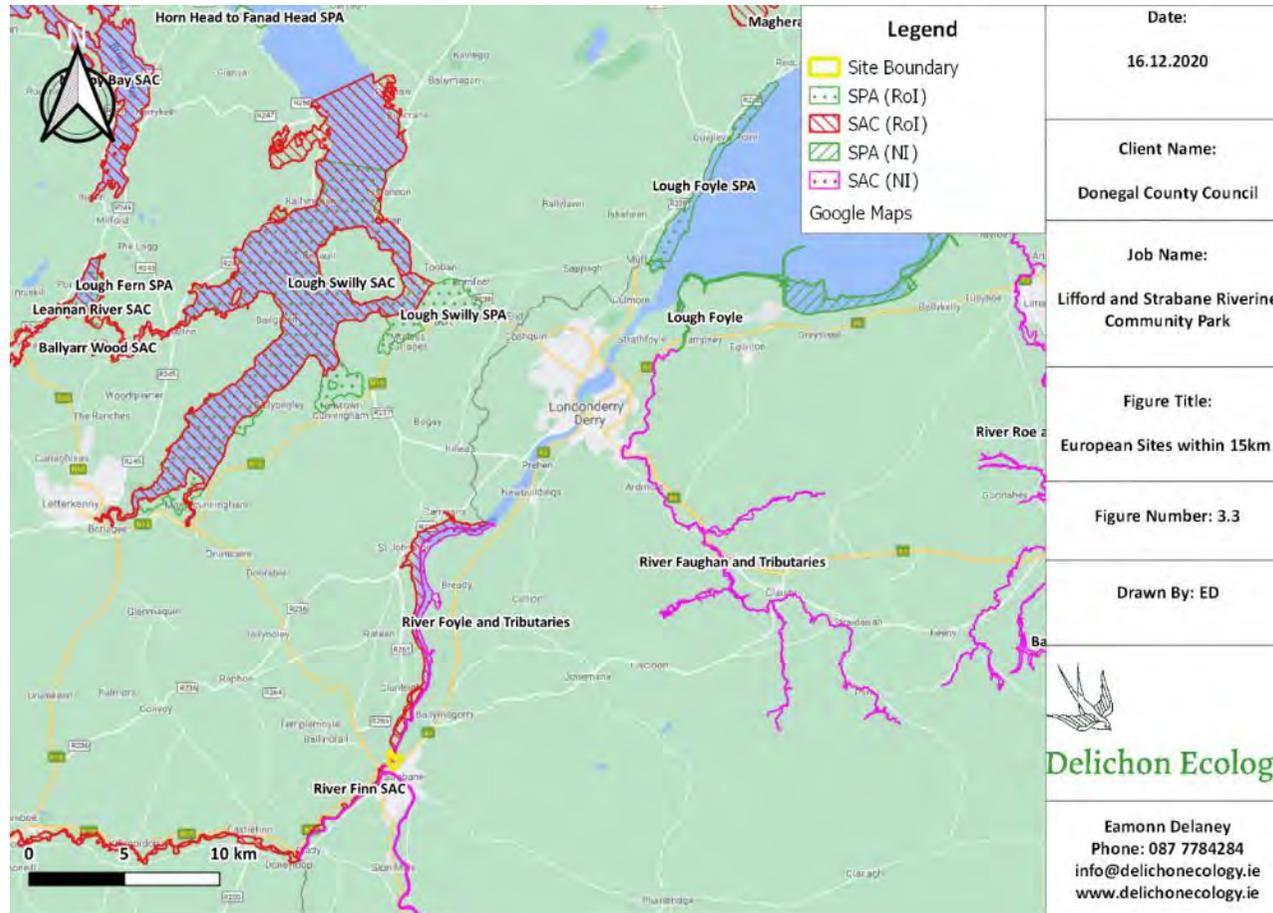


Figure 3-3: Downstream areas of Lough Foyle Special Protection Area (SPA)



### 3.3.2 European Site Descriptions

Site descriptions for European Site within the project ZOI are presented below.

#### 3.3.2.1 River Finn SAC (Site Code: 002301)

This site comprises almost the entire freshwater element of the River Finn and its tributaries the Corlacky, the Reelan sub-catchment, the Sruhamboy, Elatagh, Cummirk and Glashagh, and also includes Lough Finn, where the river rises. The spawning grounds at the headwaters of the Mourne and Derg Rivers, Loughs Derg and Belshade and the tidal stretch of the Foyle north of Lifford to the border are also part of the site. The Finn and Reelan, rising in the Bluestack Mountains, drain a catchment area of 195 square miles. All of the site is in Co. Donegal. The underlying geology is Dalradian Schists and Gneiss for the most part though quartzites and Carboniferous Limestones are present in the vicinity of Castlefinn. The hills around Lough Finn are also on quartzite. The mountains of Owendoo and Cloghervaddy are of granite felsite and other intrusive rocks rich in silica. There are many towns along the river but not within the site, including Lifford, Castlefinn, Stranolar and Ballybofey (NPWS, 2014).

#### 3.3.2.2 River Foyle and Tributaries SAC (UK0030320)

This area has been designated as a Special Area of Conservation (SAC) because it contains habitat types and/or species which are rare or threatened within a European context. The ASSI citation describes the special interests for which the site was notified in the Northern Ireland context. [NB: not for marine interests below mean low water mark]. The interests for which the site was selected as ASSI may differ from the interests selected in a European context. The habitats and/or species for which this area has been designated as a SAC are listed below. The reasons for their selection are listed, together with a brief description of the habitats and species as they typically occur across the UK. This area contains the interests described although it may not contain all the typical features (EHSNI, 2007).

#### 3.3.2.3 Lough Foyle SPA (004087)

The site comprises a section of the western shore of Lough Foyle from Muff to north of Vances Point in Co. Donegal. The site is part of the larger cross-border Lough Foyle complex which regularly supports in excess of 20,000 wintering waterbirds. The majority of the wintering waterbirds that utilise this site occur along the southern and eastern shoreline of Lough Foyle in Derry, which is also designated as an SPA in Northern Ireland. Lough Foyle SPA is of high ornithological importance as it is part of an internationally important wetland site that regularly supports internationally important populations of Whooper Swan, Light-bellied Brent Goose and Bar-tailed Godwit, and nationally important populations of a further 20 species. Of note is that five of the species which occur regularly, i.e. Red-throated Diver, Bewick's Swan, Whooper Swan, Golden Plover and Bar-tailed Godwit are listed on Annex I of the E.U. Birds Directive (NPWS, 2015).

#### 3.3.2.4 Lough Foyle SPA (UK9020031)

This major sea lough is remarkably shallow, with extensive mud and sand flats exposed at low tide. Though considerably diminished by historical reclamation schemes, notably around Myroe, Ballykelly and Longfield, it hosts the second largest area of inter-tidal habitat in Northern Ireland. The shoreline is generally engineered except around the Roe Estuary and northwards. Adjoining agricultural land is of importance as high tide roosts and in supporting wintering geese and swans (NIEA, 2015).



### 3.3.2.5 Lough Swilly SPA (004075)

Lough Swilly is a long sea inlet cut through a variety of metamorphic rocks, situated on the west side of the Inishowen Peninsula in north Co. Donegal. The SPA comprises the inner part of Lough Swilly from just east of Letterkenny northwards to Killygarvan (c. 2 km north of Rathmullan) on the west side and to c. 2 km south of Bunrana on the east side; it includes the adjacent Inch Lough. Also forming part of the site is a series of improved pasture and arable fields on the south side of Lough Swilly between Farsetmore and Inch Levels – these are of importance to geese and swans. It includes sections of the estuaries of the River Swilly, the River Leannan and the Isle Burn and the predominant habitat is a series of extensive sand and mud flats which are exposed at low tide - both estuaries and sand/mud flats are listed on Annex I of the E.U. Habitats Directive. Other habitats represented in the site are salt marshes, lagoons (at Inch Lough and Blanket Nook), rivers and streams, sand and shingle beaches, lowland wet and dry grasslands, drainage ditches, reedbeds and scrub. Inch Lough, whilst artificial in origin, is one of the largest and best examples of a shallow, low salinity lagoon in the country; it supports what is probably the largest population in the country of the Red-listed charophyte *Chara canescens*. A small sandy island, used by nesting terns, swans and gulls, occurs in the southern part of the lagoon (NPWS, 2014).

### 3.3.2.6 The Maidens SAC (UK0030384)

The Maidens proposed SAC is a group of rocky reefs detached from the coast, north east of Larne, Northern Ireland. The primary reason for the proposed designation of The Maidens as an SAC is for the Annex I habitat Reef. Most of the reef area of The Maidens is bedrock reef with a smaller proportion of stony reef. From the multibeam echo sounding (MBES) survey analysis, combined with video tow ground truthing, some of the area has been classified as ‘rock with sand infill’. It is suggested that most of this ‘rock with sand infill’ should be classed as Annex I Reef as the ground truthing suggests that the mobile sand veneer would cover and uncover that reef area.

A small area to the south of East Maiden island has been shown by diving surveys to be shallow stable sandy gravels (partially sheltered by East and West Maiden islands) that includes maerl and other long lived species and this small area has therefore been classed as Annex I Sandbanks slightly covered by sea water all of the time. Like Annex I Sandbanks slightly covered by seawater all the time, Annex II Grey seals are not the primary feature of The Maidens proposed SAC. However, these relatively remote rocks, islands and the waters surrounding them in the North Channel are important for providing haul-out sites, resting sites and foraging areas for Grey seals, with a maxima count of 70 adults recorded in a July 2000 survey. Recent surveys in 2009 confirmed use of the site for both pupping and breeding (NIEA, 2017).

### 3.3.2.7 Donegal Bay (Murvagh) SAC (000133)

This site occupies the inner part of Donegal Bay, immediately to the south-west of Donegal Town. It contains the estuary of the River Eske and a number of other significant rivers. The area is underlain by Carboniferous limestone and shale, although blown sand and other recent deposits obscure much of the solid geology. The site is of international importance due to the presence of a wide range of habitats, including four listed on Annex I of the E.U. Habitats Directive, an important seal colony and the occurrence of significant bird populations (NPWS, 2018).

### 3.3.3 Conservation Objectives of European Sites

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status areas designated as SAC and SPA. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

Favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing; and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The integrity of a European site (referred to in Article 6.3 of the EU Habitats Directive) is determined based on the conservation objectives and of the site. The Qualifying Interests (QI) and Special Conservation Interests (SCI) are obtained through a review of the most recently published (web-published or otherwise) Conservation Objective supporting documents and Site Specific Conservation Objectives documents (where available) for the European site.

#### 3.3.3.1 Conservation Objectives of European Sites within the proposed development's Zone of Influence

The Qualifying habitats and species for those European Sites within the project ZoI are listed in **Table 3-1**. Further details on Conservation Objectives for these European Sites are provided below.

##### River Finn SAC (Site Code: 002301)

The detailed conservation objectives for River Finn SAC are provided in the Conservation Objectives document available on the NPWS website, as follows; [https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO002301.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002301.pdf).

##### River Foyle and Tributaries SAC (Site Code: UK0030320)

The detailed conservation objectives for the River Foyle and Tributaries SAC are provided in the Conservation Objectives document available on the DAERA-NI website, as follows; <https://www.daerani.gov.uk/sites/default/files/publications/doe/Conservation%20Objectives%20%282017%29.%20%20River%20Foyle%20%26%20Tributaries%20SAC.%20%20Version....pdf>

##### Lough Foyle SPA (Site Code: 004087)

The detailed conservation objectives for Lough Foyle SPA are provided in the Conservation Objectives document available on the DAERA-NI website, as follows;



[https://www.npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO004087.pdf](https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004087.pdf)

**Lough Foyle SPA (Site Code: UK9020031)**

The detailed conservation objectives for Lough Foyle SPA are provided in the Conservation Objectives document available on the DAERA-NI website, as follows;

<https://www.daera-ni.gov.uk/sites/default/files/publications/doe/lough-foyle-spa-conservation-objectives-2015.pdf>

**Lough Swilly SPA (Site Code: 004075)**

The detailed conservation objectives for River Finn SAC are provided in the Conservation Objectives document available on the NPWS website, as follows;

[https://npws.ie/sites/default/files/protected-sites/conservation\\_objectives/CO004075.pdf](https://npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004075.pdf)

**The Maidens SAC (Site Code: UK0030384)**

The detailed conservation objectives for The Maidens SAC are provided in the Conservation Objectives document available on the DAERA-NI website, as follows;

<https://www.daerani.gov.uk/sites/default/files/publications/daera/The%20Maidens%20SAC%20Conservation%20Objectives%202017.PDF>



## 4 EXISTING ENVIRONMENT

### 4.1 Site Description

The existing environment within the Lifford area comprises improved grassland (GA1<sup>4</sup>), fringed by treelines (WL2), hedgerows (WL1) and woodland areas comprising mixed broadleaved woodland mixed broadleaved / conifer woodland (WD1 & WD2). The northern section of the site also supports a drainage channel which is a tributary of the River Deele (Donegal)\_050 (NW\_01D010650)

The south-eastern (Strabane) section of the study area is poor draining when compared with the Lifford side of the river and supports rush dominated wet grassland (GS4), improved agricultural grassland (GA1), wet willow-alder-ash woodland (WN6) comprising grey willow (*Salix cinerea*) and hedgerows and treelines. The wet willow-alder-ash woodland supports widespread, but localised occurrences of Himalayan balsam (*Impatiens glandulifera*) and Japanese knotweed (*Fallopia japonica*).

Within the study area, the river is a large open watercourse and is classified by the Environmental Protection Agency (EPA) as a transitional waterbody; i.e. the Foyle and Faughan Estuaries (UKGBNI5NW250010). The river is fringed intermittently by reed and large sedge swamp (FS1) and localised areas of exposed fine aggregates. The higher areas of the riverbank support dry meadows and grassy verge habitat (GS2) that comprise stout, dense growing grasses. Both sides of the river bank supports sporadic growth of three invasive species including Himalayan balsam (*Impatiens glandulifera*) which is the most abundant and widespread, in addition to localised areas of Japanese knotweed (*Fallopia japonica*) and Giant Hogweed (*Heracleum mantegazzianum*).

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<sup>4</sup> Alphanumeric codes in accordance with 'A Guide to Habitats in Ireland' (Fossitt, 2000).



**Image 1 – Riparian area of River Foyle downstream of N15/A38**



**Image 2 – Improved grassland on the Lifford site of the proposed Riverine Community site**



**Image 3 – Wet woodland / scrub on the Strabane side of the River Foyle**



**Image 4 – Wet grassland located on the Strabane side of the River Foyle**



**Image 5 – River Finn at the vicinity of the proposed crossing point**



**Image 6 - Drainage channel near the site's northern boundary supporting connectivity to the Deelee River**



## 4.2 Flooding

The Flood Info database ([www.floodinfo.ie](http://www.floodinfo.ie)) was also consulted to identify Predictive Flood Risk Areas (PFRA) mapped as part of the Catchment Flood Risk Assessment and Management (CFRAM) programme for the study area. Interrogation of the mapping database confirms that the study site is located within an area currently mapped as a PFRA.

## 4.3 Geology, Hydrology and Hydrogeology

The Geological Survey of Ireland (GSI) online database<sup>5</sup> was consulted for available edaphic, geological and hydrological information of the site and its environs. On the Lifford side of the study area, the underlying bedrock is part of the Claudy formation which supports Psammite, pebbly grit, quartzite and marble. The groundwater vulnerability of the site is classified “H – High”. There GSI online mapviewer and Geographical Information System datasets do not identify karst features within Lifford study area or its immediate surrounds. At the Strabane side of the study area, the underlying bedrock is part of the Dungiven formation comprising quartzite. Groundwater vulnerability is classified as 4e; i.e. where superficial aquifers are present.

The study site is located within the ‘Foyle Gravels’ (IE\_NW\_G\_075) and ‘Claudy’ (GBNI4NW003) GroundWater Bodies (GWB).

The Foyle Gravels groundwater body is a Locally Important Sand and Gravel Aquifer (Lg) which is generally unproductive except for local zones (PI). The sand/gravel aquifer overlies bedrock aquifers which are Moderately Productive only in Local Zones (LI) and Generally Unproductive except for Local Zones (PI). Both GroundWater Bodies are classified as Good Status in 2018<sup>6</sup>. Groundwater and surfacewater interactions of the Foyle Gravels groundwater body is described as follows *‘In general groundwater from sand/gravel deposits located in river valleys discharges to the streams/ rivers flowing through the valley. The hydraulic connection between the groundwater in the aquifer and the stream is expected to be variable due to spatially varying subsoil permeabilities. Water may be able move into and out of the aquifer from the river in certain locations depending on the river stages and permeability of the subsoils’*<sup>7</sup>.

<sup>5</sup> GSI Online database: <https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx>

<sup>6</sup> Ground Waterbody WFD Status 2013-2018 <https://gis.epa.ie/EPAMaps/>

<sup>7</sup> Source: [https://secure.dccae.gov.ie/GSI\\_DOWNLOAD/Groundwater/Reports/GWB/FoyleGravelsGWB.pdf](https://secure.dccae.gov.ie/GSI_DOWNLOAD/Groundwater/Reports/GWB/FoyleGravelsGWB.pdf)



## 5 SCREENING FOR APPROPRIATE ASSESSMENT

**Table 5.1** assesses a specific source-pathway-receptor model for this proposed development.

**Table 5-1 Source-Pathway Model for the Proposed Development**

Source of Potential Effect	Description of Pathway
<b>Construction Phase</b>	
Noise, vibration;  Lighting;  Human presence; and  Movements of vehicles associated with construction activities.	Terrestrial - noise or other construction-related disturbance could reduce the ability of populations of QI/SCI species to forage, roost or breed.
Land works (all types of earth works and excavations) and associated Run-off of soil, aggregates and other particulate matter from the works area;  Construction works within a Flood Risk area and risk of washout of construction related materials and compounds  Contaminant accidental spillages (e.g. hydrocarbons, wet cement, bitumen).	Hydrological, surface water movement via overland flow or existing drainage features.
<b>Operational Phase</b>	
Physical obstacle to movement of QI/SCI.	Direct contact.
Human presence; noise; lighting.	Terrestrial - noise or human presence may cause disturbance, which could reduce the ability of populations of QI/SCI species to forage, roost or breed.



Table 5-2 presents Screening Assessment Criteria considering the proposed development.

Table 5-2: Screening Assessment Criteria

Screening Assessment Criteria Screening Questions	Impacts
<p>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the European Sites.</p>	<p>The proposed works support direct connectivity to two European sites; River Finn SAC and River Foyle and Tributaries SAC. Therefore there is the potential for direct effects to European Sites as a result of the proposed project. Such effects may include habitat loss and disturbance and disturbance of mobile QI species. The proposed works may also contribute towards indirect effects to the in-situ and adjacent SACs in the form of run-off of construction phase pollutants and the spread of in-situ invasive plant species in the absence of best practice construction measures of targeted mitigation.</p> <p>In addition, the proposed project may contribute to indirect and ex-situ effects to European Sites supporting remote hydrological connectivity; i.e. Lough Foyle SPA.</p> <p>The proposed development site is located 16.6km south-east of the Lough Swilly SPA (004075). There is no hydrological connectivity between the proposed development site and this European Site. With the exception of Greylag Goose, the proposed development site is located outside of the core foraging range for the SCI species for which this European Site has been designated. However correspondence from the Development Applications Unit of the Department of Local Housing, Government and Heritage noted that Whooper Swan and geese species, SCI species for Lough Swilly SPA utilises the River Finn corridor as a 'refuge, commuting corridor and navigational route'. To that end, this European Site is considered in this Screening for Appropriate Assessment.</p>
Likely direct, indirect or secondary impacts of the project on the European Sites:	
<ul style="list-style-type: none"> <li>• Size and Scale</li> </ul>	<p>The size and scale of the proposed works are small and localised when compared with the surrounding environment and the size of European Sites within the project Zone of Influence.</p>
<ul style="list-style-type: none"> <li>• Land Take</li> </ul>	<p>The proposed development is partially located within the River Finn SAC and River Foyle and Tributaries SAC. Therefore, there is the potential for land-take to these European Sites.</p>
<ul style="list-style-type: none"> <li>• Distance from European Sites or Key Features of the Site</li> </ul>	<p>The proposed development site is partially located within two European Sites; River Finn SAC and River Foyle and Tributaries SAC. Potential impacts include land-take and</p>



Screening Assessment Criteria Screening Questions	Impacts
	disturbance to in-situ and nearby habitats and species of Qualifying Interest.
<ul style="list-style-type: none"> <li>• Resource Requirements</li> </ul>	The proposed development site will require use of standard construction methods. Given the location of the proposed development site, which is partially located within the footprint of two European Sites, the use of these materials has the potential to contribute to significant negative effects to these European Sites in the absence of best practice construction measures of targeted mitigation.
<ul style="list-style-type: none"> <li>• Emissions</li> </ul>	Depending on the time of construction, there may be dust and / or waterborne emissions as a result of the proposed construction works and associated excavation works. The project's operational phase may also contribute surface water run-off from built surfaces to the receiving environment and the in-situ / adjacent European Sites in the absence of best practice construction measures of targeted mitigation.
<ul style="list-style-type: none"> <li>• Excavation Requirements</li> </ul>	Excavations (such as topsoil regrading, foundation and drainage works, floodbank regrading and widening, site remediation (contaminated land) and topsoil and subsoil storage) will be required during the project's construction phase. There will be no excavation requirements during the project's operational phase. Potential impacts as a result of excavations include run-off to the receiving environment and the in-situ / adjacent European Sites.
<ul style="list-style-type: none"> <li>• Transport Requirements</li> </ul>	Transport requirements as part of the proposed development will utilise the existing road and access track network. Transport of construction materials will be ad-hoc, intermittent and restricted to working hours during the project's construction phase. Given the location of the proposed works partially within and adjoining two European Sites, it is possible that transport requirements could present disturbance effects to habitats and species within the project Zone of Influence in the absence of best practice construction measures of targeted mitigation.
<ul style="list-style-type: none"> <li>• Duration of construction, operation and decommissioning</li> </ul>	Duration of construction will be short term; i.e. 9-12 months. The project's operational phase will be medium to long term; i.e. > 25 years.
<ul style="list-style-type: none"> <li>• Cumulative impact with other plans and projects in the area</li> </ul>	As part of the Appropriate Assessment, in addition to the proposed development, other relevant projects and plans in the area must also be considered at this stage. These plans and projects are considered further in this respect in <b>Table 5-3</b> below.



Table 5-3: In-combination Effects associated with the proposed development

Programmes, Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Potential for In-combination Effects
<p><b>Donegal County Development Plan 2018-2024</b></p>	<p><b>NH-P-1:</b> It is a policy of the Council to ensure that development proposals do not damage or destroy any sites of international or national importance, designated for their wildlife/habitat significance in accordance with European and National legislation including: SACs, Special SPAs, NHAs, Ramsar Sites and Statutory Nature Reserves.</p> <p><b>NH-P-2:</b> It is the policy of the Council to protect the habitats of species listed for protection through the prevention and management of the spread of invasive plant and animal species in the County in accordance with European and National legislation.</p> <p><b>NH-P-4:</b> It is a policy of the Council to require the consideration of Freshwater Pearl Mussel and any relevant Freshwater Pearl Mussel Sub-basin Plans in all development proposals that fall within their basin of catchment.</p> <p><b>NH-P-5:</b> It is a policy of the Council to require consideration of the impact of potential development on habitats of natural value that are key features of the County’s ecological network and to incorporate appropriate mitigating biodiversity measures into development proposals.</p> <p><b>NH-P-18:</b> It is the policy of the Council to ensure that an ecological assessment (including where necessary EIA) is carried out at the appropriate level in relation to proposals for drainage or reclamation of wetlands.</p>	<p>A number of strategies, policies and objectives are set out in the <b>Donegal County Development Plan 2018-2024</b> with the aim of protection of the counties natural heritage and biodiversity.</p> <p>A number of policies and objectives provide for the protection of the integrity of sites designated under European and National legislation and ecological works. In particular and with reference to European Sites and Appropriate Assessment Natural Heritage objective (NH-P-1) highlights the council’s policy to ensure that development proposals do not damage or destroy any sites of international or national importance, designated for their wildlife/habitat significance in accordance with European and National legislation including: SACs, Special SPAs, NHAs, Ramsar Sites and Statutory Nature Reserves.</p> <p>The adherence and implementation of this plan within the Development Plan area will ensure that European Sites are protected, and that Appropriate Assessment is undertaken for all plans, projects or programmes that have the potential for significant effects to European Sites.</p>



Programmes, Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Potential for In-combination Effects
<p><b>Derry City &amp; Strabane District Council Local Development Plan (LDP) 2032 – Extracts from Preferred Options Paper (POP)</b></p>	<p><b>Natural and Built Heritage Proposals</b></p> <ul style="list-style-type: none"> <li>- To protect and enhance the natural and built environment to achieve biodiversity, quality design and promote health and well-being;</li> <li>- Protect areas of high scenic value, development pressure, undeveloped coastline and wetlands from inappropriate development.</li> </ul> <p><b>Connectivity and Infrastructure Proposals</b></p> <ul style="list-style-type: none"> <li>- Improve connectivity to existing and new urban soft and hard spaces to achieve enhanced place-making;</li> <li>- To enhance transport linkages across the North West particularly between Derry, Strabane and Donegal.</li> <li>- Promote resilient design for a low carbon District;</li> <li>- Consider all aspects of flood risk and future development;</li> <li>- Support appropriate renewable energy.</li> </ul> <p><b>Open Space, Sport and Recreation Proposals</b></p> <ul style="list-style-type: none"> <li>- Protect and enhance the network of open spaces in the North West;</li> <li>- Enhance the network of pedestrian paths, cycleways and ecological corridors within the District.</li> </ul>	<p>These proposals encourages the protection of natural heritage and the expansion of recreational and amenity resources. Specific and targeted policies and objectives for the consideration and protection of European Sites should also be incorporated into this LDP. Potential for in-combination effects associated with policies and objectives of the LDP, in the absence of adequate policy provision for European Sites.</p>
<p><b>Lifford Local Area Plan 2007-2013</b></p>	<p><b>Natural Heritage</b> <b>NH1</b> The Rivers Finn and Foyle have been identified under a European Union Directive, as candidate Special Area of Conservation (cSAC), i.e. prime wildlife conservation areas. The plan seeks to protect this important conservation area, from inappropriate developments, which would adversely affect wildlife. N.B. These areas are also prone to flooding. (See Appendix II for Site Synopsis).</p>	<p>The adherence and implementation of this plan (and the further development of these policies in subsequent planning applications) within the Development Plan area will ensure that European Sites are protected, and that Appropriate Assessment is undertaken for all plans, projects or programmes that have the potential for significant effects to European Sites.</p>



Programmes, Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Potential for In-combination Effects
	<p><b>Community Recreation and Education Policies</b></p> <p><b>CRE5</b></p> <ul style="list-style-type: none"> <li>- Facilitate the development of formal new public open spaces, including the development of a town park with interconnecting pedestrian linkages on all reserved amenity lands, Sites MR1 and 3.</li> </ul> <p><b>CRE6</b></p> <ul style="list-style-type: none"> <li>- Require that a minimum of 15% of the total site area remain as quality public open space. The public space should be a formal landscaped area, centrally located within the development, as opposed to incidental and poorly maintained and unplanted grass verges, which although in themselves are important to soften the built environment, have little or no recreational value.</li> </ul> <p><b>CRE7</b></p> <ul style="list-style-type: none"> <li>- Require that all areas of open space shall be clearly defined, incorporating specific functions, well overlooked and highly accessible.</li> </ul> <p><b>CRE8</b></p> <ul style="list-style-type: none"> <li>- Provide for the provision of interconnecting amenity walkways throughout developments, and along the former railway embankment as identified on the land-use zoning map.</li> </ul> <p><b>CRE9</b></p> <ul style="list-style-type: none"> <li>- Facilitate the development of a formal recreation area/play facilities within community lands.</li> </ul> <p><b>CRE10</b></p> <ul style="list-style-type: none"> <li>- Facilitate and enhance the development of existing and proposed sporting/recreational and ancillary infrastructure.</li> </ul>	



Programmes, Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Potential for In-combination Effects
<p><b>River Basin Management Plan for Ireland 2018 – 2021</b></p>	<p>Public Consultation on the River Basin Management Plan (RBMP) for Ireland (2018 – 2021), began in February 2017, and the final plan was published on 17<sup>th</sup> April 2018. The document (Chapter 4) sets out the condition of Irish waters and a summary of status for all monitored waters in the 2013 – 2015 period, including a description of the changes since 2007 – 2009. Nationally, both monitored river water bodies and lakes at high or good ecological status, appear to have declined by 3% since 2007 – 2009; nevertheless, this figure does not reflect a significant number of improvements and dis-improvements across these waters since 2009. Provisional figures from the EPA suggest that approximately 900 river water bodies and lakes have either improved or dis-improved. In addition, the previously observed long term trend of decline in the number of high-status river sites has continued.</p> <p>Chapter 5 of the RBMP presents results of the catchment characterisation process, which identifies the significant pressures on each water body that is <i>At Risk</i> of not meeting the environmental objectives of the WFD. Importantly, the assessment includes a review of trends over time to see if conditions were likely to remain stable, improve or deteriorate by 2021. This work was presented in the RBMP for water bodies nationally, which had been characterised. 1,460 water bodies were classed <i>At Risk</i> out of a total of 4,829, or 30%. An assessment of significant environmental pressures found that agriculture was the most significant pressure, accounting for 53% of the water bodies that are <i>At Risk</i>. Urban waste water, hydromorphology and forestry were also significant pressures amongst others.</p>	<p>The implementation of the RBMP seeks compliance with the environmental objectives set under the plan, which will be documented for each water body. This includes compliance with the European Communities (Surface Waters) Regulations S.I. No. 272 of 2009 (as amended). The implementation of the RBMP and achievement or maintenance of environmental objectives which will be set for the receiving water bodies will have a positive impact on water dependent habitats and species within European sites.</p>
	<p>IFI’s Corporate Plan details the Inland Fisheries Ireland’s, Vision, Mission and Values across seven strategic objectives for the period 2021 to 2025. Under each of the seven objectives a series of actions required to achieve the objectives are described, with the intended outcomes outlined. The strategic</p>	<p>The implementation and compliance with key environmental issues and objectives of this corporate plan will result in positive in-combination effects to European sites. The</p>



Programmes, Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Potential for In-combination Effects
<p><b>Inland Fisheries Ireland Corporate Plan 2021 -2025</b></p>	<p>objectives outline where Inland Fisheries Ireland will focus their efforts between 2021 and 2025.</p> <p>Inland Fisheries Ireland will secure stakeholder feedback on the implementation of the Strategy mid-2023.</p>	<p>implementation of this corporate plan will have a positive impact for biodiversity of inland fisheries and ecosystems. It will not contribute to in-combination or cumulative negative impacts with the proposed development.</p>
<p><b>Proposed National Road Scheme Developments</b></p>	<ul style="list-style-type: none"> <li>• N15 Letterkenny to Lifford</li> <li>• A5 Western Transport Corridor</li> </ul>	<p>Potential for in-combination effects given the scale and proximity of these road schemes.</p>
<p><b>Unauthorised Sand &amp; Gravel Extraction at Islandmore and River Foyle West bank, immediately north of the proposed development site boundary</b></p>	<p>Gravel extraction within the River Foyle and its riparian area downstream of the proposed development site potentially contributing baseline water quality and river hydromorphology impacts to the River Finn and its associated aquatic receptors.</p>	<p>Potential for in combination effects to the downstream areas of the River Finn SAC.</p>
<p><b>Lifford Wastewater Treatment Plant (WwTP)</b></p>	<p>The Lifford Waster Water Treatment Plant (WwTP) is located on the western bank of the river, west/ south-west of the proposed development site. The existing wastewater treatment plant at Lifford currently provides primary treatment and is operating over capacity. Works are currently ongoing to construct a new WwTP to cater for an increased population capacity and cater up to a 3,000 population equivalent. As part of the upgrade works, a new wastewater treatment plant will be constructed on the existing site, providing</p>	<p>The WwTP may currently contribute baseline water quality impacts to the receiving areas of the River Foyle immediately downstream of the WwTP discharge point. The proposed upgrade works will provide greater treatment of wastewater generated and consequently may reduce baseline water quality impacts to the receiving areas of the River Foyle.</p>



Programmes, Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the Natura 2000 Network	Potential for In-combination Effects
	secondary treatment. The works also include the upgrading of pumps and sewer network at Sally Gardens pumping station.	
<b>Strabane Wastewater Treatment Plant</b>	Strabane WwTP is located to the north-western edge of Strabane, adjacent to the Foyle River. The works was originally constructed in the late 1970s and since then has undergone a number of upgrades. The last major upgrade in 2004 was to serve a design population equivalent (PE) of 38,000, with treated effluent being discharged to the Foyle River via a 900mm diameter outfall pipe. It is estimated that the existing works serves a PE of approximately 25,000, which represents significant biological underloading of the plant in comparison to its original design capacity <sup>8</sup> .	Strabane WwTP is functioning within its design capacity and has a good compliance history against discharge consent limits with no exceedances on record. To that end, it is considered that the WwTP has sufficient capacity to treat wastewater generated within the Strabane area before discharge to the River Foyle.
<b>Local Planning Applications</b>	A search of Donegal County Council's and online planning enquiry database <sup>9</sup> and Northern Ireland's Planning Portal <sup>10</sup> was undertaken to identify other projects and plans consented within the past five years that are proximal or within the proposed development area. A small number of applications for commercial building, dwellings, dwelling extensions, water infrastructure, playing pitches have been granted planning permission in the past five years.	Adherence to the policies and objectives of the Donegal County Development Plan and the Derry and Strabane District Council Local Area Plan will ensure that local planning applications and subsequent grant of planning comply with the core strategy of proper planning and sustainability and with the requirements of relevant EU Directives and environmental considerations, there is no potential for adverse in-combination effects on European Sites.

<sup>8</sup> [https://waterprojectsonline.com/custom\\_case\\_study/strabane-wwtw-2021/](https://waterprojectsonline.com/custom_case_study/strabane-wwtw-2021/)

<sup>9</sup> <http://donegal.maps.arcgis.com/apps/webappviewer/index.html?id=8be91e332a8f47bfbbe83add1550c666>

<sup>10</sup> <https://planningportalni.com/map>



**5.1.1 Conclusion of Cumulative Impact Assessment**

Provided adherence to the overarching policies and objectives of the plans and programmes and best practice and mitigation measures are implemented for individual projects, there is no potential for the mentioned plans and projects to have a cumulative impact to European sites, in combination with the proposed development.

Screening Assessment Criteria is further assessed in **Table 5-4** below.

**Table 5-4: Screening Assessment Criteria**

Screening Assessment Criteria	
Screening Questions	
Describe any likely changes to the site arising as a result of the following	
Reduction of Habitat	As the proposed works are partially located within the River Finn SAC and River Foyle and Tributaries SAC, they may contribute to reduction of habitat within the SAC. The proposed works may also contribute towards indirect effects to the in-situ and adjacent SACs in the form of run-off of construction phase pollutants and the spread of in-situ invasive species in the absence of best practice construction measures of targeted mitigation.
Disturbance to Key Species	<p>As the proposed works are partially located within the River Finn SAC and River Foyle and Tributaries SAC, they may contribute disturbance effects to species associated with the SAC; in particular volant / mobile species such as Otter in the absence of best practice construction measures of targeted mitigation.</p> <p>In addition, the proposed works have the potential to effect downstream or remotely connected European Sites, such as Lough Foyle SPA. The proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study area during site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA and Lough Swilly SPA.</p> <p>Other European Sites, for which Grey Seal (sites within 135km) and Harbour Seal (sites within 50km) are features of Qualifying Interest may</p>



Screening Assessment Criteria Screening Questions	
	also experience disturbance effects. To this end, The Maidens SAC is located 108km east of the site and is designated for Grey Seal, while Donegal (Murvagh) Bay SAC is located 46km west/south-west and is designated for Harbour Seal. Indirect ex-situ disturbance effects may be realised to these species during the project construction phase should they use the River Finn waterbody for foraging / feeding purposes.
Habitat or Species Fragmentation	As the proposed works are partially located within the River Finn SAC and River Foyle and Tributaries SAC, they may contribute to habitat or species fragmentation to these European Sites in the absence of best practice construction measures of targeted mitigation.
Reduction in Species Diversity	As the proposed works are partially located within the River Finn SAC and River Foyle and Tributaries SAC, they may contribute to a reduction in species diversity within these European Sites in the absence of best practice construction measures of targeted mitigation.
Changes in Key Indicators of Conservation Value	Potential changes in key indicators of Conservation Value may include ongoing disturbance (in-situ SAC and ex-situ SAC) of mobile QI and SCI species, the spread of invasive species or a deterioration in water quality of the receiving watercourse; i.e. the River Finn in the absence of best practice construction measures of targeted mitigation.
Climate Change	The proposed development will not result in significant negative effects contributing to climate change that could in turn affect the conservation objectives of those European Sites within the project ZoI; River Finn SAC and River Foyle and Tributaries SAC.
Describe any likely impacts on the European Sites as a whole in terms of Interference with key relationships that define the structure and function of the site;	Potential impacts that may impact European Sites structure and function; may include habitat loss under the project footprint, disturbance of mobile species of Qualifying Interest within the project Zone of Influence and indirect effects such as run-off of construction phase pollutants to the nearby and adjoining parts of the River Finn SAC and River Foyle and Tributaries SAC (and by extension downstream European Sites such as Lough Foyle SPA) in the absence of best practice construction measures of targeted



Screening Assessment Criteria Screening Questions	
	mitigation. The works are also located within a Flood Risk area and construction works may be susceptible to washout or inundation following flood events of the adjoining watercourse.
Provide Indicators of Significance as a result of the identification of effects set out above in terms of;	
Loss	<p>As the proposed works are partially located within and adjoin two European Sites, there is the potential for loss, fragmentation, disruption and disturbance of habitats and species of Qualifying Interest associated with these sites in the absence of best practice construction measures of targeted mitigation.</p> <p>In addition, the proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study area during site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA and Lough Swilly SPA.</p> <p>As the proposed works are partially located within the River Finn SAC and River Foyle and Tributaries SAC, they may contribute disturbance effects to species associated with the SAC; in particular volant / mobile species such as Otter in the absence of best practice construction measures of targeted mitigation.</p> <p>In addition, the proposed works have the potential to effect downstream or remotely connected European Sites, such as Lough Foyle SPA. The proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study area during site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA and Lough Swilly SPA.</p>
Fragmentation	
Disruption	
Disturbance	



Screening Assessment Criteria Screening Questions	
	<p>Other European Sites, for which Grey Seal (sites within 135km) and Harbour Seal (sites within 50km) are features of Qualifying Interest may also experience disturbance effects. To this end, The Maidens SAC is located 108km east of the site and is designated for Grey Seal, while Donegal (Murvagh) Bay SAC is located 46km west/south-west and is designated for Harbour Seal. Indirect ex-situ disturbance effects may be realised to these species during the project construction phase should they use the River Finn waterbody for foraging / feeding purposes.</p>
Changes to Key Elements of the Site	<p>Potential impacts that may change key elements of European Sites within the project Zone of Influence include habitat loss under the project footprint, disturbance of mobile species of Qualifying Interest within the project Zone of Influence and indirect effects such as run-off of construction phase pollutants to the nearby and adjoining parts of the River Finn SAC and River Foyle and Tributaries SAC. The proposed works may also contribute towards indirect effects to the in-situ and adjacent SACs in the form of run-off of construction phase pollutants and the spread of in-situ invasive species in the absence of best practice construction measures of targeted mitigation. Finally, the proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study area during site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with SPAs within the project zone of influence; i.e. Lough Foyle SPA and Lough Swilly SPA.</p> <p>In addition, the proposed works have the potential to effect downstream or remotely connected European Sites, such as Lough Foyle SPA. Other European Sites, for which Grey Seal (sites within 135km) and Harbour Seal (sites within 50km) are features of Qualifying Interest may also experience disturbance effects. To this end, The Maidens SAC is located 108km east of</p>



Screening Assessment Criteria	
Screening Questions	
	the site and is designated for Grey Seal, while Donegal Bay (Murvagh) Bay SAC is located 46km west/south-west and is designated for Harbour Seal. Indirect ex-situ disturbance effects may be realised to these species during the project construction phase should they use the River Finn waterbody for foraging / feeding purposes.
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts are not known	The scale or magnitude of impacts associated with this project require further consideration. Works within, adjacent to and within proximity to European Sites need to be completed in accordance with best practice construction measures and, as necessary, site-specific mitigation measures.



## 6 Screening for AA Conclusion

This screening for AA identifies and assesses potential significant effects which are likely to occur as a result of the proposed Riverine Community Park. The screening identified eight European sites within 15km of the proposed development. Following screening, it can reasonably be concluded that there is no likelihood of significant effects on the following European sites as a result of the proposed development, either alone or in-combination:

- Moneygal Bog SAC (Site Code: UK0030211); and
- Owenkillew River SAC (Site Code: UK0030233).

For the avoidance of doubt, these European Sites are screened out for further appraisal.

The proposed development is partially located within two European Sites; River Finn SAC and River Foyle and Tributaries SAC. Therefore, there is the potential for direct and indirect effects to these European Sites, in the absence of best practice design, best practice construction and / or mitigation measures being implemented.

In addition, the proposed development supports remote and tenuous connectivity with Lough Foyle SPA which is located more than 32km downstream of the proposed development site. The distance between the proposed development site and the dilutional capacity of the watercourses, waterbodies and the large transitional waterbody of Lough Foyle are likely to remove the potential any of significant effects, direct or indirect to the SCI species of Lough Foyle SPA as a result of water borne pollutants. Due to this remote and tenuous connectivity, the potential effects associated with the proposed development and need for best practice measures and mitigation measures should be considered further. In addition, the proposed development area and surrounding improved pastoral lands provide suitable feeding habitat for Whooper Swan. Whooper Swan have been identified flying over the study area during site walkover surveys. The presence and usage of the study area and environs by Whooper Swan could contribute ex-situ disturbance impacts to Whooper Swan associated with Lough Foyle SPA.

Furthermore, the proposed development site is located 16.6km south-east of Lough Swilly SPA (004075). There is no hydrological connectivity between the proposed development site and this European Site. With the exception of Greylag Goose, the proposed development site is located outside of the core foraging range for the SCI species for which this European Site has been designated. However correspondence from the Development Applications Unit of the Department of Local Housing, Government and Heritage noted that Whooper Swan and geese species, SCI species for Lough Swilly SPA utilises the River Finn corridor as a 'refuge, commuting corridor and navigational route'. Whooper Swan roosting grounds have also been identified by the DAU to the south of the development site. These Whooper Swan flocks may be linked to European sites for which Whooper Swan is a SCI species; Lough Swilly SPA. To that end, this European Site is screened in for consideration and assessment.

Finally, consultation with NIEA advised that European Sites, for which Grey Seal (sites within 135km) and Harbour Seal (sites within 50km) are features of Qualifying Interest should also be considered for likely significant effects. To this end, The Maidens SAC is located 108km east of the site and is designated for Grey Seal, while Donegal Bay (Murvagh) Bay SAC is located 46km west/south-west and is designated for Harbour Seal. Indirect ex-situ disturbance effects may be realised to these species



during the project construction phase should they use the River Finn waterbody for foraging / feeding purposes.

The following European Sites have been screened in for further assessment:

- River Finn SAC (002301);
- River Foyle and Tributaries SAC (UK0030320);
- Lough Foyle SPA (UK9020031);
- Lough Foyle SPA (004087);
- Lough Swilly SPA (004075);
- The Maidens SAC (UK0030384); and
- Donegal Bay (Murvagh) SAC (000133).

Given the risk of impact and associated significant negative effects, best practice construction measures and mitigation measures may be required. **Therefore, the project must be considered under Stage 2 of the Appropriate Assessment process.**



## **APPENDIX A – CONCEPT DESIGN**



**NOTES**

1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.

**LEGEND**

- Site Boundary  
Irish Grid (IGR)  
X=234094 Y=398567  
Area=78026m<sup>2</sup> (7.8026hA)
- Adjoining Proposals under ROI Jurisdiction
- Adjoining Land Ownership

Based upon Land and Property Services data with the permission of the controller of Her Majesty's Stationary Office, © Crown copyright and database rights (CS&LA 581)  
Ordnance Survey Ireland mapping data used with permission: in association with Donegal County Council - OS License 2003/07/CCMA/Donegal County Council. Copyright Ordnance Survey Ireland, Government of Ireland.

P02	15.12.21	Updated Strabane new car park layout & SNGW route	KOS
Rev	Issue Date	Description	App

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Northern Ireland - Ireland  
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Client

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 Donegal County Council

Derry City & Strabane District Council  
 Comhairle Chathair Dhóire & Cheantar an tSráidh Balaí  
 Derry City & Strabane District Council

Project Status **STAGE 3 - PLANNING**

Project **RIVERINE COMMUNITY PARK**

Drawing **OUTLINE REVISED STRABANE MASTERPLAN**

Scale **1:2000 @ A1**

Drawn PC	Checked DSA	Approved KOS
Date 24.11.21	Date 24.11.21	Date 24.11.21

Project RVCP	Organisation - MCA	Zone - Z3	Level - XX	Type - DR	Role - CE	Number - 2110	Revision P02
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Project Number <b>E2256</b>	Status code & Description <b>S2 For Information</b>
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All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

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## Appendix 8-2

### Natura Impact Statement



**APPENDIX 8-2**

**Natura Impact Statement  
Assessment Stage 2**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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Figure 2: Existing Google Aerial

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## 1.0 INTRODUCTION

**This NIS has been based on the construction specifics provided in this section, along with consideration of the wider development drawings, development proposals, the EIAr and the EIAr Addendum.**

In March 2021 MCL Consulting Ltd were appointed by McAdam Design on behalf of their client to undertake a shadow Habitat Regulations Assessments (sHRA) stage 2 for the proposed development of the new Riverine Community Park. This report looks at the potential of the development to negatively impact on Natura 2000 sites. Certain contents within this stage 2 assessment fall under the stage 3 contents due to the inclusion of proposed mitigation suggested following species-specific surveys.

Article 6 (3&4) of the Habitats Directive states that a HRA must be undertaken for all implicated plans and projects to determine and assess the nature and significance of all impacts which may arise on the integrity of the Natura 2000 network of sites.

### 1.1 Site Description

The development location exits across the Northern Ireland and Republic of Ireland border. The red line boundary extends across the River Foyle encompassing lands on both the Lifford (ROI) and Strabane (NI) sides.

The **Lifford** site is situated to lands to the west of Station Road in the Town of Lifford, County Donegal, (IGR 233882, 398765). The Lifford area comprises of semi-improved grassland, improved grassland, hedgerows, treelines, and mixed wooded areas. The improved grassland areas are mainly composed of playing pitches and greyhound racing fields. Further west/south-west lies Lifford town: a heavily urbanised area.

The **Strabane** site is situated at Barnhill Road, in the north western area of Strabane, County Tyrone, BT82 0AN (IGR 234119, 398597). Old railway lines ran through the site but are no longer visible/present, embankments are still present. This site includes Wet willow alder ash woodland, artificial ponds, hedgerows, treelines, agricultural fields and reed and large sedge swamps. To the east of the site exists pasture fields with field drains and hedgerows, further southeast lies Strabane Town.



**Figure 1: Site location**



**Figure 2: Existing Google Aerial**

## 1.2 Proposed Development

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events.

- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
- Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
- River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane.
- Family Space incorporating unique play experience, designed to support children focused events & related programming.
- Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

## 2.0 APPROPRIATE ASSESSMENT OVERVIEW

This report describes the scope of the shadow Appropriate Assessment (sAA) and, based on the development proposals, the report identifies all relevant designations within a 15km radius of the proposed site.

The AA is carried out by the decision maker as the competent authority under the Habitats Regulations. The developer is required to submit enough scientific evidence to enable the authority to complete the AA and this evidence is submitted in the form of a 'report to inform' or 'shadow' AA.

Habitats Directive Article 6 assessments are required under the Habitats Directive (92/43/EEC) where a plan or project may give rise to significant effects upon a Natura 2000 site (N2K). Natura 2000 sites are those identified as sites of community importance designated under the Habitats Directive (Special Areas of Conservation, hereafter referred to as SACs) or the Birds Directive (Special Protection Areas, hereafter referred to as SPAs).

For the purpose of this assessment, Ramsar sites are also included as Northern Ireland policy affords them the same protection as Natura 2000 sites. It should also be noted that the phrase 'Appropriate Assessment' is sometimes used more loosely to refer to the whole

process set out under Articles 6(3) and 6(4) of the Habitats Directive (Dodd et al., 2008). For the purposes of this assessment, the term ‘Appropriate Assessment’ or the term AA (“Appropriate Assessment”) will be used.

Article 6 of the Habitats Directive sets out provisions which govern the conservation and management of Natura 2000 sites. Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1).

Article 6(3) establishes the requirement for Appropriate Assessment:

*“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives.*

*In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public”.*

A Habitats Assessment has a narrow focus i.e. the maintenance of the integrity for any given N2K site, and the assessment of the significance of the effects on the designated interest features (qualifying features) along with the conservation objectives of the site. It is a protection led assessment and should be carried out by adopting the precautionary principle.

The assessment of ecological impacts on Natura 2000 sites is conducted utilising a standard source-receptor-pathway model where, for an impact to be established all three elements of this mechanism must be accounted for. The absence or removal of one of the elements is adequate to conclude that any potential impact is insignificant and/or not relevant to the assessment. A hazard does not automatically lead to a harmful outcome, but identification of a hazard does mean that there is a possibility of harm occurring, with the actual harm depending upon the exposure to the hazard and the characteristics of the receptor, the source-receptor-pathway model is applied.

## 2.1 Appropriate Assessment

Article 6 (3) of the Habitats Directive sets out the first step in the decision-making process for Appropriate Assessment. This article assesses;

- whether the plan or project is connected with the conservation management of the N2K site; and
- whether the plan or project, either alone or in combination with other plans or projects, is likely to have an impact on the conservation value of the N2K site.

If the plan or project is considered to have a potential impact on the N2K site, then it must go through an appropriate assessment, which will consider the potential implications for the N2K site in view of the site's conservation objectives.

Considering the conclusions of the appropriate assessment for the site, the competent authority shall agree to the plan or project only after ascertaining that it will not adversely affect the integrity of the site concerned.

When assessing the potential impacts of the plan or project, the precautionary principle is followed – if it is not possible to rule out a risk of harm on the evidence available, then it must be assumed that the risk still exists and needs to be dealt with through the assessment process. This could be through changes to the plan, through options avoidance or through mitigation.

There may be cases where the assessment indicates a potential impact which cannot be avoided, designed out or mitigated. In such cases, an assessment must be made as to whether there are imperative reasons for overriding public interest (IROPI), which would allow the plan or programme to go ahead. This is covered in Article 6 (4) of the Habitats Directive – only where there is a positive assessment of IROPI, can the plan/programme progress.

The following information outlines the dominant potential pathways, along with potential impacts that can affect local Natura 2000 designated sites.

- Disturbance: Physical, noise, lighting, invasive species etc.

- Noise during construction and operational activities could have adverse impacts on sensitive species.
  - Increased human activity close to sensitive habitats and species may cause disturbance that could impact negatively on these features and lead to displacement of sensitive species from certain locations.
  - The spread of invasive species may have acute or chronic impacts on sensitive species.
- Alterations to the hydrological cycle including water borne pollutants
    - Chemical contaminants such as transport fuels, clean and waste reaching aquatic environment during construction and operation of development.
    - Surface runoff from surfaces or release from construction works and operational activities can increase nutrient composition of wastewater thereby affecting aquatic systems.
- Aerial pollution
    - Emission of gases.
    - Production of dust.
- Land contamination
    - Waste arising/spilling of chemicals through development/maintenance could cause contamination of land which could cause harmful impacts directly or indirectly on habitats or species.
    -

## 2.2 Identified sites for stage 2 AA

European sites, also referred to as Natura 2000 (N2K) sites, consist of the following:

- **Special Areas of Conservation (SACs)** – sites designated for flora, fauna and habitats of Community interest under the EU Habitats Directive.
- **Special Protection Areas (SPAs)** – sites designated for rare, vulnerable or migratory birds under the EU Birds Directive.

- Further screening took place to include sites hydrologically linked to those directly impacted by the proposed scheme.
- Further screening took place upon consultation with NIEA to include sites listed as having harbour and grey seals as features up to 180km from proposed site location.

Within Ireland, it is government policy to extend the requirements for potential impacts on sites, to those sites which are yet to be fully declared as N2K sites, namely candidate SACs and potential SPAs. This consideration of impact also covers any proposed additions or extensions to the existing N2K sites.

As this site is a cross border proposal, NI policy also affords Ramsar sites the same protection as N2K sites, which are wetland sites of global importance, listed under the Convention on Wetlands of International Importance. Whilst most Ramsar sites overlap with N2K sites, some have distinct boundary differences. In line with government policy, this sAA will treat Ramsar sites in the same way that it considers N2K sites. In terms of the requirement for assessment; it is also normal practice to assess the additional features of underlying ASSI designations.

For the purposes of this assessment, N2K will be used to cover all the above sites listed under European designated sites.

## 2.3 Identified Designations

The results for all identified designations are presented and are summarised in Table 1 below. In addition, a descriptive summary for each site has been paraphrased from the NIEA and NPWS designated sites websites.

**Table 1: Designations within 15km**

Designation	Name	Distance	Summary of Features	Site zone of influence
SAC	River Finn	Within, on the Lifford side.	<ul style="list-style-type: none"> <li>- Atlantic Salmon <i>Salmo salar</i></li> <li>- Otter <i>Lutra lutra</i></li> <li>- Oligotrophic wates containing very few minerals of sandy plains <i>Littorelletailia uniflorae</i></li> <li>- Northern Atlantic wet heath with <i>Erica tetralix</i></li> <li>- Blanket bogs</li> <li>- Transition mires and quaking bogs</li> </ul>	Designation overlaps with site's redline boundary.
SAC	River Foyle and Tributaries	Within, on the Strabane side.	<ul style="list-style-type: none"> <li>- Atlantic Salmon</li> <li>- Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitricho-Batrachion</i> vegetation</li> <li>- Otter</li> </ul>	Designation overlaps with site's redline boundary.

**Table 2: Additional Designations Screened**

Designation	Name	Distance	Summary of Features	Site zone of influence
RAMSAR, SPA & ASSI	Lough Foyle	25.7km	<ul style="list-style-type: none"> <li>- Wetland complex including intertidal sand and mudflats with extensive seagrass beds, saltmarsh, estuaries and associated brackish ditches</li> <li>- A wetland, which plays a substantial hydrological, biological and ecological system role in the natural functioning of a major river basin which is located in a trans-border position.</li> <li>- Notable fish species: Allis Shad <i>Alosa alosam</i>, Twaite Shad <i>A. fallax fallax</i>, Smelt <i>Osmerus eperlanus</i> and Sea Lamprey <i>Petromyzon marinus</i> and Atlantic salmon</li> <li>- Internationally important populations of water fowl</li> </ul>	No spatial overlap, no direct land-take. Possible hydrological connection, however, due to setback distance and benign nature of development, negligible pathway predicted.
SAC	Donegal Bay (Murvagh) Bay	46km	<p>-The site includes the estuary of the River Eske, which flows through Donegal town, and the estuary of the River Erne which flows through Ballyshannon. Much of the shoreline is rocky or stony, with well-developed littoral reefs in places. There are also extensive stretches of sandy beach, especially from the Murvagh peninsula southwards to Rossowlagh and at the outer part of the Erne estuary. Shingle or cobble beaches are also represented. There are extensive areas of intertidal flats associated with the Eske Estuary, reflecting the very sheltered conditions in this part of the bay. These have been shown to be biotope rich. Elsewhere a narrow fringe of intertidal flats are exposed at low tides. Salt marshes are found in the sheltered</p>	No spatial overlap, no direct land-take. Negligible pathway to affect features due to setback distance.

			<p>conditions of the innermost part of the bay. A number of small, grassy, islands occur in the innermost part of the bay. The shallow bay waters overlie mostly sandy substrates though reefs occur in places.</p> <ul style="list-style-type: none"> <li>-Wetlands</li> <li>-Great Northern Diver</li> <li>-Light-bellied Brent Goose</li> <li>-Common Scooter</li> <li>-Sanderling</li> </ul>	
SAC	The Maidens	107km	<ul style="list-style-type: none"> <li>- Reed</li> <li>- Sandbanks which are slightly covered by sweater all the time</li> <li>- Grey seal</li> <li>- Common Seal</li> <li>- Harbour porpoise</li> </ul>	No spatial overlap, no direct land-take. Negligible pathway to affect features due to setback distance.
SPA	Lough Swilly	16.6km	<ul style="list-style-type: none"> <li>- Great Crested Grebe Podiceps</li> <li>- Grey Heron</li> <li>- Whooper Swan Cygnus</li> <li>- Greylag Goose</li> <li>- Shelduck</li> <li>- Wigeon</li> <li>- Teal</li> <li>- Mallard</li> <li>- Shoveler</li> <li>- Scaup</li> <li>- Goldeneye</li> <li>- Red-breasted Merganser</li> <li>- Coot</li> <li>- Oystercatcher</li> <li>- Knot</li> <li>- Dunlin</li> <li>- Curlew</li> <li>- Redshank</li> <li>- Greenshank</li> <li>- Black-headed Gull</li> <li>- Common Gull</li> <li>- Sandwich Tern</li> <li>- Common Tern</li> <li>- Greenland White-fronted goose</li> <li>- Wetlands &amp; Waterbirds</li> </ul>	No spatial overlap, no direct land-take. Negligible pathway to affect features due to setback distance and lack of hydrological links.

### 3.0 CONSERVATION OBJECTIVES

This section provides the background information of the Natura 2000 sites which have been screened to require assessment and the underlying reasoning behind this.

The Riverine Project involves development works that partially overlap with the **River Finn SAC** and **River Foyle and Tributaries SAC** boundaries. The site is also hydrologically linked to the **Lough Foyle SPA (on both border sides) and RAMSAR**. Therefore, due to these works within the above designations boundaries a screening process has been applied to this

project. Further consultation held between the previous project ecologist and NIEA also highlighted the need for screening regarding sites where harbour and grey seals were an identified feature. Therefore, assessment range was increased to 180km from the proposed site to also include **The Maidens SAC and Donegal Bay SPA**.

### 3.1 Designated Sites

#### **River Finn SAC (002301)**

**Distance:** Within the sites redline boundary

**Descriptive summary:**

This site comprises almost the entire freshwater element of the River Finn and its tributaries the Corlacky, the Reelan sub-catchment, the Sruhamboy, Elatagh, Cummirk and Glashagh, and also includes Lough Finn, where the river rises. The spawning grounds at the headwaters of the Mourne and Derg Rivers, Loughs Derg and Belshade and the tidal stretch of the Foyle north of Lifford to the border are also part of the site. The Finn and Reelan, rising in the Bluestack Mountains, drain a catchment area of 195 square miles. All of the site is in Co. Donegal. The underlying geology is Dalradian Schists and Gneiss for the most part though quartzites and Carboniferous Limestones are present in the vicinity of Castlefinn. The hills around Lough Finn are also on quartzite. The mountains of Owendoo and Cloghervaddy are of granite felsite and other intrusive rocks rich in silica. There are many towns along the river but not within the site, including Lifford, Castlefinn, Stranolar and Ballybofey.

#### **Qualifying features**

**Table 3: Qualifying features of River Finn SAC**

<b>Feature Types</b>	<b>Natura 2000 codes</b>	<b>Count and Season</b>
Habitat	3110	Oligotrophic Water containing very few minerals
Habitat	4010	Wet Heath
Habitat	7130	Blanket Bogs (Active)
Habitat	7140	Transition Mires
Species	1106	Atlantic Salmon <i>Salmo salar</i>
Species	1355	Otter <i>Lutra lutra</i>

As the Proposed Scheme is not located on the main river body of the River Finn habitat features identified for this site are not suspected to be impacted by the proposed Riverine Scheme as the River Finn flows into the River Foyle where the site is located. However, there is potential for impact to Atlantic salmon and otter.

**Table 4: 1106 – Atlantic Salmon – *Salmo salar***

Identified attributes and targets identified by NPWS in order to maintain the favourable conservation of Atlantic salmon in the River Finn

Attribute	Measure	Target	Notes
Distribution: extent of anadromy	Percentage of river accessible	100% of river channels down to second order accessible from estuary	Artificial barriers block salmon's upstream migration, thereby limiting species to lower stretches and restricting access to spawning areas
Adult spawning fish	Number	Conservation limit (CL) for each system consistently exceeded	A conservation limit (CL) is defined by the North Atlantic Salmon Conservation Organisation (NASCO) as "the spawning stock level that produces long term average maximum sustainable yield as derived from the adult to adult stock and recruitment relationship". The target is based on the Standing Scientific Committee on Salmon (SSCS) annual model output of CL attainment levels. See SSCS (2016). Attainment of CL estimates are derived from direct counts of adults (rod catch, fish counter) or indirectly by fry abundance counts
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17	The target is the threshold value for rivers currently exceeding their conservation limit (CL)

		salmon fry/5 minutes sampling	
Out-migrating smolt abundance	Number	No significant decline	Smolt abundance can be negatively affected by a number of impacts such as estuarine pollution, predation and sea lice ( <i>Lepeophtheirus salmonis</i> )
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes	Salmon spawn in clean gravel
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA	Q values based on triennial water quality surveys carried out by the Environmental Protection Agency (EPA)

**Table 5: I355 – Otter – *Lutra lutra***

Identified attributes and targets identified by NPWS in order to maintain the favourable conservation of otters in the River Finn

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 390ha along river banks/lake shoreline/ around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along river banks and around water bodies identified as critical for otters (NPWS, 2007)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 182.2km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of	Hectares	No significant decline.	No field survey. Area

freshwater (lake) habitat		Area mapped and calculated as 354ha	mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk and Moorhouse, 1991; Kruuk, 2006)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006; Reid et al., 2013)
Barriers to connectivity	Number	No significant increase	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed

Further details of the conservation objectives can be found on the NPWS website at:

[https://www.npws.ie/sites/default/files/protected sites/conservation objectives/CO002301.pdf](https://www.npws.ie/sites/default/files/protected%20sites/conservation%20objectives/CO002301.pdf)

### **Lough Foyle (004087) – (ROI side of lough)**

**Distance:** 31.1km northeast of site

#### **Descriptive summary:**

The site comprises a section of the western shore of Lough Foyle from Muff to north of Vances Point in Co. Donegal. The site is part of the larger cross-border Lough Foyle complex which regularly supports in excess of 20,000 wintering waterbirds. The majority of the wintering waterbirds that utilise this site occur along the southern and eastern shoreline of Lough Foyle in Derry, which is also designated as an SPA in Northern Ireland. The site is selected as a Special Protection Area (SPA) under the E.U. Birds Directive, as it is part of an internationally important wetland site that regularly supports in excess of 20,000 wintering

waterbirds. The assemblage of birds that utilise Lough Foyle includes internationally important populations of Whooper Swan (917), Light-bellied Brent Goose (3,765) and Bar-tailed Godwit (2,059), and nationally important populations of a further 20 species: Red-throated Diver (28), Great Crested Grebe (148), Bewick’s Swan (43), Greylag Goose (391), Shelduck (468), Wigeon (9,011), Teal (660), Mallard (1,635), Eider (143), Red-breasted Merganser (82), Oystercatcher (3,101), Golden Plover (4,562), Lapwing (4,024), Knot (499), Dunlin (4,991), Curlew (2,265), Redshank (988), Black-headed Gull (2,212), Common Gull (2,846) and Herring Gull (1,261) – all counts are five year mean peaks for the entire Lough Foyle complex during the period 1995/96 to 1999/2000. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. Lough Foyle SPA is of high ornithological importance as it is part of an internationally important wetland site that regularly supports internationally important populations of Whooper Swan, Light-bellied Brent Goose and Bar-tailed Godwit, and nationally important populations of a further 20 species. Of note is that five of the species which occur regularly, i.e. Red-throated Diver, Bewick’s Swan, Whooper Swan, Golden Plover and Bar-tailed Godwit are listed on Annex I of the E.U. Birds Directive.

### Qualifying features

**Table 6: Qualifying features of Lough Foyle SPA**

Feature Types	Natura 2000 codes	Count and Season
Species	A001	Red-throated Diver
Species	A005	Great Crested Grebe
Species	A037	Bewick's Swan
Species	A038	Whooper Swan
Species	A043	Greylag Goose
Species	A046	Light-bellied Brent Goose
Species	A048	Shelduck
Species	A050	Wigeon
Species	A052	Teal
Species	A053	Mallard

Species	A063	Eider
Species	A069	Red-breasted Merganser
Species	A130	Oystercatcher
Species	A140	Golden Plover
Species	A142	Lapwing
Species	A143	Knot
Species	A149	Dunlin
Species	A157	Bar-tailed Godwit
Species	A160	Curlew
Species	A162	Redshank
Species	A179	Black-headed Gull
Species	A182	Common Gull
Species	A184	Herring Gull
Habitat	A999	Wetland and Waterbirds

Due to the site's set back distance, 31.1km, from Lough Foyle and proposed mitigation for riverine habitats, breeding birds, fish and otters it is not considered there will be any impacts upon the Lough Foyle SPA. Although it is hydrologically linked to the proposed Riverine Scheme impacts are considered to be primarily localised further upstream closer to the proposed site location. As the majority of the conservation objectives for Lough Foyle relate to birds which are not confined by specific habitats or borders it is considered that proposed mitigation will encompass bird species which may travel upstream along the avifauna commuting corridor.

Further details of the conservation objectives can be found on the NPWS website at:

[https://www.npws.ie/sites/default/files/protected\\_sites/conservation\\_objectives/CO002301.pdf](https://www.npws.ie/sites/default/files/protected_sites/conservation_objectives/CO002301.pdf)

### **Donegal Bay (004151)**

**Distance:** 46km west/south-west from site

#### **Descriptive summary:**

Donegal Bay SPA is a very large, marine-dominated, site. It extends from Doorin Point, to the west of Donegal Town, to Tullaghan Point in County Leitrim, a distance of approximately 15 km along its north-east/south-west axis. It varies in width from about 3 km to over 8 km. The site includes the estuary of the River Eske, which

flows through Donegal Town, and the estuary of the River Erne, which flows through Ballyshannon. Much of the shoreline is rocky or stony, with well-developed littoral reefs in places. There are also extensive stretches of sandy beaches, especially from the Murvagh peninsula southwards to Rossnowlagh and at the outer part of the estuary of the River Erne. Shingle or cobble beaches are also represented. There are extensive areas of intertidal flats associated with the estuary of the River Eske, reflecting the very sheltered conditions in this part of the bay. These have been shown to be biotope rich, and supporting a range of macro-invertebrates, including polychaete worms (*Hediste diversicolor*, *Arenicola marina* and *Nephtys hombergii*) and bivalves (*Scrobicularia plana*, *Cerastoderma edule* and *Macoma balthica*). Elsewhere, a narrow fringe of intertidal flats is exposed at low tides. Salt marshes are found in the sheltered conditions of the innermost part of the bay. A number of small, grassy, islands occur in the innermost part of the bay. The waters of the shallow bay overlie mostly sandy substrates, though reefs occur in places.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Northern Diver, Light-bellied Brent Goose, Common Scoter and Sanderling. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

### Qualifying features

**Table 7: Qualifying features of Donegal Bay SPA**

Feature Types	Natura 2000 codes	Count and Season
Species	A003	Great Northern Diver
Species	A046	Light-bellied Brent Goose
Species	A065	Common Scoter
Species	A144	Sanderling
Habitat	A999	Wetland and Waterbirds

Due to the site's set back distance, 46km, from Donegal Bay and proposed mitigation for riverine habitats, breeding birds, fish and otters it is not considered there will be any impacts upon the Donegal Bay SPA. There is no site overlap between the proposed Riverine Scheme and Donegal Bay, it is also not hydrologically linked to the proposed Riverine Scheme separated by constant land mass from the proposed site location. As the majority of the conservation objectives for Donegal Bay relate to birds which are not confined by specific habitats or borders it is considered that proposed mitigation will encompass bird species which may travel upstream along the avifauna commuting corridor.

Further details of the conservation objectives can be found on the NPWS website at: [https://www.npws.ie/sites/default/files/protected\\_sites/conservation\\_objectives/CO002301.pdf](https://www.npws.ie/sites/default/files/protected_sites/conservation_objectives/CO002301.pdf)

### **Lough Foyle (UK9020031) – (NI side of lough)**

**Distance:** Within the sites redline boundary

**Descriptive summary:**

Lough Foyle is situated on the north coast of Northern Ireland immediately downstream and extending to the north-east of the city of Londonderry. The site is comprised of a large shallow sea lough which includes the estuaries of the rivers Foyle, Faughan and Roe. The site contains extensive intertidal areas of mudflats and sandflats, saltmarsh and associated brackish ditches. The Special Protection Area includes the whole of Lough Foyle Area of Special Scientific Interest (ASSI) and the intertidal area of Magilligan ASSI in Lough Foyle extending south of Magilligan Point. The boundary of the Special Protection Area is entirely coincident with that of the Lough Foyle Ramsar site and it overlaps with Magilligan candidate Special Area of Conservation. The site qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting, in winter, internationally important numbers of the following 3 species: Whooper Swan *Cygnus cygnus* (the five year peak mean for the period 1991/92 to 1995/96 was 890, which comprises 5.6% of the international population); Light-bellied Brent Goose *Branta bernicla hrota* (the five year peak mean for the period 1991/92 to 1995/96 was 3730 which comprises 18.7% of the international population} and Bar-tailed Godwit *Limosa lapponica* (the five year peak mean for the period 1991/92 to 1995/96 was 1896 which comprises 1.9% of the international population}.

**Qualifying Feature (s) & Conservation Objectives:**

**Table 8: Qualifying features and Conservation Objectives of the River Foyle and Tributaries SAC**

Feature Types	Feature	Size/extent/population	Conservation Objectives
Species	Bewick's Swan wintering population	78	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Species	Whooper Swan wintering population	890	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of

			<p>the species and To ensure that the following are maintained in the long term: – Population of the species as a viable component of the site – Distribution of the species within site – Distribution and extent of habitats supporting the species – Structure, function and supporting processes of habitats supporting the species</p>
Species	Golden Plover wintering population	4891	<p>To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: – Population of the species as a viable component of the site – Distribution of the species within site – Distribution and extent of habitats supporting the species – Structure, function and supporting processes of habitats supporting the species</p>

Species	Bar-tailed Godwit wintering population	1896	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Species	Light-bellied Brent Goose wintering population	3730	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population

			of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Great Crested Grebe wintering population	220	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Cormorant wintering population	118	To maintain or enhance the population of the qualifying species To maintain or

			<p>enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species</p>
Assemblage species	Greylag Goose wintering population	67	<p>To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species</p>

			within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Shelduck wintering population	287	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Wigeon wintering population	8107	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the

			<p>integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: – Population of the species as a viable component of the site – Distribution of the species within site – Distribution and extent of habitats supporting the species – Structure, function and supporting processes of habitats supporting the species</p>
Assemblage species	Teal wintering population	751	<p>To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: – Population of the species as a viable component of the site – Distribution of the species within site – Distribution and extent of habitats supporting the species – Structure,</p>

			function and supporting processes of habitats supporting the species
Assemblage species	Mallard wintering population	1694	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Eider wintering population	50	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of

			<p>the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species</p>
Assemblage species	Red-breasted Merganser wintering population	73	<p>To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species</p>

Assemblage species	Oystercatcher wintering population	2028	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Lapwing wintering population	3084	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population

			of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Knot wintering population	441	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Dunlin wintering population	5606	To maintain or enhance the population of the qualifying species To maintain or

			<p>enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species</p>
Assemblage species	Curlew wintering population	2038	<p>To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species</p>

			within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Assemblage species	Redshank wintering population	812	To maintain or enhance the population of the qualifying species To maintain or enhance the range of habitats utilised by the qualifying species To ensure that the integrity of the site is maintained; To ensure there is no significant disturbance of the species and To ensure that the following are maintained in the long term: → Population of the species as a viable component of the site → Distribution of the species within site → Distribution and extent of habitats supporting the species → Structure, function and supporting processes of habitats supporting the species
Waterfowl assemblage	Waterfowl Assemblage wintering population a (Component species: Bewick's	37310	Maintain species diversity contributing to the Waterfowl Assemblage

	Swan, Whooper Swan, Golden Plover, Bar tailed Godwit, Light bellied Brent Goose, Great Crested Grebe, Cormorant, Greylag Goose, Shelduck, Wigeon, Teal, Mallard, Eider, Red-breasted Merganser, Oystercatcher, Lapwing, Knot, Dunlin, Curlew, Redshank)		
Habitat	Habitat extent		Maintain or enhance the area of natural and semi-natural habitats used or potentially usable by Feature bird species. (2056.13 ha intertidal area) subject to natural processes
			Maintain the extent of main habitat components subject to natural processes
Habitat	Roost site locations		Maintain or enhance sites utilised as roosts

### **River Foyle & Tributaries (UK0030320)**

**Distance:** 31.1km northeast of site

**Descriptive summary:**

The SAC includes the River Foyle and its tributaries i.e. that part of the River Finn which lies within Northern Ireland, the River Mourne and its tributary the River Strule (up to its confluence with the Owenkillew River) and the River Derg, along with two of its sub-tributaries, the Mourne Beg River and the Glendergan River. In total, the area encompasses 120km of watercourse and is notable for the physical diversity and naturalness of the banks and channels, especially in the upper reaches, and the richness and naturalness of its plant and animal communities. Of particular importance is the population of Atlantic Salmon *Salmo salar*, which is one of the largest in Europe. Research has indicated that each sub-catchment within the system supports genetically distinct populations.

The area is also important as a river habitat. In their upper catchments, the rivers are all fast-flowing spate rivers with dynamic flow regimes characterised by sequences of rapid, riffle and run. Although the banks may have been modified in the past, the channels are natural and composed of large cobble substrate with scattered boulders and sandy marginal deposits, while cobble side and point bars Page 5 of 26 and discrete sand deposits are common features. At the top end of the River Derg and its two tributaries, the aquatic flora reflect the highly acidic character of the water, with mosses and liverworts dominant. Beds of Stream Water Crowfoot *Ranunculus penicillatus* var. *penicillatus* occur where the flow is less dynamic. The River Foyle below Strabane is slow-flowing and is influenced by a tidal regime, rising and falling with the tidal cycle. Aquatic plants in the channel are extremely limited, particularly in the more saline areas; here, fucoids make up the main component. Otter *Lutra lutra* is found throughout the system. A small population of the now rare Freshwater Pearl Mussel *Margaritifera margaritifera* was still present in the Mourne River in the mid-nineties.

**Qualifying Feature (s) & Conservation Objectives:**

**Table 9: Qualifying features and Conservation Objectives of the River Foyle and Tributaries SAC**

Feature Types	Feature	Size/extent/population	Conservation Objectives
Species	Atlantic Salmon <i>Salmo salar</i>	10,001 – 100,00	Maintain and if possible, expand existing population numbers and distribution, and improve age structure of population.
			Maintain and if possible, enhance the extent and quality of suitable Salmon habitat – particularly the chemical and biological quality of the water and the condition of the river channel and substrate.
Species	Otter <i>Lutra lutra</i>	C*	Maintain and if possible, increase population numbers and distribution
			Maintain the extent and quality of suitable Otter habitat, in particular the chemical and biological quality of the water and all associated wetland habitats
Habitat	Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i>	16.44 ha	Maintain and if possible, enhance extent and composition of community.
			Improve water quality.
			Improve channel substrate quality by reducing siltation.
			Maintain and if feasible enhance the river morphology.

### **The Maidens (UK0030384)**

**Distance:** 108km northeast of site

#### **Descriptive summary:**

The Maidens SAC is formed by a group of small rocky reefs off north east Larne. Just two of these are large enough to be considered islands, known as West Maiden with an abandoned lighthouse and East Maiden with a functioning lighthouse. The rare habitats and species communities found at The Maidens are considered to be a consequence of the regional hydrographic conditions. The Maidens SAC is within the North Channel, which connects the Atlantic to the Irish Sea, experiencing currents of up to 4 knots as the currents from the channel grow when they rise over the plateaus. The region is also in close proximity to deep upwelling water, all of which contributes to the habitats and communities which are of particular conservation interest. There a number of deep water reef species supporting unique hydroid and sponge assemblages, only known to occur in the Maidens, Rathlin Island and a few sites in the Sound of Jura. In addition to the reef habitat, there are also sedimentary habitats such as shallow stable sandy gravels and sand with maerl as well as coarse sediment. The Maidens SAC was designated based on the following primary marine features: reef, sandbanks which are slightly covered by seawater, grey seal (*Halichoerus grypus*).

#### **Qualifying Feature (s) & Conservation Objectives:**

**Table 10: Qualifying features and Conservation Objectives of The Maidens SAC**

<b>Feature Types</b>	<b>Feature</b>	<b>Size/extent/population</b>	<b>Conservation Objectives</b>
Habitat	Reef	2550 ha	Maintain and enhance, as appropriate the extent of the reefs  Allow the natural processes which determine Page 10 of 23 the development, structure, function and distribution of the habitats associated with the reefs, to operate appropriately.

			Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.
Habitat	Sandbanks which are slightly covered by sea water all the time	200 ha	Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes.
			Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately.
			Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.
Species	Grey Seal <i>Halichoerus grypus</i>	50 individuals	Maintain (and if feasible enhance) population numbers and distribution of Grey Seal.
			Maintain and enhance, as appropriate, physical features used by Grey Seals within the site.
Species	Common Seal <i>Phoca vitulina</i>	D	No significant decrease in population against national trends, caused by on-site factors

Species	Harbour Porpoise <i>Phocoena phocoena</i>	D	
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### **Lough Swilly SPA (004075)**

**Distance:** 16.6km north-west of site

**Descriptive summary:**

Lough Swilly is a long sea inlet cut through a variety of metamorphic rocks, situated on the west side of the Inishowen Peninsula in north Co. Donegal. The SPA comprises the inner part of Lough Swilly from just east of Letterkenny northwards to Killygarvan (c. 2 km north of Rathmullan) on the west side and to c. 2 km south of Bunrana on the east side; it includes the adjacent Inch Lough. Also forming part of the site is a series of improved pasture and arable fields on the south side of Lough Swilly between Farsetmore and Inch Levels - these are of importance to geese and swans. It includes sections of the estuaries of the River Swilly, the River Leannan and the Isle Burn and the predominant habitat is a series of extensive sand and mud flats which are exposed at low tide.

Lough Swilly is a fine example of a large, natural sea inlet which is estuarine in character. The site supports an excellent diversity of wintering waterfowl for which it is the most important site in the north-west. It is of international importance because total numbers easily exceed 20,000 birds but it also has internationally important populations of *Cygnus cygnus*, *Anser anser* and *Anser albifrons flavirostris*. The *Anser anser* population represents over 27% of the All-Ireland total, whilst the flock of *Anser albifrons flavirostris* is the largest in the country outside of the Wexford Slobs. In addition, there are at least 18 species which occur in numbers of national importance. Of particular note are the populations of *Tadorna tadorna* (5.3% of the All - Ireland total), *Calidris alpina* (6.1% of total) and *Tringa totanus* (4.8% of total). The site also supports regionally important numbers of *Pluvialis apricaria* and *Limosa lapponica*. The wintering birds of Lough Swilly have been well-monitored since the early 1980s

## Qualifying features

**Table 11: Qualifying features of Lough Swilly SPA**

Feature Types	Natura 2000 codes	Count and Season
Species	Great Crested Grebe <i>Podiceps cristatus</i>	Wintering
Species	Grey Heron <i>Ardea cinerea</i>	Wintering
Species	Whooper Swan <i>Cygnus cygnus</i>	Wintering
Species	Greylag Goose <i>Anser anser</i>	Wintering
Species	Shelduck <i>Tadorna tadorna</i>	Wintering
Species	Wigeon <i>Anas penelope</i>	Wintering
Species	Teal <i>Anas crecca</i>	Wintering
Species	Mallard <i>Anas platyrhynchos</i>	Wintering
Species	Shoveler <i>Anas clypeata</i>	Wintering
Species	Scaup <i>Aythya marila</i>	Wintering
Species	Goldeneye <i>Bucephala clangula</i>	Wintering
Species	Red-breasted Merganser <i>Mergus serrator</i>	Wintering
Species	Coot <i>Fulica atra</i>	Wintering
Species	Oystercatcher <i>Haematopus ostralegus</i>	Wintering
Species	Knot <i>Calidris canutus</i>	Wintering
Species	Dunlin <i>Calidris alpina</i>	Wintering
Species	Curlew <i>Numenius arquata</i>	Wintering
Species	Redshank <i>Tringa totanus</i>	Wintering
Species	Greenshank <i>Tringa nebularia</i>	Wintering
Species	Black-headed Gull <i>Chroicocephalus ridibundus</i>	Breeding
Species	Common Gull <i>Larus canus</i>	Wintering
Species	Sandwich Tern <i>Sterna sandvicensis</i>	Breeding
Species	Common Tern <i>Sterna hirundo</i>	Breeding
Species	Greenland White-fronted goose <i>Anser albifrons flavirostris</i>	Wintering
Habitat	Wetlands & Waterbirds	

## 3.2 NBN Atlas

A search of the NBN returned no species recorded within the proposed developments boundary.

## 3.3 Impact Predictions

The purpose of designating and managing Natura 2000 sites is to maintain at, or restore to 'favourable conservation status' the habitats and species listed within the Directives for which the sites are notified; individual conservation objectives encapsulate an overall aim of maintaining or achieving favourable conservation status for each feature and maintaining the integrity of the site as a whole.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Article 6(3) of the Habitats Directive requires that prior assessment is conducted regarding the established conservation objectives for each designated site. A general conservation objective encapsulating an overall aim of maintaining 'favourable conservation status' has been applied in relation to each Natura 2000 site and in relation to each site feature for the purposes of initial analysis.

## 3.4 Potential impacts

### ***Disturbance of Qualifying Features – Construction***

This report is looking at the development of the proposed Riverine Scheme site involving the construction of a foot/bicycle path bridge, public pathways, recreational areas and carparks, construction and installation of a jetty for boat and small craft access to the River Foyle, storm water management, accommodation works, Three River's Complex: drainage management and groundwork investigations (within the SAC). The bridge construction, car parking at the spillway (jetty) and ground investigations are located within the SAC on both banks of the River Foyle as a single span bridge structure. The stormwater management, accommodation works and Three Rivers Complex: drainage management are proposed for discharge into the SAC. The remainder of the proposed development extends beyond the boundaries of the SAC site. Despite the proposed development extending beyond the local fauna and flora species that occupy the borderline between the two may impacted. We will look at the effects of the construction process, works location, effects of access, mobilisation and demobilisation of equipment. During the completion of the development works, impacts that arise could include:

1. The potential of sediment/silt and pollutant to enter SAC's;
2. Direct habitat loss/fragmentation
3. Noise disturbance from machinery and drilling activities
4. The potential for the spread of non-native invasive species

### ***Sediment and pollutants***

Construction works involved the construction and installation of a single span foot/bicycle path bridge stretching both of the banks of the river, construction and installation of a jetty for boat and small craft access to the River Foyle and groundwork investigations (within the SAC). This will give rise to localised disturbance of the silt and mud substate of the riverbanks. Excessive inputs of silts can reduce suitability for salmon, smother eggs, choke fish and disrupt feeding and commuting behaviour. A Construction Environmental Management Plan (CEMP) is being devised by MCL Consulting to ensure the protection of the environment. Key highlights include the appointment of an Ecological Clerk of Works (ECOW) and the use of specialised equipment to mitigate impacts, which include:

- Bunded fuel bowser
- Spill kits
- Plant nappies
- Silt traps
- Biodegradable lubricant
- Designated skips according to waste type (recyclable/non-reyclable/biodegradable)

Due to the location of the proposed carpark on the Strabane side of the site, within the old halting area located within the sites southern corner, there is a perceived risk of runoff water from the car park potentially introducing pollutants and hydrocarbons into the water systems. Therefore, it has been recommended that the SUDS scheme be developed to create an environmentally safe drainage system to protect the nearby riverine habitat from potential pollution through surface runoff. The SuDS Drainage scheme is detailed in the Sustainable Drainage Strategy (**Appendix 9-3**) but in summary comprises hardstanding incorporating areas of permeable surfacing which allows infiltration of runoff waters into a permeable substrate. The substrate will be hydraulically sealed from the underlying made ground (under the permeable substrate) using an impermeable membrane to prevent downward migration of runoff into the underlying groundwater system. This prevents any enhancement of mobilisation of any contamination in the made ground soils, and also prevents any oil spillage from entering the groundwater system. The infiltrated runoff within the substrate layer, which will provide SuDS source control for sediment and pollutants, is captured by a series of laterally-laid perforated pipes, directing the runoff to one of two suitably-sized Class 1 full retention interceptors, discharging to the Park Road Drain along the eastern site boundary. This drainage system will prevent the release of oil to the environment from worst case accidental spillages under all weather conditions.

Any resuspension of substrate or sediment arising from the CFA piling works will be localised and carried out within a specified time frame, May - September, ameliorated by the mitigation measures set out within the CEMP.

As the site is currently located within a flood plane the risk of impacts from sediments and pollutants post construction during the operational phase persists as potential pollutants will remain on site for regular maintenance to the grounds. During a flood event these could potentially cause impacts both locally at the site and further downstream impacting

on the water quality and biodiversity of the riverine environment of the Foyle. The risk of impacts from sediments and pollutants such as fuel, oils and other hydrocarbons cannot be fully mitigated against but have been reduced through the suitable mitigation put in place in order to reduce the potential impacts from significant to negligible in the event of major flooding.

### ***Habitat loss***

The proposed site development includes the clearance of some trees, wooded areas and grassland for both the proposed development plans and site access which will result in the loss of certain areas of habitat. Habitat reduction will be kept to a minimum, primarily to areas just beyond the SAC boundary in order to cater for public pathways and site entrances. Compensatory planting has been suggested in regard to any habitat that is lost through the development process.

It has been suggested that a 15m buffer be kept between the banks of the river in order to maintain suitable otter habitat, with the exception of the bridge location. The proposed pathways have been re-routed due to the presence of a main badger sett on the Strabane side. Consultation with NIEA resulted in these pathways being removed in order to preserve the badger sett and the surrounding habitat.

However, habitats for which these areas have been designed as SAC's are either not located locally or upstream from the proposed development location. Therefore, these selection features will not be affected by the development works. Other than the disruption beyond the SAC boundaries there will be no habitat reduction for the qualifying species and no effect on the overall conservation objectives of qualifying habitats.

### ***Noise and Visual Disturbance***

Ground investigation works involves minor and ephemeral works which will contribute to localised noise, in the form of drilling, and visual disturbance in the form of investigation works and increased human activity. The significance of these impacts is evaluated in the context of the designation's selection features. The works are not likely to impact on local otters, during the site visit no holts or concrete evidence of otter's presence were noted, additionally, otters are predominantly crepuscular and nocturnal, and therefore will be active during periods where works have ceased.

Noise and visual disturbance are unlikely to impact Atlantic salmon due to ground works impacts being localised. Works are to be undertaken in late spring/ early summer as outlined by the Lough's Agency and therefore will avoid salmon travelling upstream from November to February.

Noise and visual disturbance are likely to impact a local badger population located on the Strabane side of the proposed site. A main sett was located near to proposed bridge landing location and is located in line with one of the proposed public pathways. Mitigation has been drawn up by MCL Consulting ecologists in line with consultations with NIEA resulting in the proposed temporary exclusions of subsidiary and annex setts within 25m of the proposed bridge landing site as well as a complete rerouting of the proposed public path layout in order to retain the badger setts and habitat reducing the impact. As badgers are also primarily crepuscular and nocturnal impacts will be reduced again as they are most active when works have stopped. Suggested piling method is CFA piling which differs from standard percussion piling with a reduced vibration and noise level.

#### ***Spread of non-native invasive species***

The spread of invasive species can result in the reduction of SAC's qualifying habitats and habitats essential for qualifying species. Invasive species on site include Japanese knotweed *Reynoutria japonica*, Himalayan balsam *Impatiens glandulifera*, and Giant hogweed *Heracleum mantegazzianum*. Development works have the potential to disturb these invasive species and cause local spread and spread further downstream. An invasive species management plan is being drafted up by MCL Consulting and will be included within the CEMP. ECoW will advise which areas are safe to work, the safest way to approach them and provide dedicated toolbox talk advise to workers on how to avoid unintentional disturbance.

#### **Cumulative Effects**

Currently within the River Foyle area surrounding the proposed riverine development site were identified 2 areas of illegal gravel extraction on Islandmore and on the River Foyle bank of the Lifford side of the river. While this unauthorised extraction has been ceased it is considered a part of the current environmental baseline as extraction programmes such as this can generate increased levels of silt and debris deposits within aquatic ecosystems

negatively impacting on local fish populations by smothering potential spawning grounds while the use of machinery and vehicles to carry out the extraction process and removal of the gravel can generate high levels of noise and vibration disturbance affecting fish migratory paths and more extensive species higher up the food chain such as the local otters along with increased risk of the introduction of potential pollutants such as oils, hydraulic fluids and hydrocarbons into the river system. Currently it is not considered that these activities have greatly impacted the local migratory fish populations or the local otters as high activity levels from both have been observed on site. Unauthorised quarrying activities at Islandmore, some 1.4km north and downstream of the site have been ceased through enforcement action taken by regulators. Unauthorised extraction on the river bank north of the site at Lifford and also downstream of the site has also ceased. Unauthorised quarrying in the baseline condition is therefore considered to pose a negligible impact. As a result, the highly localised works for the bridge construction and jetty which will take place on the banks of the river are not considered to cause increased risks through cumulative effects with suitable mitigation in place to prevent long term significant impacts and impediment of otter activity along the River Foyle and its banks within the area.

Due to the location of the proposed carpark on the Strabane side of the site, within the old halting area located within the sites southern corner, there is a perceived risk of runoff water from the car park potentially introducing pollutants and hydrocarbons into the water systems. Regarding groundwater quality in Strabane, the DWS exceedances for PAH compounds detected in shallow groundwater around the former halting site are likely due to the previous use of the site as railway land and imported Made Ground. However, groundwater samples from boreholes hydraulically downgradient (closer to the River Foyle) of the boreholes where organic contamination was detected (and contributing baseflow to the River Foyle), do not show the organic contamination persisting. This contamination is therefore considered as localised and not actively migrating toward the River Foyle. The main surface water discharge drainage the Strabane site, the Nancy Burn, did not show any exceedances of any relevant water quality standards. Risk to the River Foyle SAC from shallow groundwater contamination and surface water inflows is therefore considered negligible. However, a SUDS scheme has been developed to create an environmentally safe drainage system to protect the nearby riverine habitat from potential pollution through surface runoff. The SuDS Drainage scheme is detailed in the Sustainable Drainage Strategy

**(Appendix 9-3)** but in summary comprises hardstanding incorporating areas of permeable surfacing which allows infiltration of runoff waters into a permeable substrate. The substrate will be hydraulically sealed from the underlying made ground (under the permeable substrate) using an impermeable membrane to prevent downward migration of runoff into the underlying groundwater system. This prevents any enhancement of mobilisation of any contamination in the made ground soils, and also prevents any oil spillage from entering the groundwater system. The infiltrated runoff within the substrate layer, which will provide SuDS source control for sediment and pollutants, is captured by a series of laterally-laid perforated pipes, directing the runoff to one of two suitably-sized Class 1 full retention interceptors, discharging to the Park Road Drain along the eastern site boundary. This drainage system will prevent the release of oil to the environment from worst case accidental spillages under all weather conditions.

Suitable mitigation including buffer zones, and pollution prevention response methodologies such as spill kits and designated refuelling points have been proposed in order to prevent impacts to the water courses on site. Local discharges from the waste water treatment works both up and down stream of the proposed development are currently part of the baseline of the current site's environment. Currently the Lifford WWTW upstream of the proposed development site has a history of non-compliance with its set consent limits, currently this plant has been redesigned to modern standards and is currently undergoing significant upgrades and is being extended following a grant of new planning approval, these works are currently near completion and the new WWTW are set for completion of commissioning and process proving by the end of June 2022, by which stage the WwTP will be achieving the discharge standards. The new WwTP will be inclusive of procedures for High Flow/Overflow events as a result of floods. Flows in excess of Full Flow to Treatment ( $55.4\text{m}^3/\text{hr}$  or  $2.7\text{xDFW}$ ) are diverted to a stormwater holding tank at the head of the WwTP. In the stormwater holding tank the wastewater will just entail settlement. On exceedance of the stormwater storage capacity the excess inflow will overflow into the river. The stormwater holding tank is designed for 2 hours. The original WwTP was only designed as a first treatment plant, however, the upgraded WwTP will be inclusive of secondary treatment in accordance with the Urban Wastewater Treatment Directive in order to achieve the following discharge standards:

Parameter	Standard
Biological Oxygen Demand	25 mg/l
Suspended Solids	25 mg/l
COD	125 mg/l
pH	6 - 9
Orthophosphate	5 mg/l P
Total Ammonia	10 mg/l N

Coinciding with the construction of the proposed riverine development there is not expected to be any significant cumulative effects as the new WWTW will operate within consent limits improving the current discharge and water quality of the water courses within the area. The immediate short-term effects are considered to be highly localised with suitable mitigation implemented to prevent any significant risk or impacts to the environments water quality.

The Strabane WWTW (downstream) is already an upgraded high specification facility with a good compliance record and no pollution events recorded. Therefore, similarly to the new Lifford WWTW there is not expected to be any significant cumulative effects. The immediate short-term effects are considered to be highly localised with suitable mitigation implemented to prevent any significant risk or impacts to the environments water quality.

Overall current cessation of the unauthorised quarrying and upgrades made to the Lifford WWTW result in an improvement to the baseline water quality metrics. As the construction phase of the proposed riverine development is set to begin following the completion of the Lifford WWTW it is considered that cumulative effects are negligible with suitable mitigation proposed to ensure any significant risks are neutralised ensuring the current habitats, biodiversity and environment will benefit from the quarrying cessation and improved WWTW with potential impacts being localised and short term.

### **Archaeology**

#### Archaeological Assessment (Underwater Surveys)

A systematic visual survey of the assessment area was carried out over two (2) Low Water Tide cycles, extending beyond the boundary identified for the proposed development. The onsite work included an intertidal/bankside walkover, waded/snorkel survey (where water depth was <500mm), and dive survey of the sub-tidal areas (where water depth was >500mm).

Targeted metal-detection was also employed to assess the degree of ferrous and non-ferrous metallic debris present within a series of sample areas. Existing riverine topography was recorded (bed/bank profiles), along with any in-water features of interest that were encountered. A combination of DGPS and Total Station recording facilitated this work.

In addition, a drone was deployed to capture aerial images of the assessment area and a sonar device was used to capture acoustic images of the sub-tidal riverbed.

#### Archaeological Finds

Two (2) fragments of logboat (dug-out canoe) were discovered as part of the underwater survey (Figure 7). Both represent re-deposited items, lying on the surface of the riverbed close to the northwest side of the River Foyle; having most likely floated downstream during a recent floodwater event.

#### Impact Assessment

Potential impacts associated with the proposed development and corresponding impact classifications have been tabulated in Table 5. There are no impacts (primary or secondary) to any known archaeological material, deposits, or features arising from the proposed works.

**Table 12: Nature and classification of riverine impacts of archaeological significance arising from the proposed development**

Proposed works	Location	ITM	Potential Impacts	Classification of Impact
1. Bridge Abutment; 5.6m x 5m footprint	Intertidal/ Riverbank/ Bankside Areas (Lifford)	1. 633906 E, 898676 N	While there is no known impact to any visible archaeologically or historically significant features, the potential for buried (sub-surface) features, deposits, or material remains moderate-high.	Direct, negative, impact to any sub-surface features; moderate and permanent in nature.
2. Intermediate Pier; 5m x 1m footprint.	Intertidal/ Sub-tidal Areas (Lifford)	2. 633930E, 898660N	While there is no known impact to any visible archaeologically or historically significant features, the potential for	Direct, negative, impact to any sub-surface features; moderate and permanent in nature.

Proposed works	Location	ITM	Potential Impacts	Classification of Impact
			buried (sub-surface) features, deposits, or material remains moderate-high.	
3. Crane pad and construction works area for the bridge build; bankside area measuring c. 128m x 27m, intertidal/sub-tidal area measuring 18m x 52m.	Riverbank/ Intertidal Areas (River Foyle)	3. 633912E, 898639N	While there is no known impact to any visible archaeologically or historically significant features, the potential for buried (sub-surface) features, deposits, or material remains moderate-high.	Direct, negative, impact to any sub-surface features; moderate and permanent in nature.
4. Concrete Slipway; c. 46m x 11m construction footprint.	Intertidal/ Sub-tidal Areas (River Foyle)	4. 633821E, 898557N	While there is no known impact to any visible archaeologically or historically significant features, the potential for buried (sub-surface) features, deposits, or material remains moderate-high.	Direct, negative, impact to any sub-surface features; moderate and permanent in nature.
5. Bridge Abutment; 6.7m x 5m footprint, 18m x 19m works area.	Riverbank/ Bankside Areas (Strabane)	5. 634005E, 898608N	While there is no known impact to any visible archaeologically or historically significant features, the potential for buried (sub-surface) features, deposits, or material remains moderate-high.	Direct, negative, impact to any sub-surface features; moderate and permanent in nature.
6. Footpath and associated landscaping ; c. 700m	Riverbank/ Bankside Areas (Lifford)	6. 633716E, 898528.N – 633969E, 898966N	Minimal ground disturbances anticipated limited to topsoil stripping over made ground.	No impact to sub-surface features anticipated.
7. Footpath and associated landscaping ; c. 250m	Riverbank/ Bankside Areas (Strabane)	7. 633952E, 898518N - 634068E, 898753N	Minimal ground disturbances anticipated limited to topsoil stripping over made ground.	No impact to sub-surface features anticipated.

## 4.0 MITIGATION

The proposed development at stage one screening test of likely significance has demonstrated that the proposed new Riverine Community Park has potential for adverse

effects on the aforementioned designations, however, these can be eliminated through a detailed CEMP and good practise, therefore significant adverse impacts on the Natura 2000 sites: River Finn SAC and River Foyle Tributaries SAC, Lough Foyle SPA, The Maidens and Donegal Bay are considered negligible.

### **Standard Mitigation Measures**

These mitigation measures apply to all fauna species on both sides of the SAC and should be implemented as part of the CEMP and best practice measures for the development.

During the construction phase noise may cause disturbance, therefore the adoption of best practice as defined by the Control of Pollution Act 1974 should be implemented.

All noise caused by machines should be minimised and should operate during daytime hours only as agreed with the council.

With regards to dust it should be ensured that an adequate supply of water is available on site for effective dust suppression.

Similarly, no light should be directed onto woodland features during the construction or operational phase.

During the construction phase management and protection measures should be implemented prior to works commencing on site, these include:

- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as otters may fall in or enter in search of food and become trapped.
- No buildings or storage units are to be left open overnight, as wildlife may enter and become trapped.
- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.
- No vehicles or machinery are to be used installing any fencing or exclusion gates.

## **Buffer Zones**

There are two types of environmental protection buffer zone, as follows:-

- 15m Buffer to all watercourses / areas of standing water.
- 100m Buffer to River Foyle SAC.

These are required to be established during the construction works to provide a safeguard against routinely carrying out high pollution-risk activities close to high risk pollution pathways linked to the SAC. The high risk pollution pathways have been identified through the EIA process as being local waterways / streams connected to the SAC, and overland flow of rainfall dependent runoff. Both of these pathways could potentially rapidly transfer contaminants from construction lands directly into the SAC.

Providing a pathway buffer, within which construction activities are severely restricted, between the source and the receptor provides a range of safeguards such as:-

- Allowing greater attenuation potential for dissipation / breakdown or capture of pollutants in the event of an un-noticed spillage.
- Allowing a period of time to react to a pollution event to clean it up or contain it before it reaches the receptor.
- Providing space within which additional pathway controls can be put in place where necessary, e.g. lined cut off trench or sump.
- Preventing direct release of contaminants to water.
- Allowing a zone for airbourne dust generated from construction works etc to settle out of the atmosphere.

A range of other mitigation is in place for managing other pollution pathways and other environmental risks such as transfers of pollutants via the groundwater system, noise pollution and ecological protection and restoration in addition to the buffer zones. However, the proper establishment of buffer zones is an appropriate and commonly used tool for managing environmental risk.

It is important for proper adherence to the Site Rules with respect to implementing the buffer zone mitigation, that trained site managers, construction workers and environmental monitoring staff should be able to easily recognise the limits of buffer zones whilst on site, and therefore the limits of all 15m buffer zones must be clearly defined by marker tape and/or posts. Silt fencing must also be placed around the entire perimeter of each buffer zone (including the SAC buffer zone) at the 15m limit to prevent water-laden sediment flowing toward watercourses.

Where appropriate, these boundary markers can also be used to restrict access to the buffer zones. Each buffer zone should be assigned a reference number which should be displayed at the buffer boundary limit for easy identification of which buffer works are being completed near or within. This will assist in record keeping and incident reporting.

It is important to properly define what construction activities are prohibited within buffer zones and what activities can be carried out on a routine basis within buffer zones. The buffer zones seek to limit construction activities, not to preclude activities altogether.

The following activities are routinely banned from being carried out within buffer zones:-

- Oil storage, oil drums / cans and refuelling activities.
- Chemical storage (including road salt).
- Vehicle servicing / mechanical repairs.
- Vehicle / machinery parking, Lay-up or washing down.
- Concrete Mixing, washing out.
- Storing of stockpiles of soil, clay, cement, vegetation or any wastes.
- Placement of welfare units.
- Vehicle movements, unless these cannot be avoided by using an alternative route.
- Ground disturbance, excavations, vegetation stripping, application of chemicals\*

\* Unless being carried out as part by trained personnel as part of the implementation of the Invasive species management system

Given that the development is riverine in nature, it is recognised that there will be a range of construction works required to be undertaken in close proximity to some watercourses (within the buffer zones) to implement the new park infrastructure. These would include:-

- Excavations and piling works to install bridge abutments.
- Works (ground strip, piling, concreting, breaking out) to construct and deconstruct a temporary working platform on the river bank (Lifford).
- In-river construction and de-construction of Crane Pad (rock armour, geotextiles, granular fill emplacement) and installation of bridge by crane.
- Widening and realignment works to existing riverside embankments and former railway embankments, laying of bitmac surfacing.
- Infilling of watercourse channel and re-routing of watercourse (Roughan Stream, Lifford).
- Earthworks around wetlands and watercourses, including (Strabane) removal of hardstanding, installation of SuDS system and interceptors, laying of new car park surfacing.
- Excavation and removal of invasive plant species.
- Ancillary works such as lighting installations, vegetation cutting back, landscape planting, installation of fences and gates.

For these activities with buffer zones, the following mitigation measures will be implemented:

- Where possible silt fencing shall be installed between the activity and any downslope watercourse at the maximum achievable buffer zone distance, or at an appropriate break in slope or natural containment feature if present.
- Where installation of silt fending is not feasible, Installation of shallow (0.2m deep) elongate cut-off trench downslope of the activity to catch sediment etc and prevent it reaching the watercourse. Reinstatement thereafter.

- Silt traps must be deployed in any minor watercourses immediately downstream of the works and inspected on a daily basis with any captured debris / silt removed to the waste storage area at the construction compound. The silt traps must be removed following completion of works within the buffer zone.
- Plant nappy style drip trays shall be deployed around all portable oil-containing equipment. These must be inspected on a daily basis and renewed as necessary with all contaminated materials removed from the site with 24 hours.
- Double skinned fuel / oil bowsers only to be used. Bowsers to be locked at all times during transport, with access to the fuel controlled by the site manager. Bowsers shall be brought into to the buffer zone as and when required for refuelling of static plant only (cranes and piling rigs) and removed immediately to the construction compound thereafter. No fuel / oil bowsers shall be stored within the buffer zone.
- It is permissible to undertake emergency repairs and essential maintenance of static plant, whilst positioned in the buffer zone, provided all appropriate oil spill prevention and clean-up measures are in place, including deployment of plant nappies under any works and spill kits are available at close quarters within the buffer zone.
- Non-putrescible wastes to be stored in covered skips or covered bins which must be removed to the construction compound for emptying on a twice weekly basis. No putrescible wastes permitted in buffer zones.
- The following activities are not permitted within Buffer Zones:-
  - Chemical storage (including road salt).
  - Vehicle servicing / mechanical repairs (apart from undertaking emergency repairs to static plant – cranes and piling rigs).
  - Vehicle / machinery parking, Lay-up or washing down.
  - Concrete Mixing, washing out.
  - Storing of stockpiles of soil, clay, cement, vegetation or any wastes.
  - Placement of welfare units.
- All works within buffer zones must be approved in advance by the site manager.

All buffer zones shall be inspected on a daily basis by the Environmental Clerk of works and records kept of these inspections. The inspection must include assessment of the conditions of mitigation measures such as condition and status of silt traps, general site conditions, any evidence of increased pollution risk or spillages, with any significant findings reported immediately to the site manager for appropriate remedial actions to be undertaken if necessary.

### **Flood Plain**

#### Site Infrastructure - Flooding

The construction compounds at Lifford and Strabane are not proposed to be defended from flooding during a major flood event. These facilities include oil and chemical storage, vehicle and machinery refuelling facility, biosecurity washing area, welfare facilities, general storage and offices. Whilst the contractor is obliged by the oCEMP to carry out all activities in accordance with relevant pollution prevention and good practice guidance and procedures, there will be some degree of residual pollution risk during a flood event. If the compound is overwhelmed, this may be due to controlled systems becoming compromised due to the inundation of water.

In the event of a major flood, large portions of the wider urban and rural environment, including numerous associated pollution sources, will be affected by flooding. The river systems will be in full spate during such an event providing massive degrees of dilution potential. Whilst cumulative effects of the numerous off-site pollution sources may be discernible, any possible pollution risk arising from the small scale storage of chemicals and oils at the construction compounds during a flood event would be immeasurably small in the wider environs. Therefore, the risk of pollution arising from the site during a flood event would be considered a negligible impact.

The Lifford development will include a Maintenance Depot/Compound facility comprising a single storey steel container and external concrete hardstanding yard area, with storage bays. The maintenance depot will include welfare facilities (wash-hand basins and toilets) for council staff use. Chemicals used for upkeep and maintenance of the park, which may include small quantities of bleach, pesticides, fertiliser solvent-free paints, and lubricating oils, de-icer etc will be stored at the depot area.

Smaller equipment such as power washers and strimmers will also be stored internally along with tools and consumables at the Maintenance Compound.

Larger fuelled machinery, specific to maintenance of the site, including ride-on lawn mower, tractor-trailer and site management vehicles may be stored in the external concreted yard area of the Maintenance Compound. The external concrete area of the Maintenance Compound will also include storage bays for materials such as mulch, sand and manure, bagged road salt and garden wastes generated at the site awaiting off-site removal for recycling. The external area of the Maintenance Compound will also be used to refuel small machines (e.g. ride-on lawnmower) while larger machines (e.g. tractor) will be re-fuelled off site. Electric Heating for the building of the Maintenance Compound will be provided. The Maintenance Compound facility will be connected to the mains foul sewer system serving the site, including runoff from the external storage area.

For buildings which are not being raised out of the flood plain, such as the Maintenance Depot and Accommodation Works Spectator Stand, chemical and fuel storage volumes should be minimal and appropriate due diligence managed controls should be taken to minimise pollution risk in the event of a major flood event.

These measures shall include:

- Keep the storage of oils, fuels, pesticides and potentially polluting materials such as road salt to a minimum.
- Storing high risk materials inside the building in watertight secondary containment.
- Keeping stored materials in appropriate containers / bags to prevent release during flooding and general handling.
- Keep machinery clean and maintained to a high standard.
- Obtain relevant consents for all proposed environmental discharges.

## **Otter**

### **See Appendix: 8-6 for full otter report**

Otter activity levels are high throughout the site, further site investigations leading upto 1km away from the proposed riverine development site illustrated that otters are active along the river channel and do not appear to have been hindered by the current/historic illegal gravel extraction and the local WWTW discharges along the River Foyle. Extensive survey search areas, however, did not yield the identification or location of any holts or natal dens within 1km of the proposed riverine development site. as such it is not considered that the highly localised development works for the jetty construction and bridge landing sites as part of the development are to be significantly impactful to the local otter population, however, it is expected that there may be some minor disturbances and habitat loss due to the proposed development and site activities. Therefore, a minimum of 15 metres must be retained as a buffer between the proposed development and the surrounding water courses to reduce any potential impact. A surface water management plan must also be drafted and implemented to avoid potential impacts on the water courses and water quality. Consideration should also be given to otters concerning their use of the site's interior for foraging and fencing designs must facilitate free movement of otters to allow unrestricted passage throughout the site.

A compensatory planting scheme will have to be implemented following the construction phase in order to re-create foraging habitat which may be lost or damaged due to the proposed site plans. Due to the proposed locations of the bridge landing sites on both the Strabane and Lifford side of the site as well as the location of the proposed jetty on the Lifford side of the site there is expected to be some minor permanent loss of riverine bank habitat, (approx. 150m<sup>2</sup>), these patches of habitat will be permanently lost due to the construction of permanent structures proposed by the development. The re-planting scheme implemented must use native riverine species for the restoration of the bank habitats temporarily damaged and lost during the construction works. This should also include increasing the size of the thin corridor of reed and large sedge swamp habitat located along the riverine corridor, this habitat is currently located outside of the site's red line boundary and is not at risk from the proposed development. This type of habitat is highly vital to riverine ecosystems and based on the evidence found is used heavily by the otters within the area. Re-planting and restoring the temporarily lost habitat to help expand this area of reed and large sedge swamp habitat will help to compensate for the

permanent loss of habitat experienced from the bridge landings and jetty. Areas of habitat restoration along the site's boundary with the riverbanks are to be identified as areas for improvement during the habitat restoration process, these areas will be turned into extra regions of the desirable reed and large sedge swamp habitat increasing the area of this habitat within the site boundary. This increase of present reed and large sedge habitat along the riverbanks will compensate for the permanent loss of dry meadows and grassy verges habitat currently present increasing the potential for otter foraging and site usage through the provision of the improved habitat.

The jetty is considered to pose an immediate impact through the loss of a small area of riverbank habitat, however, otters are considered adaptable, and it is believed that the jetty may be utilised by the otters in the long term and may serve as a benefit for the otters in the area. The jetty may provide a safe haul out area for the otters and may serve as a "man-made" couch or spraint. Either a small culvert or small ledge structure must be worked into the bridge landing areas to allow otters free land access across the areas where the bridge makes contact with the banks of the River Foyle. These culverts or ledges will follow best practice guidance and meet current specifications for dimensions. These culverts/ledges must be of minimum 500mm x 600mm diameter and be at least 150mm above the highest water level and run the length of the bridge landing sites extending past the bridge landing to re-join the riverbank allowing the otters free unhindered access along the riverbanks out of the water.

Exclusion fencing will be installed around the perimeter of the halting area in order to prevent the otters from accessing the site during works in order to avoid accidental injury as evidenced by the trail cameras during the otter survey indicated that the otters will venture further into the main body of the site near the halting area at night to forage. This should be removed following completion of construction.

## **Badger**

**See Appendix: 8-5 for full badger report**

## **Strabane**

**The following badger mitigation is specific only to the Strabane side of the site and does not apply to the Lifford side of the site or the abandoned sett located within the Lifford area.**

In response to the badger's main sett location and the original proposed pathway, a consultation was held with Dr Jon Lees from NIEA to discuss potential alternatives and mitigation protocols regarding the badger main sett location and proposed pathways. Ultimately it was decided that a design change would be the best course of action. Therefore, the original proposed pathway has been altered with the path that was originally going through the main badger sett has been removed along with the pathway going north along the flood embankment, (see Appendix IV). This design change means that proposed pathway construction is all beyond the main sett's 25m exclusion zone. Proposed method of bridge construction on the Strabane banks requires the use of continuous flight auger (CFA) piling, which utilises a 'corkscrew' method to create the required hole. This method has been deemed much less impactful than standard percussive piling methods such as driven piling due to the current setback distance. See Appendix X for diagram illustrating a vibration contour graph for a 70t CFA piling rig, based upon this diagram the proposed method of CFA piling is not expected to have lasting of significant impacts upon the badger which is currently approximately 40m away from the proposed piling site. The closer annex and subsidiary setts have been proposed for temporary exclusion due to their current status of inactivity along with the close proximity to the proposed piling locations.

Exclusion fencing will be installed around the perimeter of the halting area in order to prevent the otters from accessing the site during works in order to avoid accidental injury as evidenced by the trail cameras during the otter survey indicated that the otters will venture further into the main body of the site near the halting area at night to forage. This should be removed following completion of construction.

A compensatory planting scheme will have to be implemented following the construction phase in order to re-create foraging habitat which may be lost or damaged due to the proposed site plans.

### **Lifford**

The badger sett located on the Lifford side of the site has been classified as abandoned with no evidence of current activity and sett entrances having become overgrown and covered with vegetation, pine needles and cobwebs. Currently due to the inactive and abandoned nature of the sett as well as the nature of the current proposed development on the Lifford side, the general mitigation recommended at the beginning of section 4.0 Mitigation "**Standard Mitigation Measures**" shall apply to the Lifford area regarding badger mitigation.

### **Boreholes (cable percussion with rotary core follow-on)**

Cable percussion allows the installation of casing inside the borehole to prevent loose soils collapsing into the hole, allowing the borehole to be advanced to considerable depths while maintaining good progress. In this case the boreholes will extend from ground level to approximately 3m within rock level. Various tools are used drill the hole through the centre of the casing. The casing is then advance around the perimeter of the drilled hole.

The arisings are set to one side for sampling, logging and at locations were monitoring wells are to install the arising will be disposed of to a skip provided by a licenced waste carrier. At certain locations, the drilling with the cable percussion drilling will be advance to rock head. The casing will be left in-situ and the cable rig removed off site. A rotary drilling rig will then be placed over the installed casing the drilling of rock commenced.

Any resuspension of substrate or sediment arising from the drilling works will be very localised and short-term, ameliorated by the mitigation measures set out within the CEMP. Other than the very localised disruption there will be no habitat reduction for the qualifying species and no effect on the overall conservation objectives of qualifying habitats.

Noise and visual disturbance are unlikely to impact Atlantic salmon due to ground works impacts being localised. Works are to be undertaken in late spring/ early summer and therefore will avoid salmon travelling upstream from November to February. Otters are predominantly crepuscular and nocturnal, and therefore will be active during periods were works have ceased. Additionally, no holts were identified near vicinity of boreholes.

Causeway Geotech have set out mitigation measures within their CEMP. This in accompany with the presence of an ECoW there should be no spread of invasive species.

### **Atlantic Salmon and Riverine Habitat**

#### **See Appendix: 8-12 for full aquatics report**

Consultation with Lough's agency resulted in a design change for the single span bridge structure. Originally this structure was proposed to include a single central pier halfway across the River Foyle. However, due to the potential impacts, mitigation requirements and concerns raised by the Lough's agency this was ultimately removed from the bridge design and a single span structure has been proposed instead.

In order to achieve this a temporary platform will need to be constructed on the Lifford bank of the River Foyle within the SAC. This will be a localised stationary platform of temporary construction. It is proposed that in order to help minimise potential risk to the SAC environment on the riverbank that a geotextile tarp material must be laid down on the riverbank before the platform is constructed from rock gabions. This will help to preserve the underlying riverbank/bed habitat reducing silt and sediment production and distribution from installation and removal of the temporary platform as well as avoiding any loss of riverbank structure. The construction of a coffer dam will prevent the transportation of silt and debris downstream into the main water system. It is understood that a piling technique known as 'pressed-in' piling will be used to install sheet piles in close proximity to the riverbed on the Lifford side. This technique is considered to be a low vibration piling method, similar to the CFA method where continuous vibrations at a low level could be expected from the prime movers. Continuous monitoring should be used where both techniques are being carried out, to monitor vibration levels at the source and at the vibration sensitive receptor locations. The 'pressed-in' piling techniques has also been suggested for the creation of a temporary concrete platform to assist in crane and bridge construction on the riverbank. Similarly, to the bridge it is advised and recommended that this procedure takes place between the months of May and September in order to avoid the salmon run and not impact on the migrating salmon as they make their way to their spawning grounds. While this method is considered to be a low impact approach timing the works outside of the salmon run season vastly reduces the potential impact to negligible levels.

Construction of the single span bridge structure will take place between the months of May and September in order to avoid the salmon run and not impact the migrating salmon as they make their way to their hereditary spawning grounds. As this will be a single span structure it is not envisioned to impact the run by displacing fish as they migrate upstream allowing them free unrestricted access upriver.

Silt traps/curtains will be installed in order to capture any dust or sediment displacement or spill which may occur and keep it within a localised area to avoid it being carried further downstream. Lighting will not be directed onto the river habitat as this may attract or disorient the fish. Lighting will be switch off at night in order to avoid fish congregating in well-lit areas increasing their chances of being preyed upon and decreasing their chances of making it to their spawning grounds.

In addition to bridge abutments, where permanent CFA Piles will be used piled foundations may also need to be emplaced on land within the river margin beyond the flood embankment in proximity to the Bridge Abutment sites. Depending on the outcomes of the proposed Ground Investigation Works, this may be necessary to create a working platform for the assembly and lifting of the bridge, which will arrive to the site in sections requiring assembly on site. This platform will support the main crane used to lift the bridge into position, smaller crane(s) used to assist with the assembly of both the main crane and bridge and to store the assembled bridge before it is lifted into place. This platform structure will be deconstructed once the bridge has been completed. If CFA piles, which are permanent and cannot be withdrawn, have been used as foundations for this structure, then these piles will be cut down to 1m below ground level as part of the site restoration / landscaping works following completion of bridge construction.

To facilitate the single span lift of c90m and c100T, a 1200T structural crane such as the AK 680 1200T will be required. This is a very large crane which will require an additional service crane, somewhere in the region of 200T to 300T capacity, to assemble the 1200T structural crane and load the required ballast of c300T. The out-rigger centres of the structural crane are expected to be c14.5m x 14.5m with a jib length c85-100m long and a lifting radius of c30-35m. A temporary crane pad, extending into the river channel, is required to be constructed to support the large crane used for the bridge lift. This pad must

bear the weight of the crane whilst it is lifting the bridge and will be of sufficient dimension to facilitate safe lifting of the bridge structure. The crane pad structure is outlined as follows:

1. Install of basal geotextile separation membrane to provide segregation of the existing environment and temporary environment and to act as a barrier to the river.
2. Install and compaction of fill, with intermittent geogrid reinforcement and geotextile separation membrane to contain the fill material.
3. Completion of site investigation to obtain CBR values on platform.
4. Install of Continual Flight Auger (low vibration) piles to support bridge and structural crane assembly.
5. Completion of pile testing.
6. Install of temporary, cast in-situ, reinforced concrete crane platform over the CFA piles. Formwork with geotextile separation membrane to be provided and remain in-situ until concrete cured, to act as a barrier to the river.
7. Completion of bridge and structural crane assembly and transfer to lifting location.
8. Removal of the temporary platform by digging around the CFA piles and break down to c500mm below ground level and subsequent removal of temporary working platform in reverse order to installation. Removal works to utilise low vibration methods (e.g., the use rock hammers will not be permitted) and will require the immediate loading and off-site removal of fill (no temporary storage of removed materials will be permitted).
9. Restoration of original habitat(s).

In consideration of the expected lifting radius of the structural crane, a temporary working platform, extending into the river channel, will be required to facilitate the single span lift of c90m and c100T. This temporary working platform is expected to be designed and constructed in the region of following the parameters:

- Platform Area: 1000-1500m<sup>2</sup>
- Perimeter Length: 100-150m
- Average Depth: c2-3.5m

The installation sequence of the temporary working platform structure is outlined as follows:

1. Install of basal geotextile separation membrane and install rock armour sequentially from upstream side to create access and working area of temporary platform. The geotextile separation membrane will be required to provide segregation of the existing environment and temporary environment and to act as a barrier to lateral sedimentation migration toward the river.
2. In tandem with the installation of the geotextile separation membrane and rock armour, install and compaction of fill, with intermittent geogrid reinforcement, working way out and along bank in a downstream direction.
3. Continued install of rock armour to front face and backfill in tandem with temporary fill material. This will include wrapping of the geotextile separation membrane up existing riverbank margins and up the inner side of peripheral rock armour.
4. Completion of rock armour install on downstream edge (to protect the temporary platform from washout during flood event).
5. Completion of site investigation to obtain CBR values on platform.
6. Install of Continual Flight Auger (low vibration) piles to support crane throughout the access and working area of temporary platform.
7. Completion of pile testing.
8. Install of temporary, cast in-situ, reinforced concrete crane platform over piles. Formwork with geotextile separation membrane to be provided and remain in-situ until concrete cured, to act as a barrier to the river channel.
9. Placement of structural crane into lifting location, ensuring minimum edge distance maintained between jacklegs and edge of platform.
10. Completion of bridge lift.
10. Removal of the temporary platform by digging around the CFA piles and break down to c500mm below bed level and subsequent removal of temporary working platform in reverse order to installation, i.e., downstream end first. Removal works to utilise low vibration methods (e.g., the use rock hammers will not be permitted) and will require the

immediate loading and off-site removal of fill (no temporary storage of removed materials will be permitted).

11. Restoration of original habitat(s).

A section of the existing flood embankment running alongside the riverbank may need to be temporarily realigned to provide a suitable working room for the bridge abutment piling and construction works. In order to retain flood protection during the construction phase it is necessary to construct a temporary sheet pile wall in place of the removed section of flood defence. This sheet pile will be withdrawn and deconstructed once the new permanent section of flood defence is in place.

It is also recommended that a 100m buffer zone be implemented for watercourses applying to the construction compound, refuelling and oil/fuel storage and a 15m buffer for water courses applying to the stockpiling of materials and wastes as well as concrete mixing and washing areas. Should be instated between the proposed development and the surrounding water courses to reduce any potential impact. It is also recommended that a surface water management plan be drafted and implemented to avoid potential impacts on the water courses and water quality.

Plant nappies and spill kits must be available and in working condition on site at all times with toolbox talks provided to ensure site staff are aware of potential risks and how to correctly use these response tools.

The same mitigation measure is recommended for the construction and installation of the jetty proposed on the Lifford banks of the River Foyle at the site's southern boundary. However, the construction of this carpark will include drainage for surface runoff. This runoff will lead into an oil-water interceptor to separate the surface rainwater runoff from potential oil/fuel leaks from parked vehicles before discharging to a sub-surface via a soakaway deliberately reducing discharge flow rates in a more controlled approach. Removal of harmful substances due to the presence of the interceptor will reduce potential risks from discharging into the SAC ensuring only rainwater runoff is discharged.

The stormwater management accommodation works is to provide site runoff from grassland areas on the site via a piped drainage network draining at several points into the

Roughan Stream leading to the River Deele and River Foyle SAC. This proposed system operates under the influence of standard green field drainage rates and does not utilise a constant high flow discharge or pump system as it is designed to counter surface flooding due to rainfall. Potential discharge rates will depend on rainfall rates with a reduced discharge rate into the SAC. This system and discharge are not considered to impact upon the SAC due to the low discharge flow rates perceived for this type of drainage installation. The Three Rivers Complex: drainage management currently has no outlined mitigation as its design and finer working operations will be finalised in the detailed design stage. However, it is believed that there are opportunities to provide betterment to the existing Three Rivers storm discharge arrangement and to provide mitigation in the detailed design to ensure no residual impacts on the receiving environment and River Foyle SAC. This will include provision of petrol interceptors and other appropriate mitigation measures.

Works are required to the flood embankments on both sides of the river. The embankment on the Lifford side will be increased in level to provide flood protection and will be widened to accommodate the greenway at the crest of the embankment. The embankment will also be realigned locally. The embankment on the Strabane side will be widened to accommodate the greenway at the crest of the embankment. It is not generally proposed to raise the crest level of this embankment. At the interface with the pedestrian bridge, the embankment crest will be ramped locally to tie-in with the pathway level at the bridge. Construct haul roads to provide access to the embankments for construction plant. Haul roads will be constructed using imported stone fill and geotextile/geogrid if required. Stone will be imported on trucks/dumpers and graded using dozers or excavators. The methodology for the construction of the embankments will consist of:

- Excavate to formation level underneath increased embankment footprint, strip topsoil from embankment slope and form benches in face. This work will be carried out by excavators, spoil will be removed using dumpers and stockpiled elsewhere on site for reuse. Topsoil will be reused for landscaping. Excavated subsoil may be suitable for reuse as embankment fill, otherwise it will be used as general landscape fill within the development or transported off site.
- The embankment realignment will be constructed by excavating the existing embankment and placing the material on the new alignment. Additional fill may be imported if there is a deficit of site-won material.

- Placement and compaction in layers of suitable material to form new embankment profile. This will involve placement of suitable embankment fill (Class 2 or similar cohesive fill) using excavators and compaction using vibratory rollers. The fill will either be site-won or imported.
- Construction of pedestrian/cycle path on the embankment crest. Placement and compaction of road subbase and pavement layers. Stone fill and pavement layers will be imported by truck or dumper, graded to the correct level and compacted using vibratory rollers.
- Installation of fencing, signage, pathway markings, seating etc.
- Reinstatement of embankment slopes with topsoil and completion of seeding and landscape planting.
- Removal of temporary haul roads and reinstatement

Due to the embankment works close proximity to the River Foyle there is an increased risk of pollution from silt and debris disturbance, potential oil and hydrocarbon spills as well as vibration disturbances. As such, it is recommended that in order to reduce these potential risks all surface water contaminated by spoil during the embankments excavation works should be collected and treated before discharged in order to remove and potential contaminants. Spill kits and plant nappies must be readily available along# with the use of silt fencing and bunds in order to capture any potential silt, oil and hydrocarbon spills and leaks. Part of the process will involve compacting the freshly laid fill in order to achieve robust embankments. This poses a risk to aquatic species due to the potential risk of vibrations produced causing disturbance and disorientating migratory fish e.g: during the salmon run. Similar mitigation to what has been previously mentioned with regards to the bridge landing is required through the implementation of low vibration methods. Conventional vibratory rollers are only to be used with the vibration turned off allowing for a low impact method to ensure the fill can be appropriately compacted.

### **Loss of Habitat**

There is no predicted loss of habitat within the River Foyle SAC. The proposed development is primarily based beyond the boundaries of the SAC where some habitat loss is predicted to allow for improved public visitor access as well as the bridge landing sites and the construction of the new jetty. However, this has been mitigated against with the rerouting of the proposed public pathways to preserve the main badger sett located on the Strabane

side of the site and the surrounding habitat. Other pathways and road entrances will experience minimal habitat loss through the clearance of select trees and pre-designated pathways. A compensatory planting scheme will be carried out in order to re-create foraging habitat which may be lost due to the proposed site plans. Due to the proposed locations of the bridge landing sites on both the Strabane and Lifford side of the site as well as the location of the proposed jetty on the Lifford side of the site there is expected to be some minor permanent loss of riverine bank habitat, (approx. 150m<sup>2</sup>), these patches of habitat will be permanently lost due to the construction of permanent structures proposed by the development. Any habitats that have been temporarily lost or damaged due to proposed site activities will also be restored and improved upon to help compensate for areas of permanent habitat loss.

A long-eared owl is known to nest on the Lifford side within the proposed development site within a coniferous treeline located in the site's western area. Proposed route plans currently propose a carpark and entrance road passing through 2 sections of the treeline. Long-eared owls are considered a species which has a moderate ability to co-exist with human populations, due to the nest's close location not Lifford town. A minimum 150m buffer when construction works are being carried out must be instated and maintained and between 22-90m from the disturbance source once works have completed is to be left between the nest within the treeline and the long-eared owl nest.

Should removal of the nest or works within 150m of the nest be required it will require appropriate wildlife licensing and will need to be carried outside of the breeding season. Should the nest be removed a replacement raptor box be installed within the area as a compensatory measure to ensure the long-eared owl has appropriate replacement nesting. This must be carried out under supervision and installed by a suitably qualified ecologist.

Trees, hedgerows and scrub are of importance to breeding and nesting birds. While no nests have been identified, the removal of hedgerows, trees and scrub during the breeding season will negatively impact upon nesting birds due to the abundant presence and activity of birds during the breeding season. This is in direct violation of Article 4 of the Wildlife (Northern Ireland) Order 1985 (as amended) under which it is an offence.

Any scrub or tree clearance should be kept to a minimum and undertaken outside of the breeding season (1<sup>st</sup> March – 31<sup>st</sup> August).

It should be noted that **should** clearance of scrub/hedgerow's **during** the breeding season be required, this **must** be undertaken under the supervision of a qualified ecologist and appropriate surveys undertaken prior to any scrub clearance i.e. pre-working nest inspection/breeding bird survey to ensure no active nests are present. Any vegetation which is removed prior to the bird breeding season should be removed from the site completely, in order to prevent birds along with other species using stored debris as nesting/resting sites.

### **Invasive Species and Biosecurity**

To ensure biosecurity on site and reduce the spread of the invasive species throughout the site and on to other sites the following measures are to be implemented:

- Erect fencing around the invasive species (Japanese Knotweed & Giant Hogweed) and place relevant signage
- Erect Fencing around Containment Treatment Area and relevant signage.

The general Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invertebrate species is as follows:-

### **Invasive Species (Plants and Bivalves) Construction Phase**

- Before any piece of construction 'machinery' including crane or mobile machinery / plant, (excavators, rollers, dumpers, tele-handlers etc.) is delivered to the site, the invasive species Clerk of Works shall be provided documentation providing details of all sites close to or involving works in water that the machinery has been working on or stored on in the last 60 days.
- The invasive species Clerk of Works may consider the need for additional biosecurity measures, such as quarantining or pre-delivery disinfection, for any high risk machinery that has recently involved in in-river works.
- Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invasive bivalve species is as follows:-

- On arrival at or departure from the site, ALL construction machinery should be visually inspected and disinfected in the self-contained biosecurity washing area of the Construction Compounds.
- The disinfection process shall involve dosing of the exterior of the machinery with a diluted solution of 1% Vircon Aquatic solution or an approved alternative.
- The machinery should then be power-hosed with water of 60 oC + to remove disinfection solutions and any invasive species debris and any residual treated clams / eggs which may be present, followed by a final off-site visual inspection.
- The treatment and inspection of machinery shall be overseen and approved by a qualified ecological Clerk of Works, including verification records to confirm completion of the disinfection for each piece of machinery, including any replacement / standby units intended to be used on the project. Records shall be retained for inspection by the client's representatives.
- Sludge from the self-contained biosecurity facility shall be routinely (on at least a weekly basis) removed from the washing area and transferred to a water-tight covered skip for storage, awaiting off-site disposal to an appropriately licensed landfill site for deep burial.

#### **Mitigation Measures Invasive Species (Plants only) Construction Phase**

- The Invasive Species Clerk of Works and Ecological Clerk or Works shall be jointly responsible for the monitoring of biosecurity onsite. These responsibilities include site management, restrict personal and movement to designated areas, restrict access to site, clean maintain PPE, equipment and plant machinery.
- Plant Machinery are to restrict to in movement around the site, and within given work areas and haul routes to from containment areas.
- Plant machinery will remain on site in restricted area until excavation, and replacement to the containment area have been completed.
- Recommend the use of rubber tyre plant wherever possible rather than tracked plant.

- Plant machinery to be thoroughly cleaned down upon completion of works including tracks, tyres, buckets, trailers etc and material placed in the containment area.
- PPE especially boots to be deep clean and any material placed in containment area.
- Cleaning of Plant Machinery and PPE will be overseen and undertaken by onsite Invasive Species supervisor who will instruct if the plant and personal are safe to leave.

A strict invasive species management plan has been drafted which shall be implemented on site through the lifespan of the pre-construction and construction phase along with a management plan for post-construction management of species. Toolbox talks will be provided to ensure all site staff are aware of the management plan and are aware of biosecurity protocols as well as any health and safety concerns.

It is recommended before that before any of the excavation or stripping elements of the treatment strategies to update the Invasive Species survey and management plan if required.

This is due to the nature of site along situated along the river Foyle which the lands are at risk from further spread of invasive species.

No additional live projects/developments are located within close proximity, it is therefore, considered that there is no additive effect for significant cumulative or in combination. impacts on the Natura 2000 network to occur as a result of the development.

### **Archaeology**

#### Archaeological Test-excavation

Given the high archaeological potential of the intertidal/riverbank areas surrounding the proposed bridge abutment and slipway impacts (including their associated works areas) on the northwest (Lifford) side of the River Foyle, Archaeological Testing of these areas will be undertaken. This requirement would normally be carried out in advance of construction. However, due to environmental and health/safety concerns identified, this work will be undertaken during the construction phase of the project.

This work will be an archaeologically led endeavour, undertaken by a suitable qualified maritime archaeologist with expertise in riverine archaeology. The test-excavation will be machine assisted and continued to sufficient depth as to adequately assess those deposits present with the identified impact areas. A detailed record of the stratigraphic sequence of the deposits that form the riverbank/bankside area will be made.

#### Archaeological Monitoring

Archaeological Monitoring will be undertaken for the excavation/removal of any bankside/riverbed deposits from those areas surrounding the proposed bridge and slipway structures. Particular attention will be paid to the location of the intermediate bridge pier. This work will be carried out by a suitably qualified maritime archaeologist with expertise in riverine archaeology.

As part of the monitoring, a sample amount of the removed material (spoil) will be subject to metal detection to assess the potential for the retrieval of small finds from these deposits. In the event that archaeologically significant items are encountered, the percentage of spoil to be detected may be increased. Where little or no items are encountered, the percentage may be decreased. The archaeological work will be carried out in accordance with the terms of Section 5 of the National Monuments Act (2004 Amendment).

#### RETAINING AN ARCHAEOLOGIST/S

An archaeologist will be retained for the duration of the relevant works. The archaeologist should be familiar with and experienced in river/estuarine environments and have a good understanding of riverine archaeology and its associated features.

#### TIME SCALE

The timescale and programme of works for the entirety of the construction phase will be made available to the archaeologist, with information on where and when ground disturbances and/or dredging will take place.

#### SUFFICIENT NOTICE

The contractor will ensure that sufficient notice is given to the archaeologist/s in advance of the construction works commencing. This will allow for prompt arrival on site to monitor

the ground disturbances. As often happens, intervals may occur during the construction phase. In such cases, it will be necessary to inform the archaeologist/s as to when ground disturbance works will recommence.

#### DISCOVERY OF ARCHAEOLOGICAL MATERIAL

In the event of archaeological features or material being uncovered during the construction phase, it is crucial that any machine work will be cease in the immediate area to allow the archaeologist/s to inspect any such material.

#### ARCHAEOLOGICAL MATERIAL

Once the presence of archaeologically significant material is established, full archaeological recording of such material will be undertaken. If it is not possible for the construction works to avoid the material, full excavation will be undertaken. The extent and duration of excavation will be a matter for discussion between the client and the statutory authorities.

#### ARCHAEOLOGICAL TEAM

The core of a suitable archaeological team will be on standby to deal with any rescue excavation situation. This will be complimented in the event of a full excavation.

#### SECURE SITE OFFICES & FACILTIES

Secure Site offices and facilities will be provided to the archaeological team near to any sites where excavation is required. This will be at one of the two Construction Compounds (Lifford and Strabane, within the relevant jurisdiction).

#### FENCING

Fencing of any excavation / investigation areas will be undertaken once discovered and during excavation.

#### MACHINERY TRAFFIC

Machinery Traffic during construction will be restricted as to avoid any of the selected investigation / excavation sites and their environs.

## SPOIL / WASTE OR MATERIALS

Soil, Waste or materials will not be dumped on any of the selected investigation / excavation sites or their environs.

### 4.1 Conclusion

All potential impacts that have been predicted for the proposed Riverine Scheme are localised to within the River Foyle and its Tributaries SAC. The River Finn SAC is not considered to be directly impacted by the proposed development, however, certain features such as otter and Atlantic salmon which move freely between the River Finn and Foyle may experience some disturbance. . Similarly to Lough Swilly SPA which had been originally screened in due to the presence of Whooper swans found during the riverine site surveys utilising the riverine habitat as a commuting corridor and this species being a qualifying feature to Lough Swilly, potential disturbances to Whooper swan are to be negligible with the birds utilising the riverine corridor for commuting travelling well above the site avoiding the construction works and with no terrestrial or hydrological connecting paths to Lough Swilly there will be no direct or indirect impacts from the proposed development due to the setback distance. Therefore, proposed mitigation for these features within the River Foyle and its Tributaries SAC are deemed sufficient to provide extended protection for River Finn SAC features and avoid any long-term negative impacts.

Lough Foyle SPA is hydrologically link downstream to the River Foyle SAC and as such is considered to have the greatest risk of impact from the proposed development scheme. However, due to its distance from the immediate proposed development site and dilution factors of the riverine system it is considered that proposed mitigation and best practice management plans implemented on site will be sufficient to negate these impacts from the Lough Foyle SPA site.

The Maidens SAC and Donegal Bay SPA are not hydrologically linked with the proposed development site nor do that share a site overlay. Both of these sites are a substantial distance, (108km and 46km respectively), away from the proposed development site that they are not considered to have any impact from the Riverine Scheme development. However, the species features of grey and harbour seal for these sites may travel up the Foyle as they travel to forage for food. While this may be a rare incident it is concluded that proposed mitigation for SAC features of otter and Atlantic salmon; along with mitigation for

the protection of the riverine habitat should be sufficient to negate potential impacts to these species. Therefore, the CEMP for the construction stage should aim to minimise the outputs of pollutants i.e. dust, sediment etc, to ensure that no serious pollution incidents occur and to minimise disturbance to wildlife as well as protecting and enhancing Biodiversity.

With the implementation of the proposed mitigation measures, it is the ecologist's reasonable conclusion that there is no likelihood of significant, long-term impacts to the primary Natura2000 site of the River Foyle and its Tributaries SAC, the other remaining 5 sites have also been deemed as not likely to have significant, long-lasting impacts due to their geographic location, setback distance and proposed mitigation measures. Any potential impacts that may arise will be localised and segregate from the wider site and short term with minimal impact to the Natura 2000 site.

**Report Prepared By: -**

**Reviewed By: -**

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## 5.0 REFERENCES

Official EC guidance: 'Assessment of plans and projects significantly affecting Natura 2000 sites, Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC' Accessed on 05/03/19, available from [http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura\\_2000\\_assess\\_en.pdf](http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf)

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**FIGURES**



**Figure 3. Riverine Habitat within River Foyle SAC**



**Figure 4. Wood habitat on Strabane side**



**Figure 5. Overview of grassland habitat on Lifford side within hare coursing ground**

**APPENDICIES**

**Appendix I: Works Programme**

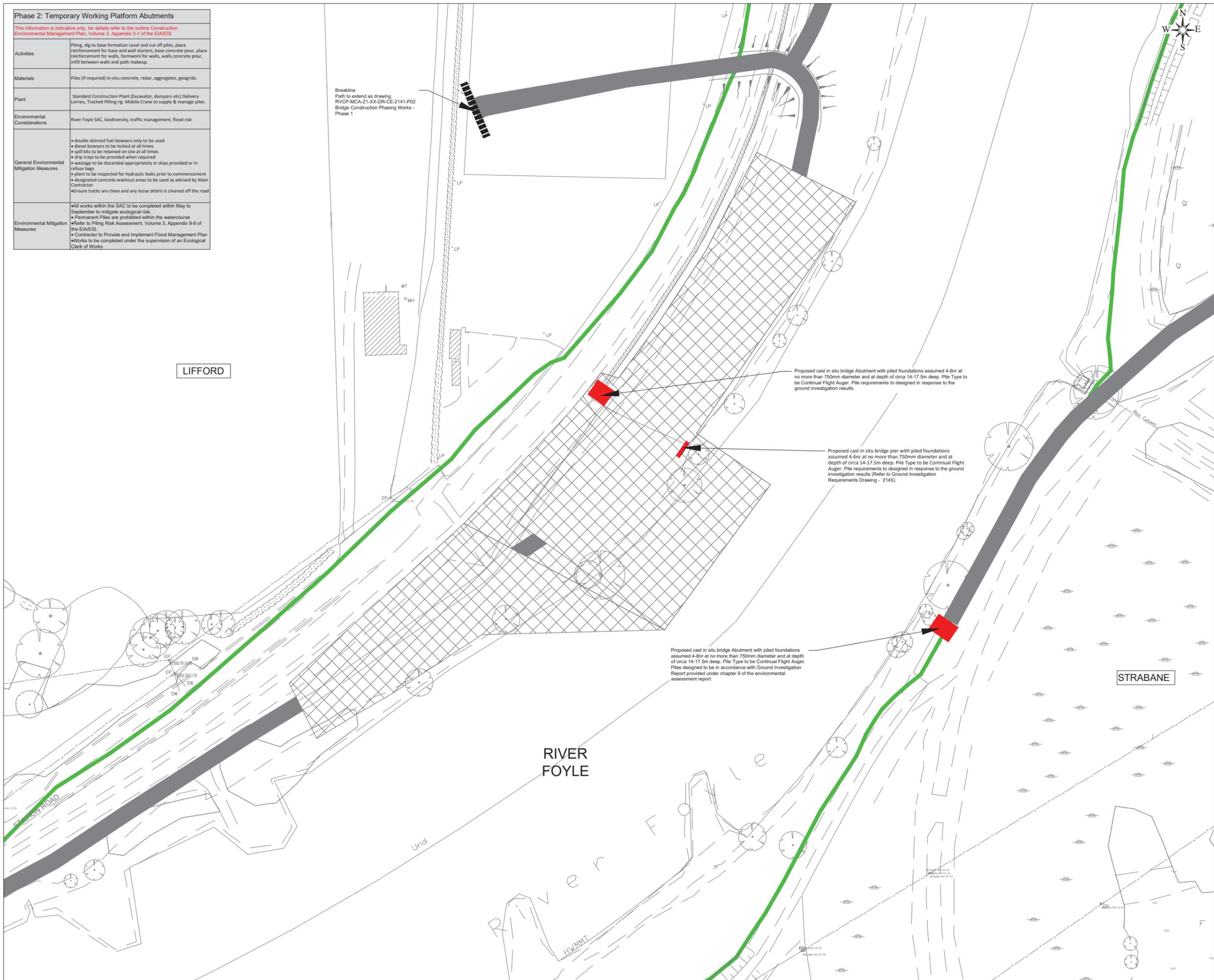


**Appendix II: Bridge Phasing Drawing**

**Phase 2: Temporary Working Platform Abutments**

This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS

Activities	Piling, dig to base formation level and cut off piles, place reinforcement for base and wall starters, base concrete pour, place reinforcement for walls, formwork for walls, walls concrete pour, infill between walls and path makeup.
Materials	Piles (if required) in-situ concrete, rebar, aggregates, geogrids.
Plant	Standard Construction Plant (Excavator, dumpers etc) Delivery Lorries, Tracked Piling rig, Mobile Crane to supply & manage piles.
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• double skinned fuel bowers only to be used</li> <li>• diesel bowers to be locked at all times</li> <li>• spill kits to be retained on site at all times</li> <li>• drip trays to be provided when required</li> <li>• wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>• plant to be inspected for hydraulic leaks prior to commencement</li> <li>• designated concrete washout areas to be used as advised by Main Contractor</li> <li>• Ensure tracks are clean and any loose debris is cleaned off the road</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• All works within the SAC to be completed within May to September to mitigate ecological risk</li> <li>• Permanent Piles are prohibited within the watercourse</li> <li>• Refer to Piling Risk Assessment, Volume 3, Appendix 9-9 of the EIA/EIS.</li> <li>• Contractor to Provide and Implement Flood Management Plan</li> <li>• Works to be completed under the supervision of an Ecological Clerk of Works</li> </ul>



- NOTES**
1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
  2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.

— SAC Boundary  
 Proposed Access Road  
 Crane & Bridge Assembly Working Area  
 Proposed Bridge Abutment/Pier

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P02	21/04/2022	ABPFI Platform Area Increased	P McM
Rev	Issue Date	Description	App

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Funder

**Peace**  
 Northern Ireland - Ireland  
 European Regional Development Fund

Client

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 Donegal County Council

Derry City & Strabane District Council  
 Comhairle Chathair Dhóire & Chathair an tSráine Bám  
 Derry City & Strabane District Council

Project Status

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**BRIDGE CONSTRUCTION PHASING WORKS - PHASE 2**

Scale

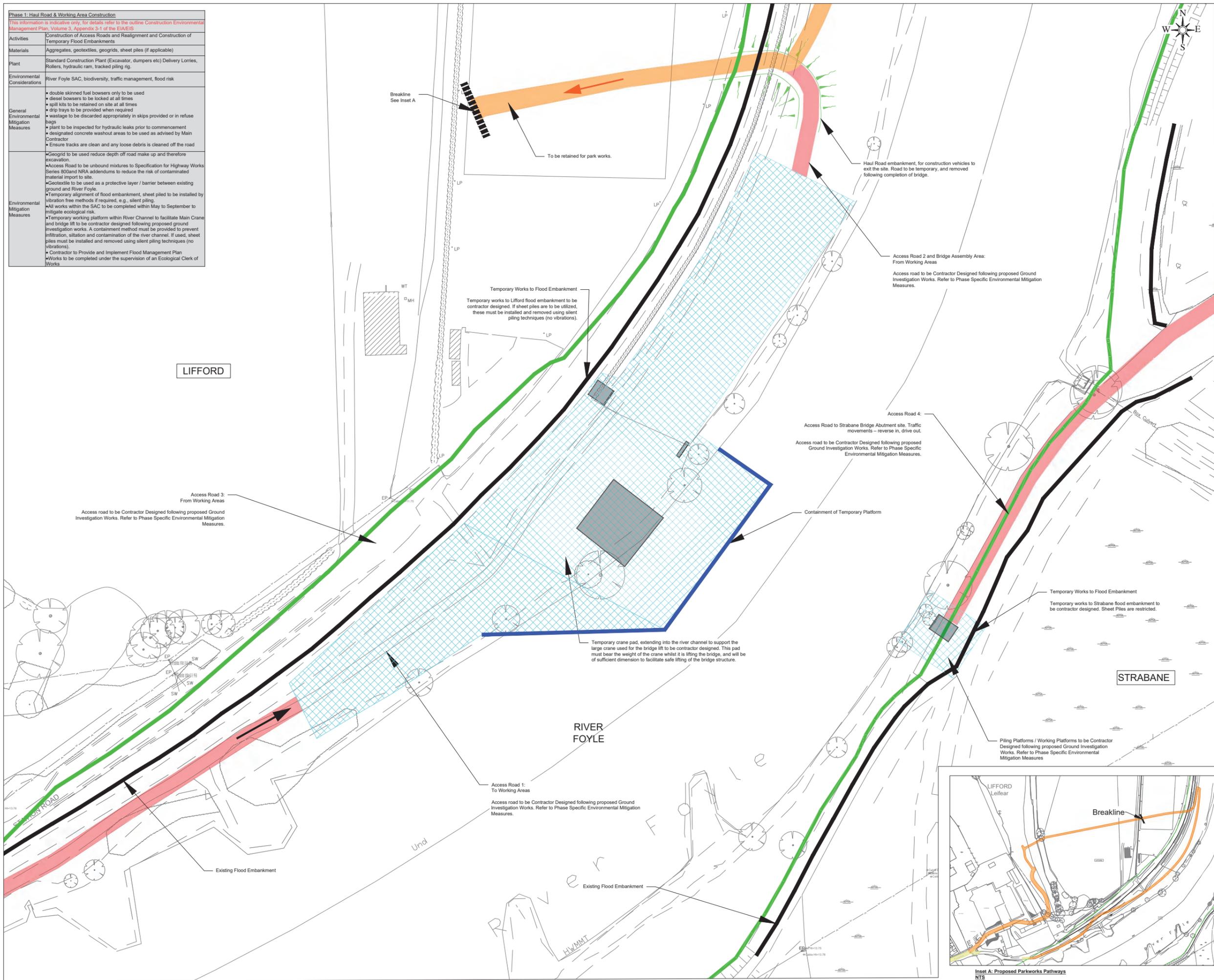
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Drawn	CR	Checked	DA	Approved	CM
Date	25/08/21	Date	25/08/21	Date	25/08/21

Project	Organisation	Zone	Level	Type	Role	Revision
RVCP	MCA	Z1	XX	DR	CE	2142
Project Number	Status code & Description					
E2256	S2 - For Information					

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Phase 1: Haul Road & Working Area Construction	
<i>(This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS)</i>	
Activities	Construction of Access Roads and Realignment and Construction of Temporary Flood Embankments
Materials	Aggregates, geotextiles, geogrids, sheet piles (if applicable)
Plant	Standard Construction Plant (Excavator, dumpers etc) Delivery Lorries, Rollers, hydraulic ram, tracked piling rig.
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• double skinned fuel bowzers only to be used</li> <li>• diesel bowzers to be locked at all times</li> <li>• spill kits to be retained on site at all times</li> <li>• drip trays to be provided when required</li> <li>• wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>• plant to be inspected for hydraulic leaks prior to commencement</li> <li>• designated concrete washout areas to be used as advised by Main Contractor</li> <li>• Ensure tracks are clean and any loose debris is cleaned off the road</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• Geogrid to be used reduce depth off road make up and therefore excavation.</li> <li>• Access Road to be unbound mixtures to Specification for Highway Works Series 800 and NRA addendums to reduce the risk of contaminated material import to site.</li> <li>• Geotextile to be used as a protective layer / barrier between existing ground and River Foyle.</li> <li>• Temporary alignment of flood embankment, sheet piled to be installed by vibration free methods if required, e.g., silent piling.</li> <li>• All works within the SAC to be completed within May to September to mitigate ecological risk.</li> <li>• Temporary working platform within River Channel to facilitate Main Crane and bridge lift to be contractor designed following proposed ground investigation works. A containment method must be provided to prevent infiltration, siltation and contamination of the river channel. If used, sheet piles must be installed and removed using silent piling techniques (no vibrations).</li> <li>• Contractor to Provide and Implement Flood Management Plan</li> <li>• Works to be completed under the supervision of an Ecological Clerk of Works.</li> </ul>



- NOTES**
1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
  2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- LEGEND**
- Crane & Bridge Assembly Working Area
  - Proposed Access Road to be moved prior to Main Works
  - Proposed Access Road to be retained for Main Works
  - Temporary Works to Flood Embankment
  - Existing Flood Embankment
  - Containment of Temporary Platform
  - SAC Boundary

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P02	21/04/2022	ABPFI Platform area increased	P McM
Rev	Issue Date	Description	App

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Project Status

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**BRIDGE CONSTRUCTION PHASING WORKS - PHASE 1**

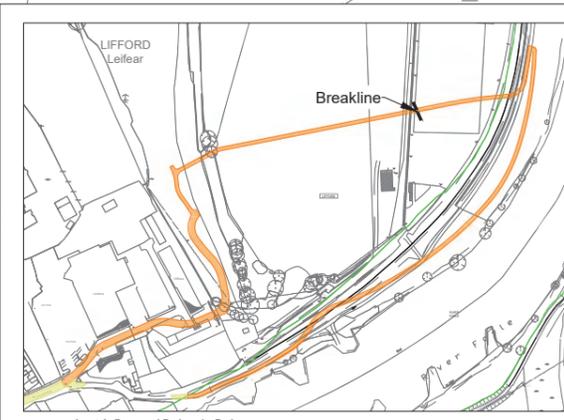
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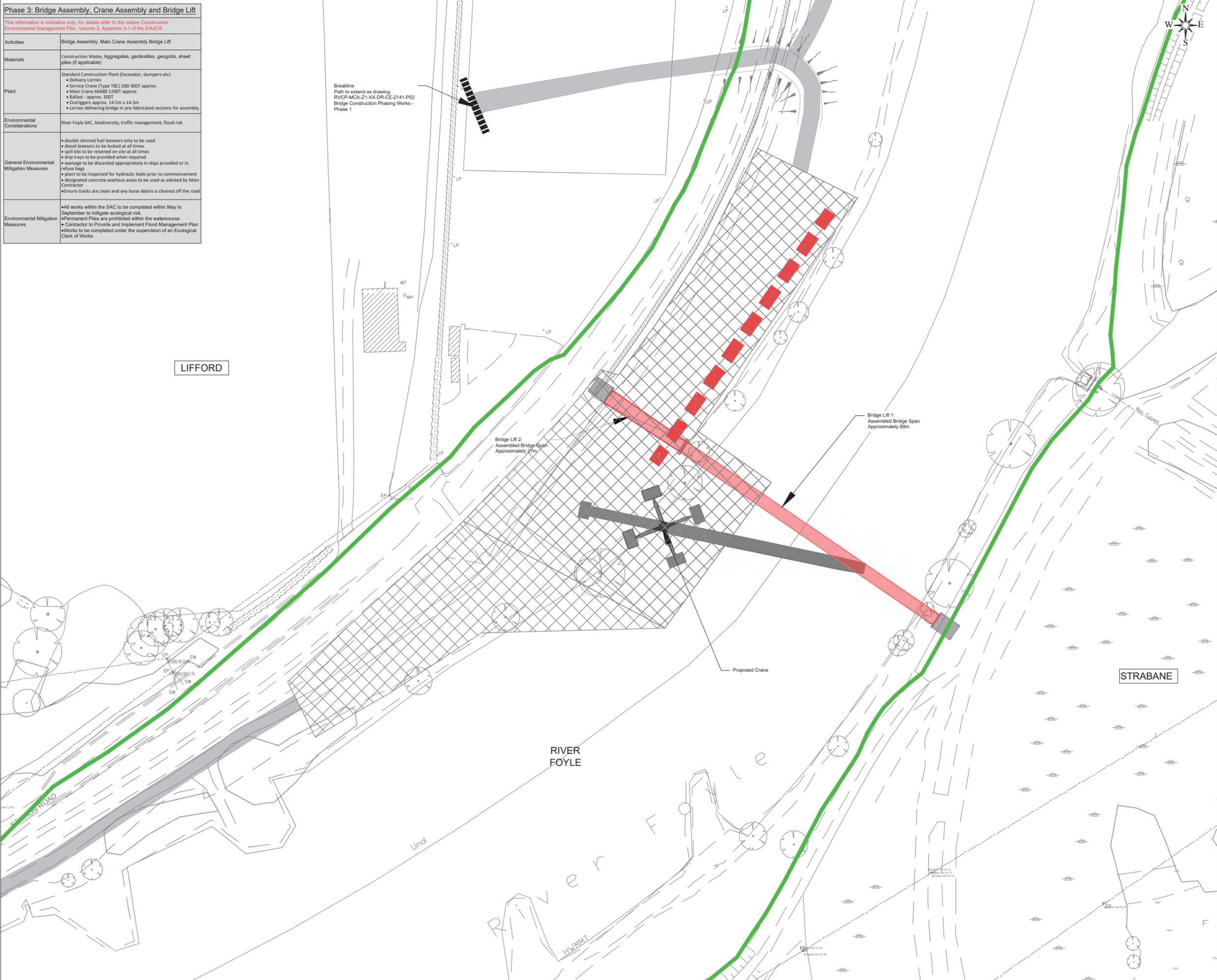
Drawn	CR	Checked	DA	Approved	CM
Date	25/08/21	Date	25/08/21	Date	25/08/21

Project	RVCP	Organisation	MCA	Zone	Z1	Type	XX	Role	DR	Level	CE	Number	2141	Revision	P02
Project Number	E2256														
Status code & Description	S2 - For Information														

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Phase 3: Bridge Assembly, Crane Assembly and Bridge Lift	
<i>This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS</i>	
Activities	Bridge Assembly, Main Crane Assembly Bridge Lift
Materials	Construction Waste, Aggregates, geotextiles, geogrids, sheet piles (if applicable)
Plant	Standard Construction Plant (Excavator, dumpers etc) <ul style="list-style-type: none"> <li>• Delivery Lorries</li> <li>• Service Crane (Type TBC) 200-300T approx.</li> <li>• Main Crane MK680 1200T approx.</li> <li>• Ballast - approx. 300T</li> <li>• Outriggers approx. 14.5m x 14.5m</li> <li>• Lorries delivering bridge in pre-fabricated sections for assembly.</li> </ul>
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• double skinned fuel bowzers only to be used</li> <li>• diesel bowzers to be locked at all times</li> <li>• spill kits to be retained on site at all times</li> <li>• drip trays to be provided when required</li> <li>• wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>• plant to be inspected for hydraulic leaks prior to commencement</li> <li>• designated concrete washout areas to be used as advised by Main Contractor</li> <li>• Ensure tracks are clean and any loose debris is cleaned off the road</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• All works within the SAC to be completed within May to September to mitigate ecological risk.</li> <li>• Permanent Piles are prohibited within the watercourse</li> <li>• Contractor to Provide and Implement Flood Management Plan</li> <li>• Works to be completed under the supervision of an Ecological Clerk of Works</li> </ul>



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**LEGEND**

	Crane & Bridge Assembly Working Area
	Proposed Crane
	Proposed Access Road
	Bridge Sections for Assembly on Site
	Assembled Bridge
	SAC Boundary

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P02	21/04/2022	ABPFI Platform Area Amended	P McM
Rev	Issue Date	Description	App

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 Derry City & Strabane District Council

Project Status

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**BRIDGE CONSTRUCTION PHASING WORKS - PHASE 3**

Scale

**1:500 @ A1**

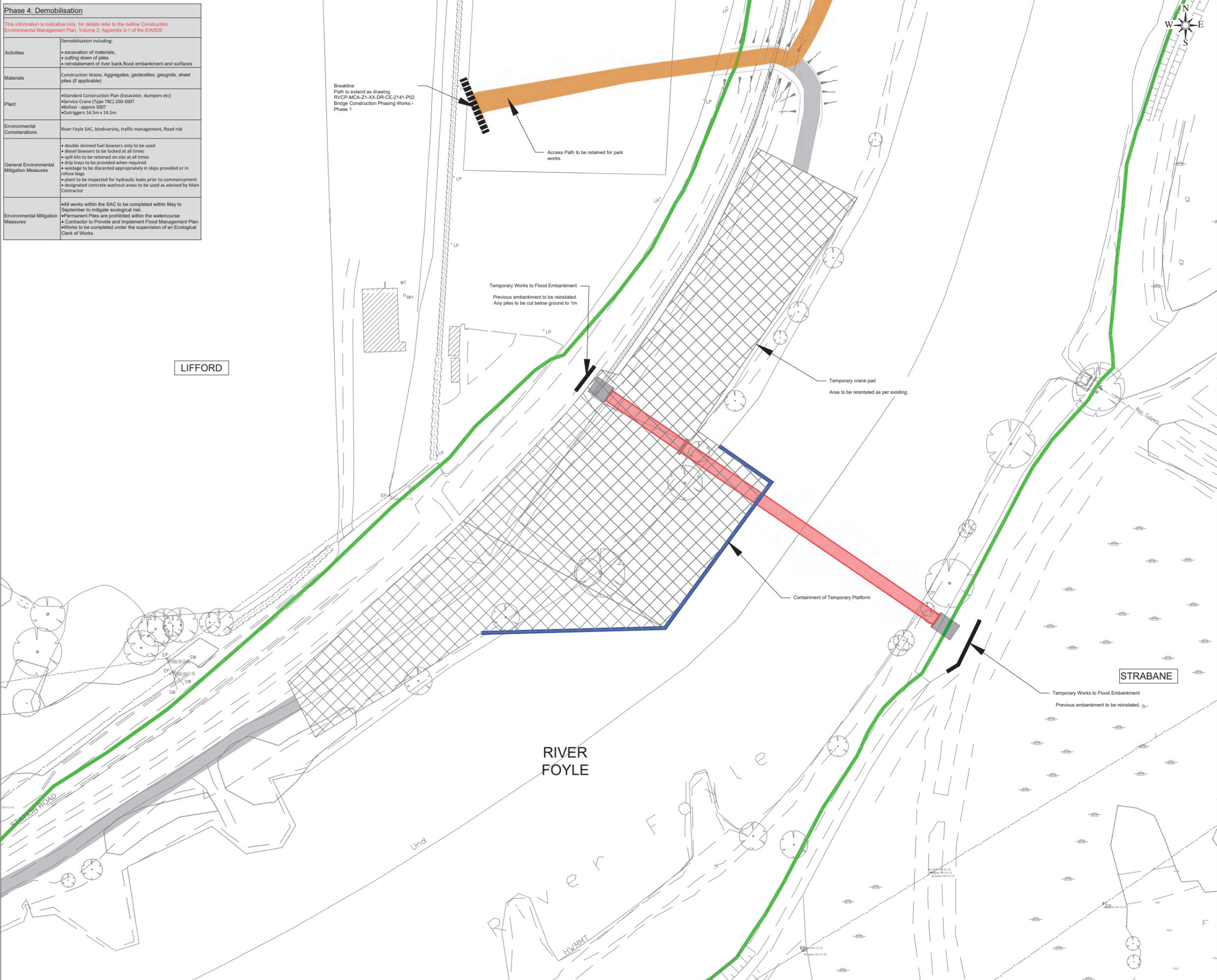
Drawn	CR	Checked	DA	Approved	CM
Date	25/08/21	Date	25/08/21	Date	25/08/21

Project	Organisation	Zone	Level	Type	Role	Number	Revision
RVCP	MCA	Z1	XX	DR	CE	2143	P02

Project Number: **E2256**  
 Status code & Description: **S2 - For Information**

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Phase 4: Demobilisation	
This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS	
Activities	Demobilisation including: <ul style="list-style-type: none"> <li>excavation of materials,</li> <li>cutting down of piles</li> <li>reinstatement of river bank, flood embankment and surfaces</li> </ul>
Materials	Construction Waste, Aggregates, geotextiles, geogrids, sheet piles (if applicable)
Plant	<ul style="list-style-type: none"> <li>Standard Construction Plan (Excavator, dumpers etc)</li> <li>Service Crane (Type TBC) 200-300T</li> <li>Ballast - approx 300T</li> <li>Outriggers 14.5m x 14.5m</li> </ul>
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>double skinned fuel bowzers only to be used</li> <li>diesel bowzers to be locked at all times</li> <li>spill kits to be retained on site at all times</li> <li>drip trays to be provided when required</li> <li>wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>plant to be inspected for hydraulic leaks prior to commencement</li> <li>designated concrete washout areas to be used as advised by Main Contractor</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>All works within the SAC to be completed within May to September to mitigate ecological risk.</li> <li>Permanent Piles are prohibited within the watercourse</li> <li>Contractor to Provide and Implement Flood Management Plan</li> <li>Works to be completed under the supervision of an Ecological Clerk of Works</li> </ul>



- NOTES**
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  - All Coordinates are to Irish Grid (TM65), unless otherwise noted.

- LEGEND**
- Access Road to be excavated and removed
  - Access Road to be retained as sub-base to proposed pathway infrastructure
  - Proposed Bridge
  - Temporary Crane Pad to be excavated and removed and river bank made good
  - Temporary Works to Existing Flood Embankment to be removed and original alignment to be reinstated
  - Temporary Containment Measures to be removed
  - SAC Boundary

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P02	21/04/2022	ABPFI Platform area increased	P McM
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Project Status

STAGE 3 - PLANNING

Project

RIVERINE COMMUNITY PARK

Drawing

BRIDGE CONSTRUCTION PHASING WORKS - PHASE 4

Scale

1:500 @ A1

Drawn	CR	Checked	DA	Approved	CM
Date	25/08/21	Date	25/08/21	Date	25/08/21

Project	Organisation	Zone	Level	Type	Role	Number	Revision
RVCP	MCA	Z1	XX	DR	CE	2144	P02

Project Number: E2256  
 Status code & Description: S2 - For Information

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### Appendix III: Potential Impacts and Mitigation Table

Topic	Potential Impact	Mitigation
<p>Disturbance of Qualifying Features – Construction</p>	<p>The potential of sediment/silt and pollutant to enter SAC's;</p> <p>Direct habitat loss/fragmentation</p> <p>Noise disturbance from machinery and drilling activities</p> <p>The potential for the spread of non-native invasive species</p>	<p>Standard Mitigation Measures</p> <p>These mitigation measures apply to all fauna species on both sides of the SAC and should be implemented as part of the CEMP and best practice measures for the development.</p> <p>During the construction phase noise may cause disturbance, therefore the adoption of best practice as defined by the Control of Pollution Act 1974 should be implemented.</p> <p>All noise caused by machines should be minimised and should operate during daytime hours only as agreed with the council.</p> <p>With regards to dust it should be ensured that an adequate supply of water is available on site for effective dust suppression.</p> <p>Similarly, no light should be directed onto woodland features during the construction or operational phase.</p>

Topic	Potential Impact	Mitigation
		<p>During the construction phase management and protection measures should be implemented prior to works commencing on site, these include:</p> <ul style="list-style-type: none"> <li>- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as otters may fall in or enter in search of food and become trapped.</li> <li>- No buildings or storage units are to be left open overnight, as wildlife may enter and become trapped.</li> <li>- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.</li> <li>- No vehicles or machinery are to be used installing any fencing or exclusion gates.</li> </ul> <p>Buffer Zones</p> <p>There are two types of environmental protection buffer zone, as follows:-</p> <ul style="list-style-type: none"> <li>• 15m Buffer to all watercourses / areas of standing water.</li> <li>• 100m Buffer to River Foyle SAC.</li> </ul> <p>For further information regarding detailed mitigation see section 4.0 Mitigation</p>

Topic	Potential Impact	Mitigation
Sediment and pollutants	<p>The potential of sediment/silt and pollutant to enter SAC's;</p> <p>Impact on water quality of water sources within and around the proposed development site</p> <p>Introduction of pollutants impacting on migratory fish species</p> <p>Introduction of increased sediment within water courses affecting potential fish spawning sites through 'smothering'</p> <p>Impacts on local and migratory fish populations creating extended impacts on local otter and bird populations through reduction of foraging opportunities</p>	<ul style="list-style-type: none"> <li>• Allowing greater attenuation potential for dissipation / breakdown or capture of pollutants in the event of an un-noticed spillage.</li> <li>• Allowing a period of time to react to a pollution event to clean it up or contain it before it reaches the receptor.</li> <li>• Providing space within which additional pathway controls can be put in place where necessary, e.g. lined cut off trench or sump.</li> <li>• Preventing direct release of contaminants to water.</li> <li>• Allowing a zone for airbourne dust generated from construction works etc to settle out of the atmosphere.</li> </ul> <p>The following activities are routinely banned from being carried out within buffer zones:-</p> <ul style="list-style-type: none"> <li>• Oil storage, oil drums / cans and refuelling activities.</li> <li>• Chemical storage (including road salt).</li> <li>• Vehicle servicing / mechanical repairs.</li> <li>• Vehicle / machinery parking, Lay-up or washing down.</li> <li>• Concrete Mixing, washing out.</li> </ul>

Topic	Potential Impact	Mitigation
		<ul style="list-style-type: none"> <li>• Storing of stockpiles of soil, clay, cement, vegetation or any wastes.</li> <li>• Placement of welfare units.</li> <li>• Vehicle movements, unless these cannot be avoided by using an alternative route.</li> <li>• Ground disturbance, excavations, vegetation stripping, application of chemicals</li> </ul> <p>* Unless being carried out as part by trained personnel as part of the implementation of the Invasive species management system</p> <p>For these activities with buffer zones, the following mitigation measures will be implemented:</p> <ul style="list-style-type: none"> <li>• Where possible silt fencing shall be installed between the activity and any downslope watercourse at the maximum achievable buffer zone distance, or at an appropriate break in slope or natural containment feature if present.</li> <li>• Where installation of silt fending is not feasible, Installation of shallow (0.2m deep) elongate cut-off trench downslope of the activity to catch sediment etc and prevent it reaching the</li> </ul>

Topic	Potential Impact	Mitigation
		<p>watercourse. Reinstatement thereafter.</p> <ul style="list-style-type: none"> <li>• Silt traps must be deployed in any minor watercourses immediately downstream of the works and inspected on a daily basis with any captured debris / silt removed to the waste storage area at the construction compound. The silt traps must be removed following completion of works within the buffer zone.</li> <li>• Plant nappy style drip trays shall be deployed around all portable oil-containing equipment. These must be inspected on a daily basis and renewed as necessary with all contaminated materials removed from the site with 24 hours.</li> <li>• Double skinned fuel / oil bowsers only to be used. Bowsers to be locked at all times during transport, with access to the fuel controlled by the site manager. Bowsers shall be brought into to the buffer zone as and when required for refuelling of static plant only (cranes and piling rigs) and removed immediately to the construction compound thereafter. No fuel / oil bowsers shall be stored within the buffer zone.</li> <li>• It is permissible to undertake emergency repairs and essential</li> </ul>

Topic	Potential Impact	Mitigation
		<p>maintenance of static plant, whilst positioned in the buffer zone, provided all appropriate oil spill prevention and clean-up measures are in place, including deployment of plant nappies under any works and spill kits are available at close quarters within the buffer zone.</p> <ul style="list-style-type: none"> <li>• Non-putrescible wastes to be stored in covered skips or covered bins which must be removed to the construction compound for emptying on a twice weekly basis. No putrescible wastes permitted in buffer zones.</li> <li>• The following activities are not permitted within Buffer Zones:- <ul style="list-style-type: none"> <li>○ Chemical storage (including road salt).</li> <li>○ Vehicle servicing / mechanical repairs (apart from undertaking emergency repairs to static plant – cranes and piling rigs).</li> <li>○ Vehicle / machinery parking, Lay-up or washing down.</li> <li>○ Concrete Mixing, washing out.</li> <li>○ Storing of stockpiles of soil, clay, cement, vegetation or any</li> </ul> </li> </ul>

Topic	Potential Impact	Mitigation
		<p>wastes.</p> <ul style="list-style-type: none"> <li>○ Placement of welfare units.</li> <li>● All works within buffer zones must be approved in advance by the site manager.</li> </ul> <p>For further information regarding detailed mitigation regarding species specifics see section 4.0 Mitigation</p>
Habitat loss	<p>Permanent habitat loss along the riverine habitat due to proposed construction of bridge landing sites and jetty</p> <p>Temporary habitat loss and damage through construction phase site activities</p> <p>Impacts to local bird populations through loss of potential nesting sites and disturbances as well as potential death and nest destruction during the breeding season</p>	<p>Permanent habitat loss is expected to be low across the overall span of the current riverine habitat and heavily localised to the two bridge landing sites on the Lifford and Strabane river banks as well as the proposed jetty location on the Lifford Bank</p> <p>Temporary habitat loss is considered to have a short term impact but will be reinstated/restored once the construction phase has completed with a habitat restoration re-planting scheme</p> <p>Re-planting scheme is to include an increase/addition to the current reed and large sedge swamp margin located along the Strabane riverbank. As this is a vital riverine habitat type and heavily used by the current otter population providing an increase and improvement to this habitat type will act as compensation for the small amount of permanent habitat loss due to the proposed construction.</p>

Topic	Potential Impact	Mitigation
		<p>Seasonal constraints for certain site practices and site management processes</p> <p>For further information regarding detailed mitigation regarding species specifics see section 4.0 Mitigation</p>
Noise and Visual Disturbance	<p>Potential disturbance to local biodiversity including main badger sett located on the Strabane side of the site</p> <p>Migratory fish species during the Salmon run</p> <p>Breeding and migratory birds as well as birds utilising the commuting corridor</p> <p>Bats</p>	<p>Standard Mitigation Measures</p> <p>These mitigation measures apply to all fauna species on both sides of the SAC and should be implemented as part of the CEMP and best practice measures for the development.</p> <p>During the construction phase noise may cause disturbance, therefore the adoption of best practice as defined by the Control of Pollution Act 1974 should be implemented.</p> <p>All noise caused by machines should be minimised and should operate during daytime hours only as agreed with the council.</p> <p>With regards to dust it should be ensured that an adequate supply of water is available on site for effective dust suppression.</p>

Topic	Potential Impact	Mitigation
		<p>Similarly, no light should be directed onto woodland features during the construction or operational phase.</p> <p>During the construction phase management and protection measures should be implemented prior to works commencing on site, these include:</p> <ul style="list-style-type: none"> <li>- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as otters may fall in or enter in search of food and become trapped.</li> <li>- No buildings or storage units are to be left open overnight, as wildlife may enter and become trapped.</li> <li>- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.</li> <li>- No vehicles or machinery are to be used installing any fencing or exclusion gates.</li> </ul> <p>For further information regarding detailed mitigation regarding species specifics see section 4.0 Mitigation</p>

Topic	Potential Impact	Mitigation
<p>Spread of non-native invasive species</p>	<p>Perpetuating the ongoing infestation of invasive species within the riverine habitat both within and around the proposed riverine development site</p> <p>Contributing to the spread of these invasive species beyond the proposed riverine development into the wider surrounding area as well as down stream</p>	<ul style="list-style-type: none"> <li>• The Invasive Species Clerk of Works and Ecological Clerk or Works shall be jointly responsible for the monitoring of biosecurity onsite. These responsibilities include site management, restrict personal and movement to designated areas, restrict access to site, clean maintain PPE, equipment and plant machinery.</li> <li>• Plant Machinery are to restrict to in movement around the site, and within given work areas and haul routes to from containment areas.</li> <li>• Plant machinery will remain on site in restricted area until excavation, and replacement to the containment area have been completed.</li> <li>• Recommend the use of rubber tyre plant wherever possible rather than tracked plant.</li> <li>• Plant machinery to be thoroughly cleaned down upon completion of works including tracks, tyres, buckets, trailers etc and material place in the containment area.</li> <li>• PPE especially boots to be deep clean and any material placed in containment area.</li> <li>• Cleaning of Plant Machinery and PPE will be overseen and undertaken by onsite Invasive Species supervisor who will instruct if the plant and personal are safe to leave.</li> </ul>

Topic	Potential Impact	Mitigation
		<p>A strict invasive species management plan has been drafted which shall be implemented on site through the lifespan of the pre-construction and construction phase along with a management plan for post-construction management of species. Toolbox talks will be provided to ensure all site staff are aware of the management plan and are aware of biosecurity protocols as well as any health and safety concerns.</p> <p>For further information regarding detailed mitigation see section 4.0 Mitigation</p>
Badger	<p>Potential loss of habitat for foraging (temporary)</p> <p>Disturbance to main sett located on the Strabane side</p> <p>Disturbance to other local annex setts located near the Strabane bridge landing site</p>	<p>Standard mitigation measures apply to the badgers within the proposed Riverine development site.</p> <p>No works are to occur within 25m of the main badger sett on the Strabane side of the site to ensure no badgers and their sett is disturbed or damaged.</p> <p>No major excavation of works involving heavy vibratory process to occur within 100m of the main sett location. For works occurring within 100m of the main sett low vibratory methods are to be used e.g: CFA piling</p>

Topic	Potential Impact	Mitigation
	Risk of injury or harm	<p>Temporary exclusion and closure of 2x annex setts located within the land face of the flood embankment on the Strabane side of the site. these setts are to be closed prior to any works occurring on site with regard to the bridge landing site, which occurs within 25m of these setts, the setts are to be re-opened once works have completed. Low vibratory work practices e.g: CFA piling are to be implemented.</p> <p>Permanent habitat loss is expected to be low across the overall span of the current riverine habitat and heavily localised to the two bridge landing sites on the Lifford and Strabane riverbanks as well as the proposed jetty location on the Lifford Bank</p> <p>Temporary habitat loss is considered to have a short-term impact but will be reinstated/restored once the construction phase has completed with a habitat restoration re-planting scheme</p> <p>Exclusion fencing to be erected around the old halting area which has been designated to be the new site's carpark. Fencing is to be removed following the completion of the construction phase</p> <p>For further information regarding detailed mitigation see section 4.0 Mitigation</p>

Topic	Potential Impact	Mitigation
Otter	<p>Potential loss of habitat for foraging (temporary)</p> <p>Restriction of access and impediment of movement along the river banks on both the Lifford and Strabane side of the site</p> <p>Disturbance to foraging practices and general site activity</p> <p>Risk of injury or harm</p>	<p>Standard mitigation measures apply to the otters within the proposed Riverine development site.</p> <p>Maintain a minimum of a 15m buffer from works and all water courses where it is physically possible to do so</p> <p>Permanent habitat loss is expected to be low across the overall span of the current riverine habitat and heavily localised to the two bridge landing sites on the Lifford and Strabane riverbanks as well as the proposed jetty location on the Lifford Bank</p> <p>Temporary habitat loss is considered to have a short-term impact but will be reinstated/restored once the construction phase has completed with a habitat restoration re-planting scheme</p> <p>Re-planting scheme is to include an increase/addition to the current reed and large sedge swamp margin located along the Strabane riverbank. As this is a vital riverine habitat type and heavily used by the current otter population providing an increase and improvement to this habitat type will act as compensation for the small amount of permanent habitat loss due to the proposed construction.</p>

Topic	Potential Impact	Mitigation
		<p>Exclusion fencing to be erected around the old halting area which has been designated to be the new site's carpark. Fencing is to be removed following the completion of the construction phase</p> <p>For further information regarding detailed mitigation see section 4.0 Mitigation</p>
Cumulative Effects	<p>Risk of cumulative effects with regards to:</p> <ul style="list-style-type: none"> <li>• 2x sites of unauthorised quarrying at Islandmore and along the Lifford river bank</li> <li>• 2 WwTP: <ul style="list-style-type: none"> <li>○ 1x at Lifford upstream from the proposed site which has, historically, not been discharging within consent limits</li> <li>○ 1x at Strabane downstream from the proposed site which has historically good records of</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Both of the unauthorised quarrying sites have ceased and are no longer operational. While to date no significantly negative impact has been observed on the local otter and fish population the cessation of these will help to prevent further degradation to the current river banks and reduce potential impacts to the local and migratory fish populations through reduced silt and sediment creation impacting on potential spawning sites. This, in turn, reduces the significant impacts to the local otter and bird populations which may suffer from reduced foraging opportunities.</li> <li>• The WwTP at Lifford is currently undergoing extensive upgrades in order to be re-opened for continued operations discharging within consent limits. Inclusive of a secondary treatment phase and High Flow compensation measures. This should have a long-term improvement on the riverine habitats overall water quality.</li> <li>• Due to these improvements it is not considered that there will be significant</li> </ul>

Topic	Potential Impact	Mitigation
	<p>discharging within consent limits</p>	<p>cumulative effects from the proposed riverine development's construction. Initially in the short term there is a perceived increased risk of pollution and impacts to the local habitat and biodiversity but these are highly localised to within the proposed site boundary and are considered short term only during the development's construction phase. It is not considered there will be any significant negative impacts in the long-term but rather improvements will be observed through the cessation of unauthorised quarrying and upgraded WwTP.</p>
<p>Atlantic Salmon and Riverine Habitat</p>	<p>Potential risks for pollution from debris, sediments and pollutants</p> <p>Increase debris and sediment risk increases the risk of loss of fish spawning grounds due to smothering</p> <p>Noise and vibration disturbances disorienting migratory fish species</p>	<p>Consultation with Lough's agency resulted in a design change for the single span bridge structure. Originally this structure was proposed to include a single central pier halfway across the River Foyle. However, due to the potential impacts, mitigation requirements and concerns raised by the Lough's agency this was ultimately removed from the bridge design and a single span structure has been proposed instead.</p> <p>Construction of the single span bridge structure will take place between the months of May and September in order to avoid the salmon run and not impact the migrating salmon as they make their way to their hereditary spawning grounds.</p> <p>Silt traps/curtains will be installed in order to capture any dust or sediment</p>

Topic	Potential Impact	Mitigation
		<p>displacement or spill which may occur and keep it within a localised area to avoid it being carried further downstream. Lighting will not be directed onto the river habitat as this may attract or disorient the fish. Lighting will be switch off at night in order to avoid fish congregating in well-lit areas increasing their chances of being preyed upon and decreasing their chances of making it to their spawning grounds.</p> <p>It is also recommended that a 100m buffer zone be implemented for watercourses applying to the construction compound, refuelling and oil/fuel storage and a 15m buffer for water courses applying to the stockpiling of materials and wastes as well as concrete mixing and washing areas Should be instated between the proposed development and the surrounding water courses to reduce any potential impact.</p> <p>Plant nappies and spill kits must be available and in working condition on site at all times with toolbox talks provided to ensure site staff are aware of potential risks and how to correctly use these response tools.</p> <p>all surface water contaminated by spoil during the embankment's excavation works should be collected and treated before discharged in order to remove and potential contaminants.</p>

Topic	Potential Impact	Mitigation
		<p>Proposed works for the bridge landing sites, the jetty and amendment work to the flood embankments are to be carried out through the use of low vibratory construction techniques outside of the salmon run season in order to reduce the potential risk of vibration and noise cause disturbances such as disorientating migrating fish</p> <p>Fish friendly lighting scheme to be implemented on the bridge for during the operational phase. Lighting is not to be directly shone upon water surfaces and colours have been specifically chosen to reduce the chances of attracting fish such as salmon creating gathering points which would increase predation rates on migratory and residential fish</p>
Flood Plain	Increased risk of impacts from sediments and pollutants post construction phase during the operational phase due to site's location	<p>The Lifford development will include a Maintenance Depot/Compound facility comprising a single storey steel container and external concrete hardstanding yard area, with storage bays.</p> <p>Chemicals used for upkeep and maintenance of the park, which may include small quantities of bleach, pesticides, fertiliser solvent-free paints, and lubricating oils, de-icer etc will be stored at the depot area.</p> <p>Smaller equipment such as power washers and strimmers will also be stored internally along with tools and consumables at the Maintenance Compound.</p> <p>Larger fuelled machinery, specific to maintenance of the site, including ride-on lawn mower, tractor-trailer and site management vehicles may be stored in the external concreted yard area of the Maintenance Compound.</p>

Topic	Potential Impact	Mitigation
		<p>The external area of the Maintenance Compound will also be used to refuel small machines (e.g. ride-on lawnmower) while larger machines (e.g. tractor) will be re-fuelled off site.</p> <p>The Maintenance Compound facility will be connected to the mains foul sewer system serving the site, including runoff from the external storage area.</p> <p>For buildings which are not being raised out of the flood plain, such as the Maintenance Depot and Accommodation Works Spectator Stand, chemical and fuel storage volumes should be minimal and appropriate due diligence managed controls should be taken to minimise pollution risk in the event of a major flood event.</p> <p>These measures shall include:</p> <ul style="list-style-type: none"> <li>• Keep the storage of oils, fuels, pesticides and potentially polluting materials such as road salt to a minimum.</li> <li>• Storing high risk materials inside the building in watertight secondary containment.</li> <li>• Keeping stored materials in appropriate containers / bags to</li> </ul>

Topic	Potential Impact	Mitigation
		<p>prevent release during flooding and general handling.</p> <ul style="list-style-type: none"> <li>• Keep machinery clean and maintained to a high standard.</li> <li>• Obtain relevant consents for all proposed environmental discharges.</li> </ul>
Archaeology	Potential risk to cause damage or lose previously undiscovered items of archaeological significance	<p>Archaeological Testing of key locations within the proposed Riverine site to identify previously unidentified items of archaeological significance. This work will be an archaeologically led endeavour, undertaken by a suitable qualified maritime archaeologist with expertise in riverine archaeology. The test-excavation will be machine assisted and continued to sufficient depth as to adequately assess those deposits present with the identified impact areas.</p> <p>Archaeological Monitoring will be undertaken for the excavation/removal of any bankside/riverbed deposits from those areas surrounding the proposed bridge and slipway structures.</p> <p>As part of the monitoring, a sample amount of the removed material (spoil) will be subject to metal detection to assess the potential for the retrieval of small finds from these deposits. In the event that archaeologically significant items are</p>

Topic	Potential Impact	Mitigation
		<p>encountered, the percentage of spoil to be detected may be increased. Where little or no items are encountered, the percentage may be decreased.</p> <p>The archaeological work will be carried out in accordance with the terms of Section 5 of the National Monuments Act (2004 Amendment).</p> <p>An archaeologist will be retained for the duration of the relevant works.</p> <p>In the event of archaeological features or material being uncovered during the construction phase, it is crucial that any machine work will be cease in the immediate area to allow the archaeologist/s to inspect any such material.</p> <p>Once the presence of archaeologically significant material is established, full archaeological recording of such material will be undertaken. If it is not possible for the construction works to avoid the material, full excavation will be undertaken. The extent and duration of excavation will be a matter for discussion between the client and the statutory authorities.</p> <p>Fencing of any excavation / investigation areas will be undertaken once discovered and during excavation.</p> <p>Soil, Waste or materials will not be dumped on any of the selected investigation /</p>

Topic	Potential Impact	Mitigation
		excavation sites or their environs.
Buffer Zones		<p>There are two types of environmental protection buffer zone, as follows:-</p> <ul style="list-style-type: none"> <li>• 15m Buffer to all watercourses / areas of standing water.</li> <li>• 100m Buffer to River Foyle SAC.</li> </ul> <p>These are required to be established during the construction works to provide a safeguard against routinely carrying out high pollution-risk activities close to high risk pollution pathways linked to the SAC. The high risk pollution pathways have been identified through the EIA process as being local waterways / streams connected to the SAC, and overland flow of rainfall dependent runoff. Both of these pathways could potentially rapidly transfer contaminants from construction lands directly into the SAC.</p> <p>Providing a pathway buffer, within which construction activities are severely restricted, between the source and the receptor provides a range of safeguards such as:-</p> <ul style="list-style-type: none"> <li>• Allowing greater attenuation potential for dissipation / breakdown</li> </ul>

Topic	Potential Impact	Mitigation
		<p>or capture of pollutants in the event of an un-noticed spillage.</p> <ul style="list-style-type: none"> <li>• Allowing a period of time to react to a pollution event to clean it up or contain it before it reaches the receptor.</li> <li>• Providing space within which additional pathway controls can be put in place where necessary, e.g. lined cut off trench or sump.</li> <li>• Preventing direct release of contaminants to water.</li> <li>• Allowing a zone for airbourne dust generated from construction works etc to settle out of the atmosphere.</li> </ul>

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## Appendix 8-3

### **Baseline Ecology Survey**

No amendments and therefore not provided within Addendum E.I.A.R.  
Please refer to originally submitted document

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## Appendix 8-4

### Preliminary Ecological Appraisal



**APPENDIX 8-4**

**Preliminary Ecological Appraisal**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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## SUMMARY

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide an updated badger survey on behalf of their clients in order to form part of a requested EIA for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford. Previous baseline ecology surveys had been carried out by Delichon Ecology including habitat surveys and species-specific surveys.

The application site is not located within any sites that are nationally or internationally designated for their nature conservation importance. However, the proposed development site does sit located on the banks of the River Foyle and Tributaries SAC and ASSI, and 16 sites are located within approx. 15km of the site. The application area is not within any areas designated as local wildlife sites, however, there are 8 within roughly 5km of the proposed site location. There is a potential hydrological linkage between the site and River Finn 002301, River Foyle and Tributaries UK0030320, Owenkillew River UK0030233, River Foyle Monagavlin to Carrigans 002067 due to the site's location on the banks of the River Foyle. This can be negated through a suitable Surface Water Management Plan (SWMP) detailed within a CEMP.

The data search from CEDaR identifies various species protected under Schedule 1 Part 1, Schedule 5 and Schedule 8 Part 1 of the Wildlife Order (NI) and the Habitat regulations (NI). No records were identified on site. All species were recorded offsite, but within a 2km proximity of the site, those mentioned within the Wildlife (NI) order 1985 are listed in Table 5. With the same outcome for record results from NPWS, NBN Atlas and National Biodiversity data Centre records.

The site has potential for otters and breeding birds. Evidence of otters present and active on site have been identified along the banks of the River Foyle through the site. Further otter surveys are required in order to determine the extent of otter presence and activity on site and a buffer of 10m should be established between the river and construction to prevent any potential disturbance to commuting otters. Any vegetation clearance should be kept to a minimum and undertaken outside of the breeding season (1<sup>st</sup> March – 31<sup>st</sup> August). It should also be noted that **should** clearance of the site occur **during** the breeding season, this **must** be undertaken under the supervision of a qualified ecologist and appropriate surveys undertaken prior to any scrub clearance.

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The site offers great potential for bats due to the extensive areas of woodland and linear features such as treelines and hedgerows on both sides of the site with a riverine habitat running through the centre of it. Further surveys for bat roost potential and activity will be required in order to ascertain roosting potential for bats on site as well as to identify any roosts and to recommend suitable mitigation for the proposed site plans.

A main badger sett has been identified on the Strabane side of the site located within the historical railway embankment through the wet woodland area. Numerous mammal trails and other signs of badger activity have been identified and will require further surveying to fully map out the badger setts as well as to determine site activity.

Suitable habitat was identified on the Strabane side of the site for smooth newts due to an extensive area of wet woodland and a small water body near the northern area of the Strabane area. Further surveys will be required to identify current newt presence and abundance within the proposed site area. A SWMP should be implemented in order to prevent spills and to reduce potential impacts to the water systems on site.

Japanese knotweed, Himalayan balsam and giant hogweed were identified throughout the site with higher density of these species in close proximity to the banks of the River Foyle on both the Lifford and Strabane sides of the site. An invasive species survey should be undertaken to discover the extent of these species and they should be cleared to prevent further spread onto the development site.

Investigation into marine and freshwater aquatic species is recommended due to the site's location on the River Foyle and its tributaries. Concerns over potential impacts occurring further downstream due to proposed site activities have been raised due to the use of the River Foyle and its Tributaries as part of the Salmon run.

No other protected species were located on site and therefore, provided the suggested mitigation is implemented and best practice used throughout, no other assessments are recommended.

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide an updated badger survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford. Previous baseline ecology surveys had been carried out by Delichon Ecology including habitat surveys and species-specific surveys.

### 1.1 Site Description

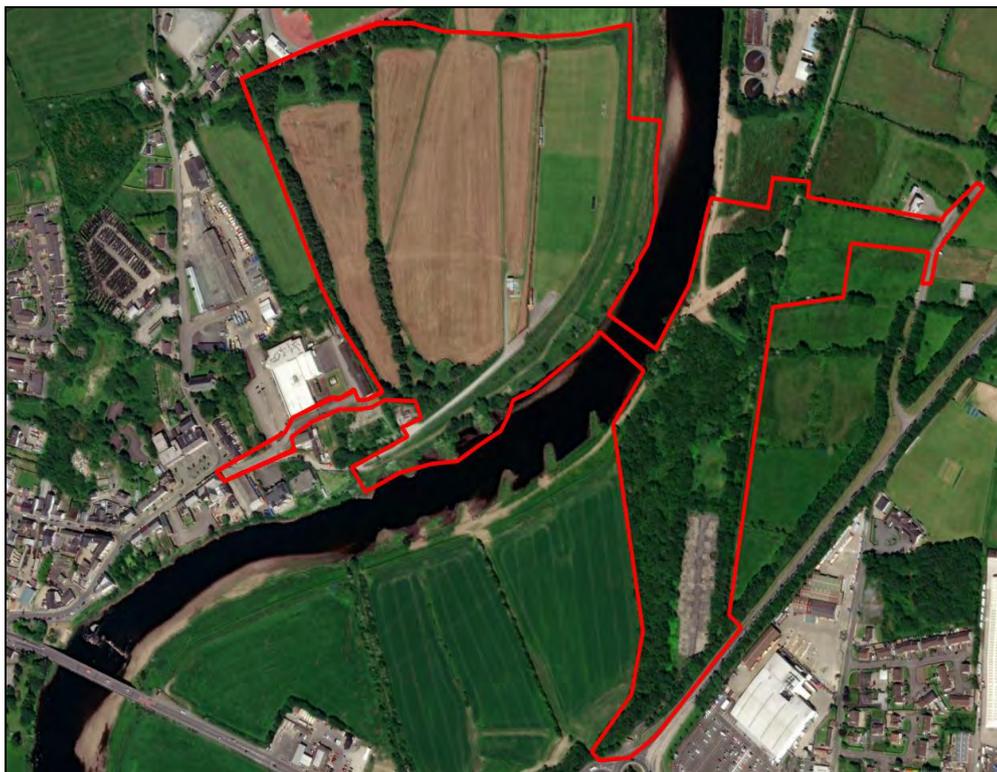
The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

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## 1.2 Development Proposals

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- 
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
  - Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
  - River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
  - Family Space incorporating unique play experience, designed to support children focused events & related programming.
  - Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Rationale of PEA

The aim of this report is to provide: -

- Baseline ecological conditions through a desk study of the site and the surrounding environs, involving designations local to the site and protected species that could be affected by this development.
- Carry out an extended Phase 1 Habitat survey to identify habitat types and their dominant vegetation and to identify potential habitats capable of supporting protected species.
- Identify any ecological issues that could potentially hinder this application, such as the presence of protected species and invasive weeds and recommend the need for further survey.

### 1.4 Surveyors/Authors

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens

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University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

#### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, as well as a seasonal volunteer for the Bat Conservation Trust and regularly takes part in newt, lizard and bat surveys.

#### **Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master’s degree (MSc) in Ecological Management and Conservation Biology from Queens University, Belfast, a bachelor’s degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird’s surveys,

badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABIP).

## 2.0 LEGISLATION

### 2.1 International (E.U)

<b>The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna)</b>	main legislative body for the protection and conservation of biodiversity within the European Union (EU). The Habitats Directive lists habitats and species that must be protected within Special Areas of Conservation (SAC) on Annexes I and II respectively. The Habitats Directive additionally identifies plant and animal species on Annex IV which are subject to strict protection anywhere they occur.
<b>The Birds Directive (Council Directive 2009/147/EC on the Conservation of Wild Birds)</b>	provides a network of sites in all member states. These are designated as such to protect birds at their breeding, feeding, or roosting areas. The Birds Directive identifies in Annex I species that are rare, in danger of extinction or vulnerable to changes in habitat and which require special protection (so-called 'Annex I' species). Special Protection Areas (SPA) are designated under the Birds Directive to protect a range of bird populations including those of Annex I species.

### 2.2 National (Northern Irish)

<b>The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995 and its amendments.</b>	Under the regulations, public bodies have a duty in exercising their functions to have regard to the EC Habitats Directive.
<b>The wildlife (Northern Ireland) order 1985 (as amended)</b>	Primary Legislation in Northern Ireland for the protection of wild animals, birds, plants and their habitats
<b>The wildlife and natural Environment Act (Northern Ireland) 2011</b>	This amended the Wildlife (Northern Ireland) order 1985 by giving protection to a wider range of plants, animals and birds. This included the increase of enforcement powers and penalties for wildlife related offences. It also introduced a statutory duty on all public bodies to further the conservation of biodiversity.
<b>The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2012.</b>	Sets out the requirements for Environmental Impact Assessments of proposed developments in Northern Ireland.
<b>The Environment (Northern Ireland) order 2002</b>	Grants authority to the DOENI to declare areas of land as ASSIs.
<b>The Nature Conservation and Amenity Lands (Northern</b>	Sets out the DOENI (Department of the Environment for Northern Ireland) rights and duties to protect and enhance sites of natural beauty or specific scientific interest in Northern Ireland.

Ireland Order 1985) (as amended)	
Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003	Transposes the Water Framework Directive into the NI statute book.
The Planning (Trees) Regulations (Northern Ireland) 2003 (S.R. No. 444 of 2003)	Establishes Tree Preservation Orders which provide legal protection specified trees from felling or damage.
The Noxious Weeds (Northern Ireland) Order 1976	Provides powers to compel landowners to destroy scheduled weeds on their property.

## 2.3 Planning Policy

The strategic planning policy for Northern Ireland (SPPS) sets out the core principals of forward planning and development management in Northern Ireland. These must be considered by Local Planning Authorities (LPAs) in the preparation of any Local Development Plans (LPDs).

<b>The Planning Policy Statement 2 (PPS 2), Natural Heritage, NH2</b>	Indicates that development proposals are required to be sensitive to all protected species and sited and designed to protect them, their habitats and prevent from deterioration and destruction of their breeding sites or resting places.
<p><b>International Designations</b> - Developments are restricted where they are likely to impact upon the integrity of European or RAMSAR sites as these are afforded the highest form of statutory protection. Planning will only be granted for a development which is not likely to have a significant impact on a SPA or proposed SPA, ASSI or proposed ASSI, SAC or Ramsar.</p> <p><b>Protected Species</b> - If there is evidence to suggest that a protected species is present on site or may be impacted by the development, appropriate assessments must be undertaken to determine if the species is present. Requirements of the species must be factored into planning and design of the development and any likely impacts on the species must be fully considered before determination. Planning will only be granted for development proposals that are not likely to harm a European protected species. In exceptional circumstances a development proposal which is permitted to harm these species may only be permitted where; no alternative solution is available, it is required for imperative reasons of overriding public interest, there is no detriment to the maintenance of the population of the species at a favoured conservation status and compensatory measures are agreed and fully secured. Developments are always required to be sensitive to all protected species, habitats and prevent deterioration and destruction of their breeding sites or resting places.</p> <p><b>National Designations</b>- Planning will only be granted for a development proposal which is not likely to have an impact on any ASSI which contain flora, fauna or any features designated under part IV of the Environment (NI) order 2002. These also include Nature Reserves or National Nature Reserves which are usually managed by the department, council or NGO's. Marine Nature Reserves or sea areas including the inter-tidal zones are designated by the DOE under part 3 of the Marine Act (Northern Ireland 2013) and are established for the conservation of marine flora and fauna, habitats and geological</p>	

features. A development may only be permitted where the benefits may outweigh the value of the site. In such cases appropriate mitigation and compensatory measures will be required.

**Area of Outstanding Natural Beauty (AONB)** - AONBs are designated for high landscape quality, wildlife importance and rich cultural heritage under the Nature Conservation and Amenity lands (NI) Order 1985. Development proposals in AONBs must be sensitive to the distinctive special character of the area and quality of their landscape.

**Local Designations** – These can be established by councils under the provisions of nature conservation and amenity lands (NI) order 1985. The department can also provide a wildlife refuge under the wildlife (NI) order 1985. A development proposal which could have a significant adverse impact on a site of local importance should only be permitted where the benefits of the development outweigh the value of the site. This will require appropriate mitigation and compensatory measures.

<b>NI Biodiversity Strategy</b>	Outlines a cross-sector approach to conserving biodiversity in Northern Ireland and provides the platform from which Species Action Plans (SAPs) and Habitat Action Plans (HAP's) are compiled for the most ecologically valuable and threatened flora and fauna.
<b>Strategic Planning Policy Statement (SPPS), September 2015.</b>	Eventually will combine all separate planning policy statements (PPSs) into one

## 2.4 Lifford (ROI) Legislation

### Bats

All bats and their roosting sites are legally protected under the EU Habitats Directive as transposed by the Habitats Regulations. With the exception of Lesser Horseshoe bat (*Rhinolophus hipposideros*), which is an Annex II species, the remainder are classified as Annex IV species. They are also protected under the Wildlife Act (as amended). Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. Article 12 and 13 of the Habitats Directive relates to the establishment of a system of strict protection for certain animal and plant species, while Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulation 51, 52 and 54 of the Birds and Habitats Regulations of 2011, respectively. All bats are strictly protected in Ireland and a person who deliberately captures, kills or disturbs a specimen in the wild, or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

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As an Annex IV species may be found throughout the country, the protection of these species is not restricted in geographical terms and is not necessarily associated with areas subject to a specific nature designation

Under the Regulations it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - impair its ability to survive, breed or reproduce, or rear or care for its young;
  - or
  - impair its ability to hibernate or migrate;
- Deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- To damage or destroy a breeding site or resting place of such an animal.

There is no provision within the legislation to issue licences to kill bats for the purpose of development.

### **Badgers**

Badgers (*Meles meles*) are legally protected under the Irish Wildlife Act 1976 (as amended) and Annex IV of the EU Habitats Directive Appendix III of the Bern convention as a species in need of protection. Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a badger; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place (normally a sett) that badgers use for shelter or protection; or
- intentionally or recklessly damage or destroy anything which conceals or protects any such structure; or
- intentionally or recklessly disturb a badger while it is occupying a structure or place which it uses for shelter or protection.

In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. There is no provision within the legislation to issue licences to kill badgers for the purpose of development.

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### **Otters**

Otters (*Lutra lutra*) are protected under the Irish Wildlife Act 1976 (as amended) and are listed on Annex II and Annex IV of the EU Habitats Directive. Under the Habitats Regulations it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - impair its ability to survive, breed or reproduce, or rear or care for its young;
  - or
  - impair its ability to hibernate or migrate;
- Deliberately to obstruct access to a breeding site or resting place of such an animal;  
or
- To damage or destroy a breeding site or resting place of such an animal.

There is no provision within the legislation to issue licences to kill otters for the purpose of development.

### **Red Squirrel**

Red squirrels (*Sciurus vulgaris*) and their dreys are protected under the Irish Wildlife Act 1976 (as amended) and are listed under Annex III of the Bern Convention for Conservation of European Wildlife and Natural Habitats. Under this It is an offence to:

- intentionally or recklessly kill, injure or take
- intentionally or recklessly: damage or destroy, or obstruct access to, any structure or place which red squirrels use for shelter or protection;
- damage or destroy anything which conceals or protects any such structure; disturb a red squirrel while it is occupying a structure or place which it uses for shelter or protection.

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### **Breeding Nesting Birds**

All wild birds are protected, particularly during the bird breeding season while nesting under the Irish Wildlife Act 1976 (as amended), the EU Habitats Directive of the Bern convention via the European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011)). It is an offence to intentionally or recklessly:

- kill, injure or take any wild bird; or
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
- take or destroy an egg of any wild bird; or
- disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturb dependent young of such a bird.

Additionally, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

### **Wild Birds**

Most bird species return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. For these species it is an offence to damage or destroy their nests at any time of the year, even when they are not in use.

All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds. Additionally, some bird species, which are particularly rare or vulnerable, are listed on Annex I of the Directive. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs).

Local and national biodiversity action plans consider priority species within the local area of conservation concern.

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### **Smooth Newt**

Smooth newts (*Lissotriton vulgaris*) are protected in Ireland under Schedule 5 of the Wildlife Act, 1976. The species is also afforded additional protection under Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a newt; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that newts use for shelter or protection; or
- intentionally or recklessly damage or destroy anything which conceals or protects any such structure; or
- intentionally or recklessly disturb a newt while it is occupying a structure or place which it uses for shelter or protection.

In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. There is no provision within the legislation to issue licences to kill newts for the purpose of development.

### **Common or viviparous lizard**

Common lizards (*Zootoca vivipara*) are protected in Ireland under Schedule 5 of the Wildlife Act, 1976. The species is also afforded additional protection under Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a lizard, or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that lizards use for shelter or protection.

### **Lepidoptera**

The marsh fritillary butterfly (*Euphydryas aurinia*) is a protected species listed on Annex II and Annex IV of the EU Habitats Directive. Under the Habitats Regulations it is an offence It is an offence to

- intentionally or recklessly kill, injure or take the marsh fritillary butterfly; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that the marsh fritillary uses for shelter or protection

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Cryptic Wood white Butterfly is also listed on Schedules 5 of the 1982 Wildlife and Countryside Act.

### **Flora**

All wild plants are given some measure of protection in the Republic of Ireland, The current list of plant species protected by Section 21 of the Wildlife Act, 1976 is set out in the Flora (Protection) Order, 2015,. The order has the effect that, unless you have a licence, you may not:

- intentionally pick, uproot or destroy any wild plants listed in the schedule, or even collect their flowers and seeds;
- sell these plants or their seeds if taken from the wild;
- uproot any wild plants intentionally, except on your own land or with permission.

## **2.5 Strabane (NI) Legislation**

### **Bats**

All bat species in Northern Ireland are listed on Annex IV of the EC Habitats Directive (92/43/EEC) and are protected under the Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended), known as the Habitat Regulations.

Under the Regulations it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
  - Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
  - Deliberately to disturb such an animal in such a way as to be likely to;
    - affect the local distribution or abundance of the species to which it belongs;
    - impair its ability to survive, breed or reproduce, or rear or care for its young;or
    - impair its ability to hibernate or migrate;
  - Deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- To damage or destroy a breeding site or resting place of such an animal.

There is no provision within the legislation to issue licences to kill bats for the purpose of development.

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### **Badgers**

Badgers (*Meles meles*) are listed on schedules 5, 6 and 7 of the Wildlife (Northern Ireland) Order 1985 (as amended). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a badger; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place (normally a sett) that badgers use for shelter or protection; or
- intentionally or recklessly damage or destroy anything which conceals or protects any such structure; or
- intentionally or recklessly disturb a badger while it is occupying a structure or place which it uses for shelter or protection.

In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. There is no provision within the legislation to issue licences to kill badgers for the purpose of development.

### **Otters**

Otters (*Lutra lutra*) are listed on Annex IV of the EC Habitats Directive (92/43/EEC) and are protected under the Conservation (Natural Habitats etc.) Regulations 1995 (as amended), known as the Habitats Regulations. Under the Habitats Regulations it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - impair its ability to survive, breed or reproduce, or rear or care for its young;
  - or
  - impair its ability to hibernate or migrate;
- Deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- To damage or destroy a breeding site or resting place of such an animal.

There is no provision within the legislation to issue licences to kill otters for the purpose of development.

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### **Red Squirrel**

Red squirrels (*Sciurus vulgaris*) and their dreys are protected under Article 10 of the Wildlife (Northern Ireland) Order 1985 (as amended). It is an offence to:

- intentionally or recklessly kill, injure or take
- intentionally or recklessly: damage or destroy, or obstruct access to, any structure or place which red squirrels use for shelter or protection;
- damage or destroy anything which conceals or protects any such structure; disturb a red squirrel while it is occupying a structure or place which it uses for shelter or protection.

### **Breeding Nesting Birds**

Under the Wildlife (Northern Ireland) Order 1985 (as amended) all wild birds are protected, particularly during the bird breeding season while nesting. It is an offence to intentionally or recklessly:

- kill, injure or take any wild bird; or
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
- take or destroy an egg of any wild bird; or
- disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturb dependent young of such a bird.

Additionally, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

### **Wild Birds**

Most bird species return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. Some of these species which have been deemed as particularly vulnerable to decline are given additional protection and are listed on Schedule A1 of the Wildlife Order (see Table 1). For these species it is an offence to damage or destroy their nests at any time of the year, even when they are not in use.

**Table 1: Schedule A1 species**

Common Name	Latin Name
Golden Eagle	<i>Aquila chrysaetus</i>
White-tailed Eagle	<i>Haliaeetus albicilla</i>
Osprey	<i>Pandion haliaetus</i>
Barn Owl	<i>Tyto alba</i>
Peregrine	<i>Falco peregrines</i>
Red Kite	<i>Milvus milvis</i>

The Wildlife and Natural Environment Act (Northern Ireland) 2011 (known as the WANE Act) introduced a biodiversity duty on public bodies in Northern Ireland. It states that *'it is the duty of every public body, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions'*.

The WANE Act also requires that the Department of the Environment maintains a list of species requiring special attention when delivering this duty. These are Northern Ireland priority species and specific actions for these have been addressed in a range of Government policies and activities.

All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds. Additionally, some bird species, which are particularly rare or vulnerable, are listed on Annex I of the Directive. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs).

### **Smooth Newt**

Newts (*Lissotriton vulgaris*) are listed on schedules 5, 6 and 7 of the Wildlife (NI) Order 1985 (as amended). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a newt; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that newts use for shelter or protection; or
- intentionally or recklessly damage or destroy anything which conceals or protects any such structure; or

- 
- intentionally or recklessly disturb a newt while it is occupying a structure or place which it uses for shelter or protection.

In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence. There is no provision within the legislation to issue licences to kill newts for the purpose of development.

#### **Common or viviparous lizard**

In Northern Ireland the common or viviparous lizard (*Zootoca vivipara*) is protected under Article 10 of the Wildlife (Northern Ireland) Order 1985 (as amended). It is an offence to:

- intentionally or recklessly kill, injure or take a lizard, or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that lizards use for shelter or protection.

#### **Lepidoptera**

The marsh fritillary butterfly (*Euphydryas aurinia*) is a protected species listed on Schedules 5 and 7 of the Wildlife (Northern Ireland) Order 1985 (as amended) and included on Annex 2 of the European Habitats Directive (92/43/EEC). It is an offence to

- intentionally or recklessly kill, injure or take the marsh fritillary butterfly; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that the marsh fritillary uses for shelter or protection

Cryptic Wood white and Holly Blue Butterfly are also listed on Schedules 5 and 7.

#### **Flora**

All wild plants are given some measure of protection in Northern Ireland under the Wildlife (NI) Order, 1985. Fifty-six species, listed in Schedule 8, parts 1 and 2, are given special protection. The order has the effect that, unless you have a licence, you may not:

- intentionally pick, uproot or destroy any wild plants listed in the schedule, or even collect their flowers and seeds;
- sell these plants or their seeds if taken from the wild;
- uproot any wild plants intentionally, except on your own land or with permission.

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## 3.0 METHODOLOGY

This assessment comprised of a combination of desk study and field investigations, and used the following scope of works as a basis for the assessment:

- Desk study and review of potential development proposals;
- Site visit and walk over;
- Identification of onsite habitats and key species, GIS mapping;
- Habitat classification map using standardised Phase 1 Survey techniques and in accordance with NIEA and JNCC recommendations;
- Recording of geo-referenced target notes and production of GIS databases;
- Review of land designation GIS datasets (to include NIEA designations, Natura 2000 network sites etc.);
- Assessment on the potential impacts that the proposed development may have on local ecological environs and designated sites; and
- Recommendations for further ecological assessments, as required.

### 3.1 Desk Study

A desk study was undertaken to determine if any statutory or non-statutory designations, ancient woodland or priority species within proximity to the site. This involved using digital GIS datasets as well as contacting local recording groups for relevant information.

The data sources for the desk study were:

- Department of Agriculture, Environment and Rural Affairs (DAERA).
- NIEA Natural Environment Map Viewer.
- NI Planning portal.
- Relevant NGO Websites.
- Centre for Environmental Data and Recording (CEDaR) requested 20<sup>th</sup> July 2020.
- NBN Atlas.

### 3.2 Field Study

Survey methods followed the Phase 1 habitat methods as carried out in accordance with JNCC (2010). This involved a systematic walkover of the site during June 2020, mapping and broadly describing habitat types and identifying the presence of the dominant flora species and non-native invasive weeds.

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Habitats were identified and described following Joint Nature Conservancy Committee (JNCC) Phase 1 habitat survey methodology (JNCC 1990), and reference made to the '*Guidelines for Ecological Impact Assessment*' (CIEEM, 2018) and CIEEM (2017) Guidelines for Preliminary Ecological Appraisal.

A systematic search was carried out for evidence of and the site's potential to support protected mammal species, including but not limited to the following:

**Badger** *Meles meles* - The survey area and 25m beyond the site boundary was surveyed for signs of badger activity including the presence of setts, latrines, badger paths, bedding and hair caught on barbed wire fences. In addition, a note was made of any well-worn mammal track that was observed within the survey area.

**Bats** *Chiroptera sp.* - An assessment of the suitability of habitats and features within the survey area for their roosting, foraging and commuting places.

**Otter** *Lutra lutra* - The application site was surveyed for signs of otter activity. The survey involved searching for evidence of otters including the presence of holts (otter dens), couches (laying up areas), spraints (faecal droppings), otter paths, slides and otter paw prints.

**Smooth Newt** *Lissotriton vulgaris* - An assessment of the suitability of any waterbodies within the application site was made for smooth newts with areas of suitable habitat and niches noted.

**Breeding Birds** - An assessment of the suitability of the habitats and features within the site to support breeding bird species was made and a record of incidental bird sightings was conducted during the site visit. Special emphasis was placed on the suitability of the site for Schedule 1, red and amber listed birds along with UKBAP species and Northern Ireland Priority Species (NIPS).

Other protected species included within the survey for suitable habitat and any evidence of included common lizard *Zootoca vivipara*, formerly *Lacerta vivipara*, lepidoptera species and listed plant species.

Below is a summary of the survey details, survey timing and weather details including temperature (°C), wind speed (Beaufort scale), cloud cover (Oktas), and precipitation.

**Table 2: Summary of survey timing and weather**

Surveyor	Date	Survey Start	Survey Finish	°C	W/s (mph)	Oktas	Ppt %
Ryan Boyle BSc (Hons), MSc Emily Taylor BSc (Hons) Conor Finlay BSc (Hons), MSc	10/05/21	10:00	15:40	9	6	5/8	25

### 3.3 Survey Constraints

While there were no constraints experienced during the habitat mapping and site investigation period, it should be noted that ecological habitats can change over time and season. This includes temporal changes in flora and fauna assemblages, and these changes can be augmented or induced by alterations of land use within any given site.

This report can only provide a snapshot of the ecological activities at the time of the survey undertaken.

## 4.0 RESULTS

### 4.1 Previous Study

A previous baseline ecology study had been carried out by Delichon Ecology, consisting of habitat classification and species-specific surveys, outlined below in table 3. The previous studies carried out identified badger and otter presence and activity on site as well as investigated bat and bird activity across the site.

**Table 3: Previous survey work carried out by Delichon Ecology**

Survey Date	Survey Type
June 06 <sup>th</sup> 2020	Multi-disciplinary survey including habitat survey, botanical survey, invasive species survey, breeding bird survey (late season), non-volant mammal survey and passive bat surveys.
July 15 <sup>th</sup> 2020	Multi-disciplinary survey including habitat survey, botanical survey, invasive species survey, breeding bird survey (late season), non-volant mammal survey and passive bat surveys.

November 30 <sup>th</sup> 2020	Wintering bird surveys and non-volant mammal survey
December 28 <sup>th</sup> 2020	Wintering bird survey
January 12 <sup>th</sup> 2021	Wintering bird survey
February 11 <sup>th</sup> 2021	Wintering bird survey
March 30 <sup>th</sup> 2021	Wintering bird surveys and non-volant mammal survey
May 11 <sup>th</sup> 2021	Breeding Bird survey (early season)

## 4.2 Desk study

## 4.3 Natura 2000 & Land Designations

Following a search of the NIEA GIS databases for protected and designated areas, the application site is not located within any sites that are nationally or internationally designated for their nature conservation importance. However, the proposed development site does sit located on the banks of the River Foyle and Tributaries SAC and ASSI, 16 sites are located within approx. 15km of the site. The application area is not within any areas designated as local wildlife sites, however, there are 8 within roughly 5km (see Table 3 & 4).

**Table 4: International/National Designations within 15km of the site**

Designation	Site Name	Setback Distance
Special Areas of Conservation	River finn 002301	The proposed development is partially located within the River Finn SAC site on the western Lifford side
Special Areas of Conservation	River Foyle and Tributaries UK0030320	The proposed development is located partially within the River Foyle and Tributaries SAC site with the River Foyle itself going through the centre of the proposed site separating Strabane and Lifford
Special Areas of Conservation	Moneygal Bog UK0030320	Moneygal Bog SAC site is located at a setback distance of 13.6km southwest from the proposed development site
Special Areas of Conservation	Owenkillew River UK0030233	Owenkillew River SAC site is located at a setback distance of 13.9km southeast of the proposed development site
Area of Special Scientific Interest	River Foyle and Tributaries ASSI229	The proposed development is located partially within the River Foyle and Tributaries SAC site with the River Foyle itself going through the centre of the proposed site separating Strabane and Lifford
Area of Special Scientific Interest	Strabane Glen ASSI058	1.5km east of the proposed development site
Area of Special Scientific Interest	McKean's Moss Parts 1 and 2	13km northeast of the proposed site development

Designation	Site Name	Setback Distance
	ASSI128	
Area of Special Scientific Interest	Corbylin Wood ASSI197	9.6km northeast of the proposed development site
Area of Special Scientific Interest	Silverbrook Wood ASSI195	10.3km east of the proposed development site
Area of Special Scientific Interest	Lisnaragh ASSI288	11.5km east of the proposed development site
Area of Special Scientific Interest	Aghabrack ASSI304	14.5km east of the proposed development site
Area of Special Scientific Interest	Owenkillew and Glenelley Woods ASSI062	13.7km southeast of the proposed development site
Area of Special Scientific Interest	Owenkillew River ASSI213	13.6km southeast of the proposed development site
Area of Special Scientific Interest	Moneygal Bog ASSI005	13.2km southwest of the proposed development site
Natural Heritage Area	Feddyglass Woods 001129	4.9km northeast of the proposed development site
Natural Heritage Area	River Foyle Monagavlin to Carrigans 002067	7.6km north of the proposed development site

**Table 5: Local Wildlife sites within 15km of the site.**

Designation	Site Name	Setback Distance	Summary of Features
Local Wildlife Site	Holly Hill, Sperrin Wood	4.7km east of proposed development site	Local wildlife site
Local Wildlife Site	Glenside	1.1km east of the proposed development site	Local wildlife site
Local Wildlife Site	Strabane Quarry	0.8km southeast of the proposed development site	Local wildlife site
Local Wildlife Site	Urney Wood	4.7km southwest of proposed development site	Local wildlife site
Local Wildlife Site	Gallany House	4.5km south of proposed development site	Local wildlife site
Local Wildlife Site	Glenmornan River	4.9km northeast of proposed development site	Local wildlife site
Local Wildlife Site	Roundhill Wood	1.7km northeast of proposed development site	Local wildlife site
Local Wildlife Site	Tulacorr	1.4km northeast of proposed development site	Local wildlife site

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## **River Finn**

### **002301**

Distance: Proposed development site is partially located within the River Finn site on the western Lifford side

Summary:

Within Northern Ireland the River Finn forms part of the River Foyle Tributaries and as such shares similar description features due to it's hydrological link with the River Foyle SAC and ASSI.

## **River Foyle and Tributaries**

### **SAC: UK0030320**

### **ASSI: ASSI229**

Distance: The proposed development is located partially within the River Foyle and Tributaries SAC site with the River Foyle itself going through the centre of the proposed site separating Strabane and Lifford

Summary:

The River Foyle and Tributaries ASSI/SAC includes part of the River Finn which lies within Northern Ireland, the River Mourne and its tributary the River Strule (up to its confluence with the Owenkillew River) and the River Derg, along with two of its sub-tributaries, the Mourne Beg River and the Glendergan River. In total, the area encompasses 120km of watercourse and is notable for the physical diversity and naturalness of the banks and channels, especially in the upper reaches, and the richness and naturalness of its plant and animal communities, in particular the population of Atlantic Salmon *Salmo salar*, which is of international importance. The area is also important as a river habitat. In their upper catchments, the tributaries are all fast-flowing spate rivers with dynamic flow regimes, characterised by sequences of rapid, riffle and run.

Although the banks have been modified, the channel is natural and composed of large cobble substrate with scattered boulders and sandy marginal deposits, while cobble side, point bars and discrete sand deposits are common features. At the upper end of the River Derg and its two tributaries, the aquatic flora reflects the highly acidic character of the water, with mosses such as *Brachythecium plumosum*, *Fontinalis squamosa* and *Racomitrium* spp. and liverworts including *Marchantia polymorpha* on stabilised boulders and rocks. Downstream, beds of Stream Water-crowfoot *Ranunculus penicillatus* ssp. *penicillatus* occur where the flow is less

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dynamic, particularly in the lower sections of the River Derg and Moume Beg River and along the Strule and Mourne Rivers down to Strabane. Mosses and liverworts still remain a significant component of the aquatic plant community, while other higher plants such as Pondweeds *Potamogeton* spp., Starworts *Callitriche* spp. and Water-milfoils *Myriophyllum* spp. intermix with the Stream Water-crowfoot *R. penicillatus* ssp. *penicillatus* in the channel.

Along the banks, there are emergent stands of Branched Bur-reed *Sparganium erectum* and Reed Canarygrass *Phalaris arundinacea*. Downstream of Strabane, the River Foyle is slow-flowing and subject to tidal influences. The channel is extremely limited in aquatic plants, particularly in the more saline areas where marine algae make up the main component. Sheltered riverbanks in this section have a band of tall herb-fen dominated by Reed Canary-grass *Phalaris arundinacea* and other grasses. This becomes extensive in the large silty bays found at Saint Johnstone and 2 Grange. Associated fen species include Marsh-marigold *Caltha palustris*, Hedge Bindweed *Calystegia sepium*, Great Willowherb *Epilobium hirsutum*, Meadowsweet *Filipendula ulmaria*, Purple-loosestrife *Lythrum salicaria*, Common Valerian *Valeriana officinalis*, Monkeyflower *Mimulus guttatus*, Cow Parsley *Anthriscus sylvestris* and Bulrush *Typha latifolia*. Willows *Salix* spp. are scattered throughout.

### **Strabane Glen**

#### **ASSI058**

Distance: 1.5km east

#### Summary:

The area is of special scientific interest because of its woodland flora and characteristic associated fauna. The semi-natural deciduous woodland and scrub has a markedly calcicolous character, which is atypical for the region and is due to the underlying geology. The valley represents a line of weakness between the Upper Dalradian Dart schists and a basic igneous unit, possibly enhanced by local faulting. It was developed as a meltwater channel during the final deglaciation of the Sperrins ice, as indicated by outwash deposits to the north of the valley and by washed rock outcrops on the valley sides. The calcicolous nature of the soils reflects the influence of the igneous unit and adjacent Dungiven limestone, together with the glacial drift derived from these. The woodland has developed along both sides of the valley and has a wide diversity in structure, plant communities and overall species richness. In addition to the woodland interest the site has associated physical features including cliff and

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rock faces, boulder scree, streams, small rock gullies and waterfalls, all of which contribute to the diversity of the site.

The majority of the woodland canopy is composed of a mixture of Ash *Fraxinus excelsior* and Hazel *Corylus avellana*, with Wych Elm *Ulmus glabra* occasionally prominent. There is no distinct stratification of the understorey, which continually merges with canopy. The composition of the ground flora is variable because of the degree and extent of flushing down the steep gorge slopes. It exhibits high floristic diversity throughout, the principal components of which are Opposite-leaved Golden Saxifrage *Chrysosplenium oppositifolium*, Ivy *Hedera helix*, Lesser Celandine *Ranunculus ficaria*, ferns, principally Soft Shield-fern *Polystichum setiferum*, and calcicolous bryophytes. The rarity of this type of woodland in this region along with the geomorphological interest combine to increase the overall scientific value of the site.

#### **Summary of Designations**

The site area is partially located with the River Finn and River Foyle and Tributaries SAC/ASSI's, there are also a further x2 international and x11 national designations within 15km of the proposed development site. It is also noted that there are x8 local wildlife sites within 5km of the proposed site. There is concern in regard to the River Finn and River Foyle and tributaries SAC/ASSI's as proposed site works will need to take place within these designations. Due to the hydrological connections between these designations and their tributaries a HRA is recommended in order to determine the perceived risk and to help inform the production of a suitable Surface Water Management Plan (SWMP) detailed within the CEMP in order to negate the potential risks to these designations. As a small bridge structure is proposed for construction across the River Foyle, an investigation into the aquatic species with a particular emphasis on Atlantic salmon is required. All other designations have a suitable set back distance with the nearest being the Strabane Glen ASSI and the Strabane Quarry Local wildlife site with setback distances of 1.5km and 0.8km respectively and are of no concern due to the proposed nature of the development and the proposed development site.

#### **4.4 Other Features/Species of Conservation Concern**

No other features or species are of conservation concern.

## 4.5 CEDaR Protected Species Search

A written request was submitted to obtain data from the CEDaR recorded species dataset, and the results obtained from the CEDaR search provided a list of recorded species within a 2km radius of the site. Given the number of provided search records, the primary findings are summarised below in Table 5 and the full list of notable species records, including NI priority species, amber and red listed birds and NI rare and scarce plants are presented in Appendix III.

**Table 6: CEDaR species records**

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Long-Eared Owl	<i>Asio otus</i>	05/03/2014	C30	Bern-A2, ECCITES-A, W(NI)O-Sch1_part1
Barn Owl	<i>Tyto alba</i>	05/11/2016	H39	Bern-A2, ECCITES-A, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Sparrowhawk	<i>Accipiter nisus</i>	06/03/2011	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
Buzzard	<i>Buteo buteo</i>	06/03/2011	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
Long-Eared Owl	<i>Asio otus</i>	10/10/2014	H39	Bern-A2, ECCITES-A, W(NI)O-Sch1_part1
Kestrel	<i>Falco tinnunculus</i>	18/10/2013	H39	Bern-A2, Bird-Amber, CMS_A2, ECCITES-A, FEP-007_tab2, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, Wales_NERC_S.42
Buzzard	<i>Buteo buteo</i>	18/10/2013	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
Peregrine	<i>Falco peregrinus</i>	1987	H358992	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Peregrine	<i>Falco peregrinus</i>	1988	H358992	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Whooper Swan	<i>Cygnus cygnus</i>	28/10/1995	H39	Bern-A2, Bird-Amber, BirdsDir-A1, CMS_A2, CMS_AEWA-A2, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Gannet	<i>Sula bassana</i>	30/05/2011	H39	Bird-Amber, CMS_AEWA-A2
Swift	<i>Apus apus</i>	08/05/2011	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	08/05/2014	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	08/05/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	09/05/2013	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	09/08/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
Willow Warbler	<i>Phylloscopus trochilus</i>	12/05/1988	H358990	Bird-Amber
Swift	<i>Apus apus</i>	17/07/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	18/07/2014	C3500	Bird-Amber, NIPS, Scottish_Biodiversity_List
Spotted Flycatcher	<i>Muscicapa striata</i>	01/06/2011	H39	BAP-2007, Bern-A2, Bird-Red, CMS_A2, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Black Redstart	<i>Phoenicurus ochruros</i>	07/04/1999	H39	Bern-A2, Bird-Red, WACA-Sch1_part1
Mistle Thrush	<i>Turdus viscivorus</i>	12/05/1988	H358990	Bird-Red, BirdsDir-A2.2
Yellowhammer	<i>Emberiza citrinella</i>	12/05/1988	H358990	BAP-2007, Bern-A2, Bird-Red, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Tree Sparrow	<i>Passer montanus</i>	22/11/1997	H39	BAP-2007, Bird-Red, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Atlantic Salmon	<i>Salmo salar</i>	1974	C30	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Atlantic Salmon	<i>Salmo salar</i>	July 2009	H3498	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Atlantic Salmon	<i>Salmo salar</i>	July 2009	H3397	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Atlantic Salmon	<i>Salmo salar</i>	July 2009	H3398	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Atlantic Salmon	<i>Salmo salar</i>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Atlantic Salmon	<i>Salmo salar</i>	October 2010	H3397	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Beech Fern	<i>Phegopteris connectilis</i>	1887	H358990	NI Rare & Scarce Plants
Beech Fern	<i>Phegopteris connectilis</i>	1887	H3598	NI Rare & Scarce Plants
Moonwort	<i>Botrychium lunaria</i>	1896	H3497	RedList_ENG_post2001-VU
Beech Fern	<i>Phegopteris connectilis</i>	31/05/1878	H3599	NI Rare & Scarce Plants
Rigid Hornwort	<i>Ceratophyllum demersum</i>	- 1837	C30	NI Rare & Scarce Plants

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Lesser Bladderwort	<i>Utricularia minor</i>	- 1933	H3497	RedList_ENG_post2001-VU
Purple Ramping-Fumitory	<i>Fumaria purpurea</i>	- 1953	H39	BAP-2007, England_NERC_S.41, FEP-007_tab2, NI Rare & Scarce Plants , NIPS, NS-excludes, RedList_ENG_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
Wood-Sorrel	<i>Oxalis acetosella</i>	04/05/2005	H358982	RedList_ENG_post2001-NT
Sanicle	<i>Sanicula europaea</i>	04/05/2005	H358982	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	04/05/2005	H358982	W(NI)O-Sch8_part2
Primrose	<i>Primula vulgaris</i>	05/05/2005	H358989	W(NI)O-Sch8_part2
Primrose	<i>Primula vulgaris</i>	05/05/2005	H354990	W(NI)O-Sch8_part2
Heath Speedwell	<i>Veronica officinalis</i>	05/05/2005	H351987	RedList_ENG_post2001-NT
Lesser Spearwort	<i>Ranunculus flammula</i>	05/05/2005	H354990	RedList_ENG_post2001-VU
Heath Speedwell	<i>Veronica officinalis</i>	05/05/2005	H358993	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	05/05/2005	H358993	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	05/05/2005	H358993	W(NI)O-Sch8_part2
Heather	<i>Calluna vulgaris</i>	05/05/2005	H358993	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	05/05/2005	H351987	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	05/05/2005	H354990	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	05/05/2005	H358989	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	12/05/1988	H358990	W(NI)O-Sch8_part2
Sanicle	<i>Sanicula europaea</i>	12/05/1988	H358990	RedList_ENG_post2001-NT
Heather	<i>Calluna vulgaris</i>	12/05/1988	H358990	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	12/05/1988	H358990	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	12/05/1988	H358990	RedList_ENG_post2001-NT
Wood-sorrel	<i>Oxalis acetosella</i>	15/04/2014	H3483799106	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	15/04/2014	H3483799106	W(NI)O-Sch8_part2
Hare's-foot sedge	<i>Carex lachenalii</i>	18/06/2009	H3498	NR-excludes, RedList_GB_post2001-NT, Scottish_Biodiversity_List
Hare's-foot sedge	<i>Carex lachenalii</i>	18/06/2009	H3297	NR-excludes, RedList_GB_post2001-NT, Scottish_Biodiversity_List
Needle Spike-Rush	<i>Eleocharis acicularis</i>	1829	H3497	RedList_ENG_post2001-NT
Common Cow-Wheat	<i>Melampyrum pratense</i>	1878	H358990	RedList_ENG_post2001-NT
Heath Cudweed	<i>Gnaphalium sylvaticum</i>	1896	H3497	NIPS, RedList_ENG_post2001-EN, RedList_GB_post2001-EN,
Bromus x subsp. pseudothominei	<i>Bromus x subsp. pseudothominei</i>	1896	H3497	

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Intermediate Wintergreen	<i>Pyrola media</i>	1896	H3497	NI Rare & Scarce Plants , NIPS, NS-excludes, RedList_ENG_post2001-EN, RedList_GB_post2001-VU, Scottish Biodiversity List
Large-Flowered Hemp-Nettle	<i>Galeopsis speciosa</i>	1897	H3497	FEP-007_tab3, RedList_ENG_post2001-VU, RedList_GB_post2001-VU, Scottish Biodiversity List, Wales_NERC_S.42
Field Woundwort	<i>Stachys arvensis</i>	1900	H3497	FEP-007_tab3, RedList_ENG_post2001-NT, RedList_GB_post2001-NT, Scottish Biodiversity List
Slender Spike-Rush	<i>Eleocharis uniglumis</i>	1930 - 1950	H3499	NI Rare & Scarce Plants
Slender Trefoil	<i>Trifolium micranthum</i>	1981	H358990	NI Rare & Scarce Plants , Scottish Biodiversity List
Corn Spurrey	<i>Spergula arvensis</i>	1987 - 1999	C3500	RedList_ENG_post2001-VU, RedList_GB_post2001-VU
Tormentil	<i>Potentilla erecta</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Bog Myrtle	<i>Myrica gale</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
White Beak-Sedge	<i>Rhynchospora alba</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Round-Leaved Sundew	<i>Drosera rotundifolia</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Marsh Pennywort	<i>Hydrocotyle vulgaris</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Devil's-Bit Scabious	<i>Succisa pratensis</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Eyebright	<i>Euphrasia arctica subsp. borealis</i>	1987 - 1999	C3500	RedList_ENG_post2001-VU, RedList_GB_post2001-DD
Lesser Spearwort	<i>Ranunculus flammula</i>	1987 - 1999	C3500	RedList_ENG_post2001-VU
Marsh Cinquefoil	<i>Potentilla palustris</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Large-Flowered Hemp-Nettle	<i>Galeopsis speciosa</i>	1987 - 1999	H343994	FEP-007_tab3, RedList_ENG_post2001-VU, RedList_GB_post2001-VU, Scottish Biodiversity List,
Ragged Robin	<i>Lychnis flos-cuculi</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Common Valerian	<i>Valeriana officinalis</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Heather	<i>Calluna vulgaris</i>	1987 - 1999	C3500	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	1987 - 1999	C3500	W(NI)O-Sch8_part2
Tormentil	<i>Potentilla erecta</i>	22/06/2017	H346993	RedList_ENG_post2001-NT
Bitter-Vetch	<i>Lathyrus linifolius</i>	23/09/2002	H345998	RedList_ENG_post2001-NT
Goldenrod	<i>Solidago virgaurea</i>	23/09/2002	H3398	RedList_ENG_post2001-NT

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Wood-Sorrel	<i>Oxalis acetosella</i>	25/05/1988	H358990	RedList_ENG_post2001-NT
Wood-Sorrel	<i>Oxalis acetosella</i>	25/05/1988	H358990	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	25/05/1988	H358990	W(NI)O-Sch8_part2
Common Valerian	<i>Valeriana officinalis</i>	25/06/2009	H3498	RedList_ENG_post2001-NT
Marsh Cinquefoil	<i>Potentilla palustris</i>	25/06/2009	H3498	RedList_ENG_post2001-NT
Lesser Spearwort	<i>Ranunculus flammula</i>	25/06/2009	H3498	RedList_ENG_post2001-VU
Marsh Speedwell	<i>Veronica scutellata</i>	25/06/2009	H3498	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	28/03/1988	H358990	W(NI)O-Sch8_part2
Sanicle	<i>Sanicula europaea</i>	28/03/1988	H358990	RedList_ENG_post2001-NT
Marsh Ragwort	<i>Senecio aquaticus</i>	30/04/2015	H3598	RedList_ENG_post2001-NT
Sanicle	<i>Sanicula europaea</i>	30/04/2015	H3598	RedList_ENG_post2001-NT
Primrose	<i>Primula vulgaris</i>	30/04/2015	H3598	W(NI)O-Sch8_part2
Wood-sorrel	<i>Oxalis acetosella</i>	30/04/2015	H3598	RedList_ENG_post2001-NT
Large-Flowered Hemp-Nettle	<i>Galeopsis speciosa</i>	September 2006	C3500	FEP-007_tab3, RedList_ENG_post2001-VU, RedList_GB_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
Bladder-Sedge	<i>Carex vesicaria</i>	Unknown	H3497	RedList_ENG_post2001-VU
Wood White	<i>Leptidea reali</i>	1960 - 2008	H39	BAP-2007, England_NERC_S.41, NIPS, RedList_GB_post2001-EN, WACA-Sch5_sect9.5a, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Wood White	<i>Leptidea reali</i>	1993	H39	BAP-2007, England_NERC_S.41, NIPS, RedList_GB_post2001-EN, WACA-Sch5_sect9.5a, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
River Lamprey	<i>Lampetra fluviatilis</i>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Brook Lamprey	<i>Lampetra planeri</i>	October 2010	H3297	Bern-A3, FEP-007_tab2, HabDir-A2*, Scottish_Biodiversity_List
Sea Lamprey	<i>Petromyzon marinus</i>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
River Lamprey	<i>Lampetra fluviatilis</i>	October 2010	H3397	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Brook Lamprey	<i>Lampetra planeri</i>	October 2010	H3397	Bern-A3, FEP-007_tab2, HabDir-A2*, Scottish_Biodiversity_List
Sea Lamprey	<i>Petromyzon marinus</i>	October 2010	H3397	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	01/02/1900	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	05/08/1899	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	1899	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	1905	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Bog Moss	<i>Sphagnum</i>	October 2010	H3297	HabDir-A5
Compact Bog-moss	<i>Sphagnum</i>	Unknown	H358990	HabDir-A5
Red Squirrel	<i>Sciurus vulgaris</i>	09/03/2009	H358987	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Pipistrelle Bat species	<i>Pipistrellus sp.</i>	17/07/2018	H347970	BAP-2007, Bern-A2, Bern-A3, CMS_A2, CMS_EUROBATS-A1, England_NERC_S.41, FEP-007_tab2, HabDir-A4, HabReg-Sch2, NIPS, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Red Squirrel	<i>Sciurus vulgaris</i>	1995	H359986	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Otter	<i>Lutra lutra</i>	2006	H339980	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Otter	<i>Lutra lutra</i>	2006	H334983	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Otter	<i>Lutra lutra</i>	2011	H339980	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Otter	<i>Lutra lutra</i>	2011	H334983	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Otter	<i>Lutra lutra</i>	2015	H334983	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Red Squirrel	<i>Sciurus vulgaris</i>	27/10/1984	H358984	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Otter	<i>Lutra lutra</i>	June 2009	H3498	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Otter	<i>Lutra lutra</i>	June 2009	H3398	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Badger	<i>Meles meles</i>	March 2012	H355992	Bern-A3, Protection_of_Badgers_Act_1992, W(NI)O-Sch5, Wildlife (NI) Order Sch 5

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial	All Designations - Short Names
Otter	<i>Lutra lutra</i>	October 2010	H3297	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Pine Marten	<i>Martes martes</i>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A5, HabReg-Sch4, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Badger	<i>Meles meles</i>	October 2010	H3297	Bern-A3, Protection_of_Badgers_Act_1992, W(NI)O-Sch5, Wildlife (NI) Order Sch 5
Otter	<i>Lutra lutra</i>	October 2010	H3397	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42

The results of the field study, involving the Phase 1 habitat survey and protected species survey, are provided in the following sections. Target notes (TN) were used to identify anything of note.

## 4.6 NBN Atlas

A search of the NBN Atlas Northern Ireland returned no species within the site boundary but 479 species within 2km of the site area. The most recent records are from 2020 with one record produced within that year. Several of these species recorded are protected under Schedule 1 Part 1, Schedule 5 and Schedule 8 Part 1 of the Wildlife Order (NI) and the Habitat regulations (NI).

## 4.7 National Biodiversity Data Centre

Records of rare, protected and invasive species of flora and fauna from the hectad supporting the study area was obtained from the National Biodiversity Data Centre (NBDC) online database. 94 records were returned for the 10x10km hectad H39 which encompasses the proposed Riverine Scheme site. these results are displayed in Table 7.

**Table 7: National Biodiversity Data Centre species records**

Common Name (Species Name)	Record Date	Conservation Status
Smooth Newt ( <i>Lissotriton vulgaris</i> )	31/12/1972	Protected Species: Wildlife Acts
Barn Owl ( <i>Tyto alba</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Barn Swallow ( <i>Hirundo rustica</i> )	15/04/2016	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Black-headed Gull ( <i>Larus ridibundus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Common Grasshopper Warbler ( <i>Locustella naevia</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Kestrel ( <i>Falco tinnunculus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation

Common Name (Species Name)	Record Date	Conservation Status
		Concern >> Birds of Conservation Concern - Amber List
Common Kingfisher ( <i>Alcedo atthis</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Linnet ( <i>Carduelis cannabina</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Pheasant ( <i>Phasianus colchicus</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Common Redshank ( <i>Tringa totanus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Common Sandpiper ( <i>Actitis hypoleucos</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Snipe ( <i>Gallinago gallinago</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section III Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Starling ( <i>Sturnus vulgaris</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Swift ( <i>Apus apus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Wood Pigeon ( <i>Columba palumbus</i> )	05/06/2016	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species

Common Name (Species Name)	Record Date	Conservation Status
Corn Crane ( <i>Crex crex</i> )	31/07/1991	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Eurasian Curlew ( <i>Numenius arquata</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section II Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Eurasian Teal ( <i>Anas crecca</i> )	29/02/1984	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section II Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Eurasian Tree Sparrow ( <i>Passer montanus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Eurasian Woodcock ( <i>Scolopax rusticola</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section III Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
European Golden Plover ( <i>Pluvialis apricaria</i> )	29/02/1984	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species    Protected Species: EU Birds Directive >> Annex II, Section II Bird Species    Protected Species: EU Birds Directive >> Annex III, Section III Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Great Black-backed Gull ( <i>Larus marinus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Great Cormorant ( <i>Phalacrocorax carbo</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern

Common Name (Species Name)	Record Date	Conservation Status
		Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Grey Partridge ( <i>Perdix perdix</i> )	31/07/1972	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Hen Harrier ( <i>Circus cyaneus</i> )	31/07/1991	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Herring Gull ( <i>Larus argentatus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
House Martin ( <i>Delichon urbicum</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow ( <i>Passer domesticus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Jack Snipe ( <i>Lymnocyptes minimus</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section III Bird Species
Lesser Black-backed Gull ( <i>Larus fuscus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Little Grebe ( <i>Tachybaptus ruficollis</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mallard ( <i>Anas platyrhynchos</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species

Common Name (Species Name)	Record Date	Conservation Status
Mew Gull ( <i>Larus canus</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mute Swan ( <i>Cygnus olor</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Northern Lapwing ( <i>Vanellus vanellus</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section II Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Northern Wheatear ( <i>Oenanthe oenanthe</i> )	31/07/1972	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Peregrine Falcon ( <i>Falco peregrinus</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species
Red Grouse ( <i>Lagopus lagopus</i> )	31/07/1972	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species    Protected Species: EU Birds Directive >> Annex III, Section I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Red-breasted Merganser ( <i>Mergus serrator</i> )	31/07/1991	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section II Bird Species
Rock Pigeon ( <i>Columba livia</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
Sand Martin ( <i>Riparia riparia</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Sky Lark ( <i>Alauda arvensis</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Spotted Flycatcher ( <i>Muscicapa striata</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern

Common Name (Species Name)	Record Date	Conservation Status
		Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Twite ( <i>Carduelis flavirostris</i> )	29/02/1984	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Whooper Swan ( <i>Cygnus cygnus</i> )	31/12/2011	Protected Species: Wildlife Acts    Protected Species: EU Birds Directive    Protected Species: EU Birds Directive >> Annex I Bird Species    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Yellowhammer ( <i>Emberiza citrinella</i> )	31/12/2011	Protected Species: Wildlife Acts    Threatened Species: Birds of Conservation Concern    Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Killarney Fern ( <i>Trichomanes speciosum</i> )	31/12/2010	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Threatened Species: Vulnerable
<i>Arthurdendyus triangulatus</i>	20/05/2013	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species
Black Currant ( <i>Ribes nigrum</i> )	31/12/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Butterfly-bush ( <i>Buddleja davidii</i> )	31/12/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Canadian Waterweed ( <i>Elodea canadensis</i> )	31/12/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Giant Hogweed ( <i>Heracleum mantegazzianum</i> )	24/01/2018	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Heath Cudweed ( <i>Gnaphalium sylvaticum</i> )	31/12/1929	Threatened Species: Vulnerable
Himalayan Knotweed ( <i>Persicaria wallichii</i> )	31/12/1999	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Indian Balsam ( <i>Impatiens glandulifera</i> )	26/09/2020	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Intermediate Wintergreen ( <i>Pyrola media</i> )	31/12/1929	Threatened Species: Vulnerable

Common Name (Species Name)	Record Date	Conservation Status
Japanese Knotweed ( <i>Fallopia japonica</i> )	14/05/2017	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Large Bitter-cress ( <i>Cardamine amara</i> )	31/12/1929	Threatened Species: Vulnerable
<i>Rhododendron ponticum</i>	31/12/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Salmonberry ( <i>Rubus spectabilis</i> )	31/12/1999	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Small Cudweed ( <i>Filago minima</i> )	31/12/1999	Threatened Species: Vulnerable
Sycamore ( <i>Acer pseudoplatanus</i> )	08/09/2020	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Traveller's-joy ( <i>Clematis vitalba</i> )	31/12/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Wall Cotoneaster ( <i>Cotoneaster horizontalis</i> )	31/12/1999	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
<i>Nebrioporus</i> ( <i>Nebrioporus depressus</i> )	31/12/1990	Threatened Species: Data deficient
Shining Flapwort ( <i>Jungermannia parvica</i> )	31/12/1950	Threatened Species: Near threatened
Common Porpoise ( <i>Phocoena phocoena</i> )	20/07/2014	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts    Threatened Species: OSPAR Convention
Ash-black Slug ( <i>Limax cinereoniger</i> )	01/03/1992	Threatened Species: Vulnerable
Brown Snail ( <i>Zenobiella subrufescens</i> )	01/03/1992	Threatened Species: Vulnerable
Budapest Slug ( <i>Tandonia budapestensis</i> )	01/03/1992	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Common Shelled Slug ( <i>Testacella</i> ( <i>Testacella</i> ) <i>haliotidea</i> )	31/12/1908	Threatened Species: Vulnerable
Copse Snail ( <i>Arianta arbustorum</i> )	01/03/1992	Threatened Species: Vulnerable
English Chrysalis Snail ( <i>Leiostryla</i> ( <i>Leiostryla</i> ) <i>anglica</i> )	01/03/1992	Threatened Species: Vulnerable
Freshwater Pearl Mussel ( <i>Margaritifera</i> ( <i>Margaritifera</i> ) <i>margaritifera</i> )	02/09/1996	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex V    Protected Species: Wildlife Acts
Jenkins' Spire Snail ( <i>Potamopyrgus antipodarum</i> )	01/03/1992	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Plated Snail ( <i>Spermodea lamellata</i> )	01/03/1992	Threatened Species: Endangered

Common Name (Species Name)	Record Date	Conservation Status
Hair-pointed Grimmiid ( <i>Grimmia trichophylla</i> )	31/12/1991	Threatened Species: Data deficient    Threatened Species: Least concern
Haller's Apple-moss ( <i>Bartramia halleriana</i> )	31/12/1914	Protected Species: Flora Protection Order    Protected Species: Flora Protection Order >> Flora Protection Order 2015 Schedule B (Mosses)    Threatened Species: Regionally Extinct
Spruce's Bristle-moss ( <i>Orthotrichum sprucei</i> )	31/12/2009	Protected Species: Flora Protection Order    Protected Species: Flora Protection Order >> Flora Protection Order 2015 Schedule B (Mosses)    Threatened Species: Vulnerable
Straight-leaved Apple-moss ( <i>Bartramia ithyphylla</i> )	31/12/1883	Threatened Species: Vulnerable
American Mink ( <i>Mustela vison</i> )	31/10/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Daubenton's Bat ( <i>Myotis daubentonii</i> )	30/06/2014	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
Eastern Grey Squirrel ( <i>Sciurus carolinensis</i> )	25/06/2015	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> EU Regulation No. 1143/2014    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eurasian Badger ( <i>Meles meles</i> )	24/07/2014	Protected Species: Wildlife Acts
Eurasian Red Squirrel ( <i>Sciurus vulgaris</i> )	09/03/2009	Protected Species: Wildlife Acts
European Otter ( <i>Lutra lutra</i> )	19/12/2013	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
European Rabbit ( <i>Oryctolagus cuniculus</i> )	31/10/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> Medium Impact Invasive Species
Lesser Noctule ( <i>Nyctalus leisleri</i> )	31/10/2010	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
Natterer's Bat ( <i>Myotis nattereri</i> )	12/05/2008	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
Pine Marten ( <i>Martes martes</i> )	31/10/2010	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex V    Protected Species: Wildlife Acts
Pipistrelle ( <i>Pipistrellus pipistrellus sensu lato</i> )	23/08/2012	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
Sika Deer ( <i>Cervus nippon</i> )	31/12/2008	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)    Protected Species: Wildlife Acts

Common Name (Species Name)	Record Date	Conservation Status
Soprano Pipistrelle ( <i>Pipistrellus pygmaeus</i> )	01/09/2014	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts
West European Hedgehog ( <i>Erinaceus europaeus</i> )	20/06/1998	Protected Species: Wildlife Acts

## 4.8 National Parks and Wildlife Service

A request was put into the NPWS for protected and priority species records within 2km of the proposed riverine scheme site Table 8 includes the 15 records returned for hectads C30 and H39, (see Appendix V)

**Table 8: National Biodiversity Data Centre species records**

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial Reference
Smooth Newt	<i>Lissotriton vulgaris</i>	1972	H39
Common Frog	<i>Rana temporaria</i>	1966	H39
Irish Hare	<i>Lepus timidus</i> subsp. <i>hibernicus</i>	1991	C30
Sika Deer	<i>Cervus nippon</i>	2008	C30
Sika Deer	<i>Cervus nippon</i>	2008	H39
Common Frog	<i>Rana temporaria</i>	1979	C30
Sea Lamprey	<i>Petromyzon marinus</i>	0	C340000
Irish Stoat	<i>Mustela erminea</i> subsp. <i>hibernica</i>	1972	H39
Common Frog	<i>Rana temporaria</i>	1966	C30
Eurasian Badger	<i>Meles meles</i>	1991	H39
Irish Hare	<i>Lepus timidus</i> subsp. <i>hibernicus</i>	1991	H39
West European	<i>Erinaceus europaeus</i>	1969	H39
West European	<i>Erinaceus europaeus</i>	1972	H39
West European	<i>Erinaceus europaeus</i>	1972	C30
Irish Stoat	<i>Mustela erminea</i> subsp. <i>hibernica</i>	1972	C30

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## 4.9 Phase 1 Habitat Survey (Fossitts ROI)

A habitat classification map (see Appendix VI) was created based on information obtained during site walkovers, previous habitat studies carried out by the previous project ecologist Eamonn Delaney at Delichon Ecology and from the most recent aerial imagery for the site.

### **Improved Agricultural Grassland (GA1)**

The proposed development site supports this habitat on the Lifford side within the hare coursing grounds and near the southern and eastern margins of the Strabane side of the study area. The improved grassland areas located on the Lifford side of the study area are cut for silage annually and are otherwise used for hare coursing. Those located on the Strabane side are used for silage harvesting and low intensity grazing. Plant species composition comprise the usual suite of grasses and herbs associated with this habitat such as perennial rye grass (*Lolium perenne*), red fescue (*Festuca rubra*), Yorkshire fog (*Holcus lanatus*), creeping thistle (*Cirsium arvense*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*) and broadleaved dock (*Rumex obtusifolius*).

The improved grassland fields located near the southern boundary of the Strabane side of the study area are slightly poorer draining and consequently support timothy, floating sweet grass (local), marsh foxtail and common rush, in addition to the species previously listed.

### **Amenity grassland (GA2)**

This is associated with the Lifford Celtic soccer pitch located on the Lifford side of the study area between the hare coursing grounds and the flood embankment of the River Foyle. This is a routinely maintained grassland habitat comprising red fescue (*Festuca rubra*), white clover (*Trifolium repens*) and red clover (*Trifolium pratense*).

### **Wet grassland (GS4)**

This habitat is located on the Strabane side of the study area beyond the south-eastern boundary and northern boundary bordering the dirt path that runs along the eastern boundary. This is a common rush dominated wet grassland in addition to Yorkshire fog (*Holcus lanatus*), greater bird's foot trefoil (*Lotus pedunculatus*), common bent (*Agrostis capillaris*), meadow vetchling (*Lathyrus pratensis*), common sorrel (*Rumex acetosa*) and spreading grey willow (*Salix cinerea*) shrubs. The south-eastern corner of this wet grassland habitat, located beyond the north-west boundary on the Strabane Side, adjoins a line of

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Japanese knotweed (*Fallopia japonica*) plants, which are fringing an access track located immediately east of this habitat.

**Wet grassland with recolonised spoil mounds (GS4/ED3)**

The habitat is located on the Strabane side of the site just beyond the eastern boundary within the central area below the GS4 habitat, (see Appendix: VI). This habitat exhibits the same features and species present as those outlined in habitat GS4, however, there are several old spoil mounds located towards the north-eastern corner of this habitat. These mounds have become recolonised by ruderal vegetation species such as common nettle (*Urtica dioica*) and dicotyledons sp.

**Improved wet agricultural grassland (GS4/GA1)**

This habitat is located on the Strabane side of the site just beyond the eastern boundary in the most southern area below GS4/GA1 (see Appendix: VI). This habitat exhibits some of the same features as the rest of the GS4 habitat area, however, due to historical intensive agricultural use many of the species present in the previous two habitats are not present here. The area is dominated by bright green swards of perennial ryegrass (*Lolium perenne*) and crested dog's-tail (*Cynosurus cristatus*) with scattered clumps of white clover (*Trifolium repens*) and sorrel (*Rumex acetosa*). Grazing is still carried out in this area due to the observed presence of a small number of cattle and/or goats.

**Hedgerows (WL1)**

Hedgerows fringe the improved grassland fields located on the Strabane side of the study area. These comprise hawthorn (*Crataegus monogyna*) and occasional elder (*Sambucus nigra*), overtopped by semi-mature ash (*Fraxinus excelsior*) trees.

**Treelines (WL2)**

Treelines are located on both sides of the study area. Treelines line the improved grassland areas used for hare coursing on the Lifford side of the study area. The westernmost areas of the Lifford side supports maturing lines of Sitka spruce (*Picea sitchensis*) trees, in addition to occasional sycamore and elder. Another treeline in this area supports sycamore (*Acer pseudoplatanus*), ash, grey willow (*Salix cinerea*), alder (*Alnus glutinosa*), dog rose (*Rosa canina*), broom (*Cytisus scoparius*), gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus* agg.)

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Treelines located on the Strabane side of the study area line the pastoral fields and comprise ash, sycamore (*Acer pseudoplatanus*), elder, hawthorn and grey willow.

### **Scrub (WS1)**

Scrub is very localised within the study area and occurs along the riverbank margins on the Lifford side, in addition to another small area near the north-eastern boundary, where it occurs in a mosaic with dry meadows and grassy verge habitat. Plant species composition included bramble (*Rubus fruticosus* agg.), willow and gorse (*Ulex europaeus*). Invasive species such as Himalayan balsam (*Impatiens glandulifera*) and Giant hogweed (*Heracleum mantegazzianum*) were also observed growing in this area along the riverbanks.

### **Depositing Lowland River (FW2)**

This habitat relates to the River Finn and River Foyle which separates the Lifford and Strabane sides of the study area. Instream or emergent aquatics were not evident. The fringes of the river comprise reed and large sedge swamp establishing on areas of accumulated aggregates and alluvium. This habitat is described in further detail below.

### **Reed and Large Sedge Swamp (FS1)**

This habitat is located on the margins of the River Foyle and has established on areas of accumulated alluvium and flood deposited aggregate and detritus. Plant species composition includes reed canary grass, marsh ragwort (*Senecio aquaticus*), broadleaved dock (*Rumex obtusifolius*), angelica (*Angelica sylvestris*), meadowsweet (*Filipendula ulmaria*), water forget-me-not (*Myosotis scorpioides*), water mint (*Mentha aquatica*), marsh marigold (*Caltha palustris*), creeping buttercup (*Ranunculus repens*), common valerian (*Valeriana officinalis*), redshank (*Persicaria maculosa*) and amphibious bistort (*Persicaria amphibia*). These habitats, where they occur along the fringes of the River Foyle, support occasional to frequent occurrences of Himalayan balsam (*Impatiens glandulifera*).

### **Dry meadows and Grassy Verges (GS2)**

This is characteristic habitat along the margins of the river body, typically along the embankment areas and walkways set back from the riparian and riverbank margins on the Strabane side of the site. Plant species includes false oat grass (*Arrhenatherum elatius*), field horsetail (*Equisetum arvense*), bramble, cleavers (*Galium aparine*), bush vetch (*Vicia sepium*), meadowsweet, nettle (*Urtica dioica*), lesser stitchwort (*Stellaria graminea*), cock's-foot

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(*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*), meadow vetchling (*Lathyrus pratensis*) and ribwort plantain (*Plantago lanceolata*).

#### **Mixed Broadleaved Woodland (WD1)**

A small pocket of mixed broadleaved woodland occurs on the northernmost boundary of the Lifford section. This is a young woodland with ash, sycamore and grey willow in the canopy layer and hawthorn and elder in the canopy and shrub layers. The ground layer remains underdeveloped and supports localised abundances of bramble, with ivy (*Hedera hibernica*), male fern (*Dryopteris filis-mas*) and locally abundant Himalayan balsam (*Impatiens glandulifera*). Wetter parts of the ground layer exhibit the absence of bramble and the emergence of common rush (*Juncus effusus*), remote sedge (*Carex remota*), creeping buttercup and broad buckler fern (*Dryopteris dilatata*).

#### **Mixed broadleaved conifer woodland (WD3)**

This woodland habitat is located immediately south of the mixed broadleaved woodland described above. This woodland supports fir, cypress and spruce trees, planted for cover ca. 50 years ago. This woodland supports elder and common privet in the understorey (locally frequent), in addition to ivy, and broad buckler fern in the ground layer.

#### **Wet willow alder-ash-woodland (WN6)**

The Strabane side of the study area supports a large area of fen carr woodland that has developed on impounded wetland areas to create a wet woodland area prone to seasonal flooding. Water levels within the woodland ground layer fluctuate seasonally but are almost all waterlogged or are submerged for large parts of the year. The woodland canopy is dominated by grey willow (*Salix cinerea*) trees and shrubs with occasional alder (*Alnus glutinosa*). The woodland is heavily shaded and in places densely crowded by close growing grey willow trees. Areas of open water or waterlogged soils are often spanned horizontally by the limbs and boles of willow trees. Ground layer species are localised and not abundant and include water horsetail (*Equisetum fluviatile*), tufted hair grass (*Deschampsia cespitosa*), reed canary grass, marsh bedstraw (*Galium palustre*) and meadowsweet. Himalayan balsam is located throughout the woodland understorey possibly spread through the rising and falling flood waters of the nearby River Finn.

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### **Buildings and Artificial Surfaces (BL3)**

This habitat includes the existing buildings within the study area such as the viewing stand and small shed/storage structure on the Lifford side.

### **Bare Ground (ED2)**

Access leading into the site's interior on both sides (Lifford and Strabane) of the site with the Lifford side's bare ground entrance road running parallel to the riverbank until it reaches the entrance to the hare coursing ground. On the Strabane side the entrance consists of an old concrete area which becomes a path that runs parallel to the eastern boundary before curving around to the riverbank in the northern area of the site. The old concreted area located on the Strabane side has been abandoned in recent years and has witnessed the proliferation of ruderal plant species including cat's ear (*Hypochaeris radicata*), herb Robert (*Geranium robertianum*), spear thistle (*Cirsium vulgare*), red fescue (*Festuca rubra*), white clover (*Trifolium repens*), mouse-ear chickweed (*Cerastium fontanum*), smooth hawk's-beard (*Crepis capillaris*), black medick (*Medicago lupulina*), common sow thistle (*Sonchus oleraceus*), field horsetail (*Equisetum arvense*), tufted vetch (*Vicia cracca*), greater plantain (*Plantago major*), lesser burdock (*Arctium minus*), hedge mustard (*Sisymbrium officinale*), perforate St. John's wort (*Hypericum perforatum*), colt's-foot (*Tussilago farfara*) and American willowherb (*Epilobium ciliatum*).

### **Eutrophic standing water body (FL8)**

This habitat is located within the northern area of the Strabane side of the site and is a moderate sized pond dating back to 1907 of standing water separated from the larger wet woodland area treelines, set on raised ground bordering the Nancy Burn storm drain system. This habitat is highly eutrophic, experiencing a large algal bloom at the time of survey with little other vegetative growth. Several small clumps of bull rush (*Typha angustifolia*) were observed growing along its western bank.

## **4.10 Phase 1 Habitat Survey (JNCC NI)**

A habitat classification map (see Appendix VII) was created based on information obtained during site walkovers, previous habitat studies carried out by the previous project ecologist Eamonn Delaney at Delichon Ecology and from the most recent aerial imagery for the site.

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#### **Improved Grassland (B.4)**

The proposed development site supports this habitat on the Lifford side within the hare coursing grounds and near the southern and eastern margins of the Strabane side of the study area. The improved grassland areas located on the Lifford side of the study area are cut for silage annually and are otherwise used for hare coursing. Those located on the Strabane side are used for silage harvesting and low intensity grazing. Plant species composition comprise the usual suite of grasses and herbs associated with this habitat such as perennial rye grass (*Lolium perenne*), red fescue (*Festuca rubra*), Yorkshire fog (*Holcus lanatus*), creeping thistle (*Cirsium arvense*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*) and broadleaved dock (*Rumex obtusifolius*).

The improved grassland fields located near the southern boundary of the Strabane side of the study area are poorer draining and consequently support timothy, floating sweet grass (local), marsh foxtail and common rush, in addition to the species previously listed.

#### **Amenity Grassland (J.1.2)**

This is associated with the Lifford Celtic soccer pitch located on the Lifford side of the study area between the hare coursing grounds and the flood embankment of the River Foyle. This is a routinely maintained grassland habitat comprising red fescue (*Festuca rubra*), white clover (*Trifolium repens*) and red clover (*Trifolium pratense*).

#### **Marshy Grassland (B.5)**

This habitat is located on the Strabane side of the study area beyond the south-eastern boundary and northern boundary bordering the dirt path that runs along the eastern boundary. This is a common rush dominated wet grassland in addition to Yorkshire fog (*Holcus lanatus*), greater bird's foot trefoil (*Lotus pedunculatus*), common bent (*Agrostis capillaris*), meadow vetchling (*Lathyrus pratensis*), common sorrel (*Rumex acetosa*) and spreading grey willow (*Salix cinerea*) shrubs. The south-eastern corner of this wet grassland habitat, located beyond the north-west boundary on the Strabane Side, adjoins a line of Japanese knotweed (*Fallopia japonica*) plants, which are fringing an access track located immediately east of this habitat.

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### **Marshy grassland with recolonised spoil mounds (B.5)**

The habitat is located on the Strabane side of the site just beyond the eastern boundary within the central area below of the B.5 habitat, (see Appendix: VI). This habitat exhibits the same features and species present as those outlined in habitat B.5, however, there are several old spoil mounds located towards the north-eastern corner of this habitat. These mounds have become recolonised by ruderal vegetation species such as common nettle (*Urtica dioica*) and dicotyledons sp.

### **Improved Marshy Agricultural Grassland (B.5)**

The habitat is located on the Strabane side of the side just beyond the eastern boundary in the most southern area below B.5, (see Appendix: VI). This habitat exhibits some of the same features as the rest of the B.5 habitat area, however, due to historical intensive agricultural use many of the species present in the previous two habitats are not present here. The area is dominated by bright green swards of perennial ryegrass (*Lolium perenne*) and crested dog's-tail (*Cynosurus cristatus*) with scattered clumps of white clover (*Trifolium repens*) and sorrel (*Rumex acetosa*). Grazing is still carried out in this area due to the observed presence of a small number of cattle and/or goats.

### **Native species Rich Hedge and Treeline Boundaries (J.2.3.1)**

Treelines are located on both sides of the study area. Treelines line the improved grassland areas used for hare coursing on the Lifford side of the study area. The westernmost areas of the Lifford side supports maturing lines of Sitka spruce (*Picea sitchensis*) trees, in addition to occasional sycamore and elder. Another treeline in this area supports sycamore (*Acer pseudoplatanus*), ash, grey willow (*Salix cinerea*), alder (*Alnus glutinosa*), dog rose (*Rosa canina*), broom (*Cytisus scoparius*), gorse (*Ulex europaeus*) and bramble (*Rubus fruticosus* agg.)

Treelines located on the Strabane side of the study area line the pastoral fields and comprise ash, sycamore (*Acer pseudoplatanus*), elder, hawthorn and grey willow.

### **Unimproved Neutral Grassland with Continuous Scrub (B.2.1/A.2.1)**

Scrub is very localised within the study area and occurs along the riverbank margins on the Lifford side, in addition to another small area near the north-eastern boundary, where it occurs in mosaic with dry meadows and grassy verge habitat. Plant species composition

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included bramble (*Rubus fruticosus* agg.), willow and gorse (*Ulex europaeus*). Invasive species such as Himalayan balsam and Giant hogweed were also observed growing in this area along the riverbanks.

### **Mesotrophic Running Water (G.2.2)**

This habitat relates to the River Finn and River Foyle which separates the Lifford and Strabane sides of the study area. Instream or emergent aquatics were not evident. The fringes of the river comprise reed and large sedge swamp establishing on areas of accumulated aggregates and alluvium. This habitat is described in further detail below.

### **Marginal Vegetation (F.2.1)**

This habitat is located on the margins of the River Foyle and has established on areas of accumulated alluvium and flood deposited aggregate and detritus. Plant species composition includes reed canary grass, marsh ragwort (*Senecio aquaticus*), broadleaved dock (*Rumex obtusifolius*), angelica (*Angelica sylvestris*), meadowsweet (*Filipendula ulmaria*), water forget-me-not (*Myosotis scorpioides*), water mint (*Mentha aquatica*), marsh marigold (*Caltha palustris*), creeping buttercup (*Ranunculus repens*), common valerian (*Valeriana officinalis*), redshank (*Persicaria maculosa*) and amphibious bistort (*Persicaria amphibia*). These habitats where they occur along the fringes of the River Foyle support occasional to frequent occurrences of Himalayan balsam (*Impatiens glandulifera*).

### **Unimpacted Neutral Grassland (B.2.1)**

This is characteristic habitat along the margins of the river body, typically along the embankment areas and walkways set back from the riparian and riverbank margins on the Strabane side of the site. Plant species includes false oat grass (*Arrhenatherum elatius*), field horsetail (*Equisetum arvense*), bramble, cleavers (*Galium aparine*), bush vetch (*Vicia sepium*), meadowsweet, nettle (*Urtica dioica*), lesser stitchwort (*Stellaria graminea*), cock's-foot (*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*), meadow vetchling (*Lathyrus pratensis*) and ribwort plantain (*Plantago lanceolata*).

### **Broad Leaved Plantation Woodland (A.1.1.2)**

A small pocket of mixed broadleaved woodland occurs on the northernmost boundary of the Lifford section. This is a young woodland with ash, sycamore and grey willow in the canopy layer and hawthorn and elder in the canopy and shrub layers. The ground layer remains

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underdeveloped and supports localised abundances of bramble, with ivy (*Hedera hibernica*), male fern (*Dryopteris filis-mas*) and locally abundant Himalayan balsam (*Impatiens glandulifera*). Wetter parts of the ground layer exhibit the absence of bramble and the emergence of common rush (*Juncus effusus*), remote sedge (*Carex remota*), creeping buttercup and broad buckler fern (*Dryopteris dilatata*).

#### **Coniferous Plantation Woodland (A.1.2.2)**

This woodland habitat is located immediately south of the mixed broadleaved woodland described above. This woodland supports fir, cypress and spruce trees, planted for cover ca. 50 years ago. This woodland supports elder and common privet in the understorey (locally frequent), in addition to ivy, and broad buckler fern in the ground layer.

#### **Semi-Natural Broadleaved Woodland (A.1.1.1)**

The Strabane side of the study area supports a large area of fen carr woodland that has developed on impounded wetland areas to create a wet woodland area prone to seasonal flooding. Water levels within the woodland ground layer fluctuate seasonally but are almost all waterlogged or are submerged for large parts of the year. The woodland canopy is dominated by grey willow (*Salix cinerea*) trees and shrubs with occasional alder (*Alnus glutinosa*). The woodland is heavily shaded and in places densely crowded by close growing grey willow trees. Area of open water or waterlogged soils are often spanned horizontally by the limbs and boles of willow trees. Ground layer species are localised and not abundant and include water horsetail (*Equisetum fluviatile*), tufted hair grass (*Deschampsia cespitosa*), reed canary grass, marsh bedstraw (*Galium palustre*) and meadowsweet. Himalayan balsam is located throughout the woodland understorey possibly spread through the rising and falling flood waters of the nearby River Finn.

#### **Buildings (J.3.6)**

This habitat includes the existing buildings within the study area such as the viewing stand and small shed/storage structure on the Lifford side.

#### **Bare Ground (ED2)**

Access leading into the site's interior on both sides, (Lifford and Strabane), of the site with the Lifford side's bare ground entrance road running parallel to the riverbank until it reaches the entrance to the hare coursing ground. On the Strabane side the entrance consists of an

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old concrete area which becomes a path that runs parallel to the eastern boundary before curving around to the riverbank in the northern area of the site. The old concreted area located on the Strabane side has been abandoned in recent years and has witnessed the proliferation of ruderal plant species including cat's ear (*Hypochaeris radicata*), herb Robert (*Geranium robertianum*), spear thistle (*Cirsium vulgare*), red fescue (*Festuca rubra*), white clover (*Trifolium repens*), mouse-ear chickweed (*Cerastium fontanum*), smooth hawk's-beard (*Crepis capillaris*), black medick (*Medicago lupulina*), common sow thistle (*Sonchus oleraceus*), field horsetail (*Equisetum arvense*), tufted vetch (*Vicia cracca*), greater plantain (*Plantago major*), lesser burdock (*Arctium minus*), hedge mustard, perforate St. John's wort (*Hypericum perforatum*), colt's-foot (*Tussilago farfara*) and American willowherb (*Epilobium ciliatum*).

#### **Eutrophic standing water (G.1.1)**

This habitat is located within the northern area of the Strabane side of the site and is a moderate sized pond dating back to 1907 of standing water separated from the larger wet woodland area treelines, set on raised ground bordering the Nancy Burn storm drain system. This habitat is highly eutrophic experiencing a large algal bloom at the time of survey with little other vegetative growth. Several small clumps of bull rush (*Typha angustifolia*) were observed growing along its western bank.

### **4.11 Fauna**

The Previous study, carried out by Delichon Ecology, highlighted the presence and activity of several fauna species such as otter, badger, bats and birds.

#### **Bats**

Habitats present on the site i.e. treelines are known to support roosting bats, similarly hedgerows with trees on site are also likely to support foraging and commuting bats as well as wooded areas are known to support foraging, roosting and commuting bats. The Lifford side of the site consists primarily of open grassland with few potential sites suitable for bat roosting. However, there are two treelines along the Lifford side's western boundary which would support commuting and foraging bats. There are also two small structures on the Lifford side including a small shed storage unit and a sports viewing stand which may offer roosting and foraging potential for local bat species.

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On the Strabane side an extensive area of wet woodland has been identified which would provide high potential for roosting, foraging and commuting bats within the area. Several trees were also identified along the eastern boundary of the Strabane side of the site exhibiting potential features such as ivy growth on the main stems of trees.

Previous bat surveys carried out by Declichon Ecology recorded bat activity and species present through passive bat surveys carried out by walking transects, (see Appendix II).

### **Badger**

A systematic search was conducted to identify evidence of badger activity within the site and 25 meters beyond the site boundary. Mammal trails were identified throughout the entirety of the site. These were followed and revealed that on the Lifford side of the site an old, presumably abandoned, badger sett was located just beyond the northern boundary of the site on the Lifford side within an area of coniferous woodland. On the Strabane side there is evidence of greater badger activity with a greater number of mammal trails throughout the site. Following these trails revealed a large badger sett located towards the western boundary of the Strabane side of the site located within the side of the historical railway embankment.

Previous badger surveys carried out by Declichon Ecology recorded the presence of badgers and identified sett locations on site, (see Appendix III).

### **Otter**

The entire site and 30m beyond the site were systematically examined for otter activity; this included spraints, tracks, feeding sites, holts and couches. The search results indicated that otter activity and presence was high throughout the site and along the banks of the River Foyle, however, no holts were found onsite or within 30m of the site.

Previous otter surveys carried out by Declichon Ecology recorded the presence of otters on site identifying prints and feed remains along with sightings of otters in the area, (see Appendix III).

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## Nesting Birds

Grassland and scrub provide breeding opportunities for a range of birds. During site walkovers, various species were observed visually, however most of the data was gathered through singing male behaviour. Table 8 lists all species encountered during site walkovers.

**Table 9: Avian fauna**

Date	Species	Latin	BOCCI
10/05/21	Great tit	<i>Parus major</i>	GREEN
	Blackbird	<i>Turdus merula</i>	GREEN
	Wren	<i>Troglodytes troglodytes</i>	GREEN
	Robin	<i>Erithacus rubecula</i>	GREEN
	Magpie	<i>Pica pica</i>	GREEN
	Rook	<i>Corvus frugilegus</i>	GREEN
	Jackdaw	<i>Coloeus monedula</i>	GREEN
	Raven	<i>Corvus corax</i>	GREEN
	Swallow	<i>Hirundo rustica</i>	AMBER
	Wood Pigeon	<i>Columba palumbus</i>	GREEN
	Buzzard	<i>Buteo buteo</i>	AMBER

## Amphibians

A search for pools and suitable habitat was conducted to establish the potential for smooth newts occurring on site as well as the immediate area. No suitable habitat was located for smooth newts on the Lifford side of the site while the Strabane side of the site contains extensive areas of flooded wet woodland and wet grassland areas which may provide suitable habitat, as well as ample dense vegetation which would provide suitable refuge and hibernaculum. It is recommended that further investigations are carried out in order to determine the presence and abundance of smooth newts in the area.

## Other mammals

Mammal trails were prevalent throughout the site, after finding definitive evidence that the trails are due to the presence and activity of badgers and otters throughout the site. Some are also attributed to rabbits and foxes as evidence of these species have also been found. The site is accessible to the public and members of the public have been observed walking in the area with their dogs which will have been attributed to certain trails. However, no other signs of mammals including Irish hare, pine marten, red squirrel or hedgehogs were observed during the site visit.

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### **Other protected or priority species**

No other priority species of plants, invertebrates and reptiles were observed on site during the May 2021 field visit.

### **Invasive Species**

Extensive invasive non-native species were observed throughout the main body of the site and along the perimeters as well as along the banks of the River Foyle on both the Lifford and Strabane side of the site. Japanese knotweed, (*Fallopia japonica*), and Himalayan balsam, (*Impatiens glandulifera*), are prevalent throughout the Strabane area of the site and have become densely overgrown throughout. Giant hogweed, (*Heracleum mantegazzianum*) is present in both the Lifford and Strabane side of the site but is primarily located towards the banks of the River Foyle.

## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Species Records**

A Preliminary Ecological Appraisal, also known as an Extended Phase 1 habitat Survey, was undertaken, to provide information to accompany a planning application for the proposed Riverine Scheme for Lifford and Strabane.

The site area is not located within any International designated sites or SLNC's, however, the site is located on the banks of the River Foyle and Tributaries SAC and ASSI this raises concerns on the potential impacts to aquatic species and habitats due to the proposed natures of the development which includes a bridge structure. There are also 15 other international and national designated sites within 15km of the proposed development site. However, due to setback distances and the nature of the proposed development there are no concerns to these designations. There are no local wildlife sites located within the proposed development site however, Strabane quarry is located 0.8km from the site boundary. There are also another 7 wildlife sites located within 5km of the proposed development site but again, are of no concern due to their setback distance and nature of the proposal.

There is a hydrological linkage between the site and the wider surrounding area due to its location on the banks of the River Foyle ASSI and SAC which leads into nearby river systems such as the River Finn and the Mourne River. A detailed suitable Surface Water Management

---

Plan (SWMP) should be detailed within the CEMP and where possible a 15m buffer between the waterway and any construction should be implemented in order to reduce the potential impacts of the proposed works for site development.

The data search from CEDaR identifies various species protected under Schedule 1 Part 1, Schedule 5 and Schedule 8 Part 1 of the Wildlife Order (NI) and the Habitat regulations (NI). 132 records were identified within a 2km radius of the proposed site, several were identified outside the 2km radius, however, no records were identified within the proposed site boundary. Those mentioned within the Wildlife (NI) order 1985 are listed in Table 5.

Other species recorded within 2km of the site were listed as Northern Ireland Priority Species (NIPS), red or amber listed birds of conservation concern within Ireland. There were also some notable plant species which are red listed as threatened, recorded within 2km of the site. A full species list can be found in Appendix I.

Records of rare, protected, and invasive species of flora and fauna from the hectad supporting the study area were obtained from the National Biodiversity Data Centre (NBDC) online database. 94 records were returned for the 10x10km hectad H39 which encompasses the proposed Riverine Scheme site.

The data search from the National Biodiversity Data Centre of rare, protected, and invasive species of flora and fauna yielded 84 results from a 10x10km hectad supporting the proposed development site. The National Parks and Wildlife Services for protected species yielded 15 results. However, no records were identified within the proposed site boundary.

## 5.2 Potential Impacts & Mitigation

### **Bats**

Woodland areas, trees, hedgerows, and riverine habitats are of importance to many bat species and can provide suitable areas for foraging and roosting as well as providing safe corridors for bats to commute to other foraging and roosting habitats in the wider area. Due to the abundance of suitable habitat for bats a preliminary ground roost potential survey should be undertaken following best practice guidance produced by the Bat Conservation Trust (Collins 2016). The Bat Roost Potential Survey (BRP) is used to identify potential bat

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roosts which are likely to be affected by site development and determine whether specialist bat surveys are required for works to proceed.

Evidence that these potential roosting features are currently occupied or previously used by bats would include staining and/or bat droppings, urine staining, as well as bats. These signs should be recorded wherever they were present. The presence of cobwebs, rainwater and general detritus within the features should also be recorded as these indicate that PRFs are likely to be unsuitable.

It is in the ecologist's opinion that tree maintenance work should be avoided if possible; however, if required, further surveys will be needed. It is recommended that a light management plan be implemented to help reduce the potential impact on roosting, foraging or commuting bats within the area that may continue to use the trees that are not designated for felling during and after the development's completion.

### **Birds**

Trees, hedgerows, and scrub are of importance to breeding and nesting birds. Similarly, the marshy grassland provides suitable breeding habitat for waders. Removal of hedgerows, trees, and scrub along with the grassland vegetation during the breeding season will negatively impact upon nesting birds during the breeding season. This is in direct violation of the Irish Wildlife Act 1976 (as amended), the EU Habitats Directive of the Bern convention via the European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011) under which it is an offence. Any scrub clearance should be kept to a minimum and undertaken outside of the breeding season (1st March – 31st August).

Due to proposed site activities including the felling and clearance of trees and other vegetation to allow for proposed site activities, it is recommended that breeding bird surveys be carried out in order to determine presence and abundance of bird species as well as to determine their use of the site and its value as a nesting ground. Breeding bird, non-breeding bird and vantage point surveys have already been carried out by the previous project ecologist Eamonn Delaney from Delichon Ecology. It should also be noted that should clearance of trees/or scrub during the breeding season be required, this must be undertaken under the supervision of a qualified ecologist and appropriate surveys undertaken prior to

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any scrub clearance i.e. pre-clearance nest inspection/breeding bird survey, this is also true for trees recommended for felling.

Any vegetation which is removed/chipped prior to the bird breeding season should be removed from the site completely, in order to prevent birds along with other species using stored debris as nesting/resting sites.

### **Newts**

No newts were located on site; however, extensive areas of suitable habitat were located in the form of a man-made pond, located in the northern area of the Strabane side of the site as well as the extensive wet woodland area within the Strabane side's central area. Newts are listed Schedule 5 of the Wildlife Act, 1976 and Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention). Under the Order it is an offence to intentionally or recklessly kill, injure or take a newt; or intentionally or recklessly damage or destroy, or obstruct access to, any structure or place that newts use for shelter or protection. There is the potential that site activities during the project's lifespan could negatively impact this area should it be occupied by breeding newts. A SWMP is recommended to be put in place to help reduce the potential risk of spills impacting the water quality and the suitability for this field for suspected breeding newts. It is also recommended that newt surveys are carried out to further determine the presence of newts and further investigate the suitability for newts on the Strabane side of the proposed site.

### **Otters**

The development is considered to impact on otters as survey results indicated that otters are present both on site and within the wider area with high levels of activity along the banks of the River Foyle. While no holts were found during the initial site walk over further surveys are required to determine otter activity levels and to determine if any holts are present within the area. Additional native planting should occur along the bank. This will facilitate foraging, connectivity and commuting of otters while also providing cover and improving overall biodiversity to mitigate potential losses due to the schemes proposed works.

### **Badger**

The development is considered to impact on badgers as the initial site walkover has confirmed the presence of a badger sett located on the Strabane side of the proposed scheme

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site. Further badger surveys are recommended in order to fully map out the located sett and determine the presence of other annex/subsidiary setts along with determining the badger's activity throughout the site. The badger sett located on the Lifford side will also require further surveying to fully map it out and determine if they are still active. Suitable mitigation and management plans in relation to the badgers and their setts will be required due to proposed works for this scheme.

### **Aquatics and Marine**

Further investigation into the impacts of the proposed development on the riverine habitats is recommended. The River Foyle runs through the centre of the proposed site and proposed site operations include the construction of a small bridge structure. The River Foyle is an important passage during the salmon run for Atlantic salmon allowing them to travel to other water courses and tributaries from the Ocean and as such the potential impacts will need to be assessed. Due to time constraints an in-depth desk study is recommended in order to determine potential impacts and provide suitable mitigation.

### **Collision Risk Assessment**

The River Foyle operates as an avifauna commuting corridor, as identified by Eamon Delaney of Delichon Ecology. As such a collision risk assessment has been requested due to the proposition of incorporating a single span bridge structure into the Riverine Scheme in order to determine the potential risk of wild birds colliding with the structure while using this corridor.

## **5.3 Conclusion**

Extensive regions of invasive Japanese knotweed, Himalayan balsam and giant hogweed have been identified through the site on both the Lifford and Strabane sides of the site. It is recommended that an invasive species management plan is developed promptly in accordance with NIEA guidelines to control and eradicate the invasive species to prevent further spread.

Evidence of protected species found throughout the site along with extensive records from several sources indicating the site's surrounding area offers suitable habitat for several protected/priority species. The site itself is of high value for species such as bats and birds with confirmed evidence of badgers and otters present on site. Due to the proposed works

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for the scheme, it is recommended that further survey work be carried out for badgers, bats, newts and birds in order to assess site activity and to produce suitable mitigation is implemented, with best practise used throughout.

**Report Prepared By: -**

**Ryan Boyle BSc (Hons), MSc  
Consultant Ecologist**

**Reviewed By: -**

**Emily Taylor BSc (Hons)  
Graduate Ecologist**

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## 6.0 REFERENCES

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**FIGURES**



**Figure 3. Old concrete area at site entrance on Strabane side**



**Figure 4. Eutrophic water body northern area of Strabane side**



**Figure 5. Dense wet woodland area on Strabane side**



**Figure 6. Overview of grassland on Lifford side**



**Figure 7. Riverine habitat on Strabane side**



**Figure 8. View of Lifford Banks from Strabane side**



**Figure 9. Overview of Riverine habitat at proposed bridge location**



**Figure 10. Overgrown eastern boundary with Himalayan balsam**



**Figure 11. Entrance to wet woodland area on Strabane side**



**Figure 12. Overview of Lifford Sides hare coursing ground in its northern area**



**Figure 13. Flooded interior of Strabane side's wet woodland area**



**Figure 14. Old shed storage structure on Lifford side**



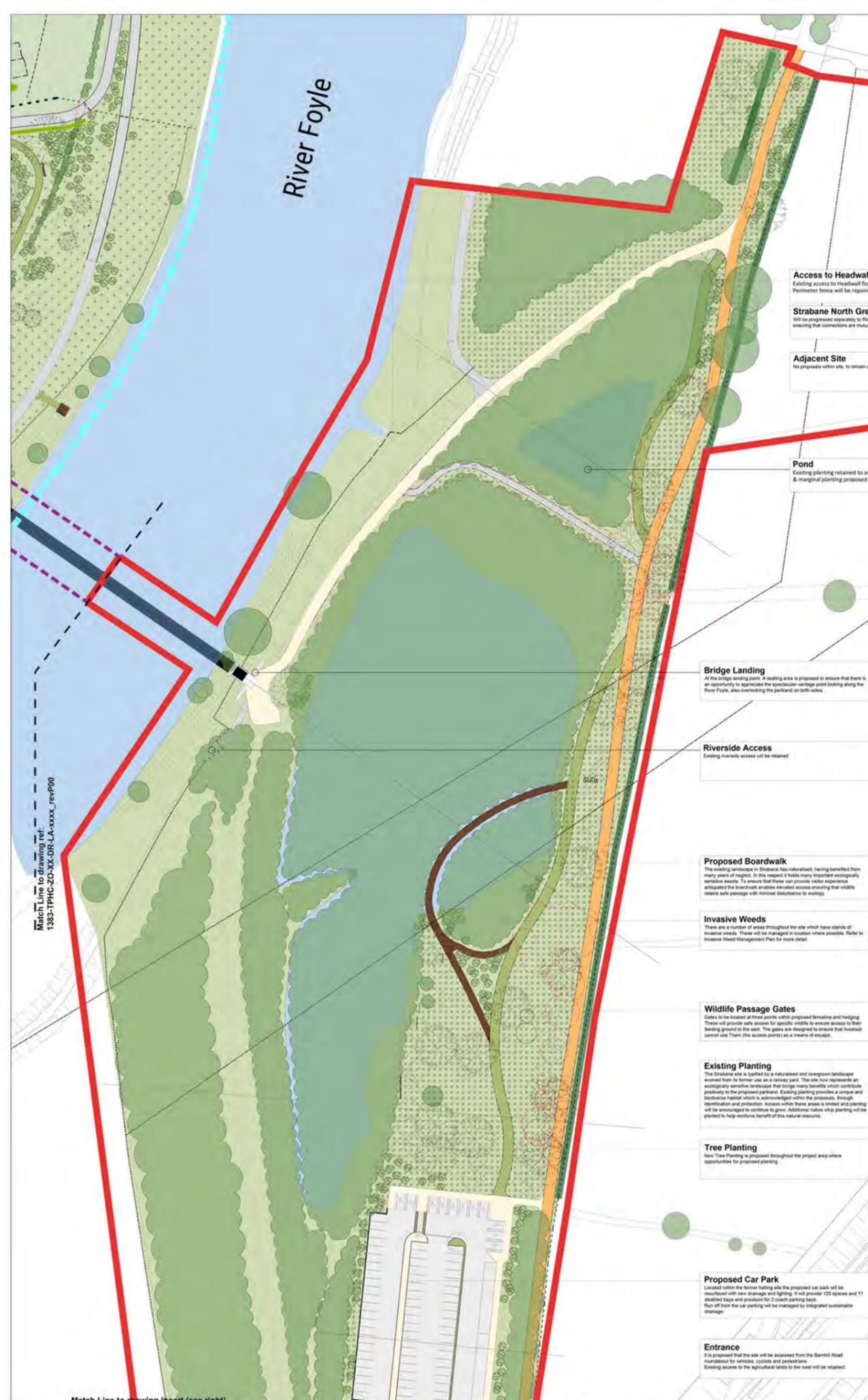
**Figure 15. Old hare coursing sports viewing stand on the Lifford side**

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**APPENDICIES**

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Appendix I: Concept Site Layout Strabane



- ### LEGEND
- #### SOFTWARES
- Existing Trees & Planting To be retained and protected during works in accordance with BS5837
  - Existing Trees & Planting To be removed. Crown identified in the absence of individual trees
  - Proposed Native Trees Refer to planting schedule
  - Proposed Native Wetland Trees Refer to planting schedule
  - Proposed Specimen Trees Refer to planting schedule and details
  - Proposed Hedgerow planting Refer to planting schedule and details
  - Proposed Amenity Grassland Refer to planting schedule
  - Proposed Wildflower (WF1) Refer to planting schedule
  - Proposed Woodland Wildflower (WF2) Refer to planting schedule
  - Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and sown as turf
  - Proposed SUGS Mix Refer to planting schedule. To be prepared and sown as turf
  - Proposed Native shrubs Refer to planting schedule
  - Proposed Ornamental shrubs Refer to planting schedule
- #### SURFACES
- Proposed Asphalt To asphalt and Cobble For detail refer to engineers drawing
  - Proposed Asphalt For detail refer to engineers drawing
  - Strabane North Greenway Prepared separately to this project
  - Proposed High Friction Surface To be prepared / repaired in situ For detail refer to engineers drawing
  - \*Natural Stone Paving Refer to detail
  - Proposed Boardwalk Refer to detail
  - Reinforced Grass Refer to detail
  - Proposed Gravel Path Refer to detail
  - \*Proposed Slipway Surface Refer to detail also engineers drawings for detail
  - \*Wetpour Safety Surfacing Refer to detail
  - \*Reinforced Grass Safety Surfacing Refer to detail
  - \*Wet Back Safety Surface specifically for play areas
  - Stone Clusters Refer to detail
- #### FEATURES
- Existing Walls To be retained
  - Existing Fencing To be retained / repaired as required
  - 2.4m Security Fencing Refer to detail
  - Metal Estate Fencing Refer to detail
  - Stock Proof Fencing Refer to detail
  - Existing Fencing to be removed
  - Steps and Terracing Refer to detail
  - Proposed Benches Refer to detail
  - Bicycle stand locations Typical Sheffield stand
  - Proposed Litter Bins 120L bins with single 300L recycled bin adjacent to Community Facilities
  - Proposed Metal Gates Refer to detail
  - Vehicle Upstand Kerb 125mm upstand. Pre Cast Concrete
  - Vehicle Flush Kerb Pre Cast Concrete
  - Pie Kerb Pre Cast Concrete
- #### MISCELLANEOUS
- Site Boundary - Application under Roads Act, Section 51(2)
  - Adjoining Riverside Community Park Boundary (RCP)
  - Riverine Community Park Boundary (R)
  - Proposed Bridge
  - Water

### NOTES

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted
- All hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance with Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed
- Bridge Refer to engineers proposals
- Invasive Weeds There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Topographic Survey Information Planting There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Planting Loss: The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.

Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the

This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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REV	DATE	DESCRIPTION	BY
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.08.2021	Issued for Planning	HB

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**STAGE 3 - PLANNING**

**RIVERINE COMMUNITY PARK**

**STRABANE RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn	HB	Checked	DM	Approved	DM
Date	12.02.2021	Date	12.02.2021	Date	18.08.2021

Project: RVCPC - TPHC - Z0 - XX - DR - LA - 2051  
Revision: P02

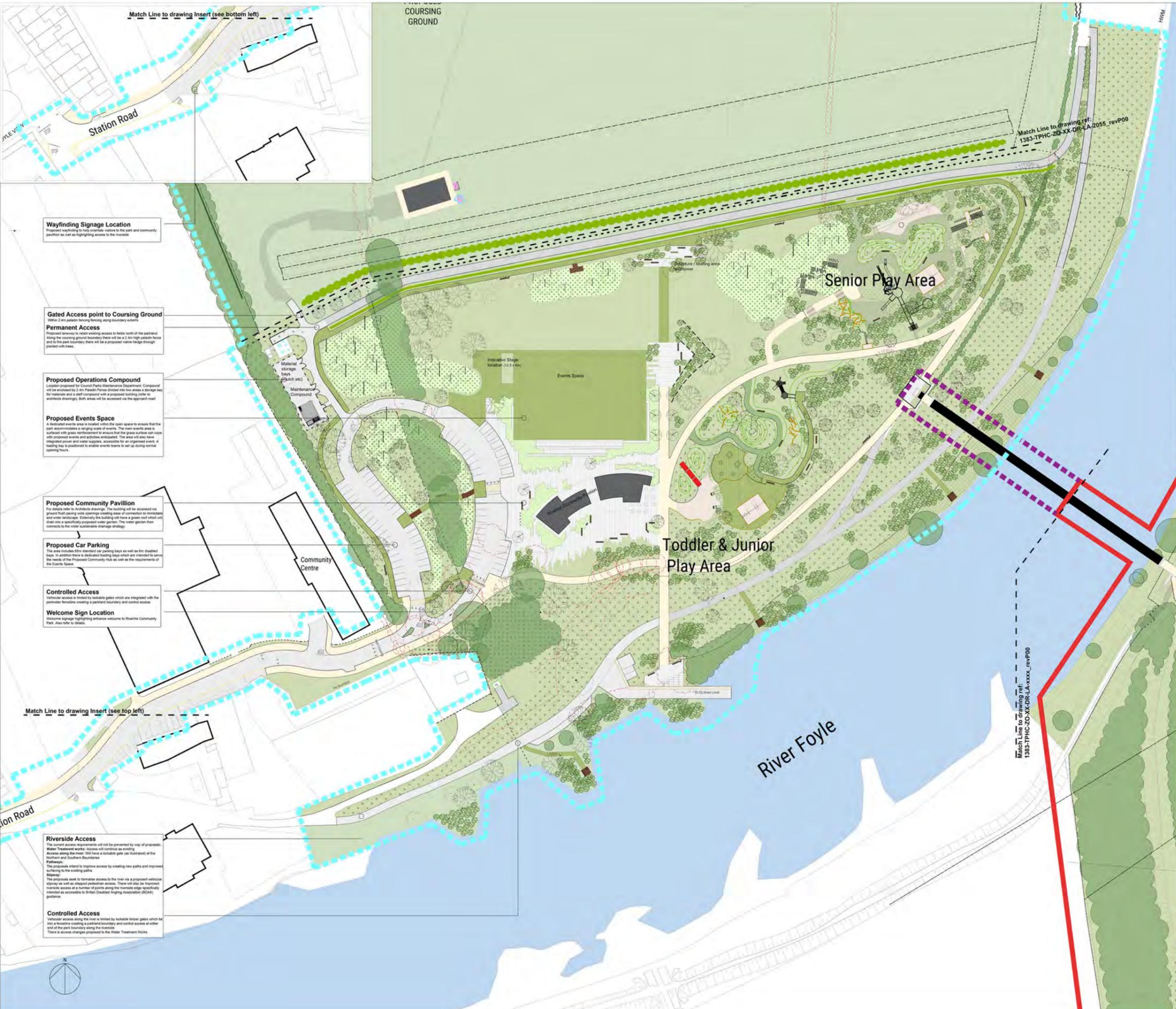
Project Number: 1383  
Status code & description: ST2 Issued for Information

All measurements are in metres. Figureed dimensions to be taken in preference to smaller dimensions. Dimensions are to be rounded up to the next 20mm. Ireland, Design Ltd

Drawing Insert  
Scale 1:500 @ A0

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Appendix II: Concept Site Layout Lifford



**LEGEND**

**SOFTWORKS**

- Existing Trees & Planting
- Proposed Native Trees
- Proposed Native Wetland Trees
- Proposed Specimen Trees
- Proposed Hedgerow planting
- Proposed Amenity Grassland
- Proposed Wildflower (WF1)
- Proposed Woodland Wildflower (WF2)
- Proposed Riverside Edge Mix
- Proposed SUDS Mix
- Proposed Native shrubs
- Proposed Ornamental shrubs
- \*Proposed Grass Mounding

**SURFACES**

- Proposed Asphalt
- Proposed Asphalt
- Proposed High Friction Surface
- \*Historic Stone Paving
- Proposed Boardwalk
- Reinforced Grass
- Proposed Gravel Path
- \*Proposed Slowsay Surface
- \*Wetproof Safety Surfacing
- \*Reinforced Grass Safety Surfacing
- \*Play Bark Safety Surface

**FEATURES**

- Existing Walls
- Existing Fencing
- 2.4m Security Fencing
- Metal Estate Fencing
- Stock Proof Fencing
- Existing Fencing to be removed
- Steps and Terracing
- Proposed Benches
- Bicycle stand locations
- Proposed Litter Bins
- Proposed Metal Gates
- Vehicle Upstand Kerb
- Vehicle Flush Kerb
- Pin Kerb

**MISCELLANEOUS**

- Riverrine Community Park Boundary (NI)
- Riverrine Community Park Boundary (RD)
- Site Boundary - Application under Roads Act, Section 51(2)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying of planting pattern.
- Layout should be read in conjunction with all other drawing information and reports.
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length.
- For proposed drainage refer to engineers layout.
- For lighting, electrical requirements refer to MSE drawings.
- Walking Routes & Connections**  
All main routes within the park boundary will be accessible to the broadest range of abilities, in accordance to Countryside Access code.
- Riverside Access**  
Riverside access to be retained.
- Planting**  
The general planting strategy is to use a primarily native planting palette introducing some specimen trees within the river car park to add formality. Where possible existing areas of native planting will be increased and supplemented to create diversity and improve ecological benefits. This planting will be suggested from the naturalised fauna surveyed.
- Suds**  
Attenuation basin locations and extents shown indicatively. Basins will be planted with a mix of native wet woodland (indicated with trees) and marginal type planting (indicated with hatches) to highlight their location and integrate them as an attractive feature within the overall site context.
- Bridge**  
Refer to engineers proposals.
- Invasive Weeds**  
Refer to invasive weed management plan.
- Topographic Survey Information**  
There are substantial areas of the Project boundary that remain unurveyed (due to poor access). In this respect assumptions have had to be made with regard detail of.
- Planting Loss**  
The extents of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding**  
Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref. 2022.
- Play Areas**  
The Play areas have been located next to the existing embankment making the most of connecting paths and using graded terracing to maximize accessibility through the play spaces. Play equipment within both the Junior / Senior play areas will also be considered to ensure broadest age range and ability is catered for. Also refer to the section drawing which illustrates section through the accessible High Tower in the Senior Play Area.
- Legend**  
All items with \* are only relevant to Lifford.

The revision cloud highlighted areas of the park which were inaccessible for the

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P01 13.08.2021 Issued for Planning HB  
P01 18.02.2021 Issued for Planning HB  
Rev: Issue Date Description Author

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**Comhairle Contae Dún na nGall**  
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Donegal City & District  
Donegal District Council

**STAGE 3 - PLANNING**

**RIVERRINE COMMUNITY PARK**

**LIFFORD RIVERRINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn: HB Date: 12.02.2021 Checked: DM Date: 12.02.2021 Approved: DM Date: 16.08.2021

Project: 1383 - Organisation: Zone - Level - Type - Role - Number  
1383 - TPHC - Z0 - XX - DR - LA - 2052 - P01

Project Name: 1383  
Status and Description: ST2 Issued for Information

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Appendix III: CEDaR species records

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<i>Peltigera canina</i>	12/05/1988	H358990	
<i>Peltigera canina</i>	25/05/1988	H358990	
Giant Fescue	04/05/2005	H358982	
Ribwort Plantain	04/05/2005	H358982	
Polypody	04/05/2005	H358982	
Common Ragwort	04/05/2005	H358982	
Bluebell	04/05/2005	H358982	WACA-Sch8
Elder	04/05/2005	H358982	FEP-001
False-Brome	04/05/2005	H358982	
Blackthorn	04/05/2005	H358982	FEP-001
Alder	04/05/2005	H358982	FEP-001
Meadowsweet	04/05/2005	H358982	
Dotted Thyme-moss	04/05/2005	H358982	
Festuca rubra sens. lat.	04/05/2005	H358982	
Meadow Buttercup	04/05/2005	H358982	
Creeping Bent	04/05/2005	H358982	
Hart's-tongue Thyme-moss	04/05/2005	H358982	
Meadow Foxtail	04/05/2005	H358982	
Greater Stitchwort	04/05/2005	H358982	
Hart's-Tongue	04/05/2005	H358982	
Broad Buckler-Fern	04/05/2005	H358982	
Wood Anemone	04/05/2005	H358982	
Common Striated Feather-moss	04/05/2005	H358982	
Wood-Sorrel	04/05/2005	H358982	RedList_ENG_post2001-NT
Bramble	04/05/2005	H358982	
Bugle	04/05/2005	H358982	
Soft Shield-Fern	04/05/2005	H358982	
Broad-Leaved Dock	04/05/2005	H358982	
Common Male Fern	04/05/2005	H358982	
Goat Willow	04/05/2005	H358982	FEP-001
Crested Dog's-Tail	04/05/2005	H358982	
Marsh Marigold	04/05/2005	H358982	
Horse-Chestnut	04/05/2005	H358982	
Hairy Brome	04/05/2005	H358982	
Hart's-tongue Thyme-moss	05/05/2005	H358989	
Opposite-Leaved Golden-Saxifrage	05/05/2005	H358989	
Guelder-Rose	05/05/2005	H358989	FEP-001
Ash	05/05/2005	H358989	FEP-001
Common Feather-moss	05/05/2005	H358989	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Common Sorrel</b>	05/05/2005	H358989	
<b>Shining Hookeria</b>	05/05/2005	H358989	
<b>Common Ragwort</b>	05/05/2005	H358989	
<b>Barren Strawberry</b>	05/05/2005	H358989	
<b>Enchanter's-Nightshade</b>	05/05/2005	H358989	
<b>Common Mouse-Ear</b>	05/05/2005	H358989	
<b>Bracken</b>	05/05/2005	H358989	
<b>Bugle</b>	05/05/2005	H358989	
<b>Yellow Pimpernel</b>	05/05/2005	H358989	
<b>Wood Fescue</b>	05/05/2005	H358989	
<b>Herb-Robert</b>	05/05/2005	H358989	
<b>Herb Bennet</b>	05/05/2005	H358989	
<b>Hairy Brome</b>	05/05/2005	H358989	
<b>Greater Tussock-Sedge</b>	05/05/2005	H358989	
<b>Primrose</b>	05/05/2005	H358989	W(NI)O-Sch8_part2
<b>Elder</b>	05/05/2005	H358989	FEP-001
<b>False Oat-Grass</b>	05/05/2005	H358989	
<b>Polypody</b>	05/05/2005	H358989	
<b>Waved Silk-moss</b>	05/05/2005	H358989	
<b>Dog Rose</b>	05/05/2005	H358989	FEP-001
<b>Meadowsweet</b>	05/05/2005	H358989	
<b>Cat's-Ear</b>	05/05/2005	H358989	
<b>Heath Bedstraw</b>	05/05/2005	H358989	
<b>Tufted Hair-Grass</b>	05/05/2005	H358989	
<b>Broad Buckler-Fern</b>	05/05/2005	H351987	
<b>Meadow Foxtail</b>	05/05/2005	H351987	
<b>Pedunculate Oak</b>	05/05/2005	H351987	FEP-001
<b>Hairy Wood-Rush</b>	05/05/2005	H351987	
<b>Common Ragwort</b>	05/05/2005	H351987	
<b>Cleavers</b>	05/05/2005	H351987	
<b>Wood-Sedge</b>	05/05/2005	H351987	
<b>Navelwort</b>	05/05/2005	H351987	
<b>Yellow Pimpernel</b>	05/05/2005	H351987	
<b>Greater Stitchwort</b>	05/05/2005	H351987	
<b>Wood Speedwell</b>	05/05/2005	H351987	
<b>Common Male Fern</b>	05/05/2005	H351987	
<b>Wood Melick</b>	05/05/2005	H351987	
<b>Pignut</b>	05/05/2005	H354990	
<b>Crack Willow</b>	05/05/2005	H354990	FEP-001
<b>Common Bent</b>	05/05/2005	H354990	
<b>Yorkshire-Fog</b>	05/05/2005	H354990	
<b>Rosebay Willowherb</b>	05/05/2005	H354990	
<b>Brooklime</b>	05/05/2005	H354990	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Gorse	05/05/2005	H354990	FEP-001
Opposite-Leaved Golden-Saxifrage	05/05/2005	H354990	
False Oat-Grass	05/05/2005	H354990	
Remote Sedge	05/05/2005	H354990	
Herb Bennet	05/05/2005	H354990	
Swan's-neck Thyme-moss	05/05/2005	H354990	
Common Feather-moss	05/05/2005	H354990	
Hawthorn	05/05/2005	H354990	FEP-001
Pedunculate Oak	05/05/2005	H354990	FEP-001
Primrose	05/05/2005	H354990	W(NI)O-Sch8_part2
Norway Spruce	05/05/2005	H354990	
Herb-Robert	05/05/2005	H354990	
Wood Anemone	05/05/2005	H354990	
Blackthorn	05/05/2005	H354990	FEP-001
Broad Buckler-Fern	05/05/2005	H354990	
Ash	05/05/2005	H354990	FEP-001
Cat's-Ear	05/05/2005	H354990	
Creeping Bent	05/05/2005	H354990	
Barren Strawberry	05/05/2005	H354990	
Lady Fern	05/05/2005	H354990	
Common Mouse-Ear	05/05/2005	H358993	
Red Champion	05/05/2005	H358993	
Common Chickweed	05/05/2005	H358993	
Fox-tail Feather-moss	05/05/2005	H358993	
Big Shaggy-moss	05/05/2005	H358993	
Rowan	05/05/2005	H358993	FEP-001
Wood-Sedge	05/05/2005	H358993	
Smooth-Stalked Sedge	05/05/2005	H358993	
Greater Stitchwort	05/05/2005	H358993	
Wych Elm	05/05/2005	H358993	FEP-001
Bush Vetch	05/05/2005	H358993	
Wild Cherry	05/05/2005	H358993	FEP-001
Lesser Stitchwort	05/05/2005	H358993	
Herb-Robert	05/05/2005	H358993	
Soft Shield-Fern	05/05/2005	H358993	
Bifid Crestwort	05/05/2005	H358993	
Hard Fern	05/05/2005	H358993	
Cladonia chlorophaea	07/08/2002	H359990	
Enterographa crassa	07/08/2002	H359990	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Lepraria incana</b>	07/08/2002	H359990	
<b>Amandinea punctata</b>	07/08/2002	H359990	
<b>Ramalina farinacea</b>	07/08/2002	H359990	
<b>Script Lichen</b>	07/08/2002	H359990	
<b>Ionaspis lacustris</b>	07/08/2002	H359990	
<b>Parmotrema perlatum</b>	07/08/2002	H359990	
<b>Anisomeridium biforme</b>	07/08/2002	H359990	
<b>Candle-Snuff Fungus</b>	07/08/2002	H359990	
<b>Hazel Woodward</b>	07/08/2002	H359990	
<b>Lecanora expallens</b>	07/08/2002	H359990	
<b>Lecidella elaeochroma</b>	07/08/2002	H359990	
<b>Pertusaria leioplaca</b>	07/08/2002	H359990	
<b>Peltigera membranacea</b>	07/08/2002	H359990	
<b>Peltigera praetextata</b>	07/08/2002	H359990	
<b>Arthonia radiata</b>	07/08/2002	H359990	
<b>Buellia disciformis</b>	07/08/2002	H359990	
<b>Netted Shield Lichen</b>	07/08/2002	H359990	
<b>Usnea cornuta</b>	07/08/2002	H359990	
<b>Graphina anguina</b>	07/08/2002	H359990	
<b>Lecanora chlorotera</b>	07/08/2002	H359990	
<b>Lepraria lobificans</b>	07/08/2002	H359990	
<b>Arthonia punctiformis</b>	07/08/2002	H359990	
<b>Oak Moss</b>	07/08/2002	H359990	
<b>Pertusaria pertusa</b>	07/08/2002	H359990	
<b>Ramalina fastigiata</b>	07/08/2002	H359990	
<b>Hysterium pulicare</b>	07/08/2002	H359990	
<b>Opegrapha vulgata</b>	07/08/2002	H359990	
<b>Arthonia cinnabarina</b>	07/08/2002	H359990	
<b>Leparia incana agg</b>	07/08/2002	H359990	
<b>Melanelia subaurifera</b>	07/08/2002	H359990	
<b>Opegrapha atra</b>	07/08/2002	H359990	
<b>Pyrenula macrospora</b>	07/08/2002	H359990	
<b>Gorse</b>	04/05/2005	H358982	FEP-001
<b>Lady Fern</b>	04/05/2005	H358982	
<b>Ivy</b>	04/05/2005	H358982	
<b>Hawthorn</b>	04/05/2005	H358982	FEP-001

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Bilberry	04/05/2005	H358982	
Bracken	04/05/2005	H358982	
Wych Elm	04/05/2005	H358982	FEP-001
Wild Angelica	04/05/2005	H358982	
Soft Rush	04/05/2005	H358982	
Common Tamarisk-moss	04/05/2005	H358982	
Wild Cherry	04/05/2005	H358982	FEP-001
Sanicle	04/05/2005	H358982	RedList_ENG_post2001-NT
Scaly Male Fern	04/05/2005	H358982	
Guelder-Rose	04/05/2005	H358982	FEP-001
Hard Fern	04/05/2005	H358982	
Common Sorrel	04/05/2005	H358982	
Yellow Iris	04/05/2005	H358982	
Swan's-neck Thyme-moss	04/05/2005	H358982	
Great Wood-Rush	04/05/2005	H358982	
Eared Willow	04/05/2005	H358982	FEP-001
Yorkshire-Fog	04/05/2005	H358982	
Pedunculate Oak	04/05/2005	H358982	FEP-001
Cow Parsley	04/05/2005	H358982	
Tutsan	04/05/2005	H358982	
Hazel	04/05/2005	H358982	FEP-001
Raspberry	04/05/2005	H358982	
Ash	04/05/2005	H358982	FEP-001
Meadow Foxtail	05/05/2005	H358989	
Pignut	05/05/2005	H358989	
Common Bent	05/05/2005	H358989	
Wild Cherry	05/05/2005	H358989	FEP-001
Gorse	05/05/2005	H358989	FEP-001
Navelwort	05/05/2005	H358989	
Broad-Leaved Willowherb	05/05/2005	H358989	
Cow Parsley	05/05/2005	H358989	
Creeping Buttercup	05/05/2005	H358989	
Wood-Sedge	05/05/2005	H358989	
Wood Speedwell	05/05/2005	H358989	
Nipplewort	05/05/2005	H358989	
Foxglove	05/05/2005	H358989	
Bush Vetch	05/05/2005	H358989	
Woodruff	05/05/2005	H358989	
Remote Sedge	05/05/2005	H358989	
Thyme-Leaved Speedwell	05/05/2005	H358989	
Common Dog-Violet	05/05/2005	H358989	
Lesser Celandine	05/05/2005	H358989	
Pill Sedge	05/05/2005	H358989	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Hart's-Tongue	05/05/2005	H358989	
Bluebell	05/05/2005	H358989	WACA-Sch8
Rough Meadow-Grass	05/05/2005	H358989	
Swan's-neck Thyme-moss	05/05/2005	H358989	
Sycamore	05/05/2005	H351987	
Germander Speedwell	05/05/2005	H351987	
Rowan	05/05/2005	H351987	FEP-001
Heath Speedwell	05/05/2005	H351987	RedList_ENG_post2001-NT
Honeysuckle	05/05/2005	H351987	
Pignut	05/05/2005	H351987	
Common Chickweed	05/05/2005	H351987	
Bracken	05/05/2005	H351987	
Common Dog-Violet	05/05/2005	H351987	
Hazel	05/05/2005	H351987	FEP-001
Barren Strawberry	05/05/2005	H351987	
Hypnum cupressiforme	05/05/2005	H351987	
Bramble	05/05/2005	H351987	
Thyme-Leaved Speedwell	05/05/2005	H351987	
Common Bent	05/05/2005	H351987	
Elegant Silk-moss	05/05/2005	H351987	
Lesser Spearwort	05/05/2005	H354990	RedList_ENG_post2001-VU
Beech	05/05/2005	H354990	FEP-001
Dotted Thyme-moss	05/05/2005	H354990	
Bugle	05/05/2005	H354990	
Wavy Bitter-Cress	05/05/2005	H354990	
Broad-Leaved Willowherb	05/05/2005	H354990	
Bush Vetch	05/05/2005	H354990	
Honeysuckle	05/05/2005	H354990	
Common Dog-Violet	05/05/2005	H354990	
Water Figwort	05/05/2005	H354990	
Sycamore	05/05/2005	H354990	
Great Wood-Rush	05/05/2005	H354990	
Common Marsh-Bedstraw	05/05/2005	H354990	
Nipplewort	05/05/2005	H354990	
Cleavers	05/05/2005	H354990	
English Elm	05/05/2005	H354990	FEP-001
Shining Hookeria	05/05/2005	H354990	
Ash	05/05/2005	H358993	FEP-001
Heath Speedwell	05/05/2005	H358993	RedList_ENG_post2001-NT

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Great Wood-Rush	05/05/2005	H358993	
Bluebell	05/05/2005	H358993	WACA-Sch8
Meadow Foxtail	05/05/2005	H358993	
Selfheal	05/05/2005	H358993	
Wood-Sorrel	05/05/2005	H358993	RedList_ENG_post2001-NT
Bracken	05/05/2005	H358993	
Tufted Hair-Grass	05/05/2005	H358993	
Opposite-Leaved Golden-Saxifrage	05/05/2005	H358993	
Scaly Male Fern	05/05/2005	H358993	
Hart's-Tongue	05/05/2005	H358993	
Sweet Chestnut	05/05/2005	H358993	
Herb Bennet	05/05/2005	H358993	
Wild Angelica	05/05/2005	H358993	
Bilberry	05/05/2005	H358993	
Pill Sedge	05/05/2005	H358993	
Lesser Celandine	05/05/2005	H358993	
Pedunculate Oak	05/05/2005	H358993	FEP-001
Common Bent	05/05/2005	H358993	
Primrose	05/05/2005	H358993	W(NI)O-Sch8_part2
Bramble	05/05/2005	H358993	
Broom	05/05/2005	H358993	FEP-001
Bugle	05/05/2005	H358993	
False Oat-Grass	05/05/2005	H358993	
Enchanter's-Nightshade	05/05/2005	H358993	
Pendulus Sedge	05/05/2005	H358993	
Gorse	05/05/2005	H358993	FEP-001
Holly	05/05/2005	H358993	FEP-001
Dog Rose	05/05/2005	H358993	FEP-001
Wood Speedwell	05/05/2005	H358993	
Heather	05/05/2005	H358993	RedList_ENG_post2001-NT
English Elm	05/05/2005	H358993	FEP-001
Death's Head Hawk-Moth	21/09/1956	H3497	
Striped Hawk-Moth	April 1985	C30	
Muslin Footman	1993	H39	
Peppered Moth	1993	H39	
Poplar Hawk-Moth	1993	H39	
Light Emerald	1993	H39	
Burnished Brass	1993	H39	
Buff Arches	1993	H39	
Buff Ermine	1993	H39	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Brown Silver-Line	1993	H39	
Common Heath	1993	H39	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Common Wave	1993	H39	
Double Square-Spot	1993	H39	
Double Dart	1993	H39	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Single-Dotted Wave	1993	H39	
Dark Arches	1993	H39	
Frizzled Pincushion	28/04/1993	H3497	
Welsh Poppy	June 2001	H344982	NS-excludes
Borage	23/09/2002	H328971	
Bitter-Vetch	23/09/2002	H345998	RedList_ENG_post2001-NT
Amphibious Bistort	23/09/2002	C3400	
Yellow-Rattle	23/09/2002	C3400	
Slender Rush	23/09/2002	C346002	
Goldenrod	23/09/2002	H3398	RedList_ENG_post2001-NT
Green Alkanet	23/09/2002	H3398	
Tomato	23/09/2002	H3398	
Slender Rush	23/09/2002	H3398	
Petty Spurge	23/09/2002	H336985	ECCITES-B
Alsike Clover	23/09/2002	H336986	
Perfoliate Pondweed	23/09/2002	H339987	
Black Medick	22/06/2003	H339981	
Common Poppy	19/08/2003	H338977	
Pellitory-Of-The-Wall	16/04/2005	H348973	
Strawberry Snail	01/03/1992	H358993	
Brown Snail	01/03/1992	H358993	NIPS
Copse Snail	01/03/1992	H358993	NIPS
Brown Lipped Snail	01/03/1992	H358993	
Smooth Glass Snail	01/03/1992	H358993	
Common Chrysalis Snail	01/03/1992	H358993	
Clear Glass Snail	01/03/1992	H358993	
English Chrysalis Snail	01/03/1992	H358993	NIPS
Short-toothed Herald Snail	01/03/1992	H358993	
Southern Bracket	01/03/1992	H358995	
Deroceras invadens	01/03/1992	H358995	
Candle-Snuff Fungus	01/03/1992	H358995	
Common Striped Woodlouse	01/03/1992	H358995	
Dusky Slug	01/03/1992	H358995	
Great Black Slug	01/03/1992	H358995	RedList_GB_post2001-DD
Rounded Snail	01/03/1992	H358995	
Green Cellar Slug	01/03/1992	H358995	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Garlic Mustard	1950 - 1959	H3497	
Lady's-Mantle	1950 - 1959	H3497	
Rough Hawk's-Beard	1950 - 1959	H3497	
Pale Sedge	1950 - 1959	H3497	
Hard Shield-Fern	1950 - 1959	H3497	
Marsh Cudweed	1950 - 1959	H3497	
Short-Fruited Willowherb	1950 - 1959	H3497	
Corn Mint	1950 - 1959	H3497	RedList_ENG_post2001-NT, Scottish_Biodiversity_List
Field Forget-Me-Not	1950 - 1959	H3497	
Square-Stalked St. John's-Wort	1950 - 1959	H3497	
Pendulus Sedge	1950 - 1959	H3497	
Harebell	1950 - 1959	H3497	RedList_ENG_post2001-NT
Water Purslane	1950 - 1959	H3497	
Broad-Leaved Ragwort	1950 - 1959	H3498	
Slender St. John's-Wort	1950 - 1951	H3497	
Hoary Willowherb	12/05/1988	H358990	
Water Horsetail	12/05/1988	H358990	
Wavy Bitter-Cress	12/05/1988	H358990	
Water Mint	12/05/1988	H358990	
Enchanter's-Nightshade	12/05/1988	H358990	
Common Sorrel	12/05/1988	H358990	
Barren Strawberry	12/05/1988	H358990	
Hedge Woundwort	12/05/1988	H358990	
Primrose	12/05/1988	H358990	W(NI)O-Sch8_part2
Creeping Soft-Grass	12/05/1988	H358990	
Hazel	12/05/1988	H358990	FEP-001
Raspberry	12/05/1988	H358990	
Yorkshire-Fog	12/05/1988	H358990	
Hairy Brome	12/05/1988	H358990	
Slender St. John's-Wort	12/05/1988	H358990	
Early-Purple Orchid	12/05/1988	H358990	ECCITES-B
Holly	12/05/1988	H358990	FEP-001
Yellow Iris	12/05/1988	H358990	
Thyme-Leaved Speedwell	12/05/1988	H358990	
Wood Fescue	12/05/1988	H358990	
Polypody	12/05/1988	H358990	
Ash	12/05/1988	H358990	FEP-001
Great Wood-Rush	12/05/1988	H358990	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Bog Stitchwort</b>	12/05/1988	H358990	
<b>Blackthorn</b>	12/05/1988	H358990	FEP-001
<b>Wild Angelica</b>	12/05/1988	H358990	
<b>Creeping Buttercup</b>	12/05/1988	H358990	
<b>Spear Thistle</b>	12/05/1988	H358990	
<b>Common Male Fern</b>	12/05/1988	H358990	
<b>Greater Stitchwort</b>	12/05/1988	H358990	
<b>Daisy</b>	12/05/1988	H358990	
<b>Common Ragwort</b>	12/05/1988	H358990	
<b>Ash</b>	12/05/1988	H358990	FEP-001
<b>Herb-Robert</b>	12/05/1988	H358990	
<b>Germander</b>	12/05/1988	H358990	
<b>Speedwell</b>			
<b>Wood Speedwell</b>	25/05/1988	H358990	
<b>Opposite-Leaved Golden-Saxifrage</b>	25/05/1988	H358990	
<b>Honeysuckle</b>	25/05/1988	H358990	
<b>Rough Meadow-Grass</b>	25/05/1988	H358990	
<b>Meadowsweet</b>	25/05/1988	H358990	
<b>Great Wood-Rush</b>	25/05/1988	H358990	
<b>Opposite-Leaved Golden-Saxifrage</b>	25/05/1988	H358990	
<b>Ivy</b>	25/05/1988	H358990	
<b>Hedge Woundwort</b>	25/05/1988	H358990	
<b>Hawthorn</b>	25/05/1988	H358990	FEP-001
<b>Wood-Sorrel</b>	25/05/1988	H358990	RedList_ENG_post2001-NT
<b>Common Dog-Violet</b>	25/05/1988	H358990	
<b>Broad Buckler-Fern</b>	25/05/1988	H358990	
<b>Hart's-Tongue</b>	May 1993	H358990	
<b>Elmis aenea</b>	1991	H339980	
<b>Oulimnius tuberculatus</b>	1991	H339980	
<b>Irish Stoat</b>	18/03/1998	H39	Bern-A3
<b>Fox</b>	11/07/1998	H343985	
<b>Fox</b>	03/09/1998	H342987	
<b>Fox</b>	05/05/2000	H347988	
<b>Red Squirrel</b>	1995	H359986	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
<b>Mistle Thrush</b>	12/05/1988	H358990	Bird-Red, BirdsDir-A2.2
<b>Chiffchaff</b>	12/05/1988	H358990	
<b>Willow Warbler</b>	12/05/1988	H358990	Bird-Amber
<b>Raven</b>	12/05/1988	H358990	
<b>Rook</b>	12/05/1988	H358990	BirdsDir-A2.2
<b>Woodpigeon</b>	12/05/1988	H358990	BirdsDir-A2.1
<b>Chaffinch</b>	12/05/1988	H358990	
<b>Blackbird</b>	12/05/1988	H358990	BirdsDir-A2.2
<b>Yellowhammer</b>	12/05/1988	H358990	BAP-2007, Bern-A2, Bird-Red, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Goldcrest</b>	12/05/1988	H358990	Bern-A2
<b>Wren</b>	12/05/1988	H358990	Bern-A2
<b>Magpie</b>	12/05/1988	H358990	BirdsDir-A2.2
<b>Bay Willow</b>	1973	C30	FEP-001
<b>Greater Celandine</b>	1987 - 1999	H355996	Scottish_Biodiversity_List
<b>Toothwort</b>	1987 - 1999	H359985	
<b>Willow</b>	1988	H39	FEP-001
<b>Italian Rye-Grass</b>	1981	H358980	
<b>Greater Tussock-Sedge</b>	1981	H358980	
<b>Snowberry</b>	1981	H358994	
<b>Woodruff</b>	1981	H358994	
<b>Eyebright</b>	September 2006	C3500	
<b>Marsh Foxtail</b>	September 2006	C3500	
<b>Carnation Sedge</b>	September 2006	C3500	
<b>Yellow Loosestrife</b>	September 2006	C3500	
<b>Large-Flowered Hemp-Nettle</b>	September 2006	C3500	FEP-007_tab3, RedList_ENG_post2001-VU, RedList_GB_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Sycamore</b>	September 2006	C3500	
<b>Tall Fescue</b>	September 2006	C3500	
<b>Common Orache</b>	September 2006	C3500	
<b>Silver Hair-Grass</b>	11/10/2008	H3597	
<b>Guelder-Rose</b>	1987 - 1999	C30	FEP-001
<b>Heath Bedstraw</b>	1987 - 1999	C3500	
<b>Common Orache</b>	1987 - 1999	C3500	
<b>Herb Bennet</b>	1987 - 1999	C3500	
<b>Cross-Leaved Heath</b>	1987 - 1999	C3500	RedList_ENG_post2001-NT
<b>Black Bindweed</b>	1987 - 1999	C3500	Scottish_Biodiversity_List

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Wood Dock	1987 - 1999	C3500	
Timothy	1987 - 1999	C3500	
Carnation Sedge	1987 - 1999	C3500	
Meadow Buttercup	1987 - 1999	C3500	
Wild Oat	1987 - 1999	C3500	
Corn Spurrey	1987 - 1999	C3500	RedList_ENG_post2001-VU, RedList_GB_post2001-VU
Tormentil	1987 - 1999	C3500	RedList_ENG_post2001-NT
Trailing St. John's-Wort	1987 - 1999	C3500	
Cuckooflower	1987 - 1999	C3500	
Heath Groundsel	1987 - 1999	C3500	
Bog Myrtle	1987 - 1999	C3500	RedList_ENG_post2001-NT
Slender St. John's-Wort	1987 - 1999	C3500	
Greater Stitchwort	1987 - 1999	C3500	
Wood White	1993	H39	BAP-2007, England_NERC_S.41, NIPS, RedList_GB_post2001-EN, WACA-Sch5_sect9.5a, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Large White	1993	H39	
Small Heath	1993	H39	BAP-2007, England_NERC_S.41, NIPS, RedList_GB_post2001-NT, Scottish_Biodiversity_List, Wales_NERC_S.42
Small Tortoiseshell	1993	H39	
Orange Tip	1993	H39	
Green-Veined White	1993	H39	
Green Hairstreak	1993	C30	
Small Tortoiseshell	1993	C30	
Ringlet	1993	C30	
Orange Tip	1993	C30	
Meadow Brown	1993	C30	
Large Heath	1993	C30	BAP-2007, England_NERC_S.41, NIPS, RedList_GB_post2001-VU, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA- Sch5_sect9.5a, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Speckled Wood	11/05/1993	H358986	
Orange Tip	11/05/1993	H358989	
Green-Veined White	11/05/1993	H358989	
Orange Tip	21/05/1993	H358989	
Large White	21/05/1993	H358989	
Clouded Border	1993	H39	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Magpie Moth	1993	H39	
Clouded Magpie	1993	H39	
Green Carpet	1993	H39	
Twin-spot Carpet	1993	H39	
Flame Shoulder	1993	H39	
Common Carpet	1993	H39	
Fan-Foot	1993	H39	
Grey Dagger	1993	H39	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Silver-ground Carpet	1993	H39	
Lilac Beauty	1993	H39	
Beautiful Golden Y	1993	H39	
White Ermine	1993	H39	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Small Fan-Foot	1993	H39	
Large Emerald	1993	H39	
Emperor	1993	C30	
Clouded Magpie	1993	H39	
Ash-Grey Slug	01/03/1992	H358989	NIPS
New Zealand Flatworm	01/03/1992	H358989	
Tawny Soil Slug	01/03/1992	H358989	
English Chrysalis Snail	01/03/1992	H358989	NIPS
Winter Semi-slug	01/03/1992	H358989	
Arion (Carinarion) circumscriptus	01/03/1992	H358989	
Deroceras invadens	01/03/1992	H358989	
Rayed Glass Snail	01/03/1992	H358989	
Marsh Slug	01/03/1992	H358989	
Columella edentula seg.	01/03/1992	H358989	
Budapest Keeled Slug	01/03/1992	H358989	
Great Black Slug	01/03/1992	H358989	RedList_GB_post2001-DD
Common Garden Slug	01/03/1992	H358991	
Netted Slug	01/03/1992	H358991	
Scarlet Elf Cup	01/03/1992	H358991	Scottish_Biodiversity_List
Hazel Woodwart	01/03/1992	H358991	
Columella edentula seg.	01/03/1992	H358991	
White Stonecrop	Unknown	C30	
Hart's-Tongue	Unknown	H358995	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Lemon-Scented Fern</b>	Unknown	H358995	
<b>Hard Fern</b>	Unknown	H358995	
<b>Hay-Scented Buckler-Fern</b>	Unknown	H358995	
<b>Royal Fern</b>	Unknown	H3598	
<b>Lemon-Scented Fern</b>	Unknown	H3599	
<b>Bristle Oat</b>	1975	H39	
<b>Wild Oat</b>	1975	H39	
<b>Rosebay Willowherb</b>	1981	H358980	
<b>Hairy Brome</b>	1981	H358980	
<b>Early Hair-Grass</b>	1981	H358980	
<b>Lady's-Mantle</b>	1981	H358980	
<b>Pendulus Sedge</b>	1981	H358980	
<b>Hard Shield-Fern</b>	1981	H358980	
<b>Wavy Hair-Grass</b>	1981	H358980	
<b>Square-Stalked St. John's-Wort</b>	1981	H358980	
<b>Sweet Chestnut</b>	12/05/1988	H358990	
<b>Wood Speedwell</b>	12/05/1988	H358990	
<b>Scaly Male Fern</b>	12/05/1988	H358990	
<b>Lady Fern</b>	12/05/1988	H358990	
<b>Rowan</b>	12/05/1988	H358990	FEP-001
<b>Herb-Robert</b>	12/05/1988	H358990	
<b>Herb Bennet</b>	12/05/1988	H358990	
<b>Marsh Marigold</b>	12/05/1988	H358990	
<b>Ribwort Plantain</b>	12/05/1988	H358990	
<b>Broad-Leaved Willowherb</b>	12/05/1988	H358990	
<b>Bracken</b>	12/05/1988	H358990	
<b>Sessile Oak</b>	12/05/1988	H358990	FEP-001
<b>Guelder-Rose</b>	12/05/1988	H358990	FEP-001
<b>Sweet Vernal Grass</b>	12/05/1988	H358990	
<b>Ivy</b>	12/05/1988	H358990	
<b>Red Campion</b>	12/05/1988	H358990	
<b>Pignut</b>	12/05/1988	H358990	
<b>Wood Anemone</b>	12/05/1988	H358990	
<b>Common Bent</b>	12/05/1988	H358990	
<b>Hard Fern</b>	12/05/1988	H358990	
<b>False-Brome</b>	12/05/1988	H358990	
<b>Sycamore</b>	12/05/1988	H358990	
<b>Downy Birch</b>	12/05/1988	H358990	FEP-001
<b>Meadowsweet</b>	12/05/1988	H358990	
<b>Hard Fern</b>	12/05/1988	H358990	
<b>Common Nettle</b>	12/05/1988	H358990	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Common Dog-Violet	12/05/1988	H358990	
Opposite-Leaved Golden-Saxifrage	12/05/1988	H358990	
Downy Birch	12/05/1988	H358990	FEP-001
Enchanter's-Nightshade	12/05/1988	H358990	
Common Figwort	12/05/1988	H358990	
Herb Bennet	12/05/1988	H358990	
Ivy	12/05/1988	H358990	
Meadowsweet	25/05/1988	H358990	
Lesser Celandine	25/05/1988	H358990	
Bugle	25/05/1988	H358990	
Rough Meadow-Grass	25/05/1988	H358990	
Bramble	25/05/1988	H358990	
Hazel	25/05/1988	H358990	FEP-001
Great Wood-Rush	25/05/1988	H358990	
Hard Fern	25/05/1988	H358990	
Wood-Sedge	25/05/1988	H358990	
Downy Birch	25/05/1988	H358990	FEP-001
Wood-Sorrel	25/05/1988	H358990	RedList_ENG_post2001-NT
Herb Bennet	25/05/1988	H358990	
Wood Anemone	25/05/1988	H358990	
Lady Fern	25/05/1988	H358990	
Opposite-Leaved Golden-Saxifrage	25/05/1988	H358990	
Ivy	25/05/1988	H358990	
Lesser Celandine	25/05/1988	H358990	
White Beak-Sedge	1987 - 1999	C3500	RedList_ENG_post2001-NT
Marsh Thistle	1987 - 1999	C3500	
Jointed Rush	1987 - 1999	C3500	
Heath Wood-Rush	1987 - 1999	C3500	
Gooseberry	1987 - 1999	C3500	FEP-001
Toad Rush	1987 - 1999	C3500	
Colt's-Foot	1987 - 1999	C3500	
Thale Cress	1987 - 1999	C3500	
Equal-Leaved Knotgrass	1987 - 1999	C3500	
Bog Asphodel	1987 - 1999	C3500	
Broad Buckler-Fern	1987 - 1999	C3500	
Pendulus Sedge	1987 - 1999	C3500	
Common Hemp-Nettle	1987 - 1999	C3500	
Rowan	1987 - 1999	C3500	FEP-001
Sheep's Sorrel agg.	1987 - 1999	C3500	
Eyebright	1987 - 1999	C3500	
Feverfew	1987 - 1999	C3500	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Opium Poppy</b>	1987 - 1999	C3500	
<b>Sessile Oak</b>	1987 - 1999	C3500	FEP-001
<b>Common Poppy</b>	1987 - 1999	C3500	
<b>Annual Meadow-Grass</b>	1987 - 1999	C3500	
<b>Field Horsetail</b>	1987 - 1999	C3500	
<b>Downy Birch</b>	1987 - 1999	C3500	FEP-001
<b>Red Campion</b>	1987 - 1999	C3500	
<b>Round-Leaved Sundew</b>	1987 - 1999	C3500	RedList_ENG_post2001-NT
<b>Marsh Pennywort</b>	1987 - 1999	C3500	RedList_ENG_post2001-NT
<b>Eared Willow</b>	1987 - 1999	C3500	FEP-001
<b>Thyme-Leaved Speedwell</b>	1987 - 1999	C3500	
<b>Hazel</b>	1987 - 1999	C3500	FEP-001
<b>Tall Fescue</b>	1987 - 1999	C3500	
<b>Sherard's Downy-Rose</b>	1987 - 1999	C3500	FEP-001
<b>Hare's-Tail Cottongrass</b>	1987 - 1999	C3500	
<b>Creeping Forget-Me-Not</b>	1987 - 1999	C3500	
<b>Devil's-Bit Scabious</b>	1987 - 1999	C3500	RedList_ENG_post2001-NT
<b>Purple Moor-Grass</b>	1987 - 1999	C3500	
<b>Common Ramping-Fumitory</b>	1987 - 1999	C3500	
<b>Deergrass</b>	1987 - 1999	C3500	
<b>Upright Hedge-Parsley</b>	1987 - 1999	C3500	
<b>Yellow-Rattle</b>	1987 - 1999	C3500	
<b>Eyebright</b>	1987 - 1999	C3500	RedList_ENG_post2001-VU, RedList_GB_post2001-DD
<b>Monkeyflower</b>	1987 - 1999	C3500	
<b>Perennial Sow-Thistle</b>	1987 - 1999	C3500	
<b>Prickly Sow-Thistle</b>	1987 - 1999	C3500	
<b>Common Bird's-Foot-Trefoil</b>	1987 - 1999	C3500	
<b>Perennial Rye-Grass</b>	1987 - 1999	C3500	
<b>Tufted Hair-Grass</b>	1987 - 1999	C3500	
<b>Foxglove</b>	1987 - 1999	C3500	
<b>Snowberry</b>	1987 - 1999	C3500	
<b>Floating Sweet-Grass</b>	1987 - 1999	C3500	
<b>Perforate St. John's-Wort</b>	1987 - 1999	C3500	
<b>Cat's-Ear</b>	1987 - 1999	C3500	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Nipplewort</b>	1987 - 1999	C3500	
<b>Meadow Vetchling</b>	1987 - 1999	C3500	
<b>Yorkshire-Fog</b>	1987 - 1999	C3500	
<b>Selfheal</b>	1987 - 1999	C3500	
<b>Common Sorrel</b>	1987 - 1999	C3500	
<b>Bottle Sedge</b>	1987 - 1999	C3500	
<b>Bulrush</b>	1987 - 1999	C3500	
<b>Common Chickweed</b>	1987 - 1999	C3500	
<b>Rosebay Willowherb</b>	1987 - 1999	C3500	
<b>Cock's-Foot</b>	1987 - 1999	C3500	
<b>Wild Privet</b>	1987 - 1999	C3500	FEP-001
<b>Trailing Tormentil</b>	1987 - 1999	C3500	
<b>Silverweed</b>	1987 - 1999	C3500	
<b>Marsh Yellow-Cress</b>	1987 - 1999	C3500	
<b>Brooklime</b>	1987 - 1999	C3500	
<b>Broom</b>	1987 - 1999	C3500	FEP-001
<b>Purple-Loosestrife</b>	1987 - 1999	C3500	
<b>Pineapple Weed</b>	1987 - 1999	C3500	
<b>White Stonecrop</b>	1987 - 1999	C3500	
<b>Gorse</b>	1987 - 1999	C3500	FEP-001
<b>Spleenwort</b>	1987 - 1999	C3500	
<b>Lady Fern</b>	1987 - 1999	C3500	
<b>Red Clover</b>	1987 - 1999	C3500	
<b>Reed Canary-Grass</b>	1987 - 1999	C3500	
<b>Herb-Robert</b>	1987 - 1999	C3500	
<b>Scentless Mayweed</b>	1987 - 1999	C3500	
<b>Lesser Spearwort</b>	1987 - 1999	C3500	RedList_ENG_post2001-VU
<b>Procumbent Pearlwort</b>	1987 - 1999	C3500	
<b>Curled Pondweed</b>	1987 - 1999	C3500	
<b>Common Couch</b>	1987 - 1999	C3500	
<b>Green Hairstreak</b>	1960 - 2000	C30	
<b>Small Tortoiseshell</b>	1960 - 1993	C30	
<b>Red Admiral</b>	1960 - 1993	C30	
<b>Meadow Brown</b>	1960 - 1993	C30	
<b>Ringlet</b>	1960 - 1993	C30	
<b>Green-Veined White</b>	1960 - 1993	C30	
<b>Small Copper</b>	1960 - 1993	C30	
<b>Peacock</b>	1960 - 1993	C30	
<b>Speckled Wood</b>	1960 - 1993	C30	
<b>Wood White</b>	1960 - 2008	H39	BAP-2007, England_NERC_S.41, NIPS, RedList_GB_post2001-EN, WACA-Sch5_sect9.5a,

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			Wales_NERC_S.42, Wildlife (NI) Order Sch 5
<b>Whooper Swan</b>	28/10/1995	H39	Bern-A2, Bird-Amber, BirdsDir-A1, CMS_A2, CMS_AEWA-A2, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
<b>Tree Sparrow</b>	22/11/1997	H39	BAP-2007, Bird-Red, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Black Redstart</b>	07/04/1999	H39	Bern-A2, Bird-Red, WACA-Sch1_part1
<b>Haller's Apple-moss</b>	1914	H39	
<b>Rusty Feather-moss</b>	November 1897	H358990	
<b>Spotty Scalewort</b>	July 1887	H3599	
<b>Straight-leaved Apple-moss</b>	1883	H358990	NIPS
<b>Grove Earwort</b>	1882	H358990	
<b>Yellow Starry Feather-moss</b>	12/05/1988	H358990	
<b>Hypnum cupressiforme</b>	12/05/1988	H358990	
<b>Rough-stalked Feather-moss</b>	12/05/1988	H358990	
<b>Hair-pointed Feather-moss</b>	12/05/1988	H358990	
<b>Big Shaggy-moss</b>	12/05/1988	H358990	
<b>Fox-tail Feather-moss</b>	12/05/1988	H358990	
<b>Smaller Lattice-moss</b>	12/05/1988	H358990	
<b>Curled Hook-moss</b>	12/05/1988	H358990	
<b>Bifid Crestwort</b>	12/05/1988	H358990	
<b>Greater Water-moss</b>	12/05/1988	H358990	
<b>Shining Hookeria</b>	12/05/1988	H358990	
<b>Lesser Pocket-moss</b>	12/05/1988	H358990	
<b>Greasewort</b>	12/05/1988	H358990	
<b>Swan's-neck Thyme-moss</b>	12/05/1988	H358990	
<b>Common Striated Feather-moss</b>	12/05/1988	H358990	
<b>Tamarisk Scalewort</b>	12/05/1988	H358990	
<b>Garden Daffodil</b>	May 2000	C3500	
<b>Hard Fern</b>	May 2000	C3500	
<b>Yellow Iris</b>	May 2000	C3500	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Wood-Sorrel	May 2000	C3500	RedList_ENG_post2001-NT
Hairy Bitter-Cress	May 2000	C3500	
Wood Speedwell	May 2000	C3500	
Hogweed	May 2000	C3500	
Blinks	May 2000	C3500	
Tall Ramping-Fumitory	May 2000	C3500	FEP-007_tab3
Snowdrop	May 2000	C3500	ECCITES-B
Wood Horsetail	May 2000	C3500	
Wood Anemone	May 2000	C3500	
Lesser Celandine	May 2000	C3500	
Scaly Male Fern	May 2000	C3500	
Bluebell	May 2000	C3500	WACA-Sch8
Hydroporus striola	29/09/1936	C30	
Oreodytes sanmarki	1991	H339980	
Red Squirrel	2006	H358987	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Red Squirrel	09/03/2009	H358987	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Common Bent	18/06/2009	H3498	
Creeping Bent	18/06/2009	H3498	
Hedge Bindweed	18/06/2009	H3498	
Hairy Sedge	18/06/2009	H3498	
Hare's-foot sedge	18/06/2009	H3498	NR-excludes, RedList_GB_post2001-NT, Scottish_Biodiversity_List

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Creeping Thistle	18/06/2009	H3498	
Cock's-foot	18/06/2009	H3498	
Tufted Hair-grass	18/06/2009	H3498	
Common Couch	18/06/2009	H3498	
Field Horsetail	18/06/2009	H3498	
Red Fescue	18/06/2009	H3498	
Cleavers	18/06/2009	H3498	
Yorkshire-fog	18/06/2009	H3498	
Creeping Soft-grass	18/06/2009	H3498	
Lesser Burdock	25/06/2009	H3498	
False Oat-grass	25/06/2009	H3498	
Silver Birch	25/06/2009	H3498	FEP-001
Hedge Bindweed	25/06/2009	H3498	
Common Knapweed	25/06/2009	H3498	
Common Mouse-ear	25/06/2009	H3498	
Redshank	25/06/2009	H3498	
Rosebay Willowherb	25/06/2009	H3498	
Creeping Thistle	25/06/2009	H3498	
Dogwood	25/06/2009	H3498	FEP-001
Franchet's Cotoneaster	25/06/2009	H3498	
Hawthorn	25/06/2009	H3498	FEP-001
Montbretia	25/06/2009	H3498	
Crested Dog's-tail	25/06/2009	H3498	
Broom	25/06/2009	H3498	FEP-001
Cock's-foot	25/06/2009	H3498	
White Clover	25/06/2009	H3498	
Colt's-foot	25/06/2009	H3498	
Gorse	25/06/2009	H3498	FEP-001
Common Nettle	25/06/2009	H3498	
Common Valerian	25/06/2009	H3498	RedList_ENG_post2001-NT
Germander Speedwell	25/06/2009	H3498	
Tufted Vetch	25/06/2009	H3498	
Bush Vetch	25/06/2009	H3498	
Creeping Bent	18/06/2009	H3297	
Pointed Spear-moss	18/06/2009	H3297	
Hare's-foot sedge	18/06/2009	H3297	NR-excludes, RedList_GB_post2001-NT, Scottish_Biodiversity_List
Common Mouse-ear	18/06/2009	H3297	
Creeping Thistle	18/06/2009	H3297	
Marsh Thistle	18/06/2009	H3297	
Crested Dog's-tail	18/06/2009	H3297	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Cock's-foot	18/06/2009	H3297	
Common Couch	18/06/2009	H3297	
Swan's-neck Thyme-moss	10/03/2009	H3599	
Flat Neckera	10/03/2009	H3599	
Wood Bristle-moss	10/03/2009	H3599	
White-tipped Bristle-moss	10/03/2009	H3599	
Elegant Bristle-moss	10/03/2009	H3599	
Craven Featherwort	10/03/2009	H3599	Scottish_Biodiversity_List
Endive Pellia	10/03/2009	H3599	
Greater Featherwort	10/03/2009	H3599	
Lesser Featherwort	10/03/2009	H3599	
Dented Silk-moss	10/03/2009	H3599	
Long-beaked Water Feather-moss	10/03/2009	H3599	
Bank Haircap	10/03/2009	H3599	
Elegant Silk-moss	10/03/2009	H3599	
Even Scalewort	10/03/2009	H3599	
Dotted Thyme-moss	10/03/2009	H3599	
Clustered Feather-moss	10/03/2009	H3599	
Common Spike-rush	05/08/2009	H3498	
Great Willowherb	05/08/2009	H3498	
Water Horsetail	05/08/2009	H3498	
Crescent-cup Liverwort	05/08/2009	H3498	
Common Liverwort	05/08/2009	H3498	
Goat Willow	05/08/2009	H3498	FEP-001
Crack-willow	05/08/2009	H3498	FEP-001
Schistidium	05/08/2009	H3498	
Wild Angelica	03/08/2009	H3397	
Sedge	03/08/2009	H3397	
Smaller Lattice-moss	03/08/2009	H3397	
Common Spike-rush	03/08/2009	H3397	
Canadian Waterweed	03/08/2009	H3397	
Water Horsetail	03/08/2009	H3397	
Meadowsweet	03/08/2009	H3397	
Greater Water-moss	03/08/2009	H3397	
Indian Balsam	03/08/2009	H3397	
Crescent-cup Liverwort	03/08/2009	H3397	
Water Mint	03/08/2009	H3397	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Water Forget-me-not</b>	03/08/2009	H3397	
<b>Spruce's Bristle-moss</b>	03/08/2009	H3397	NIPS, Scottish_Biodiversity_List, Wildlife (NI) Order Sch 8
<b>Amphibious Bistort</b>	03/08/2009	H3397	
<b>Reed Canary-grass</b>	03/08/2009	H3397	
<b>Broad-leaved Pondweed</b>	03/08/2009	H3397	
<b>Perfoliate Pondweed</b>	03/08/2009	H3397	
<b>Water Dock</b>	03/08/2009	H3397	
<b>Willow</b>	03/08/2009	H3397	FEP-001
<b>Sycamore</b>	October 2010	H3297	
<b>Atlantic Salmon</b>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Sea Trout</b>	October 2010	H3297	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Elder</b>	October 2010	H3297	FEP-001
<b>Bog Moss</b>	October 2010	H3297	HabDir-A5
<b>Gorse</b>	October 2010	H3297	FEP-001
<b>Elm</b>	October 2010	H3297	FEP-001
<b>Common Nettle</b>	October 2010	H3297	
<b>Fox</b>	October 2010	H3297	
<b>Hawthorn</b>	October 2010	H3396	FEP-001
<b>Tufted Hair-Grass</b>	October 2010	H3396	
<b>Horsetail</b>	October 2010	H3396	
<b>Beech</b>	October 2010	H3396	FEP-001
<b>Cherry Laurel</b>	October 2010	H3396	
<b>Sycamore</b>	October 2010	H3397	
<b>Creeping Bent</b>	October 2010	H3397	
<b>Eel</b>	October 2010	H3397	BAP-2007, England_NERC_S.41, NIPS, OSPAR, RedList_Global_post2001-CR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Creeping Buttercup</b>	15/04/2014	H3483799106	
<b>Lesser Celandine</b>	15/04/2014	H3483799106	
<b>Bramble</b>	15/04/2014	H3483799106	
<b>Raspberry</b>	15/04/2014	H3483799106	
<b>Common Sorrel</b>	15/04/2014	H3483799106	
<b>Willow</b>	15/04/2014	H3483799106	FEP-001
<b>Elder</b>	15/04/2014	H3483799106	FEP-001

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Red Campion	15/04/2014	H3483799106	
Hedge Woundwort	15/04/2014	H3483799106	
Greater Stitchwort	15/04/2014	H3483799106	
Snowberry	15/04/2014	H3483799106	
Gorse	15/04/2014	H3483799106	FEP-001
Wych Elm	15/04/2014	H3483799106	FEP-001
Navelwort	15/04/2014	H3483799106	
Common Nettle	15/04/2014	H3483799106	
Common Dog-violet	15/04/2014	H3483799106	
Soft-Brome	26/04/2011	H3299	
Long-Eared Owl	10/10/2014	H39	Bern-A2, ECCITES-A, W(NI)O-Sch1_part1
Long-Eared Owl	05/03/2014	C30	Bern-A2, ECCITES-A, W(NI)O-Sch1_part1
Rose-Coloured Starling	14/10/2013	H39	Bern-A2
Swift	09/05/2013	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
Kestrel	18/10/2013	H39	Bern-A2, Bird-Amber, CMS_A2, ECCITES-A, FEP-007_tab2, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, Wales_NERC_S.42
Buzzard	18/10/2013	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
Swift	08/05/2014	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
Mesites tardii	June 1938	H3497	Notable-B
Hedge Bedstraw	02/07/2012	H335974	
Long-headed Poppy	11/08/2012	H3397	
Two-rowed Barley	14/09/2013	H3397	
Wood Anemone	30/04/2015	H3598	
Wild Angelica	30/04/2015	H3598	
Lady-fern	30/04/2015	H3598	
Hard-fern	30/04/2015	H3598	
Marsh-marigold	30/04/2015	H3598	
Greater Tussock-sedge	30/04/2015	H3598	
Remote Sedge	30/04/2015	H3598	
Wood-sedge	30/04/2015	H3598	
Sweet Chestnut	30/04/2015	H3598	
Opposite-leaved Golden-saxifrage	30/04/2015	H3598	
Enchanter's-nightshade	30/04/2015	H3598	
Pignut	30/04/2015	H3598	
Hazel	30/04/2015	H3598	FEP-001

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Foxglove	30/04/2015	H3598	
Scaly Male-fern	30/04/2015	H3598	
Broad Buckler-fern	30/04/2015	H3598	
New Zealand Willowherb	30/04/2015	H3598	
Broad-leaved Willowherb	30/04/2015	H3598	
Water Horsetail	30/04/2015	H3598	
Wood Fescue	30/04/2015	H3598	
Woodruff	30/04/2015	H3598	
Herb-Robert	30/04/2015	H3598	
Wood Avens	30/04/2015	H3598	
Floating Sweet-grass	30/04/2015	H3598	
Bluebell	30/04/2015	H3598	WACA-Sch8
Tutsan	30/04/2015	H3598	
Holly	30/04/2015	H3598	FEP-001
Yellow Iris	30/04/2015	H3598	
Sharp-flowered Rush	30/04/2015	H3598	
Common Dog-violet	30/04/2015	H3598	
Lesser Periwinkle	30/04/2015	H3598	
Bush Vetch	30/04/2015	H3598	
Wood Speedwell	30/04/2015	H3598	
Ivy-leaved Speedwell	30/04/2015	H3598	
Common Mouse-ear	30/04/2015	H3599	
Sticky Mouse-ear	30/04/2015	H3599	
Rosebay Willowherb	30/04/2015	H3599	
Greater Celandine	30/04/2015	H3599	Scottish_Biodiversity_List
Spear Thistle	30/04/2015	H3599	
Hawthorn	30/04/2015	H3599	FEP-001
Broom	30/04/2015	H3599	FEP-001
Cock's-foot	30/04/2015	H3599	
Great Willowherb	30/04/2015	H3599	
Short-fruited Willowherb	30/04/2015	H3599	
Japanese Knotweed	30/04/2015	H3599	
Red Fescue	30/04/2015	H3599	
Meadowsweet	30/04/2015	H3599	
Ash	30/04/2015	H3599	FEP-001
Cleavers	30/04/2015	H3599	
Cut-leaved Crane's-bill	30/04/2015	H3599	
Hoary Willowherb	22/06/2017	H347975	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Biting Stonecrop	22/06/2017	H347975	
Fool's Parsley	22/06/2017	H348974	
Mugwort	22/06/2017	H348974	
Butterfly-bush	22/06/2017	H348974	
Red Valerian	22/06/2017	H348974	
Greater Celandine	22/06/2017	H348974	Scottish_Biodiversity_List
Fuchsia magellanica	22/06/2017	H348974	
Cut-leaved Crane's-bill	22/06/2017	H348974	
Giant Hogweed	22/06/2017	H348974	
Dame's-violet	22/06/2017	H348974	
Two-Rowed Barley	22/06/2017	H348974	
Oxeye Daisy	22/06/2017	H348974	
Field Forget-me-not	22/06/2017	H348974	
Pellitory-of-the-wall	22/06/2017	H348974	
Redshank	22/06/2017	H348974	
Stream Water-crowfoot	22/06/2017	H348974	
Flowering Currant	22/06/2017	H348974	
Osier	22/06/2017	H348974	FEP-001
Elder	22/06/2017	H348974	FEP-001
English Elm	1987 - 1999	C3500	FEP-001
Wild Pansy	1987 - 1999	C3500	FEP-007_tab3, RedList_ENG_post2001-NT, RedList_GB_post2001-NT, Scottish_Biodiversity_List
Common Sedge	1987 - 1999	C3500	
Elder	1987 - 1999	C3500	FEP-001
Blackthorn	1987 - 1999	C3500	FEP-001
Bracken	1987 - 1999	C3500	
Bog Stitchwort	1987 - 1999	C3500	
Dog Rose	1987 - 1999	C3500	FEP-001
Common Centaury	1987 - 1999	C3500	
Mouse-Ear-Hawkweed	1987 - 1999	C3500	
Common Cottongrass	1987 - 1999	C3500	RedList_ENG_post2001-VU
Opposite-Leaved Golden-Saxifrage	1987 - 1999	C3500	
Wavy Hair-Grass	1987 - 1999	C3500	
Red Bartsia	1987 - 1999	C3500	
Ivy-Leaved Crowfoot	1987 - 1999	C3500	
Autumnal Hawkbit	1987 - 1999	C3500	
Squirrel-Tail Fescue	1987 - 1999	C3500	
Spear Thistle	1987 - 1999	C3500	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Water Forget-Me-Not</b>	1987 - 1999	C3500	
<b>Slender Speedwell</b>	1987 - 1999	C3500	
<b>Montbretia</b>	1987 - 1999	C3500	
<b>Ivy-Leaved Toadflax</b>	1987 - 1999	C3500	
<b>Timothy</b>	1987 - 1999	C3500	
<b>Smooth Sow-Thistle</b>	1987 - 1999	C3500	
<b>Common Field-Speedwell</b>	1987 - 1999	C3500	
<b>Osier</b>	1987 - 1999	C3500	FEP-001
<b>Marsh Cudweed</b>	1987 - 1999	C3500	
<b>Marsh Cinquefoil</b>	1987 - 1999	C3500	RedList_ENG_post2001-NT
<b>Bramble</b>	1987 - 1999	C3500	
<b>Hart's-Tongue</b>	1987 - 1999	C3500	
<b>Water-Plantain</b>	1987 - 1999	C3500	
<b>Marsh Horsetail</b>	1987 - 1999	C3500	
<b>Cyprinidae</b>	July 2009	H3498	
<b>Three-Spined Stickleback</b>	July 2009	H3498	
<b>Gudgeon</b>	July 2009	H3498	
<b>Lamprey Sp.</b>	July 2009	H3498	
<b>Flounder</b>	July 2009	H3498	
<b>Atlantic Salmon</b>	July 2009	H3498	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Sea Trout</b>	July 2009	H3498	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Stone Loach</b>	July 2009	H3397	
<b>Cyprinidae</b>	July 2009	H3397	
<b>Three-Spined Stickleback</b>	July 2009	H3397	
<b>Lamprey Sp.</b>	July 2009	H3397	
<b>Flounder</b>	July 2009	H3397	
<b>Atlantic Salmon</b>	July 2009	H3397	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Water-Starwort</b>	04/08/2009	H3498	
<b>Smaller Lattice-moss</b>	04/08/2009	H3498	
<b>Willowherb</b>	04/08/2009	H3498	
<b>Japanese Knotweed</b>	04/08/2009	H3498	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Physcia tenella subsp. tenella</b>	27/01/2010	H352969	
<b>Porpidia tuberculosa</b>	27/01/2010	H352969	
<b>Protoblastenia rupestris</b>	27/01/2010	H352969	
<b>Punctelia subrudecta</b>	27/01/2010	H352969	
<b>Ramalina farinacea</b>	27/01/2010	H352969	
<b>Rhizocarpon geographicum</b>	27/01/2010	H352969	
<b>Rhizocarpon petraeum</b>	27/01/2010	H352969	
<b>Rhizocarpon reductum</b>	27/01/2010	H352969	
<b>Trapelia glebulosa</b>	27/01/2010	H352969	
<b>Trapelia placodioides</b>	27/01/2010	H352969	
<b>Verrucaria nigrescens f. nigrescens</b>	27/01/2010	H352969	
<b>Common Orange Lichen</b>	27/01/2010	H352969	
<b>Jay</b>	06/03/2011	H39	BirdsDir-A2.2
<b>Sparrowhawk</b>	06/03/2011	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
<b>Buzzard</b>	06/03/2011	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
<b>Badger</b>	March 2012	H355992	Bern-A3, Protection_of_Badgers_Act_1992, W(NI)O-Sch5, Wildlife (NI) Order Sch 5
<b>Shining Flapwort</b>	1950	H39	
<b>Otter</b>	June 2009	H3498	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Otter</b>	June 2009	H3398	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
			Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Ash</b>	25/05/1988	H358990	FEP-001
<b>Ash</b>	25/05/1988	H358990	FEP-001
<b>Goldilocks Buttercup</b>	25/05/1988	H358990	
<b>Meadowsweet</b>	25/05/1988	H358990	
<b>Honeysuckle</b>	25/05/1988	H358990	
<b>Soft Shield-Fern</b>	25/05/1988	H358990	
<b>Great Wood-Rush</b>	25/05/1988	H358990	
<b>Lady Fern</b>	25/05/1988	H358990	
<b>Hazel</b>	25/05/1988	H358990	FEP-001
<b>Honeysuckle</b>	25/05/1988	H358990	
<b>Bluebell</b>	25/05/1988	H358990	WACA-Sch8
<b>Wavy Bitter-Cress</b>	25/05/1988	H358990	
<b>Soft Shield-Fern</b>	25/05/1988	H358990	
<b>Wood Speedwell</b>	25/05/1988	H358990	
<b>Scaly Male Fern</b>	25/05/1988	H358990	
<b>Holly</b>	25/05/1988	H358990	FEP-001
<b>Primrose</b>	25/05/1988	H358990	W(NI)O-Sch8_part2
<b>Ash</b>	25/05/1988	H358990	FEP-001
<b>Common Smoothcap</b>	12/05/1988	H358990	
<b>Common Pincushion</b>	12/05/1988	H358990	
<b>Common Tamarisk-moss</b>	12/05/1988	H358990	
<b>Slender Mouse-tail Moss</b>	12/05/1988	H358990	
<b>Common Feather-moss</b>	12/05/1988	H358990	
<b>Notched Pouchwort</b>	12/05/1988	H358990	
<b>Hart's-tongue Thyme-moss</b>	12/05/1988	H358990	
<b>Fox-tail Feather-moss</b>	12/05/1988	H358990	
<b>Common Feather-moss</b>	12/05/1988	H358990	
<b>Common Striated Feather-moss</b>	12/05/1988	H358990	
<b>Common Tamarisk-moss</b>	12/05/1988	H358990	
<b>Hair-pointed Feather-moss</b>	12/05/1988	H358990	
<b>Hart's-tongue Thyme-moss</b>	12/05/1988	H358990	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Fox-tail Feather-moss</b>	12/05/1988	H358990	
<b>Slender Mouse-tail Moss</b>	12/05/1988	H358990	
<b>Common Feather-moss</b>	25/05/1988	H358990	
<b>Common Striated Feather-moss</b>	25/05/1988	H358990	
<b>Fox-tail Feather-moss</b>	25/05/1988	H358990	
<b>Little Shaggy-moss</b>	10/03/2009	H3599	
<b>Springy Turf-moss</b>	10/03/2009	H3599	
<b>Elder</b>	10/03/2009	H3599	FEP-001
<b>Fox-tail Feather-moss</b>	10/03/2009	H3599	
<b>Common Tamarisk-moss</b>	10/03/2009	H3599	
<b>Bruch's Pincushion</b>	10/03/2009	H3599	
<b>Frizzled Pincushion</b>	10/03/2009	H3599	
<b>Eel</b>	July 2009	H3398	BAP-2007, England_NERC_S.41, NIPS, OSPAR, RedList_Global_post2001-CR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Stone Loach</b>	July 2009	H3398	
<b>Cyprinidae</b>	July 2009	H3398	
<b>Three-Spined Stickleback</b>	July 2009	H3398	
<b>Gudgeon</b>	July 2009	H3398	
<b>Lamprey Sp.</b>	July 2009	H3398	
<b>Flounder</b>	July 2009	H3398	
<b>Atlantic Salmon</b>	July 2009	H3398	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Sea Trout</b>	July 2009	H3398	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Eel</b>	July 2009	H3498	BAP-2007, England_NERC_S.41, NIPS, OSPAR, RedList_Global_post2001-CR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Stone Loach</b>	July 2009	H3498	
<b>Lesser Stitchwort</b>	1987 - 1999	C3500	
<b>Wall-Rue</b>	1987 - 1999	C3500	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Great Wood-Rush</b>	1987 - 1999	C3500	
<b>Smooth Meadow-Grass</b>	1987 - 1999	C3500	
<b>Cut-Leaved Crane's-Bill</b>	1987 - 1999	C3500	
<b>Common Mouse-Ear</b>	1987 - 1999	C3500	
<b>Shepherd's-Purse</b>	1987 - 1999	C3500	
<b>Broad-Leaved Pondweed</b>	1987 - 1999	C3500	
<b>Holly</b>	1987 - 1999	C3500	FEP-001
<b>Hemlock Water-Dropwort</b>	1987 - 1999	C3500	
<b>White Clover</b>	1987 - 1999	C3500	
<b>Bulbous Rush</b>	1987 - 1999	C3500	
<b>Ivy</b>	1987 - 1999	C3500	
<b>Charlock</b>	1987 - 1999	C3500	Scottish_Biodiversity_List
<b>Hedge Woundwort</b>	1987 - 1999	C3500	
<b>Red Fescue</b>	1987 - 1999	C3500	
<b>Spiraea salicifolia agg.</b>	1987 - 1999	C3500	
<b>Black Currant</b>	1987 - 1999	C3500	
<b>Fuchsia magellanica</b>	1987 - 1999	C3500	
<b>Japanese Rose</b>	1987 - 1999	C3500	FEP-001
<b>Dusky Crane's-Bill</b>	1987 - 1999	C3500	
<b>Rock Stonecrop</b>	1987 - 1999	C3500	NS-excludes
<b>Spear Mint</b>	1987 - 1999	H342981	
<b>Sand Spurrey</b>	1987 - 1999	H342995	
<b>Large-Flowered Hemp-Nettle</b>	1987 - 1999	H343994	FEP-007_tab3, RedList_ENG_post2001-VU, RedList_GB_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Meadow Foxtail</b>	1987 - 1999	H39	
<b>Narrow-Leaved Vetch</b>	1987 - 1999	H358978	
<b>Meadow Foxtail</b>	1970 - 1986	H39	
<b>Guelder-Rose</b>	1970 - 1986	H39	FEP-001
<b>Common Milkwort</b>	1970 - 1986	H39	
<b>Wood Meadow-Grass</b>	1970 - 1986	H39	
<b>Red Valerian</b>	1970 - 1986	H39	
<b>Dichodontium pellucidum</b>	1950 - 1958	C30	
<b>Ulota crispa</b>	1950 - 1958	C30	
<b>Alpine Water-moss</b>	1950 - 1958	C30	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Swan's-neck Thyme-moss</b>	1950 - 1958	C30	
<b>Shining Flapwort</b>	1950 - 1958	C30	
<b>Haller's Apple-moss</b>	- 1914	H358990	
<b>Smaller Lattice-moss</b>	- 1953	H39	
<b>Compact Bog-moss</b>	Unknown	H358990	HabDir-A5
<b>Chalk Comb-moss</b>	27/04/1985	H358990	
<b>Flat Neckera</b>	27/04/1985	H358990	
<b>Fox-tail Feather-moss</b>	27/04/1985	H358990	
<b>Hair-pointed Feather-moss</b>	27/04/1985	H358990	
<b>Ulota crispa</b>	27/04/1985	H358990	
<b>Swan's-neck Thyme-moss</b>	27/04/1985	H358990	
<b>Delicate Germanderwort</b>	27/04/1985	H358990	
<b>Juicy Silk-moss</b>	27/04/1985	H358990	
<b>Hart's-tongue Thyme-moss</b>	25/05/1988	H358990	
<b>Rough-stalked Feather-moss</b>	25/05/1988	H358990	
<b>Swan's-neck Thyme-moss</b>	25/05/1988	H358990	
<b>Bifid Crestwort</b>	25/05/1988	H358990	
<b>Plagiochila asplenioides</b>	25/05/1988	H358990	
<b>Common Feather-moss</b>	25/05/1988	H358990	
<b>Hypnum cupressiforme</b>	25/05/1988	H358990	
<b>Common Tamarisk-moss</b>	25/05/1988	H358990	
<b>Fox-tail Feather-moss</b>	25/05/1988	H358990	
<b>Common Feather-moss</b>	25/05/1988	H358990	
<b>Swan's-neck Thyme-moss</b>	25/05/1988	H358990	
<b>Common Pincushion</b>	25/05/1988	H358990	
<b>Hypnum cupressiforme</b>	25/05/1988	H358990	
<b>Common Smoothcap</b>	25/05/1988	H358990	
<b>Hart's-tongue Thyme-moss</b>	25/05/1988	H358990	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Tamarisk Scalewort</b>	25/05/1988	H358990	
<b>Caloplaca holocarpa</b>	27/01/2010	H352969	
<b>Collema auriforme</b>	27/01/2010	H352969	
<b>Flavoparmelia caperata</b>	27/01/2010	H352969	
<b>Lecanora albescens</b>	27/01/2010	H352969	
<b>Lecanora campestris subsp. campestris</b>	27/01/2010	H352969	
<b>Lecanora carpinea</b>	27/01/2010	H352969	
<b>Lecanora chlarotera</b>	27/01/2010	H352969	
<b>Lecanora expallens</b>	27/01/2010	H352969	
<b>Lecanora polytropa</b>	27/01/2010	H352969	
<b>Lecidella elaeochroma f. elaeochroma</b>	27/01/2010	H352969	
<b>Lecidella elaeochroma f. soralifera</b>	27/01/2010	H352969	
<b>Lecidella stigmatea</b>	27/01/2010	H352969	
<b>Lepraria incana</b>	27/01/2010	H352969	
<b>Melanelixia subaurifera</b>	27/01/2010	H352969	
<b>Netted Shield Lichen</b>	27/01/2010	H352969	
<b>Parmotrema perlatum</b>	27/01/2010	H352969	
<b>Cuckooflower</b>	25/06/2009	H3498	
<b>Bottle Sedge</b>	25/06/2009	H3498	
<b>Cock's-foot</b>	25/06/2009	H3498	
<b>Tufted Hair-grass</b>	25/06/2009	H3498	
<b>Male-fern</b>	25/06/2009	H3498	
<b>Marsh Willowherb</b>	25/06/2009	H3498	
<b>Field Horsetail</b>	25/06/2009	H3498	
<b>Water Horsetail</b>	25/06/2009	H3498	
<b>Meadowsweet</b>	25/06/2009	H3498	
<b>Marsh-bedstraw</b>	25/06/2009	H3498	
<b>Floating Sweet-grass</b>	25/06/2009	H3498	
<b>Ivy</b>	25/06/2009	H3498	
<b>Yorkshire-fog</b>	25/06/2009	H3498	
<b>Soft-rush</b>	25/06/2009	H3498	
<b>Common Duckweed</b>	25/06/2009	H3498	
<b>Purple-loosestrife</b>	25/06/2009	H3498	
<b>Tufted Forget-me-not</b>	25/06/2009	H3498	
<b>Indian Balsam</b>	25/06/2009	H3498	
<b>Toad Rush</b>	25/06/2009	H3498	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Bulbous Rush</b>	25/06/2009	H3498	
<b>Soft-rush</b>	25/06/2009	H3498	
<b>Nipplewort</b>	25/06/2009	H3498	
<b>Meadow Vetchling</b>	25/06/2009	H3498	
<b>Perennial Rye-grass</b>	25/06/2009	H3498	
<b>Greater Bird's-foot-trefoil</b>	25/06/2009	H3498	
<b>Butterbur</b>	25/06/2009	H3498	
<b>Reed Canary-grass</b>	25/06/2009	H3498	
<b>Ribwort Plantain</b>	25/06/2009	H3498	
<b>Greater Plantain</b>	25/06/2009	H3498	
<b>Rough Meadow-grass</b>	25/06/2009	H3498	
<b>Silverweed</b>	25/06/2009	H3498	
<b>Bracken</b>	25/06/2009	H3498	
<b>Meadow Buttercup</b>	25/06/2009	H3498	
<b>Red Clover</b>	18/06/2009	H3297	
<b>White Clover</b>	18/06/2009	H3297	
<b>Gorse</b>	18/06/2009	H3297	FEP-001
<b>Common Nettle</b>	18/06/2009	H3297	
<b>Bush Vetch</b>	18/06/2009	H3297	
<b>Atrichum undulatum var. undulatum</b>	10/03/2009	H3599	
<b>Rough-stalked Feather-moss</b>	10/03/2009	H3599	
<b>Capillary Thread-moss</b>	10/03/2009	H3599	
<b>Calliargon</b>	10/03/2009	H3599	
<b>Notched Pouchwort</b>	10/03/2009	H3599	
<b>Mueller's Pouchwort</b>	10/03/2009	H3599	
<b>St Winifrid's Moss</b>	10/03/2009	H3599	
<b>Hair-pointed Feather-moss</b>	10/03/2009	H3599	
<b>Great Scented Liverwort</b>	10/03/2009	H3599	
<b>Lateral Cryphaea</b>	10/03/2009	H3599	
<b>Transparent Fork-moss</b>	10/03/2009	H3599	
<b>Silky Forklet-moss</b>	10/03/2009	H3599	
<b>Sallow</b>	October 2010	H3397	FEP-001
<b>Atlantic Salmon</b>	October 2010	H3397	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR,

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Sea Trout</b>	October 2010	H3397	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Gorse</b>	October 2010	H3397	FEP-001
<b>Common Nettle</b>	October 2010	H3397	
<b>Cattle Egret</b>	02/11/2012 - 11/11/2012	H39	CMS_AEWA-A2, ECCITES-A
<b>Gannet</b>	30/05/2011	H39	Bird-Amber, CMS_AEWA-A2
<b>Swift</b>	08/05/2011	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
<b>Spotted Flycatcher</b>	01/06/2011	H39	BAP-2007, Bern-A2, Bird-Red, CMS_A2, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Sycamore</b>	15/04/2014	H3483799106	
<b>Alder</b>	15/04/2014	H3483799106	FEP-001
<b>Wood Anemone</b>	15/04/2014	H3483799106	
<b>Hart's-tongue</b>	15/04/2014	H3483799106	
<b>Hard-fern</b>	15/04/2014	H3483799106	
<b>Wavy Bitter-cress</b>	15/04/2014	H3483799106	
<b>Greater Tussock-sedge</b>	15/04/2014	H3483799106	
<b>Opposite-leaved Golden-saxifrage</b>	15/04/2014	H3483799106	
<b>Brooklime</b>	30/04/2015	H3598	
<b>Navelwort</b>	30/04/2015	H3598	
<b>Gorse</b>	30/04/2015	H3598	FEP-001
<b>Bog Stitchwort</b>	30/04/2015	H3598	
<b>Greater Stitchwort</b>	30/04/2015	H3598	
<b>Hedge Woundwort</b>	30/04/2015	H3598	
<b>Red Campion</b>	30/04/2015	H3598	
<b>Marsh Ragwort</b>	30/04/2015	H3598	RedList_ENG_post2001-NT
<b>Sanicle</b>	30/04/2015	H3598	RedList_ENG_post2001-NT
<b>Elder</b>	30/04/2015	H3598	FEP-001
<b>Lesser Celandine</b>	30/04/2015	H3598	
<b>Meadow Buttercup</b>	30/04/2015	H3598	
<b>Bracken</b>	30/04/2015	H3598	
<b>Blackthorn</b>	30/04/2015	H3598	FEP-001
<b>Wild Cherry</b>	30/04/2015	H3598	FEP-001
<b>Primrose</b>	30/04/2015	H3598	W(NI)O-Sch8_part2
<b>Barren Strawberry</b>	30/04/2015	H3598	
<b>Curled Dock</b>	30/04/2015	H3599	
<b>Common Sorrel</b>	30/04/2015	H3599	
<b>Raspberry</b>	30/04/2015	H3599	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Bramble</b>	30/04/2015	H3599	
<b>Creeping Buttercup</b>	30/04/2015	H3599	
<b>Cherry Laurel</b>	30/04/2015	H3599	
<b>Annual Meadow-grass</b>	30/04/2015	H3599	
<b>Greater Plantain</b>	30/04/2015	H3599	
<b>Ribwort Plantain</b>	30/04/2015	H3599	
<b>Honeysuckle</b>	30/04/2015	H3599	
<b>Perennial Rye-grass</b>	30/04/2015	H3599	
<b>Garden Solomon's-seal</b>	30/04/2015	H355985	
<b>Toothwort</b>	30/04/2015	H355985	
<b>Goldilocks Buttercup</b>	30/04/2015	H355987	
<b>Barn Owl</b>	05/11/2016	H39	Bern-A2, ECCITES-A, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
<b>Oxeye Daisy</b>	01/06/2016	H338977	
<b>Common Orache</b>	22/06/2017	H346993	
<b>Zigzag Clover</b>	1900	H3497	
<b>Large-Flowered Hemp-Nettle</b>	1897	H3497	FEP-007_tab3, RedList_ENG_post2001-VU, RedList_GB_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Toothwort</b>	1896	H3598	
<b>Pendulus Sedge</b>	1896	H358980	
<b>White Sedge</b>	1896	H3597	
<b>Stone Bramble</b>	1896	H39	
<b>Heath Cudweed</b>	1896	H3497	NIPS, RedList_ENG_post2001-EN, RedList_GB_post2001-EN, Scottish_Biodiversity_List
<b>Bromus x subsp. pseudothominei</b>	1896	H3497	
<b>Purple Ramping-Fumitory</b>	1896	H39	BAP-2007, England_NERC_S.41, FEP-007_tab2, NI Rare & Scarce Plants , NIPS, NS-excludes, RedList_ENG_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Water Sedge</b>	1896	H3397	
<b>Cut-Leaved Dead-Nettle</b>	1896	H3497	
<b>Gipsywort</b>	1896	H3497	
<b>Pale Sedge</b>	1896	H3497	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Annual Water-Starwort	1896	H3497	
Intermediate Wintergreen	1896	H3497	NI Rare & Scarce Plants , NIPS, NS-excludes, RedList_ENG_post2001-EN, RedList_GB_post2001-VU, Scottish_Biodiversity_List
Common Poppy	1896	H3497	
Upland Enchanter's-Nightshade	1981	H3598	
Danish Scurvygrass	1981	H39	
Bittersweet	1896	H3498	
Wood Millet	- 1933	H3598	
Wild Teasel	- 1898	H3398	
Wood Club-Rush	- 1898	H3399	
Water Crowfoot	- 1898	H3397	
Small Tortoiseshell	1997	C30	
Oxeye Daisy	23/10/1997	C328002	
Yellow Pimpernel	08/09/2005	C3500	
White Willow	08/09/2005	C3500	FEP-001
Water Cress	08/09/2005	C3500	
Nodding Bur-Marigold	08/09/2005	C3500	
Butterfly-Bush	08/09/2005	C3500	
Pale Persicaria	08/09/2005	C3500	
Mugwort	08/09/2005	C3500	
Remote Sedge	08/09/2005	C3500	
Long-headed Poppy	24/07/2006	H3396	
Timothy	September 2006	C3500	
Opium Poppy	September 2006	C3500	
Wood Sage	September 2006	C3500	
Smooth Meadow-Grass	September 2006	C3500	
Trailing Tormentil	September 2006	C3500	
Knotgrass agg.	September 2006	C3500	
Indian Balsam	September 2006	C3500	
Marsh Willowherb	September 2006	C3500	
Large Bird's-Foot-Trefoil	September 2006	C3500	
Fat-Hen	September 2006	C3500	
Butterfly-Bush	September 2006	C3500	
Autumnal Hawkbit	September 2006	C3500	
Creeping Bent	October 2010	H3297	
Alder	October 2010	H3297	FEP-001
Eel	October 2010	H3297	BAP-2007, England_NERC_S.41, NIPS, OSPAR, RedList_Global_post2001-CR,

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			Scottish_Biodiversity_List, Wales_NERC_S.42
Stone Loach	October 2010	H3297	
Water-Starwort	October 2010	H3297	
Sedge	October 2010	H3297	
Creeping Thistle	October 2010	H3297	
Hazel	October 2010	H3297	FEP-001
Hawthorn	October 2010	H3297	FEP-001
Tufted Hair-Grass	October 2010	H3297	
Horsetail	October 2010	H3297	
Meadowsweet	October 2010	H3297	
Ash	October 2010	H3297	FEP-001
Three-Spined Stickleback	October 2010	H3297	
Rush	October 2010	H3297	
River Lamprey	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Old Man's Beard	1960 - 2005	C30	
Verrucaria nigrescens f. nigrescens	1960 - 2005	H39	
Old Man's Beard	1960 - 2005	H39	
Punctelia subrudecta	1960 - 2005	H39	
Peltigera rufescens	- 1960	H39	
Peltigera horizontalis	- 1960	H39	
Cladonia squamosa	- 1960	H39	
Cladonia polydactyla var. polydactyla	- 1960	H39	
Caloplaca citrina	1960 - 2005	H39	
Otter	2015	H334983	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Otter	2006	H339980	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS,

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Otter</b>	2011	H339980	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Otter</b>	2006	H334983	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Otter</b>	2011	H334983	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>New Zealand Flatworm</b>	23/04/1993	H350989	
<b>Giant Hogweed</b>	21/06/2013	H333983	
<b>Charlock</b>	22/06/2017	H348974	Scottish_Biodiversity_List
<b>Hedge Mustard</b>	22/06/2017	H348974	
<b>Common Comfrey</b>	22/06/2017	H348974	
<b>Hairy Tare</b>	22/06/2017	H348974	
<b>Loricera pilicornis</b>	02/04/2013	H358989	
<b>Pipistrelle Bat species</b>	17/07/2018	H347970	BAP-2007, Bern-A2, Bern-A3, CMS_A2, CMS_EUROBATS-A1, England_NERC_S.41, FEP-007_tab2, HabDir-A4, HabReg-Sch2, NIPS, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Brown Hawker</b>	14/08/2011	H34809954	
<b>Amara (Zezea) plebeja</b>	12/06/2014	H355984	
<b>Pterostichus (Pseudomaseus) minor</b>	02/04/2013	H335983	
<b>Meadow Brown</b>	22/06/2017	H347992	
<b>Speckled Wood</b>	22/06/2017	H347992	
<b>Haplophthalmus mengei agg.</b>	01/03/1992	H358992	
<b>Common Shiny Woodlouse</b>	01/03/1992	H358992	
<b>Trichoniscus pusillus agg.</b>	01/03/1992	H358992	
<b>Haplophthalmus mengei agg.</b>	01/03/1992	H358991	
<b>Indian Balsam</b>	01/05/2018	H34619743	
<b>Giant Hogweed</b>	01/05/2018	H34619743	
<b>Smelt</b>	14/03/2017	H33979801	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Swift</b>	17/07/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
<b>Swift</b>	09/08/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
<b>Swift</b>	18/07/2014	C3500	Bird-Amber, NIPS, Scottish_Biodiversity_List
<b>Swift</b>	08/05/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
<b>Opposite-Leaved Golden-Saxifrage</b>	05/05/2005	H351987	
<b>Common Nettle</b>	05/05/2005	H351987	
<b>Selfheal</b>	05/05/2005	H351987	
<b>Gorse</b>	05/05/2005	H351987	FEP-001
<b>Hawthorn</b>	05/05/2005	H351987	FEP-001
<b>Wood Sage</b>	05/05/2005	H351987	
<b>Three-Nerved Sandwort</b>	05/05/2005	H351987	
<b>Swan's-neck Thyme-moss</b>	05/05/2005	H351987	
<b>Wood Anemone</b>	05/05/2005	H351987	
<b>Crested Dog's-Tail</b>	05/05/2005	H351987	
<b>Slender St. John's-Wort</b>	05/05/2005	H351987	
<b>Slender Mouse-tail Moss</b>	05/05/2005	H351987	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Cock's-Foot	05/05/2005	H351987	
Sweet Vernal Grass	05/05/2005	H351987	
Rosebay Willowherb	05/05/2005	H351987	
Bluebell	05/05/2005	H351987	WACA-Sch8
Broad-Leaved Willowherb	05/05/2005	H351987	
Creeping Buttercup	05/05/2005	H351987	
Hedge Bedstraw	1896	H3497	
English Stonecrop	1896	H3497	
Moonwort	1896	H3497	RedList_ENG_post2001-VU
Hard Shield-Fern	1896	H3497	
Dioecious Sedge	1960	H3497	
Goldenrod	1960 - 1969	H3497	RedList_ENG_post2001-NT
Woodruff	1960 - 1969	H3497	
Broad-Leaved Osier	1960 - 1969	H39	FEP-001
Celery-Leaved Buttercup	1960 - 1969	H39	
Beech Fern	1887	H358990	NI Rare & Scarce Plants
Beech Fern	1887	H3598	NI Rare & Scarce Plants
Hay-Scented Buckler-Fern	1887	H3598	
Apple	1883	H39	
Beech Fern	31/05/1878	H3599	NI Rare & Scarce Plants
Common Cow-Wheat	1878	H358990	RedList_ENG_post2001-NT
Hemlock Water-Dropwort	1957	C30	
Needle Spike-Rush	1829	H3497	RedList_ENG_post2001-NT
Stone Bramble	1820 - 1830	H3596	
Upland Enchanter's-Nightshade	- 1933	H3598	
Wood Millet	- 1933	H39	
Dioecious Sedge	- 1933	H3497	
Garlic Mustard	- 1933	H3497	
Lesser Bladderwort	- 1933	H3497	RedList_ENG_post2001-VU
Common Fumitory	- 1933	H3497	
White Ramping-Fumitory	- 1933	H3497	Scottish_Biodiversity_List
Tall Ramping-Fumitory	- 1933	H3497	FEP-007_tab3
Pellitory-Of-The-Wall	1896	H3497	
Peppermint	- 1933	H3497	
Wood Fescue	- 1868	H358980	
Great Pond-Sedge	- 1868	H3397	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Purple Ramping-Fumitory</b>	- 1953	H39	BAP-2007, England_NERC_S.41, FEP-007_tab2, NI Rare & Scarce Plants , NIPS, NS-excludes, RedList_ENG_post2001-VU, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Bladder-Sedge</b>	Unknown	H3497	RedList_ENG_post2001-VU
<b>Marsh Yellow-Cress</b>	Unknown	H3497	
<b>Alsike Clover</b>	Unknown	H39	
<b>Sea Plantain</b>	Unknown	H39	
<b>Brittle Bladder-Fern</b>	Unknown	H39	
<b>Common Cow-Wheat</b>	1981	H358980	RedList_ENG_post2001-NT
<b>Heath Wood-Rush</b>	1981	H358990	
<b>Slender Trefoil</b>	1981	H358990	NI Rare & Scarce Plants , Scottish_Biodiversity_List
<b>Atlantic Ivy</b>	19/09/1983	H3497	
<b>Navelwort</b>	1986	H358991	
<b>Woodruff</b>	1986	H358994	
<b>Toothwort</b>	1986	H3598	
<b>Atlantic Ivy</b>	1988	H3497	
<b>Primrose</b>	28/03/1988	H358990	W(NI)O-Sch8_part2
<b>Lesser Celandine</b>	28/03/1988	H358990	
<b>Opposite-Leaved Golden-Saxifrage</b>	28/03/1988	H358990	
<b>Marsh Hawk's-Beard</b>	28/03/1988	H358990	
<b>Woodruff</b>	28/03/1988	H358990	
<b>Sanicle</b>	28/03/1988	H358990	RedList_ENG_post2001-NT
<b>Bluebell</b>	28/03/1988	H358990	WACA-Sch8
<b>Pendulus Sedge</b>	28/03/1988	H358990	
<b>Ash</b>	28/03/1988	H358990	FEP-001
<b>Hazel</b>	28/03/1988	H358990	FEP-001
<b>Cat's-Ear</b>	12/05/1988	H358990	
<b>Elm</b>	12/05/1988	H358990	FEP-001
<b>Solomon's-Seal</b>	12/05/1988	H358990	
<b>Sanicle</b>	12/05/1988	H358990	RedList_ENG_post2001-NT
<b>Common Figwort</b>	12/05/1988	H358990	
<b>Cuckooflower</b>	12/05/1988	H358990	
<b>Hawthorn</b>	12/05/1988	H358990	FEP-001
<b>Greater Tussock-Sedge</b>	12/05/1988	H358990	
<b>Cow Parsley</b>	12/05/1988	H358990	
<b>Common Marsh-Bedstraw</b>	12/05/1988	H358990	
<b>Goldilocks Buttercup</b>	12/05/1988	H358990	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Annual Meadow-Grass	12/05/1988	H358990	
Foxglove	12/05/1988	H358990	
Scaly Male Fern	12/05/1988	H358990	
Broad Buckler-Fern	12/05/1988	H358990	
Lesser Celandine	12/05/1988	H358990	
Rough Meadow-Grass	12/05/1988	H358990	
Germander Speedwell	12/05/1988	H358990	
Common Nettle	12/05/1988	H358990	
Toothwort	12/05/1988	H358990	
Bramble	12/05/1988	H358990	
Dandelion	12/05/1988	H358990	
White Clover	12/05/1988	H358990	
Common Dog-Violet	12/05/1988	H358990	
Remote Sedge	12/05/1988	H358990	
Yellow Pimpernel	12/05/1988	H358990	
Honeysuckle	12/05/1988	H358990	
Soft Rush	12/05/1988	H358990	
Bluebell	12/05/1988	H358990	WACA-Sch8
Heather	12/05/1988	H358990	RedList_ENG_post2001-NT
Navelwort	12/05/1988	H358990	
Horse-Chestnut	12/05/1988	H358990	
Marsh Hawk's-Beard	12/05/1988	H358990	
Wood-Sorrel	12/05/1988	H358990	RedList_ENG_post2001-NT
Hart's-Tongue	12/05/1988	H358990	
Broad-Leaved Dock	12/05/1988	H358990	
Pill Sedge	12/05/1988	H358990	
Floating Sweet-Grass	12/05/1988	H358990	
Willow	12/05/1988	H358990	FEP-001
Elder	12/05/1988	H358990	FEP-001
Gorse	12/05/1988	H358990	FEP-001
Pendulus Sedge	12/05/1988	H358990	
Bugle	12/05/1988	H358990	
Meadow Buttercup	12/05/1988	H358990	
Alder	12/05/1988	H358990	FEP-001
Tutsan	12/05/1988	H358990	
Soft Shield-Fern	12/05/1988	H358990	
Wood-Sedge	12/05/1988	H358990	
Opposite-Leaved Golden-Saxifrage	12/05/1988	H358990	
Cleavers	12/05/1988	H358990	
Common Bird's-Foot-Trefoil	12/05/1988	H358990	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Hairy Wood-Rush	12/05/1988	H358990	
Bush Vetch	12/05/1988	H358990	
Cock's-Foot	12/05/1988	H358990	
Lesser Celandine	12/05/1988	H358990	
Wood-Sorrel	12/05/1988	H358990	RedList_ENG_post2001-NT
Broad Buckler-Fern	12/05/1988	H358990	
Wood Speedwell	12/05/1988	H358990	
Soft Shield-Fern	12/05/1988	H358990	
Early-Purple Orchid	12/05/1988	H358990	ECCITES-B
Cleavers	12/05/1988	H358990	
Blackthorn	12/05/1988	H358990	FEP-001
Red Champion	12/05/1988	H358990	
Honeysuckle	12/05/1988	H358990	
Wood-Sedge	12/05/1988	H358990	
Bramble	12/05/1988	H358990	
Hedge Woundwort	12/05/1988	H358990	
Hairy Brome	12/05/1988	H358990	
Great Wood-Rush	12/05/1988	H358990	
Meadowsweet	12/05/1988	H358990	
Lady Fern	12/05/1988	H358990	
Holly	12/05/1988	H358990	FEP-001
Cock's-Foot	12/05/1988	H358990	
Holly	25/05/1988	H358990	FEP-001
Herb Bennet	25/05/1988	H358990	
Wood Anemone	25/05/1988	H358990	
Ivy	25/05/1988	H358990	
Herb-Robert	25/05/1988	H358990	
Soft Shield-Fern	25/05/1988	H358990	
Bugle	25/05/1988	H358990	
Scaly Male Fern	25/05/1988	H358990	
Lady Fern	25/05/1988	H358990	
Great Wood-Rush	25/05/1988	H358990	
Broad Buckler-Fern	25/05/1988	H358990	
Opposite-Leaved Golden-Saxifrage	25/05/1988	H358990	
Wood Speedwell	25/05/1988	H358990	
Enchanter's-Nightshade	25/05/1988	H358990	
Wavy Bitter-Cress	25/05/1988	H358990	
Bramble	25/05/1988	H358990	
Toothwort	28/04/1993	H358990	
Navelwort	May 1993	H358990	
Hemlock	1987 - 1999	C3500	
Marsh Marigold	1987 - 1999	C3500	
Wall Speedwell	1987 - 1999	C3500	
Creeping Buttercup	1987 - 1999	C3500	
Goat Willow	1987 - 1999	C3500	FEP-001

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Sneezewort	1987 - 1999	C3500	
Cow Parsley	1987 - 1999	C3500	
Fat-Hen	1987 - 1999	C3500	
Creeping Thistle	1987 - 1999	C3500	
Wood Sage	1987 - 1999	C3500	
Lesser Trefoil	1987 - 1999	C3500	
Ground-Elder	1987 - 1999	C3500	
Lesser Burdock	1987 - 1999	C3500	
Sharp-Flowered Rush	1987 - 1999	C3500	
Groundsel	1987 - 1999	C3500	
Common Marsh-Bedstraw	1987 - 1999	C3500	
Small Pondweed	1987 - 1999	C3500	
Toad Rush agg.	1987 - 1999	C3500	
Silver Hair-Grass	1987 - 1999	C3500	
Sun Spurge	1987 - 1999	C3500	ECCITES-B, Scottish_Biodiversity_List
Polypody	1987 - 1999	C3500	
Alder	1987 - 1999	C3500	FEP-001
Ragged Robin	1987 - 1999	C3500	RedList_ENG_post2001-NT
Yellow Loosestrife	1987 - 1999	C3500	
Great Bindweed	1987 - 1999	C3500	
Common Figwort	1987 - 1999	C3500	
Marsh Willowherb	1987 - 1999	C3500	
Marsh Woundwort	1987 - 1999	C3500	
Crested Dog's-Tail	1987 - 1999	C3500	
Tufted Forget-Me-Not	1987 - 1999	C3500	
Ash	1987 - 1999	C3500	FEP-001
Red Dead-Nettle	1987 - 1999	C3500	
Barren Strawberry	1987 - 1999	C3500	
Raspberry	1987 - 1999	C3500	
Common Knapweed	1987 - 1999	C3500	
Amphibious Bistort	1987 - 1999	C3500	
Knotgrass agg.	1987 - 1999	C3500	
Hedge Mustard	1987 - 1999	C3500	
Japanese Knotweed	1987 - 1999	C3500	
Crack Willow	1987 - 1999	C3500	FEP-001
Bay Willow	1987 - 1999	C3500	FEP-001
Navelwort	1987 - 1999	C3500	
Soft Rush	1987 - 1999	C3500	
Common Bent	1987 - 1999	C3500	
Turnip	1987 - 1999	C3500	
Common Water-Starwort	1987 - 1999	C3500	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Germander Speedwell</b>	1987 - 1999	C3500	
<b>Common Male Fern</b>	1987 - 1999	C3500	
<b>Water Horsetail</b>	1987 - 1999	C3500	
<b>Creeping Bent</b>	1987 - 1999	C3500	
<b>Indian Balsam</b>	1987 - 1999	C3500	
<b>Dame's Violet</b>	1987 - 1999	C3500	
<b>Dandelion</b>	1987 - 1999	C3500	
<b>Meadowsweet</b>	1987 - 1999	C3500	
<b>Bogbean</b>	1987 - 1999	C3500	ECCITES-D
<b>Hawthorn</b>	1987 - 1999	C3500	FEP-001
<b>Rustyback</b>	1987 - 1999	C3500	
<b>Ribwort Plantain</b>	1987 - 1999	C3500	
<b>Greater Plantain</b>	1987 - 1999	C3500	
<b>Celery-Leaved Buttercup</b>	1987 - 1999	C3500	
<b>Willow</b>	1987 - 1999	C3500	FEP-001
<b>Russian Comfrey</b>	1987 - 1999	C3500	
<b>Water-Pepper</b>	1987 - 1999	C3500	
<b>Sycamore</b>	1987 - 1999	C3500	
<b>Marsh Foxtail</b>	1987 - 1999	C3500	
<b>Broad-Leaved Willowherb</b>	1987 - 1999	C3500	
<b>Large Bird's-Foot- Trefoil</b>	1987 - 1999	C3500	
<b>Tufted Vetch</b>	1987 - 1999	C3500	
<b>Red Bartsia</b>	1987 - 1999	C3500	
<b>Common Duckweed</b>	1987 - 1999	C3500	
<b>Wild Cherry</b>	1987 - 1999	C3500	FEP-001
<b>Curled Dock</b>	1987 - 1999	C3500	
<b>Velvet Bent</b>	1987 - 1999	C3500	
<b>False Oat-Grass</b>	1987 - 1999	C3500	
<b>Butterbur</b>	1987 - 1999	C3500	
<b>Common Nettle</b>	1987 - 1999	C3500	
<b>Wavy Bitter-Cress</b>	1987 - 1999	C3500	
<b>Smooth Hawk's- Beard</b>	1987 - 1999	C3500	
<b>Wild Plum</b>	1987 - 1999	C3500	
<b>Broad-Leaved Dock</b>	1987 - 1999	C3500	
<b>Common Valerian</b>	1987 - 1999	C3500	RedList_ENG_post2001-NT
<b>Great Mullein</b>	1987 - 1999	C3500	
<b>Cut-Leaved Dead- Nettle</b>	1987 - 1999	C3500	
<b>Common Fumitory</b>	1987 - 1999	C3500	
<b>Cleavers</b>	1987 - 1999	C3500	
<b>Redshank</b>	1987 - 1999	C3500	
<b>Common Ragwort</b>	1987 - 1999	C3500	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Short-Fruited Willowherb	1987 - 1999	C3500	
Yarrow	1987 - 1999	C3500	
Wild Angelica	1987 - 1999	C3500	
Marsh Ragwort	1987 - 1999	C3500	RedList_ENG_post2001-NT
Bush Vetch	1987 - 1999	C3500	
Wood Melick	1970 - 1986	H39	
Pellitory-Of-The-Wall	1991	H344981	
Royal Fern	1991	H345993	
Narrow Buckler-Fern	1991	H347993	
Fool's Parsley	1992	H343982	
Trifid Bur-Marigold	1992	H3499	
Toothwort	1995	H358984	
Giant Fescue	1995	H358990	
Smooth-Stalked Sedge	1995	H358990	
Pendulus Sedge	1995	H358990	
Ivy-Leaved Speedwell agg.	1995	H359983	
Greater Celandine	1995	H354996	Scottish_Biodiversity_List
Red Admiral	1960 - 1993	H39	
Small Tortoiseshell	1960 - 1993	H39	
Ringlet	1960 - 1993	H39	
Speckled Wood	1960 - 1993	H39	
Large White	1960 - 1993	H39	
Orange Tip	1960 - 1993	H39	
Peacock	1960 - 1993	H39	
Common Striated Feather-moss	27/04/1985	H358990	
Big Shaggy-moss	27/04/1985	H358990	
Maidenhair Pocket-moss	27/04/1985	H358990	
Curled Hook-moss	27/04/1985	H358990	
Common Feather-moss	27/04/1985	H358990	
Frizzled Crisp-moss	27/04/1985	H358990	
Slender Mouse-tail Moss	27/04/1985	H358990	
Dotted Thyme-moss	27/04/1985	H358990	
Springy Turf-moss	27/04/1985	H358990	
Conocephalum conicum sens. lat	27/04/1985	H358990	
Common Smoothcap	27/04/1985	H358990	
Marsh Bryum	27/04/1985	H358990	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Shining Hookeria</b>	27/04/1985	H358990	
<b>Hypnum cupressiforme</b>	27/04/1985	H358990	
<b>Common Tamarisk-moss</b>	27/04/1985	H358990	
<b>Common Pocket-moss</b>	27/04/1985	H358990	
<b>Broom Fork-moss</b>	27/04/1985	H358990	
<b>Bank Haircap</b>	27/04/1985	H358990	
<b>Plagiochila asplenioides</b>	27/04/1985	H358990	
<b>Bifid Crestwort</b>	25/05/1988	H358990	
<b>Common Tamarisk-moss</b>	25/05/1988	H358990	
<b>Bank Haircap</b>	25/05/1988	H358990	
<b>Notched Pouchwort</b>	25/05/1988	H358990	
<b>Slender Mouse-tail Moss</b>	25/05/1988	H358990	
<b>Common Feather-moss</b>	25/05/1988	H358990	
<b>Slender Mouse-tail Moss</b>	25/05/1988	H358990	
<b>Hair-pointed Feather-moss</b>	25/05/1988	H358990	
<b>Shining Hookeria</b>	25/05/1988	H358990	
<b>Lesser Pocket-moss</b>	25/05/1988	H358990	
<b>Common Striated Feather-moss</b>	25/05/1988	H358990	
<b>Fox-tail Feather-moss</b>	25/05/1988	H358990	
<b>Common Tamarisk-moss</b>	25/05/1988	H358990	
<b>Plagiochila asplenioides</b>	25/05/1988	H358990	
<b>Puccinia umbilici</b>	1884	H39	
<b>Phragmidium mucronatum</b>	1883	H39	
<b>Sticky Mouse-Ear</b>	May 2000	C3500	
<b>Common Dog-Violet</b>	May 2000	C3500	
<b>Pignut</b>	May 2000	C3500	
<b>Common Pincushion</b>	10/03/2009	H3599	
<b>Cylindric Beard-moss</b>	10/03/2009	H3599	
<b>Common Striated Feather-moss</b>	10/03/2009	H3599	
<b>Lesser Pocket-moss</b>	10/03/2009	H3599	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Common Pocket-moss</b>	10/03/2009	H3599	
<b>Dilated Scalewort</b>	10/03/2009	H3599	
<b>Shining Hookeria</b>	10/03/2009	H3599	
<b>Hypnum cupressiforme var. cupressiforme</b>	10/03/2009	H3599	
<b>Supine Plait-moss</b>	10/03/2009	H3599	
<b>Larger Mouse-tail Moss</b>	10/03/2009	H3599	
<b>Isoetecium myosuroides var. myosuroides</b>	10/03/2009	H3599	
<b>Soft-rush</b>	10/03/2009	H3599	
<b>Common Feather-moss</b>	10/03/2009	H3599	
<b>Bifid Crestwort</b>	10/03/2009	H3599	
<b>Variable-leaved Crestwort</b>	10/03/2009	H3599	
<b>Crescent-cup Liverwort</b>	10/03/2009	H3599	
<b>Forked Veilwort</b>	10/03/2009	H3599	
<b>Blueish Veilwort</b>	10/03/2009	H3599	
<b>Meadowsweet</b>	04/08/2009	H3498	
<b>Greater Water-moss</b>	04/08/2009	H3498	
<b>Giant Hogweed</b>	04/08/2009	H3498	
<b>Indian Balsam</b>	04/08/2009	H3498	
<b>Monkeyflower</b>	04/08/2009	H3498	
<b>White-tipped Bristle-moss</b>	04/08/2009	H3498	
<b>Spruce's Bristle-moss</b>	04/08/2009	H3498	NIPS, Scottish_Biodiversity_List, Wildlife (NI) Order Sch 8
<b>Butterbur</b>	04/08/2009	H3498	
<b>Reed Canary-grass</b>	04/08/2009	H3498	
<b>Long-beaked Water Feather-moss</b>	04/08/2009	H3498	
<b>Buttercup</b>	04/08/2009	H3498	
<b>Willow</b>	04/08/2009	H3498	FEP-001
<b>Osier</b>	04/08/2009	H3498	FEP-001
<b>Water Screw-moss</b>	04/08/2009	H3498	
<b>Wild Angelica</b>	05/08/2009	H3498	
<b>Rough-stalked Feather-moss</b>	05/08/2009	H3498	
<b>Marsh-marigold</b>	05/08/2009	H3498	
<b>St Winifrid's Moss</b>	05/08/2009	H3498	
<b>Brook Lamprey</b>	October 2010	H3297	Bern-A3, FEP-007_tab2, HabDir-A2*, Scottish_Biodiversity_List

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Otter</b>	October 2010	H3297	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
<b>Pine Marten</b>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A5, HabReg-Sch4, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
<b>Badger</b>	October 2010	H3297	Bern-A3, Protection_of_Badgers_Act_1992, W(NI)O-Sch5, Wildlife (NI) Order Sch 5
<b>Stoat</b>	October 2010	H3297	Bern-A3
<b>American Mink</b>	October 2010	H3297	
<b>Water Forget-me-not</b>	October 2010	H3297	
<b>Rabbit</b>	October 2010	H3297	
<b>Perch</b>	October 2010	H3297	
<b>Sea Lamprey</b>	October 2010	H3297	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Reed Canary-Grass</b>	October 2010	H3297	
<b>Minnow</b>	October 2010	H3297	
<b>Blackthorn</b>	October 2010	H3297	FEP-001
<b>Common Frog</b>	October 2010	H3297	Bern-A3, HabDir-A5, WACA-Sch5_sect9.5a
<b>Creeping Buttercup</b>	October 2010	H3297	
<b>Bramble</b>	October 2010	H3297	
<b>Roach</b>	October 2010	H3297	
<b>Sallow</b>	October 2010	H3297	FEP-001
<b>Stone Loach</b>	October 2010	H3397	
<b>Hazel</b>	October 2010	H3397	FEP-001
<b>Hawthorn</b>	October 2010	H3397	FEP-001

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Tufted Hair-Grass	October 2010	H3397	
Horsetail	October 2010	H3397	
Beech	October 2010	H3397	FEP-001
Meadowsweet	October 2010	H3397	
Ash	October 2010	H3397	FEP-001
Three-Spined Stickleback	October 2010	H3397	
River Lamprey	October 2010	H3397	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Brook Lamprey	October 2010	H3397	Bern-A3, FEP-007_tab2, HabDir-A2*, Scottish_Biodiversity_List
Otter	October 2010	H3397	BAP-2007, Bern-A2, ECCITES-A, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A4, HabReg-Sch2, NIPS, RedList_Global_post2001_NT, Scottish_Biodiversity_List, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42
Perch	October 2010	H3397	
Sea Lamprey	October 2010	H3397	BAP-2007, Bern-A3, England_NERC_S.41, HabDir-A2*, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42
Reed Canary-Grass	October 2010	H3397	
Minnow	October 2010	H3397	
Cherry Laurel	October 2010	H3397	
Roach	October 2010	H3397	
Honeysuckle	05/05/2005	H358993	
Wavy Bitter-Cress	05/05/2005	H358993	
Yorkshire-Fog	05/05/2005	H358993	
Foxglove	05/05/2005	H358993	
Lady Fern	05/05/2005	H358993	
Elder	05/05/2005	H358993	FEP-001
Common Smoothcap	05/05/2005	H358993	
Meadowsweet	05/05/2005	H358993	
Waved Silk-moss	05/05/2005	H358993	
Sweet Vernal Grass	05/05/2005	H358993	
Nipplewort	05/05/2005	H358993	
Marsh Marigold	05/05/2005	H358993	
Common Feather-moss	05/05/2005	H358993	
Crested Dog's-Tail	05/05/2005	H358993	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Pignut</b>	05/05/2005	H358993	
<b>Bank Haircap</b>	05/05/2005	H358993	
<b>Broad-Leaved Dock</b>	05/05/2005	H358993	
<b>Broad Buckler-Fern</b>	05/05/2005	H358993	
<b>Western Pouncewort</b>	October 1957	H358990	
<b>Blunt-leaf Tufa-moss</b>	June 1957	C30	
<b>Western Pouncewort</b>	June 1957	C30	
<b>Grove Earwort</b>	1957	H358990	
<b>Forked Veilwort</b>	1950 - 1958	H358990	
<b>Greater Water-moss</b>	1950 - 1958	H358990	
<b>Straggling Pouchwort</b>	1950 - 1958	H358990	
<b>Curly Crisp-moss</b>	1950 - 1958	H358990	
<b>Fox-tail Feather-moss</b>	1950 - 1958	H358990	
<b>Western Pouncewort</b>	1950 - 1958	H358990	
<b>Long-beaked Water Feather-moss</b>	1950 - 1958	H358990	
<b>Dark-green Flapwort</b>	1950 - 1958	C30	
<b>Wry-leaved Tamarisk-moss</b>	1950 - 1958	C30	
<b>Rock Veilwort</b>	1950 - 1958	C30	
<b>Rough-stalked Feather-moss</b>	1950 - 1958	C30	
<b>Tamarisk Scalewort</b>	1950 - 1958	C30	
<b>Bifid Crestwort</b>	04/05/2005	H358982	
<b>Ground-Ivy</b>	04/05/2005	H358982	
<b>Enchanter's-Nightshade</b>	04/05/2005	H358982	
<b>Sweet Chestnut</b>	04/05/2005	H358982	
<b>Big Shaggy-moss</b>	04/05/2005	H358982	
<b>Red Campion</b>	04/05/2005	H358982	
<b>Wood-Sedge</b>	04/05/2005	H358982	
<b>Opposite-Leaved Golden-Saxifrage</b>	04/05/2005	H358982	
<b>Hedge Woundwort</b>	04/05/2005	H358982	
<b>Yellow Pimpernel</b>	04/05/2005	H358982	
<b>Cock's-Foot</b>	04/05/2005	H358982	
<b>Germander Speedwell</b>	04/05/2005	H358982	
<b>Wood Dock</b>	04/05/2005	H358982	
<b>Sycamore</b>	04/05/2005	H358982	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Cuckooflower	04/05/2005	H358982	
Wood Fescue	04/05/2005	H358982	
Nipplewort	04/05/2005	H358982	
Rowan	04/05/2005	H358982	FEP-001
Bank Haircap	05/05/2005	H354990	
Common Chickweed	05/05/2005	H354990	
Elegant Silk-moss	05/05/2005	H354990	
Hart's-Tongue	05/05/2005	H354990	
Crested Dog's-Tail	05/05/2005	H354990	
Polypody	05/05/2005	H354990	
False-Brome	05/05/2005	H354990	
Elder	05/05/2005	H354990	FEP-001
Festuca rubra sens. lat.	05/05/2005	H354990	
Bilberry	05/05/2005	H354990	
Meadowsweet	05/05/2005	H354990	
Dog Rose	05/05/2005	H354990	FEP-001
Lesser Celandine	05/05/2005	H354990	
Ivy	05/05/2005	H354990	
Soft Rush	05/05/2005	H354990	
Wood Speedwell	05/05/2005	H354990	
Hard Fern	05/05/2005	H354990	
Hedge Woundwort	05/05/2005	H354990	
Herb-Robert	04/05/2005	H358982	
Woodruff	04/05/2005	H358982	
Smooth-Stalked Sedge	04/05/2005	H358982	
Creeping Soft-Grass	04/05/2005	H358982	
Annual Meadow-Grass	04/05/2005	H358982	
Bush Vetch	04/05/2005	H358982	
Common Dog-Violet	04/05/2005	H358982	
Common Feather-moss	04/05/2005	H358982	
Pignut	04/05/2005	H358982	
Elegant Silk-moss	04/05/2005	H358982	
Lesser Celandine	04/05/2005	H358982	
Honeysuckle	04/05/2005	H358982	
Wilson's Honeysuckle	04/05/2005	H358982	
Lilac	04/05/2005	H358982	
Cleavers	04/05/2005	H358982	
Hay-Scented Buckler-Fern	04/05/2005	H358982	
Hypnum cupressiforme	04/05/2005	H358982	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Beech	04/05/2005	H358982	FEP-001
Creeping Bent	05/05/2005	H358989	
Lesser Pocket-moss	05/05/2005	H358989	
Meadow Buttercup	05/05/2005	H358989	
Cleavers	05/05/2005	H358989	
Lady Fern	05/05/2005	H358989	
Yorkshire-Fog	05/05/2005	H358989	
Broad Buckler-Fern	05/05/2005	H358989	
Scaly Male Fern	05/05/2005	H358989	
Fox-tail Feather-moss	05/05/2005	H358989	
Wood Dock	05/05/2005	H358989	
Overleaf Pellia	05/05/2005	H358989	
Red Campion	05/05/2005	H358989	
Silver Birch	05/05/2005	H358989	FEP-001
Goat Willow	05/05/2005	H358989	FEP-001
Sycamore	05/05/2005	H358989	
Wood Anemone	05/05/2005	H358989	
Great Wood-Rush	05/05/2005	H358989	
Sweet Vernal Grass	05/05/2005	H358989	
Holly	05/05/2005	H354990	FEP-001
Common Striated Feather-moss	05/05/2005	H354990	
Silver Birch	05/05/2005	H354990	FEP-001
Sweet Vernal Grass	05/05/2005	H354990	
Foxglove	05/05/2005	H354990	
Bracken	05/05/2005	H354990	
Grey Willow	05/05/2005	H354990	FEP-001
Bramble	05/05/2005	H354990	
Red Campion	05/05/2005	H354990	
Common Nettle	05/05/2005	H354990	
Alder	05/05/2005	H354990	FEP-001
Wood Dock	05/05/2005	H354990	
Wild Cherry	05/05/2005	H354990	FEP-001
Rough Meadow-Grass	05/05/2005	H354990	
Bluebell	05/05/2005	H354990	WACA-Sch8
Eared Willow	05/05/2005	H358993	FEP-001
Elegant Silk-moss	05/05/2005	H358993	
Goat Willow	05/05/2005	H358993	FEP-001
Peregrine	1987	H358992	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Peregrine	1988	H358992	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A,

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
			Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
<b>Freshwater Pearl Mussel</b>	1905	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
<b>Freshwater Pearl Mussel</b>	01/02/1900	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
<b>Freshwater Pearl Mussel</b>	05/08/1899	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Freshwater Pearl Mussel</b>	1899	H39	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, NIPS, RedList_GB_post2001-CR, RedList_Global_post94-EN, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
<b>Acarospora fuscata</b>	27/01/2010	H352969	
<b>Amandinea punctata</b>	27/01/2010	H352969	
<b>Arthonia radiata</b>	27/01/2010	H352969	
<b>Aspicilia contorta subsp. contorta</b>	27/01/2010	H352969	
<b>Buellia aethalea</b>	27/01/2010	H352969	
<b>Caloplaca citrina</b>	27/01/2010	H352969	
<b>Caloplaca crenularia</b>	27/01/2010	H352969	
<b>Caloplaca crenulatella</b>	27/01/2010	H352969	
<b>Caloplaca flavescens</b>	27/01/2010	H352969	
<b>Caloplaca flavocitrina</b>	27/01/2010	H352969	
<b>Caloplaca flavovirescens</b>	27/01/2010	H352969	
<b>Soft Rush</b>	05/05/2005	H358993	
<b>Creeping Buttercup</b>	05/05/2005	H358993	
<b>Bog Stitchwort</b>	05/05/2005	H358993	
<b>Festuca rubra sens. lat.</b>	05/05/2005	H358993	
<b>Hawthorn</b>	05/05/2005	H358993	FEP-001
<b>Downy Birch</b>	05/05/2005	H358993	FEP-001
<b>Common Dog-Violet</b>	05/05/2005	H358993	
<b>Common Nettle</b>	05/05/2005	H358993	
<b>Common Sorrel</b>	05/05/2005	H358993	
<b>Broad-Leaved Willowherb</b>	05/05/2005	H358993	
<b>Hazel</b>	05/05/2005	H358993	FEP-001
<b>Wood Dock</b>	05/05/2005	H358993	
<b>Silver Birch</b>	05/05/2005	H358993	FEP-001
<b>Common Tamarisk-moss</b>	05/05/2005	H358993	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Cow Parsley</b>	05/05/2005	H358993	
<b>Ivy</b>	05/05/2005	H358993	
<b>Navelwort</b>	05/05/2005	H358993	
<b>Yorkshire-Fog</b>	05/05/2005	H351987	
<b>Blackthorn</b>	05/05/2005	H351987	FEP-001
<b>Nipplewort</b>	05/05/2005	H351987	
<b>Wood-Sorrel</b>	05/05/2005	H351987	RedList_ENG_post2001-NT
<b>Herb-Robert</b>	05/05/2005	H351987	
<b>Common Bird's-Foot-Trefoil</b>	05/05/2005	H351987	
<b>Common Sorrel</b>	05/05/2005	H351987	
<b>Meadow Vetchling</b>	05/05/2005	H351987	
<b>Lesser Celandine</b>	05/05/2005	H351987	
<b>Wych Elm</b>	05/05/2005	H351987	FEP-001
<b>Silver Birch</b>	05/05/2005	H351987	FEP-001
<b>Herb Bennet</b>	05/05/2005	H351987	
<b>Tutsan</b>	05/05/2005	H351987	
<b>Wood Millet</b>	05/05/2005	H351987	
<b>Bugle</b>	05/05/2005	H351987	
<b>Foxglove</b>	05/05/2005	H351987	
<b>Ribwort Plantain</b>	05/05/2005	H351987	
<b>Ivy</b>	05/05/2005	H351987	
<b>Rowan</b>	05/05/2005	H354990	FEP-001
<b>Creeping Buttercup</b>	05/05/2005	H354990	
<b>Enchanter's-Nightshade</b>	05/05/2005	H354990	
<b>Guelder-Rose</b>	05/05/2005	H354990	FEP-001
<b>Wood Melick</b>	05/05/2005	H354990	
<b>Navelwort</b>	05/05/2005	H354990	
<b>Wood-Sorrel</b>	05/05/2005	H354990	RedList_ENG_post2001-NT
<b>Field Wood-Rush</b>	05/05/2005	H354990	
<b>Slender St. John's-Wort</b>	05/05/2005	H354990	
<b>Wood-Sedge</b>	05/05/2005	H354990	
<b>Downy Birch</b>	05/05/2005	H354990	FEP-001
<b>Soft Shield-Fern</b>	05/05/2005	H354990	
<b>Hazel</b>	05/05/2005	H354990	FEP-001
<b>Tufted Hair-Grass</b>	05/05/2005	H354990	
<b>Greater Stitchwort</b>	05/05/2005	H354990	
<b>Hairy Wood-Rush</b>	05/05/2005	H354990	
<b>Common Male Fern</b>	05/05/2005	H354990	
<b>Greater Plantain</b>	04/05/2005	H358982	
<b>Ground-Elder</b>	04/05/2005	H358982	
<b>Waved Silk-moss</b>	04/05/2005	H358982	
<b>Primrose</b>	04/05/2005	H358982	W(NI)O-Sch8_part2
<b>Herb Bennet</b>	04/05/2005	H358982	
<b>Creeping Buttercup</b>	04/05/2005	H358982	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Remote Sedge	04/05/2005	H358982	
Wood Speedwell	04/05/2005	H358982	
Bank Haircap	04/05/2005	H358982	
False Oat-Grass	04/05/2005	H358982	
Broad-Leaved Willowherb	04/05/2005	H358982	
Common Chickweed	04/05/2005	H358982	
Fox-tail Feather-moss	04/05/2005	H358982	
Slender Mouse-tail Moss	04/05/2005	H358982	
Navelwort	04/05/2005	H358982	
Barren Strawberry	04/05/2005	H358982	
Common Nettle	04/05/2005	H358982	
Elegant Silk-moss	05/05/2005	H358989	
Big Shaggy-moss	05/05/2005	H358989	
Soft Rush	05/05/2005	H358989	
Hard Fern	05/05/2005	H358989	
Wood-Sorrel	05/05/2005	H358989	RedList_ENG_post2001-NT
Rowan	05/05/2005	H358989	FEP-001
Bifid Crestwort	05/05/2005	H358989	
Common Smoothcap	05/05/2005	H358989	
Common Sedge	05/05/2005	H358989	
Common Nettle	05/05/2005	H358989	
Ivy	05/05/2005	H358989	
Hedge Woundwort	05/05/2005	H358989	
Wavy Bitter-Cress	05/05/2005	H358989	
Hypnum cupressiforme	05/05/2005	H358989	
Bilberry	05/05/2005	H358989	
Bramble	05/05/2005	H358989	
Common Tamarisk-moss	05/05/2005	H358989	
Eared Willow	05/05/2005	H358989	FEP-001
Wild Angelica	05/05/2005	H358989	
Pedunculate Oak	05/05/2005	H358989	FEP-001
Broad-Leaved Dock	05/05/2005	H358989	
Soft Shield-Fern	05/05/2005	H358989	
Hawthorn	05/05/2005	H358989	FEP-001
Honeysuckle	05/05/2005	H358989	
Bog Stitchwort	05/05/2005	H358989	
Blackthorn	05/05/2005	H358989	FEP-001
Crested Dog's-Tail	05/05/2005	H358989	
Holly	05/05/2005	H358989	FEP-001
False-Brome	05/05/2005	H358989	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Hazel	05/05/2005	H358989	FEP-001
Festuca rubra sens. lat.	05/05/2005	H358989	
Common Chickweed	05/05/2005	H358989	
Maidenhair Spleenwort	05/05/2005	H358989	
Wych Elm	05/05/2005	H358989	FEP-001
Field Forget-Me-Not	1987 - 1999	C3500	
Changing Forget-Me-Not	1987 - 1999	C3500	
Sweet Vernal Grass	1987 - 1999	C3500	
White Ramping-Fumitory	1987 - 1999	C3500	Scottish_Biodiversity_List
Daisy	1987 - 1999	C3500	
Cranberry	1987 - 1999	C3500	
Elm	1987 - 1999	C3500	FEP-001
Marsh Violet	1987 - 1999	C3500	
White Sedge	1987 - 1999	C3500	
Creeping Soft-Grass	1987 - 1999	C3500	
Heather	1987 - 1999	C3500	RedList_ENG_post2001-NT
Winter Heliotrope	1987 - 1999	C3500	
Hoary Willowherb	1987 - 1999	C3500	
Soft Shield-Fern	1987 - 1999	C3500	
Honeysuckle	1987 - 1999	C3500	
Heath Spotted-Orchid	1987 - 1999	C3500	ECCITES-B
Bugle	1987 - 1999	C3500	
Primrose	1987 - 1999	C3500	W(NI)O-Sch8_part2
Green Hairstreak	21/05/1993	H358990	
Ringlet	21/07/1993	H358989	
Meadow Brown	21/07/1993	H358989	
Large White	21/07/1993	H352995	
Meadow Brown	05/08/1993	H358994	
Orange Tip	16/05/2002	H39	
Orange Tip	16/05/2002	H39	
Speckled Wood	23/09/2002	C346003	
Small Tortoiseshell	23/09/2002	C346003	
Small Tortoiseshell	23/09/2002	C346003	
Speckled Wood	23/09/2002	C346003	
Small Tortoiseshell	23/09/2002	C346003	
Peacock	23/09/2002	H342994	
Speckled Wood	23/09/2002	H342994	
Speckled Wood	23/09/2002	C346003	
Speckled Wood	23/07/2007	H339978	
Large White	23/07/2007	H339978	
Speckled Wood	23/07/2007	H340977	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Raspberry	05/05/2005	H358993	
Slender Mouse-tail Moss	05/05/2005	H358993	
Remote Sedge	05/05/2005	H358993	
Swan's-neck Thyme-moss	05/05/2005	H358993	
Large White	1984 - 1988	H39	
Speckled Wood	1984 - 1988	H39	
Peacock	1984 - 1988	H39	
Small Tortoiseshell	1984 - 1988	H39	
Ringlet	1984 - 1988	H39	
Peacock	1985 - 1988	C30	
Meadow Brown	1985 - 1988	C30	
Ringlet	1985 - 1988	C30	
Painted Lady	1993	H39	
Small White	1993	H39	
Green Hairstreak	1993	H39	
Ringlet	1993	H39	
Speckled Wood	1993	H39	
Meadow Brown	1993	H39	
Clouded Magpie	28/06/1993	H358990	
Lilac Beauty	28/06/1993	H39	
Small Fan-Foot	28/06/1993	H39	
Pale-Shouldered Brocade	29/06/1993	H358989	
Dark Spectacle	29/06/1993	H358989	
Spectacle	29/06/1993	H358989	
Snout	29/06/1993	H358989	
Burnished Brass	29/06/1993	H358989	
Small Fan-Foot	29/06/1993	H358992	
Double Square-Spot	22/07/1993	H358989	
Dotted Clay	22/07/1993	H358989	
Double Dart	22/07/1993	H358989	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Dark Arches	22/07/1993	H358989	
Large Emerald	22/07/1993	H39	
Curly Crisp-moss	08/10/1957	H358990	
Chalk Comb-moss	June 1957	C30	
Blunt-leaf Tufa-moss	June 1957	C30	
Transparent Fork-moss	June 1957	C30	
Enchanter's-nightshade	15/04/2014	H3483799106	
Hazel	15/04/2014	H3483799106	FEP-001
Broad Buckler-fern	15/04/2014	H3483799106	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Meadowsweet	15/04/2014	H3483799106	
Ash	15/04/2014	H3483799106	FEP-001
Cleavers	15/04/2014	H3483799106	
Herb-Robert	15/04/2014	H3483799106	
Wood Avens	15/04/2014	H3483799106	
Ivy	15/04/2014	H3483799106	
Bluebell	15/04/2014	H3483799106	WACA-Sch8
Holly	15/04/2014	H3483799106	FEP-001
Honeysuckle	15/04/2014	H3483799106	
Great Wood-rush	15/04/2014	H3483799106	
Wood-sorrel	15/04/2014	H3483799106	RedList_ENG_post2001-NT
Soft Shield-fern	15/04/2014	H3483799106	
Primrose	15/04/2014	H3483799106	W(NI)O-Sch8_part2
Sessile Oak	15/04/2014	H3483799106	FEP-001
Meadow Buttercup	15/04/2014	H3483799106	
Eastern Grey Squirrel	25/06/2015	H350986	
Japanese Knotweed	15/09/2016	H340976	
Japanese Knotweed	01/10/2014	H349989	
Collared Dove	12/04/2016	H346984	BirdsDir-A2.2
Sweet Chestnut	15/04/2014	H3584998368	
Wych Elm	15/04/2014	H3584998368	FEP-001
Grey Squirrel	07/08/2011	H34599732	
Pied Wagtail	02/06/2016	H340977	Bern-A2
Pied Wagtail	15/12/2015	H338978	Bern-A2
Blackbird	27/04/2016	H34409863	BirdsDir-A2.2
Blackbird	27/04/2016	H34569881	BirdsDir-A2.2
Blackbird	15/12/2015	H348990	BirdsDir-A2.2
Lesser Celandine	23/03/2017	H339979	
Pied Wagtail	23/03/2017	H334982	Bern-A2
Lesser Celandine	23/03/2017	H335982	
Rook	23/03/2017	H339977	BirdsDir-A2.2
Cleavers	23/03/2017	H339978	
Jackdaw	23/03/2017	H335982	BirdsDir-A2.2
Downy Birch	22/06/2017	H346993	FEP-001
Shepherd's-purse	22/06/2017	H346993	
Sticky Mouse-ear	22/06/2017	H346993	
Hoary Willowherb	22/06/2017	H346993	
Marsh Cudweed	22/06/2017	H346993	
Yellow Loosestrife	22/06/2017	H346993	
Water Forget-me-not	22/06/2017	H346993	
Red Bartsia	22/06/2017	H346993	
Tormentil	22/06/2017	H346993	RedList_ENG_post2001-NT
Celery-leaved Buttercup	22/06/2017	H346993	
Marsh Yellow-cress	22/06/2017	H346993	

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Crack-willow	22/06/2017	H346993	FEP-001
Water Figwort	22/06/2017	H346993	
Branched Bur-reed	22/06/2017	H346993	
Corn Spurrey	22/06/2017	H346993	RedList_ENG_post2001-VU, RedList_GB_post2001-VU
Large Bindweed	22/06/2017	H347975	
Rustyback	22/06/2017	H347975	
Ivy-leaved Toadflax	22/06/2017	H347975	
Reed Canary-grass	25/06/2009	H3498	
Smooth Meadow-grass	25/06/2009	H3498	
Broad-leaved Pondweed	25/06/2009	H3498	
Marsh Cinquefoil	25/06/2009	H3498	RedList_ENG_post2001-NT
Lesser Spearwort	25/06/2009	H3498	RedList_ENG_post2001-VU
Bramble	25/06/2009	H3498	
Common Sallow	25/06/2009	H3498	FEP-001
Bulrush	25/06/2009	H3498	
Marsh Speedwell	25/06/2009	H3498	RedList_ENG_post2001-NT
Sycamore	25/06/2009	H3498	
Ground-elder	25/06/2009	H3498	
Common Bent	25/06/2009	H3498	
Creeping Bent	25/06/2009	H3498	
Alder	25/06/2009	H3498	FEP-001
Meadow Foxtail	25/06/2009	H3498	
Wild Angelica	25/06/2009	H3498	
Sweet Vernal-grass	25/06/2009	H3498	
Cow Parsley	25/06/2009	H3498	
Meadow Vetchling	18/06/2009	H3498	
Perennial Rye-grass	18/06/2009	H3498	
Greater Bird's-foot-trefoil	18/06/2009	H3498	
Ribwort Plantain	18/06/2009	H3498	
Smooth Meadow-grass	18/06/2009	H3498	
Creeping Cinquefoil	18/06/2009	H3498	
Creeping Buttercup	18/06/2009	H3498	
Red Clover	18/06/2009	H3498	
White Clover	18/06/2009	H3498	
Bush Vetch	18/06/2009	H3498	
Creeping Bent	25/06/2009	H3498	
Alder	25/06/2009	H3498	FEP-001
Wild Angelica	25/06/2009	H3498	
False Oat-grass	25/06/2009	H3498	
Lady-fern	25/06/2009	H3498	
Heart-leaved Spear-moss	25/06/2009	H3498	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Pointed Spear-moss	25/06/2009	H3498	
Common Water-starwort	25/06/2009	H3498	
Creeping Buttercup	25/06/2009	H3498	
Flowering Currant	25/06/2009	H3498	
Dog-rose	25/06/2009	H3498	FEP-001
Bramble	25/06/2009	H3498	
Raspberry	25/06/2009	H3498	
Common Sorrel	25/06/2009	H3498	
Curled Dock	25/06/2009	H3498	
Broad-leaved Dock	25/06/2009	H3498	
Goat Willow	25/06/2009	H3498	FEP-001
Common Sallow	25/06/2009	H3498	FEP-001
Elder	25/06/2009	H3498	FEP-001
Common Figwort	25/06/2009	H3498	
Common Ragwort	25/06/2009	H3498	
Rowan	25/06/2009	H3498	FEP-001
Hedge Woundwort	25/06/2009	H3498	
Greater Stitchwort	25/06/2009	H3498	
Snowberry	25/06/2009	H3498	
Dandelion	25/06/2009	H3498	
Red Clover	25/06/2009	H3498	
Field Horsetail	18/06/2009	H3297	
Meadowsweet	18/06/2009	H3297	
Marsh-bedstraw	18/06/2009	H3297	
Floating Sweet-grass	18/06/2009	H3297	
Yorkshire-Fog	18/06/2009	H3297	
Jointed Rush	18/06/2009	H3297	
Soft-rush	18/06/2009	H3297	
Slender Rush	18/06/2009	H3297	
Meadow Vetchling	18/06/2009	H3297	
Perennial Rye-grass	18/06/2009	H3297	
Greater Bird's-foot-trefoil	18/06/2009	H3297	
Timothy	18/06/2009	H3297	
Rough Meadow-grass	18/06/2009	H3297	
Curled Dock	18/06/2009	H3297	
Broad-leaved Dock	18/06/2009	H3297	
Common Sallow	18/06/2009	H3297	FEP-001
Lesser Trefoil	18/06/2009	H3297	
Soft Shield-fern	30/04/2015	H3598	
Polypodium vulgare sens. str.	30/04/2015	H3598	
Intermediate Polypody	30/04/2015	H3598	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Hart's-tongue	30/04/2015	H3598	
Wood-sorrel	30/04/2015	H3598	RedList_ENG_post2001-NT
Blinks	30/04/2015	H3598	
Yellow Pimpernel	30/04/2015	H3598	
Great Wood-rush	30/04/2015	H3598	
Hairy Wood-rush	30/04/2015	H3598	
Greater Bird's-foot-trefoil	30/04/2015	H3598	
Tall Ramping-fumitory	30/04/2015	H3599	FEP-007_tab3
Sycamore	30/04/2015	H3599	
Ground-elder	30/04/2015	H3599	
Creeping Bent	30/04/2015	H3599	
Thale Cress	30/04/2015	H3599	
Daisy	30/04/2015	H3599	
Wavy Bitter-cress	30/04/2015	H3599	
Cuckooflower	30/04/2015	H3599	
Scaly Male-fern	25/06/2009	H3498	
Broad Buckler-fern	25/06/2009	H3498	
Male-fern	25/06/2009	H3498	
Common Couch	25/06/2009	H3498	
American Willowherb	25/06/2009	H3498	
Great Willowherb	25/06/2009	H3498	
Broad-leaved Willowherb	25/06/2009	H3498	
Field Horsetail	25/06/2009	H3498	
Japanese Knotweed	25/06/2009	H3498	
Meadowsweet	25/06/2009	H3498	
Ash	25/06/2009	H3498	FEP-001
Cleavers	25/06/2009	H3498	
Hedge Bedstraw	25/06/2009	H3498	
Herb-Robert	25/06/2009	H3498	
Wood Avens	25/06/2009	H3498	
Ivy	25/06/2009	H3498	
Yorkshire-fog	25/06/2009	H3498	
Creeping Soft-grass	25/06/2009	H3498	
Long-toothed Herald Snail	01/03/1992	H358991	
Plated Snail	01/03/1992	H358991	NIPS
New Zealand Flatworm	01/03/1992	H358991	
Turkeytail	01/03/1992	H358991	
Milky Crystal Snail	01/03/1992	H358991	
Common Tarcrust	01/03/1992	H358991	
Two-toothed Door Snail	01/03/1992	H358991	

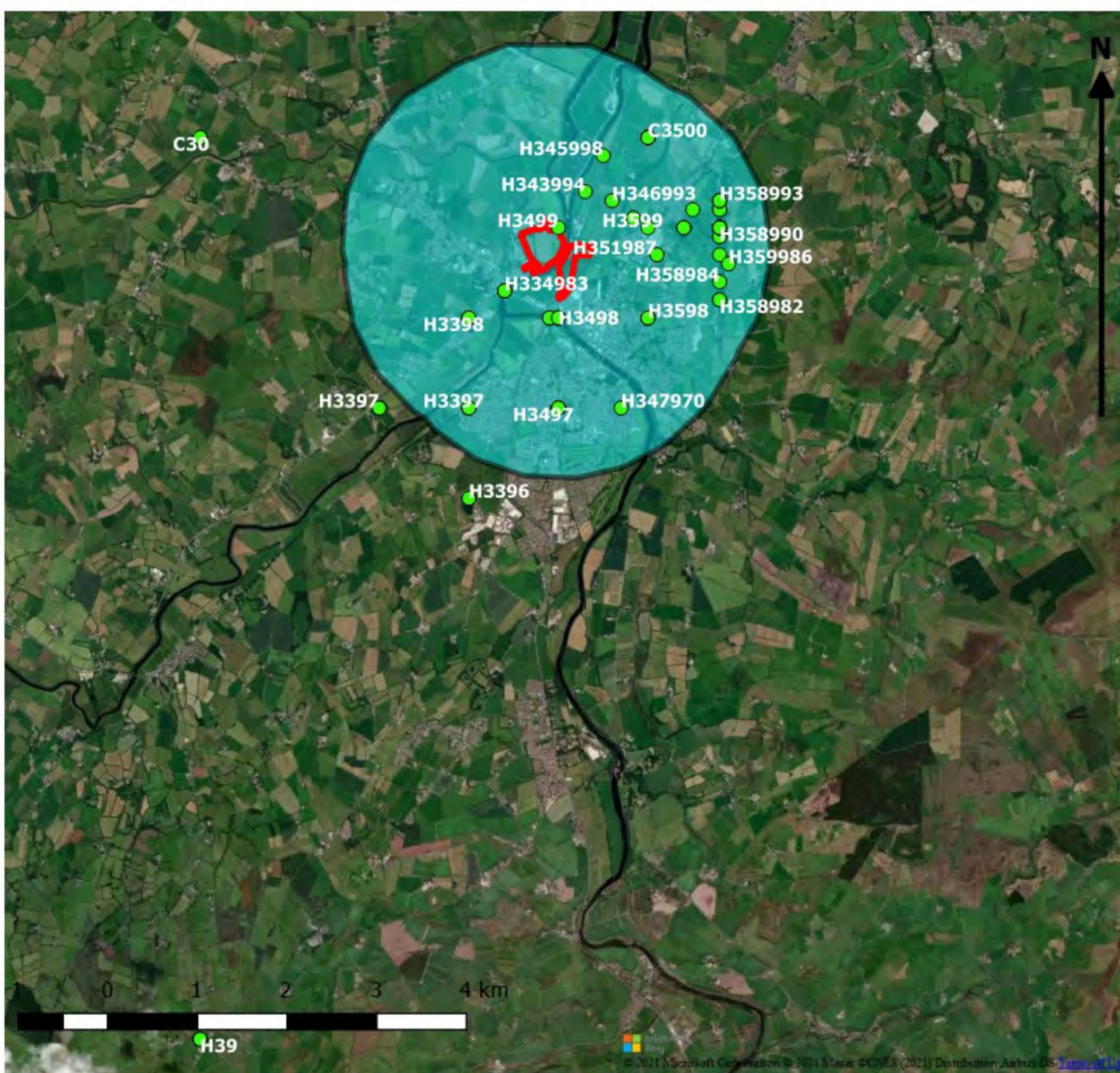
Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Puffball	01/03/1992	H358991	
Microplana terrestris	01/03/1992	H358991	
Vitrea crystallina seg.	01/03/1992	H358991	
River Limpet	01/03/1992	H358991	
White Brain	01/03/1992	H358991	
Haplophthalmus mengei agg.	01/03/1992	H358991	
Southern Bracket	01/03/1992	H358993	
Tree Slug	01/03/1992	H358993	
Garlic Snail	01/03/1992	H358993	
Cellar Snail	01/03/1992	H358993	
Barred Straw	1993	H39	
Muslin Footman	1993	H39	
Small Fan-Footed Wave	1993	H39	
Snout	1993	H39	
Dark Spectacle	1993	H39	
Spectacle	1993	H39	
Mottled Beauty	1993	H39	
Dotted Clay	1993	H39	
Drinker	1993	H39	
Shaded Broad-Bar	1993	H39	BAP-2007, England_NERC_S.41, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Coxcomb Prominent	1993	H39	
Scalloped Oak	1993	H39	
Map-Winged Swift	1993	H39	
July Highflyer	1993	H39	
Pale-Shouldered Brocade	1993	H39	
Middle-Barred Minor	1993	H39	
Peach Blossom	1993	H39	
Common Shiny Woodlouse	01/03/1992	H358995	
Arion (Carinarion) circumscriptus	01/03/1992	H358995	
New Zealand Flatworm	01/03/1992	H358996	
Atlantic Salmon	1974	C30	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, HabDir-A2*, HabDir-A5, HabReg-Sch4, NIPS, OSPAR, Scottish_Biodiversity_List, Wales_NERC_S.42

Taxon Common Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Sea Plantain	1950 - 1998	H39	
Goldilocks Buttercup	1950 - 1998	H39	
Three-Nerved Sandwort	- 1890	H39	
Three-Nerved Sandwort	- 1850	H358990	
Rigid Hornwort	- 1837	C30	NI Rare & Scarce Plants
Grey Club-Rush	1939	H39	
Sea Club-Rush	1939	H3499	
Sea Arrowgrass	1939	H3499	
Slender Spike-Rush	1930 - 1950	H3499	NI Rare & Scarce Plants
Wild Marjoram	1900	H3497	
Field Woundwort	1900	H3497	FEP-007_tab3, RedList_ENG_post2001-NT, RedList_GB_post2001-NT, Scottish_Biodiversity_List
Bluebell	16/04/2005	H348973	
Common Mallow	16/04/2005	H348973	
Red Squirrel	27/10/1984	H358984	BAP-2007, Bern-A3, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch5, WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.1(taking), WACA-Sch5_sect9.2, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c, Wales_NERC_S.42, Wildlife (NI) Order Sch 5
Irish Stoat	25/05/1988	H358990	Bern-A3
Agonum albipes	02/02/1992	H358989	
Philonthus varians	02/02/1992	H358989	
Agonum assimile	02/02/1992	H358989	
Nebria brevicollis	02/02/1992	H358989	
Pterostichus nigrita	02/02/1992	H358989	
Anthobium unicolor	02/02/1992	H358989	
Golden Jelly Fungus	01/03/1992	H358988	
Jenkins' Spire Snail	01/03/1992	H358988	
Euconulus alderi	01/03/1992	H358988	
Bleeding Broadleaf Crust	01/03/1992	H358989	
Common Garden Slug	01/03/1992	H358989	
Bourguignat's Slug	01/03/1992	H358989	
Ivy	30/04/2015	H3599	

<b>Taxon Common Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
<b>Soft-rush</b>	30/04/2015	H3599	
<b>Nipplewort</b>	30/04/2015	H3599	
<b>Thyme-leaved Speedwell</b>	30/04/2015	H3599	
<b>Common Nettle</b>	30/04/2015	H3599	
<b>Colt's-foot</b>	30/04/2015	H3599	
<b>White Clover</b>	30/04/2015	H3599	
<b>Red Clover</b>	30/04/2015	H3599	
<b>Lesser Trefoil</b>	30/04/2015	H3599	
<b>Dandelion</b>	30/04/2015	H3599	
<b>Snowberry</b>	30/04/2015	H3599	
<b>Common Chickweed</b>	30/04/2015	H3599	
<b>Prickly Sow-thistle</b>	30/04/2015	H3599	
<b>Common Ragwort</b>	30/04/2015	H3599	
<b>Common Figwort</b>	30/04/2015	H3599	
<b>Rusty Willow</b>	30/04/2015	H3599	FEP-001
<b>Procumbent Pearlwort</b>	30/04/2015	H3599	

---

## Appendix IV: CEDaR Species Records with 2km Buffer



### Legend

- CEDaR Records
- Red Lined Boundary
- 2km Buffer

Appendix IV: CEDaR Species Records with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:60000 @ A3

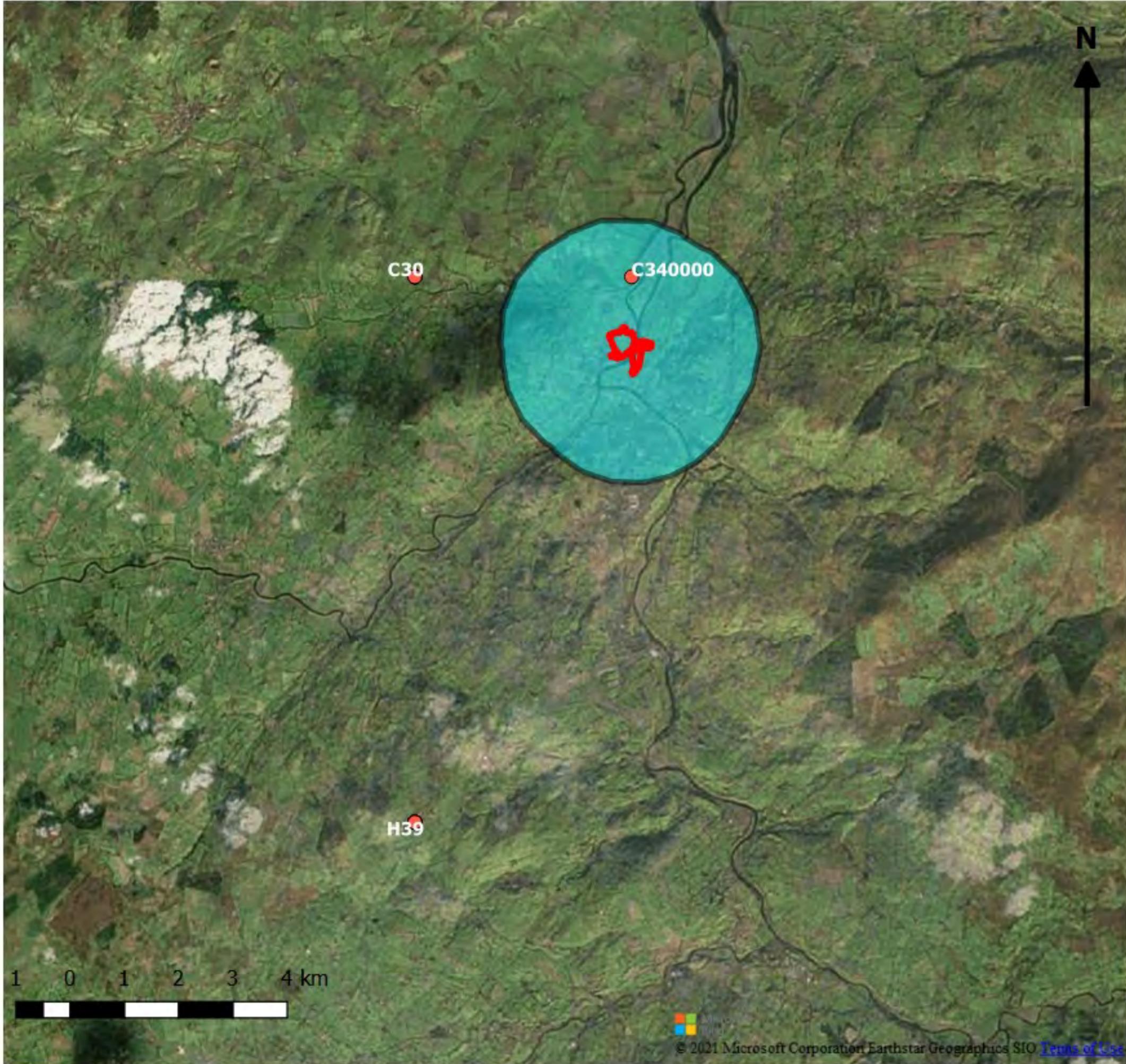
Date: 26/07/2021



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## Appendix V: NPWS Species Records with 2km Buffer



**Legend**

- CEDaR Records
- Red Lined Boundary
- 2km Buffer

Appendix V: NPWS Species Records with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:60000 @ A3

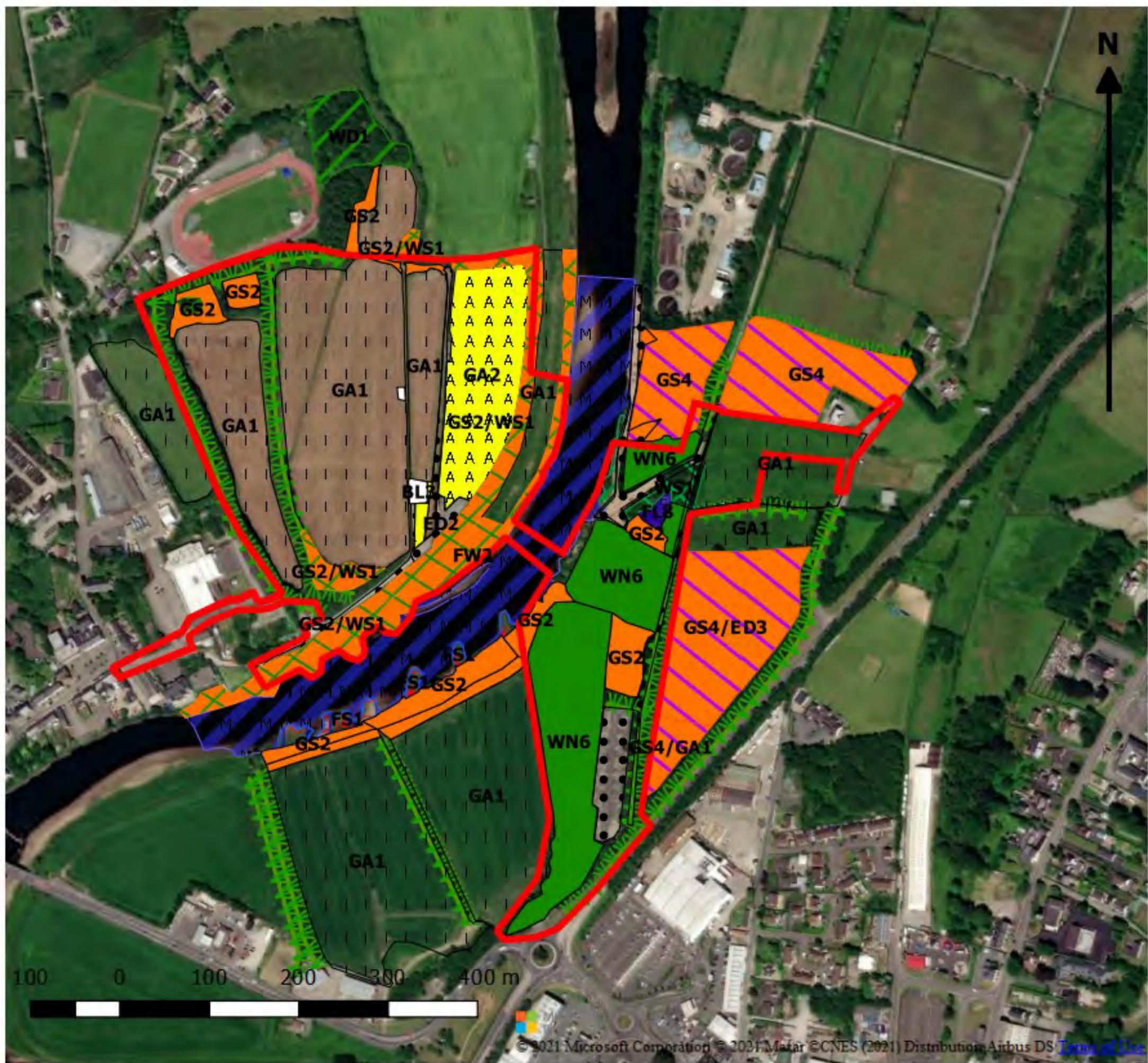
Date: 26/07/2021



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Appendix VI: Site Habitat Map (Fossitts for ROI)



### Legend

- |                    |     |
|--------------------|-----|
| Red Lined Boundary | GA1 |
| GS4                | FS1 |
| WL1/WL2            | FL8 |
| WN6                | FW2 |
| WD1                | GA2 |
| WD3                | BL3 |
| WS1                | ED2 |
| GS2                |     |
| GS2/WS1            |     |

Appendix VI: Site Habitat Map  
(Fossitts)

Created by: Ryan Boyle

Reviewed by: Emily Taylor

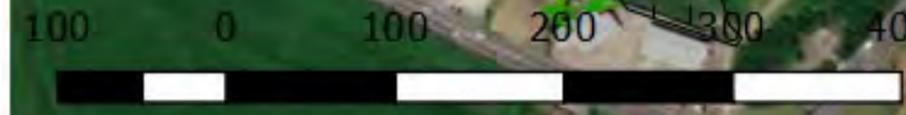
Client: McAdam Design

Scale: 1:6000 @ A3

Date: 16/05/2021



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Appendix VII: Site Habitat Map (JNCC for NI)



### Legend

- |                    |         |
|--------------------|---------|
| Red Lined Boundary | B.5     |
| A.1.1.1            | F.2.1   |
| A.1.1.2            | G.1.1   |
| A.1.2.2            | G.2.2   |
| A.2.1              | J.1.2   |
| B.2.1              | J.3.6   |
| B.2.1/A.2.1        | J.4     |
| B.4                | J.2.3.1 |

### Appendix VII: Site Habitat Map (JNCC)

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:6000 @ A3

Date: 16/05/2021



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## Appendix 8-5

### Badger Survey



**APPENDIX 8-5**

**Badger Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

**MCL Consulting Ltd  
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02890 747766**

**[www.mclni.com](http://www.mclni.com)**

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Figure 2. Site red line boundary.

Figure 3. Map showing Delichon's previous mammal survey results

Figure 4. Main Badger Sett

Figure 5. Wet woodland area where badger setts are located

Figure 6. Overview of concrete area, old traveller site, where badger activity has been recorded along the borders

Figure 7. Badger caught on trail camera along concrete traveller site border, southern area of site, travelling north

Figure 8. Badger caught on trail camera along concrete traveller site border, southern area of site, travelling south

Figure 9. Badger observed on trail camera going north from main sett

Figure 10. Badger observed following a scent going north from the main badger sett

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Table 1: Survey timing and weather conditions

Table 2: Method criteria for categorising badger sett structures

Table 3: Method criteria for categorising badger activity and sett status

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Table 5: Summary of findings for badger survey

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Appendix I: Lifford Target Note Locations

Appendix II: CEDaR Badger Records with 2km Buffer

## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide an updated badger survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure. 1 Site location**



**Figure. 2 Red Line Boundary of site**

## 1.2 Proposed Development

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on

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the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
- Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
- River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
- Family Space incorporating unique play experience, designed to support children focused events & related programming.
- Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Aims and Objectives

- Desk study to assess previous records of badgers, suitable habitat on site and surrounding area;
- Site walkover and mapping of any target notes using a high accuracy Trimble GNSS R8 VRS unit which would indicate tunnels, excavations and local Sett structures;
- Identification of main, annex, subsidiary and outlier Setts;
- Mapping and collation of photographs for any identified features which might include individual entrances/structures and orientation of entrance direction;
- Identification of any badger activity to include latrines, foraging, snuffle holes, feeding or play areas, footprints, trails and breach points etc;
- Recommendations for mitigation, and compensation measures;
- Protection of badgers throughout the construction and operational phase;
- Details of all proposed hedgerow/scrub clearance activities and timing.

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## 2.0 SURVEYORS/AUTHORS

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen's University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, as well as a seasonal volunteer for the Bat Conservation Trust and regularly takes part in newt, lizard and bat surveys.

### **Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master's degree (MSc) in Ecological Management and Conservation Biology from Queens University, Belfast, a bachelor's degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological

## 3.0 LEGISLATION

### Lifford (ROI) Legislation

Badgers (*Meles meles*) are legally protected under the Irish Wildlife Act 1976 (as amended) and Annex IV of the EU Habitats Directive Appendix III of the Bern convention as a species in need of protection. Under this it is an offence to:

- intentionally or recklessly kill, injure or take a badger; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place (normally a sett) that badgers use for shelter or protection; or
- intentionally or recklessly damages or destroys anything which conceals or protects any such structure; or
- intentionally or recklessly disturbs a badger while it is occupying a structure or place which it uses for shelter or protection.
- In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

It is also noted that there is no provision within the legislation to issue licences to kill badgers for the purpose of development.

### Strabane (NI) Legislation

Badgers are listed on schedules 5, 6 and 7 of the Wildlife (Northern Ireland) Order 1985 (as amended). Under the Order it is an offence to:

- intentionally or recklessly kill, injure or take a badger; or
- intentionally or recklessly damage or destroy, or obstruct access to, any structure or place (normally a sett) that badgers use for shelter or protection; or
- intentionally or recklessly damages or destroys anything which conceals or protects any such structure; or
- intentionally or recklessly disturbs a badger while it is occupying a structure or place which it uses for shelter or protection.
- In addition, any person who knowingly causes or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

It is also noted that there is no provision within the legislation to issue licences to kill badgers for the purpose of development.

## 3.1 Updated Badger Survey

### 3.1.1 Desk Study

A desk study was undertaken, this included the review of CEDaR database records for badgers within a 2km radius of the site. Aerial ortho-mosaic maps were also reviewed to identify any potential habitat/resting locations/ potential for sett creation for badgers. Previous badger studies undertaken at the site and the surrounding area were also reviewed and considered.

### 3.1.2 Field Study

Site walkovers were undertaken by MCL ecologists between April 2021 and July 2021 to identify evidence of recent and historic badger activity. Table 2 below summarises the survey timings and as well as the weather conditions at the time of survey.

**Table 1: Survey timing and weather conditions**

Surveyor	Date	Start time	Finish time	(°C)	Beaufort scale	Cloud-cover	Precipitation
Ryan Boyle BSc MSc, Emily Taylor BSc, Conor Finlay BSc MSc,	20/04/21	11:00	16:00	8	4	7/8	15
	06/05/21	10:00	14:45	10	4	1/8	5
	25/05/21	10:00	14:00	13	3	0/8	0
	08/06/21	10:00	15:00	15	4	0/8	0
	06/07/21	11:00	15:30	18	1	8/8	15

Any identified entrance structures were photographed, and the location of the entrances recorded using high accuracy Trimble R8 GNSS VRS survey equipment. In any given active site, a social group of badgers may have a main sett structure along with other smaller subsidiary or annex structures within their territory. Table 3 denotes the various sett structures that could be expected within an active site. Table 4 provides a simple method for categorising badger activity and the sett structures.

**Table 2: Method criteria for categorising badger sett structures**

Sett Category	Criteria
Main	This category represents the largest and most used sett structure, typically exhibiting several holes with large spoil heaps and established paths between sett entrances usually marked with latrines. In continuous use for breeding.
Annex	Normally less than 150m from main sett structures and are typically connected to it by one or more well established paths. Can have several entrances but not always in use.
Subsidiary	Typically consists of fewer entrances and are usually at least 50m from the main sett. There is no obvious path connecting with another sett and they are not always in use.
Outlying	Typically consists of one or two holes with no obvious paths connecting to other local sett structures. Often with only small spoil heaps outside the holes indicating that they are no extensive underground. Sporadic use often inhabited by foxes or rabbits when not used by

**Table 3: Method criteria for categorising badger activity and sett status**

Level of Usage	Criteria
Active	Signs of high activity levels, entrances clear of debris or vegetation, recent bedding material excavated, fresh spoil outside, evident signs of consistent passage and use.
Inactive	Entrance holes not in regular use. Some accumulation of debris or material and no field signs of recent badger activity. Sett use is often seasonal but could be re-established using
Disused	Entrance holes show no signs of recent usage. Often partially or completely blocked and would require considerable excavation to reopen the entrance. Setts may become disused through collapse, flooding, interference, or other reasons.

Field signs of badgers can be of importance when determining if badgers are currently active within an area or occupying a sett. Table 5 summarises the various field signs that can give an indication of the presence of badgers.

**Table 4: Field signs of badger**

Field signs	Description
Setts	Holes shaped like a D on its side which are between 200mm and 300mm wide and 100 and 200mm high.
Bedding at sett	Bedding can be found at the entrance to setts.
Footprints	Footprints can be found near the sett entrance or along trails.
Latrines	Can be found near a sett entrance or mark a badger's territory.
Hairs on barbed wire	When badger's crawl under barbed wire fences, their coarse hairs can get caught on the barbs.
Scratch marks	Badger tend to scratch the lower trunks of trees or roots.
Snuffle holes	Snuffle holes are small scrapes in the ground created by badgers searching for tubers or
Paths	Well-worn paths created by badgers on route to other setts or foraging areas.

## 4.0 SURVEY RESULTS

### 4.1 Desk Study

**Table 5: Summary of CEDaR badger database results**

Grid	Scientific name	Common name	Date	Event Location
H355992	<i>Meles meles</i>	Badger	March 2012	Koram Centre Community Garden, Strabane
H3297	<i>Meles meles</i>	Badger	October 2010	River Finn (unlocalised)

#### **Centre for Environmental Data and Recording (CEDaR)**

A request was submitted to CEDaR to identify if any previous historical records of badgers were present within 2km of the site. The records provided 2x records of badgers one within the 2km buffer zone on the Strabane side of the site while the other is located just outside of the 2km buffer zone on the Lifford side of the site. While none of the historical records for badgers were located within the proposed site boundary H355992 is the closest recording at approximately 1.3km northwest of the proposed site and is also the most recent from 2012.

#### **National Biodiversity Network Atlas (NBN) 2020**

No records of badger were identified within the site; however, these may be hidden/*sensitive* material.

#### **(J/2011/0433/O) DOE Department of the Environment Approval of Planning Permission 2011**

Previous planning permission application for site just southwest of the current riverine scheme included historical mapping of the site's current main badger sett (see Appendix VII). Since 2011 the sett has increased in size gaining more sett entrances and expanding further down the embankment. It was also included in this badger report for the 2011 application that another set was located approximately 300m away to the southwest of the current site red line boundary (see Appendix VII). It is believed this off site sett belongs to a separate clan with bordering territories.

#### **A5 Planning Application 2016**

Previous studies carried out in 2014 as part of the planning process for the proposed A5 development project, also referencing previous badger surveys undertaken in 2009, 2010, 2012 and 2013 included an in-depth investigation into badger presence and abundance along the projects proposed site route. Part of this route runs within close proximity to the proposed Riverine Scheme site layout and included an investigation for badgers within the area. An application had been made via McAdam Design Ltd to the WTC A5 Team, however, unfortunately no response was received and due to the sensitive nature of badger records and sett locations this information was not available for us to reference or consider.

## 4.2 Field Study

During the walkovers, a systematic search of the entire site area was undertaken, in addition to a search of 25m beyond the site boundary. This was to investigate badger activity and determine if badgers are currently occupying or present within the site.

A previous badger survey had been carried out by the previous project ecologist, (Eamonn Delaney of Delichon Ecology), in 2020 and had identified the presence of a main badger sett located within the old railway embankment as well as 2 annex setts, now located very close to the new bridge landing location; (see Fig. 3).

The site visits carried out by MCL identified the location of the large main sett previously found during a 2011 project proposal, (Planning Ref: J/2011/0433/O), as well as during Delichon's 2020 surveys. The sett is a large main sett extending throughout the old railway track embankment with 13 active entrances. It also identified the location of one subsidiary sett. Evidence of badger activity was located on site. Badger scatt and used bedding was found near to several sett entrances along with well-worn mammal trails extending throughout the area. Trails were evident throughout the site and have been confirmed attributing to badger activity as they lead directly to and from the numerous sett entrances along with the use of trail cameras found the badgers to be active throughout the wider area of the entire site. Target notes (TN) from the surveys are presented in Table 5 and Appendix I.

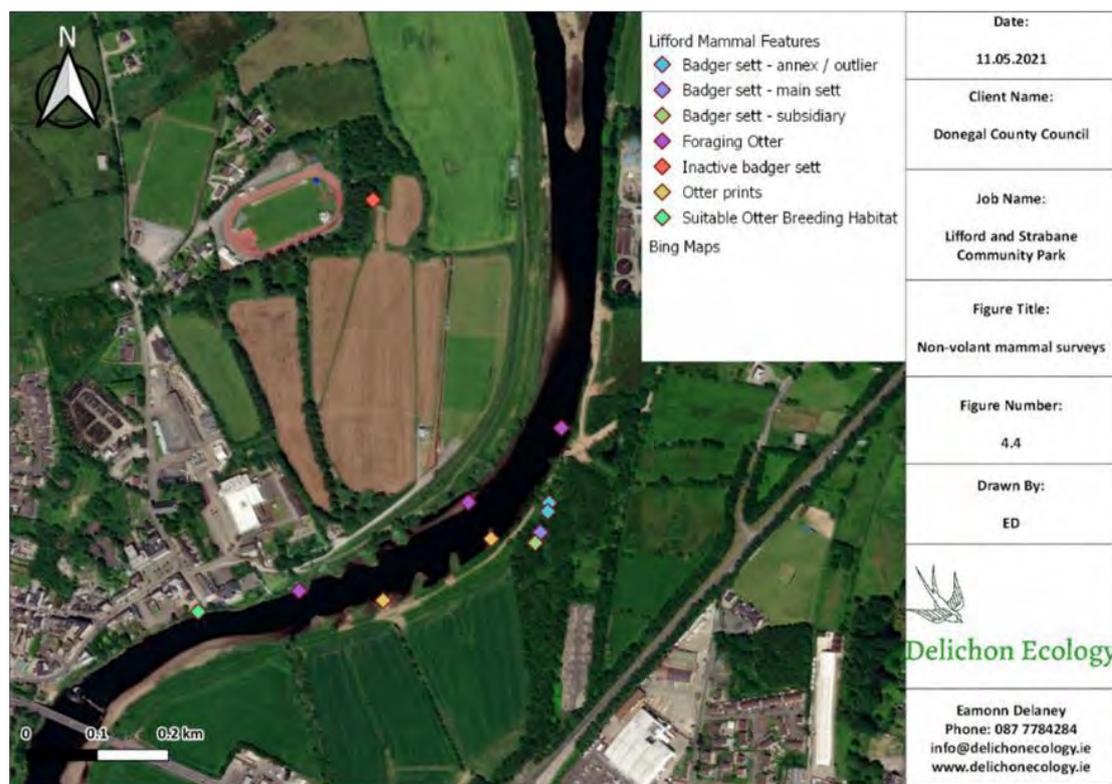


Figure 3. Map showing Delichon's previous mammal survey results.

## 5.0 ASSESSMENT & RECOMMENDATIONS

### 5.1 Summary of results

Table 6: Summary of findings for badger survey in Lifford

Target Note (TN)	Grid reference	Description	Image
TN1		Sett entrance 14 inches high 16 inches wide	
TN2		Sett entrance at base of spruce tree 19 inches high 12 inches wide	

<p><b>TN3</b></p>		<p>Sett entrance 15 inches high 11 inches wide Dense ivy covering entrance</p>	
<p><b>TN4</b></p>		<p>Sett entrance 12 inches high 10 inches wide Ivy growth and cobwebs covering the entrance</p>	
<p><b>TN5</b></p>		<p>Sett entrance 12 inches high 10 inches wide Heavily covered by dense ivy growth and shed pine needles</p>	

<p><b>TN6</b></p>		<p>Sett entrance 13 inches high 16 inches wide Ivy growth and cobwebs covering the entrance</p>	
<p><b>TN7</b></p>		<p>Sett entrance 12 inches high 10 inches wide Ferns growing out of the entrance</p>	
<p><b>TN8</b></p>		<p>Sett entrance 12 inches high 10 inches wide Old wire fencing has fallen over the entrance with old dead wood sheltering and obscuring the entrance Strong smell of fox</p>	

<p><b>TN9</b></p>		<p>Sett entrance 12 inches high 10 inches wide Mostly covered by fallen pine needles</p>	
<p><b>TN10</b></p>		<p>Sett entrance 15 inches high 14 inches wide Cobwebs located at entrance</p>	

The badger survey determined that badgers were historically present within the area of the proposed site on the Lifford side with evidence in the form of the discovery of an old abandoned sett, tracks, mammal trails, tunnels and trail camera footage, (see Appendix I), all located within the site boundary.

**Lifford**

The badger sett located in the northern corner of the site on the Lifford side is currently inactive and is considered to be an abandoned historical sett. The sett entrances are densely overgrown and obscured by fallen pine needles with no evidence of badger activity in the area. One sett entrance did contain a strong scent to suggest a fox had been active within it or is currently residing in it, (see Appendix II).

---

## 6.0 MITIGATION

### 6.1 Construction Phase

#### 6.2 Mitigation Lifford

The badger sett located on the Lifford side of the site has been classified as abandoned with no evidence of current activity and sett entrances having become overgrown and covered with vegetation, pine needles and cobwebs. Currently due to the inactive and abandoned nature of the sett as well as the nature of the current proposed development on the Lifford side, the general mitigation recommended in Section 7.3 apply in order to avoid unlicensed destruction of this sett while it is inactive now it may become active again.

#### 6.3 General Construction Mitigation Measures (Lifford/Strabane)

During the construction phase noise may cause disturbance, therefore the adoption of best practice as defined by the Control of Pollution Act 1974 should be implemented.

All noise caused by machines should be minimised and should operate during daytime hours only as agreed with the council.

With regards to dust it should be ensured that an adequate supply of water is available on site for effective dust suppression.

Similarly, no light should be directed onto woodland features during the construction or operational phase.

During the construction phase management and protection measures should be implemented prior to works commencing on site, these include:

- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as badgers may fall in or enter in search of food and become trapped.
- No buildings or storage units are to be left open overnight, as badgers may enter and become trapped.
- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.
- No vehicles or machinery are to be used installing any badger fencing or exclusion gates.

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If a badger is discovered or any activity suggesting badgers have been disturbed during construction, all work must cease immediately, and the ecologist should be notified as soon as possible to detail how to proceed.

It is also recommended that compensatory planting scheme be carried out in order to re-create foraging habitat which may be lost due to the proposed site plans.

## 6.4 Mitigation Operational Phase

As discussed previously, once the development is completed, annex setts proximal to pathways and the bridge land site will be reopened, allowing badgers to avail of these structures. This places operational activities involving walkers, cyclists etc. being in close proximity to badgers.

Therefore, mitigation will be required to minimise interaction / disturbance with the badger community from park users. Heavy planting of approved floral species to create visual shielding and buffer zones to control access between public pathways and badger setts is required.

Mammal gates along the eastern site boundary, placed at 10m intervals will allow badgers access to foraging lands (agricultural fields etc.) beyond the site boundary.

It is recommended that the abandoned sett on the Lifford side of the development is left undisturbed and available for future use by the local badger population.

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## 7.0 CONCLUSION

### **Lifford**

The sett located on the Lifford side of the site is considered to be abandoned and currently is not inhabited by badgers. Due to the abandoned nature of the sett as well as its location beyond the proposed red line boundary and proposed scope of works on the Lifford side of the site, mitigation protocols regarding this sett are reduced to those outlines in heading 6.3 Mitigation Measures. While the sett is currently abandoned and inactive it may become active again in the future and destruction of this sett may impact local badger populations in the future.

Report Prepared By: - Reviewed By: -

Ryan Boyle BSc (Hons) MSc  
Consultant Ecologist

Conor Finlay BSc (Hons) MSc  
Graduate Ecologist

---

## 8.0 REFERENCES

Harris S, Cresswell P and Jefferies D (1989) Surveying Badgers, Mammal Society Harris, S. et al.

(1989) Projects on Badgers. The Mammal Society Publication No.12

NIEA Badger Survey Specifications available at: <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/badger-survey-specifications.pdf> last accessed on 19/11/19.

NIEA Badgers & Development available <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/natural-information-badgers-and-development-2011.pdf> Last accessed on 05/01/20



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## APPENDICES

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**Appendix I: Lifford Target Note Locations**



### Legend

- Lifford Badger Setts
- Red Lined Boundary

Appendix II: Lifford Target Note Locations

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 1:1655 @ A3

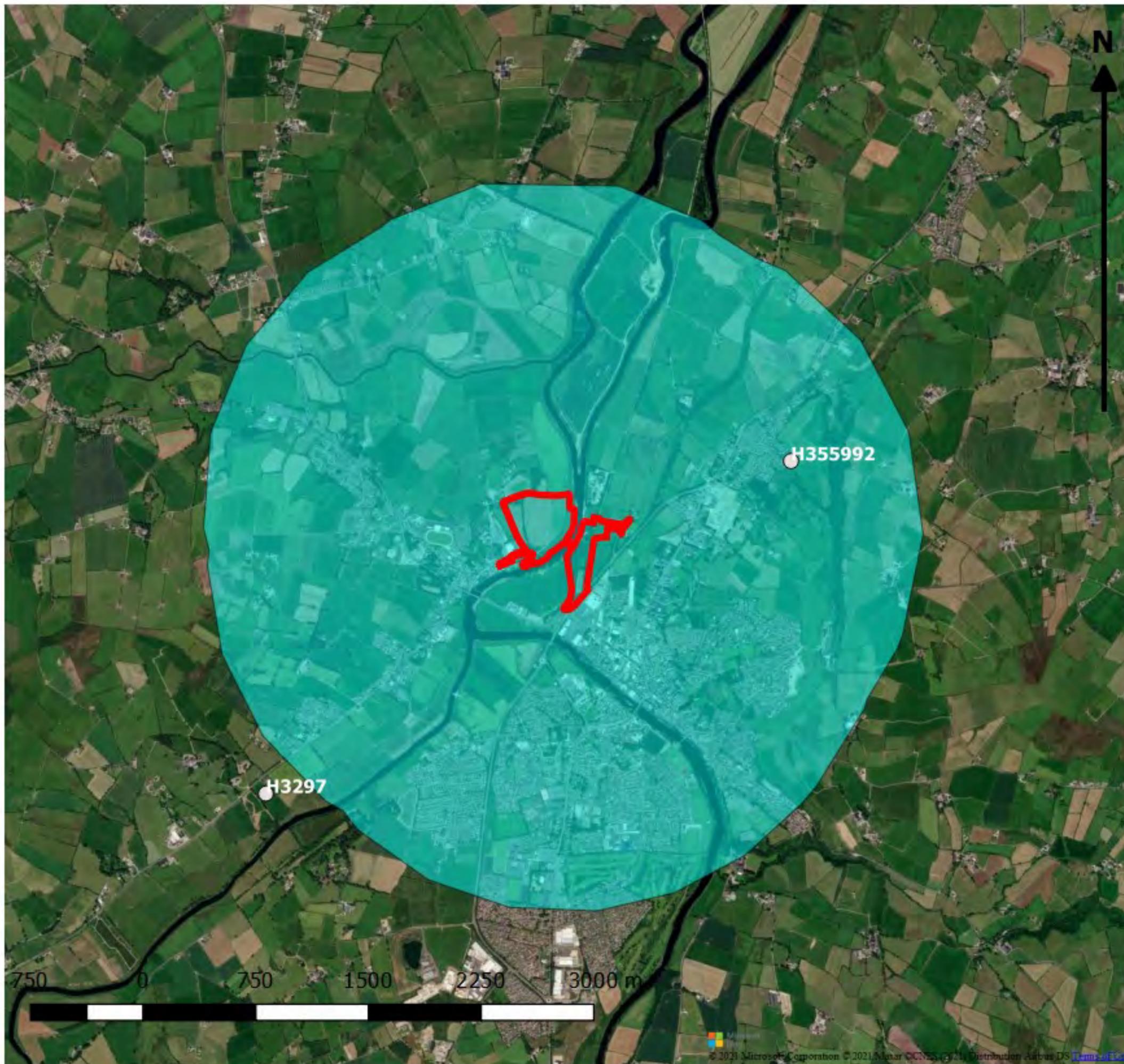
Date: 06/07/2021



Unit 5, Forty Eight North, Duncrue Street  
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**Appendix II: CEDaR Badger Records with 2km Buffer**



## Legend

-  CEDaR Badger records
-  Red Lined Boundary
-  Buffer

Appendix VI: CEDaR Badger Records  
with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 1:35895 @ A3

Date: 28/07/2021



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## Appendix 8-6

### Otter Survey



**APPENDIX 8-6**

**Otter Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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- Appendix VI: A5 2016 Otter Map

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide an updated otter survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.



**Figure 1. Site location**

### 1.1 Site description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

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On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 2. Site red line boundary**

## **1.2 Proposed Development**

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

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The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
- Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
- River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
- Family Space incorporating unique play experience, designed to support children focused events & related programming.
- Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

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## 1.3 Legislation

### Lifford (ROI) Legislation

Otters (*Lutra lutra*) are protected under the Irish Wildlife Act 1976 (as amended) and are listed on Annex II and Annex IV of the EU Habitats Directive. Under this it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - impair its ability to survive, breed or reproduce, or rear or care for its young;
  - or
  - impair its ability to hibernate or migrate;
- Deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- To damage or destroy a breeding site or resting place of such an animal.

There is no provision within the legislation to issue licences to kill otters for the purpose of development.

### Strabane (NI) Legislation

Otters are listed on Annex IV of the EC Habitats Directive (92/43/EEC) and are protected under the Conservation (Natural Habitats etc.) Regulations 1995 (as amended), known as the Habitats Regulations. Under the Habitats Regulations it is an offence:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - impair its ability to survive, breed or reproduce, or rear or care for its young;
  - or
  - impair its ability to hibernate or migrate;
- Deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- To damage or destroy a breeding site or resting place of such an animal.

---

There is no provision within the legislation to issue licences to kill otters for the purpose of development.

## **1.4 Author/ Surveyors**

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for

PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, as well as a seasonal volunteer for the Bat Conservation Trust and regularly takes part in newt, lizard and bat surveys.

#### **Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master’s degree (MSc) in Ecological Management and Conservation Biology from Queens University, Belfast, a bachelor’s degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird’s surveys, badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABiP).

## **1.5 Survey parameters**

Site walkovers were undertaken by MCL ecologists between May 2021 and July 2021 to identify evidence of recent and historic otter activity. Table 1 below summarises the survey timings and as well as the weather conditions at the time of survey.

**Table 1: Summary of weather conditions and survey periods**

<b>Surveyor</b>	<b>Date</b>	<b>Survey Start</b>	<b>Survey Finish</b>	<b>°C</b>	<b>W/s</b>	<b>Oktas</b>	<b>Ppt</b>
<b>Ryan Boyle BSc (Hons), MSc Emily Taylor BSc (Hons) Conor Finlay BSc (Hons), MSc</b>	11/05/21	11:00	15:00	6	3	8/8	25%
	06/07/21	12:30	15:25	12	2	8/8	25%
	15/07/21	12:30	15:30	19	3	5/8	25%
	20/07/21	12:00	15:00	21	4	0/8	0%

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## 2.0 OTTER SURVEY

### 2.1 Rationale of Otter Survey

The aim of the otter survey and assessment was to:

- Determine the presence of otter through field signs onsite and within the stream, and ~30m beyond the site boundary and 300m of riverbanks upstream and downstream of the development area; and
- To develop suitable mitigation plans in the event of confirmed otter species presence, as appropriate

### 2.2 Desk Study

A desktop study was undertaken for the site by obtaining otter records from CEDaR within a 2km radius of the site. Aerial maps were also studied to identify potential foraging and commuting habitat surrounding the site. Previous otter studies undertaken at the site and the surrounding area were also reviewed and considered.

### 2.3 Field Study

#### 2.3.1 Preliminary Otter Survey

Field signs are important when determining if otters are present or absent within a site. The following field signs are used to evidence:

- Spraint;
- Anal jelly;
- Forage remains (e.g. fish heads);
- Slides;
- Couches/hovers and;
- Holts.

Surveys were undertaken during dry periods, and local weather conditions had not been subject to heavy rainfall during the days previously.

#### 2.3.2 Survey Constraints

Otters have an amphibious nature and are capable of traversing large areas of land by both land and water. Large sections of the Riverine site, particularly on the Strabane side are covered with dense vegetation and a dense area of wet woodland habitat which made

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surveying the entirety of the site area difficult with restrictive access to certain areas of the site.

## 2.4 Results

### 2.4.1 Desk study

**Table 2: Summary of CEDaR otter database results**

Grid	Scientific name	Common name	Date	Event Location
H3498	Lutra lutra	Otter	June 2009	Strabane (Unlocalised)
H3398	Lutra lutra	Otter	June 2009	Mourne River at Strabane
H334983	Lutra lutra	Otter	2015	Lifford
H339980	Lutra lutra	Otter	2006	Mourne Bridge, Mourne River
H339980	Lutra lutra	Otter	2011	Mourne Bridge, Mourne River
H334983	Lutra lutra	Otter	2006	Lifford
H334983	Lutra lutra	Otter	2011	Lifford
H3297	Lutra lutra	Otter	October 2010	River Finn (unlocalised)
H3397	Lutra lutra	Otter	October 2010	River Finn (unlocalised)

#### **Centre for Environmental Data and Recording (CEDaR)**

A request was submitted to CEDaR to identify if any previous historical records of otters were present within 2km of the site. The search provided 9x records of otters, H339980 is the closest to the proposed development site approximately 217m south of the site with 2x records dated 2006 and 2011.

#### **National Biodiversity Network Atlas (NBN) 2020**

No records of otter were identified within the site; however, these may be hidden/*sensitive* material.

#### **National Parks & Wildlife Service (NPWS)**

A request was submitted to CEDaR to identify if any previous historical records of otters were present within 2km of the site. No records for otter were returned.

#### **A5 Approval of Planning Permission 2016**

Previous studies carried out as part of the planning process for the proposed A5 development project included an in-depth investigation not otter presence and activities along the projects proposed site route. Part of this route runs within close proximity to the

---

proposed Riverine Scheme site layout and included an investigation for otters within the area. The previous studies yielded 2 confirmed accounts of otter presence at Site ID 13B and 13C which are within 2km of the proposed Riverine Scheme site, (see Appendix VI). They identified otter activity throughout the River Foyle and its tributaries with a further 7 sites within 10km of the Proposed Riverine Scheme site with confirmed otter presence.

#### 2.4.2 Field Study

Four visits were made by MCL ecologists to investigate the site for otter activity and presence, a systematic search of the entire site area was undertaken, in addition to a search of 30m beyond the site boundary. This was to investigate for otter activity and determine if otters are currently occupying or present within the site, this search also included the implementation of trail camera traps.

A previous otter survey had been carried out the previous project ecologist, (Eamonn Delaney of Delichon Ecology), in 2020 and had identified evidence for the presence of otters on site in the form of tracks and visually observed foraging otters; (see Fig. 3).

The use of trail cameras and site visits by MCL ecologists identified the presence of otters actively using the site for foraging throughout the entirety of the site area. A pair of otters have been observed on several occasions along the banks of the River Foyle on both the Strabane and Lifford side, along with evidence of their presence in the form of tracks and food remains. Several mammal trails were observed leading to and from the river into the greater wooded wetland area of the Strabane side of the site along with camera trap footage of the otter actively foraging further in land on the Strabane side of the site. Trails were evident throughout the site and have been attributed to badger activity as they lead directly to and from the numerous sett entrances. However, the use of trail cameras confirmed that otters are additionally utilising these trails to traverse the site through the flooded wet woodland region as an extended foraging area. Target notes (TN) from the surveys are presented in Table 5 and Appendix I.

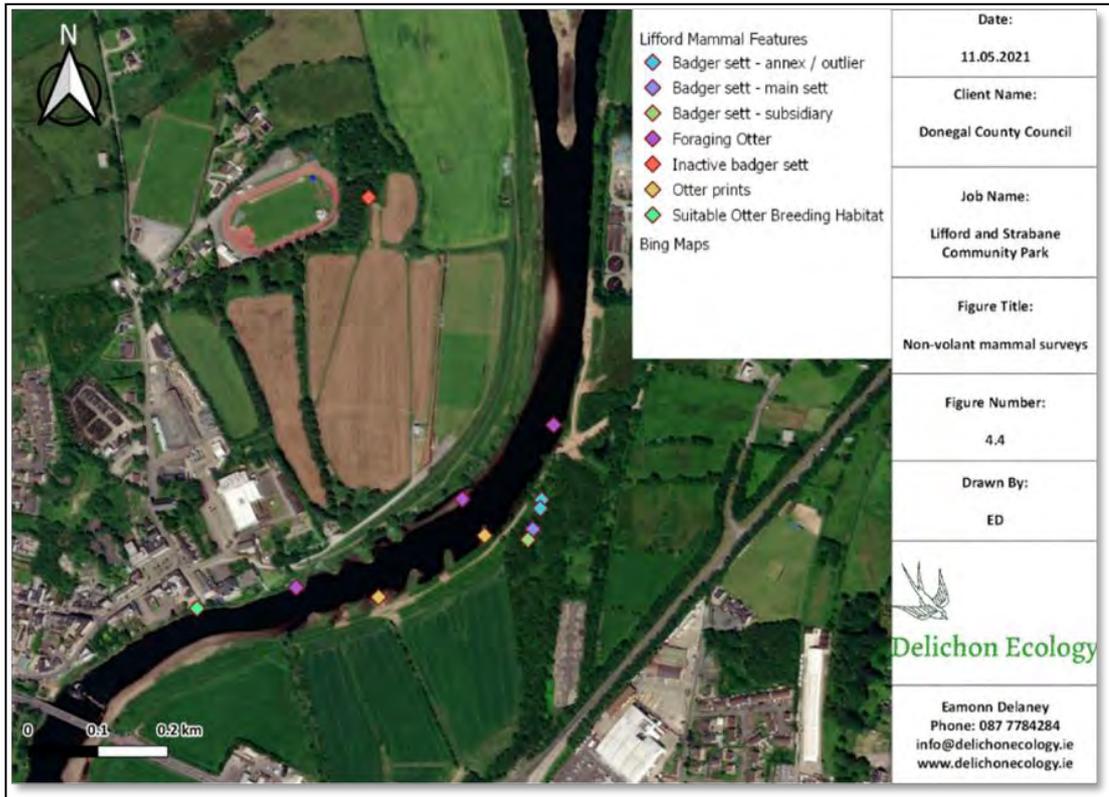


Figure 3. Map showing Delichon's previous mammal survey results.

### 2.4.3 Otter Survey Results

Otter Surveys were undertaken on the 11<sup>th</sup> of May, 6<sup>th</sup>, 15<sup>th</sup> and 20<sup>th</sup> of July to ascertain potential otter presence features in and around the site of the proposed for development.

A walkover of the proposed site was carried out to inspect any potential signs of otter presence including scatt, holts, slides, anal jelly and forage remains. The River Foyle runs through the centre of the site dividing the Lifford and Strabane, the banks of this river system were investigated for otter presence. Any potential trails or signs of otters entering or exiting the site along the river along with other signs of otter presence and activity were noted. Vantage point surveys were also implemented in conjunction with site walkovers to observe for otter activity along the riverbanks beyond the site boundary. Vantage point surveys utilised binoculars to observe for signs of otter presence and activity while allowing the surveyor to visually investigate certain areas of the riverbanks which were not safely accessible on foot.

Evidence that these potential access points were used by otters would include tracks, scatt and forage remains at locations where otters enter and exit the site or waterways along the

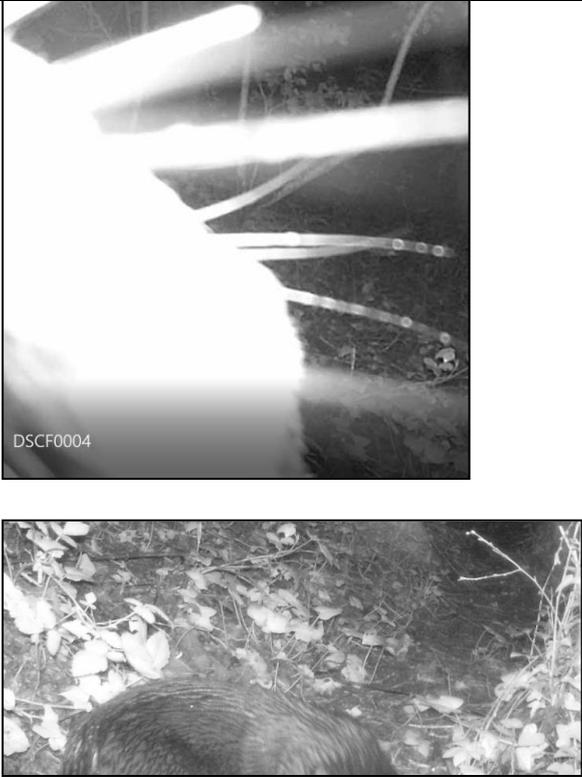
---

banks. These signs were recorded wherever they were present. Other tracks and potential causes for suspected trails and entry/exit points to the site were also recorded as these may indicate other causes.

Along the banks of the River Foyle there were several indicators of otter activity found both by MCL and Delichon during the survey periods with the majority of otter activity signs being located on the Strabane side of the river. Trail cameras traps located the otters actively foraging in the wider area of the Strabane side towards the eastern boundary (See TN1), and several otter prints were found on the extended angling platforms. Feeding remains of a large salmon were also located on the Strabane side (See TN2) on one of the extended angling platforms as well as numerous visual sightings during bank and VP surveys where the otters were visually observed foraging in the River Foyle. Several mammal trails were also located on the Strabane side leading to and from the rivers to the main body of the site and into the wet woodland area, (See TN11).

Despite the abundance of physical evidence of otter presence and activity, no otter holts were located within the area and up to 30m beyond the site boundary. Due to the extensive range otters can inhabit, along with the expanse of river they may potentially frequent it is believed that the otters primarily use the proposed site for foraging and reside further up and/or down river beyond the site boundary. Therefore, it is recommended that no further investigation for otters is required but mitigation is recommended to reduce any potential impact on the minor water courses and any potential otters in the greater area.

**Table 3: Summary of findings for otter survey**

Target Note (TN)	Grid reference	Description	Image
TN1		<p>Otter caught on trail camera towards eastern boundary of the Strabane side of the site approx. 170m east of the banks of the River Foyle</p>	
TN2		<p>Foraging remains located on the banks of the Strabane side of the site on one of the angling points, a large salmon head</p>	

Target Note (TN)	Grid reference	Description	Image
TN3		Foraging remains, patch of scales and small pieces of salmon meat located approximately 2m away from the head	
TN4		Otter prints located on the Strabane side of the River Foyle along the sandy banks of one of the angling points	

Target Note (TN)	Grid reference	Description	Image
TN5		<p>Otter observed towards the northern area of the site within the River Foyle. Otter was observed foraging and seen traversing north along the river surface at approximately 12:39 on the 06/07/2021</p>	
TN6		<p>Otter observed towards the northern area of the site within the River Foyle. Otter was observed foraging and seen traversing north along the river surface at approximately 12:58 on the 06/07/2021</p>	

Target Note (TN)	Grid reference	Description	Image
TN7		Two otters were observed floating along the surface of the river along the eastern bank on the Strabane side within the site's northern region at approximately 12:30 on the 15/07/2021	
TN8		One of the two otters remained continuously entering and exiting the water for approximately 20 minutes at 12:33, it was then observed emerging from the water whilst feeding at approximately 12:50 on the 15/07/2021	

Target Note (TN)	Grid reference	Description	Image
TN9		<p>Otter was observed emerging from the water on to the rivers western bank on the Lifford side and traversing the bank going south before disappearing west into the vegetation at approximately 12:10 on the 20/07/2021</p>	
TN10		<p>Otter observed on Lifford side of River Foyle, washing it's face on the banks before it disappeared into the water at approximately 12:28 on the 20/07/2021</p>	

Target Note (TN)	Grid reference	Description	Image
TN11		Mammal trails observed leading to and from the river into the greater flooded wet woodland region of the site beyond the flood embankment	

All target notes are recorded as confirmation of otter presence and activity on site during the investigation survey. However, no evidence was found of the otters residing within the site boundary as no holts were located throughout the site. The locations of these target notes can be seen in Appendix II.

Following consultation with Dr Jon Lees of the NIEA it was recommended the initial search area for otters be expanded from 30m to 300m along the river bank due to the level of otter activity to ensure a thorough search had been carried out for the presence of otters and their holts to determine if they are residing within the area. Following this recommendation otter searches were carried out upto 300m beyond the proposed site boundary along the banks of the River foyle on both the Strabane and Lifford side, no evidence of otter holts or otters residing within this area was found. As such it is firmly believed that the otters high activity levels is du to commuting and foraging within the area and the proposed site but they do not reside there.

Following a consultation response from ABP and DAU it was requested that further investigations be carried out in order to locate the potential presence of the otter's holt due to the levels of activity observed on site during previous survey visits. The survey area was therefore expanded from the initial 30m, which was then previously expanded to

300m, to 1km up and down stream along the river bank. Following guidance from the Scottish Borders Council’s technical advice on otter surveys which details suggested/recommended survey parameters/distances for searches. Based on the previous search area expansion and the request for further efforts to be made to find the holt the ecologist decided to expand the search area beyond the recommended distances based on the level of otter activity located on site.

**Table 4: Summary of weather conditions and survey periods for 1km extended search area**

Surveyor	Date	Survey Start	Survey Finish	°C	W/s	Oktas	Ppt
Ryan Boyle BSc (Hons), MSc Emily Taylor BSc (Hons) Conor Finlay BSc (Hons), MSc	29/03/2022	11:00	15:00	11	3	3/8	15%
	06/04/2022	11:30	15:25	10	10	8/8	75%
	11/04/2022	12:00	16:00	9	7	6/8	25%

The extended search area for otters in response to ABP and DAU’s consultation response yielded further evidence of otter activity similarly to the previous surveys in the form of tracks and spraints. However, no holts were located during the extended searches within the extended search area. Similarly to previous survey searches there is an abundance of evidence illustrating otter activity on site, however, no evidence to suggest residency or breeding occurs at the proposed site due to a lack of holts or natal dens. The otters themselves were not observed during the extended survey searches compared to the initial surveying carried out in 2021. While this may not have any significance it could be considered that otter activity and presence on site could be timed to correspond with the fish migratory patterns e.g: the salmon run.

#### 2.4.4 Summary of results

The site is considered to be suitable for otters due to the presence of the River Foyle which runs through the centre of the site separating the Lifford and Strabane border. The extended area within the site boundary also offers suitable foraging habitat for the otters which has been confirmed via trail camera traps. It was suggested by Delichon that the wet woodland area within the Strabane side’s central zone may provide suitable breeding

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habitat for otters. However, after extensive investigative surveys no holts, evidence of otter breeding or residency was found to be present, therefore the entirety of the site is considered an extended foraging zone for the local otter population with the river providing an unrestricted commuting pathway to other, potentially more suitable habitats for their holts. As such no further surveys are recommended as no holts have been found on site and all activity suggests the area is used for foraging.

It is therefore recommended that a minimum of 15 metres should be retained as a buffer between the proposed development and the surrounding watercourses to reduce any potential impact. It is also recommended that a surface water management plan be drafted and implemented to avoid potential impacts on the water courses and water quality. A Surface Water Management Plan and Water Quality Monitoring Plan has been developed for the schem and is presented in Appendix 9-11 of the ES. Consideration should also be given to otters concerning their use of the site's interior for foraging and fencing designs should facilitate free movement of otters to allow unrestricted passage throughout the site.

It is also recommended that either a small culvert or small ledge structure be worked into the bridge landing areas to allow otters free land access across the areas where the bridge makes contact with the banks of the River Foyle.

#### **2.4.5 Mitigation Measures**

During the construction phase noise may cause disturbance, therefore the adoption of best practice as defined by the Control of Pollution Act 1974 should be implemented.

All noise caused by machines should be minimised and should operate during daytime hours only as agreed with the council.

With regards to dust it should be ensured that an adequate supply of water is available on site for effective dust suppression.

Similarly, no light should be directed onto woodland features during the construction or operational phase.

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During the construction phase management and protection measures should be implemented prior to works commencing on site, these include:

- No excavations are to be left uncovered or without a means of egress (a sloped plank for example) overnight, as otters may fall in or enter in search of food and become trapped.
- No buildings or storage units are to be left open overnight, as otters may enter and become trapped.
- No poisonous or potentially harmful substances or materials are to be left unsecured overnight.
- No vehicles or machinery are to be used installing any fencing or exclusion gates.

If an otter is discovered or any activity suggesting otters have been disturbed during construction, all work must cease immediately, and the ecologist should be notified as soon as possible to detail how to proceed.

It is also recommended that compensatory planting scheme be carried out in order to re-create foraging habitat which may be lost due to the proposed site plans. Due to the proposed locations of the bridge landing sites on both the Strabane and Lifford side of the site as well as the location of the proposed jetty on the Lifford side of the site there is expected to be some minor permanent loss of riverine bank habitat, (approx. 150m<sup>2</sup>), these patches of habitat will be permanently lost due to the construction of permanent structures proposed by the development. The jetty is considered to pose an immediate impact through the loss of a small area of riverbank habitat, however, otters are considered adaptable and it is believed that the jetty may be utilised by the otters in the long term and may serve as a benefit for the otters in the area. The jetty may provide a safe haul out area for the otters and may serve as a “man-made” couch or spraint. It has previously been suggested that a small culvert or ledge structure should be incorporated into the design of the bridge landing areas on both the Strabane and Lifford side of the site. These culverts or ledges should follow best practice guidance and meet current specifications for dimensions. It is recommended that these culverts/ledges should be of minimum 500mm x 600mm diameter and be at least 150mm above the highest water level and run the length of the bridge landing sites extending past the bridge landing to rejoin the river bank allowing the otters free unhindered access along the riverbanks out of the water. Further areas of

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habitat loss are considered to be temporary and caused by the creation of the temporary construction and crane pads on the Lifford side of the site as well as the construction compounds located on the Strabane side of the site. These areas are for temporary works and only operational during the construction phase of the proposed development. Any habitat loss occurred because of these, while more extensive, will be temporary and once the construction phase of the development has completed the habitat will be restored/reinstated to its original state. It is recommended that a re-planting scheme is implemented to ensure native riverine species are used for the restoration of the bank habitats temporarily damaged and lost during the construction works. It is also recommended that this be used to help increase the size of the thin corridor of reed and large sedge swamp habitat located along the riverine corridor. This type of habitat is highly vital to riverine ecosystems and based on the evidence found is used heavily by the otters within the area. Re-planting and restoring the temporarily lost habitat to help expand this area of reed and large sedge swamp habitat would help to compensate for the permanent loss of habitat experienced from the bridge landings and jetty. The short term impacts from the potential habitat loss are considered to be of minimal disturbance and impact to the otters as the areas of habitat loss are centralised to the bridge landing sites, jetty and temporary works compounds. Long term impacts are considered to be negligible as the total area of permanent habitat loss along the riverine corridor is minimal and is considered to be utilised by the otters over time and suggested design considerations of culverts/ledges at the bridge landing sites allows the otters to continue to have unrestricted access along the river banks. Temporary habitat loss is considered to be more extensive and in the short term potentially more impactful, however, these habitats will be reinstated following the completion of the construction phase and offer opportunities to help improve the current habitats located along the riverine corridor within the proposed development area. It is considered that again long-term impacts are low-negligible and may offer improved foraging grounds following habitat restoration and improvement.

Due to the location of the proposed carpark on the Strabane side of the site, within the old halting area located within the sites southern corner, there is a perceived risk of runoff water from the car park potentially introducing pollutants and hydrocarbons into the water systems. Therefore, it has been recommended that a SUDS scheme be developed to create an environmentally safe drainage system to protect the nearby riverine habitat from potential pollution through surface runoff. The SuDS Drainage scheme is detailed in the

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Sustainable Drainage Strategy (**Appendix 9-3**) but in summary comprises hardstanding incorporating areas of permeable surfacing which allows infiltration of runoff waters into a permeable substrate. The substrate will be hydraulically sealed from the underlying made ground (under the permeable substrate) using an impermeable membrane to prevent downward migration of runoff into the underlying groundwater system. This prevents any enhancement of mobilisation of any contamination in the made ground soils, and also prevents any oil spillage from entering the groundwater system. The infiltrated runoff within the substrate layer, which will provide SuDS source control for sediment and pollutants, is captured by a series of laterally-laid perforated pipes, directing the runoff to one of two suitably-sized Class 1 full retention interceptors, discharging to the Park Road Drain along the eastern site boundary. This drainage system will prevent the release of oil to the environment from worst case accidental spillages under all weather conditions.

It is also recommended that exclusion fencing be installed around the perimeter of the proposed car park area in order to prevent the otters from accessing the site during works in order to avoid accidental injury as evidence by the trail cameras during the otter survey indicated that the otters will venture further into the main body of the site near the halting area at night to forage. This should be removed following completion of construction.

### **3.0 ASSESSMENT AND RECOMMENDATIONS**

Otters (*Lutra lutra*) and their holts are strictly protected under the terms of the Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (as amended), known as the Habitats Regulations. They are known as a European protected species. Therefore, it is an offence to deliberately capture, injury or kill otters, disturb them or their holts, damage or destroy holts or impair their ability to hibernate or migrate as well as breeding sites.

While otter activity on site was deemed to be high no holts or natal dens were located within the site's red line boundary or within 1km of the proposed riverine development site. It is of the ecologists opinion that the area is used as foraging grounds and operates as part of the otters territory with a greater level of activity during the later summer months leading up to and during the Salmon run. As no holts or natal dens were located during the surveying there are no concerns regarding seasonal constraints relating to otter breeding seasons and offspring. Therefore, it is recommended that in order to reduce any potential

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impact on these water courses, in the event that otters are present, a minimum of 15 metres should be maintained as a buffer between the proposed development and surrounding watercourses. Fencing designs should provide unrestricted access to the site for the otters in an effort to allow otters to use their extended foraging grounds. Lastly, it is recommended that a surface water management plan (Appendix 9-11 of the ES) is implemented to avoid potential impacts on the water courses and water quality.

Report prepared By:-

Reviewed By:-

**Ryan Boyle**  
**Consultant Ecologist**

**Conor Finlay**  
**Graduate Ecologist**

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## 4.0 REFERENCES

NIEA Otter Survey Specifications Available at:

[Site Survey of 'Land approx 500 metres west of 77 Temple Road, Garvagh' \(daera-ni.gov.uk\)](#)

[NIEA Otters & Development](#)

<https://cieem.net/wp-content/uploads/2019/07/natural-information-otters-and-development-2011.pdf>

Scottish Borders Council: Technical Advice Note #2 Otter surveys

[https://www.scotborders.gov.uk/download/downloads/id/2961/otters\\_technical\\_advice\\_note.pdf](https://www.scotborders.gov.uk/download/downloads/id/2961/otters_technical_advice_note.pdf)

Design Manual for Roads and Bridges. Nature Conservation Advice in Relation to Otters.

2001. The highways Agency, The Scottish Executive Development Department, The National Assembly for Wales and The Department for Regional Development. [On-line].

<https://cieem.net/wp-content/uploads/2019/07/ha8199.pdf>

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**FIGURES**



**Figure 4. River Foyle bank on the Strabane side going south**



**Figure 5. River Foyle bank on the Strabane side going north**



**Figure 6. River Foyle looking south with both Strabane and Lifford banks**



**Figure 7. Wet woodland area in central area of Strabane side of site**



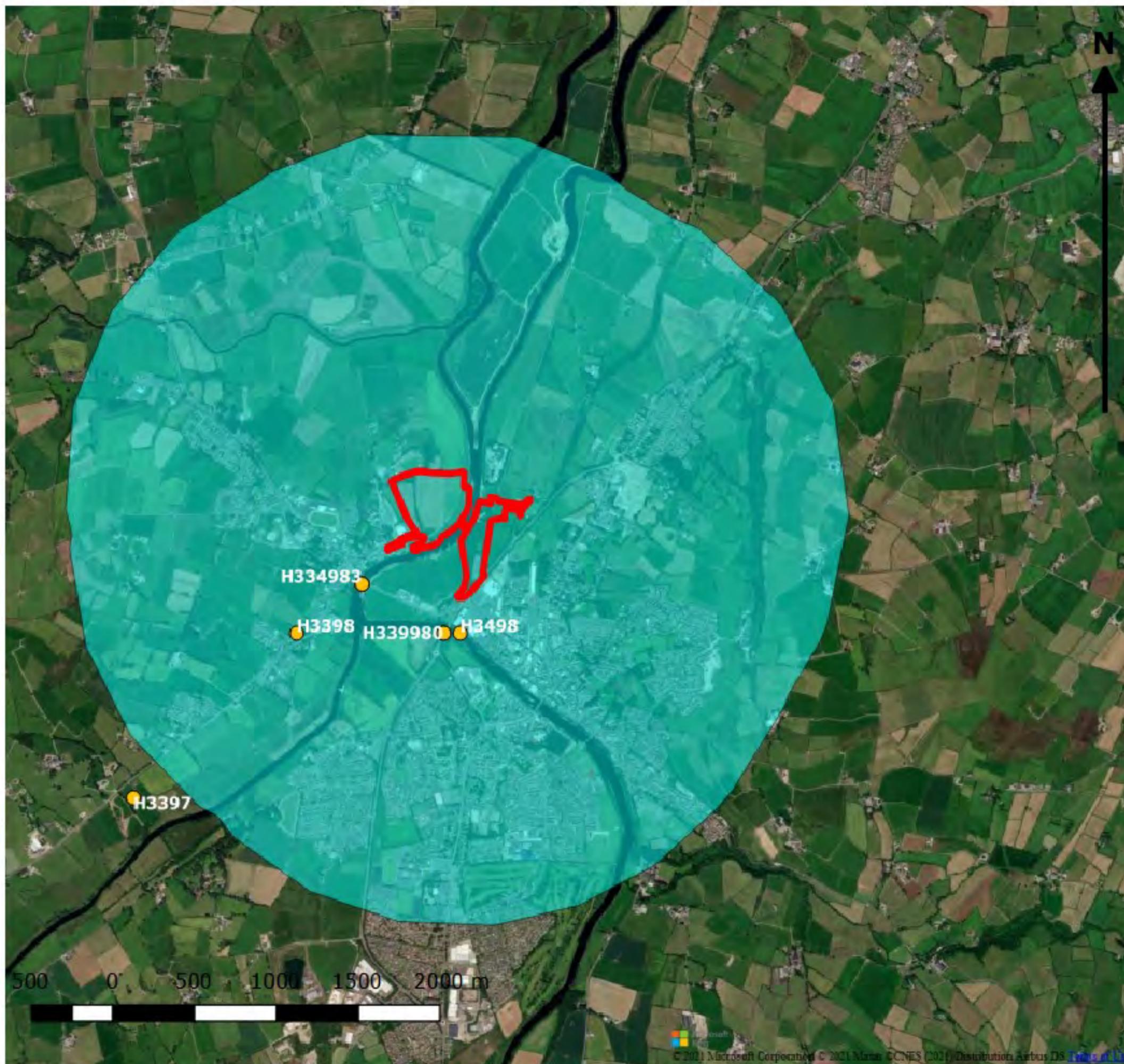
**Figure 8. River Foyle looking north including the Strabane and Lifford bank**

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**APPENDICIES**

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Appendix I: CEDaR otter records with 2km buffer



## Legend

- CEDaR Otter records
- Red Lined Boundary
- Buffer

Appendix I: CEDaR Otter Records  
with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 1:33000 @ A3

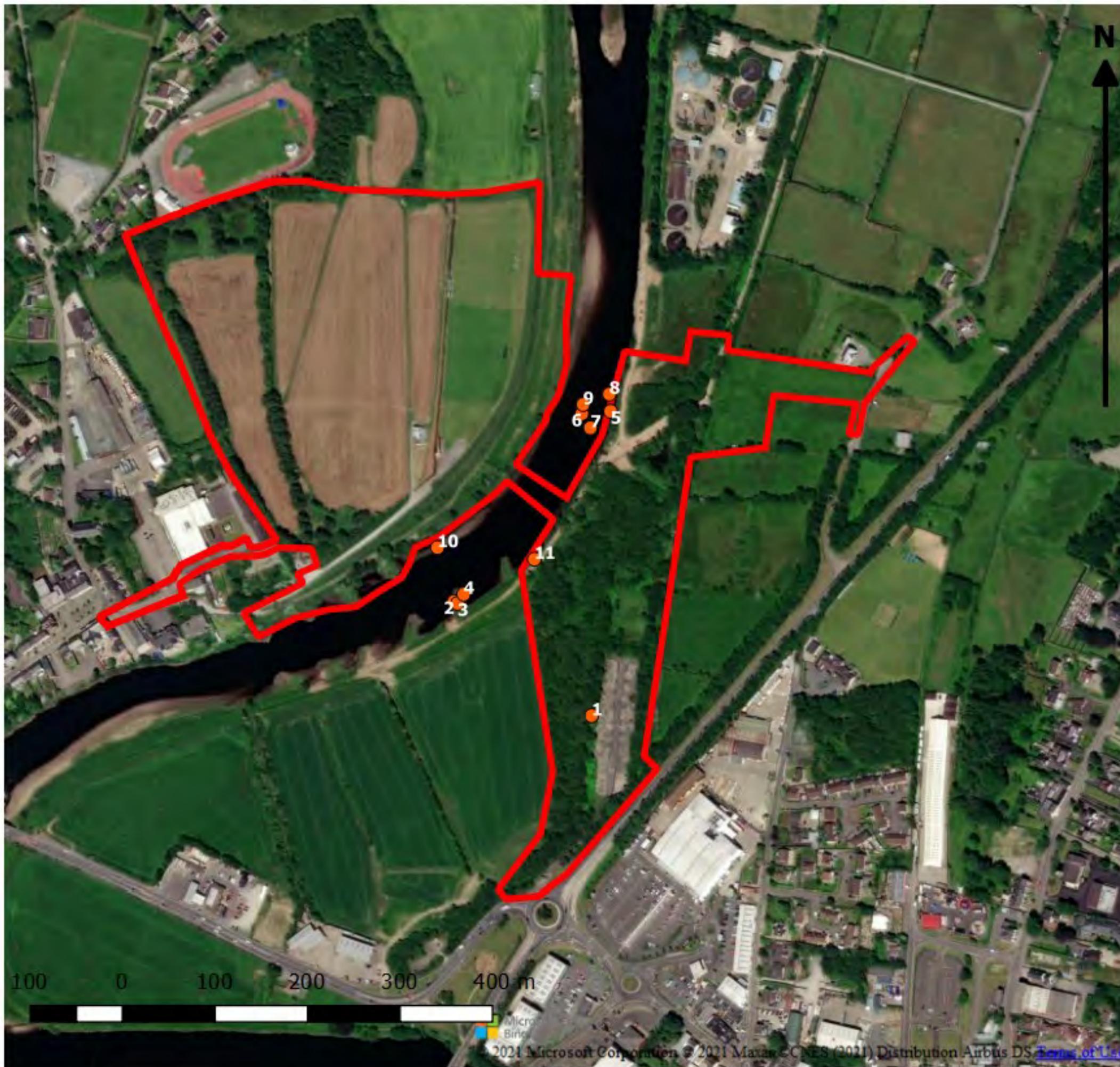
Date: 23/07/2021



Unit 5, Forty Eight North, Duncrue  
Street  
Belfast  
BT3 9BJ  
Tel: 02890747766

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## Appendix II: Target note locations



### Legend

- Otter Target Notes
- Red Lined Boundary

Appendix II: Target Note Locations  
 Created by: Ryan Boyle  
 Reviewed by: Conor Finlay

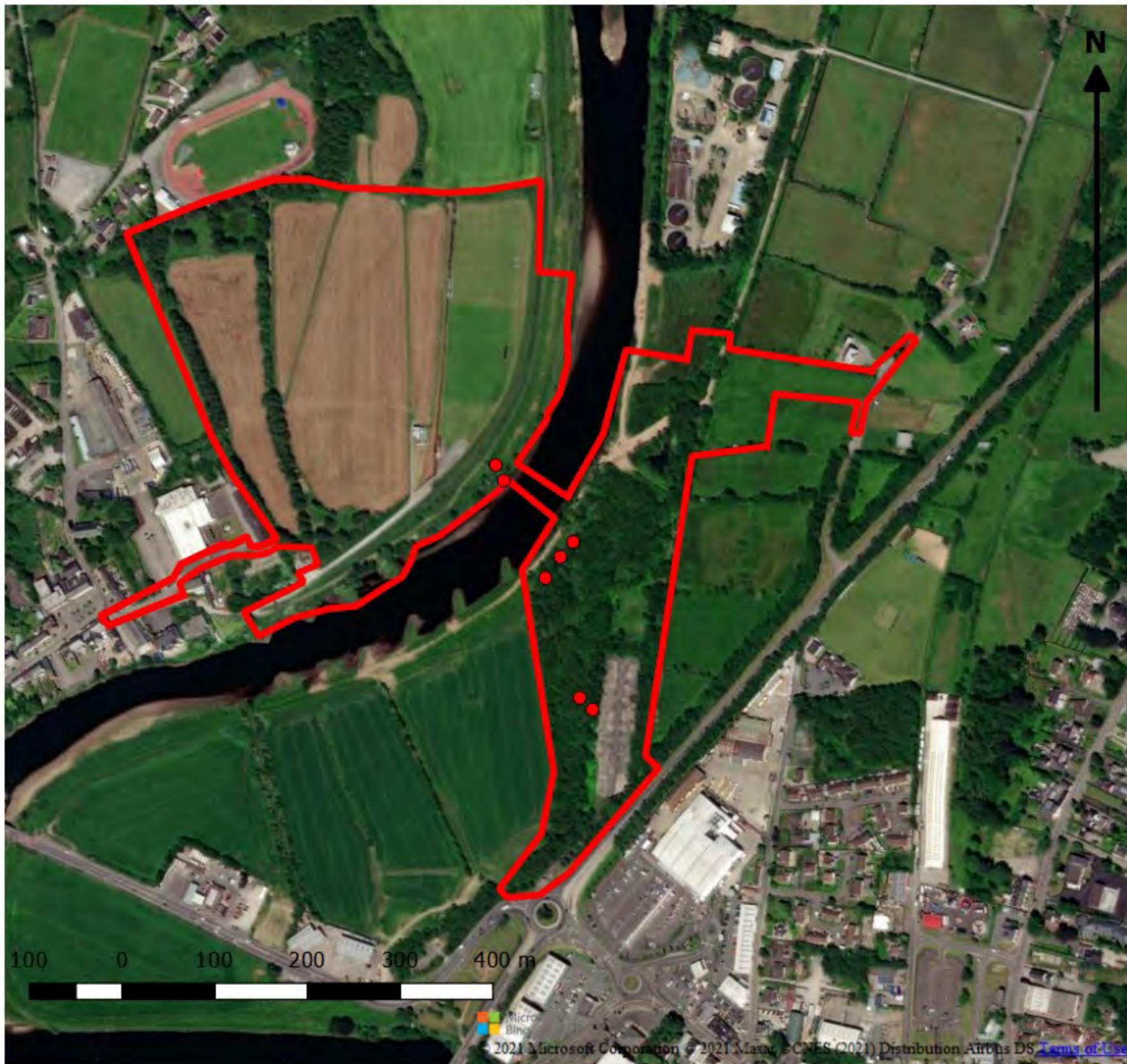
Client: McAdam Design  
 Scale: 1:5840 @ A3  
 Date: 23/07/2021



Unit 5, Forty Eight North, Duncrue  
 Street  
 Belfast  
 BT3 9BJ  
 Tel: 02890747766

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## Appendix III: Trail Camera Locations



## Legend

- Camera Trap Locations
- Red Lined Boundary

Appendix III: Trail Camera Locations

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 1:5813 @ A3

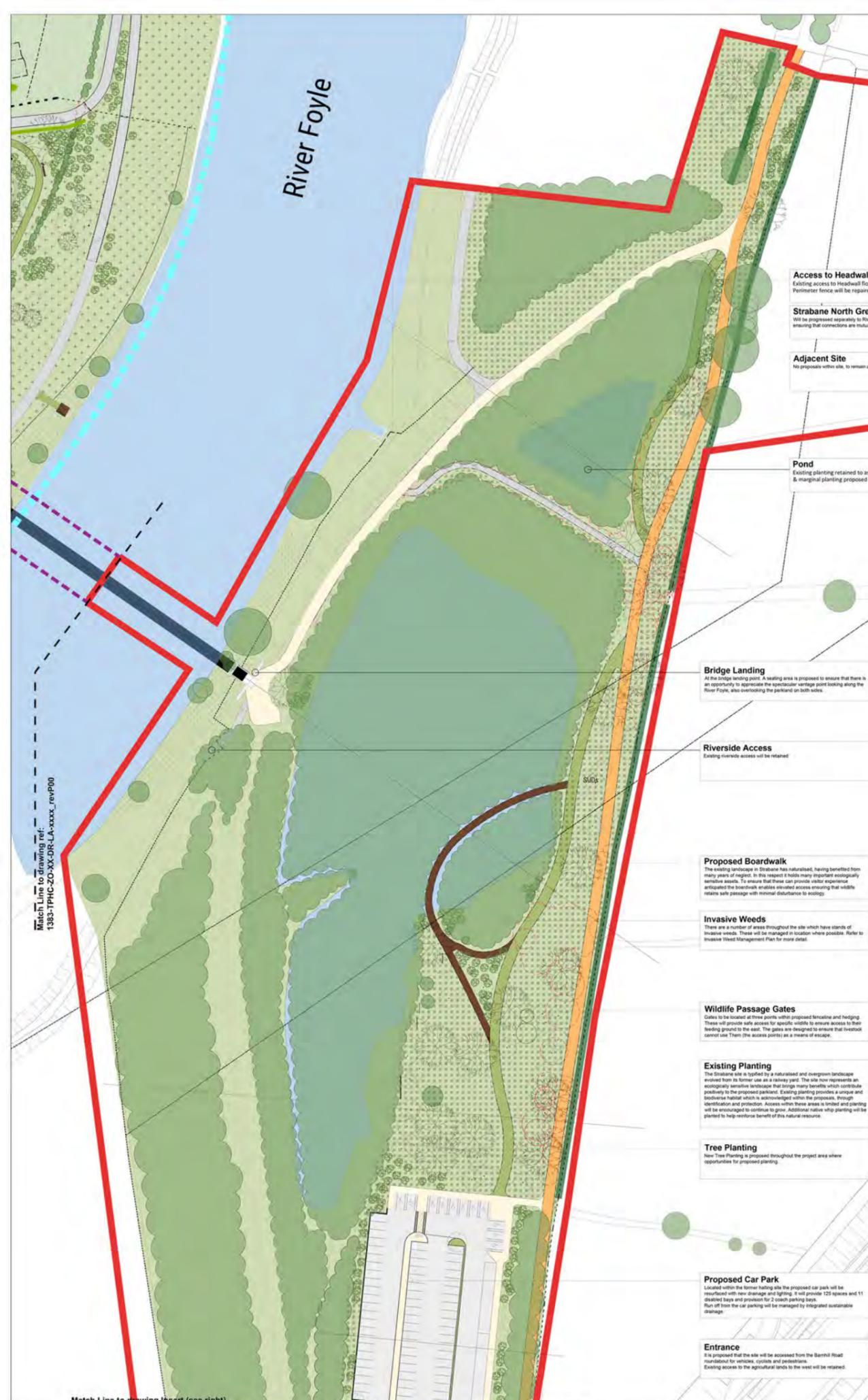
Date: 23/07/2021



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## Appendix IV: Proposed Strabane Site Layout



### LEGEND

#### SOFTWARES

- Existing Trees & Planting To be retained and protected during works in accordance with BS5837
- Existing Trees & Planting To be removed. Crown identified in the absence of individual trees
- Proposed Native Trees Refer to planting schedule
- Proposed Native Wetland Trees Refer to planting schedule
- Proposed Specimen Trees Refer to planting schedule and details
- Proposed Hedgerow planting Refer to planting schedule and details
- Proposed Amenity Grassland Refer to planting schedule
- Proposed Wildflower (WF1) Refer to planting schedule
- Proposed Woodland Wildflower (WF2) Refer to planting schedule
- Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed SUGS Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed Native shrubs Refer to planting schedule
- Proposed Ornamental shrubs Refer to planting schedule

#### SURFACES

- Proposed Asphalt To asphalt and Cobble For detail refer to engineers drawing
- Proposed Asphalt For detail refer to engineers drawing
- Strabane North Greenway Prepared separately to this project
- Proposed High Friction Surface To be prepared / repaired in situ For detail refer to engineers drawing
- \*Natural Stone Paving Refer to detail
- Proposed Boardwalk Refer to detail
- Reinforced Grass Refer to detail
- Proposed Gravel Path Refer to detail
- \*Proposed Slipway Surface Refer to detail also engineers drawing for detail
- \*Wetpour Safety Surfacing Refer to detail
- \*Reinforced Grass Safety Surfacing Refer to detail
- \*Wet Back Safety Surface specifically for play areas
- Stone Clusters Refer to detail

#### FEATURES

- Existing Walls To be retained
- Existing Fencing To be retained / repaired in situ
- 2.4m Security Fencing Refer to detail
- Metal Estate Fencing Refer to detail
- Stock Proof Fencing Refer to detail
- Existing Fencing to be removed
- Steps and Terracing Refer to detail
- Proposed Benches Refer to detail
- Bicycle stand locations Typical Sheffield stand
- Proposed Litter Bins 120L bins with single 300L recycled bin adjacent to Community Facilities
- Proposed Metal Gates Refer to detail
- Vehicle Upstand Kerb 125mm upstand. Pre Cast Concrete
- Vehicle Flush Kerb Pre Cast Concrete
- Pie Kerb Pre Cast Concrete

#### MISCELLANEOUS

- Site Boundary - Application under Roads Act, Section 51(2)
- Adjoining Riverside Community Park Boundary (RCP)
- Riverine Community Park Boundary (R)
- Proposed Bridge
- Water

### NOTES

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted
- All Hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance to Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed.
- Bridge Refer to engineers proposals
- Invasive Weeds There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Topographic Survey Information Planting There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Planting Loss: The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the

This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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REV	DATE	DESCRIPTION	BY
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.08.2021	Issued for Planning	HB

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**Peace**  
Northern Ireland - Ireland

**Comhairle Contae**  
Dhúna na nGall  
Donegal County Council

**STAGE 3 - PLANNING**

**RIVERINE COMMUNITY PARK**

**STRABANE RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn	HB	Checked	DM	Approved	DM
Date	12.02.2021	Date	12.02.2021	Date	18.08.2021

Project: RVCPC - TPHC - Z0 - XX - DR - LA - 2051  
Revision: P02

Project Number: 1383  
Status code & description: ST2 Issued for Information

All measurements are in metres. Figureed dimensions to be taken in accordance to British Standards. Dimensions are to be provided on site. © 2021 Paul Hogarth Design Ltd

Drawing Insert  
Scale 1:500 @ A0

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Appendix V: Proposed Lifford Site Layout



**LEGEND**

**SOFTWORKS**

- Existing Trees & Planting
- Proposed Native Trees
- Proposed Native Wetland Trees
- Proposed Specimen Trees
- Proposed Hedgerow planting
- Proposed Amenity Grassland
- Proposed Wildflower (WF1)
- Proposed Woodland Wildflower (WF2)
- Proposed Riverside Edge Mix
- Proposed SUDS Mix
- Proposed Native shrubs
- Proposed Ornamental shrubs
- \*Proposed Grass Mounding

**SURFACES**

- Proposed Asphalt
- Proposed Asphalt
- Proposed High Friction Surface
- \*Historic Stone Paving
- Proposed Boardwalk
- Reinforced Grass
- Proposed Gravel Path
- \*Proposed Slowslow Surface
- \*Wetproof Safety Surfacing
- \*Reinforced Grass Safety Surfacing
- \*Play Bark Safety Surface
- Stone Clusters

**FEATURES**

- Existing Walls
- Existing Fencing
- 2.4m Security Fencing
- Metal Estate Fencing
- Stock Proof Fencing
- Existing Fencing to be removed
- Steps and Terracing
- Proposed Benches
- Bicycle stand locations
- Proposed Litter Bins
- Proposed Metal Gates
- Vehicle Upstand Kerb
- Vehicle Flush Kerb
- Pin Kerb

**MISCELLANEOUS**

- Riverine Community Park Boundary (R)
- Riverine Community Park Boundary (R2)
- Site Boundary - Application under Roads Act, Section 51(2)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.
- All coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying of planting pattern.
- Layout should be read in conjunction with all other drawing information and reports.
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length.
- For proposed drainage refer to engineers layout.
- For lighting, electrical requirements refer to MSE drawings.
- Walking Routes & Connections**  
All main routes within the park boundary will be accessible to the broadest range of abilities, in accordance to Countryside Access code.
- Riverside Access**  
Riverside access to be retained.
- Planting**  
The general planting strategy is to use a primarily native planting palette introducing some specimen trees within the river car park to add formality. Where possible existing areas of native planting will be increased and supplemented to create diversity and improve ecological benefits. This planting will be suggested from the naturalised fauna surveyed.
- Suds**  
Attenuation basin locations and extents shown indicatively. Basins will be planted with a mix of native wet woodland (indicated with trees) and marginal type planting (indicated with hatches) to highlight their location and integrate them as an attractive feature within the overall site context.
- Bridge**  
Refer to engineers proposals.
- Invasive Weeds**  
Refer to invasive weed management plan.
- Topographic Survey Information**  
There are substantial areas of the Project boundary that remain unurveyed (due to poor access). In this respect assumptions have had to be made with regard detail of.
- Planting Loss**  
The extents of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding**  
Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref. 2022.
- Play Areas**  
The Play areas have been located next to the existing embankment making the most of connecting paths and using graded terracing to maximize accessibility through the play spaces. Play equipment within both the Junior / Senior play areas will also be considered to ensure broadest age range and ability is catered for. Also refer to the section drawing which illustrates section through the accessible High Tower in the Senior Play Area.
- Legend**  
All items with \* are only relevant to Lifford.

The revision cloud highlighted areas of the park which were inaccessible for the

This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

Based upon Land and Property Services data with the permission of the controller of Her Majesty's Stationary Office, © Crown copyright and database rights (CS&LA 581)  
Ordnance Survey terrain mapping data used with permission, in association with Donegal County Council - OS Licence 2003/07CS&LA/Donaghal County Council, Copyright Ordnance Survey Ireland, Government of Ireland.

P01 13.08.2021 Issued for Planning HB  
19.02.2021 Issued for Planning HB  
Rev: Issue Date Description Author

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Northern Ireland - Ireland  
European Regional Development Fund

Client

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Donegal County Council  
Donegal City & District  
Donegal District Council

Project

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**LIFFORD RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale

**1:500 @ A0**

Drawn

HB

Checked

DM

Approved

DM

Date

12.02.2021

Date

12.02.2021

Date

12.02.2021

Project

1383 - Organisation - Zone - Level - Type - Rate - Number

1383 - TPHC - Z0 - XX - DR - LA - 2052

Revision

P01

Project Number

1383

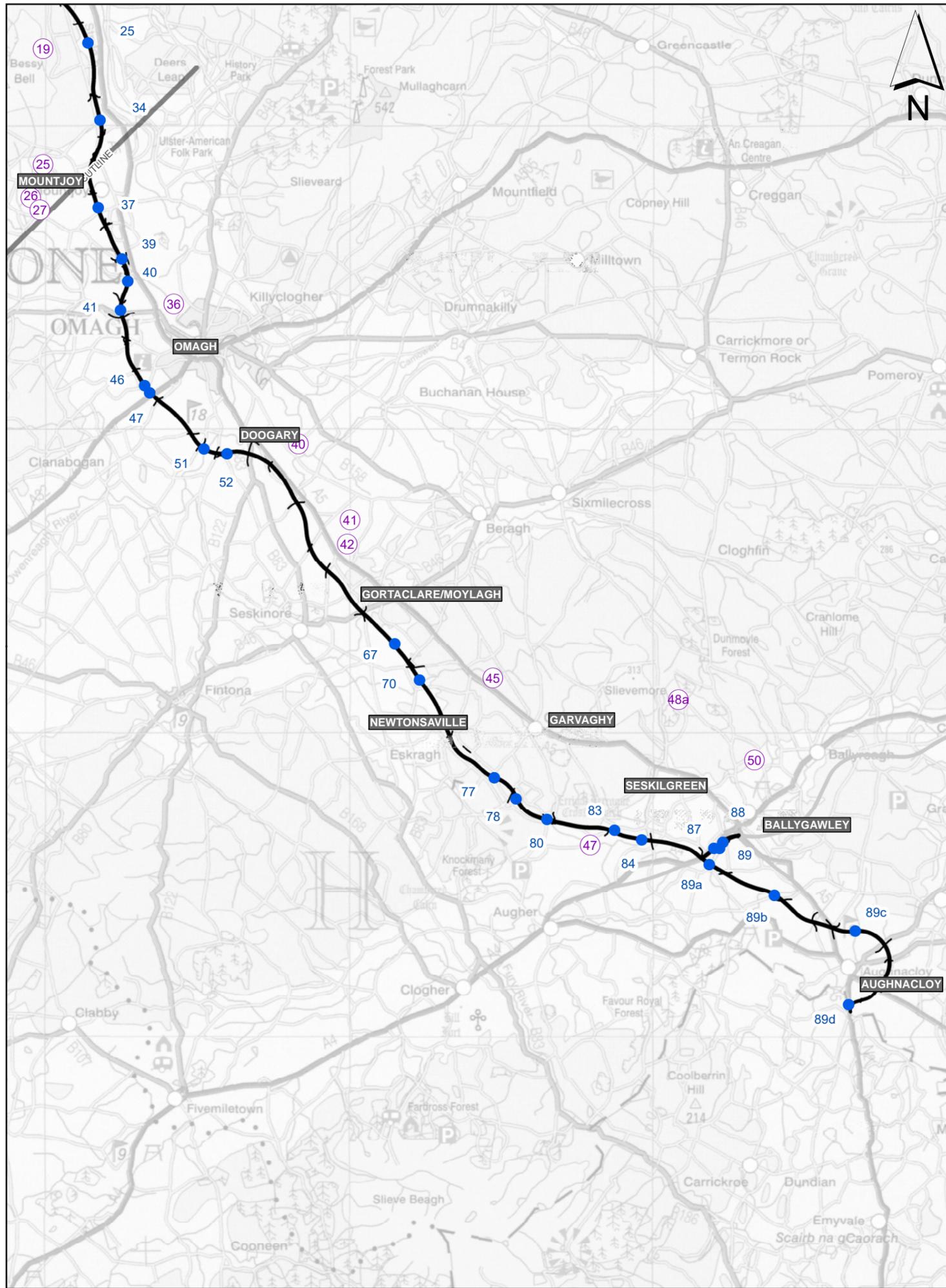
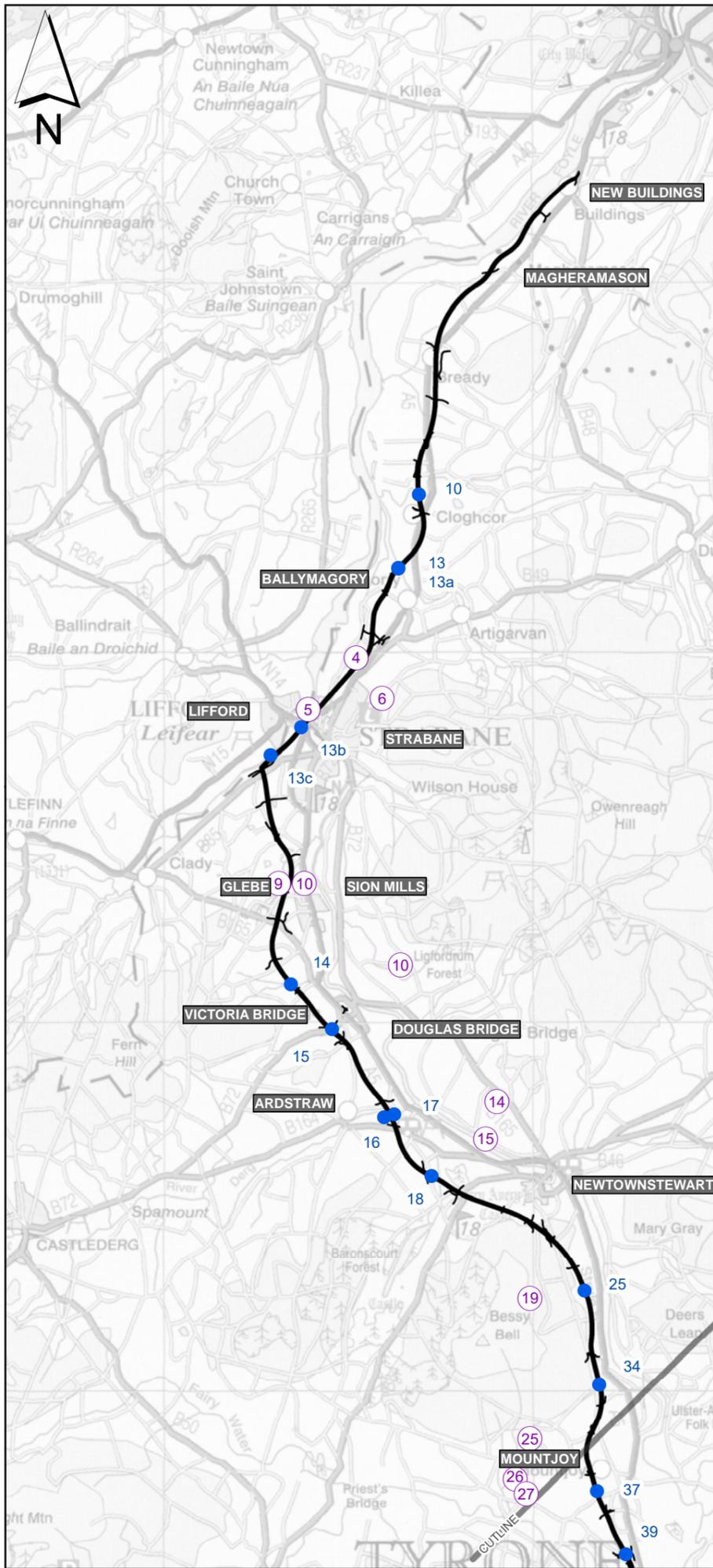
Sheet title & Description

ST2 Issued for Information

All dimensions are in metres. \*Quantities are to be shown in accordance to the relevant measurement system to be specified on site. © 2021 The Paul Hogarth Company

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Appendix VI: A5 2016 Otter Map



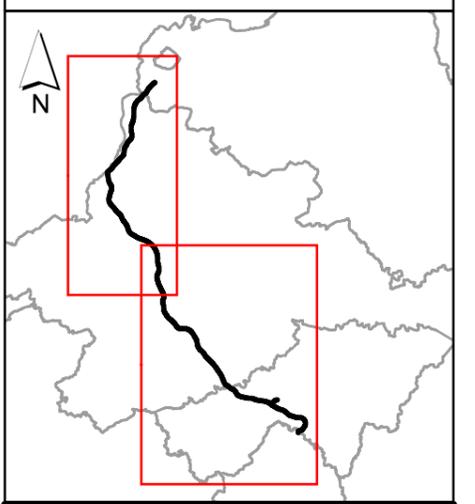
Legend

-  PROPOSED SCHEME
-  OTTER PRESENCE
-  POTENTIAL OTTER BREEDING SITES

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3  
**1:150,000**

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Client  
**transportni**

Project  
**A5 WTC**

**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**

**OTTER SURVEY MAP**

Figure No  
**Figure 11.36**

Version  
A

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## Appendix 8-7

### Bat Roost Potential Survey



**APPENDIX 8-7**

**Bat Roost Potential Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide an updated bat roost potential survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.



Figure 1: Site location

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

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On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 2. Site red line boundary**

## **1.2 Proposed Development**

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

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The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piers having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
- Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
- River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
- Family Space incorporating unique play experience, designed to support children focused events & related programming.
- Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

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### 1.3 Rationale of Bat Roost Potential Survey

The aim of this survey is to:

- Undertake an external & internal bat roost inspection of the required structures within the site, and;
- Identify the need for further bat survey work.

### 1.4 Legislation

#### Lifford (ROI) Legislation

All bats and their roosting sites are legally protected under the EU Habitats Directive as transposed by the Habitats Regulations. With the exception of Lesser Horseshoe bat (*Rhinolophus hipposideros*), which is an Annex II species, the remainder are classified as Annex IV species. They are also protected under the Wildlife Act (as amended). Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. Article 12 and 13 of the Habitats Directive relates to the establishment of a system of strict protection for certain animal and plant species, while Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulation 51, 52 and 54 of the Birds and Habitats Regulations of 2011, respectively. All bats are strictly protected in Ireland and a person who deliberately captures, kills or disturbs a specimen in the wild, or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

As an Annex IV species may be found throughout the country, the protection of these species is not restricted in geographical terms and is not necessarily associated with areas subject to a specific nature designation. Under this it is illegal to:

- deliberately to capture, injure or kill a wild animal of a European protected species;
- deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - Impair its ability to survive, breed or reproduce, or rear or care for its young;or

- 
- Impair its ability to hibernate or migrate;
  - deliberately to obstruct access to a breeding site or resting place of such an animal;  
or
  - damage or destroy a breeding site or resting place of such an animal.

#### Strabane (NI) Legislation

All species of bats (*Vespertilionidae*) are strictly protected under The Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended) (known as the Habitats Regulations). They are known as a European protected species. Under the Habitats Regulations it is an offence:

- deliberately to capture, injure or kill a wild animal of a European protected species;
- deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- deliberately to disturb such an animal in such a way as to be likely to;
  - affect the local distribution or abundance of the species to which it belongs;
  - Impair its ability to survive, breed or reproduce, or rear or care for its young;or
  - Impair its ability to hibernate or migrate;
- deliberately to obstruct access to a breeding site or resting place of such an animal;  
or
- damage or destroy a breeding site or resting place of such an animal.

## 2.0 METHODOLOGY

### 2.1 Author/ Surveyors

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams

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University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

**Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, as well as a seasonal volunteer for the Bat Conservation Trust and regularly takes part in newt, lizard and bat surveys.

**Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master’s degree (MSc) in Ecological Management and Conservation Biology from Queens University, Belfast, a bachelor’s degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird’s surveys,

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badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABIP).

## 2.2 Desk Study

A desktop study was undertaken for the site by obtaining roost records from the Northern Ireland Bat Group (NIBG) within a 2km radius of the site. Aerial maps were also studied to identify potential foraging and commuting habitat surrounding the site, as well as roost suitability.

## 2.3 Field Study

### 2.3.1 Preliminary Bat Roost Assessment

A site wide assessment for bat roost potential was undertaken. This survey was undertaken using best practice guidance produced by the Bat Conservation Trust (Collins 2016) and specified by the NIEA. The Bat Roost Potential Survey (BRP) is to identify potential bat roosts which are likely to be affected by site development and determine whether specialist bat surveys are required for works to proceed.

### 2.3.2 Weather Conditions

Table 1 below summarises the dates of surveys, timings and weather conditions experienced at the time of survey (temperature °C, Beaufort scale, cloud-cover Oktas and precipitation).

**Table 1: Summary of weather conditions and survey periods**

Surveyor	Date	Survey Start	Survey Finish	°C	W/s	Oktas	Ppt
Ryan Boyle BSc, MSc Emily Taylor BSc, MSc Conor Finlay BSc, MSc	15/07/21	15:40	17:00	17	4	6/8	10%

### 2.3.3 Survey Constraints

As bats are small opportunistic mammals, they can hide themselves in the smallest of gaps and crevices, as well as using different roost features throughout the active season. While every effort has been undertaken to observe bat roosts or bat activity, it should be kept in

mind that temporal changes may occur such as roost suitability, i.e. the condition of the building structures may become such that it is no longer suitable for bat roosts.

Areas of the site had become massively overgrown and, in some areas, impassable due to excessive vegetative growth along with unsafe terrain due to the wet woodland area becoming dried out resulting in areas with deep soft mud creating potential areas where surveyors may become stuck and unable to get out. However, despite this the vast majority of the site was accessible and a thorough investigation was carried out to determine the bat roost potential across the site.

## 3.0 RESULTS

### 3.1 Desk study

A total of 17 records were returned from the Northern Ireland Bat Group for the site of the riverine scheme project within a 2km buffer.

**Table 2: NIBG record results**

Common name	Species	Date	Abundance	Grid
55 Khz Pipistrelle	Pipistrellus pipistrellus 55kHz	01/10/2010	/	H3297
Leisler's Bat	Nyctalus leisleri	01/10/2010	/	H3297
Nathusius' Pipistrelle	Pipistrellus nathusii	01/10/2010	/	H3297
Pipistrelle	Pipistrellus pipistrellus	01/10/2010	/	H3297
Pipistrelle	Pipistrellus species	08/10/2007	/	H353975
Pipistrelle Bat species	Pipistrellus sp.	17/07/2018	/	H347970
Bats	Chiroptera	19/05/1998	/	H348987
unidentified	bat sp.	19/05/1998	1	H348987
Common pipistrelle	Pipistrellus pipistrellus	19th June 2012	36 Counted	H348986
Bats	Chiroptera	21/08/1994	Present Count of Roost	H340967
Pipistrelle	Pipistrellus pipistrellus	23/08/2012	/	H350981
Bats	Chiroptera	23/09/1996	/	H348987
Common pipistrelle	Pipistrellus pipistrellus	23rd August 2012	/	H350981
Unidentified Bat	Myotis	24/08/2015	/	H347988
unidentified	bat sp.	26/06/1997	/	H348985

Common name	Species	Date	Abundance	Grid
unidentified	bat sp.	26/06/1997	several hundreds	H353975
Daubenton's	Myotis daubentoni	30/06/2014	/	H347977

None of the historical records provided occurred within the proposed site boundary. The closest record was H347988 which is approximately 340m east of the site's northern area boundary, this record is also from 2010. The most recent record provided is H347970 from 2018 which is approximately 1,438m south east from the site. No records were returned for the Lifford side of the site from the NIBG

#### Centre for Environmental Data and Recording (CEDaR)

**Table 3: CEDaR record results**

Grid	Scientific name	Common name	Date	Event Location
H347970	Pipistrellus sp.	Pipistrelle Bat species	17/07/2018	Strabane (Unlocalised)

A total of 1 record was returned from CEDaR for the site of the proposed Riverine Scheme. This record did not occur within the proposed site boundary but was located approximately 1.4km southeast of the proposed development site from 2018.

#### National Parks & Wildlife Service (NPWS)

No records were returned for bat species for the proposed site of the Riverine Scheme.

#### National Biodiversity Network Atlas (NBN) 2020

No records were returned for bat species for the proposed site of the Riverine Scheme.

#### A5 Approval of Planning Permission 2016

Previous studies carried out as part of the planning process for the proposed A5 development project included an in-depth investigation into the potential for roosting bats as well as bat presence and activity along the projects proposed site route. Part of this route runs within close proximity to the proposed Riverine Scheme site layout and included an investigation for bats within the area. The previous studies identified 7 species of bat along the proposed projects route with 4 of these occurring within 2km of the proposed Riverine Scheme site location, common pipistrelle, leislers, myotis and

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soprano pipistrelle. Each of these species were identified as occupying local tetrads around the proposed Riverine site location but no roosts were located.

## **3.2 Surrounding Habitat**

### **3.2.1 Lifford**

The Lifford side of the site within the ROI is predominantly made up of open fields currently used as a hare coursing ground. The western area of the Lifford side is used for the housing and rearing of hares with the northwestern corner currently closed off as it is currently being used for the rearing of pheasant. The western boundary consists of a treeline of Lawsons Cedar (*Chamaecyparis lawsoniana*) with a second line of the same Lawsons Cedar (*Chamaecyparis lawsoniana*) approximately 62m east separating the western boundary/area from the main body of the site. These tree lines join a small area of coniferous woodland on the site's northern boundary separating the site from the Lifford greyhound track. Further to the west lies Lifford where the surrounding area becomes more residential and further agricultural lands and fields further north and south of the site. The site lies on the western bank of the River Foyle with a local GAA playing field separating the hare coursing ground from the riverbanks. There is a flood embankment established to run along the riverbanks extending past the site limits.

### **3.2.2 Strabane**

The Strabane side of the site within NI consists primarily of a densely overgrown area. The main body of the area consists of an overgrown wet woodland consisting of willow sp. And extensive invasive species growth from Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), and Giant hogweed (*Heracleum mantegazzianum*). A flood embankment separates the main body of the site from the eastern bank of the River Foyle with an old historical railway embankment running through the site separating the wet woodland area from the site's western boundary on the Strabane side. The site is separated from the urban town of Strabane by an area of semi-rural agricultural lands and dwellings exhibiting linear features such as hedgerows and treelines. The wider area to the north and south consists of more semi-rural agricultural lands and dwellings while further east the environment becomes much more urbanised as it borders the town of Strabane.

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### 3.3 Bat Roost Potential Survey Results

A Bat Roost Potential Survey was undertaken on the 15<sup>th</sup> July to ascertain potential bat roost features throughout the site, in and around buildings and trees proposed for felling or demolition. The bat roost potential survey was carried out following best practice guidance produced by the Bat Conservation Trust (Collins 2016) and specified by the NIEA. The Bat Roost Potential Survey (BRP) is used to identify potential bat roosts which are likely to be affected by site development and determine whether specialist bat surveys are required for works to proceed.

The surfaces of structures and trees on site were visually inspected using binoculars and observing any signs of bats and potential entry/exit points. Features, such as small gaps/crevices beneath eaves, along the ridges or within the brickwork; lifted or missing roofing materials; or gaps around doorways and broken windows which have potential as bat access points into the building were noted and inspected using a VITCOCO Digital industrial Endoscope.

Evidence that these potential access points were used by bats would include staining within gaps and/or bat droppings or urine staining under gaps and/or on external walls and windows. These signs were recorded wherever they were present. The presence of cobwebs and general detritus within the features were also recorded as these indicate that potential access points were likely to be inactive.

The interior of the structures was inspected using handheld torches, binoculars and a VITCOCO Digital industrial Endoscope. All cavities, cracks and gaps in the structure were inspected for presence of bats. The surfaces of structures, walls and floors were all inspected for the presence of droppings, staining and insect remains.

**Table 4: Old hare coursing stands on the Lifford side**

Features of the Building/Structure	Description	Bat Roost Potential
Structure/Building type	Open fronted sports stands with chairs	Negligible
Age of Structure/Building	Mid-20th Century	Moderate
Aspect of Building	West	Moderate
Wall construction, the type of brick or stone used to build the wall and whether it has cavity or rubble-filled walls.	Brick/stone with rendering. Structure only has three walls with the two side walls being only half the height of the back wall. The structure is open and exposed at the front to allow clear viewing on coursing days	Negligible
Holes in walls, pipes, gaps behind window frames, lintels and doorways, cracks and crevices in stonework and brickwork.	Not present, walls are in good condition	Negligible
Roof type - presence of gable ends, hipped roofs, etc. and the nature and condition of the roof covering.	Corrugated steel roof suspended over the structure on metal pillars and frame work. Corrugated steel is in poor condition showing signs of rust and gaps to the rear of the roof	Negligible
Condition of eaves - sealed by a soffit or boxed eave and the tightness of the fit to the exterior walls.	Not present	Negligible
Entry and exit points around the eaves, soffits, fascia and barge boarding and under tiles.	None as none of these features are present	Negligible
Covering of ivy on walls.	Not present	Negligible
Bat droppings on the ground, ledges,	None present	Negligible

Features of the Building/Structure	Description	Bat Roost Potential
windows, sills or walls or urine on window sills.		
Presence of hanging tiles, weatherboarding or other forms of cladding.	Not present	Negligible
Information or evidence of work having been undertaken that could affect use of the structure by bats.	Not present	Negligible
<b>Conclusion of Assessment</b>	<b>Negligible</b>	

This structure is an old sports viewing stand with concrete steps. Overall condition of the structure is good with no visible gaps or cracks present in the rendered walls. The structure exhibits a slanted corrugated steel roof which is suspended over the structure by several metal pillars and a metal framework, there are several gaps and holes present in the roof with signs of rust starting to show. The structure is very open and exposed exhibiting only 3 walls with an open face entrance.

Throughout the survey, no bats were identified nor was any evidence of external bat activity found. In addition, a search of the building's exterior provided no evidence of bat activity in the form of staining, urine, droppings or insect remains. No droppings or insect remains were noted on any of the window ledges or any surface of the structure.

Due to the open and exposed nature of the structure along with no physical evidence of roosting bats it has been determined that the sports viewing structure supports **negligible** roosting potential for bat species in the area with no visible potential roosting features.



**Figure 3. Old hare coursing viewing stand on the Lifford side of the site**

**Table 5: Shed/outhouse on the Lifford side**

<b>Features of the Building/Structure</b>	<b>Description</b>	<b>Bat Roost Potential</b>
Structure/Building type	Small single storage shed	Negligible
Age of Structure/Building	Mid-20 <sup>th</sup> Century	Moderate
Aspect of Building	south	High
Wall construction, the type of brick or stone used to build the wall and whether it has cavity or rubble-filled walls.	Brick/stone with rendering. With some cracks and exposed areas	Moderate
Holes in walls, pipes, gaps behind window frames, lintels and doorways, cracks and crevices in stonework and brickwork.	Several cracks and gaps located in the structures rendering and around the structures window frames	Moderate
Roof type - presence of gable ends, hipped roofs, etc. and the nature and condition of the roof covering.	Flat roof with felt covering in good	Negligible

Features of the Building/Structure	Description	Bat Roost Potential
	condition and well-sealed to the structures roof	
Condition of eaves - sealed by a soffit or boxed eave and the tightness of the fit to the exterior walls.	Not present on the structure	Negligible
Entry and exit points around the eaves, soffits, fascia and barge boarding and under tiles.	2 gaps identified on the structures southwest and northwest corners where gaps in the fascia board were noted	Low
Covering of ivy on walls.	Not present	Negligible
Bat droppings on the ground, ledges, windows, sills or walls or urine on window sills.	None present	Negligible
Presence of hanging tiles, weatherboarding or other forms of cladding.	Not present	Negligible
Information or evidence of work having been undertaken that could affect use of the structure by bats.	Not present	Negligible
<b>Conclusion of Assessment</b>	<b>Negligible</b>	

This structure is an old single storey shed structure located to the northern area of the Lifford side of the site. The structure looks in relatively good condition with rendered brick/stonework walls and a flat roof with felt covering. Some minor cracks and gaps were identified on the structure's exterior and in the fascia board. The structure is regularly used in order to gain access to other areas of the site.

Throughout the survey, no bats were identified nor was any evidence of external bat activity found. In addition, a search of the building's exterior provided no evidence of bat activity in the form of staining, urine, droppings or insect remains. No droppings or insect remains were noted on any of the window ledges or any surface of the structure.

Due to the few visible potential roosting features and no physical evidence of roosting bats, as well as the small size and regular use to access the rest of the site; it has been determined

---

that the shed/outhouse structure supports **negligible** roosting potential for bat species in the area.



Figure 4. Old Shed/outhouse on the Lifford side



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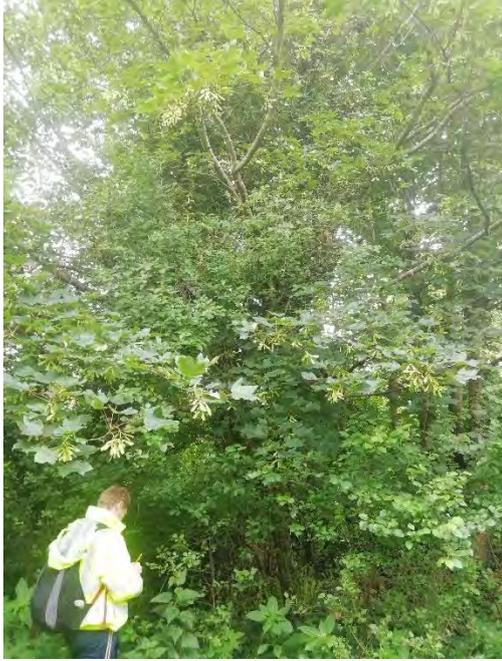
**Figure 5. Old Shed/outhouse with hole in fascia board on southwest corner of structure and gaps and cracks in render and around window frames**



**Figure 6. Old Shed/outhouse with missing part of fascia board on the northwest corner of structure**

**Table 6: Trees proposed for felling**

Target Note	Tree Species	Roosting Feature	Roosting Potential	Image
1	Mature Sycamore	No visible roosting features or visible evidence of bat activity, i.e: staining/droppings with an intact main stem and no visible broken branches in the crown. Ivy growth covering the lower area of the main stem	Low	
2	Immature Ash	Several broken branches were identified in the upper crown but consisted of the thinner limb ends with no visible entrance point. No	Low	

Target Note	Tree Species	Roosting Feature	Roosting Potential	Image
		<p>visible roosting features or visible evidence of bat activity, i.e: staining/droppings with ivy growth</p>		
3	Mature Sycamore	<p>Dense ivy growth, however, no visible roosting features identified or visible evidence of bat activity, i.e: staining/droppings</p>	Low	

Target Note	Tree Species	Roosting Feature	Roosting Potential	Image
4	Immature Ash	No identifiable roosting features or visible evidence of bat activity, i.e: staining/droppings, ivy growth present	Low	
5	immature Sycamore	No identifiable roosting features or visible evidence of bat activity, i.e: staining/droppings	Negligible	

Target Note	Tree Species	Roosting Feature	Roosting Potential	Image
6	3x Semi-mature sycamore	Ivy growth on main stem No visible or identifiable roosting features or visible evidence of bat activity, i.e: staining/droppings.	Low	
7	Treeline of Lawsons Cedar	No visible or identifiable roosting features or visible evidence of bat activity, i.e: staining/droppings. Cedar species are often less favoured by bats for roosting.	Low	

An extensive investigation was carried out across the site to complete the bat roost potential for the proposed Riverine Scheme site. The Lifford side does not exhibit many potential roosting features as the area is dominated by open grassland as part of the hare coursing site. The treelines of Lawsons cedar and area of coniferous woodland do not exhibit any potential roosting features as no peeling bark, rot or knot holes were observed, coniferous

---

trees are also considered less suitable for roosting bats but can still be used, should suitable roosting features be present. The two structures on the Lifford side of the site were deemed to be of negligible roosting potential as they did not exhibit suitable roosting features with the hare coursing viewing stand being very open and exposed they do not present safe and suitable roosting sites for bats in the area.

The Strabane side of the site initially appeared to provide much more suitable roosting habitat for bats as it is dominated by a deciduous wet woodland with extensive areas of dense tree growth and larger more mature trees growing along the site's entrance pathway. However, after investigation it was determined that the area does not provide much suitable roosting habitat, while the wet woodland does exhibit dense vegetative growth with numerous trees of varying ages of maturity no potential roosting features were observed. The northern area of the Strabane side close to the river primarily contains goat willow (*Salix Caprea*), crack willow (*Salix fragilis*), immature oak (*Quercus robur*), and alder (*Alnus glutinosa*). The central wet woodland area of the site is also dominated by goat and crack willow all of which appear to be small due to restricted growth space and did not exhibit any potential roosting features that would be suitable for bats. The entrance path which runs along the site's eastern boundary was lined with immature and mature ash trees, (*Fraxinus* sp.), and hawthorn, (*Crataegus monogyna*), towards the entrance is an old, concreted carpark area surrounded by dense tree and vegetation growth.

The entrance lane to the site and along the eastern boundary had already experienced clearing, felling and lopping of trees and vegetation and is believed to have already been cleared of some larger more mature trees. TN1-6 were located along the entrance pathway to the site. These trees exhibited the most suitable features for bats, however, the majority of these were due to the presence of ivy growth on the trees, no other suitable roosting features were observed, and no evidence of bat presence or activity was found near any of the individual trees inspected.

Overall, it is considered that the proposed Riverine Scheme site has a high potential for foraging and commuting bats due to the abundance of linear features such as the tree lines and hedgerows both within the site boundary and beyond. As well as the extensive woodland growth within the Strabane side of the site. However, the proposed site is not considered to be of significant roosting potential for bats in the local area. The historical records provided

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by the NIBG and CEDaR also support the consideration that the site does not poses great potential for roosting bats as no records were provided within the site boundary.

### 3.4 Summary of results

There are two structures on the site proposed for demolition: no.1 the old hare coursing viewing stands and no.2 the old, shed outhouse, both of which are on the Lifford side of the site. Both structures have been established as **negligible** for roosting potential as there were no visible potential roosting features nor any physical signs of bat habitation. The first treeline of Lawsons cedar on the Lifford side, separating the western area from the rest of the site, is also proposed for felling and has been given a **low** roosting potential.

The seven trees, (4x semi-mature sycamore, 2x mature sycamore and 2x immature ash), have also been specified as **low** roosting potential score due to the lack of potential roosting features and no evidence of bat activity or presence, while one of the semi-mature sycamores is considered to be of **negligible** roosting potential for bats. Therefore, no further bat activity surveys are recommended for the investigation of roosting bats within the identified structures and trees in accordance with best practice guidance from Bat Conservation Trust as trees with a **low** roosting potential do not require emergence or re-entry surveys.

The surrounding environment of the site was assessed as providing high potential for foraging and commuting bats. Due to the proposed layout and site plans it is recommended that further bat activity surveys be carried out to assess potential population and bat activity across the site to assess how the proposed development may impact the local bat populations activity within the site.

---

## 4.0 ASSESSMENT AND RECOMMENDATIONS

All bats and their roosting sites are legally protected under the EU Habitats Directive as transposed by the Habitats Regulations. With the exception of Lesser Horseshoe bat (*Rhinolophus hipposideros*), which is an Annex II species, the remainder are classified as Annex IV species. They are also protected under the Wildlife Act (as amended) as well as being listed under the Wildlife Act (as amended) and under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982). Therefore, it is an offence to deliberately capture, injure or kill bats, disturb them in their roosts or damage or destroy any breeding sites.

The results from the desk study indicate that there are no bat records within the area, however, that does not mean that they are not present.

Following an inspection of the proposed Riverine Scheme site and its surrounding environment it is considered that the two structures on the Lifford side have **negligible** roosting potential while TN1, 2, 3, 4, 6 and 7 have a **low** roosting potential for bats; TN5 is considered to have **negligible** roosting potential for bats. However, the site is considered to have a high potential for foraging and commuting bats and as such is considered an important habitat for bats in the local area. Therefore, no further activity surveys are recommended for the proposed demolition of the Lifford structures or for the trees on both the Lifford and Strabane side. However, activity surveys are recommended for the site in order to determine bat activity levels throughout the site to determine the potential impacts the proposal may have on the local bat populations. This activity survey should be carried out during the 2021 season as is best practice guidance from Bat Conservation Trust specified by the NIEA.

Report prepared By:-

**Ryan Boyle**  
Consultant Ecologist

Reviewed By:-

**Conor Finlay**  
Graduate Ecologist

---

## 5.0 REFERENCES

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn). The Bat Conservation Trust, London.

NIEA Bat Survey Specifications Available at:

<https://www.daerani.gov.uk/sites/default/files/publications/daera/bat-survey-specifications.pdf>

National Parks & Wildlife Service Legislation at:

[Legislation | National Parks & Wildlife Service \(npws.ie\)](#)

Office of the Attorney General (1976) Wildlife Act, 1976. [On-line]:

[Wildlife Act, 1976 \(irishstatutebook.ie\)](#)

**FIGURES**



**Figure 7. Northeast corner of Strabane side of site with small area of wet woodland on the left and mixed woodland on the right**



**Figure 8. Northeast corner of Strabane side of site going North along Eastern Boundary**



**Figure 9. Strabane side eastern boundary treelines**



**Figure 10. Old concrete area at Strabane side entrance surrounded by trees**



**Figure 11. Path leading to banks of River Foyle on Strabane side**



**Figure 12. Entrance to wet woodland area on Strabane side**



**Figure 13. Open grassland area of the hare coursing ground on the Lifford side**



**Figure 14. Coniferous treeline on Lifford side's western area**



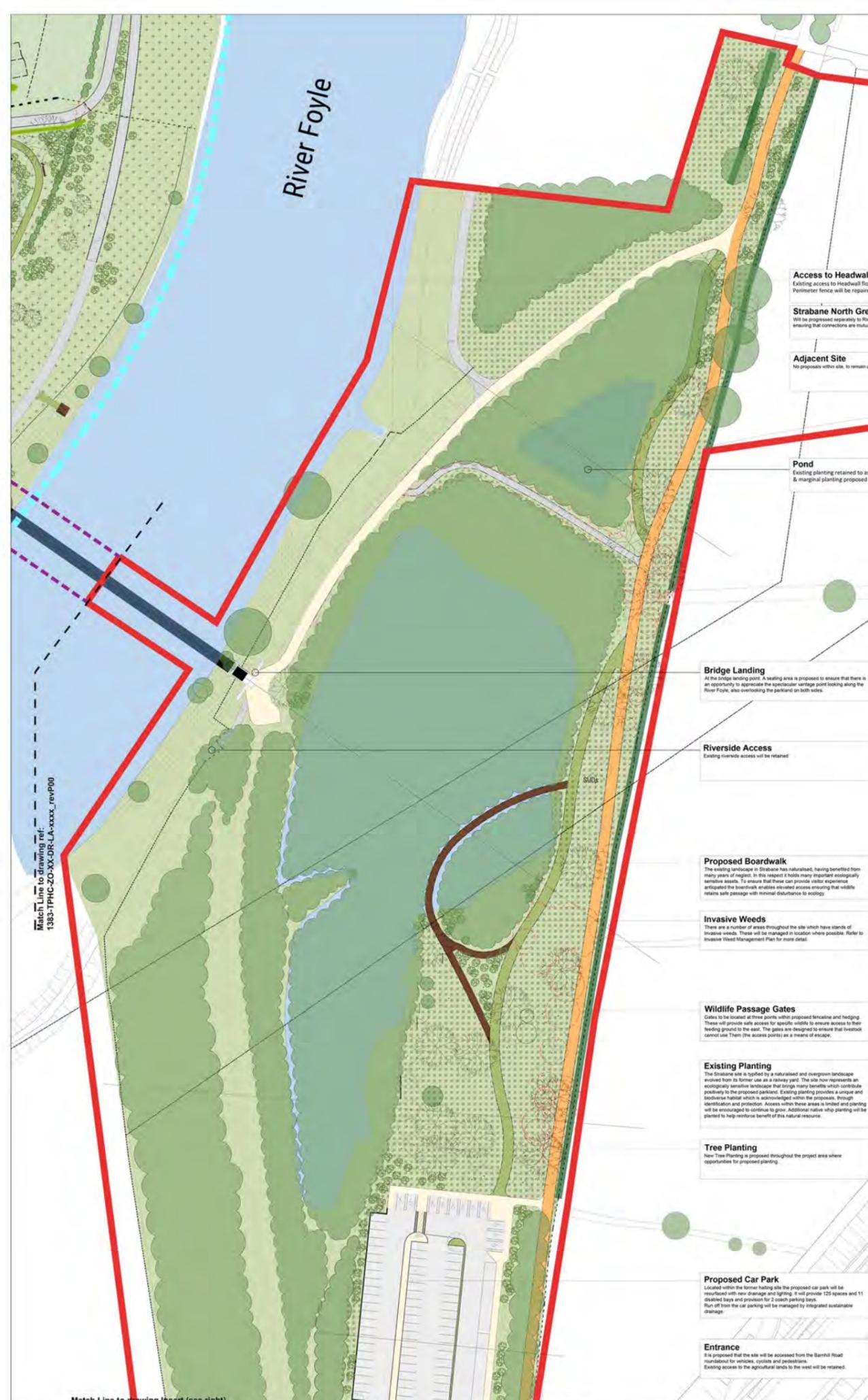
**Figure 15. Riverine habitat**

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**APPENDICIES**

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## Appendix I: Strabane Site layout



### LEGEND

#### SOFTWARES

- Existing Trees & Planting To be retained and protected during works in accordance with BS5822
- Existing Trees & Planting To be removed. Crown identified in the absence of individual trees
- Proposed Native Trees Refer to planting schedule
- Proposed Native Wetland Trees Refer to planting schedule
- Proposed Specimen Trees Refer to planting schedule and details
- Proposed Hedgerow planting Refer to planting schedule and details
- Proposed Amenity Grassland Refer to planting schedule
- Proposed Wildflower (WF1) Refer to planting schedule
- Proposed Woodland Wildflower (WF2) Refer to planting schedule
- Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed SUGS Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed Native shrubs Refer to planting schedule
- Proposed Ornamental shrubs Refer to planting schedule

#### SURFACES

- Proposed Asphalt To asphalt and Cobble For detail refer to engineers drawing
- Proposed Asphalt For detail refer to engineers drawing
- Strabane North Greenway Prepared separately to this project
- Proposed High Friction Surface To be prepared / repaired in situ For detail refer to engineers drawing
- \*Natural Stone Paving Refer to detail
- Proposed Boardwalk Refer to detail
- Reinforced Grass Refer to detail
- Proposed Gravel Path Refer to detail
- \*Proposed Slipway Surface Refer to detail also engineers drawing for detail
- \*Wetpour Safety Surfacing Refer to detail
- \*Reinforced Grass Safety Surfacing Refer to detail
- \*Wet Back Safety Surface specifically for play areas
- Stone Clusters Refer to detail

#### FEATURES

- Existing Walls To be retained
- Existing Fencing To be retained / repaired in situ
- 2.4m Security Fencing Refer to detail
- Metal Estate Fencing Refer to detail
- Stock Proof Fencing Refer to detail
- Existing Fencing to be removed
- Steps and Terracing Refer to detail
- Proposed Benches Refer to detail
- Bicycle stand locations Typical Sheffield stand
- Proposed Litter Bins 120L bins with single 300L recycled bin adjacent to Community Facilities
- Proposed Metal Gates Refer to detail
- Vehicle Upstand Kerb 125mm upstand. Pre Cast Concrete
- Vehicle Flush Kerb Pre Cast Concrete
- Pie Kerb Pre Cast Concrete

#### MISCELLANEOUS

- Site Boundary - Application under Roads Act, Section 51(2)
- Adjoining Riverside Community Park Boundary (RCP)
- Riverine Community Park Boundary (R)
- Proposed Bridge
- Water

### NOTES

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted
- All Hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance with Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed
- Bridge Refer to engineers proposals
- Invasive Weeds There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Topographic Survey Information Planting There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Planting Loss: The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the

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REV	DATE	DESCRIPTION	BY
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.04.2021	Issued for Planning	HB

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**Comhairle Contae**  
Dhúna na nGall  
Donegal County Council

**STAGE 3 - PLANNING**

**RIVERINE COMMUNITY PARK**

**STRABANE RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn	HB	Checked	DM	Approved	DM
Date	12.02.2021	Date	12.02.2021	Date	18.08.2021

Project: RVCPC - TPHC - Z0 - XX - DR - LA - 2051  
Revision: P02

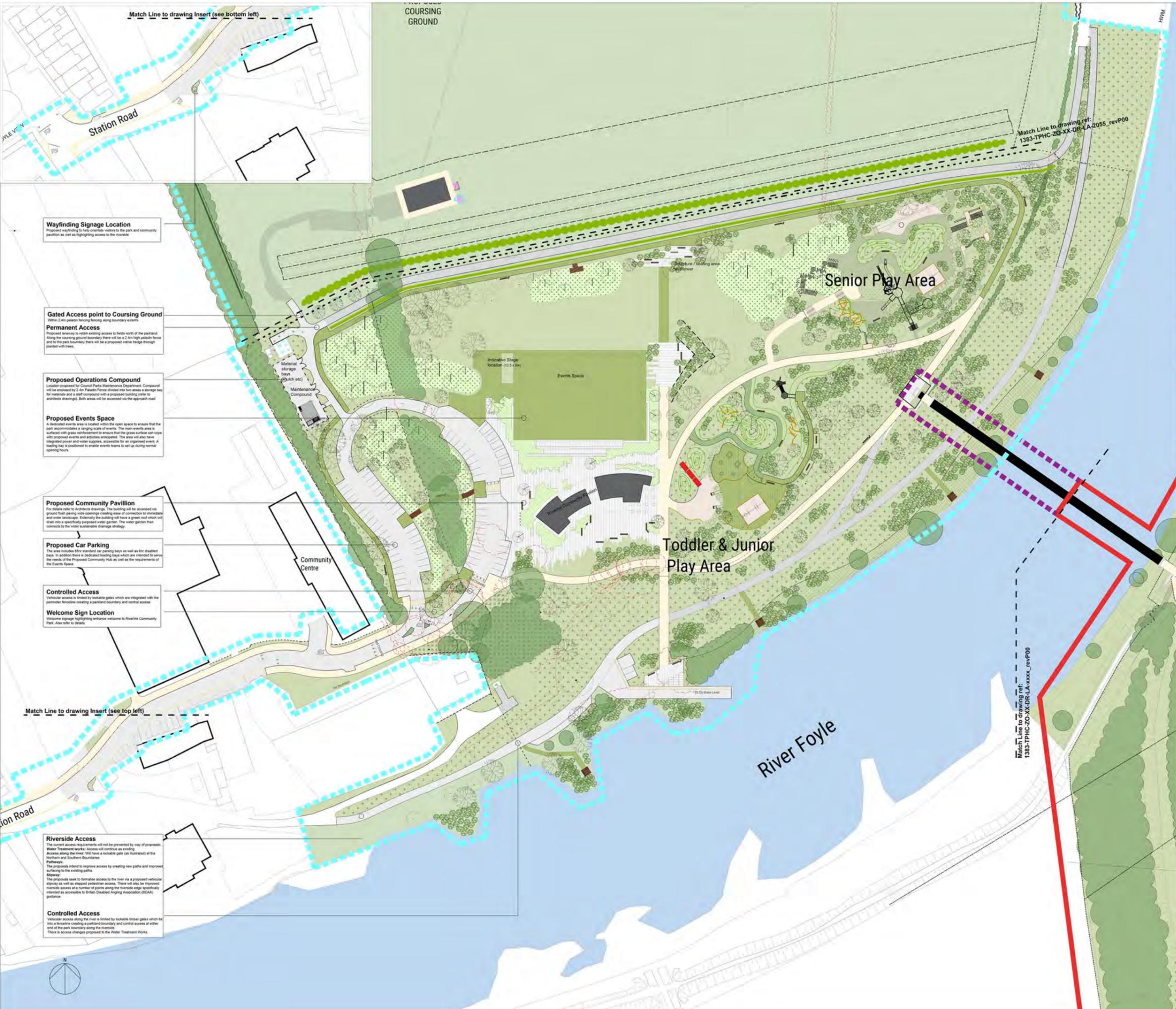
Project Number: 1383  
Status code & description: ST2 Issued for Information

All measurements are in metres. Figureed dimensions to be taken in preference to smaller dimensions. Dimensions are to be rounded up to the next 20mm. Irish Grid (TM65) UTM.

Drawing Insert  
Scale 1:500 @ A0

---

Appendix II: Lifford Site Layout



**LEGEND**

**SOFTWORKS**

- Existing Trees & Planting
- Proposed Native Trees
- Proposed Native Wetland Trees
- Proposed Specimen Trees
- Proposed Hedgerow planting
- Proposed Amenity Grassland
- Proposed Wildflower (WF1)
- Proposed Woodland Wildflower (WF2)
- Proposed Riverside Edge Mix
- Proposed SUDS Mix
- Proposed Native shrubs
- Proposed Ornamental shrubs
- \*Proposed Grass Mounding

**SURFACES**

- Proposed Asphalt
- Proposed Asphalt
- Proposed High Friction Surface
- \*Historic Stone Paving
- Proposed Boardwalk
- Reinforced Grass
- Proposed Gravel Path
- \*Proposed Slowsay Surface
- \*Wetproof Safety Surfacing
- \*Reinforced Grass Safety Surfacing
- \*Play Bark Safety Surface

**FEATURES**

- Existing Walls
- Existing Fencing
- 2.4m Security Fencing
- Metal Estate Fencing
- Stock Proof Fencing
- Existing Fencing to be removed
- Steps and Terracing
- Proposed Benches
- Bicycle stand locations
- Proposed Litter Bins
- Proposed Metal Gates
- Vehicle Upstand Kerb
- Vehicle Flush Kerb
- Pin Kerb

**MISCELLANEOUS**

- Riverine Community Park Boundary (R)
- Riverine Community Park Boundary (R2)
- Site Boundary - Application under Roads Act, Section 51(2)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying of planting pattern.
- Layout should be read in conjunction with all other drawing information and reports.
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length.
- For proposed drainage refer to engineers layout.
- For lighting, electrical requirements refer to MSE drawings.
- Walking Routes & Connections**  
All main routes within the park boundary will be accessible to the broadest range of abilities, in accordance to Countryside Access code.
- Riverside Access**  
Riverside access to be retained.
- Planting**  
The general planting strategy is to use a primarily native planting palette introducing some specimen trees within the river car park to add formality. Where possible existing areas of native planting will be increased and supplemented to create diversity and improve ecological benefits. This planting will be suggested from the naturalised fauna surveyed.
- Suds**  
Attenuation basin locations and extents shown indicatively. Basins will be planted with a mix of native wet woodland (indicated with trees) and marginal type planting (indicated with hatches) to highlight their location and integrate them as an attractive feature within the overall site context.
- Bridge**  
Refer to engineers proposals.
- Invasive Weeds**  
Refer to invasive weed management plan.
- Topographic Survey Information**  
There are substantial areas of the Project boundary that remain unurveyed (due to poor access). In this respect assumptions have had to be made with regard detail of.
- Planting Loss**  
The extents of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding**  
Not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref. 2022.
- Play Areas**  
The Play areas have been located next to the existing embankment making the most of connecting paths and using graded terracing to maximize accessibility through the play spaces. Play equipment within both the Junior / Senior play areas will also be considered to ensure broadest age range and ability is catered for. Also refer to the section drawing which illustrates section through the accessible High Tower in the Senior Play Area.
- Legend**  
All items with \* are only relevant to Lifford.

The revision cloud highlighted areas of the park which were inaccessible for the

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P01 13.08.2021 Issued for Planning HB  
P01 19.02.2021 Issued for Planning HB

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Public

**Peace**  
Northern Ireland - Ireland  
European Regional Development Fund

Client

**Comhairle Contae Dún na nGall**  
Donegal County Council  
Donegal City & District Development Centre

Project

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**LIFFORD RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale

**1:500 @ A0**

Drawn

HB

Checked

DM

Approved

DM

Date

12.02.2021

Date

12.02.2021

Date

12.02.2021

Project

1383 - Organisation - Zone - Level - Type - Rate - Number

1383 - TPHC - Z0 - XX - DR - LA - 2052

Revision

P01

Project Number

1383

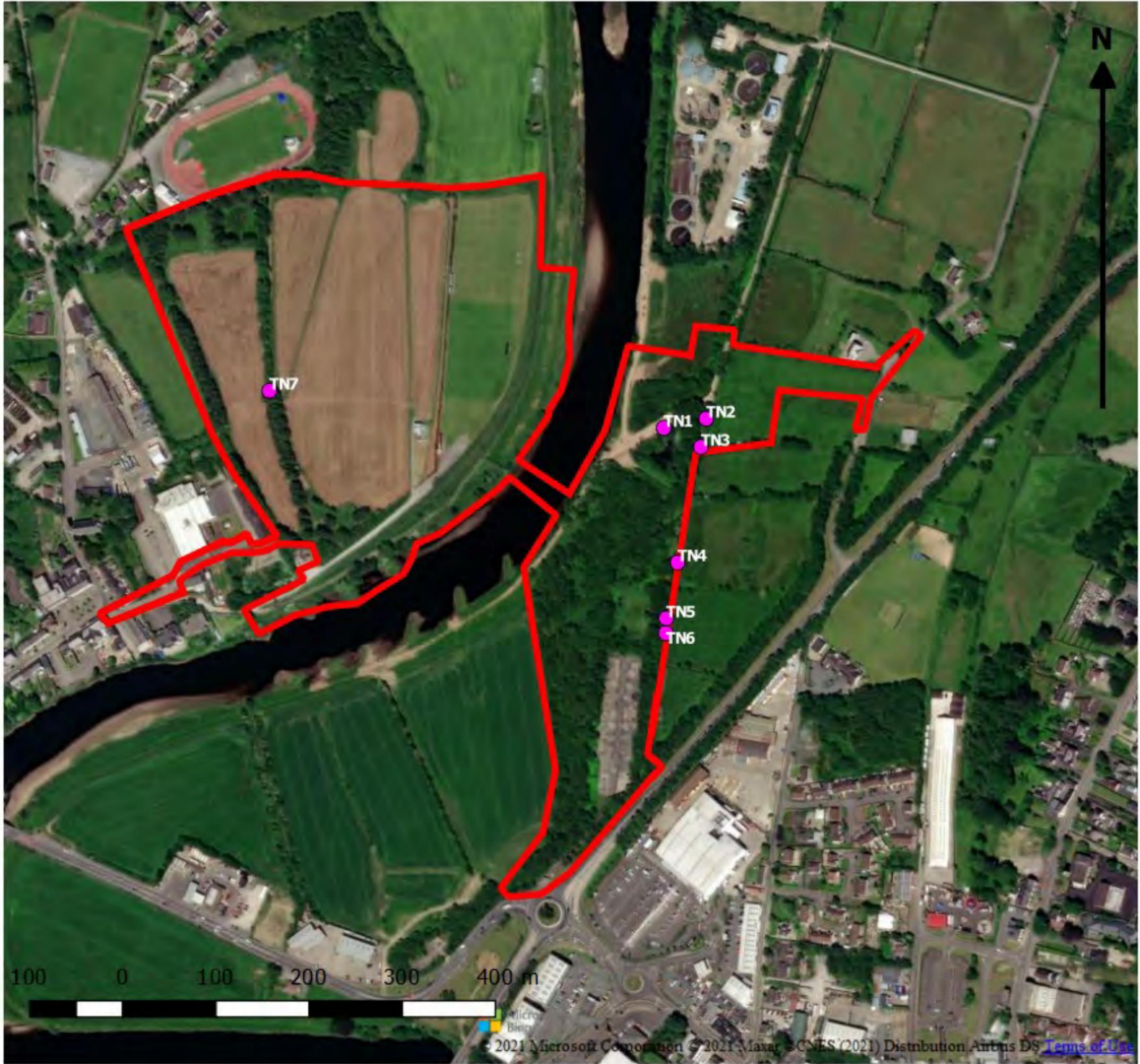
Sheet title & Description

ST2 Issued for Information

All dimensions are in metres. If given dimensions to be shown in parentheses to indicate alternative dimensions to be adopted on site. © 2021 The Paul Hogarth Company

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## Appendix III: Target Note Locations



**Legend**

- Bat Roost Potential Target Notes
- Red Lined Boundary

Appendix III: Target Note Locations  
 Created by: Ryan Boyle  
 Reviewed by: Conor Finlay

Client: McAdam Design  
 Scale: 1:5785 @ A3  
 Date: 16/07/2021

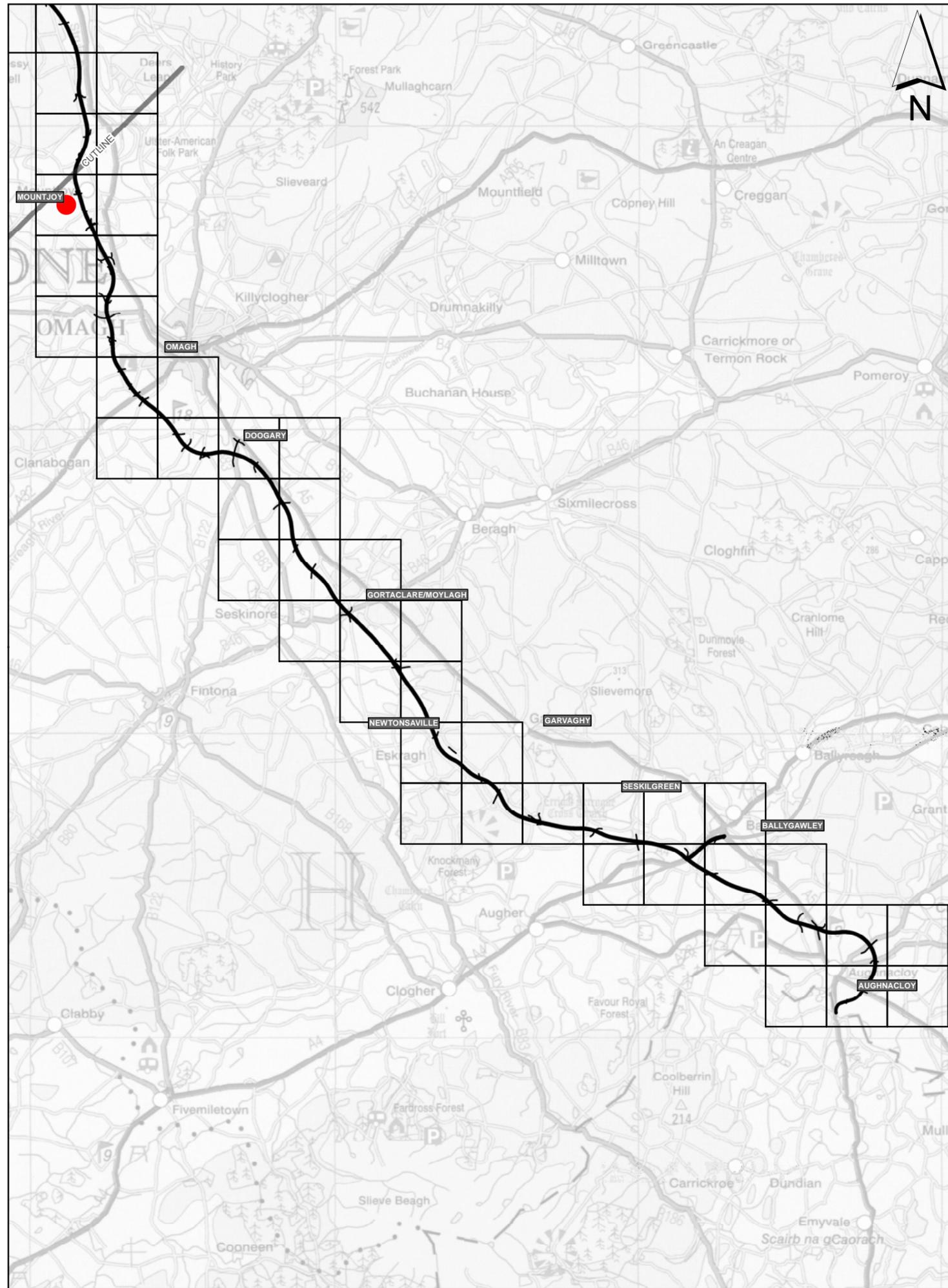
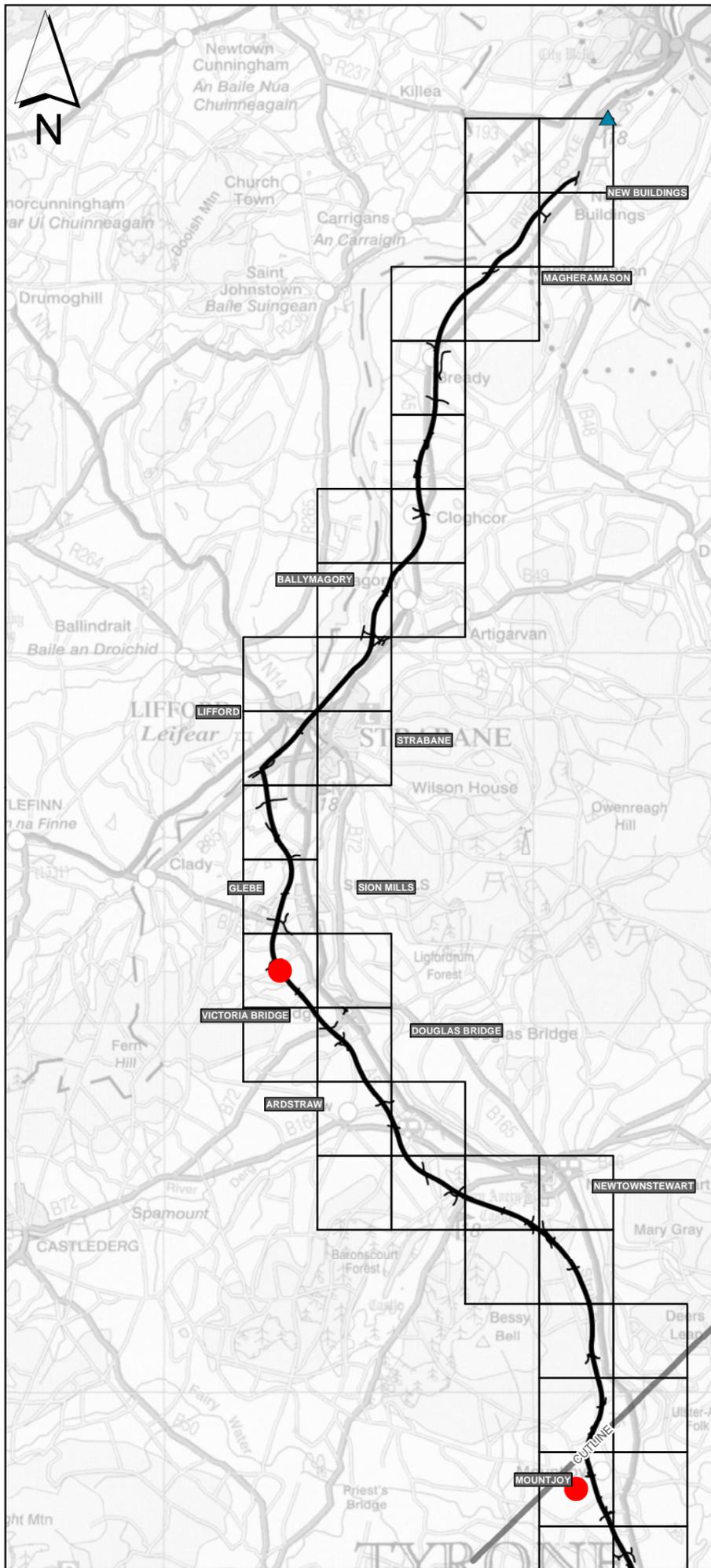


Unit 5, Forty Eight North, Duncrue Street  
 Belfast  
 BT3 9BJ  
 Tel: 02890747766

100 0 100 200 300 400 m

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Appendix IV: 2016 A5 Bat Atlas Brown Long-Eared



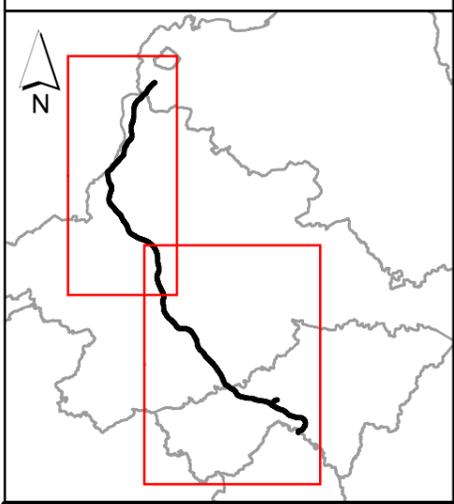
Legend

-  PROPOSED SCHEME
- BROWN LONG-EARED**
-  BROWN LONG-EARED, COUNTY
-  TETRADS OCCUPIED BY SPECIES, LOCAL
-  BAT ATLAS GRID

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3 **1:150,000**

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Client **transportni**

Project **A5WTC**

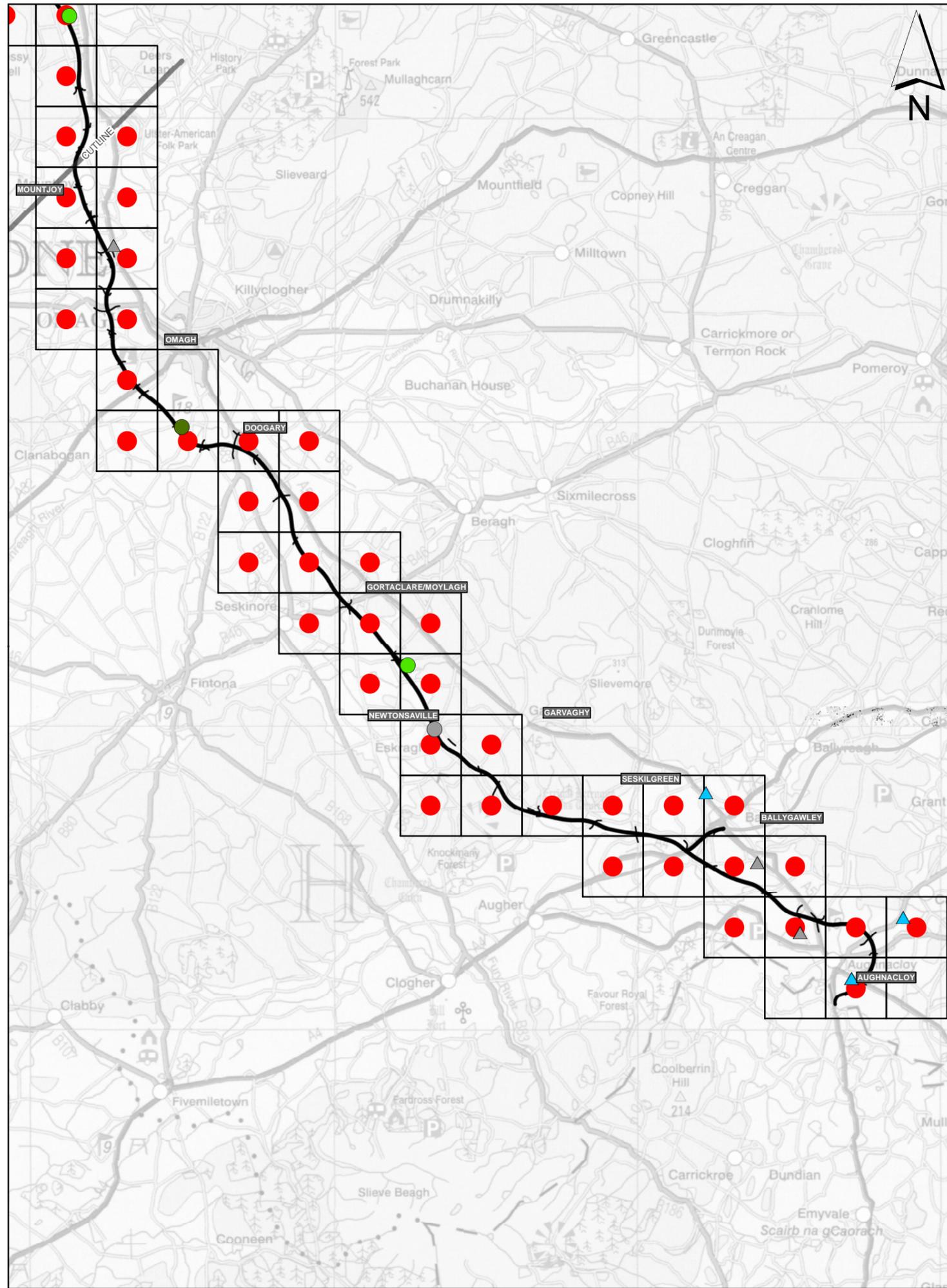
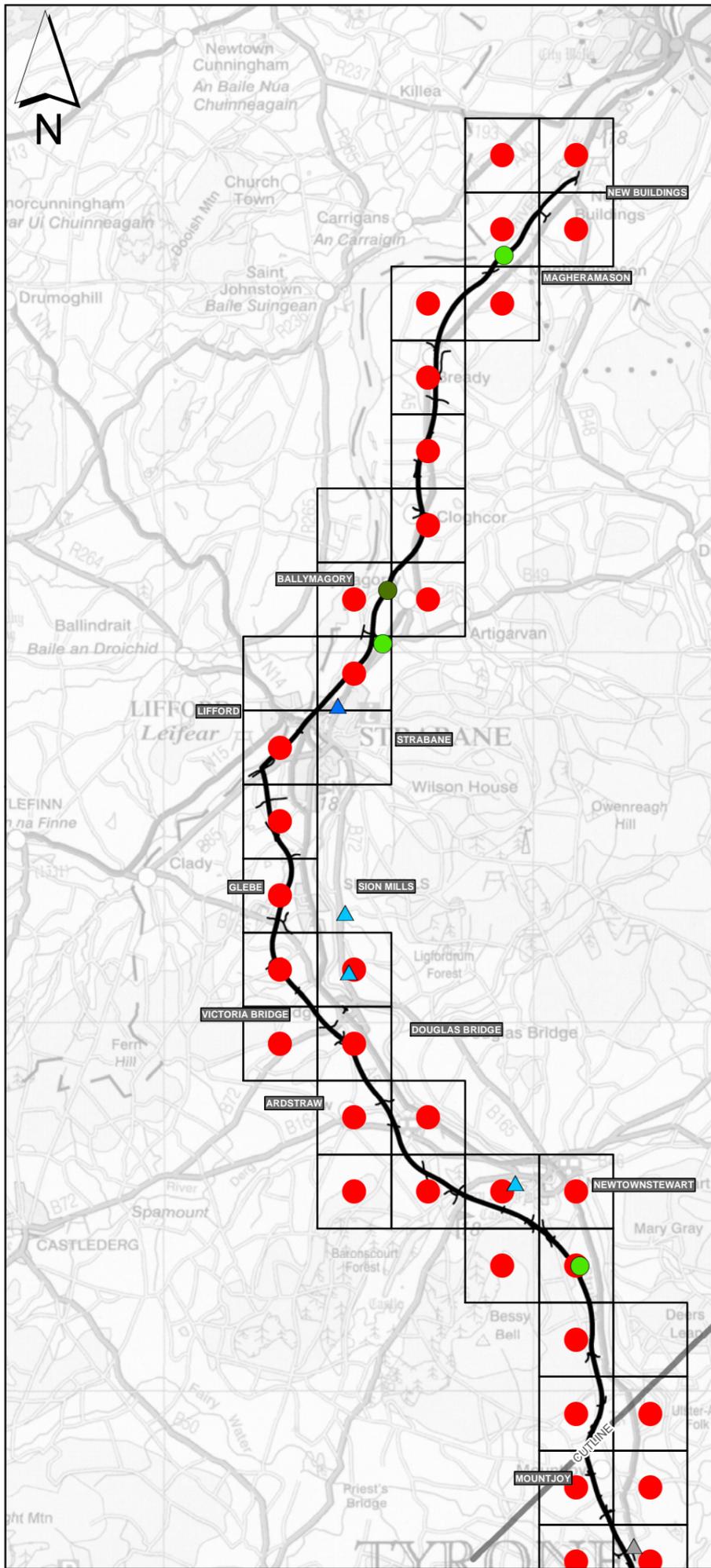
**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - BROWN LONG-EARED**

Figure No **Figure 11.37** Version **A**

---

Appendix V: 2016 A5 Bat Atlas Common Pipistrelle



Legend

— PROPOSED SCHEME

**PIPISTRELLE**

**MOUCHEL SURVEY ROOSTS AND VALUES**

- COMMON AND SOPRANO PIPISTRELLE, LOCAL VALUE
- COMMON PIPISTRELLE, LOCAL VALUE
- UNKNOWN PIPISTRELLE SPECIES, LOCAL VALUE

**DESK STUDY ROOSTS AND VALUES**

- ▲ COMMON PIPISTRELLE, COUNTY
- ▲ UNKNOWN PIPISTRELLE SPECIES, COUNTY
- ▲ UNKNOWN PIPISTRELLE SPECIES, LOCAL

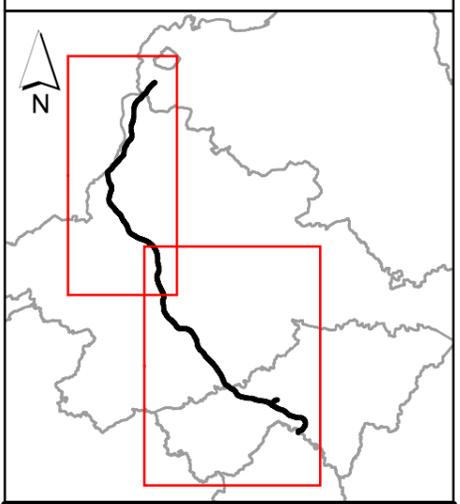
● TETRADS OCCUPIED BY SPECIES, LOCAL

□ BAT ATLAS GRID

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Client **transportni**

Project **A5WTC**

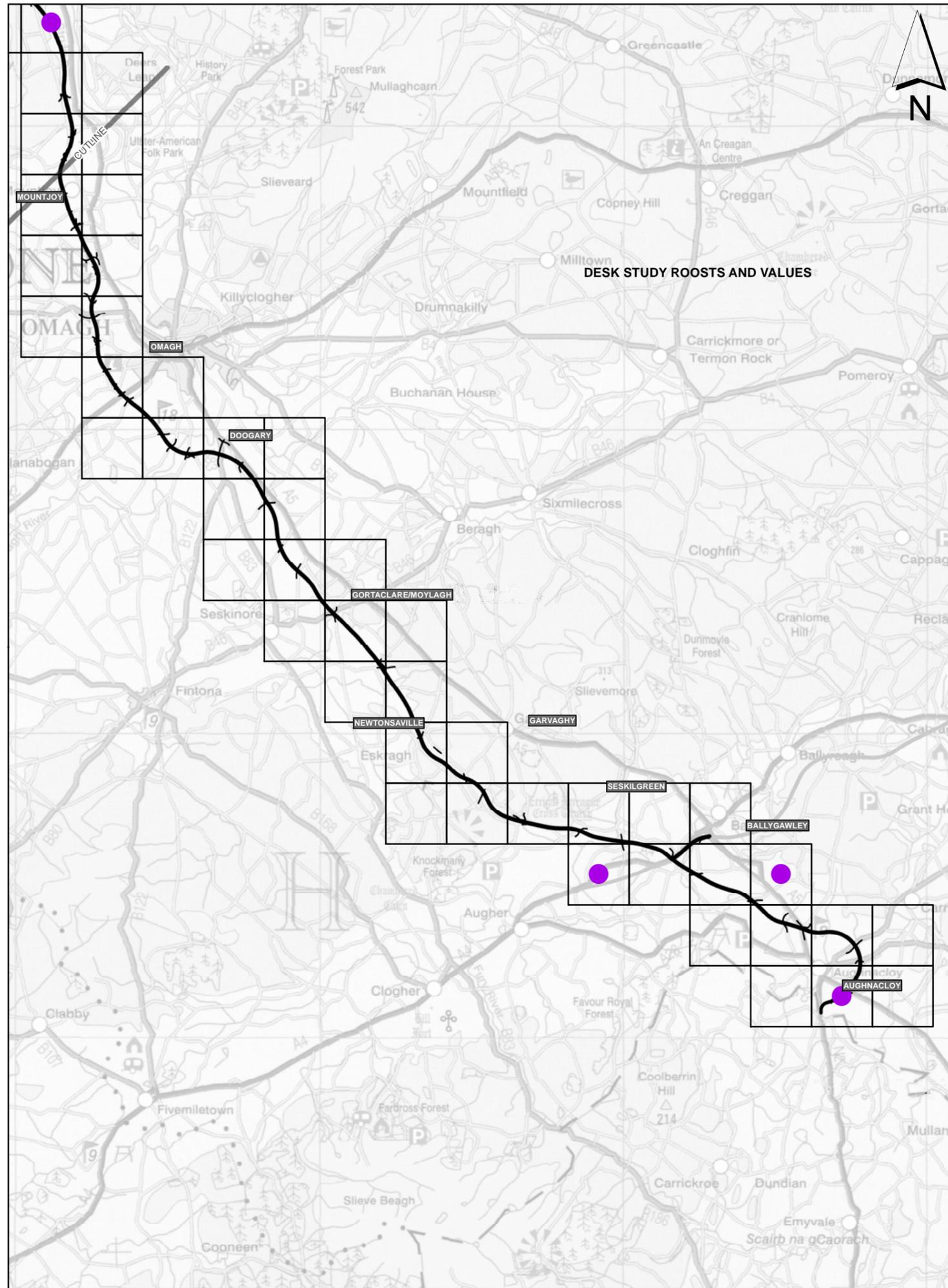
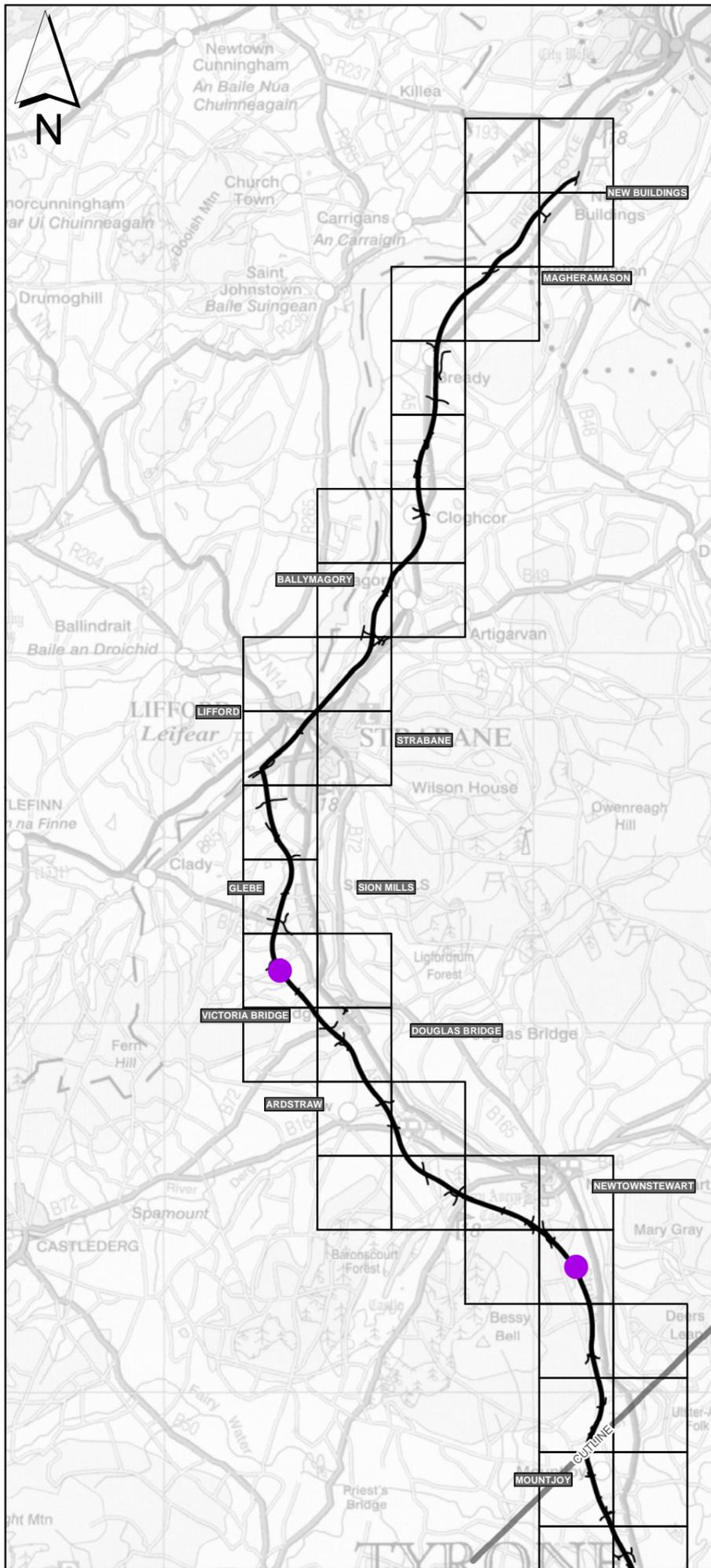
**mouchel**  
building great relationships

Drawing Title **ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - COMMON PIPISTRELLE**

Figure No **Figure 11.38** Version A

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Appendix VI: 2016 A5 Bat Atlas Daubenton's



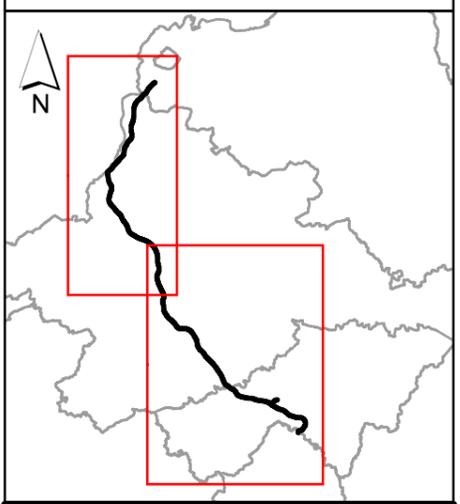
Legend

- PROPOSED SCHEME
- NATHUSIUS PIPISTRELLE DISTRICT VALUE
- TETRADS OCCUPIED BY SPECIES, LOCAL
- BAT ATLAS GRID

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3 **1:150,000**

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Client **transportni**

Project **A5WTC**

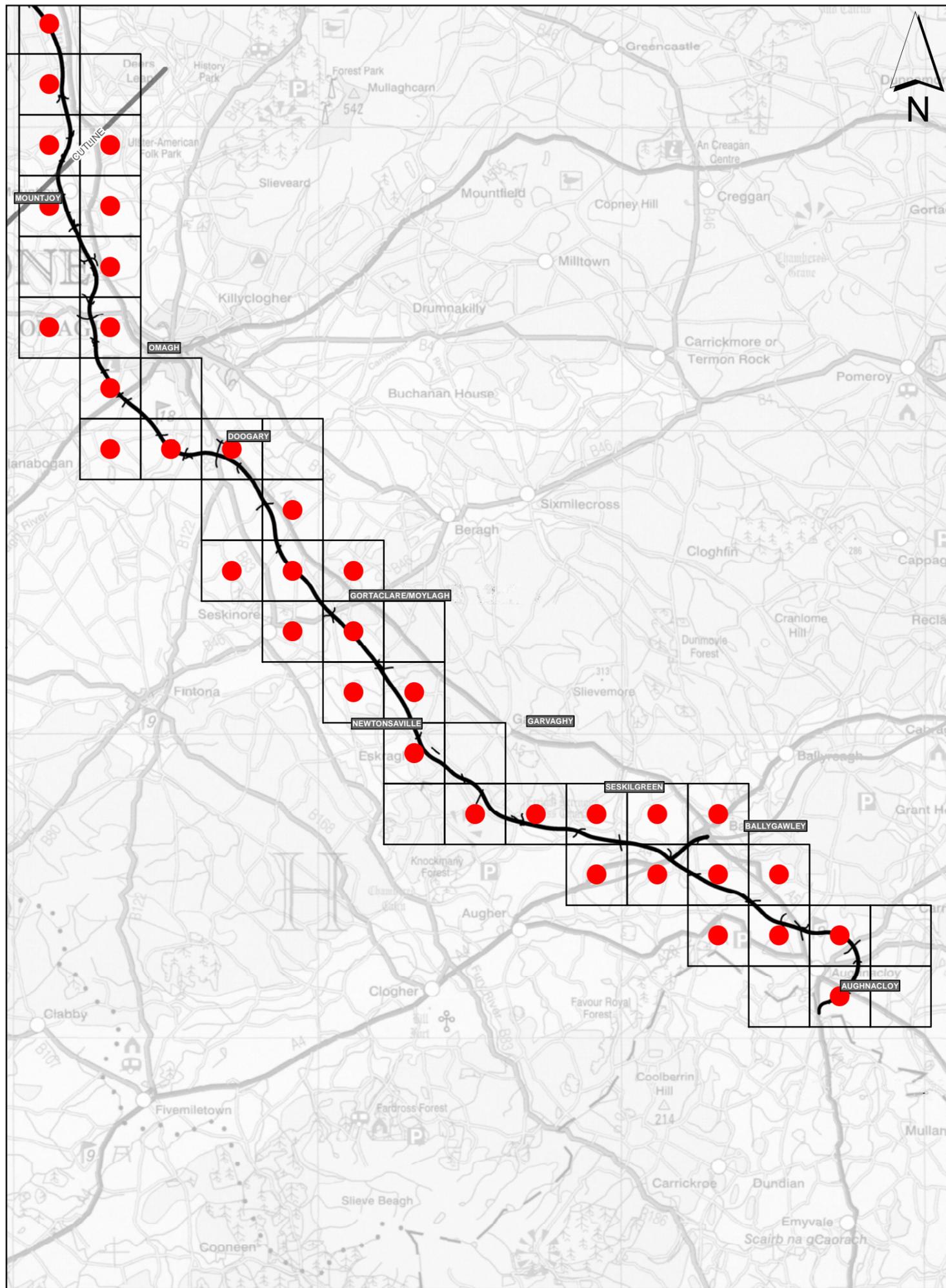
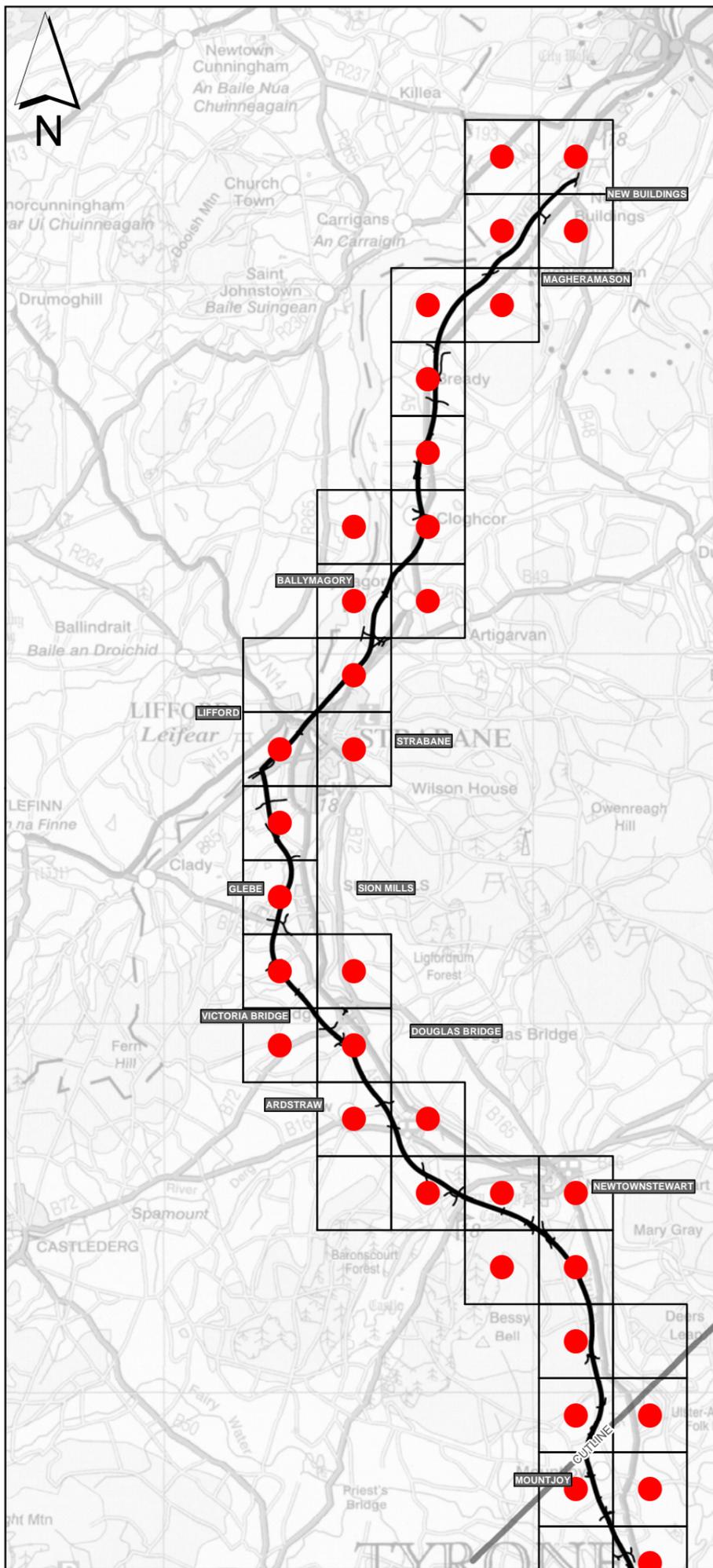
**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - NATHUSIUS PIPISTRELLE**

Figure No **Figure 11.42** Version **A**

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Appendix VII: 2016 A5 Bat Atlas Leislars



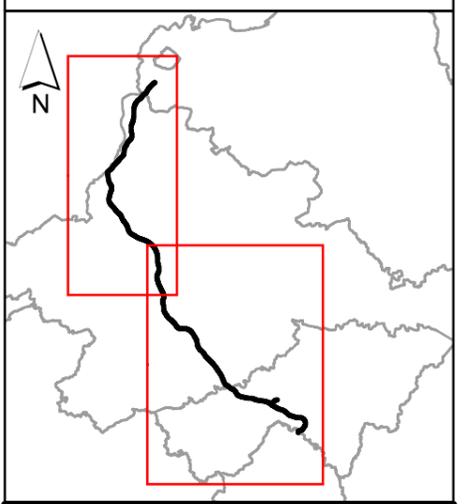
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- PROPOSED SCHEME
- LEISLERS**
- TETRADS OCCUPIED BY SPECIES, LOCAL
- BAT ATLAS GRID

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Project **A5WTC**

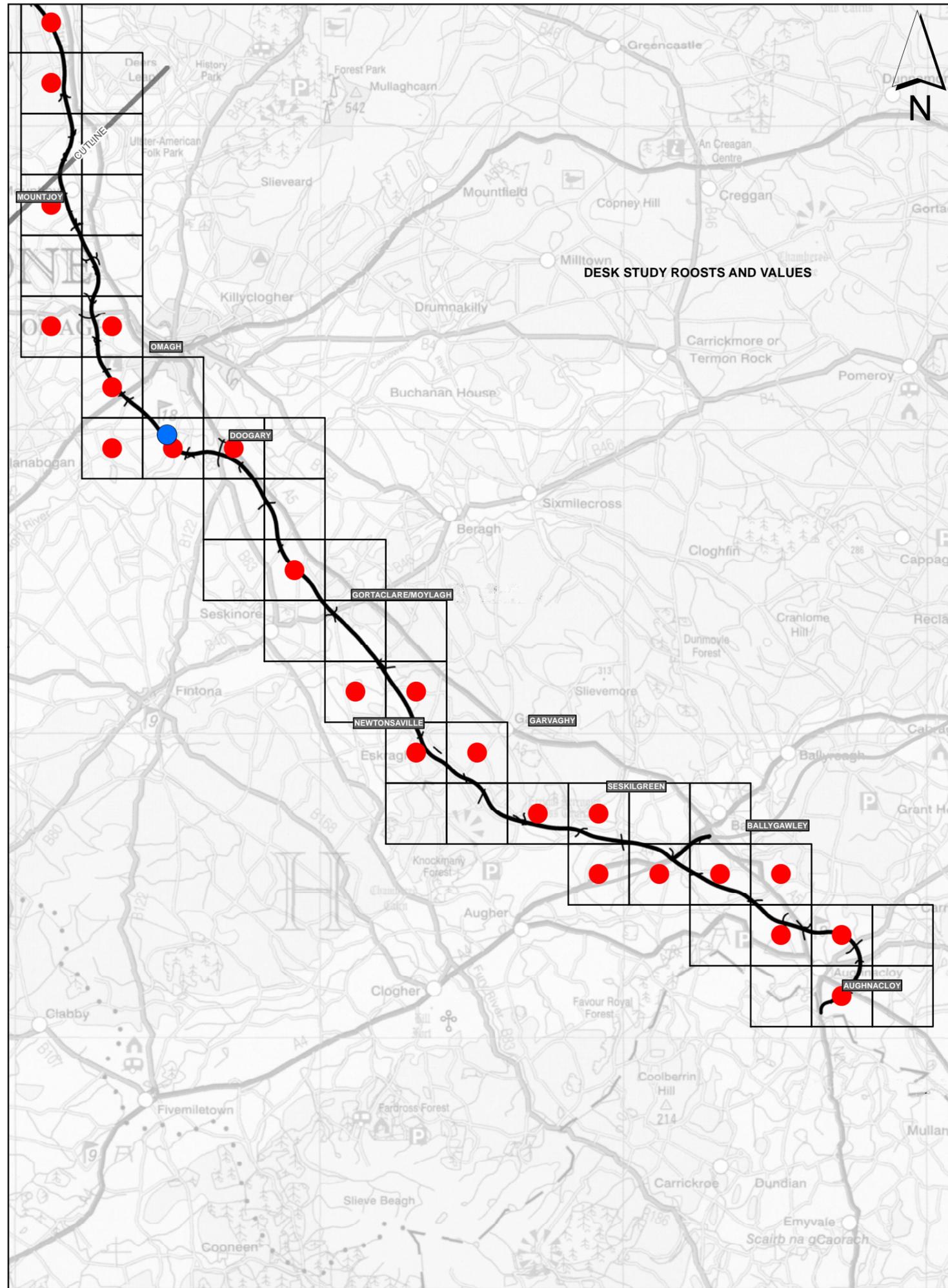
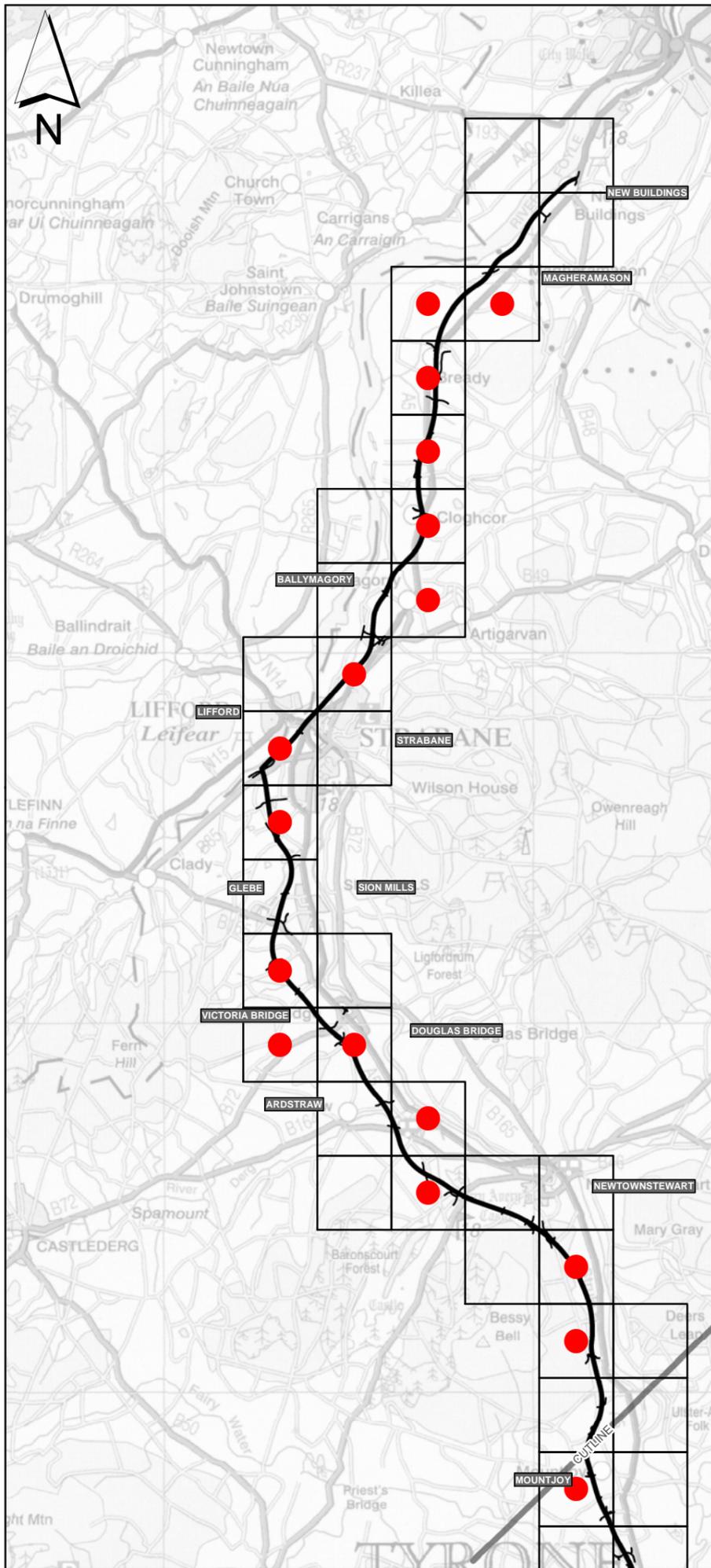
**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - LEISLERS**

Figure No **Figure 11.40** Version A

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Appendix VIII: 2016 A5 Bat Atlas Myotis



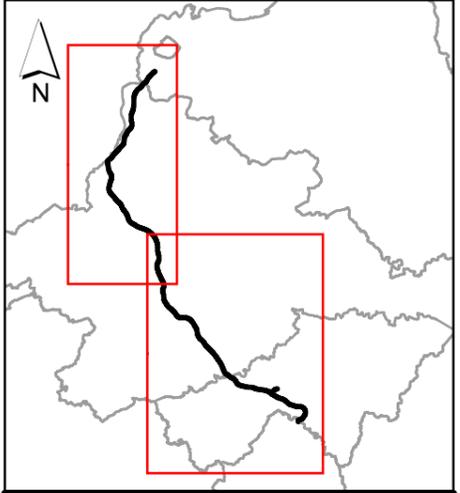
Legend

- PROPOSED SCHEME
- MYOTIS**
- MOUCHEL SURVEY ROOSTS AND VALUES**
- UNKNOWN MYOTIS SPECIES, LOCAL
- TETRADS OCCUPIED BY SPECIES, LOCAL
- BAT ATLAS GRID

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3 **1:150,000**

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Project **A5WTC**

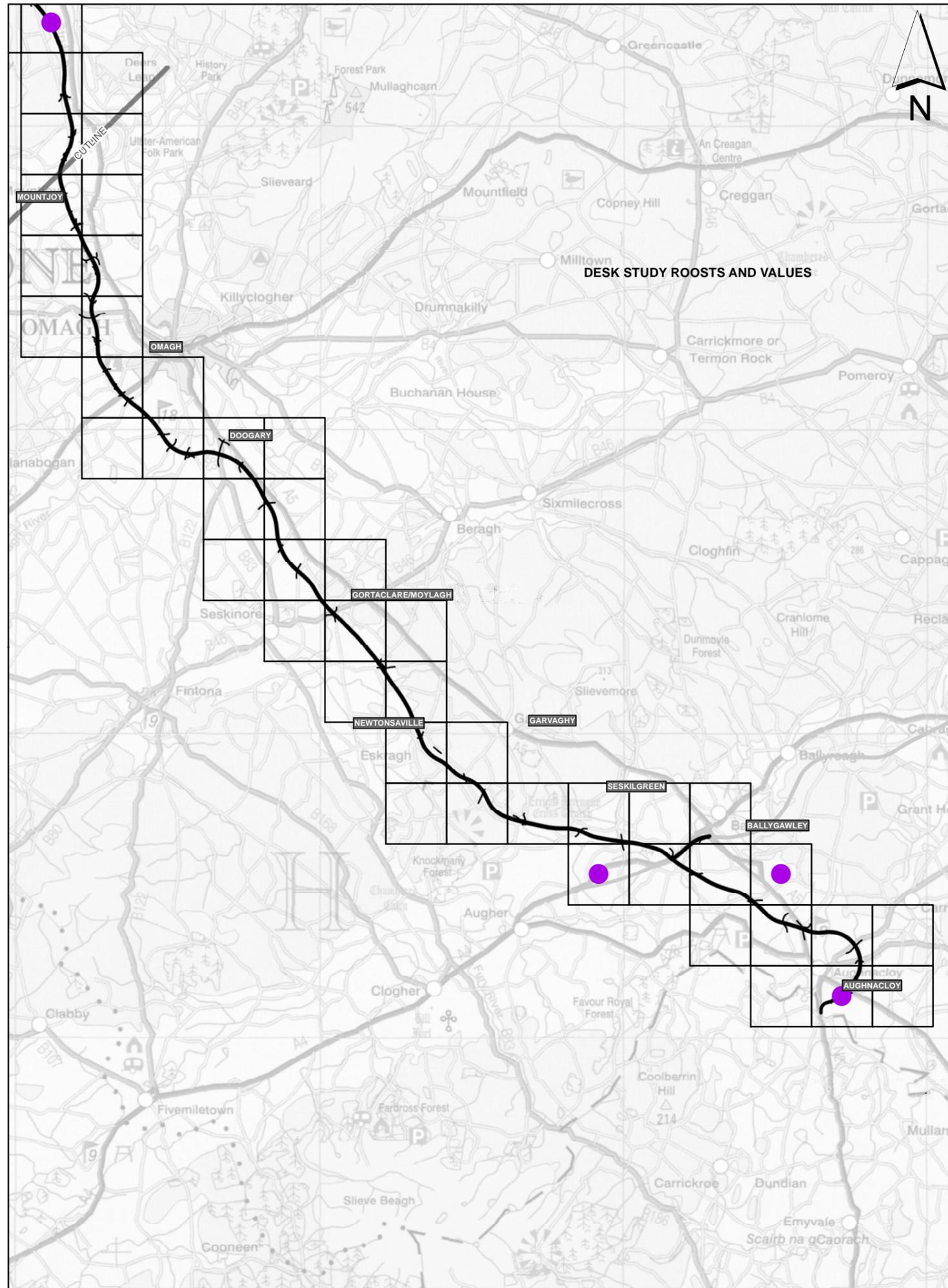
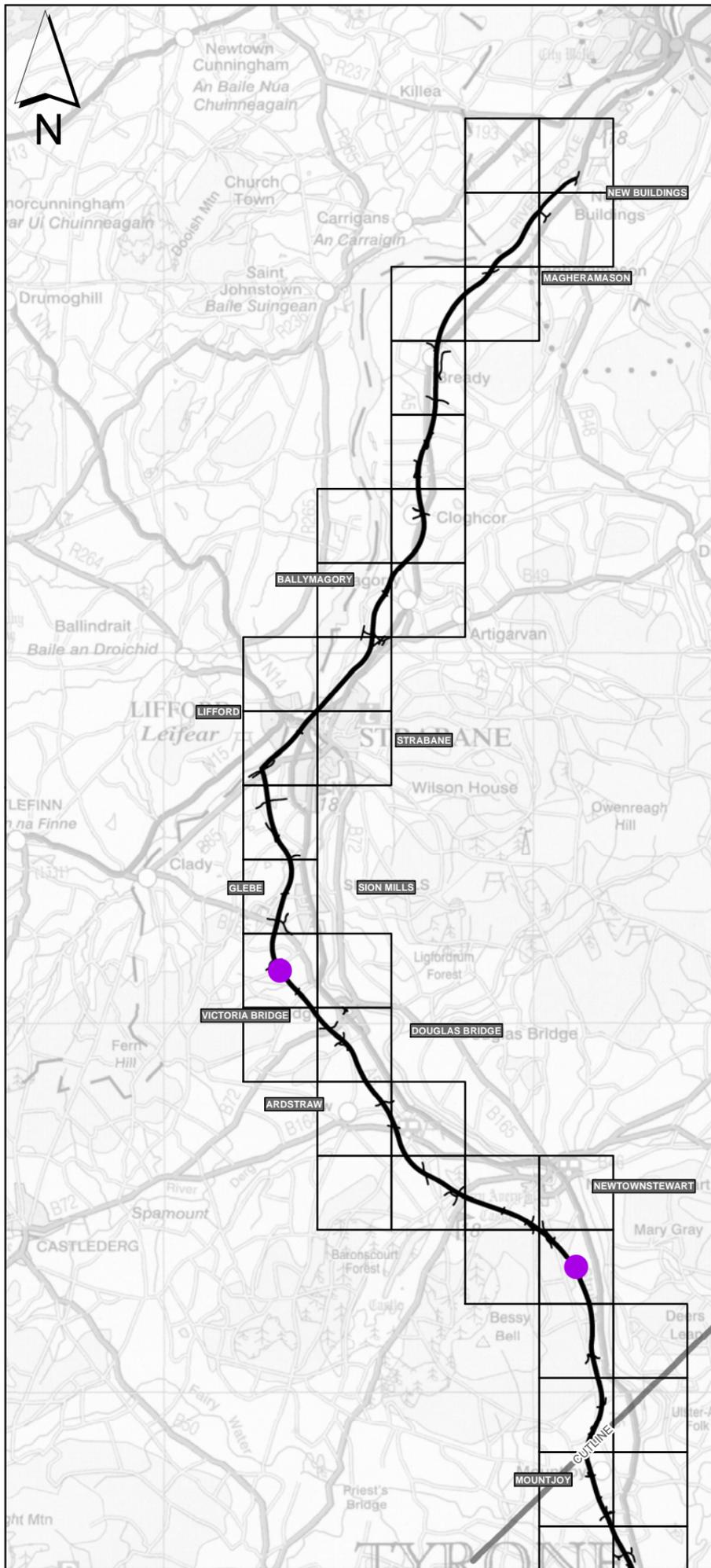
**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - MYOTIS**

Figure No **Figure 11.41** Version **A**

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Appendix IX: 2016 A5 Bat Atlas Nathusius Pipistrelle



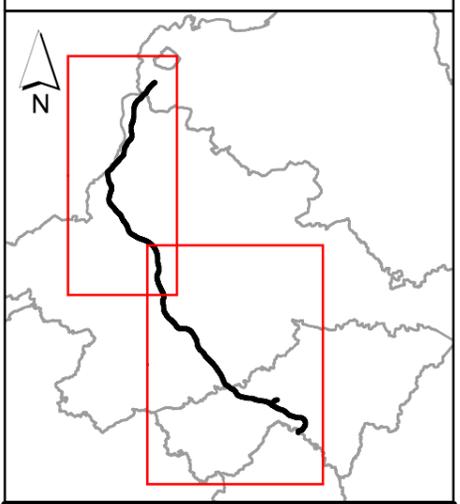
Legend

- PROPOSED SCHEME
- NATHUSIUS PIPISTRELLE DISTRICT VALUE
- TETRADS OCCUPIED BY SPECIES, LOCAL
- BAT ATLAS GRID

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3 **1:150,000**

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Project **A5WTC**

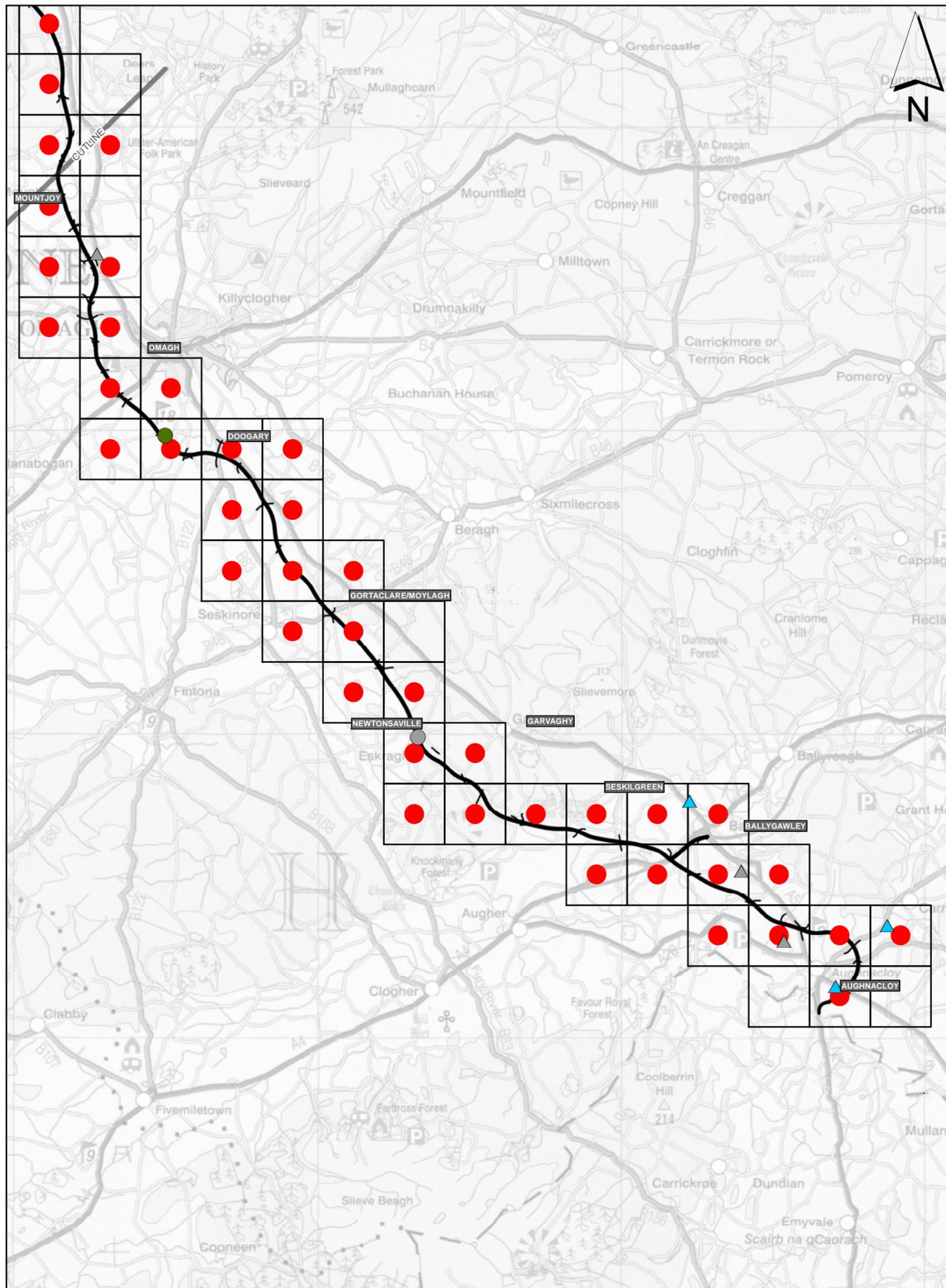
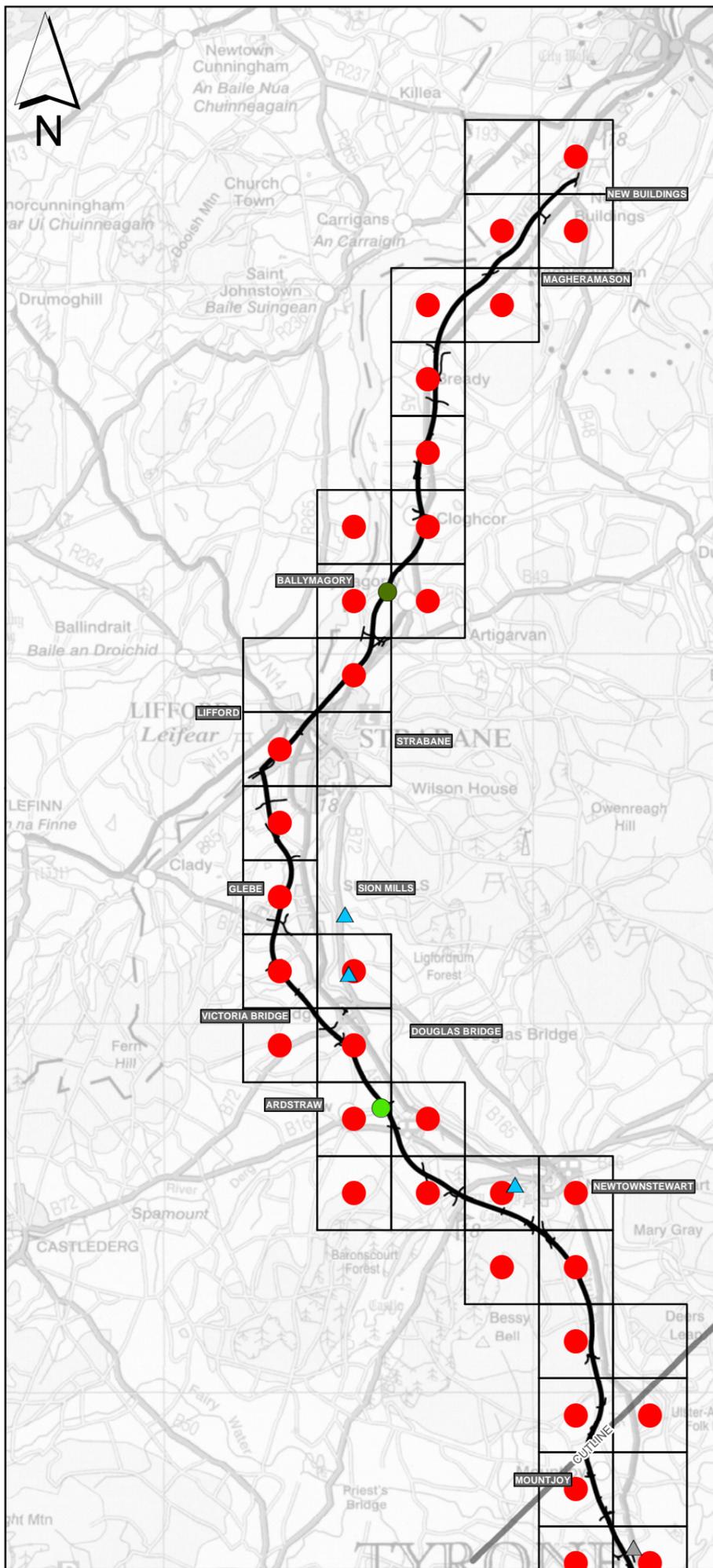
**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - NATHUSIUS PIPISTRELLE**

Figure No **Figure 11.42** Version **A**

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Appendix X: 2016 A5 Bat Atlas Soprano Pipistelle



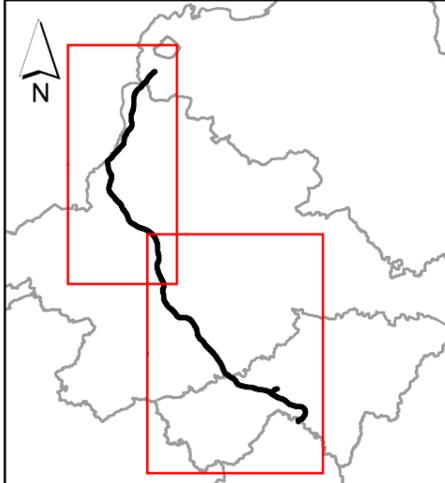
Legend

- PROPOSED SCHEME
- SOPRANO PIPISTRELLE**
- MOUCHEL SURVEY ROOSTS AND VALUES**
- COMMON AND SOPRANO PIPISTRELLE, LOCAL VALUE
- SOPRANO PIPISTRELLE, LOCAL VALUE
- UNKNOWN PIPISTRELLE SPECIES, LOCAL VALUE
- DESK STUDY ROOSTS AND VALUES**
- UNKNOWN PIPISTRELLE SPECIES, COUNTY
- UNKNOWN PIPISTRELLE SPECIES, LOCAL
- TETRADES OCCUPIED BY SPECIES, LOCAL
- BAT ATLAS GRID

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3 **1:150,000**

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Client **transportni**

Project **A5WTC**

**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT**  
**BAT ATLAS - SOPRANO PIPISTRELLE**

Figure No **Figure 11.43** Version A

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## Appendix 8-8

### Bat Activity Survey



**APPENDIX 8-8**

**Bat Activity Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

MCL Consulting Ltd  
Unit 5, Forty-Eight North  
Duncrue Street  
Belfast  
BT3 9BJ  
028 9074 7766

[www.mclni.com](http://www.mclni.com)

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide an updated badger survey on behalf of their clients in order to form part of a requested EIAr for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.

### 1.1 Site Description

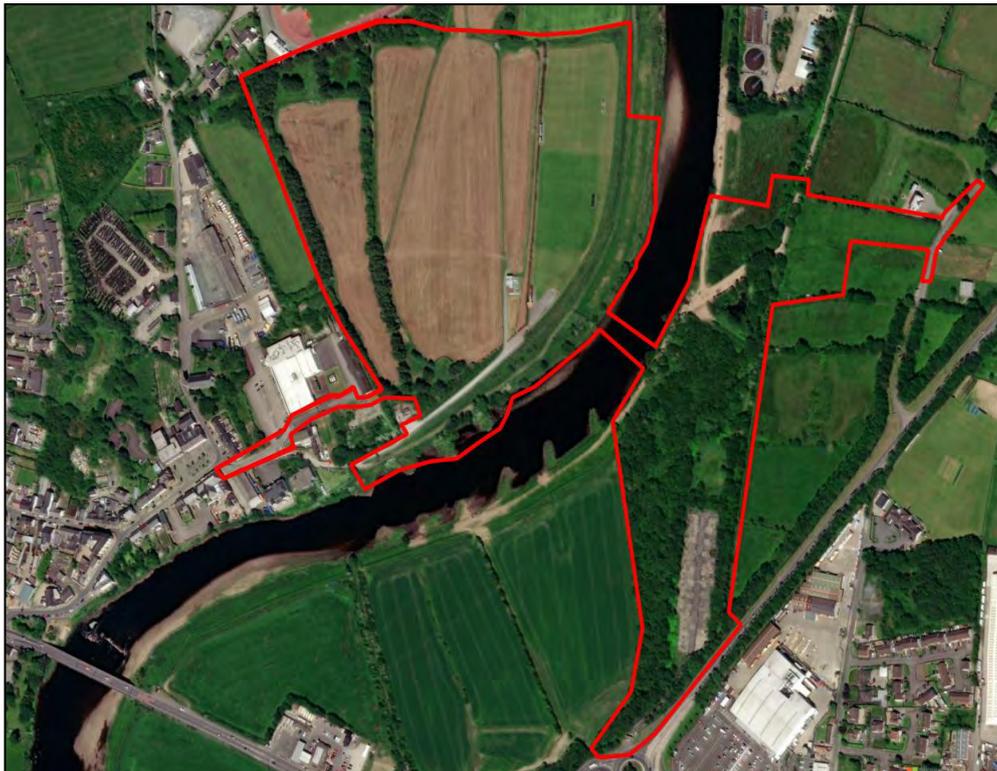
The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

---

## 1.2 Development proposals

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park by utilising agricultural land and wetlands lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span with the central, (in river), piercing removed, with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- 
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
  - Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
  - River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
  - Family Space incorporating unique play experience, designed to support children focused events & related programming.

### 1.3 Rationale of Bat activity Surveys

The aim of this survey is to:

- Carryout a bat activity survey in the form of transect surveys of the proposed development site as well as using static bat detectors to establish the presence and activity of roosting, foraging and commuting bats;
- If a roost is present further characterisation of that roost; and
- Identify the need for mitigation, compensation &/or enhancement.

### 1.4 Legislation

#### Lifford (ROI) Legislation

All bats and their roosting sites are legally protected under the EU Habitats Directive as transposed by the Habitats Regulations. With the exception of Lesser Horseshoe bat (*Rhinolophus hipposideros*), which is an Annex II species, the remainder are classified as Annex IV species. They are also protected under the Wildlife Act (as amended). Across Europe, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. Article 12 and 13 of the Habitats Directive relates to the establishment of a system of strict protection for certain animal and plant species, while Article 16 provides for derogations from these provisions under limited circumstances. Article 12, 13 and 16 of the Habitats Directive are transposed into Irish law by Regulation 51, 52 and 54 of the Birds and Habitats Regulations of 2011, respectively. All bats are strictly protected in Ireland and a person who deliberately captures, kills or

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disturbs a specimen in the wild, or who damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

As an Annex IV species may be found throughout the country, the protection of these species is not restricted in geographical terms and is not necessarily associated with areas subject to a specific nature designation. Under this it is illegal to:

- deliberately to capture, injure or kill a wild animal of a European protected species;
  - deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
  - deliberately to disturb such an animal in such a way as to be likely to;
    - affect the local distribution or abundance of the species to which it belongs;
    - Impair its ability to survive, breed or reproduce, or rear or care for its young;or
    - Impair its ability to hibernate or migrate;
  - deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- to damage or destroy a breeding site or resting place of such an animal.

#### Strabane (NI) Legislation

All species of bats (*Vespertilionidae*) are strictly protected under The Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended) (known as the Habitats Regulations). They are known as a European protected species. Under the Habitats Regulations it is an offence:

- deliberately to capture, injure or kill a wild animal of a European protected species;
  - deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
  - deliberately to disturb such an animal in such a way as to be likely to;
    - affect the local distribution or abundance of the species to which it belongs;
    - Impair its ability to survive, breed or reproduce, or rear or care for its young;or
    - Impair its ability to hibernate or migrate;
  - deliberately to obstruct access to a breeding site or resting place of such an animal;
- or
- to damage or destroy a breeding site or resting place of such an animal.

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## 2.0 METHODOLOGY

### 2.1 Author/ Surveyors

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

#### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, a seasonal volunteer for the Bat Conservation Trust and a member of the Botanical

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Society of Britain and Ireland. She regularly takes part in newt, lizard and bat surveys, as well as botanical identification outings.

**Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master's degree (MSc) in Ecological Management and Conservation Biology from Queens University, Belfast and a bachelor's degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird's surveys, badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABiP).

## 2.2 Previous study

Following the previous study undertaken (see MCL P2288 Bat Roost Potential Survey), it was recommended that bat activity surveys were required in order to determine the presence, abundance and activity of bats on site. Overall the site was considered to have a low roosting potential for bats with several trees identified as having low and negligible roosting potential on the Strabane side and two structures identified as having negligible roosting potential on the Lifford side of the site.

A previous bat activity survey was carried out by the previous project ecologist (Eamonn Delaney of Delichon Ecology), in 2020 consisting of transect activity surveys along key sensitive areas of the site following identified linear features bats may use for foraging and commuting. The previous transect surveys were carried out 06/06/2020 and 15/07/2020 and identified bat species and activity along pre established transect routes throughout the site.

**Table 1: Results of Delichon's passive bat surveys**

<b>Transect Number</b>	<b>Habitats</b>	<b>Species Recorded</b>
1	Treeline and improved grassland.	Common Pipistrelle & Soprano pipistrelle. Individuals foraging along treeline.
2	Treeline and improved grassland, conifer woodland copse.	Common Pipistrelle & Soprano pipistrelle. Individuals foraging along treeline. Leisler's bat in conifer woodland copse.
3	Treeline and improved grassland, conifer woodland copse.	Common Pipistrelle & Soprano pipistrelle. Individuals foraging along treeline. Leisler's bat in conifer woodland copse.
4	Hedgerow, semi-natural grassland, riparian corridor.	Common Pipistrelle & Soprano pipistrelle. Individuals foraging. Distant recording of Daubenton's bat – most likely associated with river corridor.
5	Riparian corridor	Leisler's bat – not sighted, distant recording
6	Wet woodland fringe, improved grassland, riparian corridor.	Common Pipistrelle & Soprano pipistrelle. Individuals foraging along woodland fringe. Leisler's bat in wet woodland area.
7	Wet woodland fringe, riparian corridor.	Soprano pipistrelle - individuals foraging along woodland fringe. Leisler's bat in wet woodland area.
8	Hedgerow and improved grassland	Soprano pipistrelle - individuals foraging along hedgerow and access track. Leisler's bat in wet woodland area.
9	Wet woodland and car park area	Common pipistrelle and soprano pipistrelle foraging along woodland margins
10	Treeline fringing A5 roadway	Individual common pipistrelle and soprano pipistrelle foraging along treeline habitat.

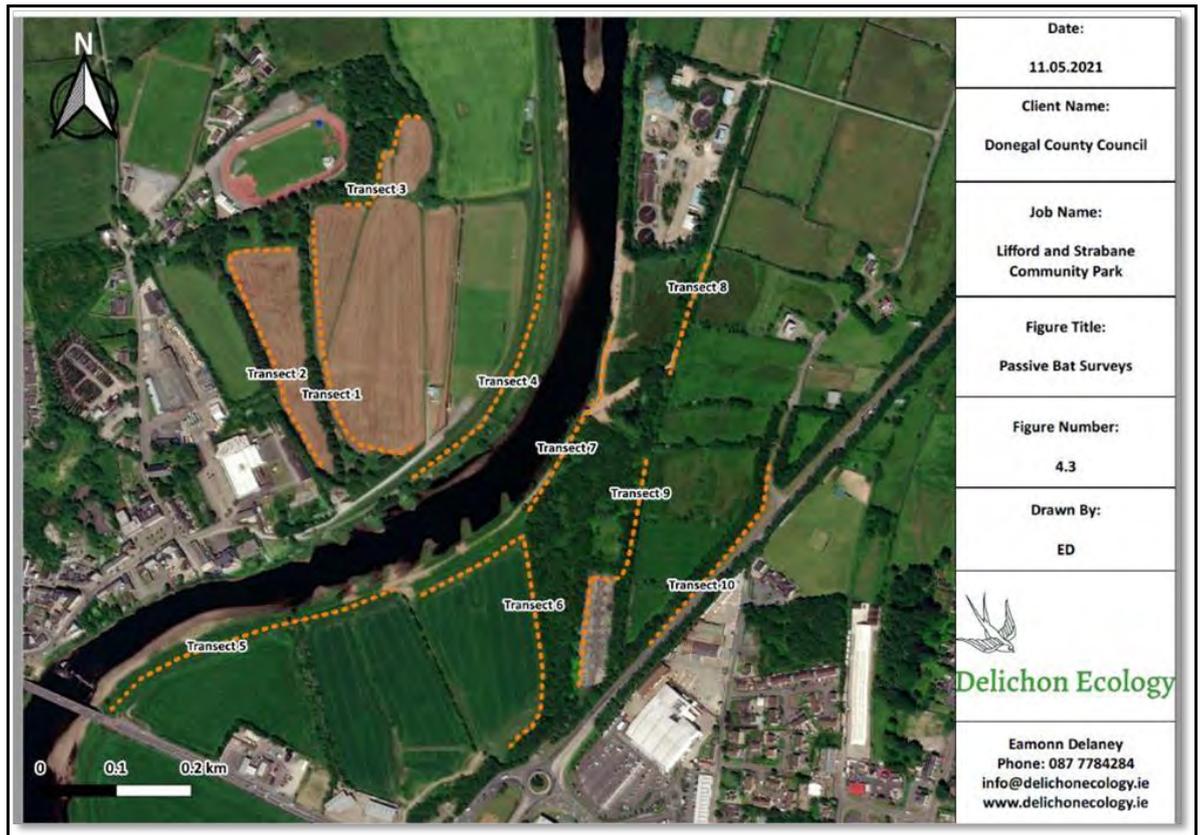


Figure 3. Map showing pre-established transect routes surveyed by Delichon Ecology in 2020

## 2.3 Static Bat Detector

The Anabat express static bat detector was placed at identified sensitive locations on both the Lifford and Strabane side of the site based on the proposed development plans of the site along with classification of potential usage by the local bat populations, (see Appendix I & II). The static detector was placed out for a week at a time and set in order to record only at night in order to reduce any accidental non-bat call recordings. After a week the static bat detector was then retrieved from it's location and the recordings removed for analysis.

## 2.4 Transect Survey

Two surveyors were spaced 30m apart and waked pre-determined transects, (see Figure 3), in order to cover all aspects of the site along these transects focusing on identified sensitive areas of the proposed site.

Two dusk transect surveys were undertaken in August in order to determine bat activity and abundance throughout the site and to identify any roosts. In accordance with BCT's Bat Surveys for Professional Ecologists, Surveys commenced at dusk 15 mins before sunset and

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finished 1 hour and 30 mins after sunset, but ecologists remained longer to make any additional observations when required. Maps indicating bat activity are presented in the Appendix section of this report.

#### 2.4.1 Equipment

Below follows a list of equipment used to undertake the survey

- 2x Batlogger M detector;
- 1x Anabat Express bat detector with microphone
- ONBRIGHT 50 handheld torch
- 2x FORCLAZ ONNIGHT 50 headtorch

#### 2.4.2 Analysis

Analysis of the recorded bat calls were carried out using Bat Explorer software, version 2.1.50 and AnalookW for bat call analysis data recorded with the batlogger M detector and Anabat Insight software for bat call analysis data recorded with the Anabat Express static bat detector. This enabled calls to be identified down to species level. Not all calls made by bats are clear when recorded as some bat species produce soft calls (e.g. *myotis sp.*) and are all very similar.

Therefore, along with running an auto ID selection, all viable recorded calls were checked manually for species selection and presence.

### 2.5 Survey Constraints

As bats are small opportunistic mammals, they have the ability to hide themselves in the smallest of gaps and crevices, as well as using different roost features throughout the active season. While every effort has been undertaken to observe bat roosts or bat activity, it should be kept in mind that temporal changes may occur such as roost suitability, i.e. the condition of the building structures may become such that it is no longer suitable for bat roosts.

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## 3.0 RESULTS

### 3.1 Static bat detector survey results

#### 3.1.1 Lifford 13/05/21 – 27/05/21

The Anabat express static bat detector was placed out on the Lifford side of the site from the 13/05/21 – 27/05/21, along an identified treeline of spruce trees that was considered to be a sensitive area of the site providing an extensive commuting corridor across the site running south to north through the site’s western area. Parts of this treeline are also proposed for clearance due to the proposed site layout and as such bat activity data was needed in order to assess suitable mitigation.

**Table 2. Static Bat Detector Results for Lifford**

Location	Grid Reference	Number of Records
54.835180 N, 7.475880 W, 0 m	H 33723 98706	1063
54.835230 N, 7.475700 W, 0 m	H 33735 98711	97
54.835280 N, 7.475190 W, 16 m	H 33768 98717	174
54.835320 N, 7.475810 W, 13 m	H 33728 98721	413
54.835330 N, 7.475670 W, 9 m	H 33737 98722	134
54.835350 N, 7.475180 W, 0 m	H 33768 98725	91

A total of 1972 were recorded by the Anabat express over the course of a 2 week period from the position along the spruce treeline. The recorded calls were primarily from common pipistrelle, soprano pipistrelle and Leisler’s bats. The high levels of recordings taken over the course of 2 weeks indicates this treeline is of importance for bats in the local area providing safe passage to commute across the site to the riverbanks and back on the Lifford side as well as providing extended access to foraging throughout the site and over the open grasslands of the coursing grounds, (see Appendix III).

#### 3.1.2 Strabane 06/07/21 – 15/07/21

The Anabat express static bat detector was placed out on the Lifford side of the site from the 06/07/21 – 15/07/21, along an identified treeline of mixed tree species that was considered to be a sensitive area of the site providing an extensive commuting corridor across the site running south to north along the site’s eastern boundary, (see Appendix I). Parts of this

treeline are also proposed for tree felling, potentially some lopping and artificial lighting, as such bat activity data was needed in order to assess suitable mitigation.

**Table 3. Static Bat Detector Results for Strabane**

Location	Grid Reference	Number of Records
54.834120 N, 7.468960 W, 27 m	H 34169 98591	92
54.834120 N, 7.469050 W, 22 m	H 34163 98591	142
54.834170 N, 7.468960 W, 20 m	H 34169 98596	111
54.834180 N, 7.468860 W, 10 m	H 34175 98598	301
54.834180 N, 7.468990 W, 10 m	H 34167 98598	330
54.834180 N, 7.468990 W, 2 m	H 34167 98598	136

A total of 1344 were recorded by the Anabat express over the course of a 9 day period from the position along the mixed tree species treeline. The recorded calls were primarily from common pipistrelle, soprano pipistrelle and Leisler’s bats. The high levels of recordings taken over the course of 9 days indicates this treeline is of importance for bats in the local area with the immediate area of the Strabane side sporting a dense wet woodland habitat with treelines extending north, east and south of the area offers strong foraging and commuting grounds for the local bat populations as well as offering sheltered flight paths to and from the River Foyle, (see Appendix IV).

## 3.2 Passive Transect Activity Surveys

### 3.2.1 Strabane Transect Survey 03/08/21

Due to the proposed site plan for the Strabane side of the site including lighted pathways and car access for the public to a well-lit carpark as well as the high activity levels revealed by the static bat detector, it was determined that a detailed passive transect survey was required for the Strabane side of the site to better inform bat activity levels, abundance and site usage. The transects walked were the same as those walked by Delichon Ecology in 2020, (see Figure 3), in order to preserve continuity between the two consulting reports.

**Table 4. Passive Transect survey Weather conditions**

Surveyor	Date	Start time	Sunset	Finish time	(°C)	Beaufort scale	Cloud - cover	Precipitation
Ryan Boyle BSc, MSc Conor Finlay BSc, MSc	03/08/21	21:30	21:45	23:45	15	3	8/8	25

No bats were observed emerging from any trees along the pre-destined transects, however, high levels of activity were observed throughout the site of bats commuting and foraging throughout the site along linear features and riverbanks. The species detected included Leisler's bat (*Nyctalus leisleri*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Common Pipistrelle (*Pipistrellus pipistrellus*). No roosts were detected but high levels of bat activity were confirmed throughout the site with heavy reliance of linear features throughout the site (see Appendix V).

**Table 5. Summary of Bat Activity 03/08/2021**

Time	Species	No. of bats	Activity	Observation
21:40	<i>Pipistrellus pygmaeus</i>	4	Foraging	4 bats observed foraging around the old concrete entrance area on Strabane side above surveyors
21:51	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat observed commuting north along the eastern boundary between the treelines
21:52	<i>Pipistrellus pipistrellus</i> <i>Pipistrellus pygmaeus</i>	2	Commuting	A single bat was observed commuting north

				along the eastern boundary between the treelines while a second bat was audibly heard at 49khz but not visually observed
21:54	<i>Pipistrellus pygmaeus</i>	1	Foraging	Travelling south foraging before turning around and going south again
21:54	<i>Pipistrellus pygmaeus</i>	2	Foraging	Both bats were observed travelling south foraging before turning around and going south again
21:55	<i>Pipistrellus pygmaeus</i>	1	Commuting	Commuting south across the site
21:56	<i>Pipistrellus pipistrellus</i>	2	Foraging	Both bats were observed foraging in the Strabane side's north-east corner of the site
21:59	<i>Pipistrellus pygmaeus</i>	1	Commuting/foraging	Single bat observed commuting towards most norther area of site while foraging

22:00	<i>Pipistrellus pygmaeus</i>	1	Commuting/foraging	Single bat observed travelling south as it foraged
22:08	<i>Pipistrellus pygmaeus</i>	2	Commuting	2 bats were observed commuting across the site originally going north before circling above the surveyors and continuing north along the eastern boundary
22:11	<i>Pipistrellus pygmaeus</i>	2	Commuting	2 bats observed travelling south before turning back to go north
22:12	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat originally observed travelling north before quickly changing course and travelling west
22:13	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat originally observed travelling north before quickly changing course and travelling west

22:13	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat observed travelling south
22:17		0	No activity	No activity observed or recorded near the river
22:19	<i>Pipistrellus pygmaeus</i>	3	Foraging/commuting	3 bats were audibly heard at 50, 49 and 55khz at the edge of the river but not visually observed
22:20	<i>Pipistrellus pygmaeus</i> <i>Pipistrellus pipistrellus</i>	2	foraging	2 bats observed foraging at the water surface of the river
22:23	<i>Pipistrellus pipistrellus</i>	1	Foraging	1 bat observed foraging at the water surface of the river
22:38	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat audibly heard but not visually seen
22:39	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat audibly heard but not visually seen
22:42	<i>Pipistrellus pipistrellus</i>	1	Commuting	Single bat audibly heard but not visually seen
22:51	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat audibly heard but not visually seen

22:57	<i>Pipistrellus pipistrellus</i> <i>Pipistrellus pygmaeus</i>	2	Commuting	2 bats were audibly heard at 55 and 42khz but not visually seen
22:59	<i>Pipistrellus pygmaeus</i>	1	Commuting	Single bat audibly heard but not visually seen
23:04	<i>Pipistrellus pipistrellus</i>	1	Foraging	Single bat observed foraging along road and streetlamps near ASDA

### 3.2.2 Strabane Transect survey 10/08/21

**Table 6. Passive Transect survey Weather conditions**

Surveyor	Date	Start time	Sunset	Finish time	(°C)	Beaufort scale	Cloud - cover	Precipitation
<b>Ryan Boyle BSc, MSc</b> <b>Emily Taylor BSc, MSc</b>	10/08/21	21:30	21:45	23:45	13	2	3	10

Similarly to the previous transect survey carried out on the 03/08/2021 no bats were observed emerging from any trees along the pre-destined transects, however, high levels of activity were observed throughout the site of bats commuting and foraging throughout the site along linear features. The species detected included Leisler's bat (*Nyctalus leisleri*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Common Pipistrelle (*Pipistrellus pipistrellus*) and a single Brown Long-eared bat (*Plecotus auratus*) and 2x Daubentons bat (*Myotis daubentoniid*). No roosts were detected but high levels of bat activity were confirmed throughout the site with heavy reliance of linear features throughout the site, (see Appendix V).

**Table 7. Summary of Bat Activity 10/08/2021**

Time	Species	No. of bats	Activity	Observation
21:32		1	Commuting	Single bat observed commuting south along the treeline on the Strabane side of the site along the eastern boundary
21:37		2	Foraging	Two bats observed foraging along the treeline going north
21:37		1	Foraging	A single bat observed foraging going south before turning east
21:38		1	Commuting	Single bat observed travelling south along the treelines before turning east
21:41		1	Foraging	A single bat observed foraging along the treeline along the eastern boundary going south before turning back north
21:44		1	commuting	A single bat observed commuting across the site going south
21:44		1	Foraging	A single bat observed foraging going north before turning east a single bat observed foraging along the treeline going north before crossing over the surveyors and going

Time	Species	No. of bats	Activity	Observation
				east
21:45		1	Foraging	A single bat observed foraging going south along the treelines
21:46		1	Foraging	A single bat observed foraging as it travelled north before turning back south
21:46		1	Foraging	A single bat observed foraging as it circled above the surveyors
21:47		1	Commuting	A single bat observed commuting across the site going north
21:48		1	Foraging	A single bat observed foraging as it circled above the surveyors
21:49		1	Commuting	A single bat observed commuting across the site going north
21:50		1	Commuting	Single Bat audibly heard but not visually seen
21:51		1	Commuting	A single bat observed commuting across the site going north
21:52		1	Foraging	A single bat observed commuting across the site going north
21:53		1	Commuting	A single bat observed commuting across the site going north
21:54		1	Foraging	A single bat was observed

Time	Species	No. of bats	Activity	Observation
				foraging as it travelled south before turning back north
21:54		1	Foraging	A single bat was observed foraging as it travelled south before turning to go west
21:55		2	Commuting	2x bats were observed commuting across the site going south
21:56		1	Foraging	A single bat was observed foraging as it travelled south
22:00		1	Foraging	A single bat was observed foraging as it travelled north
22:02		1	Commuting	Single Bat audibly heard but not visually seen
22:08		1	Commuting	Single Bat audibly heard but not visually seen
22:11		1	Commuting	Single Bat audibly heard but not visually seen
22:19		1	Commuting	Single Bat audibly heard but not visually seen
22:23		1	Commuting	Single Bat audibly heard but not visually seen
22:24		1	Commuting	Single Bat audibly heard but not visually seen
22:25		1	Commuting	Single Bat audibly heard but not visually seen
22:26		1	Commuting	Single Bat audibly heard but not visually seen

Time	Species	No. of bats	Activity	Observation
22:30		1	Commuting	Single Bat audibly heard but not visually seen
22:33		1	Commuting	Single Bat audibly heard but not visually seen
22:35		1	Commuting	Single Bat audibly heard but not visually seen
22:36		1	Commuting	Single Bat audibly heard but not visually seen
22:36		2	Commuting	Two Bat audibly heard but not visually seen
22:37		1	Commuting	Single Bat audibly heard but not visually seen
22:38		1	Commuting	Single Bat audibly heard but not visually seen
22:38		1	Commuting	Single Bat audibly heard but not visually seen
22:39		1	Commuting	Single Bat audibly heard but not visually seen
22:40		2	Commuting	Two Bat audibly heard but not visually seen
22:41		1	Commuting	Single Bat audibly heard but not visually seen
22:45		1	Commuting	Single Bat audibly heard but not visually seen

## 4.0 SUMMARY OF RESULTS

Bat activity comprising of foraging and commuting behaviour was found to be at a high level across the site during the surveys. Moderate species diversity of bats was also detected on site with *Pipistrellus pygmaeus* and *Pipistrellus pipistrellus* being most common followed by *Nyctalus leisleri* recorded during the surveys. Throughout the survey no bats were observed emerging from any trees during the transect walks indicating that the site is primarily used for foraging and commuting as suggested in the previous bat roost potential

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survey, (P2288), where no evidence of bats residing in the trees was observed i.e.: no staining, droppings, insect wings and the presence of cobwebs.

Overall, the site experienced a substantial level of activity for a semi-rural riverine location. In terms of bats usage of the site; it was noted to facilitate bats to commute to different areas of the wider environment while also periodically foraging within it. It was noted that bats were commuting towards the banks of the River Foyle to and from the mature trees and hedgerows along the eastern boundary and the hedgerow boundaries within the agricultural fields to the north, south and east of the site during the survey.

In terms of the impact of the proposed development to bats:-

- Despite including wooded areas and tree lines, the site has limited bat roosting potential (Ref. Bat Roost Potential Survey,. Appendix 8-7). Therefore, the development, involving some tree removal and demolition works of existing structures, is not likely to impact on bat roost or roosting potential in the area.
- The operational phase of the development has the potential to impact on important bat foraging and commuting lands, primarily due to the introduction of lighting for access and car parking. Light pollution can disorientate and dissuade foraging and commuting bats from their nighttime activities and this can have knock-on effects for the bat population and breeding.
- Construction lighting has the potential to impact on bats in a similar fashion to the operational phase of the development.

## **5.0 ASSESSMENT AND RECOMMENDATIONS**

### **5.1.1 Mitigation**

Throughout the survey period no bats were observed emerging or entering any of the trees on site but high activity levels were observed throughout. The results indicate that the site itself is important to the local bat population supporting unrestricted foraging and commuting opportunities through the site to the wider Strabane and Lifford area. The proposed plans for the scheme involve extensive lighting of public pathways through the Strabane side of the site as well as lighting for a a new car park located at the former halting site on the Strabane side as well as some pathways, a play park, car parking and

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maintenance compound on the Lifford side. A single span foot/bicycle bridge spanning the River Foyle is also proposed with lighting.

A recent consultation with Dr Jon Lees of NIEA highlighted concerns over proposed lighting for the scheme in relation to bats and other wildlife. As this is a greenspace project it is not usually inclusive of a lighting scheme, however, due to health and safety concerns and the plans for incorporation of facial recognition with CCTV cameras lighting has been requested by the client to ensure these topics are addressed. NIEA has suggested no lighting would be preferred but has suggested that if lighting is required it should be designed to provide a low 1 lux level in order to have a minimal impact on the bats present within the area. It was also recommended that low lux level, red wildlife lighting may be used instead as this would allow for lighting to be implemented without potential negative impacts to the local bat population.

### **Strabane & Lifford**

Current proposed lighting for the Strabane and Lifford sides of the scheme are reflective of each other for the designated areas of the site, (see Appendices VII, VIII, VIII & X). Proposed lighting scheme includes:

#### ***Lighting of the carpark***

Lighting of the area to “BS5489-1:2020 Design of road lighting. Part 1 Lighting of roads and public amenity areas – code of practice” in order to provide a minimum average horizontal illuminance of 17.74 lux with approximately 1 lux level towards car park boundaries and minimum uniformity of 0.25. The roads will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. The colour temperature will be 2700K (warm white) with a CRI of 80.

The luminaires will look to comply with the ILP Guidance note 08/18 Bats and artificial lighting in the UK. This is achieved by:

- LED Luminaires
- Colour temperature – warm white
- Upward Light Output Ratio = 0% (except for bridge feature lighting)
- Good lens control

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Controls prevent unnecessary lighting thereby reducing light pollution, electrical energy consumption and carbon emissions. Seasonal lighting, presence and absence control and adaptive lighting can be used.

- Seasonal lighting – lighting only comes on at dusk
- Presence & Absence control – Lanterns only come on during use and go off again a short time after.
- Adaptive lighting – lighting levels can be increased or reduced down to zero depending on the usage expected.

***Lighting of the vehicle entrance road***

Lighting of the area to “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class C4 which will provide a minimum average horizontal illuminance of 12.79 lux with a minimum uniformity of 0.4. The roads will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. The colour temperature will be 2700K (warm white) with a CRI of 80.

The luminaires will look to comply with the ILP Guidance note 08/18 Bats and artificial lighting in the UK. This is achieved by:

- LED Luminaires
- Colour temperature – warm white
- Upward Light Output Ratio = 0% (except for bridge feature lighting)
- Good lens control

Controls prevent unnecessary lighting thereby reducing light pollution, electrical energy consumption and carbon emissions. Seasonal lighting, presence and absence control and adaptive lighting can be used.

- Seasonal lighting – lighting only comes on at dusk
- Presence & Absence control – Lanterns only come on during use and go off again a short time after.
- Adaptive lighting – lighting levels can be increased or reduced down to zero depending on the usage expected.

The columns would be spaced at about 20m intervals.

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### ***Lighting of the core pedestrian: cycle route***

Lighting of the area to “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 6.71 lux with a minimum vertical illumination of 1.5 for facial recognition with a minimum uniformity of 0.4. The paths will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. The colour temperature will be 2700K (warm white) with a CRI of 80 which aids facial recognition.

The luminaires will look to comply with the ILP Guidance note 08/18 Bats and artificial lighting in the UK. This is achieved by:

- LED Luminaires
- Colour temperature – warm white
- Upward Light Output Ratio = 0% (except for bridge feature lighting)
- Good lens control

Controls prevent unnecessary lighting thereby reducing light pollution, electrical energy consumption and carbon emissions. Seasonal lighting, presence and absence control and adaptive lighting can be used.

- Seasonal lighting – lighting only comes on at dusk
- Presence & Absence control – Lanterns only come on during use and go off again a short time after.
- Adaptive lighting – lighting levels can be increased or reduced down to zero depending on the usage expected.

5 lux has been suggested for this as it was considered that 1 lux would not be appropriate or sufficient for mixed traffic, (pedestrians and cyclists).

### ***Lighting of the primary path route from the car park to the bridge location***

Lighting of the area to “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 7.23 lux with a minimum vertical illumination of 1.5 for facial recognition with a minimum uniformity of 0.4. The paths will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting

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technology. The colour temperature will be 2700K (warm white) with a CRI of 80 which aids facial recognition.

The luminaires will look to comply with the ILP Guidance note 08/18 Bats and artificial lighting in the UK. This is achieved by:

- LED Luminaires
- Colour temperature – warm white
- Upward Light Output Ratio = 0% (except for bridge feature lighting)
- Good lens control

Controls prevent unnecessary lighting thereby reducing light pollution, electrical energy consumption and carbon emissions. Seasonal lighting, presence and absence control and adaptive lighting can be used.

- Seasonal lighting – lighting only comes on at dusk
- Presence & Absence control – Lanterns only come on during use and go off again a short time after.
- Adaptive lighting – lighting levels can be increased or reduced down to zero depending on the usage expected.

Again, 5 lux has been suggested for this as it was considered that 1 lux would not be appropriate or sufficient for mixed traffic, (pedestrians and cyclists).

#### Bridge Lighting

Proposed lighting for the bridge structure includes the Garda Classic, asymmetric module at 2700K (less white light) and some feature lighting directed away so as to not directly land on the water surface. Full details of the proposed bridge lighting are presented in Appendix X.

Overall, on both sides of the site, light spill from the proposed development should be minimised as far as possible. No lighting should be directed towards existing mature vegetation i.e. mature trees or boundary hedgerows. All terrestrial lighting should be fitted with directional hoods and/or luminaires to direct the light downwards onto targeted areas and to prevent unnecessary light-spill. Any external lighting around any structures (e.g.

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safety lights at the front and rear) should be fitted with motion sensors (timer of up to 60 seconds). Finally, the intensity of lighting should be kept to the minimum level required for safety. Low-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least adverse effect on bats.

With respect to the bridge lighting, lights should be directed away from the river and the riverbanks so as to not directly land on the water surface or trees and vegetation on the banks.

Any planting of hedgerows or trees should follow the NIEA's native species planting guidance.

## 6.0 CONCLUSIONS

Surveys and ecological assessments at this site have concluded that no roosts were located throughout the proposed Riverine Scheme site on both the Strabane and the Lifford side of the site. The area, as expected, supported high levels of commuting and foraging for at least three species of bats. Due to the observed and recorded activity levels for bats on site it is confirmed that the site, in particular the Strabane side, are of importance to the local bat population and provide extensive corridors for unrestricted foraging and commuting through the wider area and along the riverine habitat of the River Foyle.

Proposed lighting the Riverine Scheme is considered to have the greatest impact on the local bat population and the use of the site by bats. Proposed lighting should take into consideration the local bat population and site usage by the bats. And where possible lighting should be avoided altogether. Where not possible consideration should be given for British standards, health and safety as well as the local bat populations and their use of the site to avoid potential negative impacts on bats usage of the site.

Report Prepared By: -

Reviewed By: -

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**Consultant Ecologist**

**Conor Finlay BSc (Hons), MSc**  
**Graduate Environmental Consultant**

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## 7.0 REFERENCES

Bat Conservation Trust Artificial Lighting Guidance available at <https://www.bats.org.uk/our-work/buildings-planning-and-development/lighting>

CIEEM (2015) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3<sup>rd</sup> edn). The Bat Conservation Trust, London.

NIEA Planting guide available at: <https://www.daera-ni.gov.uk/sites/default/files/publications/doe/natural-guidance-native-species-planting-guidance-2012.pdf>

Northern Ireland Environment Agency Species Planting Guidelines – <https://www.daera-ni.gov.uk/publications/native-species-planting-guidance>

Trees & Development – A guide to Best Practice available at <https://www.planningni.gov.uk/downloads/best-practice-trees-2.pdf>

**FIGURES**



**Figure 4. North facing view of River Foyle banks on the Strabane side with Wooded areas**



**Figure 5. Overview of Strabane's wet woodland habitat**



**Figure 6. Riverine habitat**



**Figure 7. Strabane side north east corner**



**Figure 8. Treeline along Strabane eastern boundary where static bat detector was placed**



**Figure 9. Old concrete area at site entrance on Strabane side surrounded by trees**



**Figure 10. Overview of Lifford side of site including spruce treeline**



**Figure 11. Small shed/storage structure from MCL's BRP**



**Figure 12. Overview of riverine habitat showing proposed bridge crossing location**



**Figure 13. Spruce treeline along western area of Lifford side where the static bat detector was placed**



**Figure 14. Overview of Lifford side of site with the old hare coursing viewing stand from the BRP**



**Figure 15. Extent of Lifford's spruce treeline**

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**APPENDICES**

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Appendix I: Concept Site Layout Strabane

River Foyle

Park Road

Barnhill Road

Match Line to drawing ref: 1383-TPHC-ZO-XX-DR-LA-xxxx\_revP00

Match Line to drawing insert (see right)

Match Line to drawing insert (see left)

**Access to Headwall / Flow Control**  
Existing access to Headwall flow control to be retained. Perimeter fence will be repaired as needed.

**Strabane North Greenway**  
Will be progressed separately to Riverine Community Park but coordinated ensuring that connections are mutually considered and agreed.

**Adjacent Site**  
No proposals within site, to remain as existing.

**Pond**  
Existing planting retained to as much as possible. Native aquatic & marginal planting proposed to improve ecology.

**Bridge Landing**  
At the bridge landing point, a seating area is proposed to ensure that there is an opportunity to appreciate the spectacular vantage point looking along the River Foyle, also overlooking the parkland on both sides.

**Riverside Access**  
Existing riverside access will be retained.

**Proposed Boardwalk**  
The existing landscape in Strabane has naturalised, having benefited from many years of neglect. In this respect it holds many important ecologically sensitive assets. To ensure that these can provide visitor experience anticipated the boardwalk enables elevated access ensuring that wildlife retains safe passage with minimal disturbance to ecology.

**Invasive Weeds**  
There are a number of areas throughout the site which have stands of invasive weeds. These will be managed in location where possible. Refer to Invasive Weed Management Plan for more detail.

**Wildlife Passage Gates**  
Gates to be located at three points either proposed fence line and hedging. These will provide safe access for specific wildlife to ensure access to their feeding ground to the east. The gates are designed to ensure that livestock cannot use them the access points as a means of escape.

**Existing Planting**  
The Strabane site is typified by a naturalised and overgrown landscape evolved from its former use as a railway yard. The site now represents an ecologically sensitive landscape that brings many benefits which contribute positively to the proposed parkland. Existing planting provides a unique and distinctive habitat which is acknowledged within the proposals. Through identification and protection. Access within these areas is limited and planting will be encouraged to continue to grow. Additional native shrub planting will be planted to help reinforce benefits of this natural resource.

**Tree Planting**  
New Tree Planting is proposed throughout the project area where opportunities for proposed planting.

**Proposed Car Park**  
Located within the former railway site the proposed car park will be surfaced with new drainage and lighting. It will provide 125 spaces and 11 disabled bays and provision for 2 coach parking bays. Run off from the car parking will be managed by integrated sustainable drainage.

**Entrance**  
It is proposed that the site will be accessed from the Barnhill Road roundabout for vehicles, cyclists and pedestrians. Existing access to the agricultural lands to the west will be retained.

**LEGEND**

**SOFTWARES**

- Existing Trees & Planting To be retained and protected during works in accordance with BS5822
- Existing Trees & Planting To be removed. Crown identified in the absence of individual trees
- Proposed Native Trees Refer to planting schedule
- Proposed Native Wetland Trees Refer to planting schedule
- Proposed Specimen Trees Refer to planting schedule and details
- Proposed Hedgerow planting Refer to planting schedule and details
- Proposed Amenity Grassland Refer to planting schedule
- Proposed Wildflower (WF1) Refer to planting schedule
- Proposed Woodland Wildflower (WF2) Refer to planting schedule
- Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed SUGS Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed Native shrubs Refer to planting schedule
- Proposed Ornamental shrubs Refer to planting schedule

**SURFACES**

- Proposed Asphalt To asphalt and Cobble For detail refer to engineers drawing
- Proposed Asphalt For detail refer to engineers drawing
- Strabane North Greenway Progressed separately to this project
- Proposed High Friction Surface To asphalt and Cobble For detail refer to engineers drawing
- \*Natural Stone Paving Refer to detail
- Proposed Boardwalk Refer to detail
- Reinforced Grass Refer to detail
- Proposed Gravel Path Refer to detail
- \*Proposed Slipway Surface Refer to detail also engineers drawings for detail
- \*Wetpour Safety Surfacing Refer to detail
- \*Reinforced Grass Safety Surfacing Refer to detail
- \*Wet Back Safety Surface specifically for play areas
- Stone Clusters Refer to detail

**FEATURES**

- Existing Walls To be retained
- Existing Fencing To be retained / repaired as required
- 2.4m Security Fencing Refer to detail
- Metal Estate Fencing Refer to detail
- Stock Proof Fencing Refer to detail
- Existing Fencing to be removed
- Steps and Terracing Refer to detail
- Proposed Benches Refer to detail
- Bicycle stand locations Typical Sheffield stand
- Proposed Litter Bins 120L bins with single 300L recycled bin adjacent to Community Facilities
- Proposed Metal Gates Refer to detail
- Vehicle Upstand Kerb 125mm upstand. Pre Cast Concrete
- Vehicle Flush Kerb Pre Cast Concrete
- Pie Kerb Pre Cast Concrete

**MISCELLANEOUS**

- Site Boundary - Application under Roads Act, Section 51(2)
- Adjoining Riverine Community Park Boundary (RCP)
- Riverine Community Park Boundary (R)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- All Hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance to Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed.
- Bridge Refer to engineers proposals
- Invasive Weeds Refer to invasive weed management plan
- Topographic Survey Information Planting There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.

**Planting Loss:**  
The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.

**Guarding:**  
is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the  
This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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Rev	Issue Date	Description	By
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.08.2021	Issued for Planning	HB

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**STAGE 3 - PLANNING**  
**RIVERINE COMMUNITY PARK**  
STRABANE RIVERINE COMMUNITY PARK  
LANDSCAPE LAYOUT (NI PLANNING)  
Scale: 1:500 @ A0  
Drawn: HB  
Date: 12.02.2021  
Checked: DM  
Date: 12.02.2021  
Approved: DM  
Date: 18.08.2021  
Project: RVCPC - TPHC - ZO - XX - DR - LA - 2051  
Revision: P02  
Project Number: 1383  
Status code & description: ST2 Issued for information  
All measurements are in metres. Figure dimensions to be taken in preference to written dimensions. Dimensions are to be provided on site. ©2021 Paul Hogarth Design Ltd

Drawing Insert  
Scale 1:500 @ A0

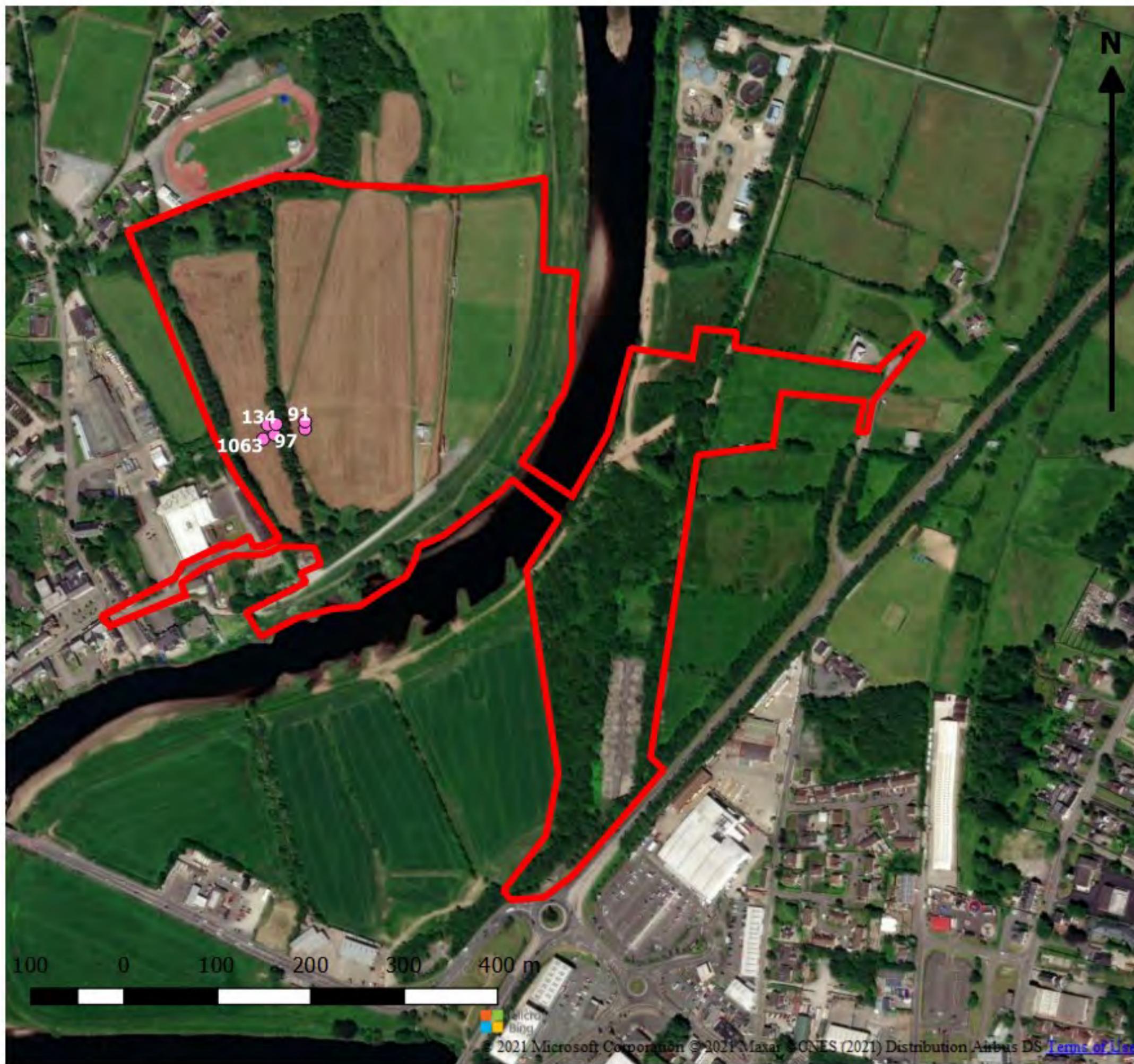
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Appendix II: Concept Site Layout Lifford



---

## Appendix III: Lifford static Bat Detector Records



## Legend

- Static Bat Detector May 2021
- Red Lined Boundary

Appendix III: Lifford Static Bat Detectors

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 1:5758 @ A3

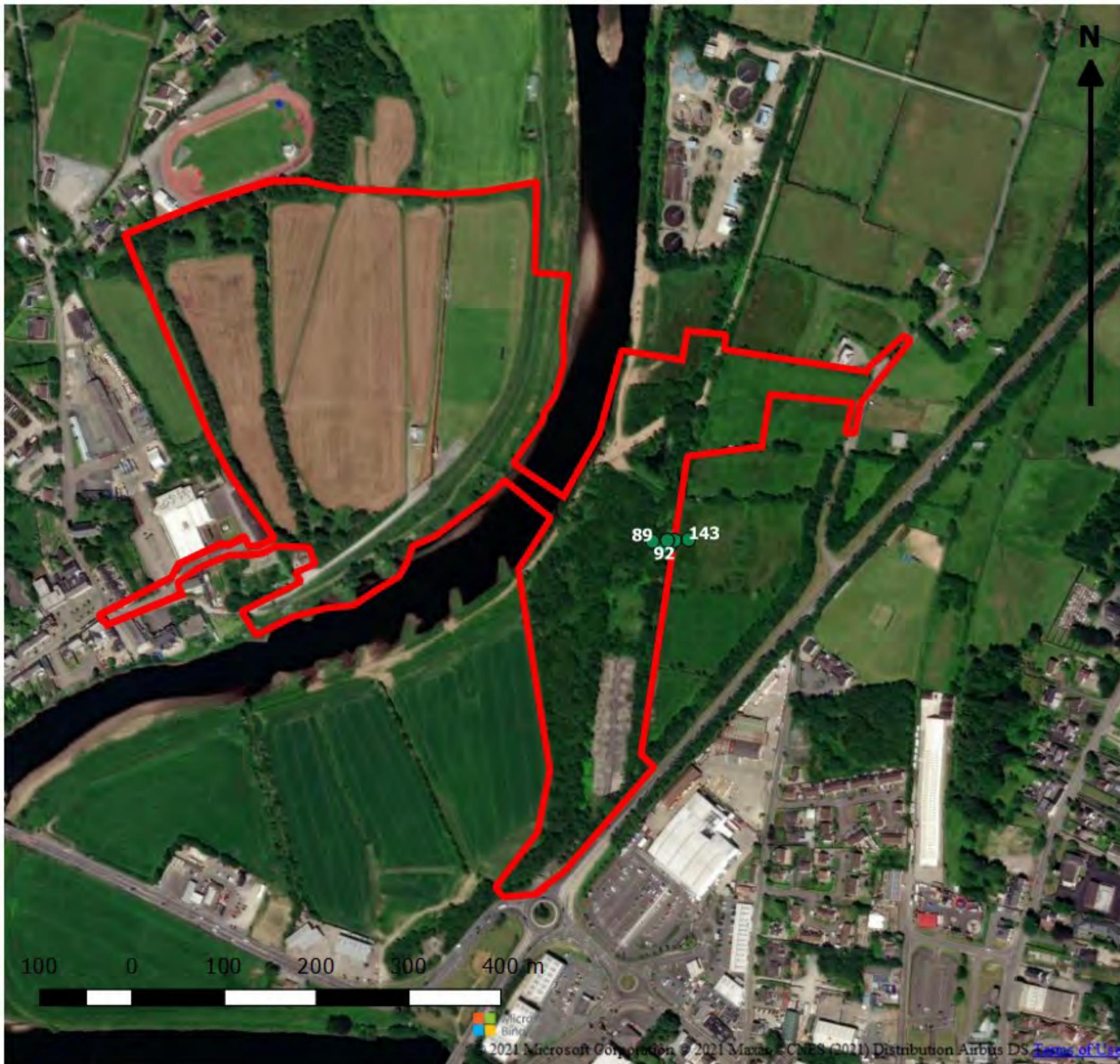
Date: 04/08/2021



Unit 5, Forty Eight North, Duncrue Street  
 Belfast  
 BT3 9BJ  
 Tel: 02890747766

---

## Appendix IV: Strabane Static Bat Detector Records



### Legend

- Static Bat Detector July 2021
- Red Lined Boundary

Appendix IV: Strabane Static Bat Detectors

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 1:5840 @ A3

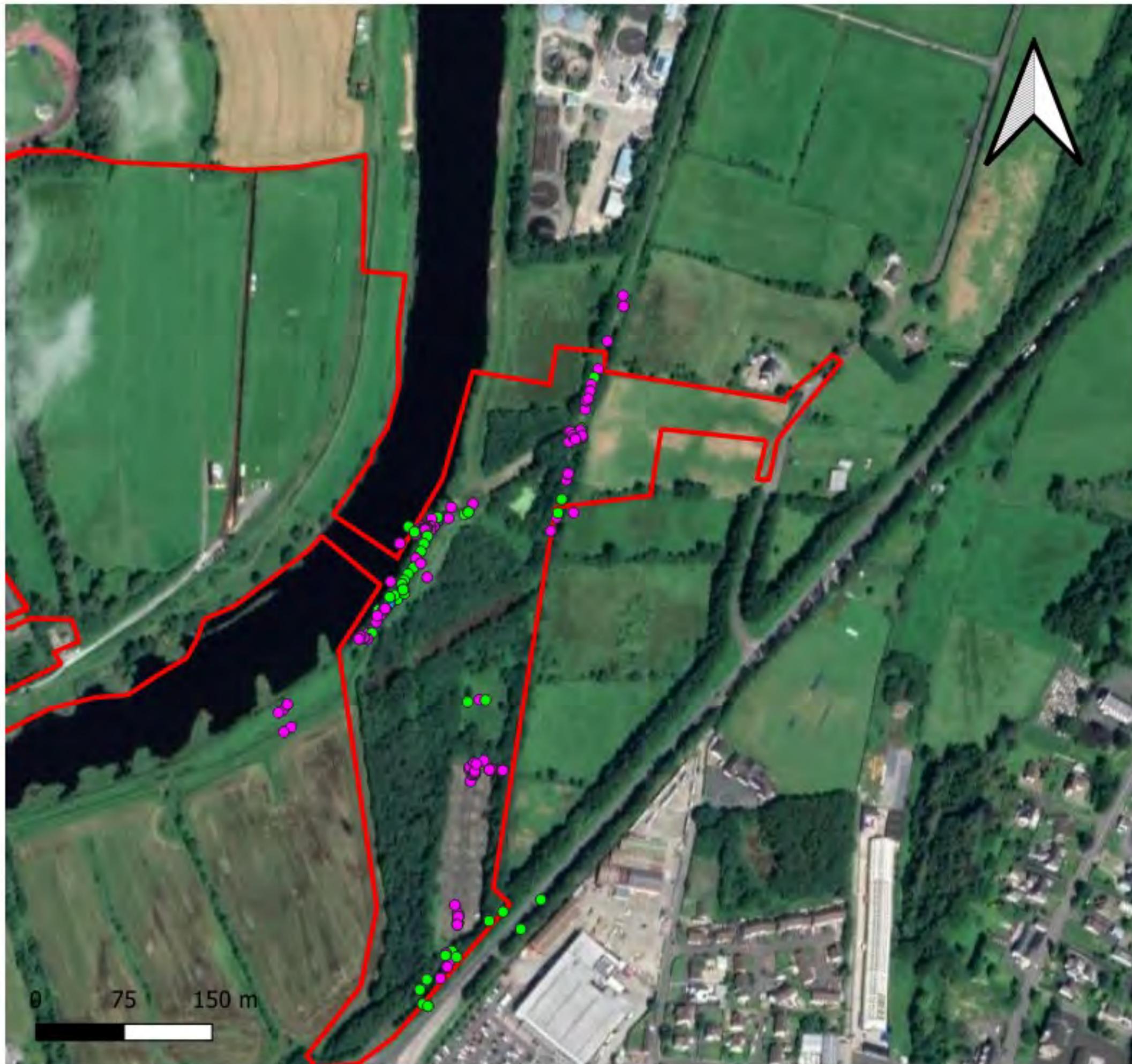
Date: 04/08/2021



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---

Appendix V: Passive Transect Bat Activity Survey 03.08.21



### Bat Activity Transect Survey

Date 03/08/2021

- Nyctalus leisleri
- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Red Lined Boundary

Appendix V: Passive Transect Bat Activity Survey 03.08.21

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 8000

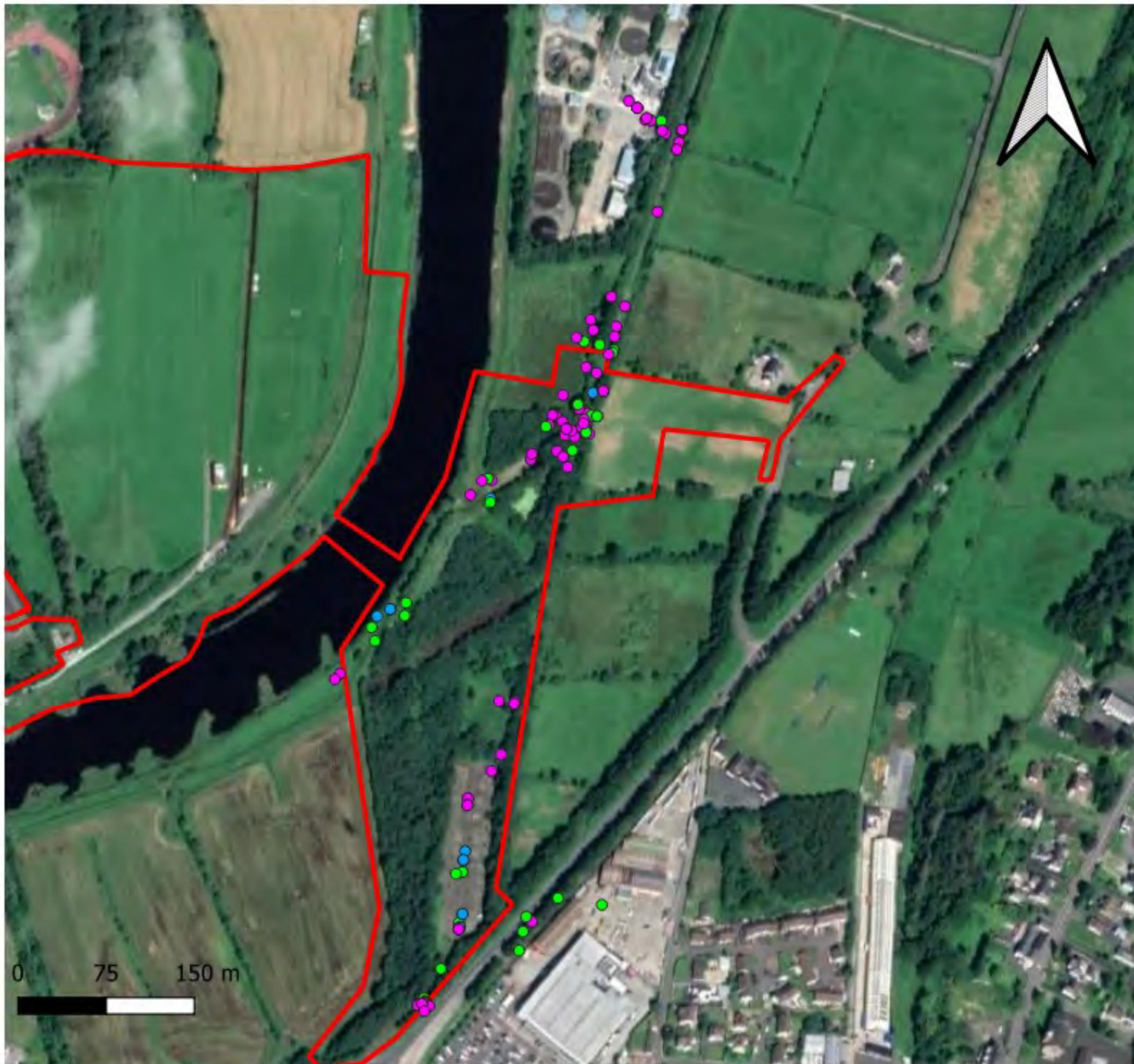
Date: 11/08/2021



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---

Appendix VI: Passive Transect Bat Activity Survey 10.08.21



## Bat Activity Transect Survey

Date: 10/08/2021

- Myotis daubentonii
- Nyctalus leisleri
- Pipistrellus pipistrellus
- Pipistrellus pygmaeus
- Plecotus auritus
- Red Lined Boundary

Appendix VI: Passive Transect Bat Activity Survey 10.08.21

Created by: Ryan Boyle

Reviewed by: Conor Finlay

Client: McAdam Design

Scale: 8000

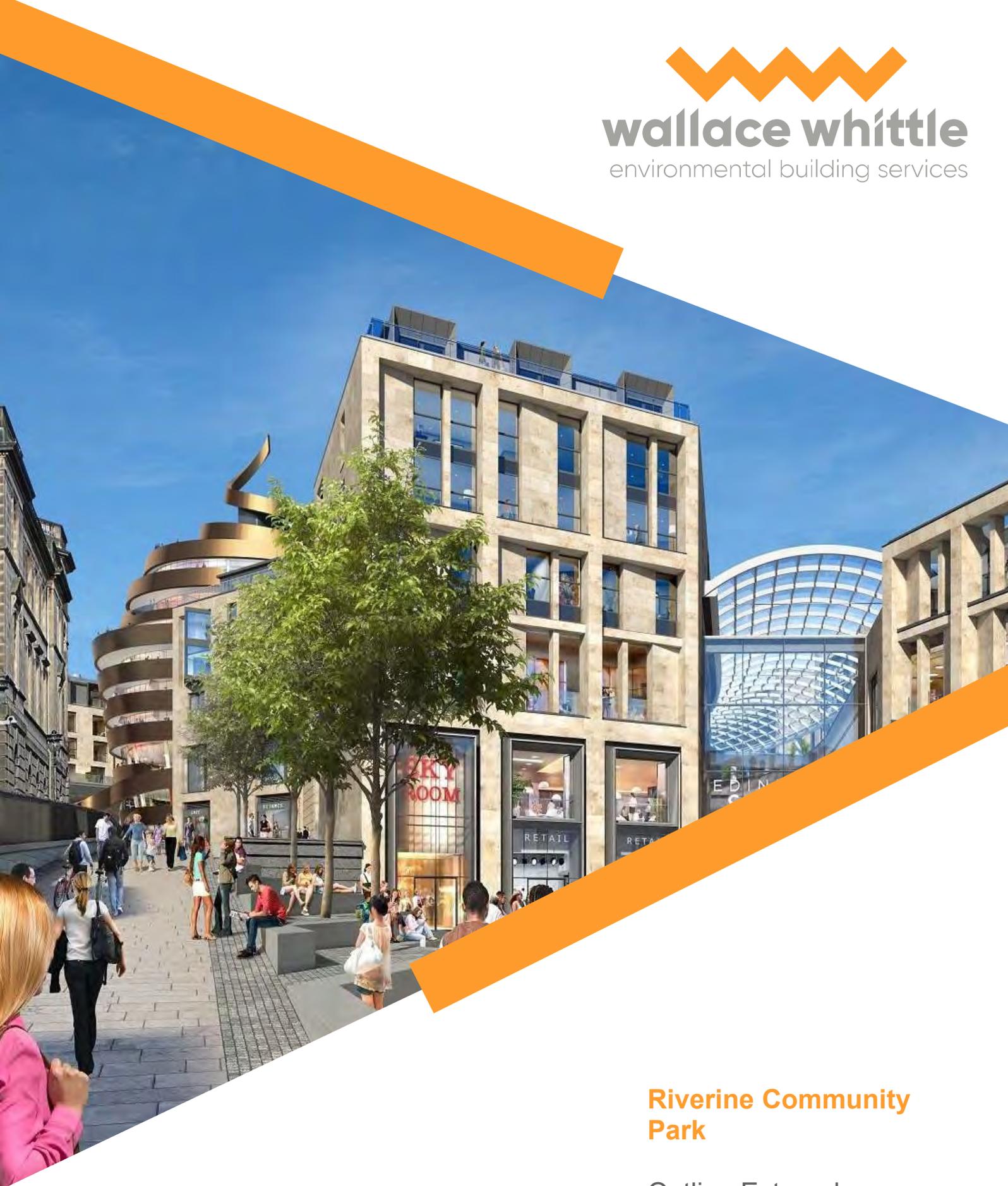
Date: 11/08/2021



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---

Appendix VII: Riverine Community Park External Lighting Narrative



**Riverine Community  
Park**

Outline External  
Lighting Narrative

August 2021

## 1.0 Issue / Revision Record

Issue	Date	By	Checked	Comment
1	04.08.2021	PQ	GMcC	Final Draft for Discussion



We aim to be the pre-eminent provider of quality sustainability driven building services solutions and the best to work with, in the view of our clients, partners and colleagues. We believe in a sustainability led approach to design for the benefit of our clients and the world we live in.

It is our ultimate goal, to work closely with our fellow professionals and clients to minimise carbon emissions and to deliver a better environment for us all to live in.

### Issue / Revision Record

Issue	Date	By	Checked	Comment
1	04.08.2021	PQ	GMcC	Final Draft for Discussion

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<b>1.0 Introduction</b>	<b>4</b>
<b>2.0 Lighting</b>	<b>5</b>

## Issue / Revision Record

Issue	Date	By	Checked	Comment
1	04.08.2021	PQ	GMcC	Final Draft for Discussion

## 1.0 Introduction

This design will provide an aesthetically pleasing, low maintenance and uniformly lit external space to enable users to orientate themselves, identify other users, detect potential hazards, discourage crime and engender a feeling of safety and security. All external luminaires will be at least IP66, IK10 where appropriate on glass and coverings, have a minimum warranty of 5 years to cover all LEDs, power packs, drivers, glass covers and other associated parts and procurement will consider future costs and availability of equipment after warranty period expires.

### 1.1. Environmental mitigation measures

The luminaires will look to comply with the ILP Guidance note 08/18 Bats and artificial lighting in the UK. This is achieved by:

- LED Luminaires
- Colour temperature – warm white – 2700k
- Upward Light Output Ratio = 0% (except for bridge feature lighting)
- Good lens control to avoid light spillage

Lighting columns will be positioned so that they are as far as possible from mapped badger runs thereby reducing the chance PIR devices on the lighting columns will be activated.

### 1.2. Controls

Controls prevent unnecessary lighting thereby reducing light pollution, electrical energy consumption and carbon emissions. Seasonal lighting, presence and absence control and adaptive lighting can be used.

- Seasonal lighting – lighting only comes on at dusk
- Presence & Absence control – Lanterns only come on during use and go off again a short time after.
- Adaptive lighting – lighting levels can be increased or reduced down to zero depending on the usage expected.

Given the dynamic nature of the lighting controls an individual from the council will need to take on the responsibility to manage the controls to suit once use of the park has been established over time. Pre-setting the lighting controls at the start is unlikely to give optimum performance over the long term.

## 2.0 Lighting

### 2.1. Lifford Approach Road

These areas will be illuminated to “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class C4 which will provide a minimum average horizontal illuminance of 10 lux with a minimum uniformity of 0.4. The roads will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. The colour temperature will be 2700K (warm white) with a Colour Rendering Index (CRI) of 80. Luminaires shall be mounted close to pedestrian crossing points. The columns can be supplied with a banner fitting if required. Seasonal lighting controls would apply in this area.

#### Sample Images

Precedent	Lantern
	
Brackets	Conical galvanised steel column plus banner
	

### 2.2. Car Parks

These areas will be illuminated to “BS5489-1:2020 Design of road lighting. Part 1: Lighting of roads and public amenity areas – code of practice” which will provide a minimum average horizontal illuminance of 10 lux with a minimum uniformity of 0.25. The roads will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. The colour temperature will be 2700K (warm white) with a CRI of 80. Luminaires shall be mounted close to pedestrian crossing points. The columns can be supplied with a banner fitting if required. Seasonal lighting, Presence & Absence control and Adaptive lighting controls would apply in this area.

**2.3. Combined Pedestrian and Cycling Paths**

These areas will be illuminated to “BS EN 13201-2:2015 Road Lighting - Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 5 lux with a minimum vertical illumination of 1.5 lux for facial recognition. The paths will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. The colour temperature will be 2700K (warm white) with a CRI of 80 which aids facial recognition. The columns can be supplied with a banner fitting if required. Seasonal lighting, Presence & Absence control and Adaptive lighting controls would apply in this area.

**2.4. Hub Building**

This area around the building will be illuminated to BS5489-1:2020 Design of road lighting. Part 1: Lighting of roads and public amenity areas – code of practice Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 5 lux with a minimum vertical illumination of 1.5 lux for facial recognition. The external area will be illuminated using ceiling mounted external lights and ground mounted bollards. The colour temperature will be 2700K (warm white) with a CRI of 80. The ceiling mounted fittings and the bollards will utilise the latest LED lighting technology. Seasonal and Adaptive lighting controls would apply in this area.

Ceiling mounted downlight	Ground mounted bollard
	

- Hub Building outdoor backlit signage - This is part of the architectural package.

**2.5. Events Space**

This area will be illuminated to BS5489-1:2020 Design of road lighting. Part 1: Lighting of roads and public amenity areas – code of practice Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 5 lux with a minimum vertical illumination of 1.0 lux for facial recognition. The external area will be illuminated using a 6m galvanised conical steel lighting column. The street lighting lanterns will utilise the latest LED lighting technology. This design will provide an aesthetically pleasing, low maintenance and uniformly lit space for the wider public. The colour temperature will be 2700K (warm white) with a CRI of 80 which aids facial recognition. The columns can be supplied with a banner fitting if required. Seasonal and Adaptive lighting controls would apply in this area.

**2.6. Bridge**

**2.6.1. Functional Lighting**

This area will be functionally illuminated to BS5489-1:2020 Design of road lighting. Part 1: Lighting of roads and public amenity areas – code of practice Performance Requirements” compliant lighting class P5 which will provide a minimum average horizontal illuminance of 3 lux with a minimum vertical illumination of 1.0 lux for facial recognition. The colour temperature will be 2700K (warm white) will be used which is most fish friendly colour temperature available. A CRI of 80 will be used which aids facial recognition. The fitting will be incorporated into the bottom of a handrail at 1500mm AFFL. The latest LED lighting technology will be used and an asymmetric distribution will focus light onto the path rather than onto the river. Seasonal lighting, Presence & Absence control and Adaptive lighting controls would apply in this area.

Precedent	Lantern
	

**2.6.2. Feature Lighting**

Low level/deck mounted feature lighting to point upwards with a narrow spot optic to illuminate the vertical trusses in a controlled way. The feature lights will be LED and the colour temperature will be 2700K (warm white) to minimise the effect on wildlife. Maintenance of the luminaires will be from the bridge path via access hatches. Seasonal and Adaptive lighting controls would apply in this area.



### 2.7. O&M compound

The O&M compound within the Lifford site will be lit using flood lights directly mounted on the outside of compound building. This area will be illuminated to BS5489-1:2020 Design of road lighting. Part 1: Lighting of roads and public amenity areas – code of practice Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 5 lux with a minimum vertical illumination of 1.0 lux for facial recognition. The external area will be illuminated using building mounted floodlights and will utilise the latest LED lighting technology. This design will provide an aesthetically pleasing, low maintenance and uniformly lit space for council workers. The colour temperature will be 2700K (warm white). Seasonal and Adaptive lighting controls would apply in this area.



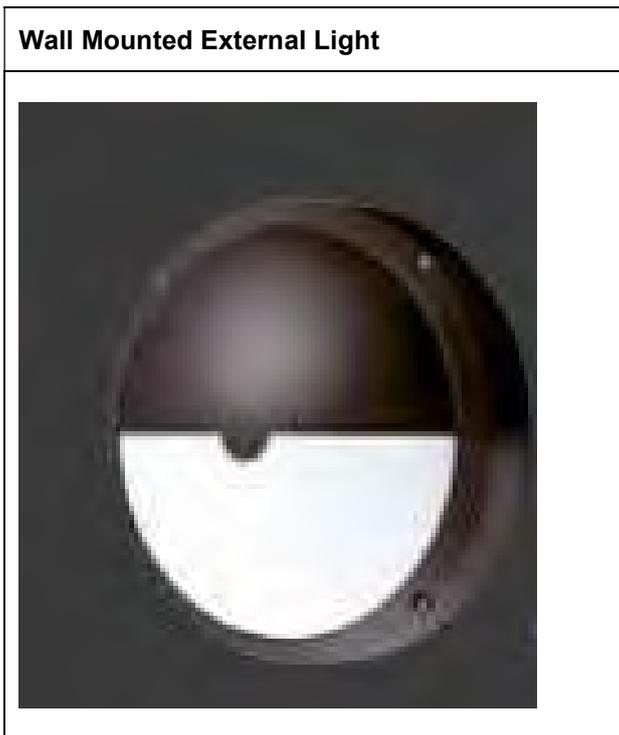
### 2.8. Quayside Lifford

The external area will be illuminated in an emergency using a 6m galvanised conical steel lighting column. The flood light will utilise the latest LED lighting technology. This design will provide an aesthetically pleasing, low maintenance and lit space during emergencies. The colour temperature will be 2700K (warm white). Method of control to be established.



## 2.9. Coursing Ground Building Lifford

This area will be illuminated to BS5489-1:2020 Design of road lighting. Part 1: Lighting of roads and public amenity areas – code of practice Performance Requirements” compliant lighting class P4 which will provide a minimum average horizontal illuminance of 5 lux with a minimum vertical illumination of 1.0 lux for facial recognition. The colour temperature will be 2700K (warm white) with a CRI of 80. The external area will be illuminated using wall mounted external lights. The wall mounted fittings will utilise the latest LED lighting technology. Seasonal and Adaptive lighting controls would apply in this area.





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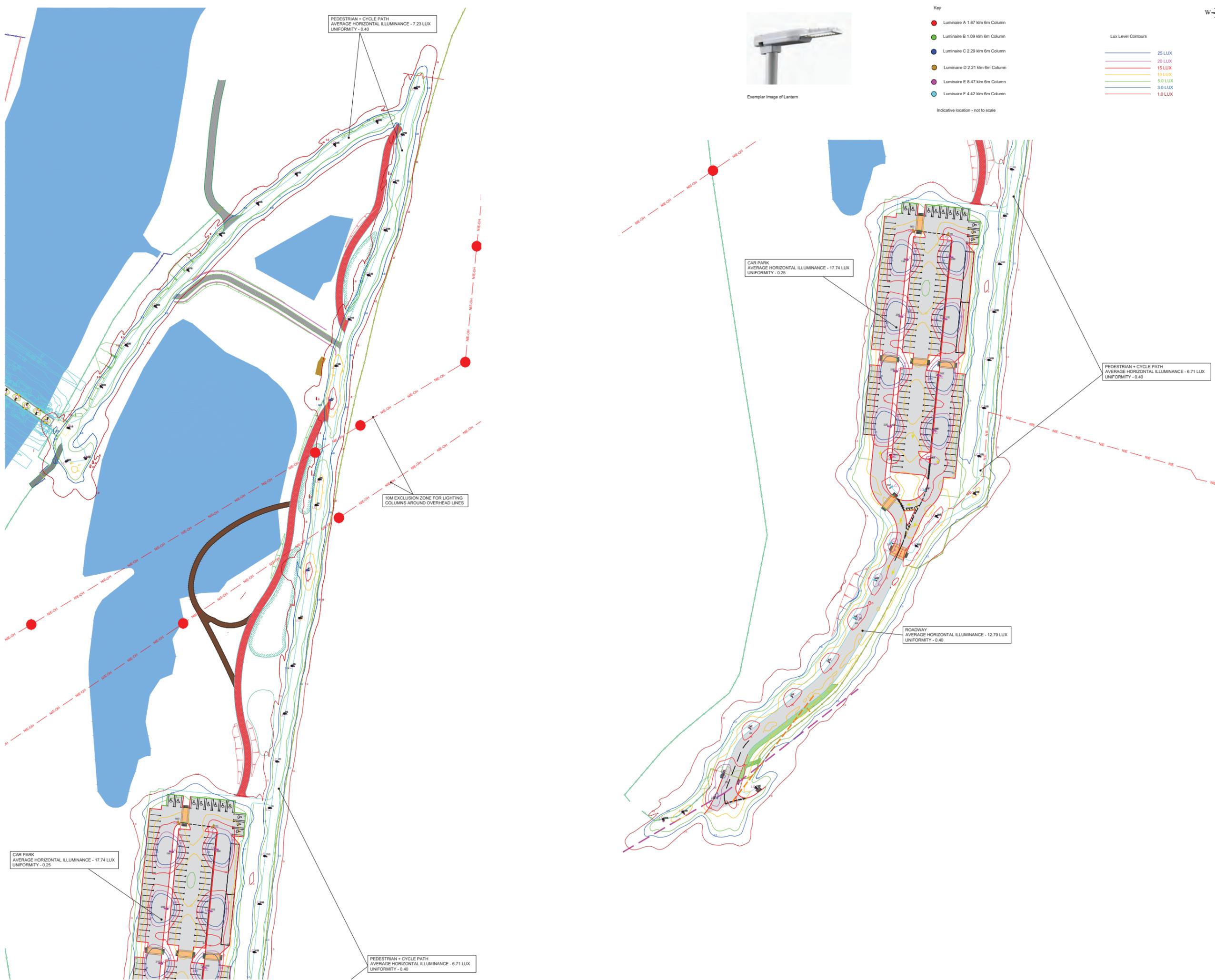
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---

Appendix VIII: Riverine Community Park Strabane External Lighting Drawing



- Key**
- Luminaire A 1.67 km 6m Column
  - Luminaire B 1.09 km 6m Column
  - Luminaire C 2.29 km 6m Column
  - Luminaire D 2.21 km 6m Column
  - Luminaire E 8.47 km 6m Column
  - Luminaire F 4.42 km 6m Column
- Indicative location - not to scale
- Lux Level Contours**
- 25 LUX
  - 20 LUX
  - 15 LUX
  - 10 LUX
  - 5.0 LUX
  - 3.0 LUX
  - 1.0 LUX

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.

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Rev	Issue Date	Description	Drawn By	Checked By
P03	JAN 2022	ISSUED FOR INFORMATION		
P02	DEC 2021	ISSUED FOR INFORMATION		
P01	AUG 2021	ISSUED FOR INFORMATION		

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 County City & Borough Council  
 Donegal County Council  
 Derry City & Strabane District Council

**Stage 3a Planning**  
**RIVERINE COMMUNITY PARK**

**Strabane External Lighting**

Scale: 1:500 @ A0

Drawn	Checked	Approved
PG	AS	GM/C
Date: AUG 21	Date: AUG 21	Date: AUG 21

Project	Revision
RVCP - WWL - ZZ - XX - PL - MEP-0007	P03
Project Number: E2256	Status and Description: Issued for Information

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd

---

Appendix IX: Riverine Community Park Lifford External Lighting Drawing



**NOTES**  
 1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.  
 2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.

**Key**

- Luminaire A 8.32 km 6m Column
- Luminaire C 3.17 km 6m Column

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Rev	Issue Date	Description	App

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 Derry City & Strabane District Council  
 Comhairle Chathair Derry & Ombúidéal ar Son na hEilean Derry City & Strabane District Council

Project Status: Draft for comment

Project: RIVERINE COMMUNITY PARK

Drawing: Lifford External Lighting

Scale: 1:500 @ A0

Drawn	Checked	Approved
PD	AS	DMC
Date: AUG 21	Date: AUG 21	Date: AUG 21

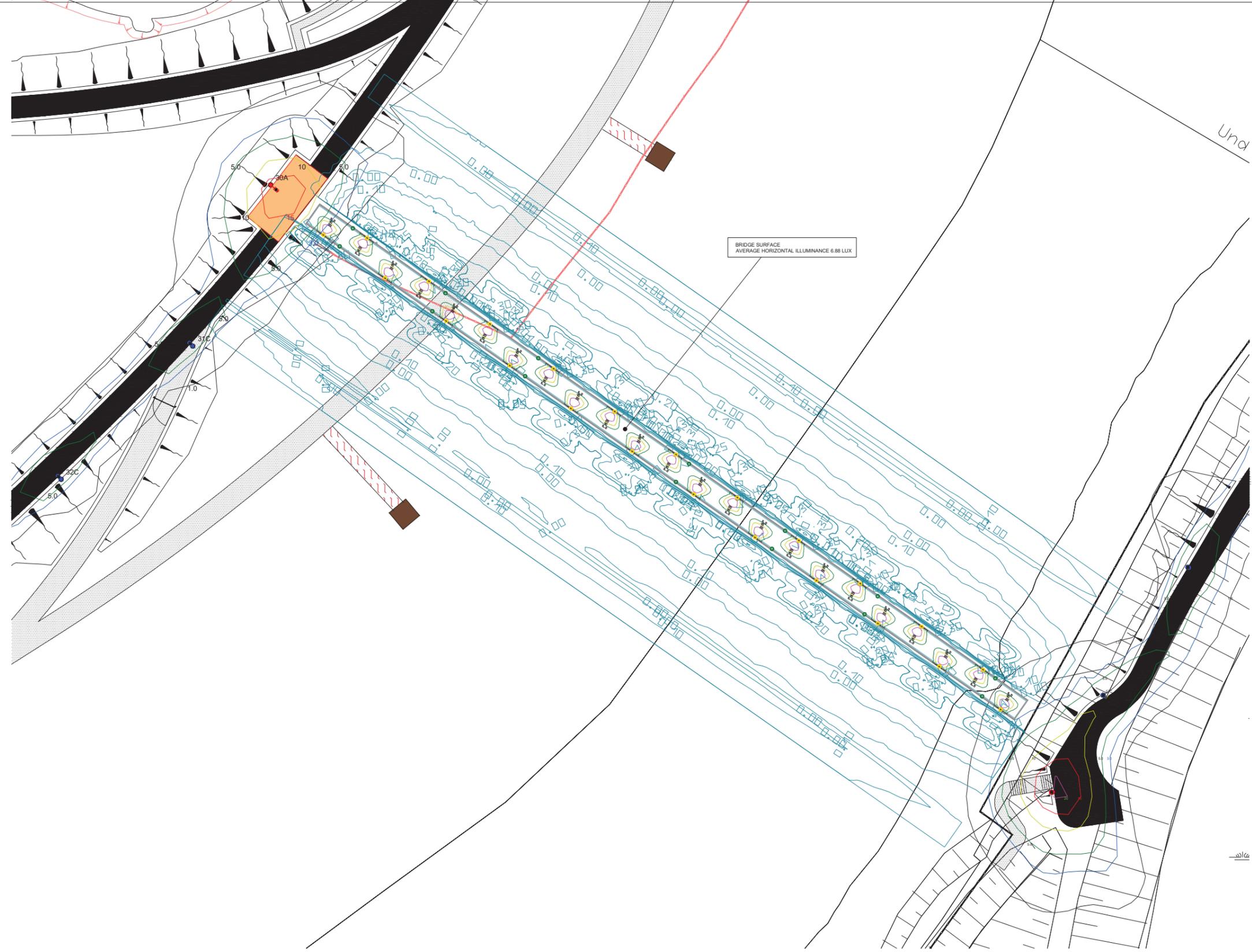
Project: - Organisation - Zone - Level - Type - Role - Number  
 RVCP - WWL - ZZ - XX - PL - MEP-0001

Project Number: E2256  
 Status code & Description

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---

Appendix X: Riverine Single Span Bridge Proposed Lighting Scheme



BRIDGE SURFACE  
AVERAGE HORIZONTAL ILLUMINANCE 6.88 LUX



**NOTES**  
 1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated  
 2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.

- Key**
- Handrail Luminaire 300mm Asymmetric
  - Bridge Feature Lighting - Low level/deck mounted feature lighting to point upwards with a narrow spot optic to illuminate the vertical trusses in a controlled way. There is therefore no lux lines associated with this luminaire.
  - Indicative location - not to scale



Exemplar Image of Lantern



Exemplar Image of Lantern

- Lux Level Contours**
- 20 LUX
  - 10 LUX
  - 5.0 LUX
  - > 0.5 LUX ALL AT WATER LEVEL

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Rev	Issue Date	Description	App
P01	Aug 21	Issued for Information	

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 Derry City & Strabane District Council  
 Comhairle Contae Strabane & Fionnuala an Strabhaí Dáir  
 Derry City & Strabane District Council

**Project Status**  
 Stage 3a Planning  
**RIVERINE COMMUNITY PARK**

**Drawing**  
 Bridge External Lighting

**Scale**  
 1:200 @ A0

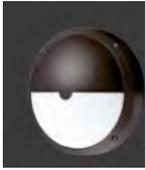
Drawn	Checked	Approved
Date	Date	Date
PO	AS	GM/C
AUG 21	AUG 21	AUG 21

Project	Revision
Organization - Zone - Level - Type - Role - Number	
RVCP - WWL - ZZ - XX - PL - MEP-0008	P01

**Project Number**  
 E2256  
**Status code & Description**  
 Issued for Information

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Appendix XI: Lighting & CCTV Schedule for Riverine

Area	No.	Description	Image
O&M Compound Hub	1	Wall mounted external lights	
Hub	2	Bollard	
Paths	3	6m LED Columns  Lantern LED IP66 IK10  Bracket  Column Type 6m Conical galvanised steel	
O&M Compound	4	Wall mounted external flood lights	

Area	No.	Description	Image
Hub	5	Ceiling mounted external lights	
Hub	5a	Ceiling mounted external lights – low wattage	
Bridge	6	Handrail Lighting	
Bridge	7	Feature Lighting	
Bridge CCTV		Tubular CCTV columns with tilt over option	

---

## Appendix 8-9

### Newt Survey



**APPENDIX 8-9**

**Newt Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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---

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to provide a newt survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

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## 1.2 Development Proposal

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- 
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
  - Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
  - River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
  - Family Space incorporating unique play experience, designed to support children focused events & related programming.
  - Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Rationale for Newt Survey

The aim of this survey is to:

- Carry out newt presence and abundance surveys in the form of refugia survey checks, netting, night-time torch light surveys and egg counts;
- If newts or eggs are present on-site further determination of the potential population density on site;
- Identify the need for mitigation.

### 1.4 Legislation

#### Lifford (ROI) Legislation

Smooth newts are protected in Ireland under Schedule 5 of the Wildlife Act, 1976. The species is also afforded additional protection under Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (The Bern Convention).

It is also an offence to intentionally or recklessly:

- damage or destroy, or obstruct access to, any structure or place which newts use for shelter or protection;
- damage or destroy anything which conceals or protects any such structure;

- 
- disturb a newt while it is occupying a structure or place which it uses for shelter or protection.

Therefore, any planned works which might infringe upon any areas where newts are present should be undertaken in accordance with a wildlife licence issued by the National Parks and Wildlife Service (NPWS).

#### Strabane (NI) Legislation

Smooth newts (*Lissotriton vulgaris* formerly *Triturus vulgaris*), are a protected species under Article 10 of the Wildlife (Northern Ireland) Order 1985 (as amended). Under Schedule 5 of this order, it is therefore considered an offence to intentionally or recklessly kill newts.

It is also an offence to intentionally or recklessly:

- damage or destroy, or obstruct access to, any structure or place which newts use for shelter or protection;
- damage or destroy anything which conceals or protects any such structure;
- disturb a newt while it is occupying a structure or place which it uses for shelter or protection.

Therefore, any planned works which might infringe upon any areas where newts are present should be undertaken in accordance with a wildlife licence issued by Northern Ireland Environment Agency (NIEA).

## 2.0 METHODOLOGY

### 2.1 Author / Surveyors

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University.

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He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

#### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, a seasonal volunteer for the Bat Conservation Trust and a member of the Botanical Society of Britain and Ireland. She regularly takes part in newt, lizard and bat surveys, as well as botanical identification outings.

## **2.2 Presence / abundance**

Survey techniques and methodology were adopted from the guidance document produced by English Nature (2001) *“Great Crested Newt Mitigation Guidelines”* and Langton, T.E.S. et al (2001), *“Great Crested Newt Conservation Handbook”*. Methods were adapted from ‘Froglife Surveying for amphibians’.

The following were also incorporated into survey timings/conditions:

- Air temperature 5°C or warmer.

- 
- Avoid surveying at night directly after a cold spell.
  - Little or no wind.
  - Dry (although very light rain is tolerable).
  - Water temperature ideally 10°C or more.

Methods employed during the survey included:

### **Refuge Search**

A refugia search method involved surveying within 200m of ponds and potential breeding habitats. This includes terrestrial habitats such as rocks, trees, logs, ground debris etc.

### **Torch Surveying**

Torch surveying after dusk using a Cluson Smartlite 1 million candle power (with 1km beam) handheld torch to identify individuals within the water column and pond, and around the pond area. All torch surveys were completed at night. The margins of the pond were walked around once, and the start time and end time of the survey was recorded to ensure consistency in survey effort and duration. Areas of the pond that were not accessible were identified during the first visit and were excluded from all further survey visits. This survey method was always undertaken when there was little or no wind or rain.

### **Egg Search**

The method involved searching both live and dead submerged pond vegetation for newt embryos during daylight hours. The searches were conducted with care not to damage the eggs or the marginal vegetation. It is important to note that numbers of eggs present are not indicative of population sizes.

### **Pond Net Search**

This method involved using a standard dip net to sample areas around pond margins. In an effort to standardise the surveys, the survey protocol consisted of a perimeter walk around the pond with a survey effort of 2 minutes of netting for every 10 meters of shoreline. All netting bouts were completed during the daylight hours. Due to the intrusive nature of net searches, they were used solely to help determine presence/likely absence and ceased if the presence of smooth newt was confirmed in a pond.

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### 2.2.1 Equipment

- 2x Cluson Smartlite 1 million candle power
- 'D' net or traditional amphibian dip net
- Ambient air thermometer

### 2.3 Survey Constraints

Access to an area of suitable habitat located within the central region of the Strabane side of the proposed development is restricted due to overgrown vegetation which had been allowed to heavily colonise the area. The suspected suitable habitat is also located at a lower elevation at the bottom of several embankments with difficult to traverse terrain along with being extensively flooded. There were also several health and safety concerns regarding the flooded woodland area. The area is misleading, as it appears to be of solid ground or very shallow water. However, the area is heavily flooded with deep water and a deep layer of silt, leaf litter and mud giving a false impression to the waterbody's true depth. This made safety during the survey paramount especially on night surveys, therefore, a combination of survey techniques was used on each visit and surveyors only ventured approximately 30m out into this area. This was deemed to be the extent of safe footing as beyond that the area became densely overgrown and restricted surveyors' ability to safely manoeuvre through the area.

## 3.0 SURVEY RESULTS

### 3.1 Desk Study

#### **Centre for Environmental Data and Recording (CEDaR)**

A request was submitted to CEDaR to identify if any previous historical records of newts were present within 2km of the site. No records were returned for newts at the proposed Riverine Scheme.

#### **National Biodiversity Network Atlas (NBN) 2020**

A record search was carried out on the NBN Atlas to identify if any previous historical records of newts were present within 2km of the site. No records were returned for Newts at the proposed Riverine Scheme.

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## National Parks & Wildlife Service (NPWS)

**Table 1: Summary of NPWS Newt Database Results**

Grid	Scientific name	Common name	Date	Event Location
H 30000 90000	Lissotriton vulgaris	Smooth Newt	1972	Not given

A request was submitted to NPWS to identify if any previous historical records of newts were present within 2km of the site. The records provide 1x record of a single newt located approximately 9.3km southeast of the proposed development site from 1972. No other records were provided.

### **A5 Approval of Planning Permission 2016**

Previous studies carried out as part of the planning process for the proposed A5 development project included an in-depth investigation into smooth newt presence and abundance along the project's proposed site route. Part of this route runs within close proximity to the proposed Riverine Scheme site layout and included an investigation for newts within the area. The previous studies identified 8 potential locations for suitable smooth newt habitat with only 3 of these being granted access for surveying. Site P21 was surveyed and found no newts present. However, Site P77 produced a peak count of 7 newts estimating the site has a low population of newts. Site P77 is also approximately 1.5km southwest from the proposed Riverine Scheme site. Site P17 appears to fall within the proposed Riverine Scheme site boundary corresponding to the location of the wet woodland located on site. A peak count of 86 newts were found to be present from surveying efforts estimating a good population within the area, (see Appendix V & VI).

## **3.2 Field Survey**

### **3.2.1 Water Body Assessment**

The site contained a low-lying area on its western boundary with dense bullrush growth and three visible clear topped water bodies. The entire area was flooded, with deep layers of silt and heavily overgrown, dense vegetation. Table 2 provides a detailed assessment of the waterbody subject to smooth newt surveys.

**Table 2: Assessment of water bodies**

(TN)	Length (m)	Width (m)	Depth (cm)	Aquatic vegetation	Image
1	Total length of flooded area searched for newts was 270m	72m at its widest and approximately 20m at its narrowest	100cm +	Marestalk ( <i>Hippuris vulgaris</i> ) was observed growing densely in certain areas of the site's water body and no other aquatic plant species. Marginal grasses such as Yorkshire fog, willow, bracken, and bramble were observed on the waterbody's banks.	 <p><b>Figure 3: Extent of Flooded wet woodland in the central area of the site</b></p>

Standing water was only observed on site in the form of a low-lying flooded area within a flooded woodland within the central area of the Strabane side of the proposed development. Therefore, survey efforts were adjusted accordingly to ensure maximum coverage.

### 3.2.2 Field survey Results

A total of x4 surveys were undertaken, all of which lasted a duration of 2 hours. Two night-time visits and two day- time searches were undertaken a week apart during the active newt breeding season. The results of the surveys are presented below in Table 3.

It should be stated, that due to health and safety concerns of the area that sampling techniques were combined to produce maximum results. Each method was still the focus of its allocated survey but was supplemented with other techniques.

**Table 3: Summary of results for newt surveys carried out**

Date	Time Start	Time End	Sunset	Temp	W/s	Oktas	ppt	Method	Newt abundance	Other species
19/05/2021	11:00	13:00	N/A	12	6mph	4/8	15 %	Visual observation, egg count and netting	0	Common frog ( <i>Rana temporaria</i> ) and tadpoles, Pond Skaters ( <i>Gerridae spp</i> ) Water beetles ( <i>Dytiscus spp</i> ) & backswimmers ( <i>Notonecta spp</i> )
26/05/2021	12:00	14:30	N/A	15	3mph	2/8	5%	Visual Observations, egg count and netting	0	Common frog ( <i>Rana temporaria</i> ) and tadpoles, Pond Skaters ( <i>Gerridae Spp</i> ) Water beetles ( <i>Dytiscus spp</i> )

Date	Time Start	Time End	Sunset	Temp	W/s	Oktas	ppt	Method	Newt abundance	Other species
										Three-spined stickleback ( <i>Gasterosteus aculeatus</i> ) & backswimmers ( <i>Notonecta spp</i> )
02/06/2021	22:00	00:00	22:45	9	4mph	4/8	15 %	Visual torch light survey at night, egg count and netting	0	Common frog ( <i>Rana temporaria</i> ) and tadpoles, Pond Skaters ( <i>Gerridae Spp</i> ) Water beetles ( <i>Dytiscus spp</i> ) Flatworms ( <i>Platyhelminthes spp</i> ) & backswimmers ( <i>Notonecta spp</i> )
09/06/2021	22:00	00:00	22:45	14	2mph	2/8	20 %	Visual torch light survey at night, egg count	0	Common frogs ( <i>Rana temporaria</i> ) and tadpoles, water beetles ( <i>Dytiscus spp</i> ) Pond skaters ( <i>Gerridae Spp</i> ), horse

Date	Time Start	Time End	Sunset	Temp	W/s	Oktas	ppt	Method	Newt abundance	Other species
								and netting		leeches ( <i>Haemopsis sanguisuga</i> ) & Water boatman ( <i>Corixa punctata</i> )

No evidence of smooth newts was detected during x4 of the surveys within the area consisting of an extensive area of flooded woodland with separating features of embankments which form sections of the old railway. A 200m wide search of the site and surrounding environment identified a second waterbody within the site’s boundary just north of the flooded woodland which consisted of presumed suitable habitat, however, this area was not surveyed as further investigation found the water body to be highly eutrophic with little life found in it and dense pond weed and algae blooms. This eutrophic environment is not deemed suitable for newts and other aquatic life due to the vastly decreased dissolved oxygen levels that are present with such environmental processes. A deep field drain was also located along the site’s eastern boundary, this was also deemed non-suitable as it was often completely dried out with no water in it.

#### 4.0 ASSESSMENT & RECOMMENDATIONS

It is confirmed from the results that newts are not present in the area, however, it is believed that the site and wider surrounding area may provide suitable habitat for newts and populations may be present within the wider area beyond the site boundary. Net, observation, torch and egg count checks were made throughout the flooded woodland and the flooded grassland boundaries of this area and yielded no evidence of newt presence or activity. Indeed, along the area’s southwest boundary amongst a dense area of grass and mares tail a small oil slick was observed on the surface of the water which, while not apparently impacting the other identified species during the surveys, would not prove

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suitable for newts. Initially the habitat appeared to be suitable to support a population of newts, after the surveys it is concluded that the area does indeed have a lack of suitable aquatic habitat possibly due to a lack of maintenance and adverse influence from human activities within the area. No newts were found during the refugia checks along the banks of the flooded woodland and through the greater area of the site. Health and safety constraints did limit the ability for surveyors to access certain areas of the flooded region and the terrestrial habitats, however, the rest of the site was thoroughly investigated and no evidence of newts present within the area were located.

Water quality is also believed to be quite poor, while surveying the site on each visit a strong putrid smell was noted coming from the water, with certain areas near the southern boundary being much stronger than in others.

## 5.0 CONCLUSIONS

All surveys were undertaken using NIEA approved standardised methodologies and techniques, and all surveys were completed during ideal weather conditions at an appropriate time of year. The results demonstrate that no newts were found to be present on site and as such it is concluded that currently the site is not populated by smooth newts. None of the survey techniques yielded any evidence for the presence of newts at any stage in their metamorphic lifecycle.

No further surveys or investigations are recommended at this time however, a surface water management plan (SWMP) should be developed to detail the proposed mitigation to prevent the potential impact on the neighbouring waterbodies to ensure these areas are protected due to the high population of tadpoles found suggesting a strong population of frogs are located in the area, (see the Riverine CEMP for more information on this). While frogs are not listed as a priority or protected species, they often share the same habitats as smooth newts. Currently the water bodies are to be retained and improved as part of the proposed project so maintaining and protecting these water bodies may provide for any potential future populations of newts to colonise the area.

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**Report Prepared By: -**

**Ryan Boyle BSc (Hon), MSc,  
Consultant Ecologist**

**Reviewed By: -**

**Emily Taylor BSc (Hons), MSc  
Graduate Ecologist**

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## 6.0 REFERENCES

Department of Agriculture, Environment and Rural Affairs (DAERA) Smooth Newt Survey Specifications available from <https://www.daera-ni.gov.uk/publications/newt-surveys-specifications>

Department of Agriculture, Environment and Rural Affairs (DAERA) Standing Advice NED Smooth Newt available from <https://www.daera-ni.gov.uk/publications/standing-advice-development-land-may-affect-natural-heritage-interests>

Froglife (2000) Great Crested Newt Conservation Handbook. Froglife Ltd., Halesworth.

National Parks & Wildlife Service Legislation at:

<https://www.npws.ie/legislation>

Office of the Attorney General (1976) Wildlife Act, 1976. [On-line]:

<http://www.irishstatutebook.ie/eli/1976/act/39/enacted/en/html#zza39y1976>

The Herpetological Society of Ireland

[Smooth Newt – The Herpetological Society of Ireland \(thehsi.org\)](http://thehsi.org)

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**FIGURES**



**Figure 4: Flooded region of wet woodland in centre of site**



**Figure 5: Banks of flooded wet woodland overgrown with aquatic mare's tail**



**Figure 6: Night-time Torch surveys**



**Figure 7: Night-time Torch Survey along flooded wet woodland banks**



**Figure 8: Day time egg search along flooded grass banks of wet woodland area**



**Figure 9: Entrance to centre of the site where flooded wet woodland is located**



**Figure 10: Dense vegetative growth bordering centre of site and water body**

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**APPENDICIES**

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## Appendix I: Proposed Site Layout Strabane

River Foyle

Park Road

Barnhill Road

Match Line to drawing ref: 1383-TPHC-ZO-XX-DR-LA-xxxx\_revP00

Match Line to drawing insert (see right)

Match Line to drawing insert (see left)

**Access to Headwall / Flow Control**  
Existing access to Headwall flow control to be retained. Perimeter fence will be repaired as needed.

**Strabane North Greenway**  
Will be progressed separately to Riverine Community Park but coordinated ensuring that connections are mutually considered and agreed.

**Adjacent Site**  
No proposals within site, to remain as existing.

**Pond**  
Existing planting retained to as much as possible. Native aquatic & marginal planting proposed to improve ecology.

**Bridge Landing**  
At the bridge landing point, a seating area is proposed to ensure that there is an opportunity to appreciate the spectacular vantage point looking along the River Foyle, also overlooking the parkland on both sides.

**Riverside Access**  
Existing riverside access will be retained.

**Proposed Boardwalk**  
The existing landscape in Strabane has naturalised, having benefited from many years of neglect. In this respect it holds many important ecologically sensitive assets. To ensure that these can provide visitor experience anticipated the boardwalk enables elevated access ensuring that wildlife retains safe passage with minimal disturbance to ecology.

**Invasive Weeds**  
There are a number of areas throughout the site which have stands of invasive weeds. These will be managed in location where possible. Refer to Invasive Weed Management Plan for more detail.

**Wildlife Passage Gates**  
Gates to be located at three points either proposed fence line and hedging. These will provide safe access for specific wildlife to ensure access to their feeding ground to the east. The gates are designed to ensure that livestock cannot use them the access points as a means of escape.

**Existing Planting**  
The Strabane site is typified by a naturalised and overgrown landscape evolved from its former use as a railway yard. The site now represents an ecologically sensitive landscape that brings many benefits which contribute positively to the proposed parkland. Existing planting provides a unique and distinctive habitat which is acknowledged within the proposals. Through identification and protection. Access within these areas is limited and planting will be encouraged to continue to grow. Additional native shrub planting will be planted to help reinforce benefits of this natural resource.

**Tree Planting**  
New Tree Planting is proposed throughout the project area where opportunities for proposed planting.

**Proposed Car Park**  
Located within the former railway site the proposed car park will be surfaced with new drainage and lighting. It will provide 125 spaces and 11 disabled bays and provision for 2 coach parking bays. Run off from the car parking will be managed by integrated sustainable drainage.

**Entrance**  
It is proposed that the site will be accessed from the Barnhill Road roundabout for vehicles, cyclists and pedestrians. Existing access to the agricultural lands to the west will be retained.

**LEGEND**

**SOFTWARES**

- Existing Trees & Planting  
To be retained and protected during works in accordance with BS5827
- Existing Trees & Planting  
To be removed. Crown identified in the absence of individual trees
- Proposed Native Trees  
Refer to planting schedule
- Proposed Native Wetland Trees  
Refer to planting schedule
- Proposed Specimen Trees  
Refer to planting schedule and details
- Proposed Hedgerow planting  
Refer to planting schedule and details
- Proposed Amenity Grassland  
Refer to planting schedule
- Proposed Wildflower (WF1)  
Refer to planting schedule
- Proposed Woodland Wildflower (WF2)  
Refer to planting schedule
- Proposed Riverside Edge Mix  
Refer to planting schedule. To be prepared and sown as turf
- Proposed SUGS Mix  
Refer to planting schedule. To be prepared and sown as turf
- Proposed Native shrubs  
Refer to planting schedule
- Proposed Ornamental shrubs  
Refer to planting schedule

**SURFACES**

- Proposed Asphalt  
To pavements and footways. For detail refer to engineers drawing
- Proposed Asphalt  
Vehicle. For detail refer to engineers drawing
- Strabane North Greenway  
Proposed separately to this project
- Proposed High Friction Surface  
To pavements and footways. For detail refer to engineers drawing
- \*Natural Stone Paving  
Refer to detail
- Proposed Boardwalk  
Refer to detail
- Reinforced Grass  
Refer to detail
- Proposed Gravel Path  
Refer to detail
- \*Proposed Slipway Surface  
Refer to detail also engineers drawings for detail
- \*Wetpour Safety Surfacing  
Refer to detail
- \*Reinforced Grass Safety Surfacing  
Refer to detail
- \*Wet Back Safety Surface  
Specifically for play areas
- Stone Clusters  
Refer to detail

**FEATURES**

- Existing Walls  
To be retained
- Existing Fencing  
To be retained / repaired as required
- 2.4m Security Fencing  
Refer to detail
- Metal Estate Fencing  
Refer to detail
- Stock Proof Fencing  
Refer to detail
- Existing Fencing to be removed
- Steps and Terracing  
Refer to detail
- Proposed Benches  
Refer to detail
- Bicycle stand locations  
Typical Sheffield stand
- Proposed Litter Bins  
125 bins with single 300L recycled bin adjacent to Community Facilities
- Proposed Metal Gates  
Refer to detail
- Vehicle Upstand Kerb  
125mm upstand. Pre Cast Concrete
- Vehicle Flush Kerb  
Pre Cast Concrete
- Pie Kerb  
Pre Cast Concrete

**MISCELLANEOUS**

- Site Boundary - Application under Roads Act, Section 51(2)
- Adjoining Riverine Community Park Boundary (RCP)
- Riverine Community Park Boundary (R)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections  
All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance to Countryside Access code
- Riverside Access  
Existing riverside access to be retained
- Planting  
The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed.
- Bridge  
Refer to engineers proposals
- Invasive Weeds  
Refer to invasive weed management plan
- Topographic Survey Information  
Planting  
There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Planting Loss  
The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.

Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the  
This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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Rev	Issue Date	Description	By
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.08.2021	Issued for Planning	HB

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**Peace**  
Northern Ireland - Ireland  
Supports the Good Friday Agreement

**Comhairle Contae**  
Dhúna na nGall  
Donegal County Council  
Newry City & Strabane District Council  
Strabane District Council

**STAGE 3 - PLANNING**  
**RIVERINE COMMUNITY PARK**  
STRABANE RIVERINE COMMUNITY PARK  
LANDSCAPE LAYOUT (NI PLANNING)  
Scale: 1:500 @ A0  
Drawn: HB  
Check'd: DM  
Approved: DM  
Date: 12.02.2021  
Date: 12.02.2021  
Date: 18.08.2021  
Project: RVCPC - TPHC - ZO - XX - DR - LA - 2051  
Revision: P02  
Project Number: 1383  
Status code & description: ST2 Issued for Information

Drawing Insert  
Scale 1:500 @ A0

---

Appendix II: Proposed Site Layout Lifford



---

## Appendix III: Suitable Newt Habitat Locations for Surveying



### Legend

-  Suitable Newt Habitat
-  Red Lined Boundary

Appendix III: Newt Habitat Locations for Surveying

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:7239 @ A3

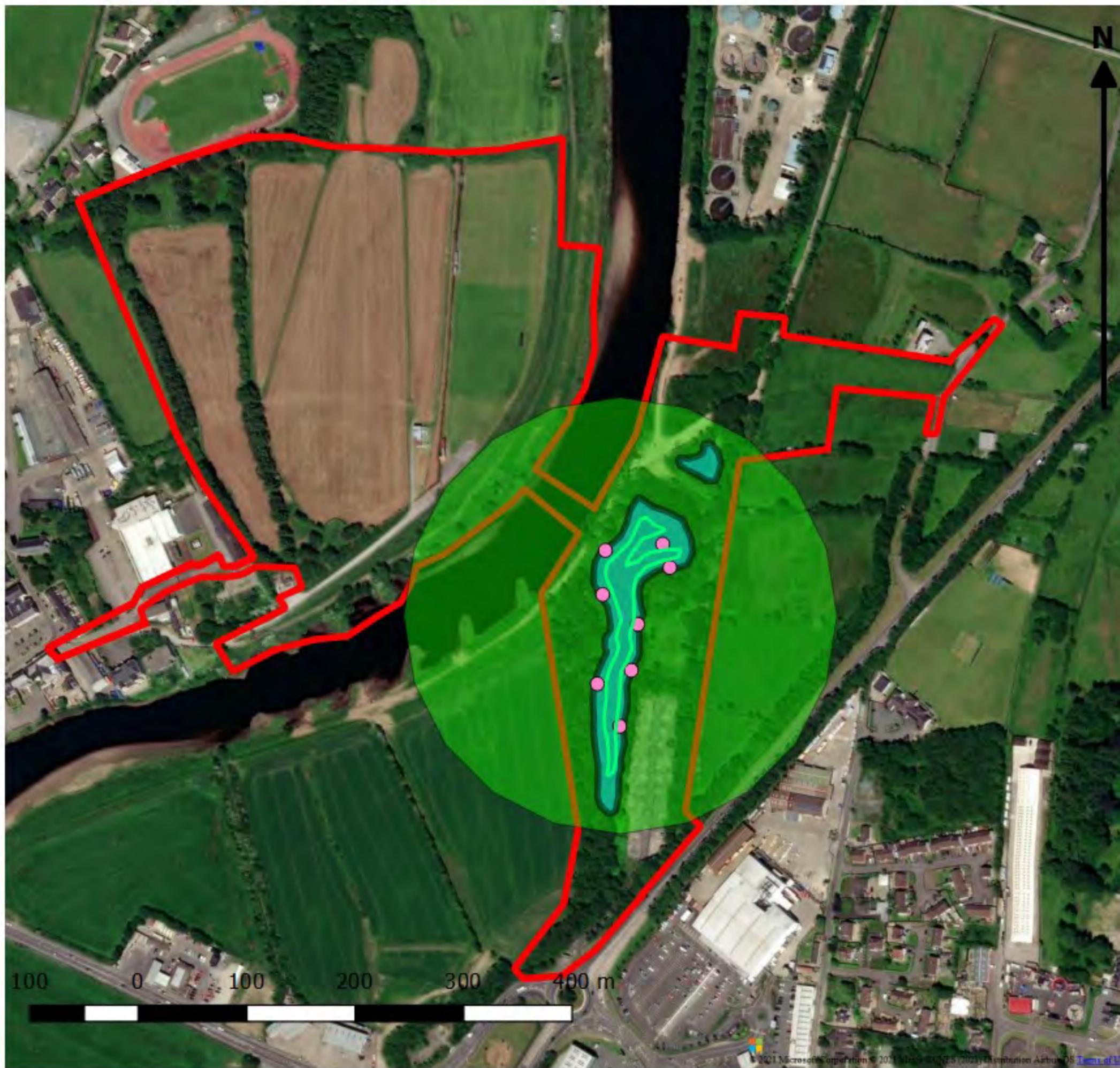
Date: 13/07/2021



Unit 5, Forty Eight North, Duncrue Street  
Belfast  
BT3 9BJ  
Tel: 02890747766

---

## Appendix IV: Newt survey locations



### Legend

- NNPWS Records
- Visual Observation Survey Transects
- Newt Netting Locations
- Water Bodies
- 200m Newt Buffer Search Zone
- Red Lined Boundary

Appendix IV: Newt Survey Locations

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:5000 @ A3

Date: 13/07/2021



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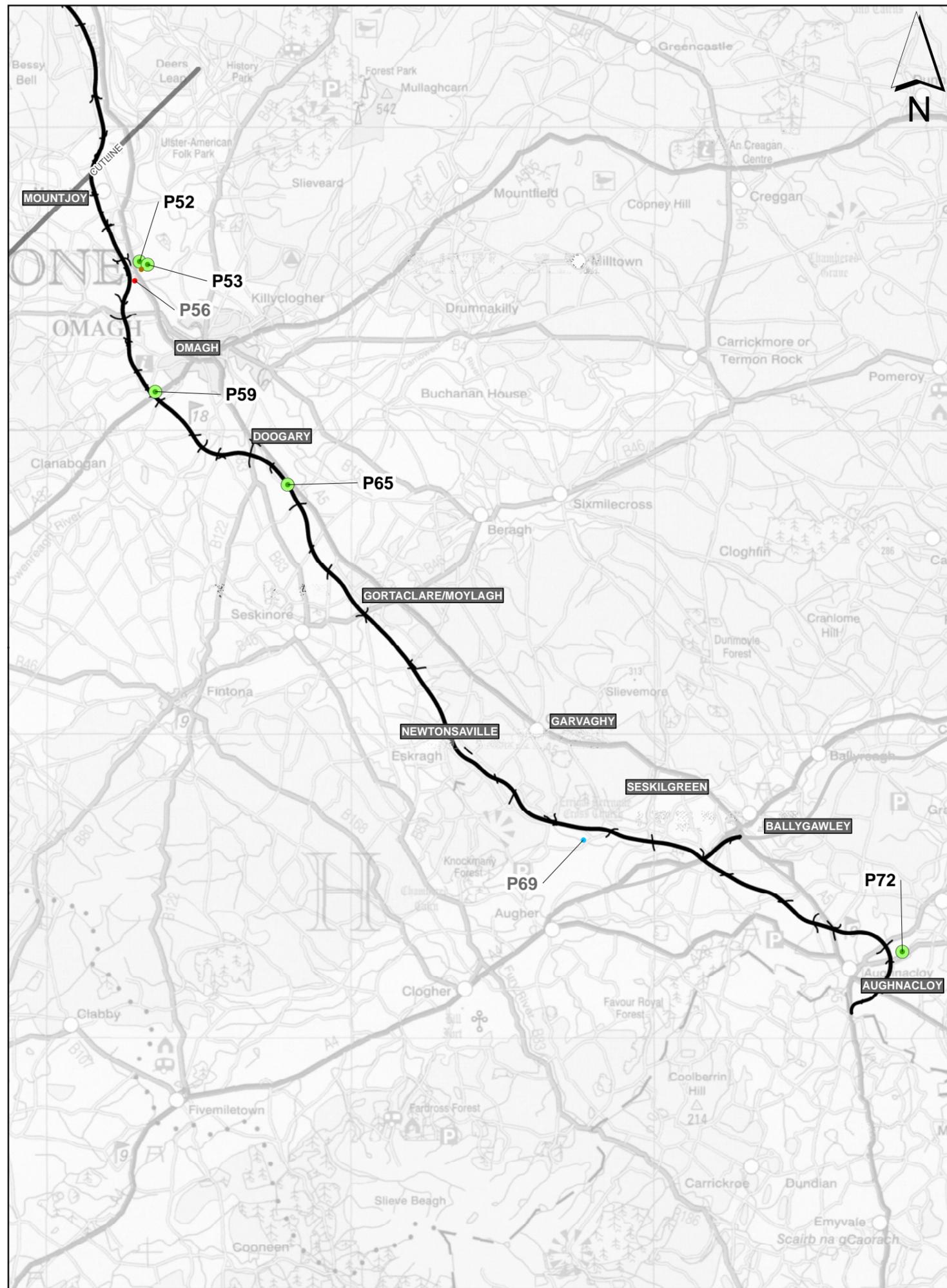
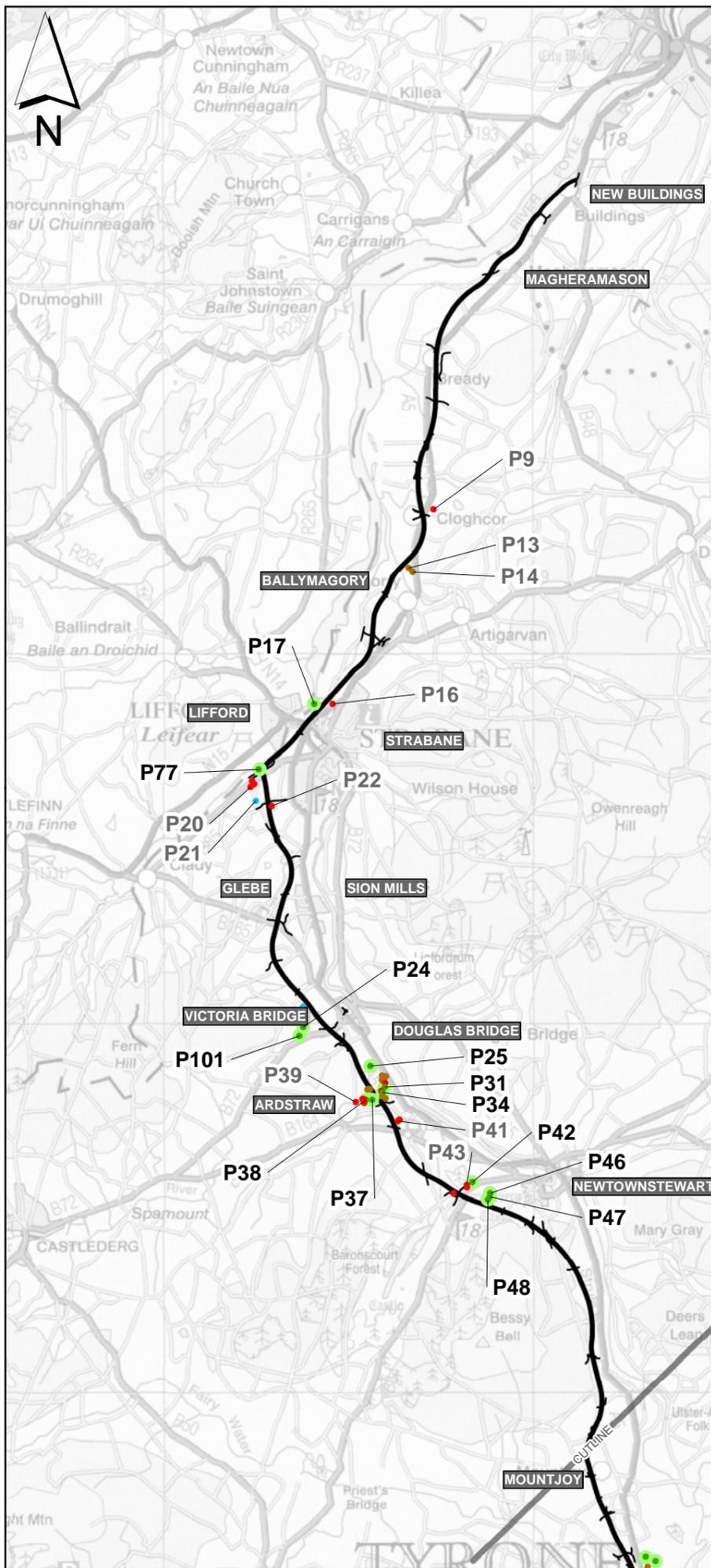
Appendix V: 2016 A5 Newt Survey Results

Pond Reference	Present <sup>1</sup> / absent	Peak counts during torching	Population class size estimate classification
17	Present	86	Good
21	Absent	0	-
23	Absent	0	-
24	Present	3	Low
25	Present	25	Good
31	Present	9	Low
34	Present	2	Low
37	Present	14	Good
38	Present	2	Low
42	Present	7	Low
46	Present	1	Low <sup>2</sup>
47	Present	14	Good <sup>2</sup>
48	Present	1	Low
52	Present	0	Low <sup>1,2</sup>
53	Present	3	Low <sup>2</sup>

Pond Reference	Present <sup>1</sup> / absent	Peak counts during torching	Population class size estimate classification
59	Present	1	Low
65	Present	22	Good
69	Absent	0	-
72	Present	63	Good
77	Present	7	Low
101	Present	0	Low <sup>1</sup>

---

Appendix VI: A5 2016 Newt Map



Legend

- PROPOSED SCHEME
- PONDS OCCUPIED BY SMOOTH NEWTS

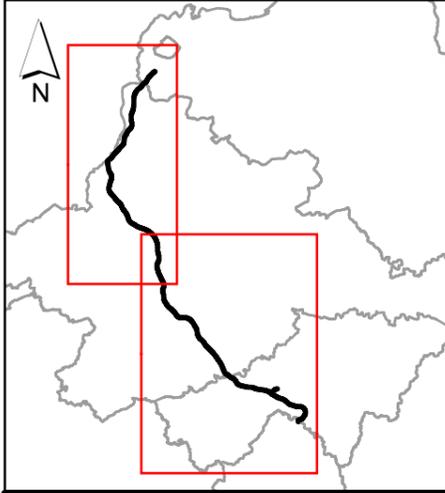
SURVEY RESULTS

- SURVEYED - NEWTS PRESENT
- SURVEYED - NO NEWTS
- DRIED
- NO ACCESS

0 1 2 3 4 5 6 7 8  
Kilometres

Scale @A3 **1:150,000**

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Client **transportni**

Project **A5WTC**

**mouchel**  
building great relationships

Drawing Title  
**ENVIRONMENTAL STATEMENT  
VOLUME 3  
SMOOTH NEWT SURVEY  
2014 RESULTS**

Figure No **Figure 11.69** Version A

---

## Appendix 8-10

### Breeding Bird Survey



**APPENDIX 8-10**

**Breeding Bird Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

MCL Consulting Ltd  
Unit 5, Forty Eight North  
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02890 747766

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Appendix IX: 2020 Delichon Avifauna Commuting Corridor

Appendix X: BoCCI Assessment Red & Amber Species

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to write up a breeding bird survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford. Breeding bird surveys were carried out by the previous project ecologist Eamonn Delaney of Delichon Ecology.

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

---

## 1.2 Development Proposal

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- 
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
  - Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
  - River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
  - Family Space incorporating unique play experience, designed to support children focused events & related programming.
  - Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Rationale of Breeding Bird Survey

The purpose of the breeding bird survey is to document the breeding bird community and estimate the abundance of the breeding bird species. This is required to assess the likelihood of any impacts upon the breeding bird community in association with the proposed development. The aim of this report is to: -

- Identify what birds are using the site for breeding and foraging purposes;
- Establish the habitat value for breeding and foraging birds;
- Identify the likely impacts on birds the development is likely to impose upon any local bird populations; and
- Recommend either further survey, mitigation or compensation measures either to protect local bird populations and to enhance the habitat in which they reside.

## 2.0 LEGISLATION

### Lifford (ROI) Legislation

All wild birds are protected, particularly during the bird breeding season while nesting under the Irish Wildlife Act 1976 (as amended), the EU Habitats Directive of the Bern convention via the European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011)). It is an offence to intentionally or recklessly:

- kill, injure or take any wild bird; or
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or

- 
- at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
  - take or destroy an egg of any wild bird; or
  - disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
  - disturb dependent young of such a bird.

Additionally, any person who knowingly causes, or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

### **Wild Birds**

Most species of birds return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. Some of these species which have been deemed as particularly vulnerable to decline are given additional protection and are listed on the most recent BoCCI assessment checklist as amber or red (*see* Appendix: IX).

All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds. Additionally, some bird species, which are particularly rare or vulnerable, are listed on Annex I of the Directive. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs).

Local and national biodiversity action plans consider priority species within the local area of conservation concern.

### **Strabane (NI) Legislation**

Under the Wildlife (Northern Ireland) Order 1985 (as amended) all wild birds are protected, particularly during the bird breeding season while nesting. It is an offence to intentionally or recklessly:

- kill, injure or take any wild bird; or
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or

- at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
- take or destroy an egg of any wild bird; or
- disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturb dependent young of such a bird.

Additionally, any person who knowingly causes, or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

### Wild Birds

Most species of birds return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. Some of these species which have been deemed as particularly vulnerable to decline are given additional protection and are listed on Schedule A1 of the Wildlife Order (see Table 1). For these species it is an offence to damage or destroy their nests at any time of the year, even when they are not in use.

**Table 1: Schedule A1 species**

Common Name	Latin Name
Golden Eagle	<i>Aquila chrysaetus</i>
White-tailed Eagle	<i>Haliaeetus albicilla</i>
Osprey	<i>Pandion haliaetus</i>
Barn Owl	<i>Tyto alba</i>
Peregrine	<i>Falco peregrines</i>
Red Kite	<i>Milvus milvis</i>

The Wildlife and Natural Environment Act (Northern Ireland) 2011 (known as the WANE Act) introduced a biodiversity duty on public bodies in Northern Ireland. It states that '*it is the duty of every public body, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions*'.

The WANE Act also requires that the Department of the Environment maintains a list of species requiring special attention when delivering this duty. These are Northern Ireland

---

priority species and specific actions for these have been addressed in a range of Government policies and activities.

All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds. Additionally, some bird species, which are particularly rare or vulnerable, are listed on Annex I of the Directive. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs).

Local and national biodiversity action plans consider priority species within the local area of conservation concern.

### **Planning Policy**

The Planning Policy Statement 2 (PPS 2), Natural Heritage, NH2 indicates that development proposals are required to be sensitive to all protected species and sited and designed to protect them, their habitats and prevent from deterioration and destruction of their breeding sites or resting places.

## **3.0 METHODOLOGY**

### **3.1 Surveyor/qualifications**

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queens University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well

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as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

**Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, as well as a seasonal volunteer for the Bat Conservation Trust and regularly takes part in newt, lizard and bat surveys.

**Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master’s degree (MSc) in Ecological Management and Conservation Biology from Queens University, Belfast, a bachelor’s degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird’s surveys, badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABiP).

## 3.2 Desk Study

A desk study was undertaken with a view of gathering existing information in regard to species and habitat within and near the site. Sources used to gather information include:

- Department of agriculture, environment and Rural Affairs (DAERA) GIS datasets;
- Request to CEDaR, to provide information in regard to priority bird species within a 2km radius of the site; and
- Aerial photographs on Bing and Google and NIEA Environment Map Viewer.

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### 3.3 Field study

The survey methodology broadly followed the 'Common Bird Census' (CBC) devised by the British Trust for Ornithology (BTO) and those described by Bibby *et al* (1992, 2000), where the site was slowly walked with each area of the site being covered within 100m of the transect. This technique records the location and movements of individual birds present within a defined survey area. The site was visited on 4 occasions with the surveys undertaken during the breeding season (April-June) by a suitably qualified ecologist using high powered binoculars (42 x 8). All bird species were recorded (using the standard BTO codes) onto a scaled map. Birds that exhibited nesting or territorial behaviours such as singing, gathering nesting material, territorial displays or feeding of young were recorded.

The dates of previous breeding bird surveys carried out by Delichon Ecology are recorded in Table 2.

**Table 2: Summary of the previous surveys carried out by Delichon Ecology**

Survey Date	Survey Type
June 06 <sup>th</sup> 2020	Multi-disciplinary survey including habitat survey, botanical survey, invasive species survey, breeding bird survey (late season), non-volant mammal survey and passive bat surveys.
July 15 <sup>th</sup> 2020	Multi-disciplinary survey including habitat survey, botanical survey, invasive species survey, breeding bird survey (late season), non-volant mammal survey and passive bat surveys.
November 30 <sup>th</sup> 2020	Wintering bird surveys and non-volant mammal survey
December 28 <sup>th</sup> 2020	Wintering bird survey
January 12 <sup>th</sup> 2021	Wintering bird survey
February 11 <sup>th</sup> 2021	Wintering bird survey
March 30 <sup>th</sup> 2021	Wintering bird surveys and non-volant mammal survey
May 11 <sup>th</sup> 2021	Breeding Bird survey (early season)

### 3.4 Criteria for evaluation

All wild birds are protected, particularly during the bird breeding season while nesting under the Irish Wildlife Act 1976 (as amended), the EU Habitats Directive of the Bern convention via the European Communities Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011).

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In 2015 Birds of Conservation Concern Ireland 4 (BoCCI) the Red List for Birds updated, the fourth review of the status of wild birds in the UK, Channel Islands and the Isle of Man. Using standardised criteria 244 species with breeding, passage or wintering birds were assigned to either Red, Amber or Green lists of conservation concern.

### 3.5 Evaluation assessment

Using evaluation techniques set out by Fuller (1980) the data collected can be assessed in order to define the importance of ornithological interest by the number of breeding Species found on site.

**Table 3: Evaluation criteria for bird assemblage assessment**

Level of Importance	Number of Breeding Species	
	Fuller (1980) Criteria	Adapted Criteria
Local	25-49	>25
District		25-49
County	50-69	50-69
Regional	70-84	70-84
National	<85	<85

Level of importance is defined using geographical levels; Local, District, County, Regional and National. To comply with IEEM 2006 'Local has been adapted to >25 species and 'District' to 25-49 species.

### 3.6 Limitations

The entire site was accessible to the surveyor with all surveys undertaken under suitable weather conditions. No limitations while encountered during the survey period.

Some birds may be unnoticed and/or missed, this report only provides a portion of the bird activity occurring on site and that it is considered that ecological reports have are valid for 1 year after they are produced, after which they may need to be updated.

## 4.0 RESULTS

### 4.1 Desk Study

A written request was submitted to obtain data from the CEDaR recorded species dataset, and the results obtained from the CEDaR search provided a list of recorded species within a 2km radius of the site.

**Table 4: CEDaR database request**

Common Name	Scientific Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Mistle Thrush</b>	<i>Turdus viscivorus</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Chiffchaff</b>	<i>Phylloscopus collybita</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Willow Warbler</b>	<i>Phylloscopus trochilus</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Raven</b>	<i>Corvus corax</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Rook</b>	<i>Corvus frugilegus</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Woodpigeon</b>	<i>Columba palumbus</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Chaffinch</b>	<i>Fringilla coelebs</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Blackbird</b>	<i>Turdus merula</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Yellowhammer</b>	<i>Emberiza citrinella</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Goldcrest</b>	<i>Regulus regulus</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Wren</b>	<i>Troglodytes troglodytes</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Magpie</b>	<i>Pica pica</i>	12/05/1988	H358990	Anon @ Habitat Sur Team (EHS)
<b>Whooper Swan</b>	<i>Cygnus cygnus</i>	28/10/1995	H39	Chris Murphy
<b>Tree Sparrow</b>	<i>Passer montanus</i>	22/11/1997	H39	David Clarke
<b>Black Redstart</b>	<i>Phoenicurus ochruros</i>	07/04/1999	H39	Clive Mellon
<b>Long-Eared Owl</b>	<i>Asio otus</i>	10/10/2014	H39	Hazlett Harkness
<b>Long-Eared Owl</b>	<i>Asio otus</i>	05/03/2014	C30	Hazlett Harkness
<b>Rose-Coloured Starling</b>	<i>Sturnus roseus</i>	14/10/2013	H39	Peter Phillips
<b>Swift</b>	<i>Apus apus</i>	09/05/2013	H39	Brian Hegarty
<b>Kestrel</b>	<i>Falco tinnunculus</i>	18/10/2013	H39	Brian Hegarty
<b>Buzzard</b>	<i>Buteo buteo</i>	18/10/2013	H39	Brian Hegarty
<b>Swift</b>	<i>Apus apus</i>	08/05/2014	H39	Brian Hegarty
<b>Jay</b>	<i>Garrulus glandarius</i>	06/03/2011	H39	Brian Hegarty
<b>Sparrowhawk</b>	<i>Accipiter nisus</i>	06/03/2011	H39	Brian Hegarty
<b>Buzzard</b>	<i>Buteo buteo</i>	06/03/2011	H39	Brian Hegarty

Common Name	Scientific Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Cattle Egret	<i>Bubulcus ibis</i>	02/11/2012 - 11/11/2012	H39	Anon @ NIBA Blog
Gannet	<i>Sula bassana</i>	30/05/2011	H39	Brian Hegarty
Swift	<i>Apus apus</i>	08/05/2011	H39	Brian Hegarty
Spotted Flycatcher	<i>Muscicapa striata</i>	01/06/2011	H39	Hazlett Harkness
Barn Owl	<i>Tyto alba</i>	05/11/2016	H39	Colin Bell
Swift	<i>Apus apus</i>	17/07/2014	H3396	Richard Donaghey
Swift	<i>Apus apus</i>	09/08/2014	H3396	Richard Donaghey
Swift	<i>Apus apus</i>	18/07/2014	C3500	Richard Donaghey
Swift	<i>Apus apus</i>	08/05/2014	H3396	Richard Donaghey
Peregrine	<i>Falco peregrinus</i>	1987	H358992	Jim Wells
Peregrine	<i>Falco peregrinus</i>	1988	H358992	Jim Wells
Collared Dove	<i>Streptopelia decaocto</i>	12/04/2016	H346984	Billy Belshaw
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	02/06/2016	H340977	Billy Belshaw
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	15/12/2015	H338978	P. Webb
Blackbird	<i>Turdus merula</i>	27/04/2016	H34409863	P. Webb
Blackbird	<i>Turdus merula</i>	27/04/2016	H34569881	P. Webb
Blackbird	<i>Turdus merula</i>	15/12/2015	H348990	P. Webb
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	23/03/2017	H334982	Billy Belshaw
Rook	<i>Corvus frugilegus</i>	23/03/2017	H339977	Billy Belshaw
Jackdaw	<i>Corvus monedula</i>	23/03/2017	H335982	Billy Belshaw

### National Parks & Wildlife Service (NPWS)

A written request was submitted to obtain data from the NPWS recorded species dataset within a 2km radius of the site. No records for bird species were returned.

### National Biodiversity Network Atlas (NBN) 2020

One record for blackbird (*Turdus merula*) from 2016 was returned.

### A5 Approval of Planning Permission 2016

Previous studies carried out as part of the planning process for the proposed A5 development project included an in-depth investigation into badger presence and abundance along the

projects proposed site route. Part of this route runs within close proximity to the proposed Riverine Scheme site layout and included an investigation for breeding birds within the area. Records for the A5 project were obtained from the British Trust for Ornithology (BTO), Ulster Wildlife Trust (UWT), Northern Ireland Raptor Study Group (NIRSG) and the Royal Society for the Protection of Birds (RSPB). The locations of historic heronries, breeding raptor sites and barn owl sightings were tabulated and can be viewed in Appendix: IV. Results from the breeding bird survey field study can be viewed in Appendix: V with species marked with an \* identified as being Species of Conservation Concern (SoCC) or Biodiversity Action Plan (BAP) species, while those marked with a + are schedule 1 species. The survey found that a total of 55 birds were exhibiting territorial and /or other breeding behaviours suggesting the proposed route hosts a large population breeding birds of varying species due to the variations of habitat available. Of these 55 species 25 were identified as 'notable' species. No records were located within the proposed Riverine Scheme site with no breeding bird activity or pairs recorded as no survey site locations fell within the site boundary, (see Appendix: VI).

#### 4.2 Field study

A pre-determined transect route was walked throughout the survey area which included all field boundaries within the site. Records were made of birds singing or calling, repeated territorial calls, territorial aggression, displaying, adults carrying food or nesting material, juvenile birds and family groups.

Instances where a nest was directly observed, an individual was carrying nesting material, or where an obvious male-female pair was present were all recorded as a breeding pair (BP).

**Table 5: Summary of likely breeding behaviour**

Transect Number	Species	BTO Code	Early Season	Late Season	Conservation Status <sup>1</sup>
Transect 1	Blackcap	BC		✓	Green
	Grey Heron	H.		✓	Green
	Goldcrest	GC	✓	✓	Amber
	Wren	WR	✓	✓	Green
	Woodpigeon	WP		✓	Green
	Rook	RO		✓	Green
	Blackbird	B.	✓	✓	Green
	Hooded Crow	HC		✓	Green
	Pheasant	PH		✓	Green
	Song Thrush	ST	✓	✓	Green

Transect Number	Species	BTO Code	Early Season	Late Season	Conservation Status <sup>1</sup>
	Chiffchaff	CC		✓	Green
	Chaffinch	CH	✓	✓	Green
	Robin	R.	✓	✓	Green
	Magpie	MG	✓		Green
	House Sparrow	HS	✓		Amber
	Willow Warbler	WW	✓		Amber
Transect 2	Wren	WR		✓	Green
	Grey Heron	H.	✓	✓	Green
	Rook	RO	✓	✓	Green
	Sedge Warbler	SW		✓	Green
	Magpie	MG	✓	✓	Green
	Willow Warbler	WW		✓	Amber
	Woodpigeon	WP	✓	✓	Green
	Song Thrush	ST		✓	Green
	Dunnock	D.		✓	Green
	Swift	SI		✓	Red
	Blackbird	B.	✓		Green
	Starling	SG	✓		Amber
	Swallow	SL	✓		Amber
	Feral Pigeon	FP	✓		n/a
	Jackdaw	JD	✓		Green
	Robin	R.	✓		Green
	Chaffinch	CH	✓		Green
	Common Sandpiper	CS	✓		Amber
Hooded Crow	HC	✓		Green	
Shelduck	SU	✓		Amber	
Transect 3	Blue Tit	BT		✓	Green
	Blackbird	B.	✓	✓	Green
	Goldcrest	GC	✓	✓	Amber
	Chaffinch	CH	✓		Green
	Blackcap	BC		✓	Green
	Woodpigeon	WP	✓	✓	Green
	Grey Heron	H.		✓	Green
	Wren	WR		✓	Green
	Dunnock	D.		✓	Green
	Rook	RO	✓	✓	Green
	Song Thrush	ST		✓	Green
	Starling	SG	✓	✓	Amber
	Mallard	MA		✓	Amber
	Common Gull	CM		✓	Amber
	Wren	WR	✓		Wren
Starling	SG	✓		Amber	
Transect 4	Blue Tit	BT		✓	Green
	Wren	WR		✓	Green
	Song Thrush	ST		✓	Green
	Blackcap	BC		✓	Green

Transect Number	Species	BTO Code	Early Season	Late Season	Conservation Status <sup>1</sup>
	Chaffinch	CH		✓	Green
	Blackbird	B.		✓	Green
	Goldcrest	GC		✓	Amber
	Woodpigeon	WP		✓	Green
	Magpie	MG		✓	Green
	Chiffchaff	CH		✓	Green
Transect 5	Bullfinch	BF		✓	Green
	Wren	WR		✓	Green
	Song Thrush	ST		✓	Green
	Woodpigeon	WP	✓	✓	Green
	Dunnock	D.		✓	Green
	Willow Warbler	WW	✓	✓	Amber
	Magpie	MG		✓	Green
	Blue Tit	BT		✓	Green
	Robin	R.	✓	✓	Green
	Blackcap	BC		✓	Green
	Rook	RO	✓	✓	Green
	Goldcrest	GC		✓	Amber
	Chaffinch	CH		✓	Green
	Buzzard	BZ		✓	Green
	Starling	SG	✓	✓	Amber
	Blackbird	B.	✓		Green
Hooded Crow	HC	✓		Green	
Transect 6	Chiffchaff	CH		✓	Green
	Goldcrest	GC		✓	Amber
	Song Thrush	ST		✓	Green
	Chaffinch	CH	✓	✓	Green
	Wren	WR		✓	Green
	Blue Tit	BT	✓	✓	Green
	Woodpigeon	WP	✓	✓	Green
	Blackbird	B.	✓	✓	Green
	Blackcap	BC		✓	Green
	Robin	R.	✓	✓	Green
	Starling	SG	✓	✓	Amber
	Dunnock	D.		✓	Green
	Willow Warbler	WW	✓		Amber
	Hooded Crow	HC	✓		Green
	House Sparrow	HS	✓		Amber
	Meadow Pipit	MP	✓		Red
	Rook	RO	✓		Green
	Jackdaw	JD	✓		Green
Feral Pigeon	FP	✓		n/a	
Cormorant	CA	✓		Amber	

Most registrations recorded during the surveys were of species that were listed as green on the BoCCI scale. Nine species are listed as amber: goldcrest, house sparrow, willow warbler,

starling, swallow, common sandpiper, shelduck, mallard and common gull. While two species are listed as red: swift and meadow pipit.

In total, 30 bird species were observed on site during the breeding bird surveys it was identified that a common assemblage of passerine birds which are often associated with treelines, hedgerows, woodland and pastoral habitats were located throughout the proposed site area. The majority of bird activity was observed along these linear features and habitats and it was observed that these features and habitats were primarily used for foraging and commuting.

Other bird species observed on site but not during designated breeding bird transect surveys are displayed in Table 6.

**Table 6: Bird species observed outside of breeding bird surveys**

Species	BTO Code	Conservation Status
Linnet	LI	Amber
Sand Martin	SM	Amber
Jackdaw	JD	Green
Reed Bunting	RB	Green
Swallow	SL	Amber
Long-tailed Tit	LT	Green
House Sparrow	HS	Amber
Great Tit	GT	Green
Cormorant	CA	Amber
Spotted Flycatcher	SF	Amber
House Martin	HM	Amber
Feral Pigeon	FP	N/A
Pied Wagtail	PW	Green
Grey Wagtail	GL	Red
Common Sandpiper	CS	Amber
Long-eared Owl	LE	Green

It was noted by Delichon that the River Foyle and its riparian area supports its own collective of riverine breeding bird species such as grey heron, sand martin, cormorant, mallard and

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common gull. The close proximity of Lifford town and Strabane to the study area also has influence on the site's bird species composition observed by the presence of swifts, sand martins and house sparrows.

Buzzards and a long-eared owl were identified on the site by Delichon Ecology across the site. the long-eared owl has been identified as breeding on site on the Lifford side of the site having a nest within the conifer treeline in the western area of the site, (see Appendix: VI). Confirmation of the long-eared owl breeding was acquired during the June 2020 site walkover when young chicks were audibly heard calling.

#### **4.2.1 Winter Bird surveys**

Over winter non-breeding bird surveys were carried out by Delichon Ecology between November 2020 and March 2021. These employed the same transects that were later used for the breeding bird surveys, (see Appendix: VI). Vantage Point surveys were also implemented by the ecologist during the over winter non-breeding bird surveys to further survey results and determine site usage during the winter months, (see Appendix: VII).

It was observed that during the winter period bird abundance and activity levels across the site dropped exhibiting lower numbers including the common resident species of passerine birds associated with the treelines, hedgerows and woodland habitats located on site. it was noted by Delichon Ecology that whooper swan utilise the riparian corridor that runs through the site for commuting to and from their breeding grounds and wintering sites. Delichon Ecology identified whooper swan flocks migrating between the Islandmore area and to the lands south of the N15/A38 crossing. Vantage point survey results confirmed small flocks of whooper swan on two occasions, (December 2020 and January 2021), and during the transect surveys 8x whooper swan consisting of 2x flocks of 4x animals were observed flying from the north to the south-east over the river corridor during the November 2020 walkover survey. A further 38 whooper swans were seen flying over the study area in a south-east to north-west direction during the March 2021 walkover surveys.

## **5.0 CONCLUSIONS & RECOMMENDATIONS**

In conclusion, there is a single confirmation of long-eared owl breeding within the proposed site area within a coniferous treeline along the western area of the site's Lifford side. While no other species was observed exhibiting breeding/nesting behaviour in the form of nest

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building, collecting nesting material, nest building or location of nests, the abundance of activity and diversity of species located on site during the breeding bird season suggests that there is a diverse population of breeding birds within the proposed site area. Several species (including wren, robin blackbird, chaffinch, blackcap, goldfinch, blue tit, great tit and house sparrow, etc) were probable breeding pairs due to males displaying breeding behaviours i.e. singing in suitable habitat or due to the presence of a pair in suitable breeding habitat. However, with the exception of the long-eared owl no active nests were observed during the four surveys carried out across the season.

The reduction in bird species diversity, abundance and activity during the winter non-breeding season indicates that during the winter months the site is primarily used as a commuting corridor due to its location on the banks of the River Foyle and the riverine habitat that splits the site. Confirmation of the site being used as a commuting corridor was observed through the presence of whooper swans migrating.

It is recommended that the long-eared owl nest be left undisturbed and intact within the coniferous treeline. Proposed plans currently include the relocation of the current hare coursing grounds and proposed drainage pipework systems along the coniferous treeline where the long-eared owl nest is located. Long-eared owls are considered a species which has a moderate ability to co-exist with human populations, confirmed by the nest's close location to Lifford town.

The hare coursing grounds include an area of land raise at the end of the run, where the hare chase terminates. This land raise is within close proximity to the long-eared owl's location. Development will involve the importation of fill (clay and similar materials) to the area during the construction phase. A proposed new open drainage ditch is being constructed along the inner edge of the retained coniferous treeline along the western boundary of the site. Whilst this treeline is to remain unaltered, some scrub clearance and excavation works to construct the drain will be required during the construction phase. The works will, therefore, include an area close to the foot of the treeline.

Proposed works and clearance are within 150m of the nest site, therefore, it is recommended that these works will require appropriate wildlife licensing and will need to be conducted outside of the breeding season. It is also recommended that replacement raptor boxes be

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installed within 200m of the area as a compensatory/mitigation measure to ensure the long-eared owl has appropriate replacement nesting. All works near the long-eared owl nesting site and installation of replacement raptor boxes must be carried out under supervision and installed by a suitably qualified ecologist via the presence of an ecological clerk of works.

It is also proposed by the ecologist that due to the presence of the long-eared owl nesting on site as well as the buzzards observed on site that the use of rodenticides for any pest control are prohibited on site.

Trees, hedgerows and scrub are of importance to breeding and nesting birds. While no nests have been identified, the removal of hedgerows, trees and scrub during the breeding season will negatively impact upon nesting birds due to the abundant presence and activity of birds during the breeding season. This is in direct violation of Article 4 of the Wildlife (Northern Ireland) Order 1985 (as amended) under which it is an offence.

Any scrub or tree clearance should be kept to a minimum and undertaken outside of the breeding season 1<sup>st</sup> March – 31<sup>st</sup> August).

It should be noted that **should** clearance of scrub/hedgerow's **during** the breeding season be required, this **must** be undertaken under the supervision of a qualified ecologist and appropriate surveys undertaken prior to any scrub clearance i.e. pre-working nest inspection/breeding bird survey to ensure no active nests are present. Any vegetation which is removed prior to the bird breeding season should be removed from the site completely, in order to prevent birds along with other species using stored debris as nesting/resting sites.

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Consultant Ecologist**

**Reviewed By: -**

**Emily Taylor BSc (Hons)  
Graduate Ecologist**

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National Parks & Wildlife Service  
<https://www.npws.ie/legislation>

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[file:///C:/Users/Ryan%20Boyle/Downloads/Birds%20of%20Conservation%20Concern%20in%20Ireland%202020%20%E2%80%93%202026\\_pdf%20\(2\).pdf](file:///C:/Users/Ryan%20Boyle/Downloads/Birds%20of%20Conservation%20Concern%20in%20Ireland%202020%20%E2%80%93%202026_pdf%20(2).pdf)

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**FIGURES**



**Figure 3: Riverine habitat running through centre of the proposed site**



**Figure 4: Woodland area of Strabane side of site**



**Figure 5: Overview of Lifford side of site with hare coursing ground**



**Figure 6: Treeline of northern area on Lifford side**



**Figure 7: Hare coursing ground at centre of Lifford side of the site**



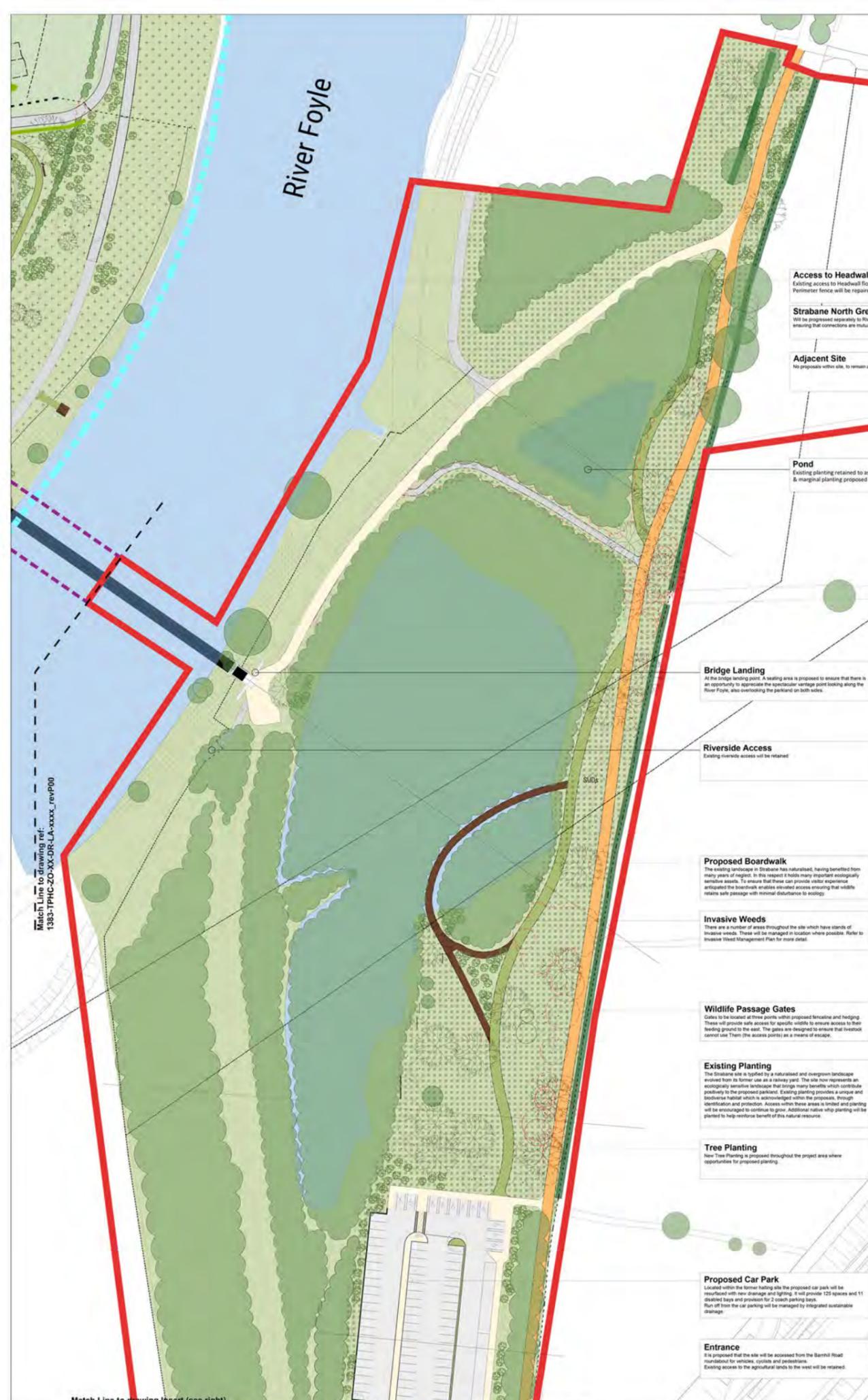
**Figure 8: Treelines located along eastern boundary of the Strabane side of the site**

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**APPENDICES**

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Appendix I: Concept Site Layout Strabane



- LEGEND**
- SOFTWARES**
- Existing Trees & Planting To be retained and protected during works in accordance with BS5837
  - Existing Trees & Planting To be removed. Crown identified in the absence of individual trees
  - Proposed Native Trees Refer to planting schedule
  - Proposed Native Wetland Trees Refer to planting schedule
  - Proposed Specimen Trees Refer to planting schedule and details
  - Proposed Hedgerow planting Refer to planting schedule and details
  - Proposed Amenity Grassland Refer to planting schedule
  - Proposed Wildflower (WF1) Refer to planting schedule
  - Proposed Woodland Wildflower (WF2) Refer to planting schedule
  - Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and sown as turf
  - Proposed SUGS Mix Refer to planting schedule. To be prepared and sown as turf
  - Proposed Native shrubs Refer to planting schedule
  - Proposed Ornamental shrubs Refer to planting schedule
- SURFACES**
- Proposed Asphalt To asphalt and Cobble For detail refer to engineers drawing
  - Proposed Asphalt For detail refer to engineers drawing
  - Strabane North Greenway Prepared separately to this project
  - Proposed High Friction Surface To be prepared / repaired in situ For detail refer to engineers drawing
  - \*Natural Stone Paving Refer to detail
  - Proposed Boardwalk Refer to detail
  - Reinforced Grass Refer to detail
  - Proposed Gravel Path Refer to detail
  - \*Proposed Slipway Surface Refer to detail also engineers drawings for detail
  - \*Wetpour Safety Surfacing Refer to detail
  - \*Reinforced Grass Safety Surfacing Refer to detail
  - \*Wet Back Safety Surface specifically for play areas
  - Stone Clusters Refer to detail
- FEATURES**
- Existing Walls To be retained
  - Existing Fencing To be retained / repaired as required
  - 2.4m Security Fencing Refer to detail
  - Metal Estate Fencing Refer to detail
  - Stock Proof Fencing Refer to detail
  - Existing Fencing to be removed
  - Steps and Terracing Refer to detail
  - Proposed Benches Refer to detail
  - Bicycle stand locations Typical Sheffield stand
  - Proposed Litter Bins 120L bins with single 300L recycled bin adjacent to Community Facilities
  - Proposed Metal Gates Refer to detail
  - Vehicle Upstand Kerb 125mm upstand. Pre Cast Concrete
  - Vehicle Flush Kerb Pre Cast Concrete
  - Pie Kerb Pre Cast Concrete
- MISCELLANEOUS**
- Site Boundary - Application under Roads Act, Section 51(2)
  - Adjoining Riverside Community Park Boundary (RCP)
  - Riverine Community Park Boundary (R)
  - Proposed Bridge
  - Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted
- All hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance to Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed
- Bridge Refer to engineers proposals
- Invasive Weeds There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Topographic Survey Information Planting There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Planting Loss: The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.

Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the

This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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REV	DATE	DESCRIPTION	BY
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.08.2021	Issued for Planning	HB

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**Comhairle Contae**  
Dhúna na nGall  
Donegal County Council

**STAGE 3 - PLANNING**

**RIVERINE COMMUNITY PARK**

**STRABANE RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn	HB	Checked	DM	Approved	DM
Date	12.02.2021	Date	12.02.2021	Date	18.08.2021

Project: RVCPC - TPHC - Z0 - XX - DR - LA - 2051  
Revision: P02

Project Number: 1383  
Status code & description: ST2 Issued for Information

All measurements are in metres. If your drawings are to be taken in accordance to British Standards, drawings are to be provided in A3. ©2021 Paul Hogarth Design Ltd

Match Line to drawing ref: 1383-TPHC-Z0-XX-DR-LA-xxxx\_revP00

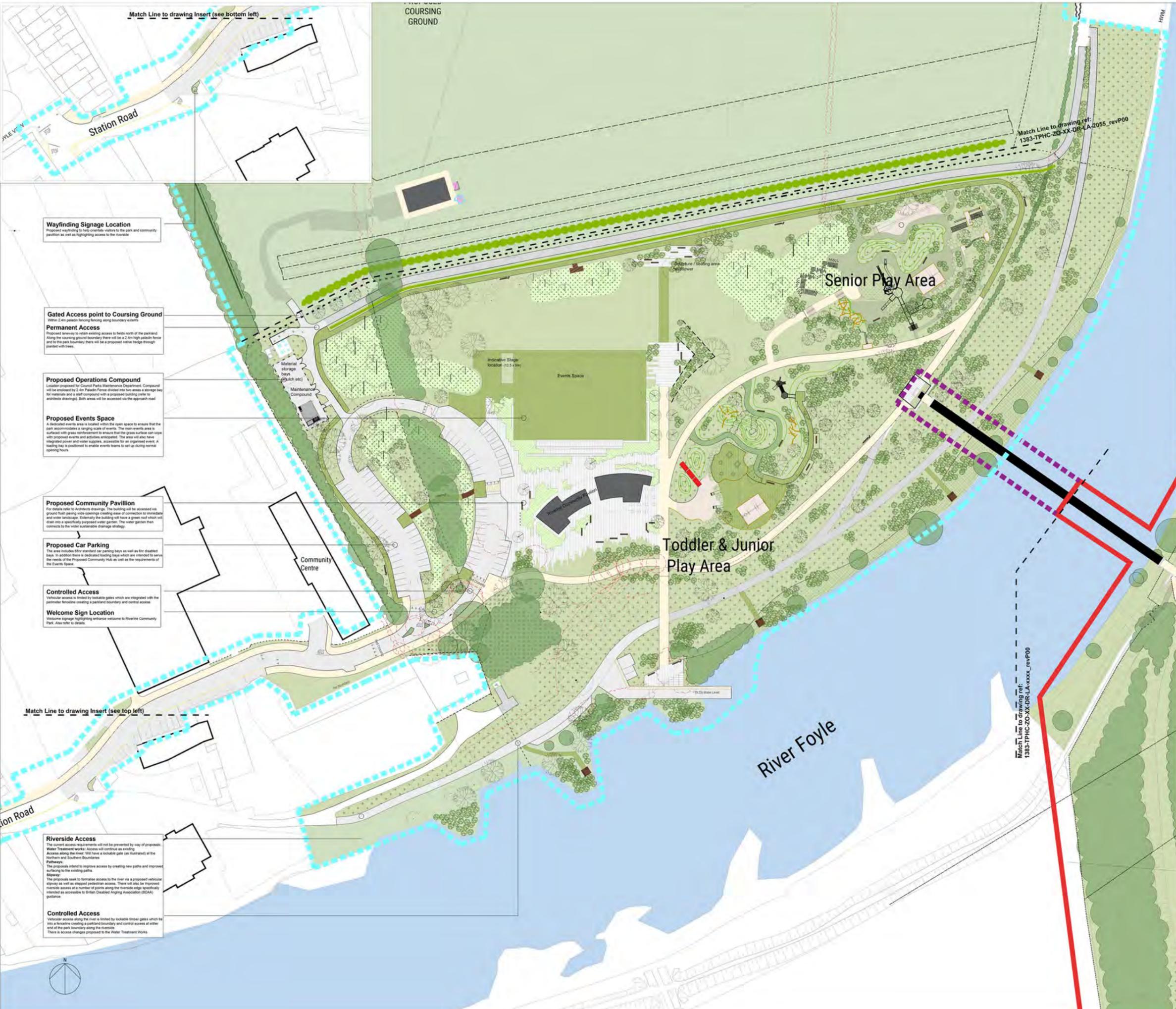
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Match Line to drawing insert (see left)

Drawing Insert  
Scale 1:500 @ A0

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Appendix II: Concept Site Layout Lifford



**LEGEND**

**SOFTWORKS**

- Existing Trees & Planting
- Proposed Native Trees
- Proposed Native Wetland Trees
- Proposed Specimen Trees
- Proposed Hedgerow planting
- Proposed Amenity Grassland
- Proposed Wildflower (WF1)
- Proposed Woodland Wildflower (WF2)
- Proposed Riverside Edge Mix
- Proposed SUDS Mix
- Proposed Native shrubs
- Proposed Ornamental shrubs
- \*Proposed Grass Mounding

**SURFACES**

- Proposed Asphalt
- Proposed High Friction Surface
- \*Historical Stone Paving
- Proposed Boardwalk
- Reinforced Grass
- Proposed Gravel Path
- \*Proposed Slowslow Surface
- \*Wetproof Safety Surfacing
- \*Reinforced Grass Safety Surfacing
- \*Play Bark Safety Surface

**FEATURES**

- Existing Walls
- Existing Fencing
- 2.4m Security Fencing
- Metal Estate Fencing
- Stock Proof Fencing
- Existing Fencing to be removed
- Steps and Terracing
- Proposed Benches
- Bicycle stand locations
- Proposed Litter Bins
- Proposed Metal Gates
- Vehicle Upstand Kerb
- Vehicle Flush Kerb
- Pin Kerb

**MISCELLANEOUS**

- Riverrine Community Park Boundary (NI)
- Riverrine Community Park Boundary (RD)
- Site Boundary - Application under Roads Act, Section 51(2)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.
- All coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying of planting pattern.
- Layout should be read in conjunction with all other drawing information and reports.
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length.
- For proposed drainage refer to engineers layout.
- For lighting, electrical requirements refer to MSE drawings.
- Walking Routes & Connections**  
All main routes within the park boundary will be accessible to the broadest range of abilities, in accordance to Countryside Access code.
- Riverside Access**  
Riverside access to be retained.
- Planting**  
The general planting strategy is to use a primarily native planting palette introducing some specimen trees within the river car park to add formality. Where possible existing areas of native planting will be increased and supplemented to create diversity and improve ecological benefits. This planting will be suggested from the naturalised fauna surveyed.
- Suds**  
Attenuation basin locations and extents shown indicatively. Basins will be planted with a mix of native wet woodland (indicated with trees) and marginal type planting (indicated with hatches) to highlight their location and integrate them as an attractive feature within the overall site context.
- Bridge**  
Refer to engineers proposals.
- Invasive Weeds**  
Refer to invasive weed management plan.
- Topographic Survey Information**  
There are substantial areas of the Project boundary that remain unurveyed (due to poor access). In this respect assumptions have had to be made with regard detail of.
- Planting Loss**  
The extents of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding**  
Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref. 2022.
- Play Areas**  
The Play areas have been located next to the existing embankment making the most of connecting paths and using graded terracing to maximize accessibility through the play spaces. Play equipment within both the Junior / Senior play areas will also be considered to ensure broadest age range and ability is catered for. Also refer to the section drawing which illustrates section through the accessible High Tower in the Senior Play Area.
- Legend**  
All items with \* are only relevant to Lifford.

The revision cloud highlighted areas of the park which were inaccessible for the

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Project: 1383  
Date: 12.02.2021  
Issue: ST2  
Author: [Name]  
Checked: [Name]  
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**Peace**  
Northern Ireland - Ireland  
European Regional Development Fund

**Comhairle Contae Dhún na nGall**  
Donegal County Council  
Donegal City & District Development Centre

**STAGE 3 - PLANNING**

**RIVERRINE COMMUNITY PARK**

**LIFFORD RIVERRINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn: HB  
Date: 12.02.2021  
Checked: DM  
Date: 12.02.2021  
Approved: DM  
Date: 12.02.2021

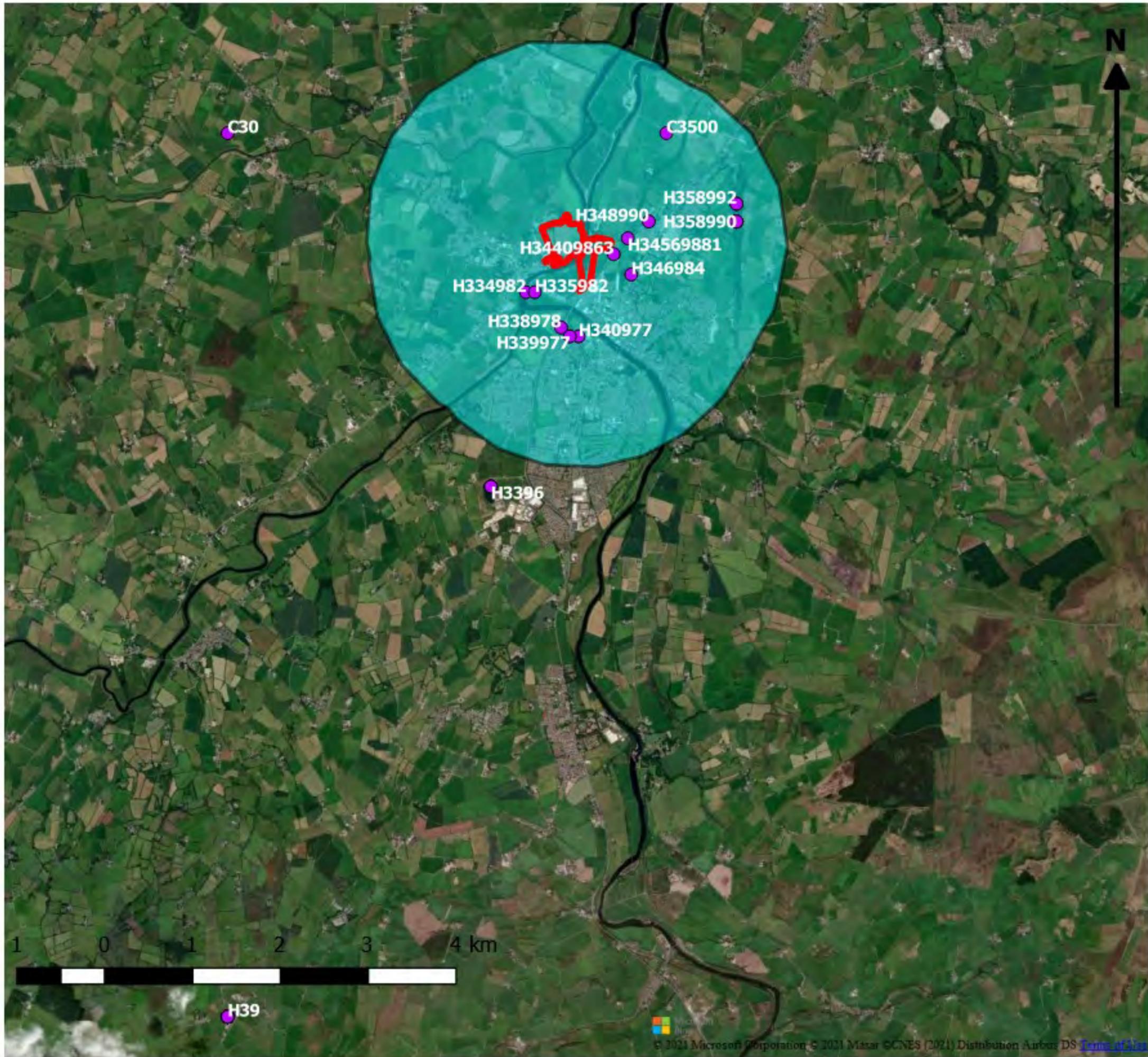
Project: 1383 - Organisation - Zone - Level - Type - Role - Number  
1383 - TPHC - Z0 - XX - DR - LA - 2052 - P01

Project Name: 1383  
Status & Description: ST2 Issued for Information

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Appendix III: CEDaR Bird Records with 2km Buffer



### Legend

- CEDaR Bird Records
- Red Lined Boundary
- 2km Buffer

Appendix III: CEDaR Bird Records with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:60961 @ A3

Date: 03/08/2021



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 Tel: 02890747766

Appendix IV: Tabulated 2016 A5 Historic Bird Records

Table 11P. 1 Summary of raptor breeding sites data

Species	Scientific name	Grid reference
Hen harrier	<i>Circus cyaneus</i>	H4982
Common buzzard	<i>Buteo buteo</i>	C3827
		H3482
		H4484
		H5455
Peregrine	<i>Falco peregrinus</i>	C4816
		H4899
		H4484
		H3171
		H6067
		H6454
		C4213
		H4995
		H3781
		H6967
C4317		
Merlin	<i>Falco columbarius</i>	H3570
Kestrel	<i>Falco tinnunculus</i>	H5549
		H5849
Barn owl	<i>Tyto alba</i>	C4308

Table 11P.2 Summary of UWT barn owl data

Grid reference	Date
H 302 615	2003
H 394 795	July 2004

Grid reference	Date
H 308 949	July 2004
H 437 090	Aug 2008
H 76 56	May 2008
H 670 523	April 2008

Table 11P.3 Summary of BTO heronry records

Grid reference	Location	Year of most recent record
H 615 528	Favour Royal Forest	2003
C 376 038	Cloghcor	1977
H 524 543	Killyfaddy, Clogher	2003
H 559 538	Augher Castle	2004
H 64 58	Martray House, Ballygawley	1969
H 34 99	Strabane Old Canal	1988
H 43 80	Cottage Farm, Tattynure	1991
C 368 033	Farm Hill, Ballymagorry	2008
H 435 760	Rash House, Omagh	1985
H 305 948	Umey Park, near Clady	1977
C 390 124	Mullennan House	1985
C 463 155	River Faughan, just north of Drumahoe	2000

## Appendix V: 2016 A5 Breeding Bird survey Results

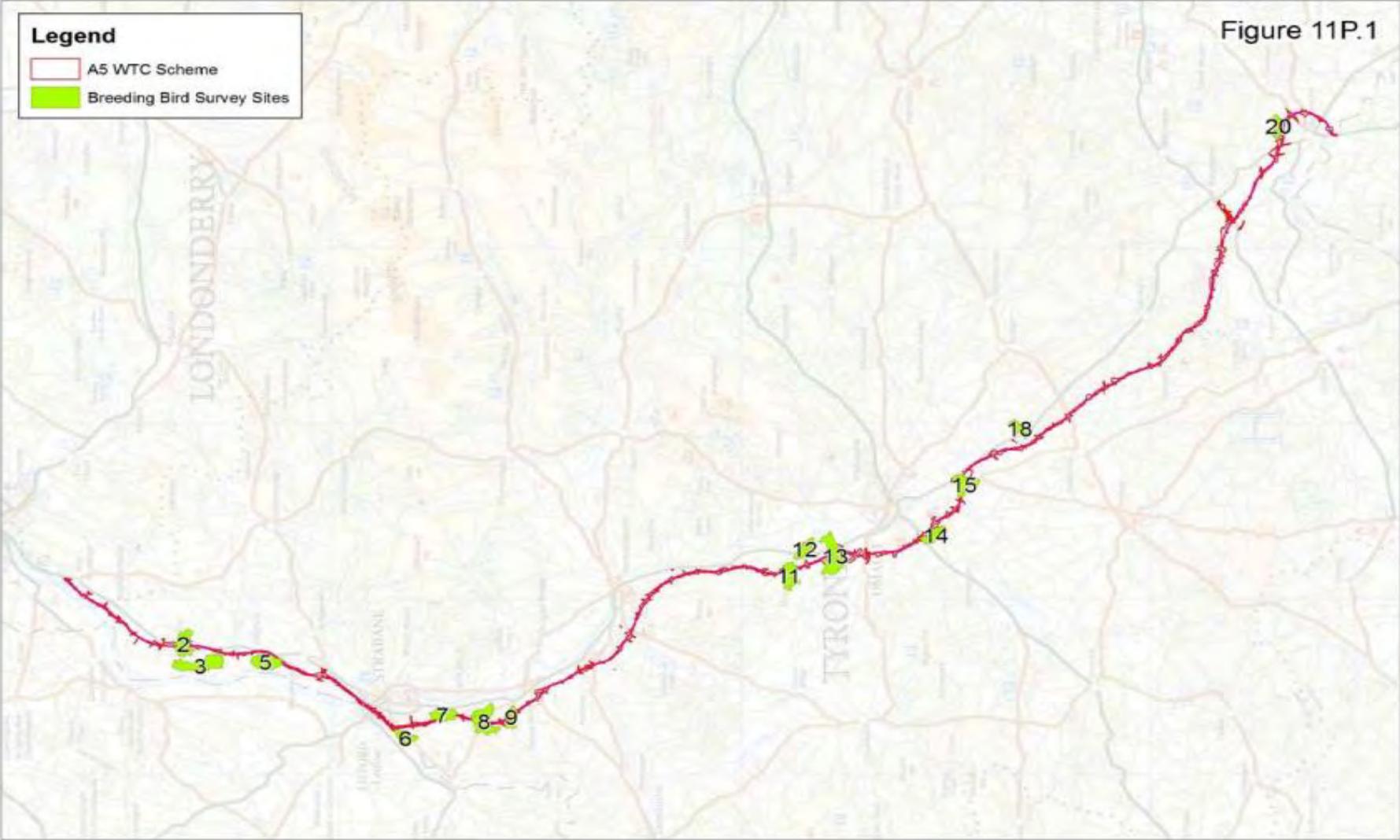
Table 11P.4 2014 BBS field data summary<sup>2,3</sup>

Species	Sites and habitat description														Cumulative abundance
	2 237558, 407178	3 236410, 406371	5 236514, 403166	6 232239, 396367	7 233499, 394508	8 233182, 392527	9 233302, 391192	11 241426, 377588	12 242931, 376899	13 242557, 375527	14 243747, 370555	15 246669, 369111	18 249802, 366396	20 267036, 353823	
	Arable, improved & semi-improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, scrub, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, species-poor hedge	Improved grassland, broadleaved woodland, running water, species-poor hedge.	Wet modified bog, broadleaved woodland, arable, improved grassland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Raised bog, arable, broadleaved woodland, improved grassland, species-poor hedge	Improved grassland, coniferous plantation, species-poor hedge, broadleaved woodland	Arable, improved grassland, species-poor hedgerow, wet modified bog, open water, coniferous plantation	Improved grassland, broadleaved woodland, marshy grassland	Improved grassland, broadleaved woodland, marshy grassland, species-poor hedge	
Grey heron*	1	1	0	1	0	0	0	0	0	2	0	0	0	0	5
Canada goose	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Mallard*	0	5	5	0	0	0	0	0	0	4	0	0	0	0	14
Sparrowhawk*	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Buzzard*	2	4	1	2	0	1	0	1	2	2	4	0	1	3	23
Pheasant	2	2	4	2	3	0	0	0	0	9	0	1	0	1	24
Moorhen	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Lapwing*	100	0	0	100	0	0	0	0	0	0	0	100	0	1	301
Snipe*	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Lesser black-backed gull*	2	0	0	2	0	0	0	0	0	1	2	4	0	0	11
Great black-backed gull	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Feral pigeon	0	1	0	0	0	0	0	0	0	2	10	0	0	0	13
Wood pigeon	27	14	10	27	22	70	24	7	17	71	82	35	52	58	516
Collared dove	2	0	0	2	0	1	3	0	1	0	0	2	0	0	11
Swift*	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Skylark*	12	14	8	12	4	4	0	0	0	17	0	0	0	1	72
Swallow*	16	10	12	16	11	16	17	13	6	2	57	12	66	26	280
House martin*	16	3	0	16	0	2	0	9	9	0	0	15	22	4	96
Meadow pipit*	3	10	6	3	2	6	0	17	0	74	0	2	0	55	178
Pied wagtail	0	3	2	0	6	2	2	4	2	3	8	3	7	2	44

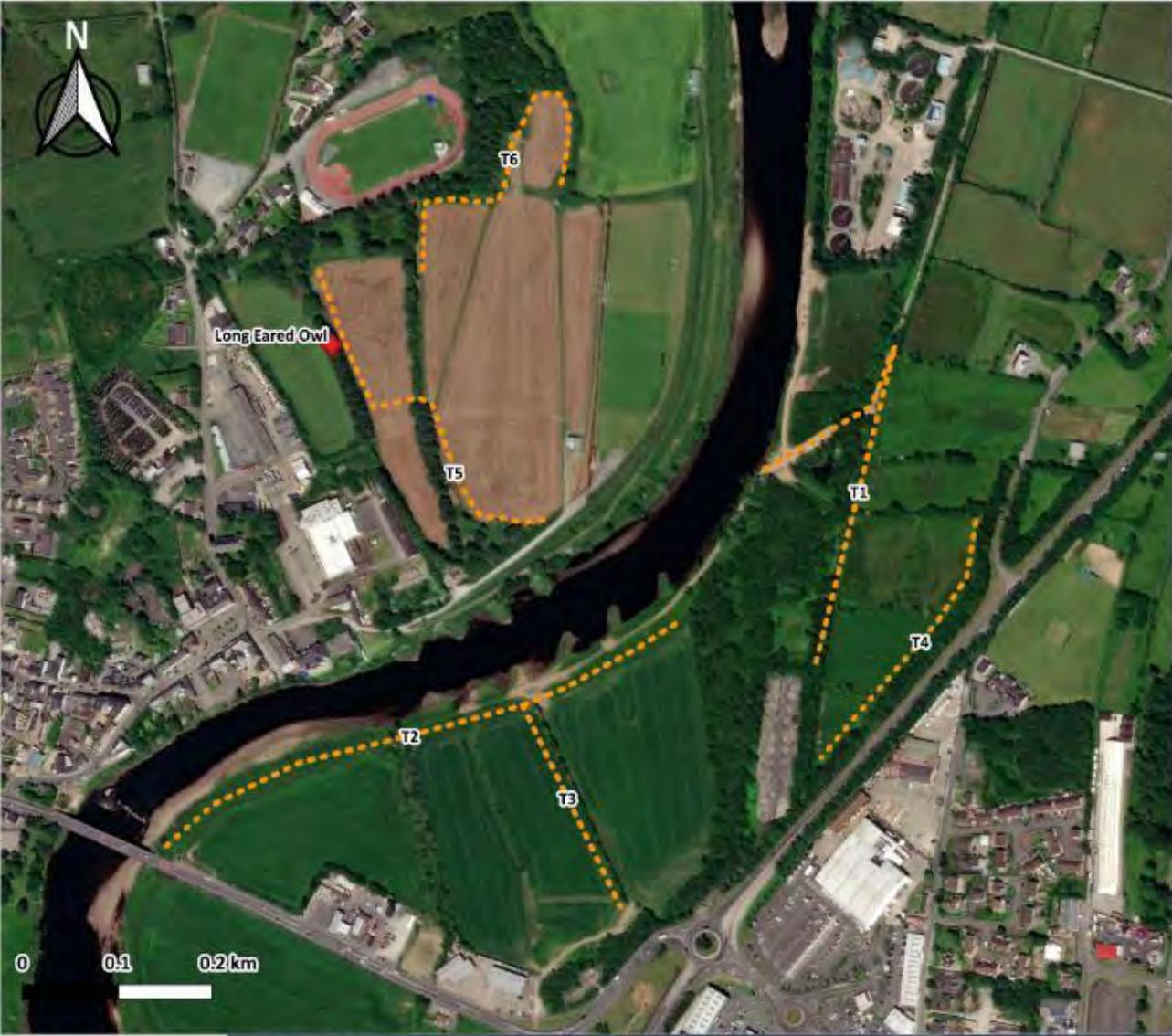
Species	Sites and habitat description														Cumulative abundance
	2 237558, 407178	3 236410, 406371	5 236514, 403166	6 232239, 396367	7 233499, 394508	8 233182, 392527	9 233302, 391192	11 241426, 377588	12 242931, 376899	13 242557, 375527	14 243747, 370555	15 246669, 369111	18 249802, 366396	20 267036, 353823	
	Arable, improved & semi-improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, scrub, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, species-poor hedge	Improved grassland, broadleaved woodland, running water, species-poor hedge.	Wet modified bog, broadleaved woodland, arable, improved grassland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Raised bog, arable, broadleaved woodland, improved grassland, species-poor hedge	Improved grassland, coniferous plantation, species-poor hedge, broadleaved woodland	Arable, improved grassland, species-poor hedgerow, wet modified bog, open water, coniferous plantation	Improved grassland, broadleaved marshy grassland	Improved grassland, broadleaved woodland, marshy grassland, species-poor hedge	
Wren	65	29	60	65	46	21	42	28	24	72	72	83	69	66	742
Dunnock*	11	6	9	11	13	15	11	3	4	11	20	18	14	14	160
Robin	22	24	23	22	15	6	18	25	23	29	43	41	50	33	374
Blackbird	14	14	18	14	22	17	11	8	12	20	31	31	14	21	247
Song thrush*	5	7	4	5	2	4	3	3	5	6	8	13	11	13	89
Mistle thrush*	0	1	0	0	1	1	1	5	4	3	3	3	0	0	22
Grasshopper warbler*	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Sedge warbler	17	10	1	17	4	7	0	0	5	0	0	7	0	0	68
Whitethroat*	0	0	0	0	0	4	0	0	1	2	3	2	5	1	18
Blackcap	0	3	2	0	2	0	0	0	3	3	2	2	1	3	21
Chiffchaff	0	0	0	0	0	0	3	1	1	1	2	5	1	11	25
Willow warbler*	18	16	21	18	17	1	6	12	7	37	19	27	18	30	247
Goldcrest*	0	0	1	0	0	0	1	7	1	4	6	6	5	10	41
Long-tailed tit	0	0	0	0	0	0	0	0	0	2	11	8	5	5	31
Coal tit	0	4	2	0	2	0	1	2	1	5	5	5	11	1	39
Blue tit	3	9	3	3	2	7	16	15	3	14	26	19	30	23	173
Great tit	4	3	4	4	3	7	19	9	6	12	32	23	13	17	156
Treecreeper	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Magpie	18	7	5	18	13	18	10	9	8	41	43	29	22	32	273
Jackdaw	101	32	26	101	14	23	80	68	48	40	100	83	221	43	980
Rook	102	46	5	102	97	30	79	120	165	93	77	282	173	93	1464
Carrion crow	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3
Hooded crow	17	23	5	17	0	0	2	4	1	10	39	8	29	35	190
Raven	0	2	0	0	0	1	0	0	0	0	0	0	1	2	6

Species	Sites and habitat description														Cumulative abundance
	2 237558, 407178	3 236410, 406371	5 236514, 403166	6 232239, 396367	7 233499, 394508	8 233182, 392527	9 233302, 391192	11 241426, 377588	12 242931, 376899	13 242557, 375527	14 243747, 370555	15 246669, 369111	18 249802, 366396	20 267036, 353823	
	Arable, improved & semi-improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, scrub, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, species-poor hedge	Improved grassland, broadleaved woodland, running water, species-poor hedge.	Wet modified bog, broadleaved woodland, arable, improved grassland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Raised bog, arable, broadleaved woodland, improved grassland, species-poor hedge	Improved grassland, plantation, species-poor hedge, broadleaved woodland	Arable, improved grassland, species-poor hedgerow, wet modified bog, open water, coniferous plantation	Improved grassland, broadleaved woodland, marshy grassland	Improved grassland, broadleaved woodland, marshy grassland, species-poor hedge	
Starling*	38	9	16	38	6	185	25	27	93	6	410	43	124	57	1077
House sparrow*	56	22	15	56	14	21	40	8	31	4	36	25	20	3	351
Tree sparrow*	11	4	2	11	2	25	0	0	0	0	0	6	0	0	61
Chaffinch	15	28	33	15	25	19	37	24	25	63	68	58	60	71	541
Greenfinch	0	0	0	0	2	0	1	0	0	1	1	0	3	0	8
Goldfinch	3	0	0	3	0	0	3	4	8	0	0	0	12	2	35
Linnet*	3	1	2	3	0	0	0	0	0	0	0	3	0	0	12
Lesser redpoll*	1	1	6	1	0	0	0	0	0	0	0	0	0	0	9
Bullfinch*	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Yellowhammer*	0	0	0	0	16	53	2	0	0	0	2	0	0	2	75
Reed bunting*	0	5	3	0	0	1	0	0	0	0	0	5	1	1	16
<b>Total number of species recorded</b>	<b>31</b>	<b>35</b>	<b>32</b>	<b>31</b>	<b>29</b>	<b>29</b>	<b>27</b>	<b>26</b>	<b>31</b>	<b>35</b>	<b>31</b>	<b>35</b>	<b>32</b>	<b>34</b>	<b>55</b>

Appendix VI: 2016 A5 Breeding Bird survey Sites

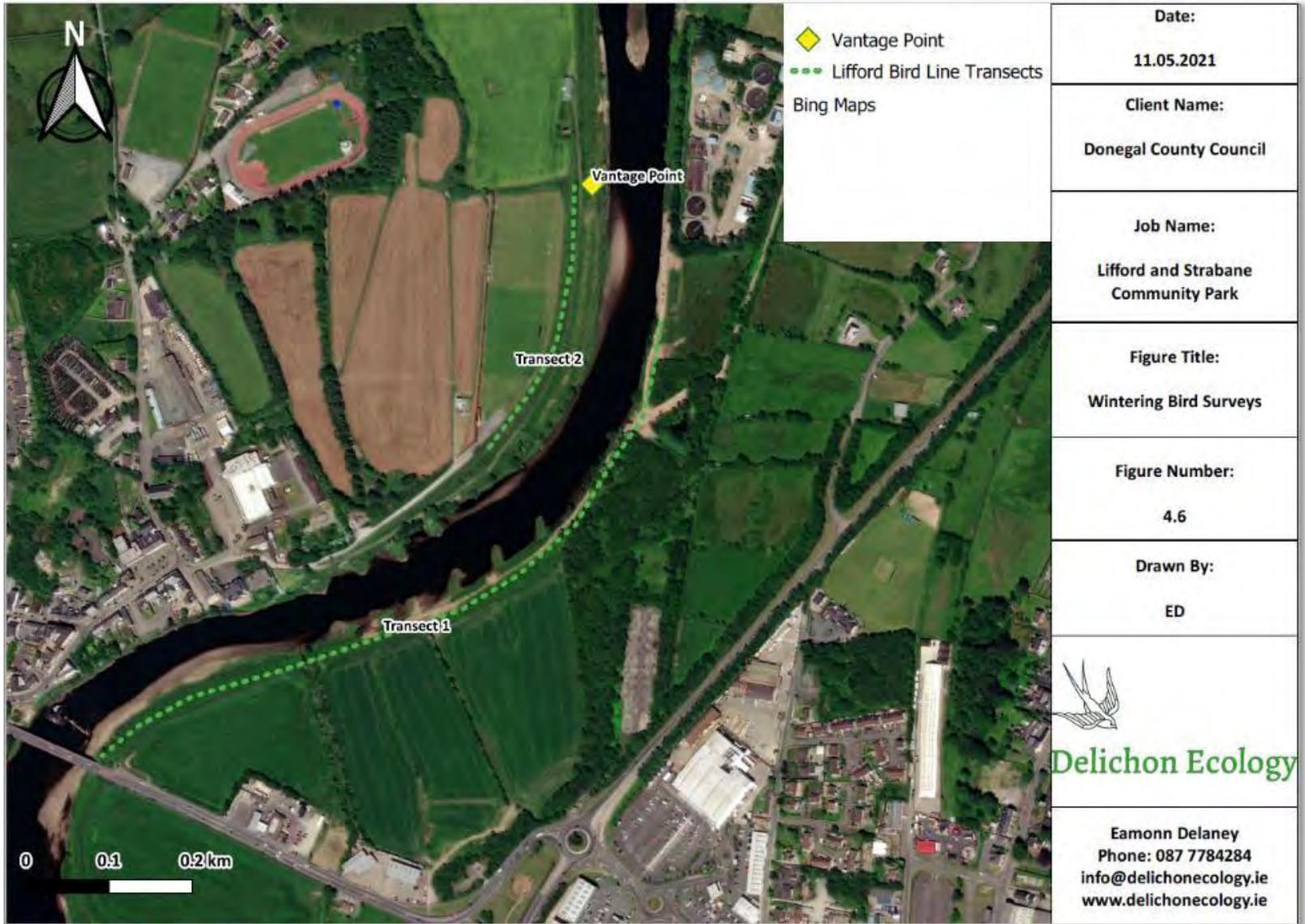


Appendix VII: 2020 Delichon Breeding Bird Survey Transects

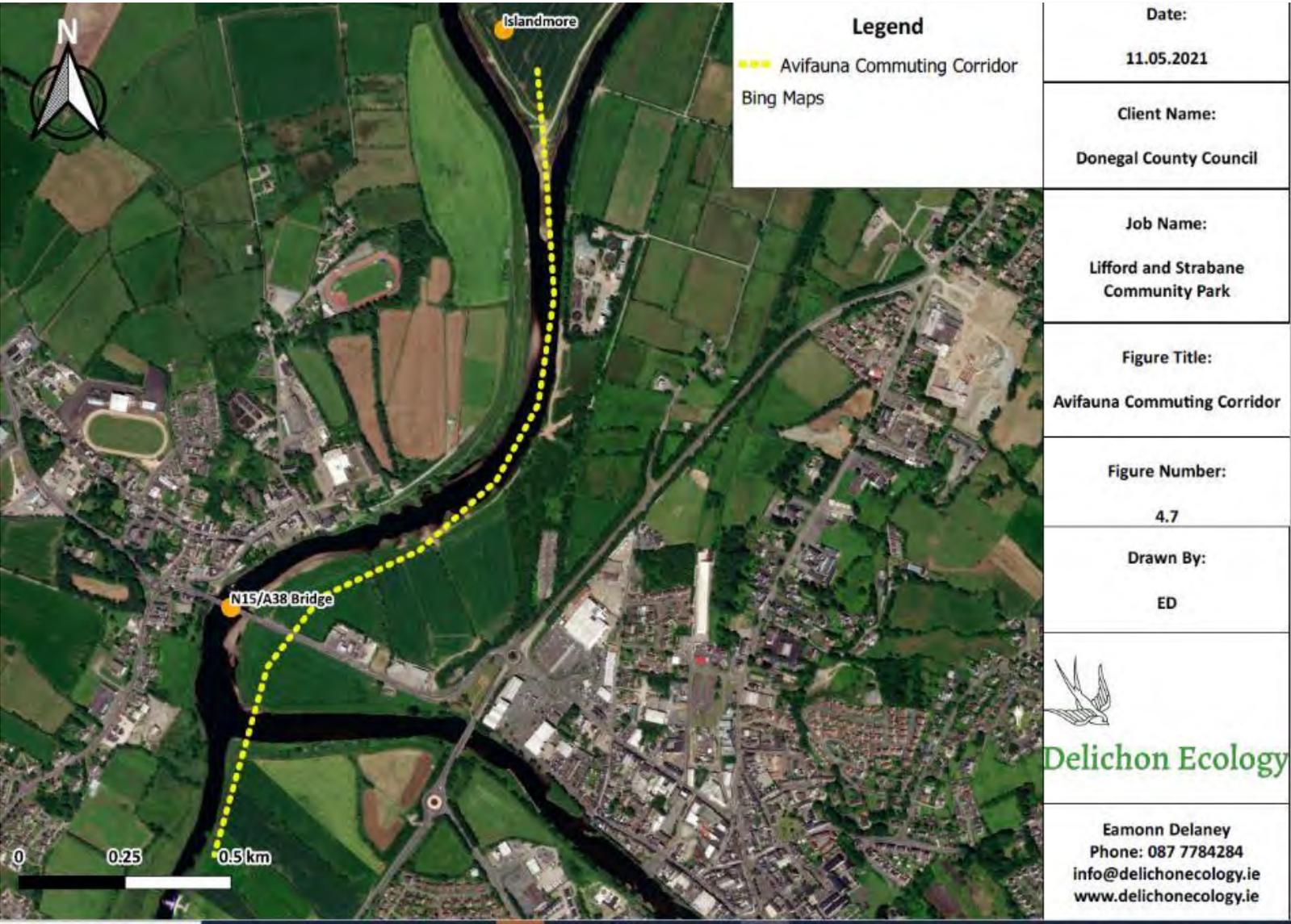


<b>Date:</b>	11.05.2021
<b>Client Name:</b>	Donegal County Council
<b>Job Name:</b>	Lifford and Strabane Community Park
<b>Figure Title:</b>	Breeding Bird Survey Locations
<b>Figure Number:</b>	4.5
<b>Drawn By:</b>	ED
 <b>Delichon Ecology</b>	
Eamonn Delaney Phone: 087 7784284 info@delichonecology.ie www.delichonecology.ie	

Appendix VIII: 2020 Delichon Wintering Bird Survey Locations



Appendix IX: 2020 Delichon Avifauna Commuting Corridor



Appendix X: BoCCI Assessment Red & Amber Species 2020-2026

	Season	BoCCI3	IUCN	SPEC 1, 2 or 3	HD	BDp1 or BDMp1	BDp2 or BDMp2	WDp1 or WDMp1	WDp2 or WDMp2	BDR1 or BDMr1	BDR2 or BDMr2	BR	BL	WL	BI	WI
Quail <i>Coturnix coturnix</i>	B	R		3	Y						-54%	Y				
Grey Partridge <i>Perdix perdix</i>	B	R		2	Y		>50%			-56%	-95%					
Red Grouse <i>Lagopus lagopus</i>	B	R		3		>25%	>50%				-66%					
Bewick's Swan <i>Cygnus columbianus</i>	W	R		3				-99%	-99%					Y		
Long-tailed Duck <i>Clangula hyemalis</i>	W	R	VU	1				-82%								
Eider <i>Somateria mollissima</i>	B/W	A		1										Y		
Velvet Scoter <i>Melanitta fusca</i>	W	R	VU	1												
Common Scoter <i>Melanitta nigra</i>	B/W	R				>25%	>61%	-43%				Y		Y		
Goldeneye <i>Bucephala clangula</i>	W	R						-68%						Y		
Pochard <i>Aythya farina</i>	B/W	R	VU	1				-77%		-40%	-53%	Y		Y		
Scaup <i>Aythya marila</i>	W	A		3				-58%						Y		
Shoveler <i>Spatula clypeata</i>	B/W	R						-33%	-52%			Y		Y		
Slavonian Grebe <i>Podiceps auritus</i>	W	A	VU	1												
Black-necked Grebe <i>Podiceps nigricollis</i>	B	R			Y							Y				
Stock Dove <i>Columba oenas</i>	B	A				-54%				-40%	-47%					
Turtle Dove <i>Streptopelia turtur</i>	P	A	VU	1						-90%	-94%					
Nightjar <i>Caprimulgus europaeus</i>	B	R		3	Y						-95%	Y				
Swift <i>Apus apus</i>	B	A		3		-56%				-38%	-47%					
Corncrake <i>Crex crex</i>	B	R		2			-83%			-68%	-91%					
Leach's Storm-petrel <i>Hydrobates leucorhous</i>	B	R	VU	1									Y			
Balearic Shearwater <i>Puffinus mauretanicus</i>	P	R	CR	1												
Oystercatcher <i>Haematopus ostralegus</i>	B/W	A		1										Y		



	Season	BoCCI3	SPEC	BDMp1	BDMp2	WDMp1	WDMp2	BDMr1	BDMr2	BR	BL	WL	BI	WI
Mute Swan <i>Cygnus olor</i>	B/W	A												100%
Whooper Swan <i>Cygnus cygnus</i>	B/W	A								Y		Y		45%
Brent Goose <i>Branta bernicla</i>	W	A										Y		96%*
Barnacle Goose <i>Branta leucopsis</i>	W	A												23%*
Greylag Goose <i>Anser anser</i>	W	A										Y		
Greater White-fronted Goose <i>Anser albifrons</i>	W	A										Y		47%*
Smew <i>Mergellus albellus</i>	W	A	3											
Goosander <i>Mergus merganser</i>	B	A								Y				
Red-breasted Merganser <i>Mergus serrator</i>	B/W	G	3			-34%			-50%			Y		
Shelduck <i>Tadorna tadorna</i>	B/W	A				-30%						Y		
Tufted Duck <i>Aythya fuligula</i>	B/W	R	3			-34%						Y		
Garganey <i>Spatula querquedula</i>	B	A	3							Y				
Gadwall <i>Mareca strepera</i>	B/W	A								Y		Y		
Wigeon <i>Mareca penelope</i>	B/W	R				-38%	-44%			Y		Y		
Mallard <i>Anas platyrhynchos</i>	B/W	G				-41%								
Pintail <i>Anas acuta</i>	W	R	3									Y		
Teal <i>Anas crecca</i>	B/W	A							-46%					
Great Crested Grebe <i>Podiceps cristatus</i>	B/W	A				-43%						Y		
Spotted Crake <i>Porzana porzana</i>	B	A								Y				
Coot <i>Fulica atra</i>	B/W	A	3			-35%			-36%			Y		
Red-throated Diver <i>Gavia stellata</i>	B/W	A	3			-38%				Y				
Black-throated Diver <i>Gavia arctica</i>	W	A	3											
Great Northern Diver <i>Gavia immer</i>	W	A	3											44%

European Storm-petrel <i>Hydrobates pelagicus</i>	B	A								Y	
Fulmar <i>Fulmarus glacialis</i>	B	G	3								
Cory's Shearwater <i>Calonectris borealis</i>	P	A	2								
Manx Shearwater <i>Puffinus puffinus</i>	B	A						-38%		Y	
Bittern <i>Botaurus stellaris</i>	W	na	3								
Gannet <i>Morus bassanus</i>	B	A								Y	
Shag <i>Gulosus aristotelis</i>	B	A	2							Y	
Cormorant <i>Phalacrocorax carbo</i>	B/W	A								Y	
Ringed Plover <i>Charadrius hiaticula</i>	B/W	G									25%
Little Ringed Plover <i>Charadrius dubius</i>	B	A								Y	
Turnstone <i>Arenaria interpres</i>	W	G									-28%
Ruff <i>Calidris pugnax</i>	P	A	2								
Common Sandpiper <i>Actitis hypoleucos</i>	B	A	3								-40%
Spotted Redshank <i>Tringa erythropus</i>	P	A	3								
Wood Sandpiper <i>Tringa glareola</i>	P	A	3								
Little Gull <i>Hydrocoloeus minutus</i>	P	A	3								
Black-headed Gull <i>Larus ridibundus</i>	B/W	R							-58%	-55%	Y
Mediterranean Gull <i>Larus melanocephalus</i>	B	A								Y	
Common Gull <i>Larus canus</i>	B/W	A									-25%
Lesser Black-backed Gull <i>Larus fuscus</i>	B/W	A									Y
European Herring Gull <i>Larus argentatus</i>	B/W	R	2								-29%
Little Tern <i>Sternula albifrons</i>	B	A	3								-50%
Black Tern <i>Chlidonias niger</i>	P	na	3								
Roseate Tern <i>Sterna dougallii</i>	B	A	3								-46%
Common Tern <i>Sterna hirundo</i>	B	A									Y
Arctic Tern <i>Sterna paradisaea</i>	B	A									-44%
Sandwich Tern <i>Thalasseus sandvicensis</i>	B	A									-57%
Great Skua <i>Catharacta skua</i>	B	A								Y	
Black Guillemot <i>Cephus grylle</i>	B	A	2								
Common Guillemot <i>Uria aalge</i>	B	A	3								Y
Short-eared Owl <i>Asio flammeus</i>	B	A	3							Y	
Marsh Harrier <i>Circus aeruginosus</i>	B	A								Y	
Hen Harrier <i>Circus cyaneus</i>	B	A	3								-29%

	Season	BoCCI3	SPEC	BDMp1	BDMp2	WDMp1	WDMp2	BDMr1	BDMr2	BR	BL	WL	BI	WI
Goshawk <i>Accipiter gentilis</i>	B	A								Y				
Kingfisher <i>Alcedo atthis</i>	B	A	3	-45%	-44%									
Wryneck <i>Jynx torquilla</i>	P	na	3											
Merlin <i>Falco columbarius</i>	B	A							-40%					
Chough <i>Pyrrhocorax pyrrhocorax</i>	B	A	3	-33%	-29%									
Skylark <i>Alauda arvensis</i>	B	A	3											
Bearded Reedling <i>Panurus biarmicus</i>	B	na								Y				
House Martin <i>Delichon urbicum</i>	B	A	2											
Swallow <i>Hirundo rustica</i>	B	A	3											
Sand Martin <i>Riparia riparia</i>	B	A	3											
Willow Warbler <i>Phylloscopus trochilus</i>	B	G	3											
Starling <i>Sturnus vulgaris</i>	B	A	3											
Spotted Flycatcher <i>Muscicapa striata</i>	B	A	2											
Pied Flycatcher <i>Ficedula hypoleuca</i>	B/P	A								Y				
Northern Wheatear <i>Oenanthe oenanthe</i>	B	A	3											
Goldcrest <i>Regulus regulus</i>	B	A	2											
House Sparrow <i>Passer domesticus</i>	B	A	3											
Tree Sparrow <i>Passer montanus</i>	B	A	3											
Tree Pipit <i>Anthus trivialis</i>	P	na	3											
Western Yellow Wagtail <i>Motacilla flava</i>	B/P	A	3							Y				
Brambling <i>Fringilla montifringilla</i>	W	G	3											
Greenfinch <i>Chloris chloris</i>	B	A		-48%										
Linnet <i>Linaria cannabina</i>	B	A	2											

Species	Season BoCCI3		Species	Season BoCCI3	
Bean Goose <i>Anser fabalis</i>	W	na	Rook <i>Corvus frugilegus</i>	B	G
Pink-footed Goose <i>Anser brachyrhynchus</i>	W	G	Raven <i>Corvus corax</i>	B	G
Little Grebe <i>Tachybaptus ruficollis</i>	B/W	A	Hooded Crow <i>Corvus corone</i>	B	G
Rock Dove <i>Columba livia</i>	B	G	Coal Tit <i>Periparus ater</i>	B	G
Woodpigeon <i>Columba palumbus</i>	B	G	Blue Tit <i>Cyanistes caeruleus</i>	B	G
Collared Dove <i>Streptopelia decaocto</i>	B	G	Great Tit <i>Parus major</i>	B	G
Cuckoo <i>Cuculus canorus</i>	B	G	Sedge Warbler		
Water Rail <i>Rallus aquaticus</i>	B	G	<i>Acrocephalus schoenobaenus</i>	B	G
Moorhen <i>Gallinula chloropus</i>	B	G	Reed Warbler <i>Acrocephalus scirpaceus</i>	B	A
Sooty Shearwater <i>Ardenna grisea</i>	P	R	Grasshopper Warbler <i>Locustella naevia</i>	B	G
Great Shearwater <i>Ardenna gravis</i>	P	G	Chiffchaff <i>Phylloscopus collybita</i>	B	G
Spoonbill <i>Platalea leucorodia</i>	W	na	Long-tailed Tit <i>Aegithalos caudatus</i>	B	G
Grey Heron <i>Ardea cinerea</i>	B/W	G	Blackcap <i>Sylvia atricapilla</i>	B	G
Little Egret <i>Egretta garzetta</i>	B/W	G	Garden Warbler <i>Sylvia borin</i>	B	G
Whimbrel <i>Numenius phaeopus</i>	P	G	Whitethroat <i>Sylvia communis</i>	B	G
Sanderling <i>Calidris alba</i>	W	G	Treecreeper <i>Certhia familiaris</i>	B	G
Little Stint <i>Calidris minuta</i>	P	G	Wren <i>Troglodytes troglodytes</i>	B	G
Jack Snipe <i>Lymnocyptes minimus</i>	W	A	Dipper <i>Cinclus cinclus</i>	B	G
Grey Phalarope <i>Phalaropus fulicarius</i>	P	G	Mistle Thrush <i>Turdus viscivorus</i>	B	A
Green Sandpiper <i>Tringa ochropus</i>	P	G	Song Thrush <i>Turdus philomelos</i>	B	G
Greenshank <i>Tringa nebularia</i>	W	G	Blackbird <i>Turdus merula</i>	B	G
Sabine's Gull <i>Xema sabini</i>	P	G	Fieldfare <i>Turdus pilaris</i>	W	G
Ring-billed Gull <i>Larus delawarensis</i>	W	G	Robin <i>Erithacus rubecula</i>	B	A
Yellow-legged Gull <i>Larus michahellis</i>	W	G	Black Redstart <i>Phoenicurus ochruros</i>	P/W	G
Iceland Gull <i>Larus glaucooides</i>	W	G	Stonechat <i>Saxicola torquatus</i>	B	A
Glaucous Gull <i>Larus hyperboreus</i>	W	G	Firecrest <i>Regulus ignicapilla</i>	P	G
Great Black-backed Gull <i>Larus marinus</i>	B/W	A	Waxwing <i>Bombycilla garrulus</i>	W	G
Arctic Skua <i>Stercorarius parasiticus</i>	P	G	Dunnock <i>Prunella modularis</i>	B	G
Pomarine Skua <i>Stercorarius pomarinus</i>	P	G	Water Pipit <i>Anthus spinoletta</i>	W	na
Little Auk <i>Alle alle</i>	P	G	Rock Pipit <i>Anthus petrosus</i>	B	G
Long-eared Owl <i>Asio otus</i>	B	G	Pied Wagtail <i>Motacilla alba yarrelli</i>	B	G
Sparrowhawk <i>Accipiter nisus</i>	B	A	Chaffinch <i>Fringilla coelebs</i>	B	G
Buzzard <i>Buteo buteo</i>	B	G	Bullfinch <i>Pyrrhula pyrrhula</i>	B	G
Great Spotted Woodpecker			Redpoll <i>Acanthis flammea</i>	B	G
<i>Dendrocopos major</i>	B	A	Common Crossbill <i>Loxia curvirostra</i>	B	G
Hobby <i>Falco subbuteo</i>	P	na	Goldfinch <i>Carduelis carduelis</i>	B	G
Peregrine Falcon <i>Falco peregrinus</i>	B	G	Siskin <i>Spinus spinus</i>	B	G
Jay <i>Garrulus glandarius</i>	B	G	Lapland Bunting <i>Calcarius lapponicus</i>	P	G
Magpie <i>Pica pica</i>	B	G	Snow Bunting <i>Plectrophenax nivalis</i>	W	G
Jackdaw <i>Corvus monedula</i>	B	G	Reed Bunting <i>Emberiza schoeniclus</i>	B	G

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## Appendix 8-11

### Collision Risk Survey



**APPENDIX 8-11**

**Collision Risk Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to write up a collision risk desk study on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

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## 1.2 Development Proposal

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- 
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
  - Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
  - River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
  - Family Space incorporating unique play experience, designed to support children focused events & related programming.
  - Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Rationale of Collision Risk Desk Study

The purpose of the collision risk desk study is to utilise historic bird records along with results from previous bird surveys to determine the risk of inflight collisions between local and commuting bird species and the proposed bridge structure. This is required to assess the likelihood of any impacts upon the local bird community in association with the proposed development. The aim of this report is to: -

- Identify what birds are using the site for breeding and foraging purposes;
- Establish the current site usage and flight paths for breeding, commuting and foraging birds;
- Identify the likely impacts on birds the development is likely to impose upon any local bird populations; and
- Recommend either further survey, mitigation or compensation measures either to protect local bird populations and to enhance the habitat in which they reside.

## 2.0 LEGISLATION

### Lifford (ROI) Legislation

All wild birds are protected, particularly during the bird breeding season while nesting under the Irish Wildlife Act 1976 (as amended), the EU Habitats Directive of the Bern convention via the European Communities (Birds and Natural Habitats Regulations 2011 (S. I. No. 477 of 2011)). It is an offence to intentionally or recklessly:

- 
- kill, injure or take any wild bird; or
  - take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
  - at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
  - take or destroy an egg of any wild bird; or
  - disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
  - disturb dependent young of such a bird.

Additionally, any person who knowingly causes, or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

### **Wild Birds**

Most species of birds return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. Some of these species which have been deemed as particularly vulnerable to decline are given additional protection and are listed on the most recent BoCCI assessment checklist as amber or red (see Appendix: IX).

All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs).

Local and national biodiversity action plans consider priority species within the local area of conservation concern.

### **Strabane (NI) Legislation**

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Under the Wildlife (Northern Ireland) Order 1985 (as amended) all wild birds are protected, particularly during the bird breeding season while nesting. It is an offence to intentionally or recklessly:

- kill, injure or take any wild bird; or
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- at any other time take, damage or destroy the nest of any wild bird included in Schedule A1; or
- take or destroy an egg of any wild bird; or
- disturb any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturb dependent young of such a bird.

Additionally, any person who knowingly causes, or permits to be done an act which is made unlawful by any of these provisions shall also be guilty of an offence.

### Wild Birds

Most species of birds return to the same general nesting location each year and build a new nest. However, some species return to the same nest sites year after year, re-using old nests. Some of these species which have been deemed as particularly vulnerable to decline are given additional protection and are listed on Schedule A1 of the Wildlife Order (see Table 1). For these species it is an offence to damage or destroy their nests at any time of the year, even when they are not in use.

**Table 1: Schedule A1 species**

Common Name	Latin Name
Golden Eagle	<i>Aquila chrysaetus</i>
White-tailed Eagle	<i>Haliaeetus albicilla</i>
Osprey	<i>Pandion haliaetus</i>
Barn Owl	<i>Tyto alba</i>
Peregrine	<i>Falco peregrines</i>
Red Kite	<i>Milvus milvis</i>

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The Wildlife and Natural Environment Act (Northern Ireland) 2011 (known as the WANE Act) introduced a biodiversity duty on public bodies in Northern Ireland. It states that *'it is the duty of every public body, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions'*.

The WANE Act also requires that the Department of the Environment maintains a list of species requiring special attention when delivering this duty. These are Northern Ireland priority species and specific actions for these have been addressed in a range of Government policies and activities.

All wild birds are also subject to conservation measures under the Birds Directive (2009/147/EC). This requires European Member States to take conservation measures to maintain populations of all naturally occurring wild birds. Additionally, some bird species, which are particularly rare or vulnerable, are listed on Annex I of the Directive. These species are subject to special conservation measures and have additional legal protection as features of designated sites, such as Special Protection Areas (SPAs).

Local and national biodiversity action plans consider priority species within the local area of conservation concern.

### **Planning Policy**

The Planning Policy Statement 2 (PPS 2), Natural Heritage, NH2 indicates that development proposals are required to be sensitive to all protected species and sited and designed to protect them, their habitats and prevent from deterioration and destruction of their breeding sites or resting places.

## **3.0 METHODOLOGY**

### **3.1 Surveyor/qualifications**

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queen's University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a

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zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

**Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, as well as a seasonal volunteer for the Bat Conservation Trust and regularly takes part in newt, lizard and bat surveys.

**Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master’s degree (MSc) in Ecological Management and Conservation Biology from Queen’s University, Belfast, a bachelor’s degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird’s surveys, badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABIP).

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## 3.2 Desk Study

A desk study was undertaken with a view of gathering existing information in regard to species and habitat within and near the site. Sources used to gather information include:

- Department of Agriculture, Environment and Rural Affairs (DAERA) GIS datasets;
- Request to CEDaR, to provide information in regard to priority bird species within a 2km radius of the site; and
- Aerial photographs on Bing and Google and NIEA Environment Map Viewer.

## 3.3 Field study

While this desk study primarily relies on historical records and results from previous studies to help produce an assessment for collision risk/rates between the local bird populations and the proposed bridge structure. Several vantage point surveys were also carried out during July 2021 to help provide some current real time data to help inform the calculated collision risks of current activity levels during the breeding bird season when activity on site had previously been recorded as high, (see Appendix 8-10 Breeding Bird Survey report).

The method used to carry out the vantage point survey follows the Scottish Natural Heritage guidelines of Recommended bird survey methods to inform impact assessment of onshore wind farms, the guidelines recommended by NIEA:

- 6 hours of survey time required per month
- Split into 2 survey sessions each 3 hours in duration
- An agreed list of target and secondary bird species was provided for recording during vantage point observations as these species are deemed of highest importance/at greatest risk, (see Appendix I)
- Target bird species were observed as priority over secondary bird species
- Should a target species be spotted it is followed until it ceases to fly or is lost from view
- The time the target bird was detected and the flight duration are recorded
- The target species flight height at time of detection is recorded and then at 15 second intervals thereafter
- Secondary bird species are recorded into sub divided 5 minute periods at the end of which the number and activity of all secondary species observed is recorded.
- Flight paths are to be recorded for production onto maps

The dates of each survey, along with survey start time and duration was recorded in Table 2. Weather conditions at the time of survey was also recorded included, temperature (°C), wind speed (Beaufort scale), cloud cover (Oktas) and precipitation.

For the vantage point surveys certain species of birds were deemed as target species most likely to be affected by the proposed bridge structure. Due to the diversity of bird species on site and the proposed bridge spanning a riverine habitat the target species for these VP surveys were:

- Diurnal raptors
- Waders
- Waterfowl
- Rails
- Gulls

**Table 2: Summary of the survey dates and weather from each visit**

Survey ID	Date	Start Time	Survey Duration	Weather
1	06/07/2021	12:30	3hrs	12°C, Beaufort 2, 8/8, 25% precipitation
2	15/07/2021	12:30	3hrs	19°C, Beaufort 3, 5/8, 25% precipitation
3	20/07/2021	12:00	3hrs	21°C, Beaufort 4, 0/8, 0% precipitation

### 3.4 Criteria for evaluation

Protection is afforded to all wild birds in the UK under the Wildlife Order (NI) Act 1985 (as amended) and gives greater protection to certain priority species that are considered at risk nationally under Schedule 1.

In 2015 Birds of Conservation Concern Ireland 4 (BoCCI) the Red List for Birds updated, the fourth review of the status of wild birds in the UK, Channel Islands and the Isle of Man. Using standardised criteria 244 species with breeding, passage or wintering birds were assigned to either Red, Amber or Green lists of conservation concern.

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### 3.5 Evaluation assessment

Using evaluation techniques set out by Fuller (1980) the data collected can be assessed in order to define the importance of ornithological interest by the number of breeding species found on site.

**Table 3: Evaluation criteria for bird assemblage assessment**

Level of Importance	Number of Breeding Species	
	Fuller (1980) Criteria	Adapted Criteria
Local	25-49	>25
District		25-49
County	50-69	50-69
Regional	70-84	70-84
National	<85	<85

Level of importance is defined using geographical levels; Local, District, County, Regional and National. To comply with IEEM 2006 'Local has been adapted to >25 species and 'District' to 25-49 species.

### 3.6 Limitations

The entire site was accessible to the surveyor with all surveys undertaken under suitable weather conditions. No limitations were encountered during the survey period.

Some birds may be unnoticed and/or missed, this report only provides a portion of the bird activity occurring on site and that it is considered that ecological reports have a validity for 1 year after they are produced, after which they may need to be updated.

## 4.0 RESULTS

### 4.1 Desk Study

A written request was submitted to obtain data from the CEDaR recorded species dataset, and the results obtained from the CEDaR search provided a list of recorded species within a 2km radius of the site.

**Table 4: CEDaR database request**

Common Name	Scientific Name	Event Date	Sample Spatial Reference	All Designations - Short Names
<b>Mistle Thrush</b>	<i>Turdus viscivorus</i>	12/05/1988	H358990	Bird-Red, BirdsDir-A2.2
<b>Chiffchaff</b>	<i>Phylloscopus collybita</i>	12/05/1988	H358990	0
<b>Willow Warbler</b>	<i>Phylloscopus trochilus</i>	12/05/1988	H358990	Bird-Amber
<b>Raven</b>	<i>Corvus corax</i>	12/05/1988	H358990	0
<b>Rook</b>	<i>Corvus frugilegus</i>	12/05/1988	H358990	BirdsDir-A2.2
<b>Woodpigeon</b>	<i>Columba palumbus</i>	12/05/1988	H358990	BirdsDir-A2.1
<b>Chaffinch</b>	<i>Fringilla coelebs</i>	12/05/1988	H358990	0
<b>Blackbird</b>	<i>Turdus merula</i>	12/05/1988	H358990	BirdsDir-A2.2
<b>Yellowhammer</b>	<i>Emberiza citrinella</i>	12/05/1988	H358990	BAP-2007, Bern-A2, Bird-Red, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Goldcrest</b>	<i>Regulus regulus</i>	12/05/1988	H358990	Bern-A2
<b>Wren</b>	<i>Troglodytes troglodytes</i>	12/05/1988	H358990	Bern-A2
<b>Magpie</b>	<i>Pica pica</i>	12/05/1988	H358990	BirdsDir-A2.2
<b>Whooper Swan</b>	<i>Cygnus cygnus</i>	28/10/1995	H39	Bern-A2, Bird-Amber, BirdsDir-A1, CMS_A2, CMS_AEWA-A2, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
<b>Tree Sparrow</b>	<i>Passer montanus</i>	22/11/1997	H39	BAP-2007, Bird-Red, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
<b>Black Redstart</b>	<i>Phoenicurus ochruros</i>	07/04/1999	H39	Bern-A2, Bird-Red, WACA-Sch1_part1
<b>Long-Eared Owl</b>	<i>Asio otus</i>	10/10/2014	H39	Bern-A2, ECCITES-A, W(NI)O-Sch1_part1
<b>Long-Eared Owl</b>	<i>Asio otus</i>	05/03/2014	C30	Bern-A2, ECCITES-A, W(NI)O-Sch1_part1
<b>Rose-Coloured Starling</b>	<i>Sturnus roseus</i>	14/10/2013	H39	Bern-A2
<b>Swift</b>	<i>Apus apus</i>	09/05/2013	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
<b>Kestrel</b>	<i>Falco tinnunculus</i>	18/10/2013	H39	Bern-A2, Bird-Amber, CMS_A2, ECCITES-A, FEP-007_tab2, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, Wales_NERC_S.42
<b>Buzzard</b>	<i>Buteo buteo</i>	18/10/2013	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
<b>Swift</b>	<i>Apus apus</i>	08/05/2014	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List

Common Name	Scientific Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Jay	<i>Garrulus glandarius</i>	06/03/2011	H39	BirdsDir-A2.2
Sparrowhawk	<i>Accipiter nisus</i>	06/03/2011	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
Buzzard	<i>Buteo buteo</i>	06/03/2011	H39	CMS_A2, ECCITES-A, W(NI)O-Sch1_part1
Cattle Egret	<i>Bubulcus ibis</i>	02/11/2012 - 11/11/2012	H39	CMS_AEWA-A2, ECCITES-A
Gannet	<i>Sula bassana</i>	30/05/2011	H39	Bird-Amber, CMS_AEWA-A2
Swift	<i>Apus apus</i>	08/05/2011	H39	Bird-Amber, NIPS, Scottish_Biodiversity_List
Spotted Flycatcher	<i>Muscicapa striata</i>	01/06/2011	H39	BAP-2007, Bern-A2, Bird-Red, CMS_A2, England_NERC_S.41, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, Wales_NERC_S.42
Barn Owl	<i>Tyto alba</i>	05/11/2016	H39	Bern-A2, ECCITES-A, FEP-007_tab2, NIPS, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Swift	<i>Apus apus</i>	17/07/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	09/08/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	18/07/2014	C3500	Bird-Amber, NIPS, Scottish_Biodiversity_List
Swift	<i>Apus apus</i>	08/05/2014	H3396	Bird-Amber, NIPS, Scottish_Biodiversity_List
Peregrine	<i>Falco peregrinus</i>	1987	H358992	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Peregrine	<i>Falco peregrinus</i>	1988	H358992	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A, Scottish_Biodiversity_List, W(NI)O-Sch1_part1, WACA-Sch1_part1
Collared Dove	<i>Streptopelia decaocto</i>	12/04/2016	H346984	BirdsDir-A2.2
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	02/06/2016	H340977	Bern-A2
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	15/12/2015	H338978	Bern-A2
Blackbird	<i>Turdus merula</i>	27/04/2016	H34409863	BirdsDir-A2.2
Blackbird	<i>Turdus merula</i>	27/04/2016	H34569881	BirdsDir-A2.2
Blackbird	<i>Turdus merula</i>	15/12/2015	H348990	BirdsDir-A2.2
Pied Wagtail	<i>Motacilla alba subsp. yarrellii</i>	23/03/2017	H334982	Bern-A2
Rook	<i>Corvus frugilegus</i>	23/03/2017	H339977	BirdsDir-A2.2
Jackdaw	<i>Corvus monedula</i>	23/03/2017	H335982	BirdsDir-A2.2

## 4.2 Previous surveys

Previous breeding bird and non-breeding winter surveys had been carried out by the previous project ecologist Eamonn Delaney of Delichon Ecology in 2020. A pre-determined transect route was walked throughout the survey area which included all field boundaries within the site. Records were made of birds singing or calling, repeated territorial calls, territorial aggression, displaying, adults carrying food or nesting material, juvenile birds and family groups.

Instances where a nest was directly observed, an individual was carrying nesting material, or where an obvious male-female pair was present were all recorded as a breeding pair (BP).

**Table 5: Summary of likely breeding behaviour from Delichon’s previous surveys**

Transect Number	Species	BTO Code	Early Season	Late Season	Conservation Status <sup>1</sup>
Transect 1	Blackcap	BC		✓	Green
	Grey Heron	H.		✓	Green
	Goldcrest	GC	✓	✓	Amber
	Wren	WR	✓	✓	Green
	Woodpigeon	WP		✓	Green
	Rook	RO		✓	Green
	Blackbird	B.	✓	✓	Green
	Hooded Crow	HC		✓	Green
	Pheasant	PH		✓	Green
	Song Thrush	ST	✓	✓	Green
	Chiffchaff	CC		✓	Green
	Chaffinch	CH	✓	✓	Green
	Robin	R.	✓	✓	Green
	Magpie	MG	✓		Green
	House Sparrow	HS	✓		Amber
Willow Warbler	WW	✓		Amber	
Transect 2	Wren	WR		✓	Green
	Grey Heron	H.	✓	✓	Green
	Rook	RO	✓	✓	Green
	Sedge Warbler	SW		✓	Green
	Magpie	MG	✓	✓	Green
	Willow Warbler	WW		✓	Amber
	Woodpigeon	WP	✓	✓	Green
	Song Thrush	ST		✓	Green
	Dunnock	D.		✓	Green
	Swift	SI		✓	Red
	Blackbird	B.	✓		Green

Transect Number	Species	BTO Code	Early Season	Late Season	Conservation Status <sup>1</sup>
	Starling	SG	✓		Amber
	Swallow	SL	✓		Amber
	Feral Pigeon	FP	✓		n/a
	Jackdaw	JD	✓		Green
	Robin	R.	✓		Green
	Chaffinch	CH	✓		Green
	Common Sandpiper	CS	✓		Amber
	Hooded Crow	HC	✓		Green
	Shelduck	SU	✓		Amber
Transect 3	Blue Tit	BT		✓	Green
	Blackbird	B.	✓	✓	Green
	Goldcrest	GC	✓	✓	Amber
	Chaffinch	CH	✓		Green
	Blackcap	BC		✓	Green
	Woodpigeon	WP	✓	✓	Green
	Grey Heron	H.		✓	Green
	Wren	WR		✓	Green
	Dunnock	D.		✓	Green
	Rook	RO	✓	✓	Green
	Song Thrush	ST		✓	Green
	Starling	SG	✓	✓	Amber
	Mallard	MA		✓	Amber
	Common Gull	CM		✓	Amber
	Wren	WR	✓		Wren
Starling	SG	✓		Amber	
Transect 4	Blue Tit	BT		✓	Green
	Wren	WR		✓	Green
	Song Thrush	ST		✓	Green
	Blackcap	BC		✓	Green
	Chaffinch	CH		✓	Green
	Blackbird	B.		✓	Green
	Goldcrest	GC		✓	Amber
	Woodpigeon	WP		✓	Green
	Magpie	MG		✓	Green
Chiffchaff	CH		✓	Green	
Transect 5	Bullfinch	BF		✓	Green
	Wren	WR		✓	Green
	Song Thrush	ST		✓	Green
	Woodpigeon	WP	✓	✓	Green
	Dunnock	D.		✓	Green
	Willow Warbler	WW	✓	✓	Amber
	Magpie	MG		✓	Green
	Blue Tit	BT		✓	Green
	Robin	R.	✓	✓	Green
Blackcap	BC		✓	Green	
Rook	RO	✓	✓	Green	

Transect Number	Species	BTO Code	Early Season	Late Season	Conservation Status <sup>1</sup>
	Goldcrest	GC		✓	Amber
	Chaffinch	CH		✓	Green
	Buzzard	BZ		✓	Green
	Starling	SG	✓	✓	Amber
	Blackbird	B.	✓		Green
	Hooded Crow	HC	✓		Green
Transect 6	Chiffchaff	CH		✓	Green
	Goldcrest	GC		✓	Amber
	Song Thrush	ST		✓	Green
	Chaffinch	CH	✓	✓	Green
	Wren	WR		✓	Green
	Blue Tit	BT	✓	✓	Green
	Woodpigeon	WP	✓	✓	Green
	Blackbird	B.	✓	✓	Green
	Blackcap	BC		✓	Green
	Robin	R.	✓	✓	Green
	Starling	SG	✓	✓	Amber
	Dunnock	D.		✓	Green
	Willow Warbler	WW	✓		Amber
	Hooded Crow	HC	✓		Green
	House Sparrow	HS	✓		Amber
	Meadow Pipit	MP	✓		Red
	Rook	RO	✓		Green
	Jackdaw	JD	✓		Green
Feral Pigeon	FP	✓		n/a	
Cormorant	CA	✓		Amber	

Most registrations recorded during the surveys were of species that were listed as green on the BoCCI scale. Nine species are listed as amber: goldcrest, house sparrow, willow warbler, starling, swallow, common sandpiper, shelduck, mallard and common gull. While two species are listed as red: swift and meadow pipit.

In total, 30 bird species were observed on site during the breeding bird surveys. It was identified that a common assemblage of passerine birds which are often associated with treelines, hedgerows, woodland and pastoral habitats were located throughout the proposed site area. The majority of bird activity was observed along these linear features and habitats and it was observed that these features and habitats were primarily used for foraging and commuting.

Other bird species observed on site but not during designated breeding bird transect surveys are displayed in table 6.

**Table 6: Summary of birds observed outside of breeding bird surveys from Delichon's previous surveys**

Species	BTO Code	Conservation Status
Linnet	LI	Amber
Sand Martin	SM	Amber
Jackdaw	JD	Green
Reed Bunting	RB	Green
Swallow	SL	Amber
Long-tailed Tit	LT	Green
House Sparrow	HS	Amber
Great Tit	GT	Green
Cormorant	CA	Amber
Spotted Flycatcher	SF	Amber
House Martin	HM	Amber
Feral Pigeon	FP	N/A
Pied Wagtail	PW	Green
Grey Wagtail	GL	Red
Common Sandpiper	CS	Amber
Long-eared Owl	LE	Green

It was noted by Delichon that the River Foyle and its riparian area supports its own collective of riverine breeding bird species such as grey heron, sand martin, cormorant, mallard and common gull. The close proximity of Lifford town and Strabane to the study area also has influence on the site's bird species composition observed by the presence of swifts, sand martins and house sparrows.

Buzzards and a long-eared owl were identified by Delichon Ecology across the site. the long-eared owl has been identified as breeding on site on the Lifford side of the site having a nest within the conifer treeline in the western area of the site, (Appendix 8-10 Breeding Bird Survey report). Confirmation of the long-eared owl breeding was acquired during the June 2020 site walkover when young chicks were audibly heard calling.

## 5.0 FIELD STUDY

### 5.1 Results

**Table 7: Summary of results recorded during VP survey 06/07/2021**

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
<b>Grey Heron</b>	12:33	1	1	Grey heron observed flying across the River Foyle from the Lifford side approximately 200m south of VP below estimated bridge span height	0	0
<b>Grey Heron</b>	12:34	1	1	A second grey heron was observed flying to the same location as the previous bird again below the estimated bridge span height	0	0
<b>Black-Headed Gull</b>	13:20	1	1	Black-Headed Gull was observed flying north along the river well above the estimated bridge span height following the avifauna commuting corridor	0	0
<b>Grey Heron</b>	12:30	2	1	A single grey heron was observed standing on the banks of the Lifford side south of VP resting and foraging	0	0
<b>Black-Headed Gull</b>	13:08	2	1	Black-Headed Gull was observed flying along the avifauna commuting corridor following the river going south well above the estimated bridge span height	0	0

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
<b>Grey Heron</b>	13:11	2	2	Two herons were observed flying across the river going north descending from above the estimated bridge span height to below before landing on the Lifford side of the river	15	30
<b>Tufted Duck</b>	13:23	2	1	A tufted duck was observed flying the avifauna commuting corridor following the river from the Lifford side before crossing over to the Strabane side going south-west well above the estimate bridge span height	0	0
<b>Grey Heron</b>	13:26	2	3	Three heron were observed flying north well above the estimated bridge span height and descended to below before landing on the Lifford side of the river	20	60

**Table 8: Summary of results recorded during VP survey 15/07/2021**

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
<b>Grey Heron</b>	12:26	1	1	A single grey heron was observed standing and foraging along the banks of the Lifford side of the river north-west of the VP before taking off and flying well below the estimated bridge span height along the riverbank further north	0	0
<b>Lesser Black Backed Gull</b>	12:26	1	3 (1x adult and 2x juveniles)	Three lesser black backed gulls were observed standing and foraging along the banks of Corkan Island just north of the VP	0	0
<b>Sand Martin</b>	13:05	1	1	Single adult sand martin was observed flying along the surface of the river following the avifauna commuting corridor well below the estimated bridge span height	0	0
<b>Grey Heron</b>	13:08	1	1	Single grey heron observed standing and foraging along the banks of the Lifford side of the river south of the VP	0	0

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
<b>Buzzard</b>	13:15	1	1	Single buzzard observed circling over the hare coursing grounds on the Lifford side of the site well above the estimated bridge span height before heading north-west disappearing from view	0	0
<b>Buzzard</b>	13:17	1	1	Single buzzard observed exhibiting similar behaviours and flight patterns to the previous buzzard. Observed well above the estimate bridge span height	0	0
<b>Grey Heron</b>	12:42	2	1	A single heron was observed flying south before turning east along the river well above estimated bridge span height flying towards Lifford before turning back towards Strabane	0	0
<b>Grey Heron</b>	12:46	2	1	Single grey heron observed flying north well above the estimated bridge span height from Strabane before landing on the riverbank and	0	0

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				foraging east of the VP		
<b>Black- Headed Gull</b>	13:14	2	1	Flying north-east below estimate bridge span height following the avifauna commuting corridor	0	0
<b>Buzzard</b>	13:21	2	1	A single buzzard was observed circling over the hare coursing grounds area on the Lifford side of the site above the estimate bridge span height before it dove to catch prey	0	0
<b>Grey Heron</b>	13:32	2	1	A single grey heron observed flying south starting off above estimated bridge span height before beginning its descent from Lifford to the Strabane side riverbank before landing on a handrail near the VP to begin grooming	10	10
<b>Grey heron</b>	13:34	2	1	The same grey heron then took off going north before turning southeast continuing back to Strabane side of the river crossing	300	300

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				at the estimated bridge span height		

**Table 9: Summary of results recorded during VP survey 20/07/2021**

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
<b>Black-Headed Gull</b>	12:00	1	1	Single gull observed sitting on the banks of Corkan Island just north of the VP	0	0
<b>Grey Heron</b>	12:00	1	1	Single grey heron observed resting on the banks of the Lifford side of the river	0	0
<b>Juvenile Greater Black Backed Gull</b>	12:02	1	1	A single juvenile gull was observed circling over the river near the VP before travelling south along the avifauna commuting corridor following the river before circling near VP again over the river. All observed occurring at the estimated bridge span height	300	300
<b>Black-Headed Gull</b>	12:10	1	1	Single gull observed flying well above the estimated bridge span height	0	0

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				following the river along the avifauna commuting corridor going north		
<b>Herring Gull</b>	12:11	1	2	Two herring gulls observed following the river along the avifauna commuting corridor going north before following the river northwest along the Lifford riverbank where the river splits at Corkan Island. All observed at estimated bridge span height	300	600
<b>Grey Heron</b>	12:20	1	1	Observed circling over the river and landed near the VP on the Strabane side riverbank. Initially observed above the estimated bridge span height but crossed through it during descent	5	5
<b>Grey Heron</b>	12:27	1	2	Two grey herons flew from Strabane side riverbank going north along the Lifford side riverbank before circling over the Strabane riverbank and disappearing behind a treeline. All observed at	300	600

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				estimated bridge span height		
<b>Black- Headed Gull</b>	12:31	1	1	Single gull observed flying south before circling over the Strabane side of the river and Corkan Island then followed the Lifford riverbank north-west all above the estimated bridge span height	0	0
<b>Grey Heron</b>	12:37	1	2	Single heron was observed flying from the Strabane to the Lifford side of the river to land next to another heron before both herons took off and flew north along the avifauna commuting corridor circled above the river before landing on the bank of the Lifford side of the river opposite the VP. They then took off once again and flew west over the Lifford side of the site before circling back towards Strabane and disappearing behind a treeline.	600	1200

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				All observed at estimated bridge span height		
<b>Black-Headed Gull</b>	13:06	1	1	Single gull observed flying south along the avifauna commuting corridor at the estimated bridge span height	60	60
<b>Grey Heron</b>	12:00	2	1	Single heron observed sitting on the riverbank of the Lifford side before taking off and flying south-east towards Strabane initially started below the estimated bridge span height and rose to above	20	20
<b>Common Gull</b>	12:05	2	1	Single gull was observed flying south before turning west as it travelled along the avifauna commuting corridor along the river alternating altitude from below to above the estimated bridge span height	120	120
<b>Grey Heron</b>	12:20	2	1	Single heron observed flying south starting below the estimated bridge span height and gained altitude to	0	0

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				above. It then circled over the river before travelling west and then south again		
<b>Grey Heron</b>	12:30	2	1	Observed sitting on the banks of the Lifford side of the river opposite the VP	0	0
<b>Grey Heron</b>	12:38	2	2	Two herons observed flying east at the estimated bridge span height before landing on the riverbank of the Lifford side of the river. Both birds then took off again gaining altitude circling over the river, one heron landed on the Strabane side of the river while the other continued on towards Strabane	180	360
<b>Grey Heron</b>	13:01	2	1	Single heron observed flying north descending from above to below estimated bridge span height from Strabane to the Lifford side of the river before landing	60	60
<b>Black-Headed Gull</b>	13:08	2	1	Single gull observed flying along the river before turning	300	300

Species	Time observed	VP	No. of Birds	Flight Behaviour/ Age of Bird	Time at Risk Height for Flight in Secs	Total Time at Risk Height (multiplied where more than one bird involved in the flight) in secs
				west alternating from estimated bridge span height to just above as it flew out over Lifford		
<b>Grey Heron</b>	13:14	2	1	Single heron observed foraging on banks of Lifford side of river	0	0

With the exception of the sand martin, the primary use of the avifauna commuting corridor along the River Foyle is by target bird species such as gulls and waders. The grey heron was the most commonly observed species with at least one heron observed along the River Foyle during each VP session. This suggests that this particular stretch of the river is a popular hunting ground for the grey heron, which is further confirmed by the presence of jumping salmon observed during the VP surveys. Bird Activity along this stretch of the River Foyle is moderately high with a total of 35 birds observed flying along this stretch of the river during the VP survey sessions. Of these 35 birds 16 were observed flying at the estimated bridge span height posing a considerable risk for potential collision. Other bird species observed during the 2020 bird surveys may have also flown at the estimated bridge span height, but this data is not available.

Current findings support Delichon's deduction that bird activity and abundance on and around the site are higher during the breeding season and decreases during the winter non-breeding season, suggesting the greatest risk of collision may occur during the breeding season with a higher abundance of birds, greater diversity and higher activity levels.

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## 6.0 PROPOSED BRIDGE STRUCTURE

The proposed bridge structure at the Riverine Scheme site is a single span foot/cycle path bridge allowing public access to both the Lifford and Strabane side of the site through a system of proposed pathways. The bridge is to be a metal framework structure with aesthetic stonework walls at both the Lifford and Strabane entrances to the bridge. Lighting has been proposed for the bridge structure and has been outlined in the Bat Activity Report also carried out by MCL Consulting.

The dimensions for the bridge are approximately:

- 7m above water level
- 134m long
- 6m high
- 4.2m wide

The proposed structure is stationary and will not include any glass surfaces, which have been known to attract and confuse birds through reflection of light, that would contribute to potential collision risks. Proposed lighting is also minimal with no flood or intense lighting proposed due to concerns regarding bats and salmonid species within the River Foyle. This also helps contribute to a reduction in potential collision risk as for night-time flyers as it would illuminate the structure, but no birds will become trapped within, attracted to or disoriented by high intensity long beams of light (see Appendix: XV).

## 7.0 COLLISION RISK

In terms of potential collision risk at the proposed Riverine Scheme site, the primary concerns are due to the proposal of a single span foot/cycle bridge to be constructed across the River Foyle from Strabane to Lifford to allow for continued connectivity between the two areas of the proposed site. The collision risk for the Riverine scheme has followed guidance from the Band (2021) model as well as guidance from BTO, JNCC and Scottish Natural Heritage.

Table 10: Target bird species observed crossing proposed bridge location over the River Foyle with the total number of crossing and the number of crossings within the bridge collision risk zone.

Species		Survey Dates and Recordings						Total Number of Crossing for Each Species	Total Number of Crossing for Each Species at Collision Risk Height	Total Number of Crossing for Each Species at Collision Risk Height (%)
		06/07/2021		15/07/2021		20/07/2021				
Common Name	Scientific Name	VP1	VP2	VP1	VP2	VP1	VP2			
Grey Heron	<i>Ardea cinerea</i>	2	6	2	4	9	7	30	16	53.33333333
Black-Headed Gull	<i>Chroicocephalus ridibundus</i>	1	1	0	1	4	1	8	2	25
Tufted Duck	<i>Aythya fuligula</i>	0	1	0	0	0	0	1	0	0
Lesser Black-Backed Gull	<i>Larus fuscus</i>	0	0	3	0	0	0	0	0	0
Sand Martin	<i>Riparia riparia</i>	0	0	1	0	0	0	1	0	0
Buzzard	<i>Buteo buteo</i>	0	0	2	1	0	0	0	0	0
Greater Black-Backed Gull	<i>Larus marinus</i>	0	0	0	0	1	0	1	1	100
Herring Gull	<i>Larus argentatus</i>	0	0	0	0	2	0	2	2	100
Common Gull	<i>Larus canus</i>	0	0	0	0	0	1	1	1	100

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Overall bird activity on site is high with a high diversity of bird species during the breeding season occupying all habitats observed across the site. The 2021 vantage point surveys carried out by MCL consulting focused primarily on diurnal raptors, waders, waterfowl and gulls. More common resident passerine bird species were not included in the vantage point surveys as these species are primarily year-round residents and were mostly located further inland from the riverbanks on both sides of the River Foyle in both Lifford and Strabane. The target species for the vantage point surveys were species known to be migratory, long ranging commuters or were identified as previously using the avifauna commuting corridor along the River Foyle by Eamonn Delaney of Delichon Ecology.

The majority of the crossings were made by grey herons, (68%), which were often observed entering or leaving the survey area for foraging opportunities often alternating between both riverbanks throughout the survey sessions. Gulls were the second most common making 28% of the crossings across 5 different species seen following the avifauna commuting route as well as foraging at various points along the riverbanks. However, it is noted that the results illustrate a 100% chance of collision risk for three of the five gull species, (common, herring and greater black backed gull), the ecologist would like to address that these results are not representative of the true collision risk posed by these species on site. Due to a very tight deadline, vantage point surveys to collect flight path, height and behavioural data by MCL consulting could only be carried out during the month of July 2021 and as such only provide a brief overview/indication of bird species along the avifauna commuting corridor and their flight behaviours. It is of the ecologist's opinion that further vantage point surveys throughout the year would yield a better representation from a greater survey sample population.

The site yielded one species of waterfowl, the tufted duck, which was observed as a single individual on one occasion. Whooper swan have been recorded for the site with sightings reported by the previous project ecologist Eamonn Delaney of Delichon Ecology. However, no further information regarding flight height was available and no whooper swans were observed during MCL's vantage point surveys. It is the opinion of the ecologist based on previous observation studies that this species would have flown well above the estimated bridge span height as they migrated to over-wintering grounds and as such would not have been of considerable risk with regards to collision. However, without observing them during

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a vantage point survey this deduction is currently speculation based upon whooper swan migration flight patterns.

Previous bird surveys carried out by Eamon Delaney of Delichon identified that bird activity on site was much higher during the breeding season and a greater diversity of birds was present on site during this time. Vantage point surveys carried out by MCL consulting support this deduction with other species such as raven, hooded crow and wood pigeon also observed crossing the River Foyle from one side to the other, however, these species were not observed following the avifauna commuting corridor and as such were not considered sensitive to the proposed bridge structure.

Collision risks have been represented by percentages in table 9 of birds observed crossing the proposed bridge location at the estimated bridge span height. As the majority of reference information available such as the Brand (2012) model focus on off and on shore wind farms guidance was taken from this model on how best to evaluate and assess collision risk while result presentation followed guidance from a case study Godinho *et al* (2017) which investigated the “*Bird Collisions in a Railway Crossing a Wetland of International Importance (Sado Estuary, Portugal)*”. Evaluation of potential bird collision risks based upon the observed bird flight crossings of a stationary structure more closely resembled the models based on wind turbines as these included calculation data for rotor speed and movement which would not affect the local bird population of the proposed Riverine Scheme.

## 8.0 CONCLUSIONS & RECOMMENDATIONS

In conclusion, overall activity by birds on the site along the avifauna commuting corridor is considered to be high. The River Foyle provides suitable migrating and foraging habitats and routes for numerous bird species and provides suitable year-round foraging habitat for grey heron.

The collision risk results have been provided based upon observations made by MCL consulting ecologists during the 2021 breeding season. Due to a tight deadline this was the only period available in order to collect up-to-date, real-time data on bird flight behaviour and activity to determine potential collision risk. It is of the ecologist’s opinion that while this does allow for a brief glimpse into potential impact of the proposed bridge structure on the local bird population the small sample population recorded during this survey is not a true

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reflection and as such results may be skewed. However, based on the current data available of the 44 crossings observed 50% of these were through the estimated collision risk height. It is believed a large sample population would reflect a reduced collision risk percentage across a greater diversity of species utilising the avifauna commuting corridor. The ecologist would also like to note that currently there is a stationary bridge structure located approximately 687m southwest of the proposed bridge structure's location. This current bridge structure would sit approximately the same height off the water surface; however, the proposed Riverine Scheme's bridge structure would be taller in order for the single span design to maintain structural integrity. There are also no proposed central piers for the Riverine Scheme bridge, unlike the current road bridge southwest of the site. Several flight observations were made of birds flying below the estimated bridge span height just above the water surface as well above the collision risk height, this proposed design would allow local birds utilising the avifauna commuting corridor to pass over or under the bridge freely without obstruction to their flight path.

The structure is also stationary in nature and will remain in place with no mechanical moving parts which again will help to reduce the collision risk of birds in the local area as they will be able to freely pass over and under the structure unimpeded. The structure does not propose and glass materials or components for the side facades which may potentially reflect light, attracting or confusing birds along the river, and will be creating a structure which can be clearly seen and distinguished from the rest of the surrounding environment.

Proposed lighting for the bridge has been made with consideration towards local wildlife species, in particular, aquatic species. This will further reduce potential collision risks as there will be no intense, high lumen lighting to attract birds or disorient them, particularly any night flying species, causing them to collide with the structure. With the proposed lighting also being sensitive towards local aquatic species it is less likely to cause fish species such as salmon and smelt to congregate under the bridge due to the impact of the light on the water. Maintaining an even distribution of fish travelling along the river will ensure wild birds do not begin to utilise the bridge as a foraging ground to catch fish that have heavily grouped together under the lighting. In turn this avoids excessive grouping of species at a location where collisions may be possible as they land to forage or to take fish from the surface or on the wing.

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The results for this collision risk assessment are more qualitative and based on the recorded bird activity on site and use of the avifauna commuting corridor. However, based on the evidence gathered it is considered that the proposed bridge structure may not provide a severe collision risk to the local bird population and species utilising the avifauna commuting corridor. The proposed structure is stationary in nature, combined with the bat and fish sensitive lighting and the lack of central piers allowing birds utilising the avifauna commuting corridor to freely pass below and above the bridge structure offer a reduced low risk of collision.

**Report Prepared By: -**

**Reviewed By: -**

**Ryan Boyle BSc (Hons), MSc  
Consultant Ecologist**

**Emily Taylor BSc (Hons)  
Graduate Ecologist**

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**FIGURES**



**Figure 3: Riverine habitat running through centre of the proposed site used as an avifauna commuting corridor and the proposed location of the bridge structure**



**Figure 4: River Foyle bank on the Strabane side going south where grey heron were observed foraging**



**Figure 5: River Foyle bank on the Strabane side going north**



**Figure 6: River Foyle looking south with both Strabane and Lifford banks**



**Figure 7: Overview of Lifford side of site with hare coursing ground**



**Figure 8: Treelines located along eastern boundary of the Strabane side of the site**



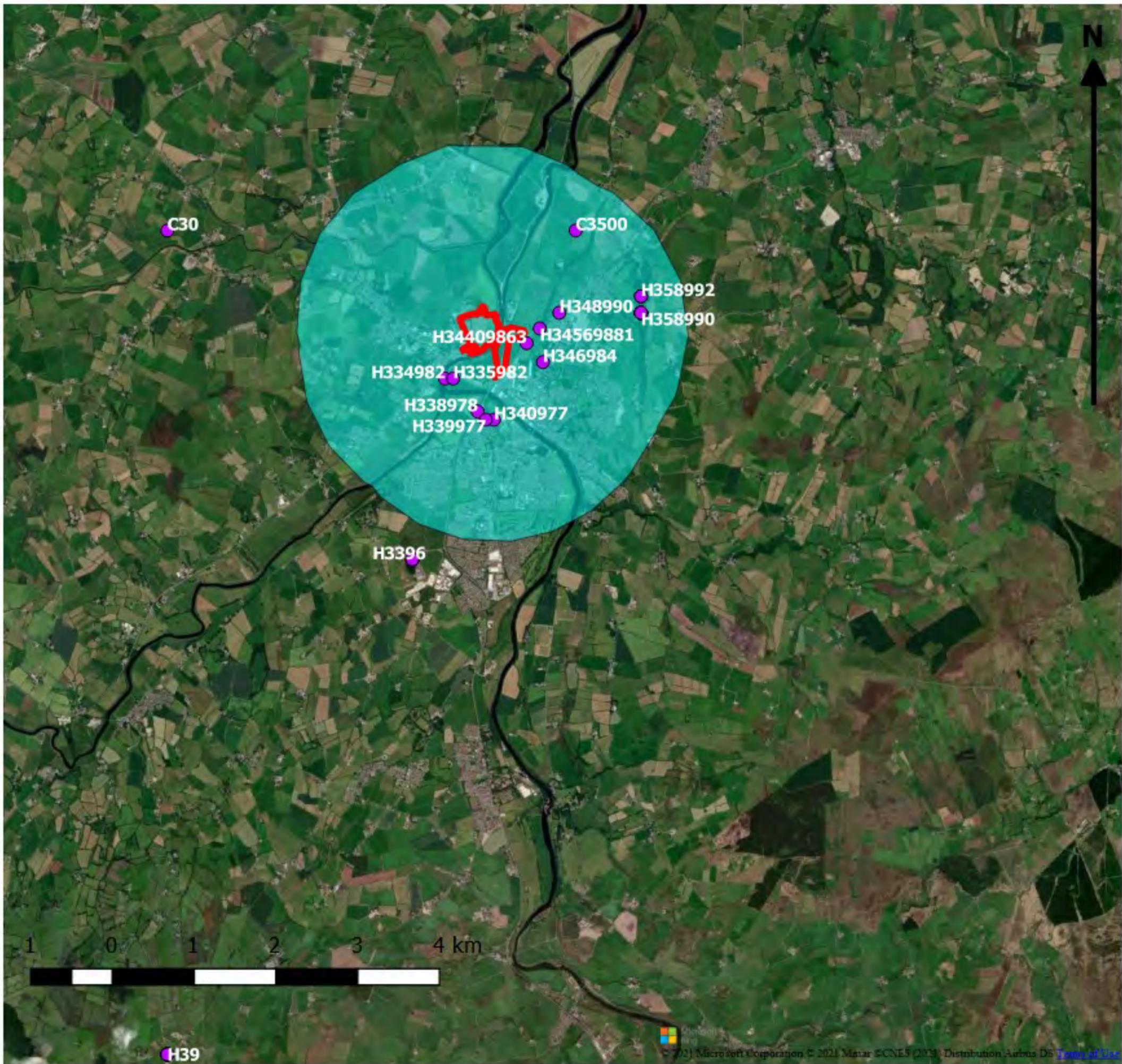
**Figure 9: North facing view of River Foyle banks on the Strabane side with Wooded areas just north of the proposed bridge landing site**

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## Appendices

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Appendix I: CEDaR Bird Records with 2km Buffer



**Legend**

- CEDaR Bird Records
- Red Lined Boundary
- Buffer

Appendix I: CEDaR Bird Records with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:65800 @ A3

Date: 08/08/2021



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Appendix II: Tabulated 2016 A5 Historic Bird Records

Table 11P. 1 Summary of raptor breeding sites data

Species	Scientific name	Grid reference
Hen harrier	<i>Circus cyaneus</i>	H4982
Common buzzard	<i>Buteo buteo</i>	C3827
		H3482
		H4484
		H5455
Peregrine	<i>Falco peregrinus</i>	C4816
		H4899
		H4484
		H3171
		H6067
		H6454
		C4213
		H4995
		H3781
		H6967
C4317		
Merlin	<i>Falco columbarius</i>	H3570
Kestrel	<i>Falco tinnunculus</i>	H5549
		H5849
Barn owl	<i>Tyto alba</i>	C4308

Table 11P.2 Summary of UWT barn owl data

Grid reference	Date
H 302 615	2003
H 394 795	July 2004

Grid reference	Date
H 308 949	July 2004
H 437 090	Aug 2008
H 76 56	May 2008
H 670 523	April 2008

Table 11P.3 Summary of BTO heronry records

Grid reference	Location	Year of most recent record
H 615 528	Favour Royal Forest	2003
C 376 038	Cloghcor	1977
H 524 543	Killyfaddy, Clogher	2003
H 559 538	Augher Castle	2004
H 64 58	Martray House, Ballygawley	1969
H 34 99	Strabane Old Canal	1988
H 43 80	Cottage Farm, Tattynure	1991
C 368 033	Farm Hill, Ballymagorry	2008
H 435 760	Rash House, Omagh	1985
H 305 948	Umey Park, near Clady	1977
C 390 124	Mullennan House	1985
C 463 155	River Faughan, just north of Drumahoe	2000

## Appendix III: 2016 A5 Breeding Bird survey Results

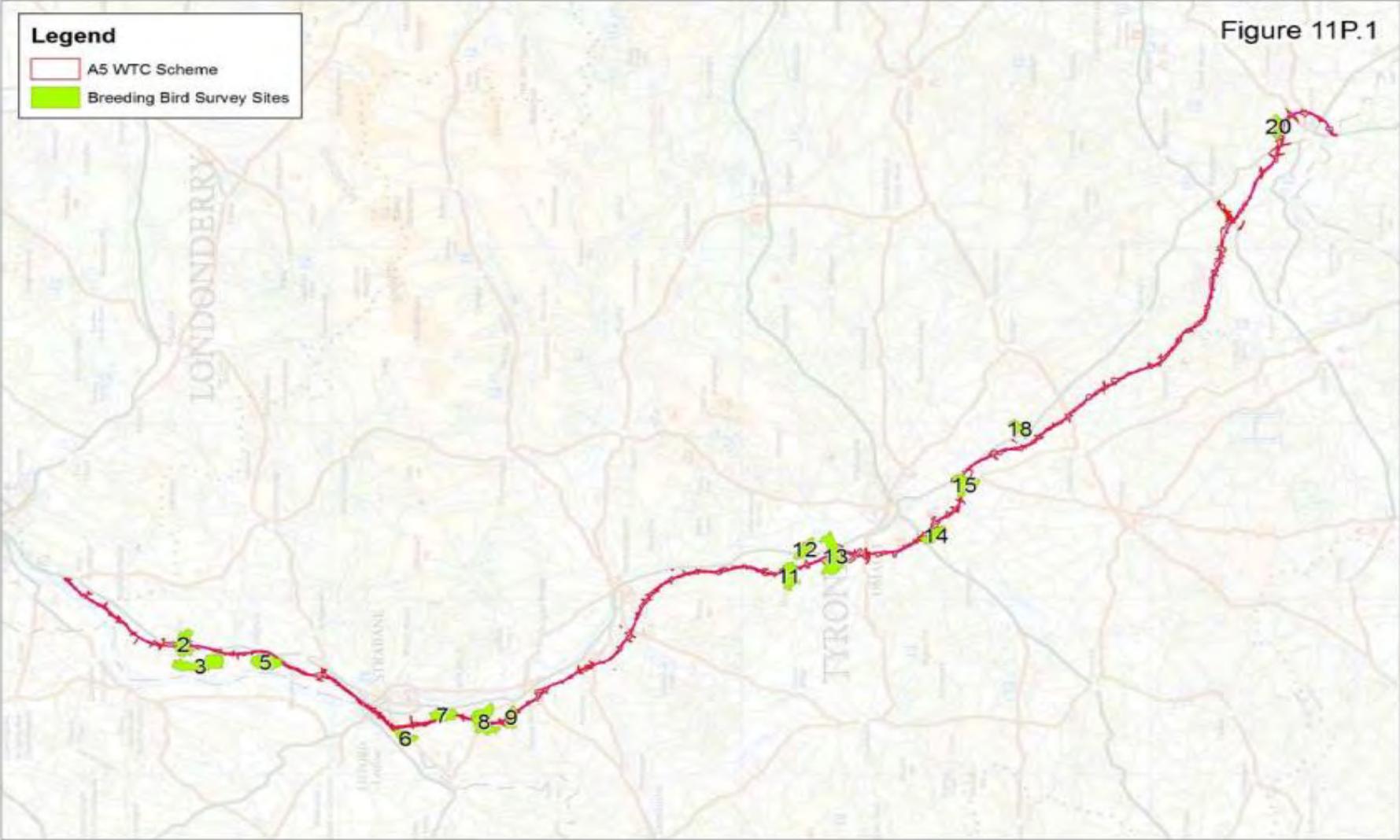
Table 11P.4 2014 BBS field data summary<sup>2,3</sup>

Species	Sites and habitat description														Cumulative abundance
	2 237558, 407178	3 236410, 406371	5 236514, 403166	6 232239, 396367	7 233499, 394508	8 233182, 392527	9 233302, 391192	11 241426, 377588	12 242931, 376899	13 242557, 375527	14 243747, 370555	15 246669, 369111	18 249802, 366396	20 267036, 353823	
	Arable, improved & semi-improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, scrub, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, species-poor hedge	Improved grassland, broadleaved woodland, running water, species-poor hedge.	Wet modified bog, broadleaved woodland, arable, improved grassland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Raised bog, arable, broadleaved woodland, improved grassland, species-poor hedge	Improved grassland, coniferous plantation, species-poor hedge, broadleaved woodland	Arable, improved grassland, species-poor hedgerow, wet modified bog, open water, coniferous plantation	Improved grassland, broadleaved woodland, marshy grassland	Improved grassland, broadleaved woodland, species-poor hedge	
Grey heron*	1	1	0	1	0	0	0	0	0	2	0	0	0	0	5
Canada goose	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Mallard*	0	5	5	0	0	0	0	0	0	4	0	0	0	0	14
Sparrowhawk*	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Buzzard*	2	4	1	2	0	1	0	1	2	2	4	0	1	3	23
Pheasant	2	2	4	2	3	0	0	0	0	9	0	1	0	1	24
Moorhen	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Lapwing*	100	0	0	100	0	0	0	0	0	0	0	100	0	1	301
Snipe*	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Lesser black-backed gull*	2	0	0	2	0	0	0	0	0	1	2	4	0	0	11
Great black-backed gull	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Feral pigeon	0	1	0	0	0	0	0	0	0	2	10	0	0	0	13
Wood pigeon	27	14	10	27	22	70	24	7	17	71	82	35	52	58	516
Collared dove	2	0	0	2	0	1	3	0	1	0	0	2	0	0	11
Swift*	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Skylark*	12	14	8	12	4	4	0	0	0	17	0	0	0	1	72
Swallow*	16	10	12	16	11	16	17	13	6	2	57	12	66	26	280
House martin*	16	3	0	16	0	2	0	9	9	0	0	15	22	4	96
Meadow pipit*	3	10	6	3	2	6	0	17	0	74	0	2	0	55	178
Pied wagtail	0	3	2	0	6	2	2	4	2	3	8	3	7	2	44

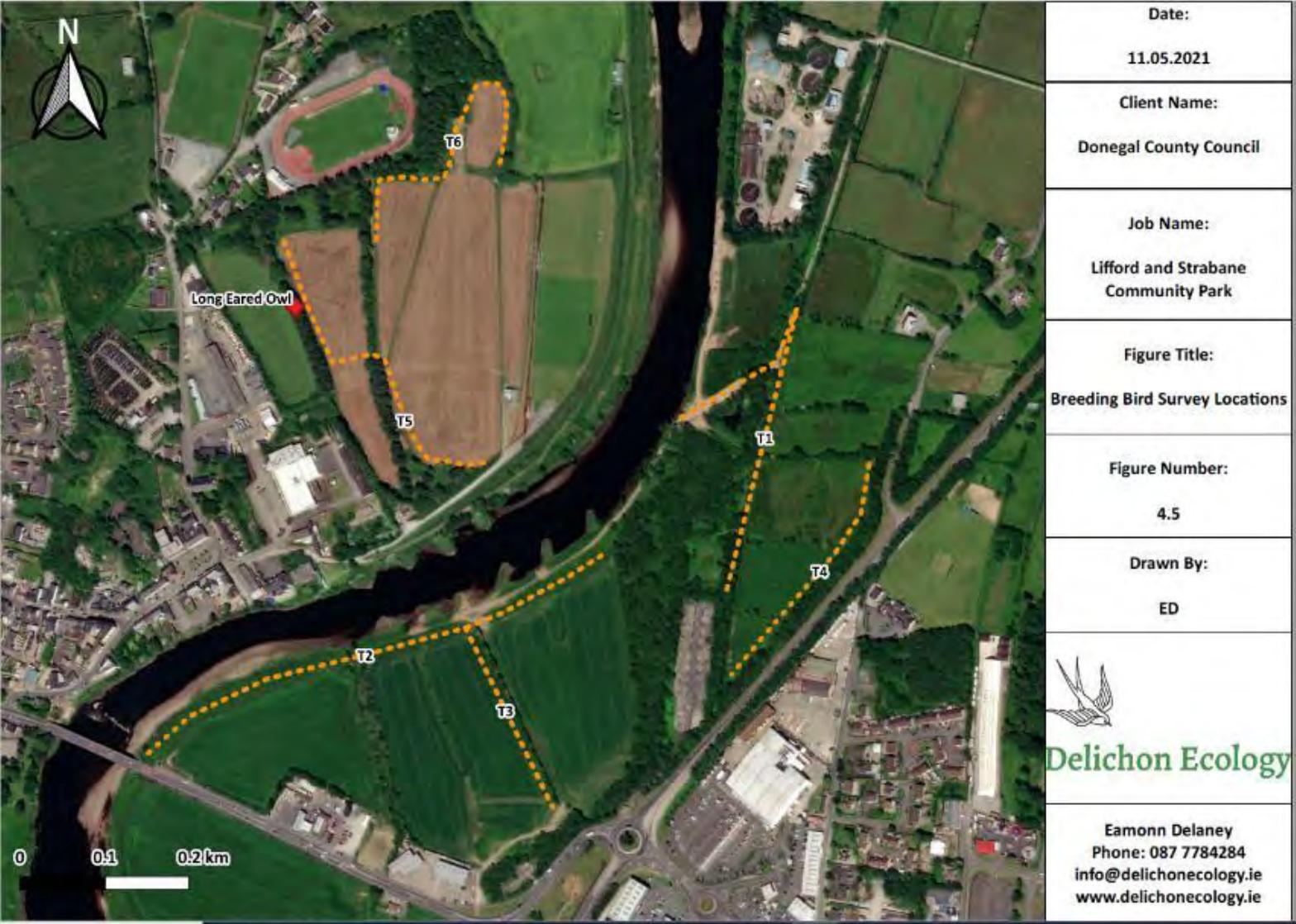
Species	Sites and habitat description														Cumulative abundance
	2 237558, 407178	3 236410, 406371	5 236514, 403166	6 232239, 396367	7 233499, 394508	8 233182, 392527	9 233302, 391192	11 241426, 377588	12 242931, 376899	13 242557, 375527	14 243747, 370555	15 246669, 369111	18 249802, 366396	20 267036, 353823	
	Arable, improved & semi-improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, scrub, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, marshy grassland, broadleaved woodland, species-poor hedge	Arable, improved grassland, species-poor hedge	Improved grassland, broadleaved woodland, running water, species-poor hedge.	Wet modified bog, broadleaved woodland, arable, improved grassland, species-poor hedge	Arable, improved grassland, broadleaved woodland, species-poor hedge	Raised bog, arable, broadleaved woodland, improved grassland, species-poor hedge	Improved grassland, coniferous plantation, species-poor hedge, broadleaved woodland	Arable, improved grassland, species-poor hedgerow, wet modified bog, open water, coniferous plantation	Improved grassland, broadleaved marshy grassland	Improved grassland, broadleaved woodland, marshy grassland, species-poor hedge	
Wren	65	29	60	65	46	21	42	28	24	72	72	83	69	66	742
Dunnock*	11	6	9	11	13	15	11	3	4	11	20	18	14	14	160
Robin	22	24	23	22	15	6	18	25	23	29	43	41	50	33	374
Blackbird	14	14	18	14	22	17	11	8	12	20	31	31	14	21	247
Song thrush*	5	7	4	5	2	4	3	3	5	6	8	13	11	13	89
Mistle thrush*	0	1	0	0	1	1	1	5	4	3	3	3	0	0	22
Grasshopper warbler*	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Sedge warbler	17	10	1	17	4	7	0	0	5	0	0	7	0	0	68
Whitethroat*	0	0	0	0	0	4	0	0	1	2	3	2	5	1	18
Blackcap	0	3	2	0	2	0	0	0	3	3	2	2	1	3	21
Chiffchaff	0	0	0	0	0	0	3	1	1	1	2	5	1	11	25
Willow warbler*	18	16	21	18	17	1	6	12	7	37	19	27	18	30	247
Goldcrest*	0	0	1	0	0	0	1	7	1	4	6	6	5	10	41
Long-tailed tit	0	0	0	0	0	0	0	0	0	2	11	8	5	5	31
Coal tit	0	4	2	0	2	0	1	2	1	5	5	5	11	1	39
Blue tit	3	9	3	3	2	7	16	15	3	14	26	19	30	23	173
Great tit	4	3	4	4	3	7	19	9	6	12	32	23	13	17	156
Treecreeper	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Magpie	18	7	5	18	13	18	10	9	8	41	43	29	22	32	273
Jackdaw	101	32	26	101	14	23	80	68	48	40	100	83	221	43	980
Rook	102	46	5	102	97	30	79	120	165	93	77	282	173	93	1464
Carrion crow	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3
Hooded crow	17	23	5	17	0	0	2	4	1	10	39	8	29	35	190
Raven	0	2	0	0	0	1	0	0	0	0	0	0	1	2	6

Species	Sites and habitat description															Cumulative abundance
	2 237558, 407178	3 236410, 406371	5 236514, 403166	6 232239, 396367	7 233499, 394508	8 233182, 392527	9 233302, 391192	11 241426, 377588	12 242931, 376899	13 242557, 375527	14 243747, 370555	15 246669, 369111	18 249802, 366396	20 267036, 353823		
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Starling*	38	9	16	38	6	185	25	27	93	6	410	43	124	57	1077	
House sparrow*	56	22	15	56	14	21	40	8	31	4	36	25	20	3	351	
Tree sparrow*	11	4	2	11	2	25	0	0	0	0	0	6	0	0	61	
Chaffinch	15	28	33	15	25	19	37	24	25	63	68	58	60	71	541	
Greenfinch	0	0	0	0	2	0	1	0	0	1	1	0	3	0	8	
Goldfinch	3	0	0	3	0	0	3	4	8	0	0	0	12	2	35	
Linnet*	3	1	2	3	0	0	0	0	0	0	0	3	0	0	12	
Lesser redpoll*	1	1	6	1	0	0	0	0	0	0	0	0	0	0	9	
Bullfinch*	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	
Yellowhammer*	0	0	0	0	16	53	2	0	0	0	2	0	0	2	75	
Reed bunting*	0	5	3	0	0	1	0	0	0	0	0	5	1	1	16	
<b>Total number of species recorded</b>	<b>31</b>	<b>35</b>	<b>32</b>	<b>31</b>	<b>29</b>	<b>29</b>	<b>27</b>	<b>26</b>	<b>31</b>	<b>35</b>	<b>31</b>	<b>35</b>	<b>32</b>	<b>34</b>	<b>55</b>	

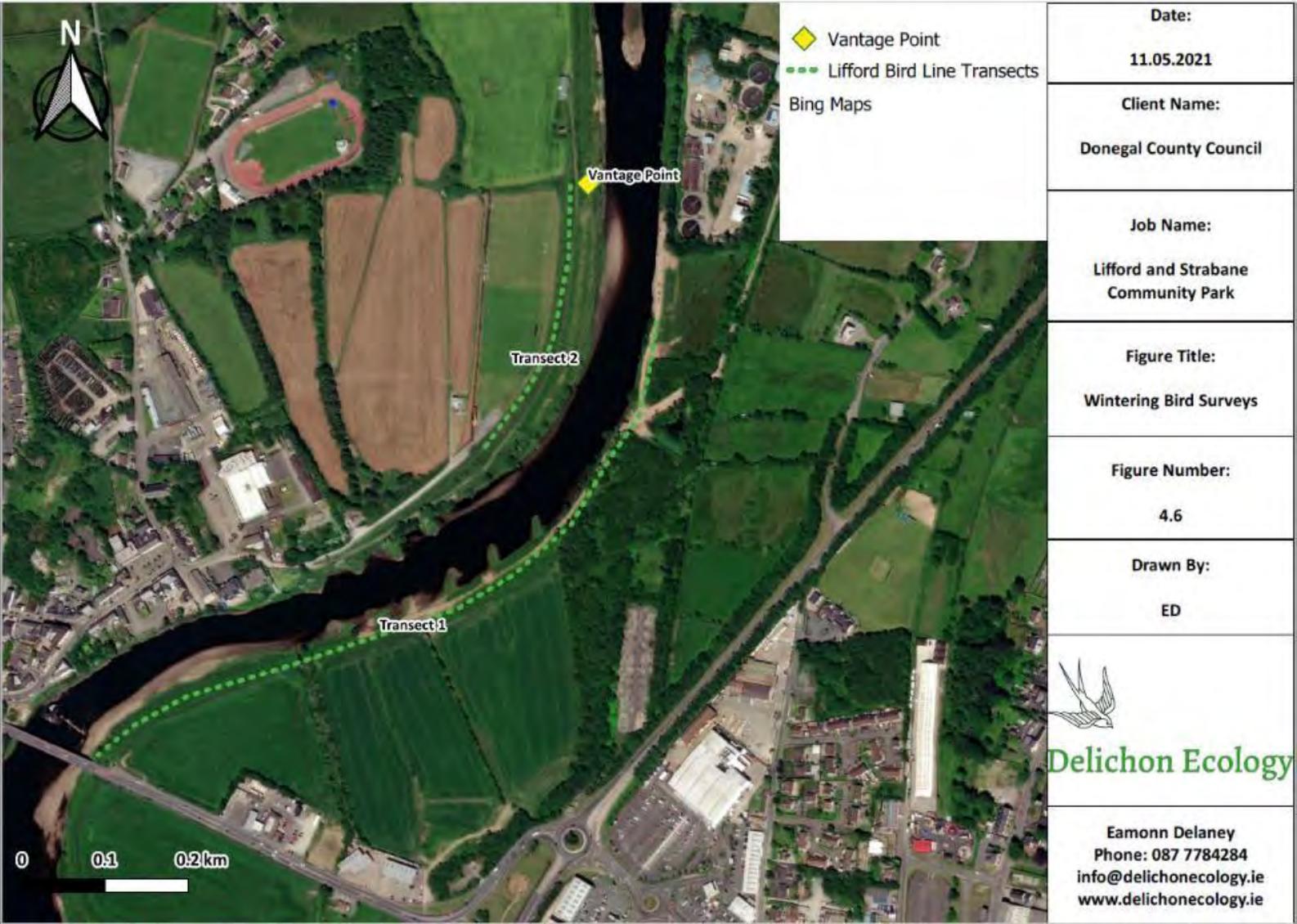
Appendix IV: 2016 A5 Breeding Bird survey Sites



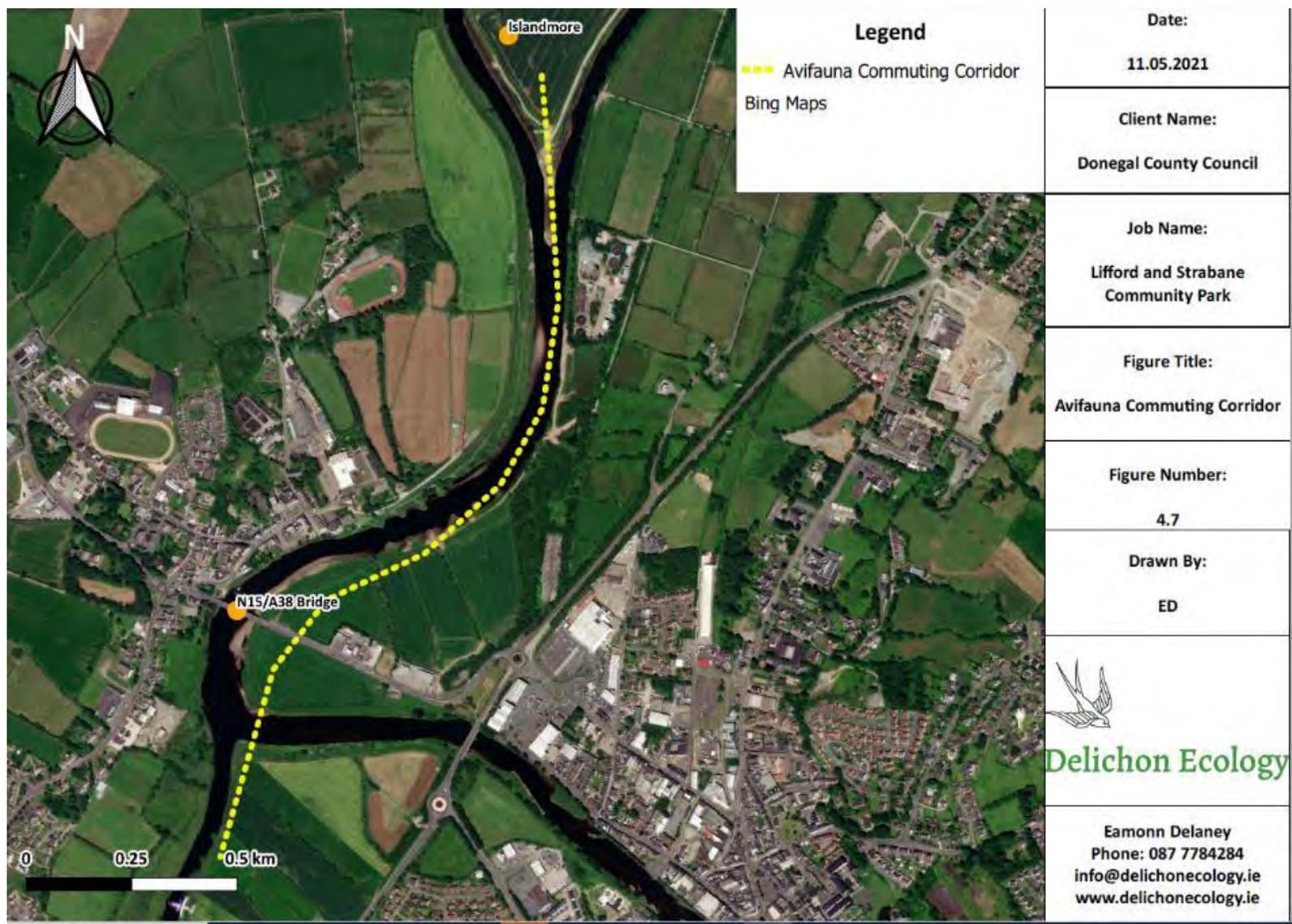
Appendix V: 2020 Delichon Breeding Bird Survey Transects



Appendix VI: 2020 Delichon Wintering Bird Survey Locations

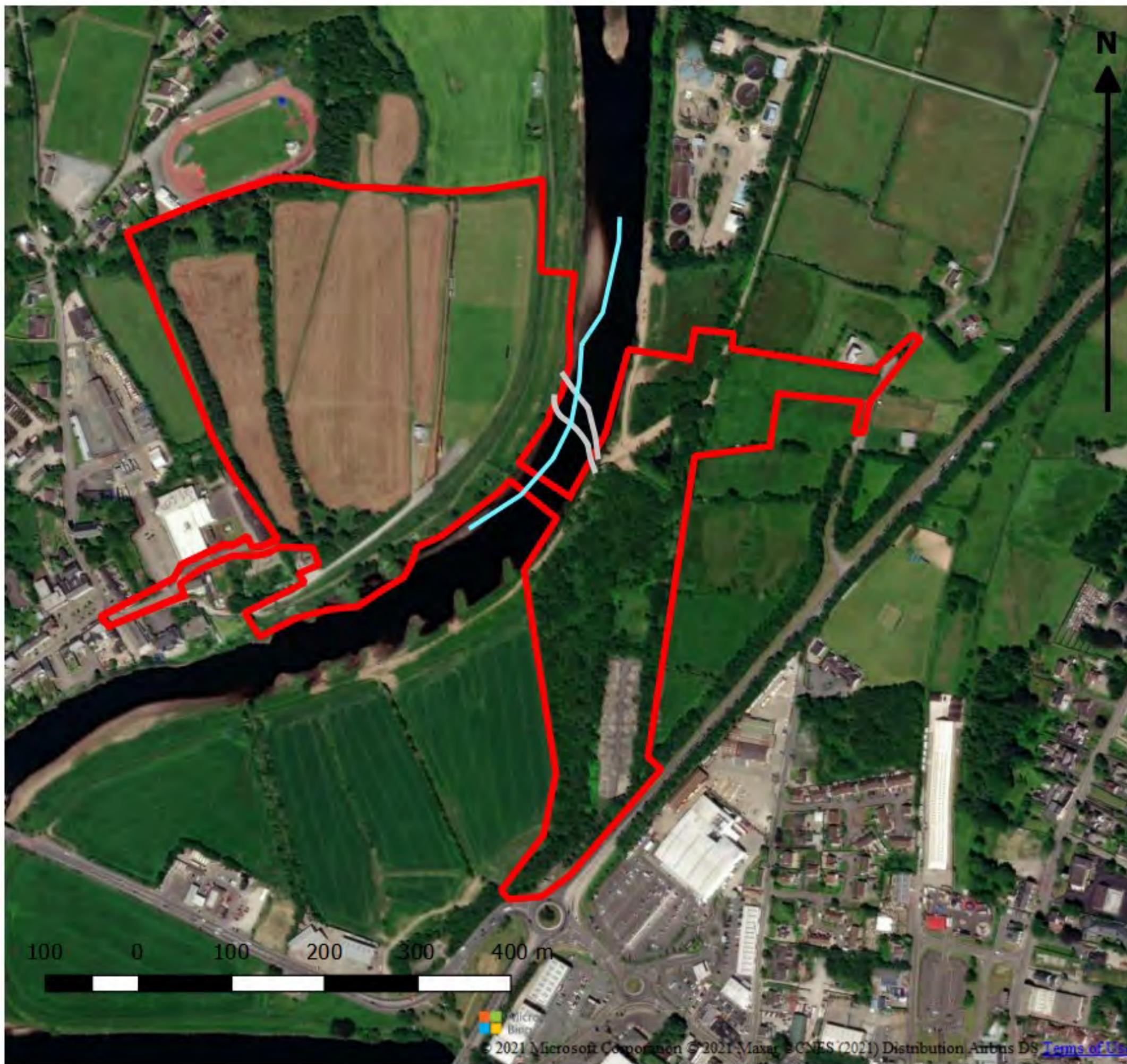


Appendix VII: 2020 Delichon Avifauna Commuting Corridor



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Appendix VIII: Vantage Point 1 Survey 06/07/2021



## Legend

Vantage Point 1

VP Survey 06/07/2021

 Black-Headed Gull Flight Path

 Grey Heron Flight Path

 Red Lined Boundary

Appendix VIII: Vantage Point 1  
Survey 06/07/2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:5785 @ A3

Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue  
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BT3 9BJ  
Tel: 02890747766

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Appendix IX: Vantage Point 1 Survey 15/07/2021



## Legend

Vantage Point 1

VP Survey 15/07/2021

 Buzzard Flight Path

 Sand Martin Flight Path

 Grey Heron Flight Path

 Red Lined Boundary

Appendix VIII: Vantage Point 1  
Survey 15/07/2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:7000 @ A3

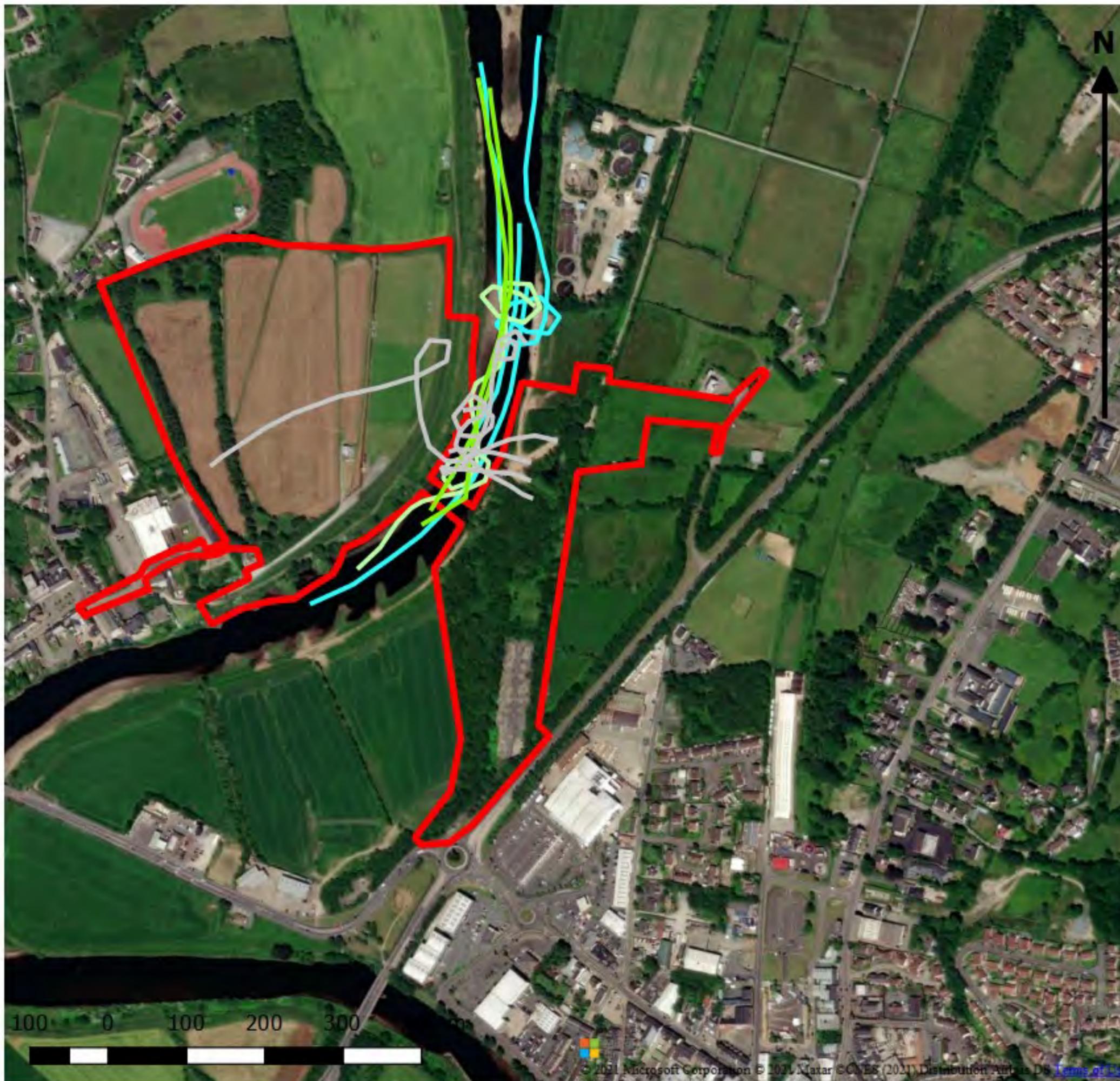
Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue  
Street  
Belfast  
BT3 9BJ  
Tel: 02890747766

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Appendix X: Vantage Point 1 Survey 20/07/2021



## Legend

Vantage Point 1

VP Survey 20/07/2021

— Grey Heron Flight Path

— Herring Gull Flight Path

— Greater Black Backed Gull Flight Path

— Black-Headed Gull Flight Path

— Red Lined Boundary

Appendix X: Vantage Point 1 Survey  
20/07/2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:7000 @ A3

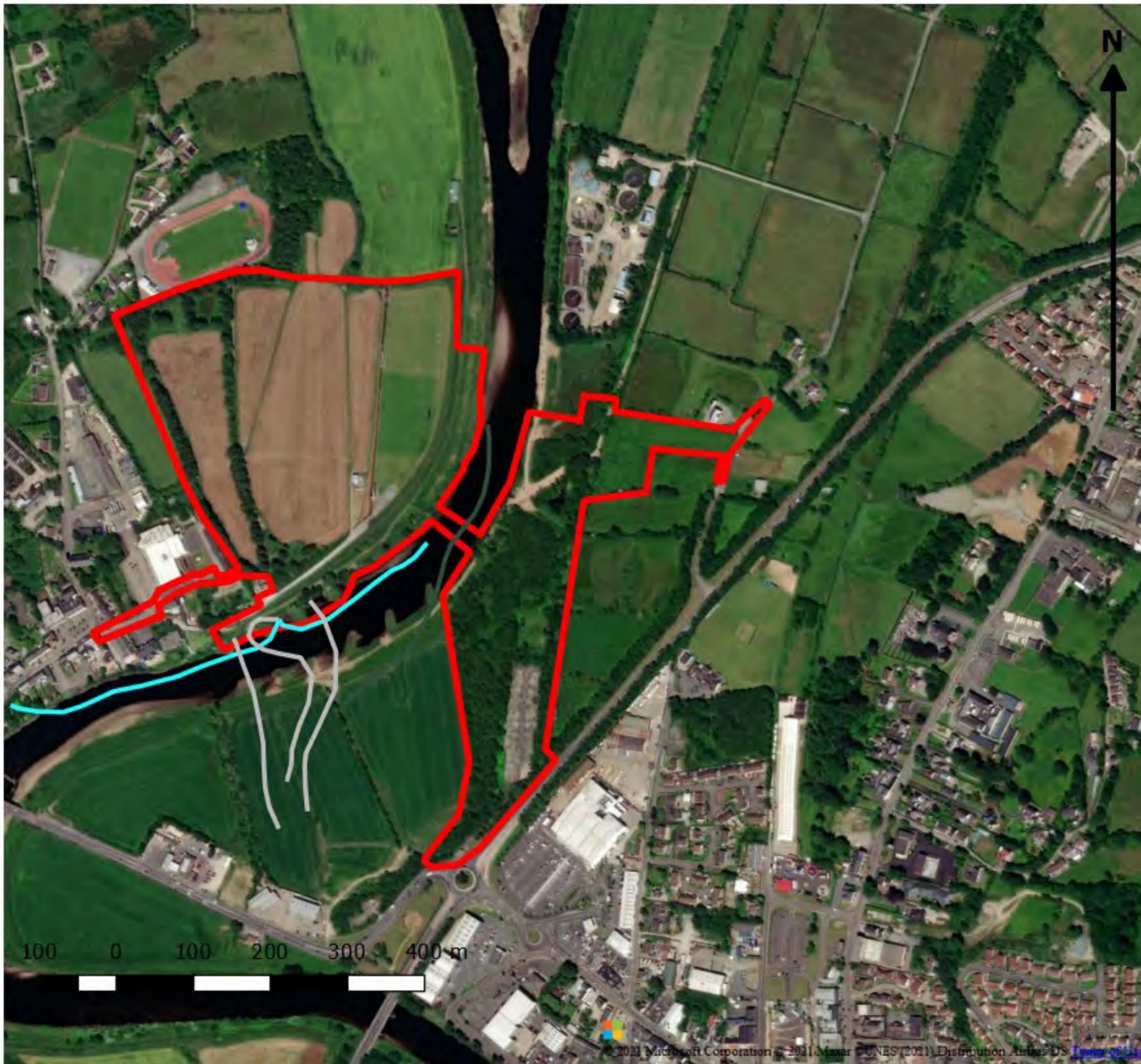
Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue  
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Tel: 02890747766

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Appendix XI: Vantage Point 2 Survey 06/07/2021



## Legend

Vantage Point 2

VP Survey 06/07/2021

-  Grey Heron Flight Path
-  Black-Headed Gull Flight Path
-  Tufted Duck Flight Path
-  Red Lined Boundary

Appendix XI: Vantage Point 2 Survey  
06/07/2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:7000 @ A3

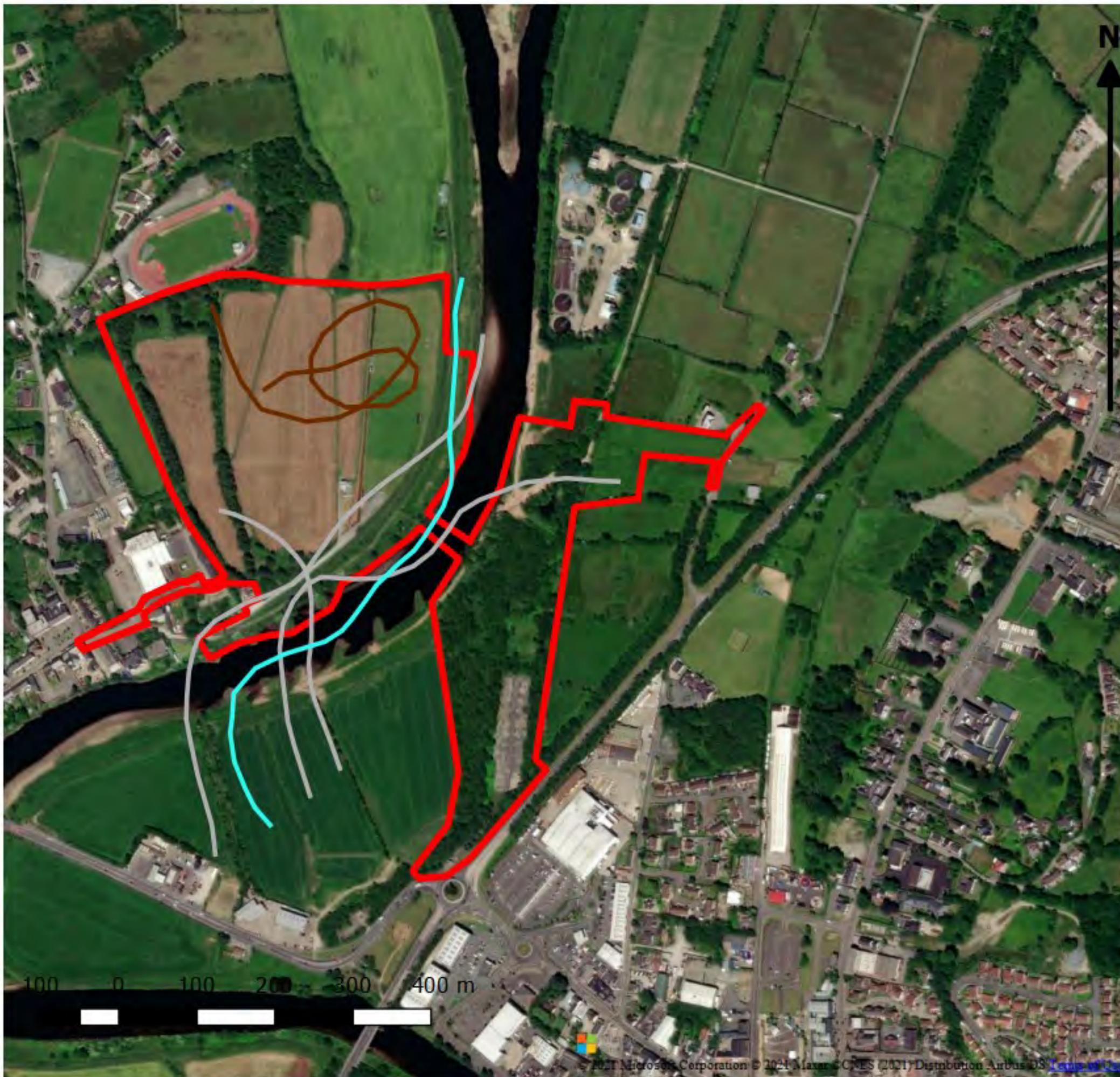
Date: 08/08/2021



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Tel: 02890747766

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Appendix XII: Vantage Point 2 Survey 15/07/2021



## Legend

Vantage Point 2

VP Survey 15/07/2021

 Black-Headed Gull Flight Path

 Buzzard Flight Path

 Grey Heron Flight Path

 Red Lined Boundary

Appendix XII: Vantage Point 2 Survey  
15/07/2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:7000 @ A3

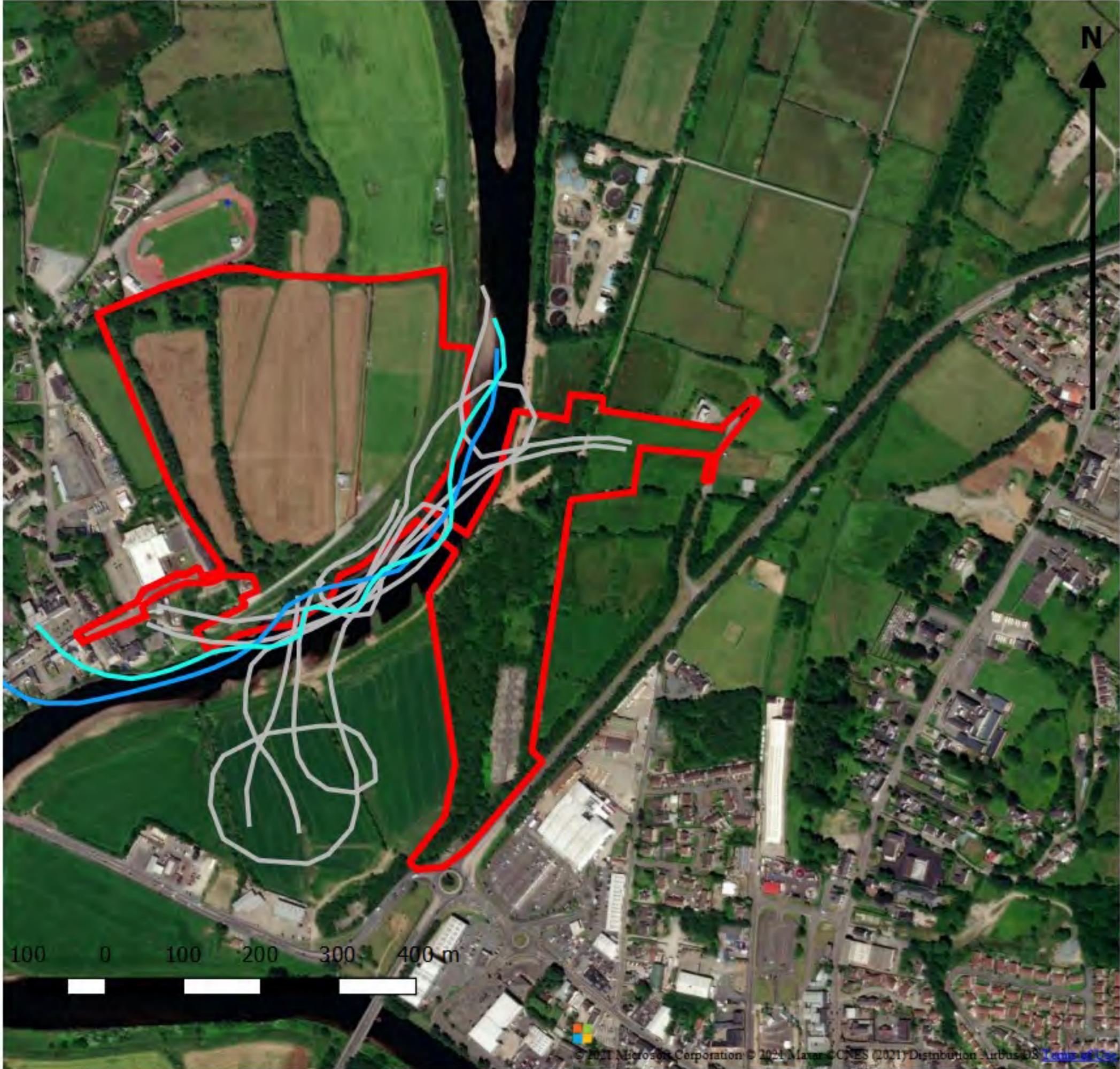
Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue  
Street  
Belfast  
BT3 9BJ  
Tel: 02890747766

---

Appendix XIII: Vantage Point 2 survey 20/07/2021



**Legend**

- Vantage Point 2  
 VP Survey 20/07/2021
- Black-Headed Gull Flight Path
  - Common Gull Flight Path
  - Grey Heron Flight Path
  - Red Lined Boundary

Appendix XIII: Vantage Point 2  
 Survey 20/07/2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:7000 @ A3

Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue  
 Street  
 Belfast  
 BT3 9BJ  
 Tel: 02890747766

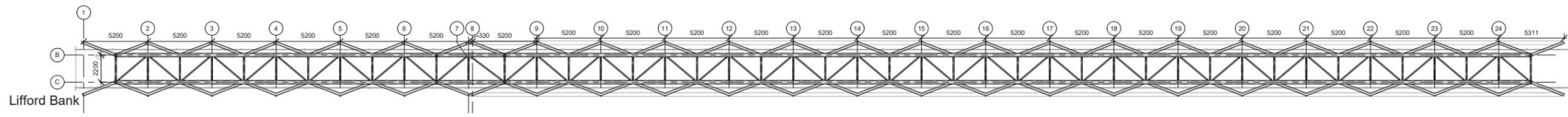
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## Appendix XIV: Vantage Point Locations

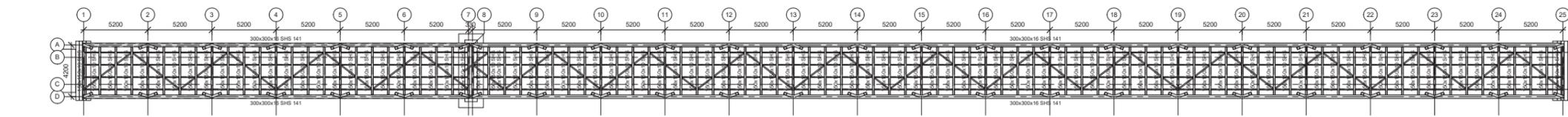


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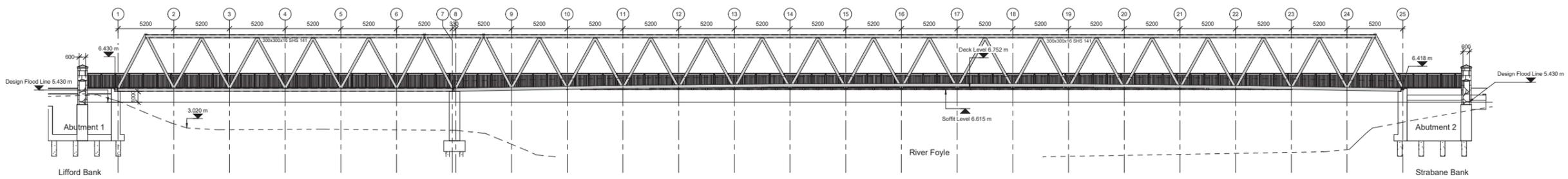
Appendix XV: Proposed Bridge Structure



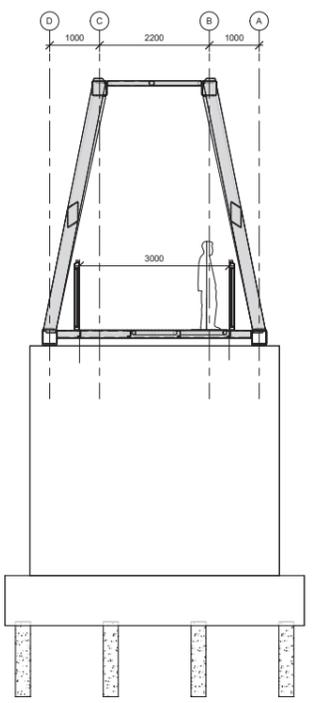
Plan View @ Top Rail  
Scale: 1 : 150



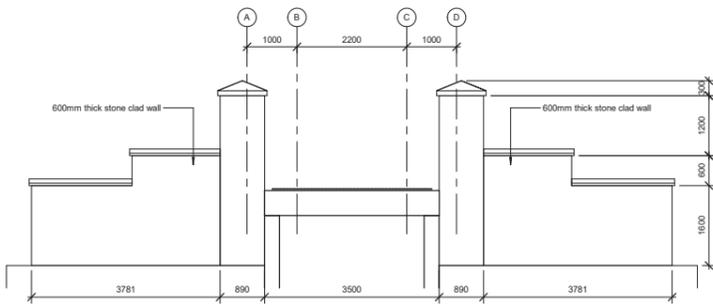
Plan View @ Deck Level  
Scale: 1 : 150



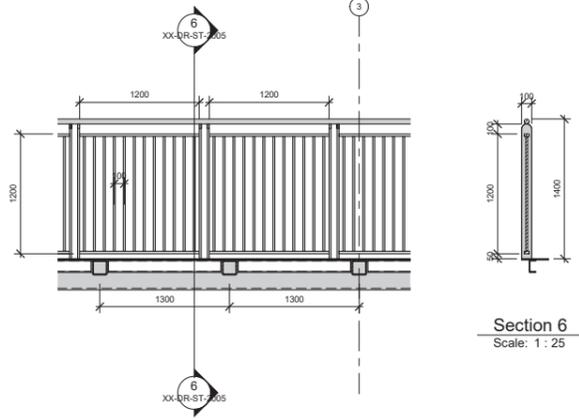
Typical Bridge Section  
Scale: 1 : 150



Typical Bridge Section  
Scale: 1 : 50



Elevation on Bridge Entrance  
Scale: 1 : 50



Parapet Detail  
Scale: 1 : 25



View point from Lifford side towards Strabane side



3D View  
Scale:

- NOTES
- All dimensions are in mm unless otherwise noted. Do not scale.
  - All levels to be A.O.D.
  - This drawing to be read in conjunction with all relevant drawings.
  - The Contractor shall verify all existing conditions and dimensions prior to beginning construction and/or ordering materials. Any discrepancies shall be brought to the attention of the Engineer immediately.
  - All in-situ concrete to be in accordance with Specification Appendix 17/1. All in-situ concrete must be vibrated and compacted in secure formwork, all workmanship, materials, etc. to BS EN 1992-3 & UK Annex BS8007 and BS8110.
  - Reinforcement in accordance with BS 4449:2005 scheduled as class H shall be Grade B500A, Grade B500B or Grade B500C. Scheduling, dimensioning, bending and cutting of steel reinforcement for concrete i.a.w. BS 8666:2005. Steel fabric for reinforcement of concrete to BS 4483:2005, minimum lap 400mm. All securely fixed and held with minimum cover.
  - Any dowel bars required to be Hot Dip Galvanised to BS EN 1461:1999.
  - Concrete finishes to Series 1700, Clause 1708.4.
  - F1 - all vertical buried surfaces.  
U1 - all horizontal buried surfaces.  
F2 - stair risers  
U2 - stair treads  
F3 - N/A  
U3 - N/A  
F4 - all exposed vertical surfaces including Navigation lock walls, Steel Sheet Pile Capping Beam, Bridge Piers and Bridge Abutments.  
U4 - all exposed horizontal surfaces including Lockside Reinforced Concrete slab, Navigation Lock walls, Steel Sheet Pile Capping Beam, Bridge Piers and Bridge Abutments.
  - Joint fillers, sealants, waterstops including securo clips, etc. shall be installed strictly i.a.w. manufacturer's instructions.
  - 75mm binding concrete to be provided below all foundations and ground beams as mass concrete in accordance with Appendix 17/1 or prescribed max S11.
  - All surfaces to be clean, free of water & loose material before placing of the concrete.
  - All external arises to have 25mm x 25mm chamfer unless noted otherwise.
  - All buried surfaces shall be painted with two coats of bitumen emulsion and primer coat in accordance with Series 2000 of the MCHW.
  - 6N Structural Fill to be used to raise levels in Lockside areas.

P01 10.09.21 Stage 3 Issue - Planning  
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Founder: **Peace**  
 Northern Ireland - Ireland

Client: **Comhairle Contae Dhún na nGall**  
 Donegal County Council

Project Status: **STAGE 3 - PLANNING**

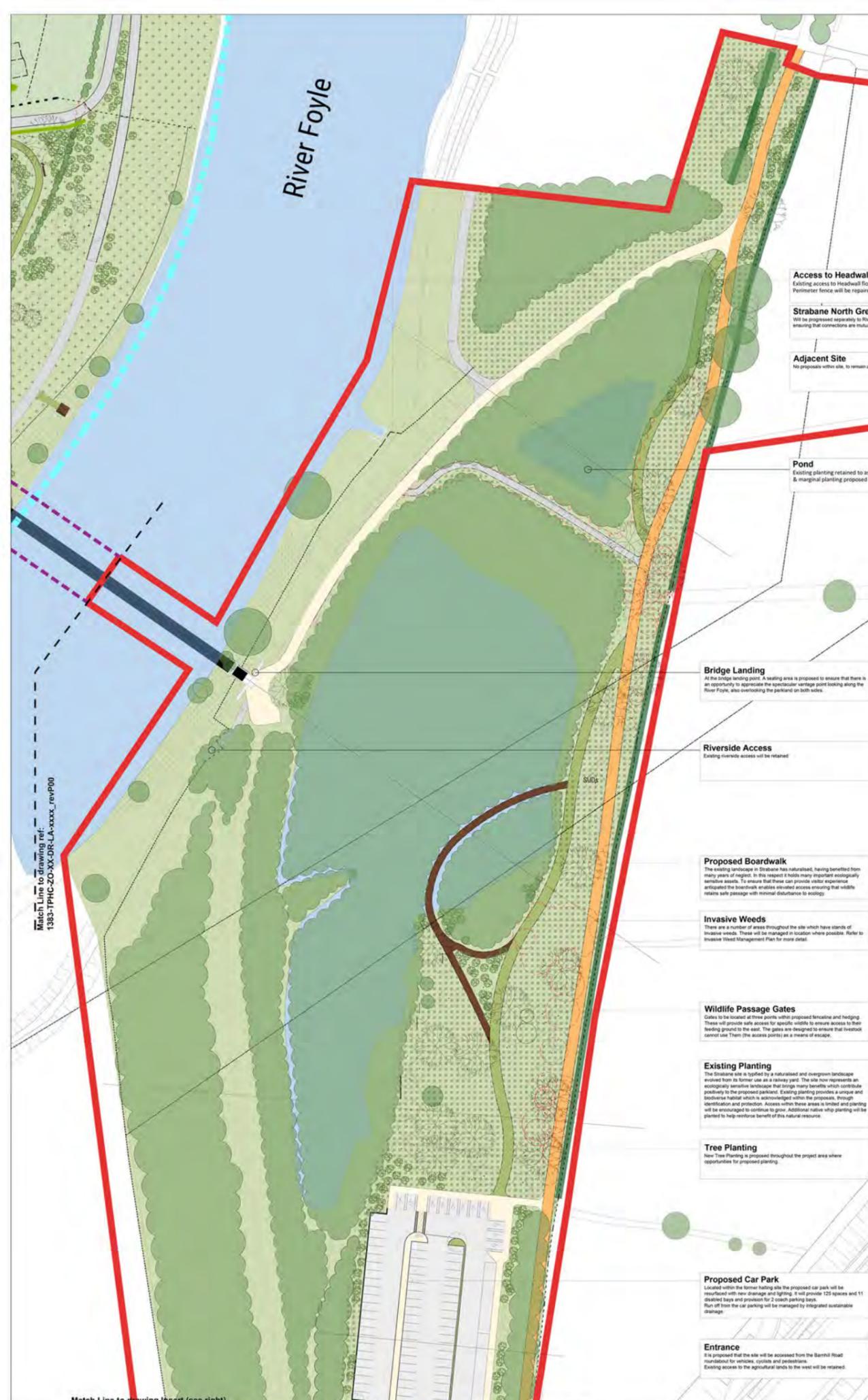
Project: **RIVERINE COMMUNITY PARK**

Drawing: **Proposed Bridge Layout**

Scale: @ A0	0.5	0	0.5	1	1.5	2	2.5
As indicated	SCALE 1: 50						
Drawn	FD	Checked	BO	Approved	BO		
Date	06.09.21	Date	06.09.21	Date	06.09.21		
Drawing No:	RVCP-MCA-Z4-XX-DR-ST-2005						P01
Project Number:	E2256						Status Code & Description
							S3

---

Appendix XVI: Concept Site Layout Strabane



**LEGEND**

**SOFTWARES**

- Existing Trees & Planting To be retained and protected during works in accordance with BS5837
- Existing Trees & Planting To be removed. Crown identified in the absence of individual trees
- Proposed Native Trees Refer to planting schedule
- Proposed Native Wetland Trees Refer to planting schedule
- Proposed Specimen Trees Refer to planting schedule and details
- Proposed Hedgerow planting Refer to planting schedule and details
- Proposed Amenity Grassland Refer to planting schedule
- Proposed Wildflower (WF1) Refer to planting schedule
- Proposed Woodland Wildflower (WF2) Refer to planting schedule
- Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed SUGS Mix Refer to planting schedule. To be prepared and sown as turf
- Proposed Native shrubs Refer to planting schedule
- Proposed Ornamental shrubs Refer to planting schedule

**SURFACES**

- Proposed Asphalt To asphalt and Cobble For detail refer to engineers drawing
- Proposed Asphalt For detail refer to engineers drawing
- Strabane North Greenway Prepared separately to this project
- Proposed High Friction Surface To be prepared / repaired in situ For detail refer to engineers drawing
- \*Natural Stone Paving Refer to detail
- Proposed Boardwalk Refer to detail
- Reinforced Grass Refer to detail
- Proposed Gravel Path Refer to detail
- \*Proposed Slipway Surface Refer to detail also engineers drawings for detail
- \*Wetpour Safety Surfacing Refer to detail
- \*Reinforced Grass Safety Surfacing Refer to detail
- \*Wet Back Safety Surface specifically for play areas
- Stone Clusters Refer to detail

**FEATURES**

- Existing Walls To be retained
- Existing Fencing To be retained / repaired as required
- 2.4m Security Fencing Refer to detail
- Metal Estate Fencing Refer to detail
- Stock Proof Fencing Refer to detail
- Existing Fencing to be removed
- Steps and Terracing Refer to detail
- Proposed Benches Refer to detail
- Bicycle stand locations Typical Sheffield stand
- Proposed Litter Bins 120L bins with single 300L recycled bin adjacent to Community Facilities
- Proposed Metal Gates Refer to detail
- Vehicle Upstand Kerb 125mm upstand. Pre Cast Concrete
- Vehicle Flush Kerb Pre Cast Concrete
- Pie Kerb Pre Cast Concrete

**MISCELLANEOUS**

- Site Boundary - Application under Roads Act, Section 51(2)
- Adjoining Riverside Community Park Boundary (R0)
- Riverine Community Park Boundary (R)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TMS), unless otherwise noted
- All hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance with Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed
- Bridge Refer to engineers proposals
- Invasive Weeds There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Topographic Survey Information Planting There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of.
- Planting Loss: The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.

Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref: 2072

The main cloud highlighted areas of the park which were inaccessible for the

This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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Countryside Survey Ireland mapping data used with permission in association with Donegal County Council - OS License 2023/07/CORNA/Donegal County Council  
Copyright Countryside Survey Ireland, Government of Ireland.

REV	DATE	DESCRIPTION	BY
P02	24.01.2022	Revised for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	18.04.2021	Issued for Planning	HB

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Northern Ireland - Ireland

**Comhairle Contae**  
Dhúna na nGall  
Donegal County Council

**STAGE 3 - PLANNING**

**RIVERINE COMMUNITY PARK**

**STRABANE RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale: 1:500 @ A0

Drawn	HB	Checked	DM	Approved	DM
Date	12.02.2021	Date	12.02.2021	Date	18.08.2021

Project: RVCPC - TPHC - Z0 - XX - DR - LA - 2051  
Revision: P02

Project Number: 1383  
Status code & description: ST2 Issued for Information

All measurements are in metres. Figureed dimensions to be taken in preference to smaller dimensions. Dimensions are to be given to the centre line unless otherwise stated.

Drawing Insert  
Scale 1:500 @ A0

---

Appendix XVII: Concept Site Layout Lifford



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## **Appendix 8-12**

### **Aquatic Survey**



**APPENDIX 8-12**

**Desktop Aquatic Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

**MCL Consulting Ltd  
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**[www.mclni.com](http://www.mclni.com)**

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## 1.0 INTRODUCTION

In 2021 MCL Consulting was appointed by McAdam Design Ltd to write up a collision risk desk study on behalf of their clients in order to form part of a requested EIAr for the proposed riverine scheme encompassing lands on the outskirts of Strabane and Lifford.

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused concrete hardstand, with the rest of the site consisting of wet woodland and soil embankments.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

---

## 1.2 Development Proposal

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- 
- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
  - Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
  - River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
  - Family Space incorporating unique play experience, designed to support children focused events & related programming.
  - Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Rationale Aquatic and Marine Desk Study

The purpose of the aquatic species desk study is to utilise historic records along with results from previous studies to determine the potential risk to the aquatic habitat within the River Foyle and its tributaries by the proposed Riverine Scheme. Impacts from a development by a running water body are often not felt at site itself but further down or upstream, becoming longer lasting and more detrimental to the greater aquatic environment and its species. The River Foyle and its Tributaries are a recognised SAC/ASSI and as such are protected by The Environment (Northern Ireland) Order 2002 to ensure sensitive sites are protected. With a proposed single span bridge structure over the water body involving the implementation of a temporary construction platform on the Lifford side of the site, it is important to determine the potential impacts and provide suitable mitigation to protect the aquatic habitat and species within. This is required to assess the likelihood of any impacts upon the local aquatic community in association with the proposed development. The aim of this report is to: -

- Baseline ecological conditions through a desk study of the site and the surrounding environs, involving designations local to the site and protected species that could be affected by this development.
- Identify what fish are using the site for breeding and commuting purposes;
- Identify the likely impacts on fish and other aquatic wildlife the development is likely to impose upon any local fish populations;

- 
- Identify any ecological issues that could potentially hinder this application, such as the presence of protected species and invasive weeds and recommend the need for further survey; and
  - Recommend suitable mitigation to reduce potential impacts and ensure ecological concerns are observed and management plans are adhered to.

## 1.4 Surveyors/Authors

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queen's University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen's University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon

Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, a seasonal volunteer for the Bat Conservation Trust and a member of the Botanical Society of Britain and Ireland. She regularly takes part in newt, lizard and bat surveys, as well as botanical identification outings.

### **Conor Finlay BSc MSc – Graduate Ecologist**

All surveying and reporting were assisted by Conor Finlay, a graduate ecologist at MCL Consulting. He has a master’s degree (MSc) in Ecological Management and Conservation Biology from Queen’s University, Belfast, a bachelor’s degree (BSc) in Environmental Sciences from Ulster University, Coleraine and previous employment experience working as a Park Ranger within Stormont Estate assisting contractor ecologists in biodiversity checklists within veteran woodlands and conservation wetlands. He has professional experience assisting bat activity surveys, bat analysis, ecological biodiversity checklists, breeding bird’s surveys, badger surveys and desktop study experience in Amphibian conservation working within Global Amphibian Biodiversity Project (GABIP).

## **2.0 LEGISLATION**

### **2.1 International (E.U)**

<p><b>The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna)</b></p>	<p>Main legislative body for the protection and conservation of biodiversity within the European Union (EU). The Habitats Directive lists habitats and species that must be protected within Special Areas of Conservation (SAC) on Annexes I and II respectively. The Habitats Directive additionally identifies plant and animal species on Annex IV which are subject to strict protection anywhere they occur.</p>
--	--

### **2.2 National (Northern Irish)**

<p><b>The Conservation (Nature Habitats, etc.) Regulations (Northern Ireland) 1995 and its amendments.</b></p>	<p>Under the regulations, public bodies have a duty in exercising their functions to have regard to the EC Habitats Directive.</p>
<p><b>The wildlife (Northern Ireland) order 1985 (as amended)</b></p>	<p>Primary Legislation in Northern Ireland for the protection of wild animals, birds, plants and their habitats</p>

<b>The wildlife and natural Environment Act (Northern Ireland) 2011</b>	This amended the Wildlife (Northern Ireland) order 1985 by giving protection to a wider range of plants, animals and birds. This included the increase of enforcement powers and penalties for wildlife related offences. It also introduced a statutory duty on all public bodies to further the conservation of biodiversity.
<b>The Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2012.</b>	Sets out the requirements for Environmental Impact Assessments of proposed developments in Northern Ireland.
<b>The Environment (Northern Ireland) order 2002</b>	Grants authority to the DOENI to declare areas of land as ASSIs.
<b>The Nature Conservation and Amenity Lands (Northern Ireland Order 1985) (as amended)</b>	Sets out the DOENI (Department of the Environment for Northern Ireland) rights and duties to protect and enhance sites of natural beauty or specific scientific interest in Northern Ireland.
<b>Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003</b>	Transposes the Water Framework Directive into the NI statute book.

Salmonid fish species have specific protection due to the importance of their supporting habitat in NI and the value they provide as a commercial resource (angling). The Foyle Fisheries Act (Northern Ireland) 1952 (as amended) and the Fisheries Act (Northern Ireland) 1966 (as amended) (the Fisheries Act) provide protection to salmonid spawning habitat and legislate against:

- disturbance of species using this habitat (young and breeding individuals),
- obstruction to migration, and the capture,
- disturbance or obstruction of spawn or fry passage,
- and capture of salmonid fish by certain methods.

The Fisheries Act also provides legislative protection against the taking, disturbing or obstructing the passage of eels.

Directive 2000/60/EC, The Water Framework Directive (WFD), implemented in Northern Ireland by The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003, makes provision for the maintenance and improvement of the ecological status of inland surface waters.

Directive 2006/44/EC on the quality of fresh waters needing protection or improvement in order to support fish life (the Freshwater Fish Directive (consolidated)) (FFD), makes provision for the protection and improvement of the quality of running and standing waters capable of supporting (or potentially capable of supporting if pollution was reduced or eliminated) fish species belonging to indigenous species offering natural diversity or species the presence of which is judged to be desirable for water management purposes.

Directive 2004/35/EC - The Environmental Liability Directive - is implemented in Northern Ireland by The Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009. The Directive establishes a framework for environmental liability based on the “polluter pays” principle, with a view to preventing and remedying environmental damage. The Directive defines protected species as those listed in Annex I of the Directive 2009/147/EC on the conservation of wild birds (codified version) (the Birds Directive) and in Annexes II and IV of the Habitats Directive.

The Water (Northern Ireland) Order 1999 makes provisions to combat and prevent pollution affecting waterways and groundwater, and therefore has implications for all fish species.

## 2.3 Planning Policy

The strategic planning policy for Northern Ireland (SPPS) sets out the core principals of forward planning and development management in Northern Ireland. These must be considered by Local Planning Authorities (LPAs) in the preparation of any Local Development Plans (LPDs).

<p><b>The Planning Policy Statement 2 (PPS 2), Natural Heritage, NH2</b></p>	<p>Indicates that development proposals are required to be sensitive to all protected species and sited and designed to protect them, their habitats and prevent from deterioration and destruction of their breeding sites or resting places.</p>
<p><b>International Designations</b> - Developments are restricted where they are likely to impact upon the integrity of European or RAMSAR sites as these are afforded the highest form of statutory protection. Planning will only be granted for a development which is not likely to have a significant impact on a SPA or proposed SPA, ASSI or proposed ASSI, SAC or Ramsar.</p>	
<p><b>Protected Species</b> - If there is evidence to suggest that a protected species is present on site or may be impacted by the development, appropriate assessments must be undertaken to determine if the species is present. Requirements of the species must be factored into planning and design of the development and any likely impacts on the species must be fully considered before determination. Planning will only be granted for development proposals that are not likely to harm a European protected species. In exceptional circumstances a development proposal which is permitted to harm these species</p>	

may only be permitted where; no alternative solution is available, it is required for imperative reasons of overriding public interest, there is no detriment to the maintenance of the population of the species at a favoured conservation status and compensatory measures are agreed and fully secured. Developments are always required to be sensitive to all protected species, habitats and prevent deterioration and destruction of their breeding sites or resting places.

**National Designations-** Planning will only be granted for a development proposal which is not likely to have an impact on any ASSI which contain flora, fauna or any features designated under part IV of the Environment (NI) order 2002. These also include Nature Reserves or National Nature Reserves which are usually managed by the department, council or NGO's. Marine Nature Reserves or sea areas including the inter-tidal zones are designated by the DOE under part 3 of the Marine Act (Northern Ireland 2013) and are established for the conservation of marine flora and fauna, habitats and geological features. A development may only be permitted where the benefits may outweigh the value of the site. In such cases appropriate mitigation and compensatory measures will be required.

**Area of Outstanding Natural Beauty (AONB)** - AONBs are designated for high landscape quality, wildlife importance and rich cultural heritage under the Nature Conservation and Amenity lands (NI) Order 1985. Development proposals in AONBs must be sensitive to the distinctive special character of the area and quality of their landscape.

**Local Designations** – These can be established by councils under the provisions of nature conservation and amenity lands (NI) order 1985. The department can also provide a wildlife refuge under the wildlife (NI) order 1985. A development proposal which could have a significant adverse impact on a site of local importance should only be permitted where the benefits of the development outweigh the value of the site. This will require appropriate mitigation and compensatory measures.

<b>NI Biodiversity Strategy</b>	Outlines a cross-sector approach to conserving biodiversity in Northern Ireland and provides the platform from which Species Action Plans (SAPs) and Habitat Action Plans (HAP's) are compiled for the most ecologically valuable and threatened flora and fauna.
<b>Strategic Planning Policy Statement (SPPS), September 2015.</b>	Eventually will combine all separate planning policy statements (PPSs) into one

## 2.4 Target Species

### 2.4.1 Marine

#### **Basking Shark – *Cetorhinus maximus***

The basking shark is the largest fish found in Northern Ireland waters. They are benign feeders, foraging on plankton which they filter feed from the surrounding water by holding their mouths agape as they swim. They are seasonal visitors to Irish waters mostly seen between April and September. Basking sharks are listed as Vulnerable on the IUCN Red List of threatened species 2004, on Appendix 11 of CITES, Appendix 1 and 11 of the Bonn Convention on Migratory Species, and Schedule 5 of the UK Wildlife and Countryside Act 1981. They are also a UK action plan species and are protected under the Common Fisheries Policy (CFP). In 2007 basking sharks became a Prohibited Species in the EU, meaning EU

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commercial fishing vessels are prohibited from targeting, retaining, trans-shipping or landing them. This also applies to third country vessels in EU waters.

Due to their migratory nature and far-reaching commuting routes basking sharks are also protected under the following global legislation:

- International Union for Conservation of Nature (IUCN) - Basking sharks are listed as Endangered on the IUCN Red List of Threatened Species (on the Global, European, and Mediterranean assessments). They face a very high risk of extinction in the wild, so immediate monitoring and management is needed.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) - The basking shark is listed under Appendix II of the CITES. International trade is controlled to ensure it doesn't threaten the survival of the species.
- Convention on Migratory Species (CMS) - Basking sharks are listed in Appendices I and II of the CMS. Basking sharks know no borders, so it's vital they're protected in all waters. Cooperation across countries is vital.
- United Nations Convention on the Law of the Sea (UNCLOS) - The basking shark is listed under Annex I – Highly Migratory Species – of the UNCLOS. Article 64 of UNCLOS directs signatory States to cooperate to ensure the conservation of this species, in addition to encouraging optimal utilisation if they're caught.



**Figure 3. Basking shark**

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### **Harbour Porpoise – *Phocoena phocoena***

The harbour porpoise is the smallest and most common cetacean found in the coastal waters around Ireland with a primary stronghold along the North Antrim Coast, however a decrease in their population has been observed over the last 50 years. Adults usually reach around 1.5-1.9m in length and are often black/grey in colouration with a pale underbelly. Harbour porpoise are residents to Irish waters and can be seen all year round often seen near small harbours and ports. They are currently protected under:

- Schedule 5 of the Wildlife (Northern Ireland) Order 1985,
- Annex A of EU Council Regulation 338/97 and are therefore treated by the EU as if they are on CITES, Appendix I, thus prohibiting their commercial trade,
- Appendix II of CITES,
- Appendix II of the Convention on the Conservation of Migratory Species (The Bonn Convention),
- The Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS),
- Appendix II of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention),
- IUCN 2002 Red List, under which they are classified as “Vulnerable”,
- Annex II and IV (Animal and Plant Species of Community Interest in Need of Strict Protection) of the EC Habitats Directive,
- The Convention for the Protection of the marine Environment of the North-East Atlantic (OSPAR),
- Council Regulation (EC) No. 812/2004,
- Wildlife Act (1976),
- Wildlife (Amendment) Act (2000),
- Whale Fisheries Act 1937.



**Figure 4. Harbour porpoise**

**Harbour (Common) Seal – *Phoca vitulina***

The harbour seal, also known as the common seal, is found along Ireland’s coastline with a stronghold along the County Down coast and Strangford Lough, which hosts the largest breeding colony in Ireland, where it can regularly be seen hauled out onto sandbanks and rocky shorelines. They are mostly seen from July to September at haul out sites during the breeding season but are found in Irish waters year-round. Whilst primarily a marine species, it is not uncommon for these seals to venture further upstream of freshwater systems such as the River Foyle and its tributaries in the search for food. They are protected under:

- Habitats Directive (92/43/EEC), Annex II, Annex V,
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III,
- Wildlife Act (1976),
- Wildlife (Amendment) Act (2000),
- Wildlife (N.I.) Order of 1985.



Figure 5. Harbour seal

## 2.4.2 Molluscs

### **Freshwater Pearl Mussel – *Margaritifera margaritifera***

The freshwater pearl mussel is a large and solid bivalve shell living in fast-flowing, clean rivers in Ireland. It gains its name due to its ability to produce pearls from the mother-of-pearl nacre secreted on the inside of its valves, much like oysters. Until recently this species was included within semi-commercial fisheries for pearls in areas where it was common, however, a severe decline over most of its range has placed it on the conservation agenda, halting commercial exploitation. These molluscs have a close relationship with the lifecycle of abundant trout and salmon populations as their free-swimming larvae attach to the gills of young salmonid fish during the breeding season. These remain attached until the following spring, when the young mussels hatch from the encysted larvae and fall to the bottom of the river. They are:

- Listed as Endangered on the IUCN Red List and are one of the 365 most endangered species in the world,
- Protected under the Wildlife Act and Annex II and V of the EU Habitats Directive.



Figure 6. Freshwater pearl mussel

### 2.4.3 Fish

#### **Atlantic Salmon – *Salmo salar***

Atlantic salmon are renowned for their vast migration routes across the north Atlantic. They make their way from marine ocean habitat up freshwater river systems to reach their ancestral spawning grounds, before returning to the same rivers they were spawned in every year. This leads to genetically distinct populations between each river system. These fish are found in larger, unpolluted river systems in Ireland, spawning in turbulent, fast flowing and well oxygenated upstream river tributaries. Atlantic salmon are best seen in autumn as they migrate upstream. This species is currently found in all larger, non-polluted river systems without barriers for upstream migration from the sea. Currently the River Foyle supports one of the largest populations of Atlantic salmon during the salmon run to their spawning grounds. The Atlantic salmon is protected under:

- Annexes IIa and Va of the EC Habitat and Species Directive and in Appendix III of the Bern Convention,
- Habitats Directive [92/42/EEC] Annex II, Annex V,
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III (in freshwater only),
- Fisheries Acts 1959 to 2006,
- The Convention for the Protection of the marine Environment of the North-East Atlantic (OSPAR),

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- Fisheries Acts 1959 to 2006,
  - Fisheries Act (Northern Ireland) 1966,
  - Foyle Fisheries Act (NI) 1952,
  - Foyle and Carlingford Fisheries Act 2007.



**Figure 7. Atlantic salmon**

### **European Eel – *Anguilla anguilla***

This is the only eel found in the freshwater systems of Ireland and is still of commercial importance to Northern Ireland despite its international decline. These eels are found in most lowland rivers and lakes preferring slow flowing or still water. They are primarily nocturnal and best observed in commercial fisheries or when migrating between fresh and salt water. Currently this species is listed in the Ireland Red list (King et al 2009) as “Critically endangered”. This listing reflects its global IUCN status. The eel management plans drawn up under the EU eel regulation were incorporated into Northern Ireland law with the enactment of the Eel Fishing Regulations (Northern Ireland) 2010. (Statutory Rules of Northern Ireland 2010 no 166). Under these regulations, which came into operation on 1st June 2010, all commercial eel fishing is prohibited in Northern Ireland except for Lough Neagh and the existing eel weirs on the Lower River Bann. Anglers may no longer retain eels caught on rod and line anywhere in Northern Ireland. They are also listed under:

- Habitats Directive [92/42/EEC] Annex II, Annex V,
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III (in freshwater only),

- 
- Fisheries Acts 1959 to 2006,
  - Fisheries Acts 1959 to 2006,
  - Fisheries Act (Northern Ireland) 1966,
  - Foyle Fisheries Act (NI) 1952,
  - Foyle and Carlingford Fisheries Act 2007.

Fishing for trap-and transport of European eel past the River Erne hydro-electric stations is permitted under section 14 of the NI fisheries act (1966), as can be any fishery activity for the purposes of research or monitoring of stocks. Legal provisions exist in the 1966 fisheries act to enforce fitting of eel passes to weirs or other man-made barriers built after 1842. For weirs built before that date, construction of a pass can be legally enforced where the weir is modified, repaired or water abstracted for a changed use (e.g. hydropower generation). CITES Annex 2 listing of the eel in 2009 requires any movement of glass eel to aquaculture outside Europe to be accompanied by a “non-detriment” finding. Trade within Europe is regulated by the 2009 EU eel regulations.



**Figure 8. European eel**

**Brown Trout – *Salmo trutta***

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Brown trout are a salmonid fish species of varying appearances due to a highly diverse genetic lineage since the last ice age. Their highly diverse genetics and appearance have yielded variations in life histories including river-sea migratory forms known as sea trout. Brown trout are found in all non-polluted rivers and lakes, and is best seen in rivers with slow flowing, clear water. Juveniles are often difficult to distinguish from juvenile Atlantic salmon. The presence of brown trout in a water system is often considered a good indicator of a healthy aquatic environment. Current protection of this species involves prohibition of angling during the spawning season and regulations regarding methods of catching and numbers of fish that can be taken in some waters. These regulations are enforced by the Fisheries Conservancy Board for Northern Ireland and by the Loughs Agency in the Foyle and Carlingford systems, together with bailiffs from local angling clubs. Regulations are primarily concerned with maintaining fisheries and are deficient in terms of conservation needs.



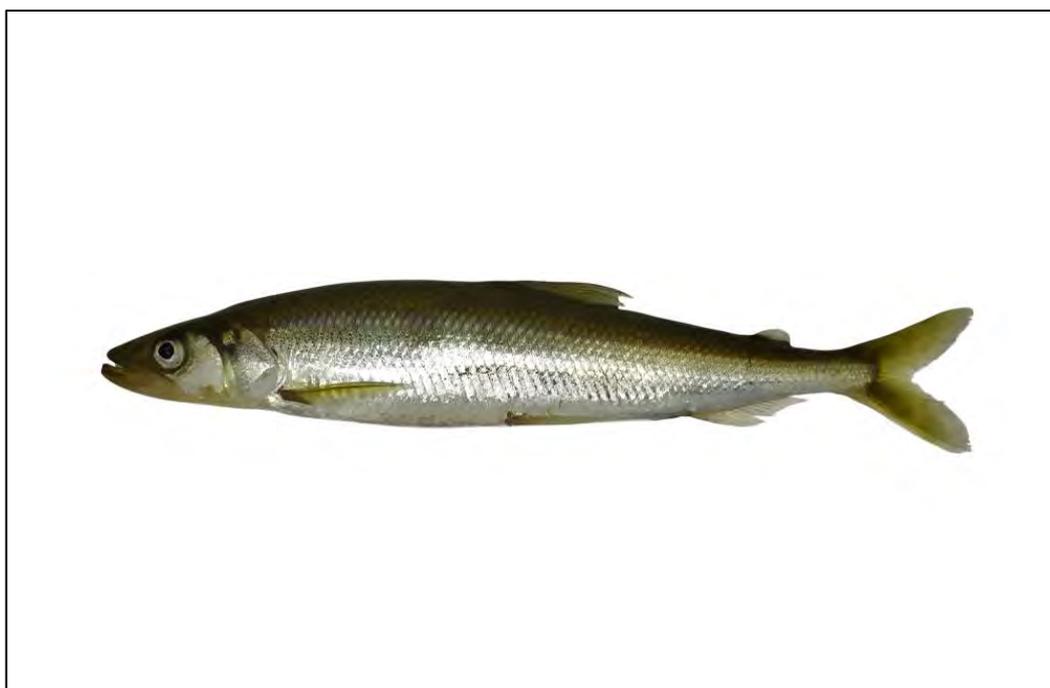
**Figure 9. Brown trout**

### **Smelt – *Osmerus eperlanus***

Smelt are distantly related to the salmon family and are considered an important species in the study of the salmon family evolution. They are a small shoaling fish found in relatively shallow coastal and estuarine waters. Smelt have been recorded within Lough Foyle and the River Foyle where they spawn and are considered an important part of the diet for much of the area's wildlife. The best time to see this species is from February to March in the lower

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reaches of rivers and estuaries during the spawning season. More detailed study of this species distribution is required. Internationally, smelt are considered “Least Concern” according to the IUCN Red List, however, due to the poor distribution records and lack of detailed study they are considered rare in Northern Ireland and are classified as “Vulnerable” in the Irish Red Data Book. They are also a UK Biodiversity Action Plan Priority Species.



**Figure 10. Smelt**

### **Twaite Shad – *Fallax fallax***

The twaite shad is a member of the herring family found from coastal waters around Iceland and Norway to the Mediterranean. Shad normally live in estuarine and coastal waters but will venture into the lower reaches of rivers to spawn. As with smelt, very little is known about their distribution, apart from in the River Barrow, where there is a well-established population. It is unclear if they are breeding here or are derived from other populations. Shad are anadromous, migrating from sea to the lower reaches of freshwater or brackish reaches of river systems for spawning in May and June. While the distribution is not fully known within Northern Ireland shad are listed under:

- EU Habitats Directive [92/43/EEC] Annex II and V,
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III,
- Fisheries Acts 1959 to 2006,

- 
- Fisheries Act (Northern Ireland) 1966,
  - Foyle Fisheries Act (NI) 1952,
  - Foyle and Carlingford Fisheries Act 2007.



**Figure 11. Twaite Shad**

**River Lamprey – *Lampetra fluviatilis***

Lampreys are amongst the most primitive of vertebrates. They are classified as ‘agnathans’ or jawless fish, distinguished from true fish by their lack of jaws and pelvic fins. They have a skeleton formed of cartilage and a suckered mouth rather than jaws. They are predominantly anadromous, breeding in freshwater as adults with offspring migrating to sea after a freshwater phase prior to maturation. In the freshwater phase high quality waters are most beneficial for this species. Adults need clean gravel beds for spawning, and the ammocoetes require silty sands in high quality freshwater. They are listed under:

- Habitats Directive [92/42/EEC] Annex II, Annex V,
- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III,
- Fisheries Acts 1959 to 2006,
- Fisheries Act (Northern Ireland) 1966,
- Foyle Fisheries Act (NI) 1952,
- Foyle and Carlingford Fisheries Act 2007.



**Figure 12. River lamprey**

**Asian Clam – *Corbicula fluminea***

A fresh water bivalve species which grows up to 25mm in length with larger forms growing to 50-65mm. It is a yellowish brown to black shell with concentric, evenly spaced ridges on the shell surface. This species is hermaphroditic with a high level of rapid reproduction and is considered highly invasive. Freshwater lakes and streams of all sizes with mud, silt, sand and gravel benthic substrate (The benthic zone is the ecological region at the lowest level of a body of water such as an ocean, lake, or stream, including the sediment surface and some sub-surface layers). *C. fluminea* is present in both Ireland and Northern Ireland. It is now known to be present in the River Foyle, the River Shannon, Keeldra Lough (Leitrim), Lough Derg, The River Barrow and the River Nore.

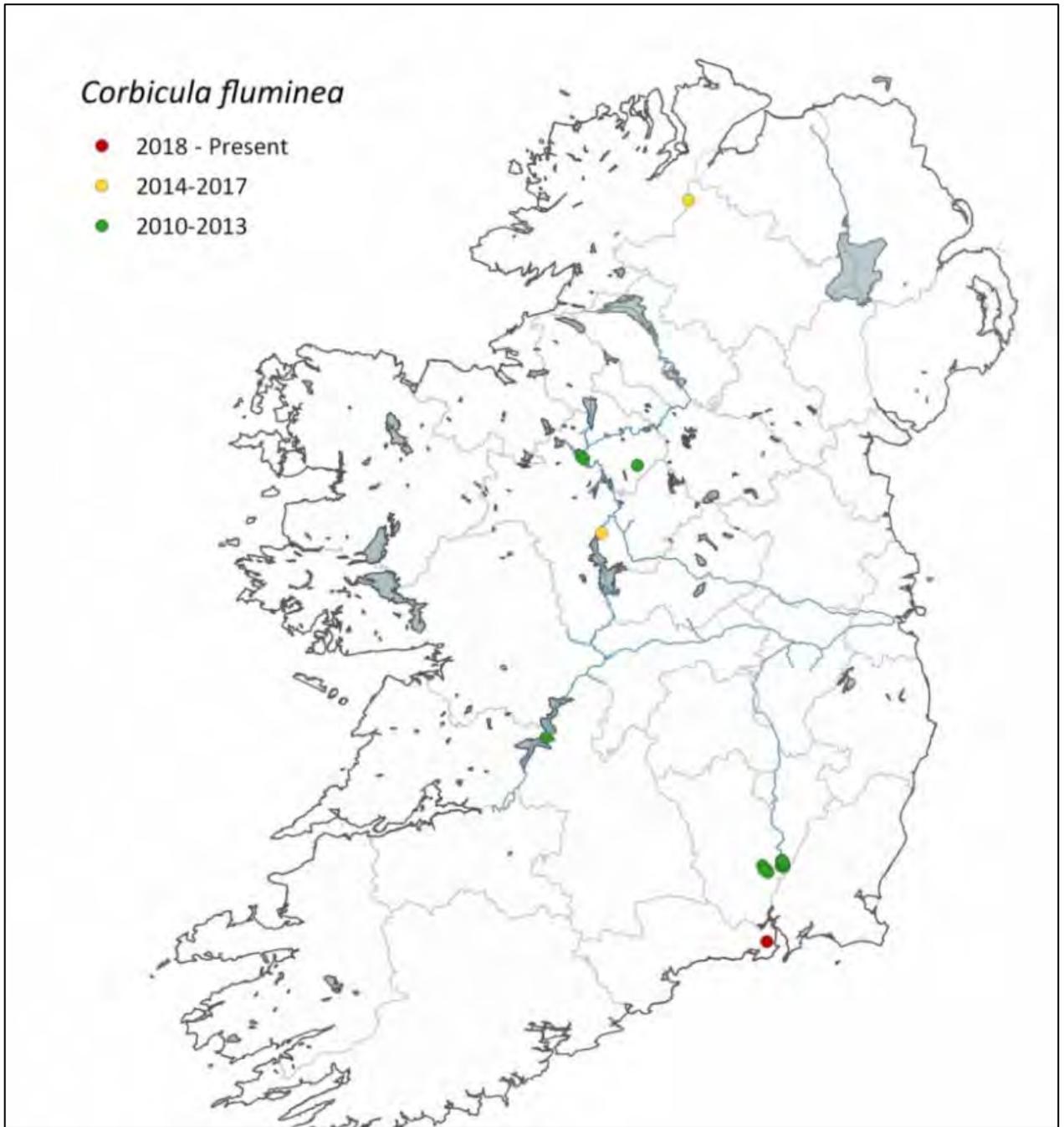


Figure 13. Map Showing Distribution of recorded locations of Asian Clam



**Figure 14. Asian Clam.**

## **3.0 METHODOLOGY**

This assessment comprised of a combination of desk study and field investigations, and used the following scope of works as a basis for the assessment:

- Desk study and review of potential development proposals;
- Site visit and walk over;
- Recording of geo-referenced target notes and production of GIS databases;
- Review of land designation GIS datasets (to include NIEA designations, Natura 2000 network sites etc.);
- Assessment on the potential impacts that the proposed development may have on local ecological environs and designated sites; and
- Recommendations for further ecological assessments, as required.

### **3.1 Desk Study**

A desk study was undertaken to determine if any statutory or non-statutory designations, ancient woodland or priority species were within proximity to the site. This involved using digital GIS datasets as well as contacting local recording groups for relevant information.

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The data sources for the desk study were:

- Department of Agriculture, Environment and Rural Affairs (DAERA),
- NIEA Natural Environment Map Viewer,
- NI Planning portal,
- Relevant NGO Websites,
- Centre for Environmental Data and Recording (CEDaR) requested 20<sup>th</sup> July 2020,
- NBN Atlas,
- Lough’s Agency.

## 3.2 Field Study

Due to a tight time frame to achieve planning submission deadlines, no field studies were able to be carried out regarding fish surveys at the proposed Riverine Scheme site. However, fish activity was noted through observation during vantage point surveys carried out for the collision risk assessment.

Several shoals of minnows (*Phoxinus phoxinus*) were observed near the surface close to the banks on the Strabane side of the site shoaling amongst the rocks and crevices located along the banks and vegetation.

There were 45 observed incidents of salmon jumping to catch invertebrates, flying across or resting on the surface of the water. The head of a dead salmon was also located on one of the angling piers, remains from an otter, (see Figure 27).

**Table 1: Summary of the survey dates and weather from each visit**

Survey ID	Date	Start Time	Survey Duration	Weather
1	06/07/2021	12:30	3hrs	12°C, Beaufort 2, 8/8, 25% precipitation
2	15/07/2021	12:30	3hrs	19°C, Beaufort 3, 5/8, 25% precipitation
3	20/07/2021	12:00	3hrs	21°C, Beaufort 4, 0/8, 0% precipitation

## 4.0 RESULTS

### 4.1 Desk study

#### 4.1.1 Natura 2000 & Land Designations

Following a search of the NIEA GIS databases for protected and designated areas, the application site is not located fully within any sites that are nationally or internationally designated for their nature conservation importance. However, the proposed development site does sit located on the banks of the River Foyle and Tributaries SAC and ASSI. In addition, 16 sites are located within approx. 15km of the site. The application area is not within any areas designated as local wildlife sites, however, there are 7 within roughly 5km (see Table 3 & 4).

**Table 2: International/National Designations within 15km of the site**

Designation	Site Name	Setback Distance
Special Areas of Conservation	River Finn 002301	The proposed development is partially located within the River Finn SAC site on the western Lifford side
Special Areas of Conservation	River Foyle and Tributaries UK0030320	The proposed development is located partially within the River Foyle and Tributaries SAC site with the River Foyle itself going through the centre of the proposed site separating Strabane and Lifford
Special Areas of Conservation	Owenkillew River UK0030233	Owenkillew River SAC site is located at a setback distance of 13.9km southeast of the proposed development site
Area of Special Scientific Interest	River Foyle and Tributaries ASSI229	The proposed development is located partially within the River Foyle and Tributaries SAC site with the River Foyle itself going through the centre of the proposed site separating Strabane and Lifford
Area of Special Scientific Interest	Owenkillew River ASSI213	13.6km southeast of the proposed development site
Natural Heritage Area	River Foyle Monagavlin to Carrigans 002067	7.6km north of the proposed development site

**Table 3: Local Wildlife sites within 15km of the site.**

Designation	Site Name	Setback Distance	Summary of Features
Local Wildlife Site	Glenmornan River	4.9km northeast of proposed development site	Local wildlife site

### **River Finn**

#### **002301**

Distance: Proposed development site is partially located within the River Finn site on the western Lifford side.

#### Summary:

Within Northern Ireland the River Finn forms part of the River Foyle Tributaries and as such shares similar description features due to its hydrological link with the River Foyle SAC and ASSI.

### **River Foyle and Tributaries**

#### **SAC: UK0030320**

#### **ASSI: ASSI229**

Distance: The proposed development is located partially within the River Foyle and Tributaries SAC site with the River Foyle itself going through the centre of the proposed site separating Strabane and Lifford.

#### Summary:

The River Foyle and Tributaries ASSI/SAC includes that part of the River Finn which lies within Northern Ireland, the River Mourne and its tributary the River Strule (up to its confluence with the Owenkilleg River) and the River Derg, along with two of its sub-tributaries, the Mourne Beg River and the Glendergan River. In total, the area encompasses 120km of watercourse and is notable for the physical diversity and naturalness of the banks and channels, especially in the upper reaches, and the richness and naturalness of its plant and animal communities, in particular the population of Atlantic Salmon (*Salmo salar*), which is of international importance. The area is also important as a river habitat. In their upper catchments, the tributaries are all fast-flowing spate rivers with dynamic flow regimes, characterised by sequences of rapid, riffle and run. Although the banks have been modified, the channel is natural and composed of large cobble substrate with scattered boulders and

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sandy marginal deposits, while cobble side and point bars and discrete sand deposits are common features.

At the upper end of the River Derg and its two tributaries, the aquatic flora reflects the highly acidic character of the water, with mosses such as *Brachythecium plumosum*, *Fontinalis squamosa* and *Racomitrium* spp. and liverworts including *Marchantia polymorpha* on stabilised boulders and rocks. Downstream, beds of Stream Water-crowfoot (*Ranunculus penicillatus* ssp. *Penicillatus*) occur where the flow is less dynamic, particularly in the lower sections of the River Derg and Mourne Beg River and along the Strule and Mourne Rivers down to Strabane. Mosses and liverworts still remain a significant component of the aquatic plant community, while other higher plants such as Pondweeds (*Potamogeton* spp.), Starworts (*Callitriche* spp.) and Water-milfoils (*Myriophyllum* spp.) intermix with the Stream Water-crowfoot (*R. penicillatus* ssp. *Penicillatus*) in the channel. Along the banks, there are emergent stands of Branched Bur-reed (*Sparganium erectum*) and Reed Canary grass (*Phalaris arundinacea*).

Downstream of Strabane, the River Foyle is slow-flowing and subject to tidal influences. The channel is extremely limited in aquatic plants, particularly in the more saline areas where marine algae make up the main component. Sheltered riverbanks in this section have a band of tall herb-fen dominated by Reed Canary-grass (*Phalaris arundinacea*) and other grasses. This becomes extensive in the large silty bays found at Saint Johnstone and 2 Grange. Associated fen species include Marsh-marigold (*Caltha palustris*), Hedge Bindweed (*Calystegia sepium*), Great Willowherb (*Epilobium hirsutum*), Meadowsweet (*Filipendula ulmaria*), Purple-loosestrife (*Lythrum salicaria*), Common Valerian (*Valeriana officinalis*), Monkeyflower (*Mimulus guttatus*), Cow Parsley (*Anthriscus sylvestris*) and Bulrush (*Typha latifolia*). Willows (*Salix* spp.) are scattered throughout.

#### 4.1.2 CEDaR Protected Species Search

A written request was submitted to obtain data from the CEDaR recorded species dataset, and the results obtained from the CEDaR search provided a list of recorded species within a 2km radius of the site. Given the number of provided search records, the primary findings are summarised below in Table 3 and the full list of notable species records.

**Table 4: CEDaR species records**

<b>Taxon Common Name</b>	<b>Taxon Latin Name</b>	<b>Event Date</b>	<b>Sample Spatial Reference</b>	<b>All Designations - Short Names</b>
Atlantic Salmon	<i>Salmo salar</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Sea Trout	<i>Salmo trutta</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Eel	<i>Anguilla anguilla</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Cyprinidae	<i>Cyprinidae</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Three-Spined Stickleback	<i>Gasterosteus aculeatus</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Gudgeon	<i>Gobio gobio</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Flounder	<i>Platichthys flesus</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Atlantic Salmon	<i>Salmo salar</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Sea Trout	<i>Salmo trutta</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Stone Loach	<i>Barbatula barbatulus</i>	Jul-09	bony fish (Actinopterygii)	River Finn at Strabane
Cyprinidae	<i>Cyprinidae</i>	Jul-09	bony fish (Actinopterygii)	River Finn at Strabane

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Three-Spined Stickleback	<i>Gasterosteus aculeatus</i>	Jul-09	bony fish (Actinopterygii)	River Finn at Strabane
Flounder	<i>Platichthys flesus</i>	Jul-09	bony fish (Actinopterygii)	River Finn at Strabane
Atlantic Salmon	<i>Salmo salar</i>	Jul-09	bony fish (Actinopterygii)	River Finn at Strabane
Eel	<i>Anguilla anguilla</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Stone Loach	<i>Barbatula barbatulus</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
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Flounder	<i>Platichthys flesus</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Atlantic Salmon	<i>Salmo salar</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Sea Trout	<i>Salmo trutta</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Eel	<i>Anguilla anguilla</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane
Stone Loach	<i>Barbatula barbatulus</i>	Jul-09	bony fish (Actinopterygii)	Mourne River at Strabane

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Atlantic Salmon	<i>Salmo salar</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Sea Trout	<i>Salmo trutta</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Eel	<i>Anguilla anguilla</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Stone Loach	<i>Barbatula barbatulus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Three-Spined Stickleback	<i>Gasterosteus aculeatus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Smelt	<i>Osmerus eperlanus</i>	14/03/2017	bony fish (Actinopterygii)	Strabane Bridge, Mourne River
Perch	<i>Perca fluviatilis</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Minnow	<i>Phoxinus phoxinus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Roach	<i>Rutilus rutilus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Stone Loach	<i>Barbatula barbatulus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Three-Spined Stickleback	<i>Gasterosteus aculeatus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Perch	<i>Perca fluviatilis</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Minnow	<i>Phoxinus phoxinus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Roach	<i>Rutilus rutilus</i>	Oct-10	bony fish (Actinopterygii)	River Finn (unlocalised)
Atlantic Salmon	<i>Salmo salar</i>	1974	bony fish (Actinopterygii)	Burn Dennett (unlocalised)
Lamprey Sp.	<i>Lampetra</i>	Jul-09	jawless fish (Agnatha)	Mourne River at Strabane
Lamprey Sp.	<i>Lampetra</i>	Jul-09	jawless fish (Agnatha)	River Finn at Strabane
Lamprey Sp.	<i>Lampetra</i>	Jul-09	jawless fish (Agnatha)	Mourne River at Strabane
River Lamprey	<i>Lampetra fluviatilis</i>	Oct-10	jawless fish (Agnatha)	River Finn (unlocalised)
Brook Lamprey	<i>Lampetra planeri</i>	Oct-10	jawless fish (Agnatha)	River Finn (unlocalised)
Sea Lamprey	<i>Petromyzon marinus</i>	Oct-10	jawless fish (Agnatha)	River Finn (unlocalised)
River Lamprey	<i>Lampetra fluviatilis</i>	Oct-10	jawless fish (Agnatha)	River Finn (unlocalised)
Brook Lamprey	<i>Lampetra planeri</i>	Oct-10	jawless fish (Agnatha)	River Finn (unlocalised)

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial Reference	All Designations - Short Names
Sea Lamprey	<i>Petromyzon marinus</i>	Oct-10	jawless fish (Agnatha)	River Finn (unlocalised)
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	1905	mollusc	Mourne River at Strabane
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	01/02/1900	mollusc	Mourne River at Strabane
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	05/08/1899	mollusc	Mourne River at Strabane
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	1899	mollusc	Milltown Bridge, Cavanalee River
River Limpet	<i>Ancylus fluviatilis</i>	01/03/1992	mollusc	Strabane Glen ASSI

#### 4.1.3 NBN Atlas

A search of the NBN Atlas Northern Ireland returned no species within the site boundary but five records for 3 species within 2km of the site area. The most recent records are from 2017 with one record produced within that year.

#### 4.1.4 National Biodiversity Data Centre

**Table 5: National Biodiversity Data Centre species records**

Common Name (Species Name)	Record Date	Conservation Status
Canadian Waterweed ( <i>Elodea canadensis</i> )	31/12/2010	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Giant Hogweed ( <i>Heracleum mantegazzianum</i> )	24/01/2018	Invasive Species: Invasive Species    Invasive Species: Invasive Species >> High Impact Invasive Species    Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Common Porpoise ( <i>Phocoena phocoena</i> )	20/07/2014	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex IV    Protected Species: Wildlife Acts    Threatened Species: OSPAR Convention
Freshwater Pearl Mussel ( <i>Margaritifera (Margaritifera) margaritifera</i> )	02/09/1996	Protected Species: EU Habitats Directive    Protected Species: EU Habitats Directive >> Annex II    Protected Species: EU Habitats Directive >> Annex V    Protected Species: Wildlife Acts

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#### 4.1.5 National Parks and Wildlife Service

Table 6: National Parks and Wildlife Service species records

Taxon Common Name	Taxon Latin Name	Event Date	Sample Spatial Reference
Sea Lamprey	<i>Petromyzon marinus</i>	0	C340000

#### 4.1.6 A5 Approval of Planning Permission 2016

Previous studies carried out as part of the planning process for the proposed A5 development project included an in-depth investigation into fish species within the water systems located along its proposed route. Part of this route runs within close proximity to the proposed Riverine Scheme site layout following the River Foyle route. This study included an investigation for fish species within the area, survey locations 8 and 9, (see Appendix: XIII). The study looked at 13 water courses, classified these under the Water Framework Directive and undertook surface water status determination to consider the status of biological, hydromorphological, chemical and physio-chemical elements. Included in this was the River Finn and Mourne, both of which are directly linked to the River Foyle over which the proposed Riverine Scheme is located. It was determined that the River Mourne had a moderate surface water status, but no fish fauna status classification was awarded. The River Finn was given a poor surface water status with a moderate fish fauna status. The results of this study can be found in Appendix: VIII.

#### 4.1.7 Irish Whale and Dolphin Group (IWDG)

The IWDG were approached regarding historical records for pinnipeds, cetaceans, and basking sharks for evidence of potential animals which may have travelled further inland upstream. No records were returned. However, anecdotal sightings were brought to the ecologist's attention through discussion with local residents during survey sessions of harbour seals regularly coming up stream and being sighted within the stretch of the River Foyle included in the proposed Riverine Scheme. The previous project ecologist Eamonn Delaney also noted a sighting of a potential harbour seal during his baseline surveys.

#### 4.1.8 Salmon Watch Ireland

A written request was submitted to obtain data from the Salmon Watch Ireland recorded species dataset, within a 2km radius of the site. No records were returned.

#### 4.1.9 Loughs Agency

A request was submitted to obtain data from the Loughs Agency recorded species dataset, following previous consultation discussions regarding proposed designs for the bridge crossing the River Foyle. Unfortunately, the proposed location of the Riverine Scheme and 2km beyond the site the site boundary has not previously been included within Loughs Agency's survey areas as seen below.



**Figure 15. Map illustrating Lough's Agency's survey areas.**

However, surveys have been carried out within river catchments surrounding the proposed site believed to be hydrologically linked to the River Foyle. A 2018 "Foyle Area and Tributaries Catchment Status Report" was provided with collated data ranging back over the last 50 years.

Figures for the net count of records by the fish counter station located at the weir in Sion Mills on the Mourne River from 2012 to 2020 were also provided.

**Table 7. Sion Mills Counter figures**

Year	Net Up Count
2012	2836
2013	3162
2014	3852
2015	1824

2016	1350
2017	912
2018	1214
2019	2824
2020	3915

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Species Records

Loughs Agency’s records provide the greatest detail regarding fish density and movements through the River Foyle and its Tributaries. Net fisheries have not operated in the Foyle area since 2009. Records for commercial catch of Atlantic salmon have seen a decline since the 1960s with spikes in salmon catch during the 1980s. However, in recent years the number of salmon caught has drastically decreased, with none caught since 2009. It is stated that this is assigned to the fact no commercial fisheries have operated here since 2009.

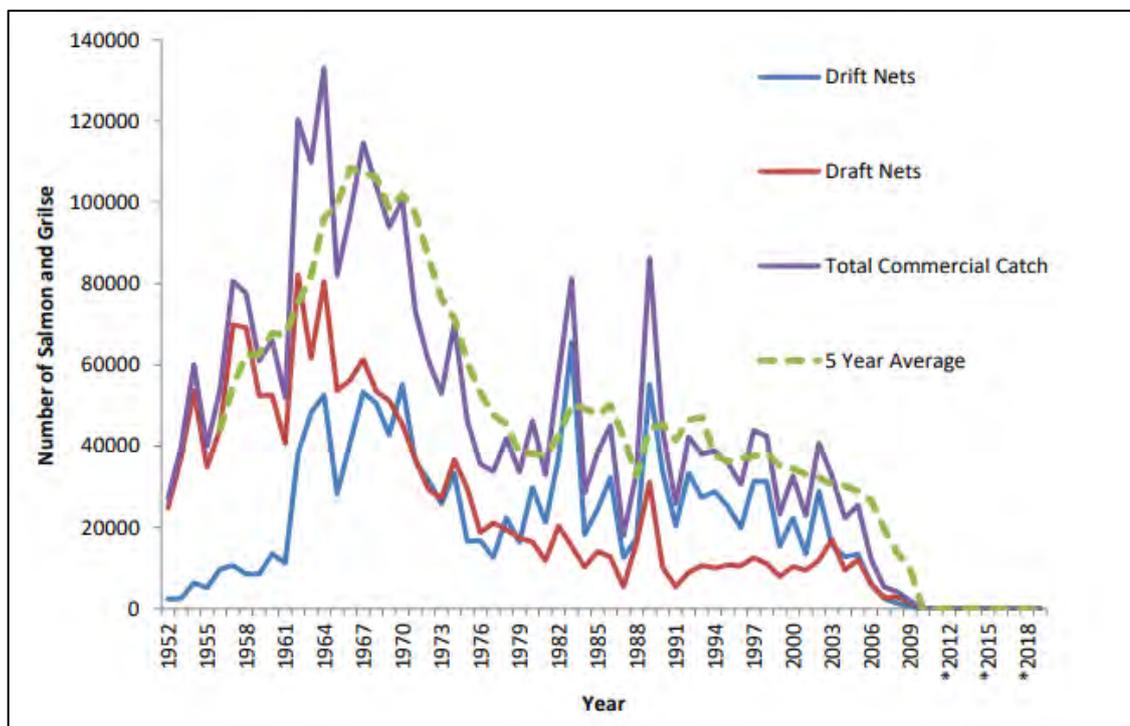


Figure 16. Atlantic Salmon total commercial catch 1952-2018. Loughs Agency 2019.

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It was reported that the total rod catch returns were 13% in 2018 with a total of 1598 salmon/grilse caught in the Foyle and Carlingford areas in 2018. Loughs Agency reported that 66% of the reported rod catch were caught and released. The rod catch return records are of great value as they indicate:

- “How many fish were caught in YOUR RIVER OR LAKE?
- What % of fish were caught and released in YOUR RIVER OR LAKE?
- Is catch and release increasing?
- What species were caught?
- Essential for developing sustainable fishery management policy.
- Screening of future developments (roads, hydro etc.) against fishery interests.
- An important tool for assessing strength of runs.
- Aids with developing access and infrastructure (stiles etc.).
- It is required by law that all rod licence holders make an accurate catch return.
- Facilitates long term trend monitoring.
- Participates in the management of your river (doing your bit).
- At a time of reduced marine survival for Atlantic salmon accurate information is essential for sustainable management.
- Aids in ensuring good decision making so that future generations can enjoy the sport of fishing.
- Ensures that all species caught are sustainably managed now and in the future.”

This “citizen science” take on rod catch returns allows governing bodies such as the Loughs Agency to maintain accurate detailed records for certain catchment areas where fish counters are not possible and provides more detailed information on salmon runs before they reach larger river bodies.

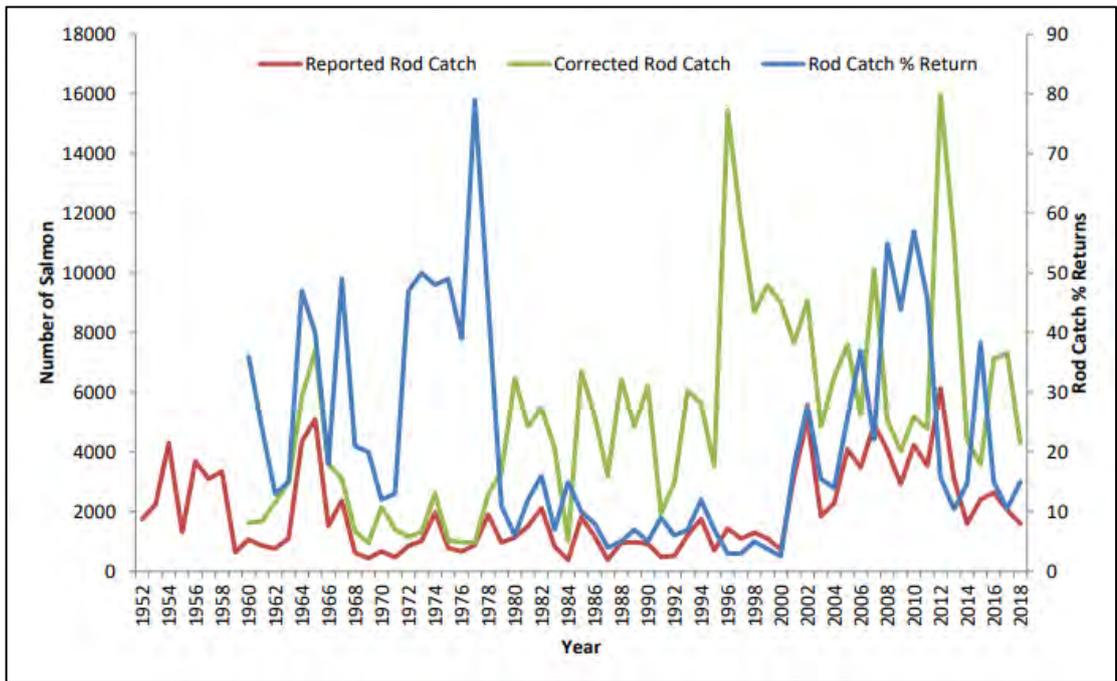


Figure 17. Loughs Agency reported and corrected rod catch with % of returns made

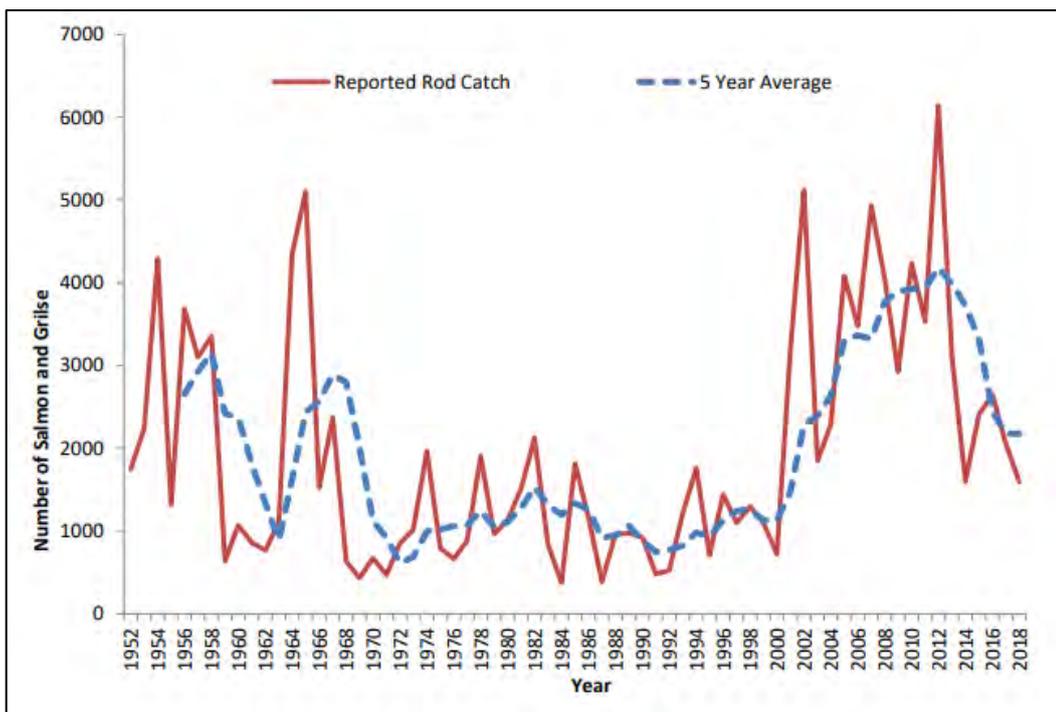
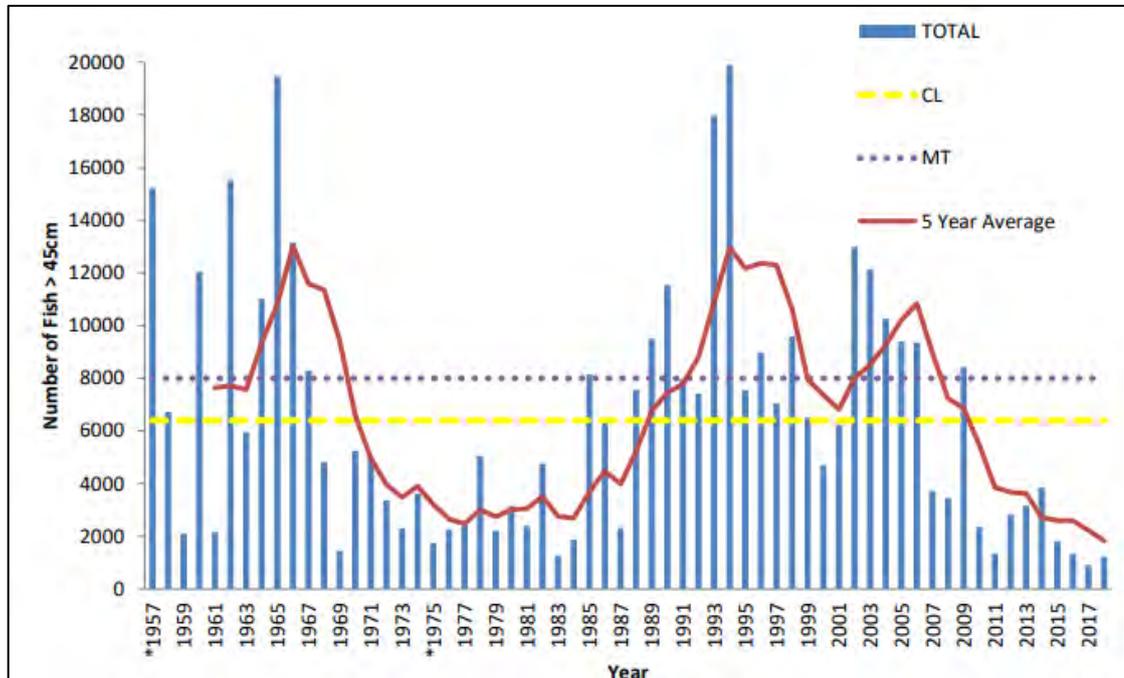


Figure 18. Reported rod catch for salmon/grilse in the Loughs Agency area

A network of electronic fish counters are located throughout the Foyle and Carlingford areas to monitor the migration of Atlantic salmon into freshwaters to spawn. These counters help to monitor fish migration populations in order to assess the attainment of conservation limits

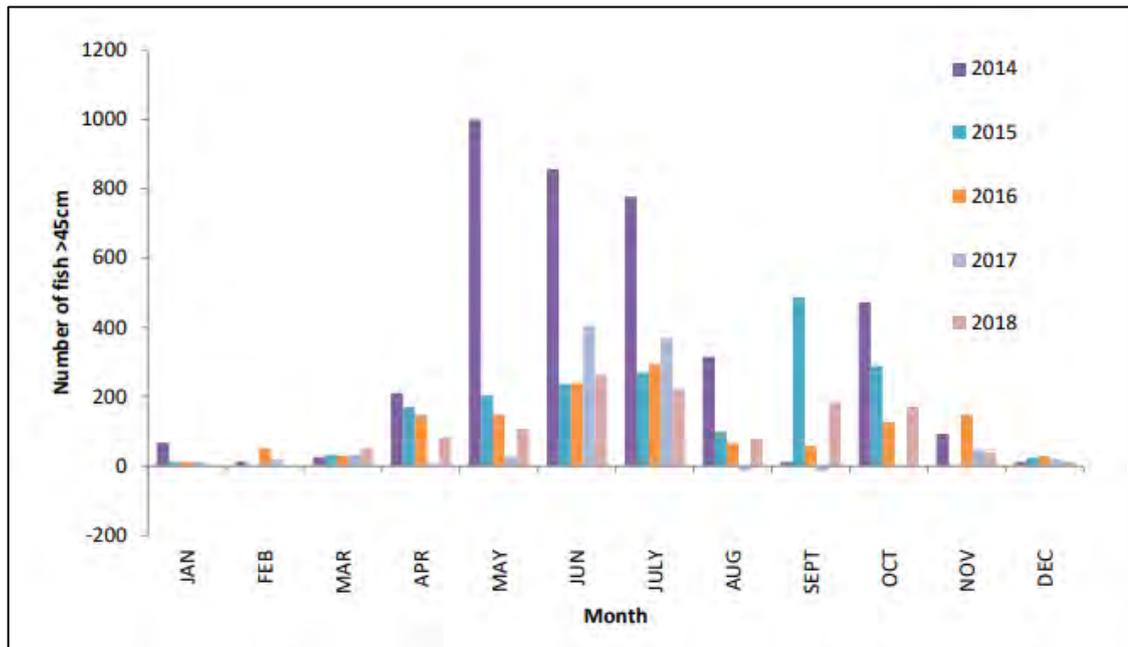
and management targets for key catchments such as the River Foyle and its Tributaries. In 2018 the key fish counts by counters included the River Mourne and River Finn.

The River Mourne counted 1214 Salmon with a 5 year average of 1830, the management target for the River Mourne is 8000 with a conservation limit of 6400.



**Figure 19. River Mourne annual fish counts with management target (MT) and conservation limit (CL)**

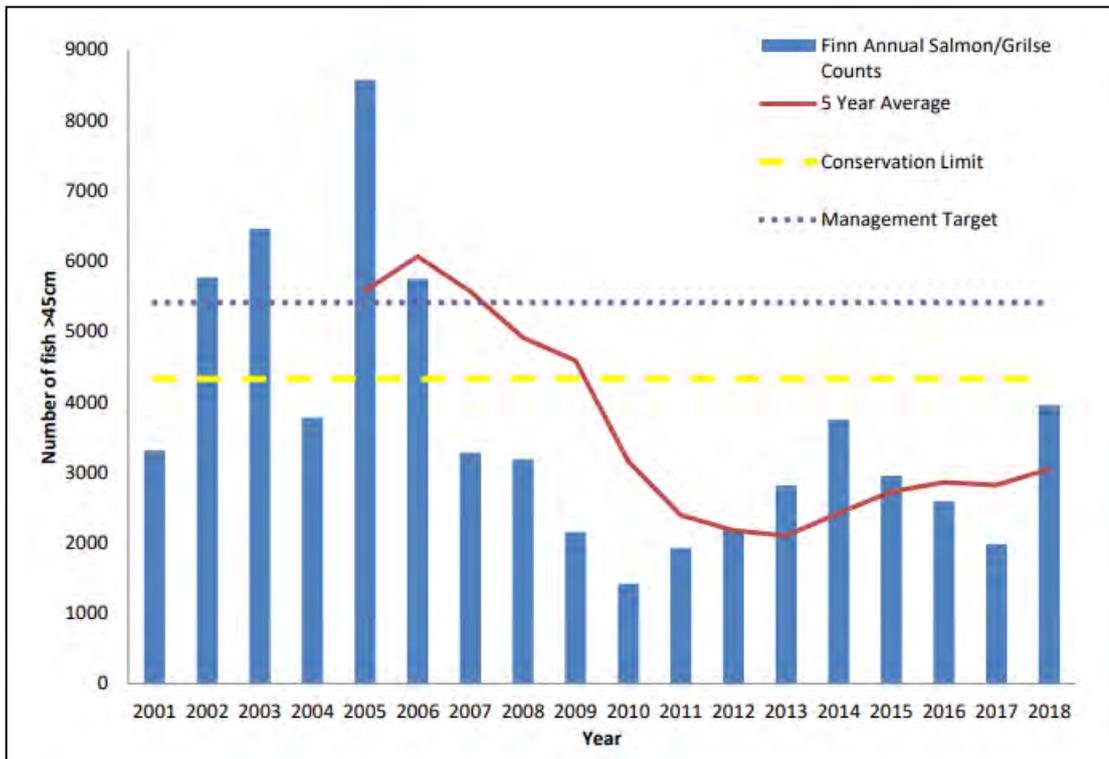
As can be seen in figure 17 there have been a decrease in recent years since 2002 with salmon numbers falling below the MT and CL lines suggesting there has been a reduction in the number of salmon passing through the River Mourne in recent years.



**Figure 20. River Mourne monthly fish counts**

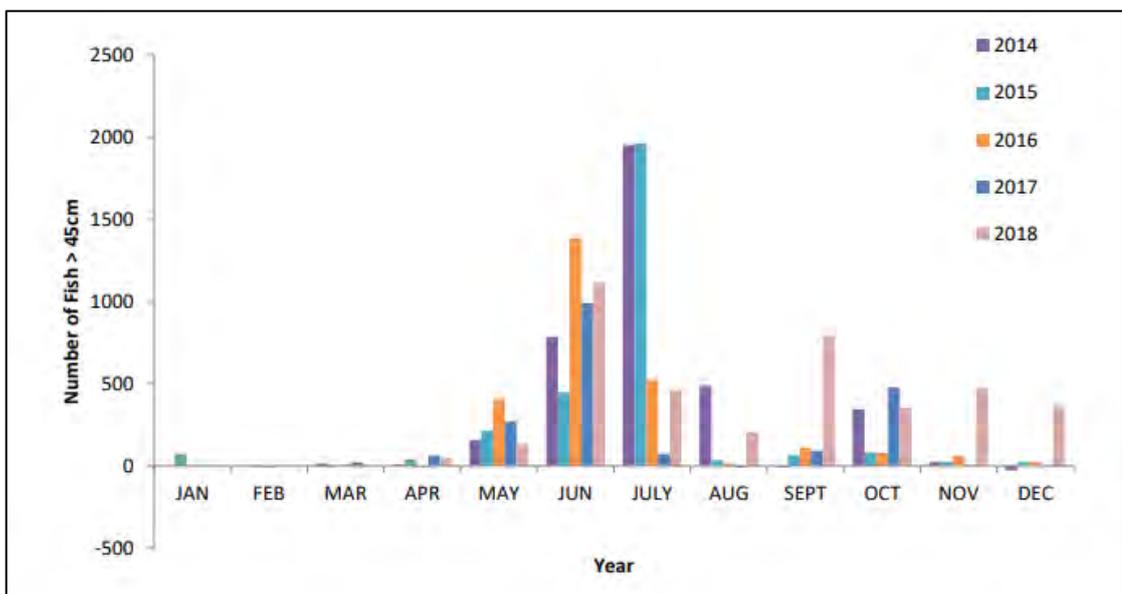
Month counts also appear to have reduced over the years, however, the same pattern remains with a higher number of fish counted during the mid and late summer months with fewer in autumn and summer.

The River Finn counted 3955 Salmon with a 5-year average of 3046, the management target for the River Finn is 5410 with a conservation limit of 4328.



**Figure 21. River Finn annual fish counts with management target (MT and conservation limit (CL))**

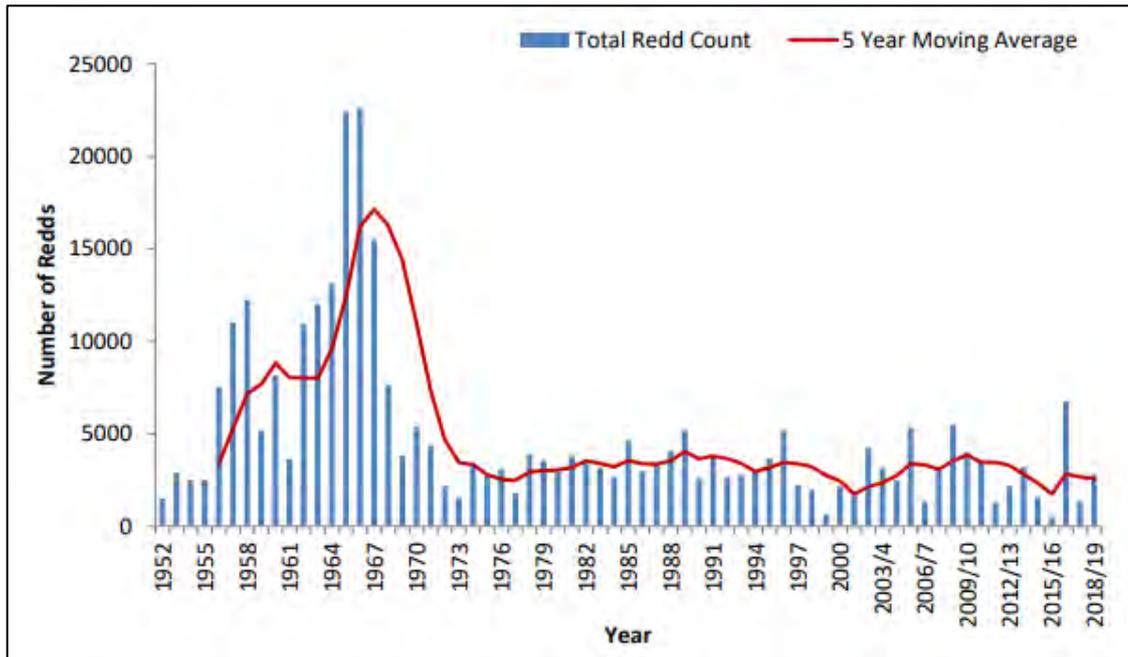
Counts for the River Finn in the report only appear to go back as far as 2001, however, even within this time frame there has been a noticeable decrease in salmon counted over the years. Similarly, to the River Mourne, these figures have dropped below the management target and conservation limit.



**Figure 22. River Finn monthly fish counts**

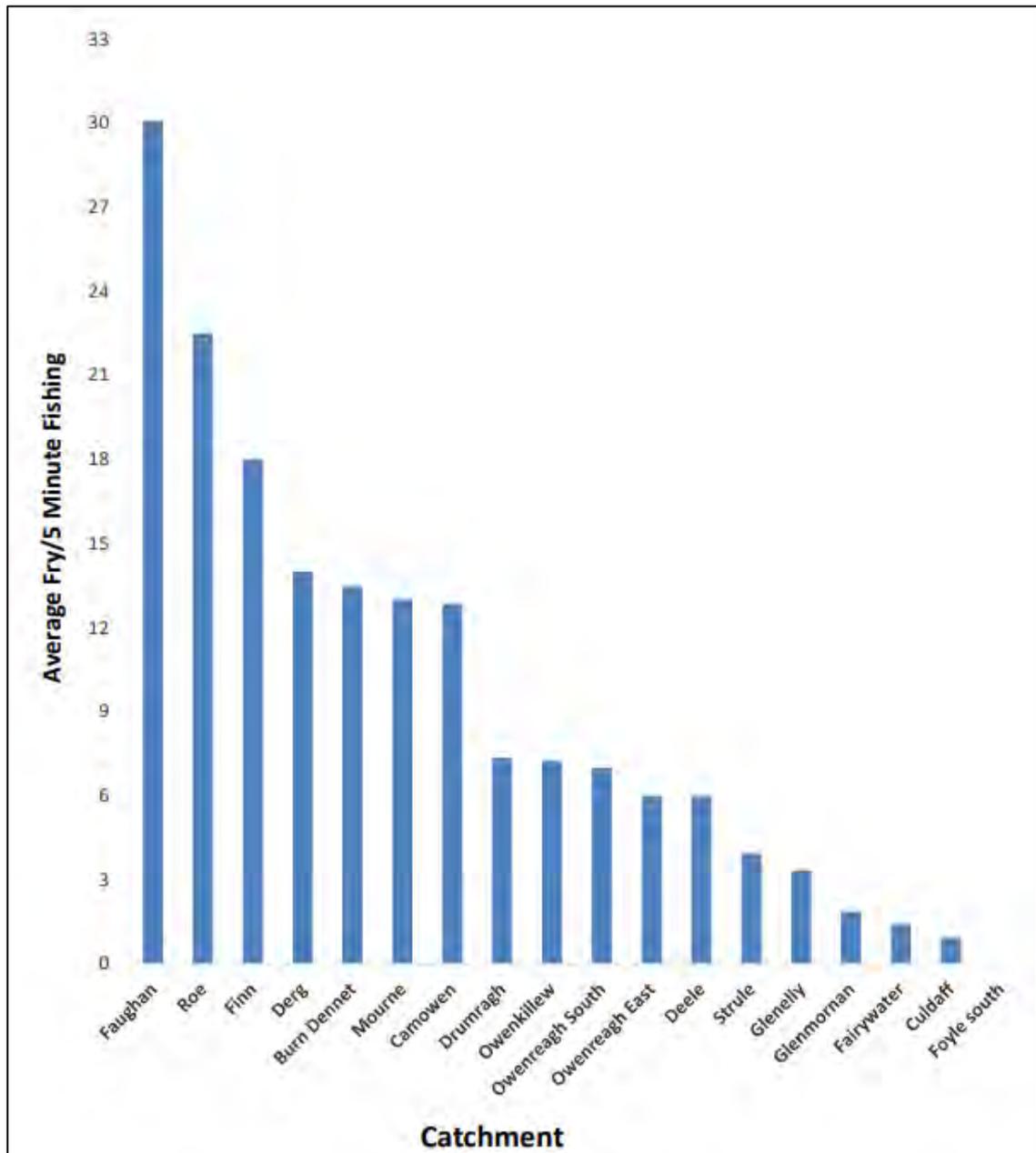
Again, on the river Finn there has been a decrease in monthly fish counts, with the same trend remaining regarding peak counts occurring in mid-summer. However, 2018 returned higher counts for autumn and winter months compared to previous years.

Annual salmon redd (spawning nests) counts provide good indicators regarding returning populations and have been carried out on an annual basis since 1952. In 2018/19 it was recorded that a total of 2760 redds were counted with a running average of 2586 since 1974.



**Figure 23. Annual salmon redd counts**

Salmon fry index for the Foyle area in 2018 showed that the River Finn and River Mourne hold some of the highest average fry counts.



**Figure 24. Foyle area salmon fry index comparison chart for 2018**

Electrofishing surveys were also carried out in Foyle catchments to survey for salmon fry and classify each catchment based upon the number of fry found, (see Appendix: VIII).

While it can be difficult to estimate the number of returning adult salmon to river systems each year, the above recorded data does highlight a rough guide for current population trends. The strength of returning cohorts is also exacerbated by extremely low marine survival rates likely due to altered marine food webs and shifts in oceanic prey distribution. However, it can be inferred that in recent years there has been a reduction in returning and

spawning salmon within the Foyle area. While no surveys have been carried out in the River Foyle, due to the hydrological link, the Rivers Finn and Mourne can help to illustrate that the River Foyle is an important run route for returning and spawning salmon.

Trout species in the Foyle area were also recorded by the Lough's Agency. In the Foyle area there is a geographic north-south divide with sea trout dominant in the northern catchments and brown trout dominating the southern catchments. Historically northern catchments and associated streams were associated with high densities of salmon which is believed to be the reason for seaward migration of juvenile trout in search of areas with less competition and predation. While southern catchments have always held good population densities these catchments are more susceptible to pollution events.

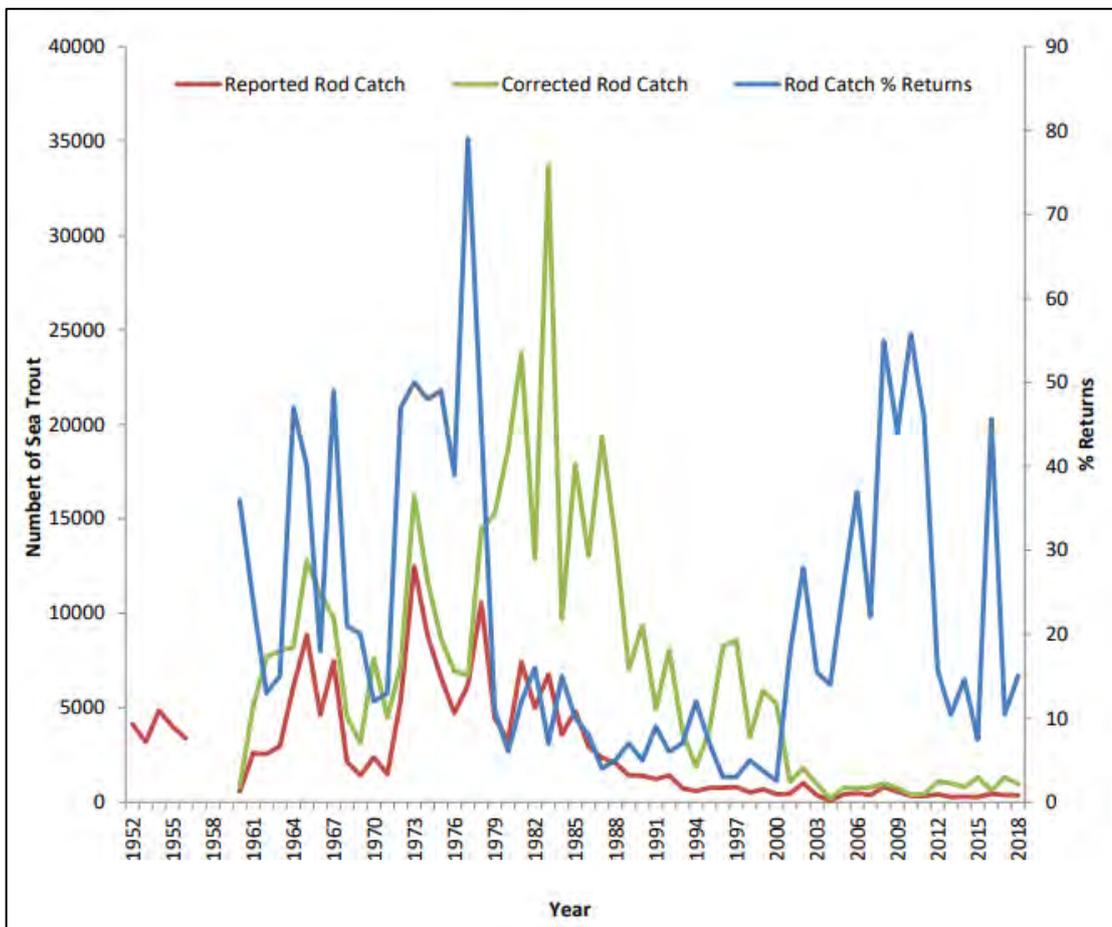
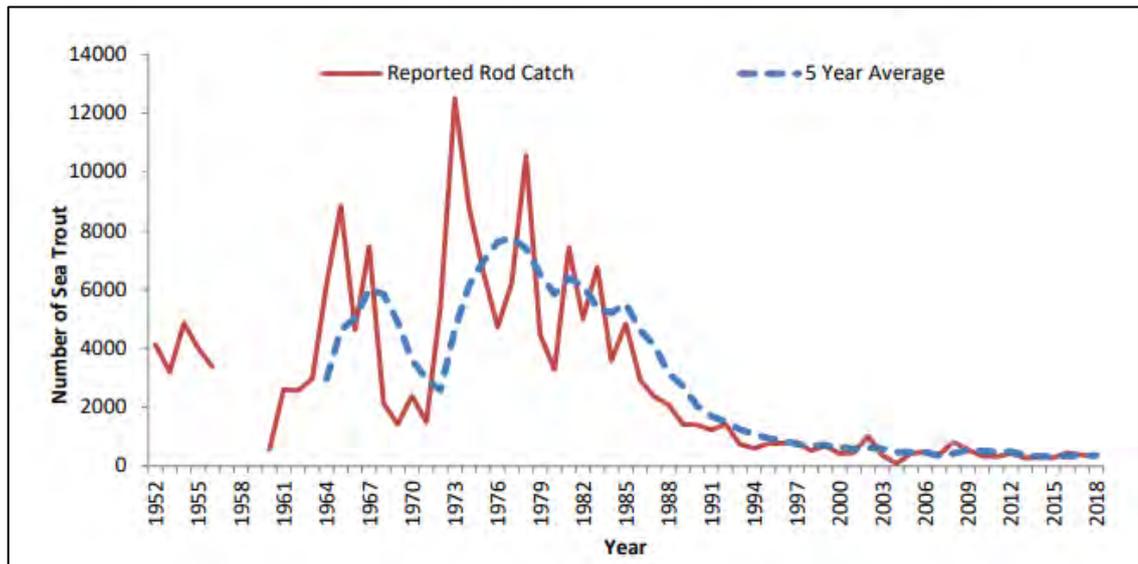


Figure 25. Loughs Agency reported and corrected rod catch with % returns of trout



**Figure 26. Reported rod catch for sea trout in the Loughs Agency area**

Figure 24 reflects a huge decrease since the 1980s in rod caught trout in the Foyle catchment area. However, corrected catches and catch returns display a higher density of fish within the area with a high percentage of fish being returned once caught.

Electrofishing surveys were also carried out to assess the trout fry numbers within each catchment in the Foyle area. Unlike with salmon, the Rivers Mourne and Finn display much lower densities of trout fry suggesting these river systems are deemed less suitable for spawning trout and are potentially primarily used as simple migratory pathways. It could also be inferred that fewer fish are present within these catchments. Each catchment was classified similarly to those for salmon (see Appendix: X).

## 5.2 Potential Impacts & Mitigation

The proposed bridge structure is planned to span across the River Foyle and land on the banks at Lifford and Strabane allowing for connection across the entire Riverine Scheme from both sides of the border. Due to the proposed construction and installation of this bridge across a riverine habitat, certain concerns have been raised and consultation has been carried out with the Loughs Agency in order to prevent and mitigate against potential impacts from occurring which may negatively impact the riverine habitat with long term effects.

An initial concern during the early stages of the design process was that originally the bridge structure had a central pier approximately halfway across the river which would enter the

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River Foyle. Concerns were raised around this structure due to a lack of survey data for this stretch of the river. The Loughs Agency raised the concern that due to a lack of historical data there was uncertainty as to which side of the river the salmon run occurs and that a central pier could cause divisions in the run altering the distribution of fish as they commute upstream to their spawning grounds. This could potentially impact the salmon by corralling them and making them more susceptible to predation and poaching, which is known to go on in the area particularly on the Lifford side. The other concern relating to this was the location of two wastewater treatment and discharge plants located just north and south of the proposed bridge location. Concerns over how a central pier may affect the distribution and dilution factors of this discharge were raised and the impact this may have on the olfactory sense of the migrating salmon further affecting their chances of success in reaching their spawning grounds. The installation of this central pier would also require the need to potentially operate within the water body for construction where mitigation would be difficult and potentially unsuccessful. Due to these concerns and in order to remove these impacts from the proposed development a design change was ultimately suggested that the bridge be a single span structure. Without a central pier fish are able to freely pass upstream underneath the structure unimpeded (see Appendix: XIV).

Due to the design change, the construction process was also altered in order to remove the need for permanent structures in the river channel. However, this single span bridge necessitates the construction of a temporary crane pad. A temporary crane pad, extending into the river channel, on the Lifford side is required to be constructed to support the large crane used for the bridge lift. This pad must bear the weight of the crane whilst it is lifting the bridge and will be of sufficient dimension to facilitate safe lifting of the bridge structure. The crane pad structure may involve sheet piling through the riverbed under the crane footprint to provide a temporary foundation for the crane. The crane platform and any associated sheet piles will be withdrawn and deconstructed once the bridge is completed. However, mitigation is required to ensure the temporary platform structure does not damage the riverbanks and introduce large amounts of silt and debris into the water system which may impact the fish and aquatic habitat. Therefore, it is recommended that a geotextile tarp layer is first installed to lay on the riverbank and riverbed in order to preserve the underlying earth and reduce silt production drifting downstream. The temporary platform will be constructed of gabion baskets on the tarp layer which can then be hooked up to chains and folded out in one go once construction has completed. This will reduce silt

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production and prevent destruction to the riverbank and bed which could cause large amounts of debris to enter the water system, smothering the aquatic habitat. The construction of the temporary platform should consist of locally sourced gabion cages, if possible, in order to prevent any potential spread of invasive species into the water system. A coffer dam is also recommended as this will ensure any potential silt production and debris is trapped and localised to the temporary platform area. Any alternative engineering solutions for the construction of the crane pad shall ensure silt emissions to the River Foyle SAC are minimised during the installation, operational and de-construction phases. No permanent structures or materials shall be left in the river channel for the construction of the crane pad.

Percussion piling was another concern which had been raised during the badger survey report (see Biodiversity Chapter - Appendix: 8.5). Piling is required for the installation of the bridge on both riverbanks. Standard percussion piling is currently not accepted, following consultation with NIEA, due to close proximity of the main badger sett to the proposed bridge landing site on the Strabane side of the site. Instead, the use of continuous flight auger (CFA) piling, which utilises a 'corkscrew' method has been recommended to create the required hole. This method has been deemed much less impactful than standard percussive piling methods such as driven piling. See Appendix: XVII for the diagram illustrating a vibration contour graph for a 70t CFA piling rig. Based upon this diagram the proposed method of CFA piling is not expected to have lasting impacts on the salmon and other fish population within the River Foyle. However, anecdotal reports were made to the ecologists of harbour seals (*Phoca vitulina*) coming upstream and feeding within the stretch of river. While the proposed piling system is not expected to impact on occasional seal visitations to the area, excessive vibrations caused by piling may impact the fish and act as a trigger to attract nearby seals to investigate. The CFA piling is expected to have a much lower vibration radius and therefore a lower impact or risk of attracting hunting pinnipeds into the development area during construction. However, it is recommended that constant monitoring of vibration levels throughout the construction process are carried out to ensure they are maintained within acceptable levels.

In addition to bridge abutments, where permanent CFA Piles will be used piled foundations may also need to be emplaced on land within the river margin beyond the flood embankment in proximity to the Bridge Abutment sites. This may be necessary to create a working platform

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for the assembly and lifting of the bridge, which will arrive to the site in sections requiring assembly on site. This platform will support the main crane used to lift the bridge into position, smaller crane(s) used to assist with the assembly of both the main crane and bridge and to store the assembled bridge before it is lifted into place. This platform structure and will be deconstructed once the bridge has been completed. If CFA piles, which are permanent and cannot be withdrawn, have been used as foundations for this structure, then these piles shall be cut down to 1m below ground level as part of the site restoration / landscaping works following completion of bridge construction.

Works are required to the flood embankments on both sides of the river. The embankment on the Lifford side will be increased in level to provide flood protection and will be widened to accommodate the greenway at the crest of the embankment. The embankment will also be realigned locally . The embankment on the Strabane side will be widened to accommodate the greenway at the crest of the embankment. It is not generally proposed to raise the crest level of this embankment. At the interface with the pedestrian bridge, the embankment crest will be ramped locally to tie-in with the pathway level at the bridge. • Construct haul roads to provide access to the embankments for construction plant. Haul roads will be constructed using imported stone fill and geotextile/geogrid if required. Stone will be imported on trucks/dumpers and graded using dozers or excavators. The methodology for the construction of the embankments will consist of:

- Excavate to formation level underneath increased embankment footprint, strip topsoil from embankment slope and form benches in face. This work will be carried out by excavators, spoil will be removed using dumpers and stockpiled elsewhere on site for reuse. Topsoil will be reused for landscaping. Excavated subsoil may be suitable for reuse as embankment fill, otherwise it will be used as general landscape fill within the development or transported off site.
- The embankment realignment will be constructed by excavating the existing embankment and placing the material on the new alignment. Additional fill may be imported if there is a deficit of site-won material.
- Placement and compaction in layers of suitable material to form new embankment profile. This will involve placement of suitable embankment fill (Class 2 or similar cohesive fill) using excavators and compaction using vibratory rollers. The fill will either be site-won or imported.

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- Construction of pedestrian/cycle path on the embankment crest. Placement and compaction of road subbase and pavement layers. Stone fill and pavement layers will be imported by truck or dumper, graded to the correct level and compacted using vibratory rollers.
  - Installation of fencing, signage, pathway markings, seating etc.
  - Reinstatement of embankment slopes with topsoil and completion of seeding and landscape planting.
  - Removal of temporary haul roads and reinstatement

Due to the embankment works close proximity to the River Foyle there is an increased risk of pollution from silt and debris disturbance, potential oil and hydrocarbon spills as well as vibration disturbances. As such, it is recommended that in order to reduce these potential risks all surface water contaminated by spoil during the embankments excavation works should be collected and treated before discharged in order to remove and potential contaminants. Spill kits and plant nappies must be readily available along# with the use of silt fencing and bunds in order to capture any potential silt, oil and hydrocarbon spills and leaks. Part of the process will involve compacting the freshly laid fill in order to achieve robust embankments. This poses a risk to aquatic species due to the potential risk of vibrations produced causing disturbance and disorientating migratory fish e.g: during the salmon run. Similar mitigation to what has been previously mentioned with regards to the bridge landing is required through the implementation of low vibration methods. Conventional vibratory rollers are only to be used with the vibration turned off allowing for a low impact method to ensure the fill can be appropriately compacted.

As part of the development, additional site investigation boreholes will be required to be drilled around the bridge site by rotary percussive techniques.

Following consultation with Loughs Agency regarding concerns over impacts to migratory fish species particularly salmon, all in-river piling and all piling works within the SAC in both Lifford, and Strabane sites must be carried out between May and September, as per seasonal restrictions outlined as follows:

**Table 8: Seasonal restrictions**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
In-River Piling, Bridge Construction, In-river works, riverbank Works and piling within SAC												
<b>Red: Exclusion Period</b>					<b>Green: Approved Period</b>							

As the site is located on a riverine habitat It is also recommended that a minimum of 10 metres should be retained as a buffer between high risk construction activities, (concrete mixing and washing, stockpiling materials and waste), and the surrounding water courses to reduce any potential impact. It is also recommended that a surface water management plan be drafted and implemented to avoid potential impacts on the water courses and water quality. No potential hazardous substances should be stored near the river, and instead should be kept securely locked within the site compound. Oil storage must have a secondary containment system (of 110% capacity) to ensure that any leaking oil is contained and does not enter the aquatic environment. Should for any reason, oil or fuel be stored in the area, it must be kept in a bunded area (providing 110% capacity of the largest stored unit), 10m from all minor water courses and 100m from the SAC. Refuelling should be place on a hardstanding area, at least 10m away from any minor watercourse, and 100m from the SAC. it is recommended that a pollution prevention plan and emergency spill response plan are implemented prior to the commencing of works and toolbox talks delivered.

Due to the location or the proposed carpark on the Strabane side of the site, within the old halting area located within the sites southern corner, there is a perceived risk of runoff water from the car park potentially introducing pollutants and hydrocarbons into the water systems. Therefore, it has been recommended that the SUDS scheme developed to create an environmentally safe drainage system to protect the nearby riverine habitat from potential pollution through surface runoff. The SuDS Drainage scheme is detailed in the Sustainable Drainage Strategy (**Appendix 9-3**) but in summary comprises hardstanding incorporating areas of permeable surfacing which allows infiltration of runoff waters into a permeable substrate. The substrate will be hydraulically sealed from the underlying made ground (under the permeable substrate) using an impermeable membrane to prevent downward

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migration of runoff into the underlying groundwater system. This prevents any enhancement of mobilisation of any contamination in the made ground soils, and also prevents any oil spillage from entering the groundwater system. The infiltrated runoff within the substrate layer, which will provide SuDS source control for sediment and pollutants, is captured by a series of laterally-laid perforated pipes, directing the runoff to one of two suitably-sized Class 1 full retention interceptors, discharging to the Park Road Drain along the eastern site boundary. This drainage system will prevent the release of oil to the environment from worst case accidental spillages under all weather conditions.

It is also recommended that a soft start approach be implemented when the use and starting of heavy machinery is required. The soft-start methodology will be required every time machinery is started following a 30minute rest period. Once machinery is in full operation associated noise and vibration will keep fish outside of the area of influence allowing them time to leave the area of disturbance.

No lights from the site compound are to be directed at the river. All lighting, with the exception of safety lighting, should be directed away from the water surface and should be switched off at night once works have stopped.

The use of silt traps and or curtains has been suggested in order to trap any silt generated despite measures to attempt to reduce its production. It is essential that silt containment measures used are free flowing to avoid the accidental capture and death of fish. These traps should also be inspected on a regular basis to ensure no fish are trapped within them and to ensure they are working correctly.

Plant nappies and spill kits must be available and in working condition on site at all times with toolbox talks provided to ensure site staff are aware of potential risks and how to correctly use these response tools.

The use of silt traps and / or curtains within or marginal to watercourses will be required for works in close proximity to watercourses (for any necessary works within buffer zones) in order to trap any silt generated from ground disturbances etc, in addition to other measures implemented to control silt production. It is essential that silt containment measures used

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are not convoluted in form and will allow water to free flow through them to avoid any accidental capture and death of fish. These traps should also be inspected on a regular (at least daily) basis to ensure that any fish that are accidentally trapped within them are released quickly and to ensure the silt traps / curtains are working correctly. Silt traps shall only be in place within watercourses for the minimum period necessarily to facilitate the works and shall be removed as soon as possible after the works are completed, taking great care to inspect the materials being removed for the presence of fish and release any fish captured to the wild as close to the point of capture as possible.

A minimum of 15 metres must be retained as a buffer between the proposed development and the surrounding watercourses to reduce any potential impact (100m for River Foyle SAC).

Given that the development is riverine in nature, it is recognised that there will be a range of construction works required to be undertaken in close proximity to some watercourses (within the buffer zones) to implement the new park infrastructure.

For these activities with buffer zones, the following mitigation measures will apply as detailed as follows:-

- Where possible silt fencing shall be installed between the activity and any downslope watercourse at the maximum achievable buffer zone distance, or at an appropriate break in slope or natural containment feature if present.
- Where installation of silt fencing is not feasible, installation of shallow (0.2m deep) elongate cut-off trench downslope of the activity to catch sediment etc and prevent it reaching the watercourse. Reinstatement thereafter.
- Silt traps must be deployed in any minor watercourses immediately downstream of the works and inspected on a daily basis with any captured debris / silt removed to the waste storage area at the construction compound. The silt traps must be removed following completion of works within the buffer zone.
- Plant nappy style drip trays shall be deployed around all portable oil-containing equipment. These must be inspected on a daily basis and renewed as necessary with all contaminated materials removed from the site within 24 hours.

- 
- Double skinned fuel / oil bowsers only to be used. Bowsers to be locked at all times during transport, with access to the fuel controlled by the site manager. Bowsers shall be brought into to the buffer zone as and when required for refuelling of static plant only (cranes and piling rigs) and removed immediately to the construction compound thereafter. No fuel / oil bowsers shall be stored within the buffer zone.
  - It is permissible to undertake emergency repairs and essential maintenance of static plant, whilst positioned in the buffer zone, provided all appropriate oil spill prevention and clean-up measures are in place, including deployment of plant nappies under any works and spill kits are available at close quarters within the buffer zone.
  - Non-putrescible wastes to be stored in covered skips or covered bins which must be removed to the construction compound for emptying on a twice weekly basis. No putrescible wastes permitted in buffer zones.
  - The following activities are not permitted within Buffer Zones:-
    - Chemical storage (including road salt).
    - Vehicle servicing / mechanical repairs (apart from undertaking emergency repairs to static plant – cranes and piling rigs).
    - Vehicle / machinery parking, Lay-up or washing down.
    - Concrete Mixing, washing out.
    - Storing of stockpiles of soil, clay, cement, vegetation or any wastes.
    - Placement of welfare units.
  - All works within buffer zones must be approved in advance by the site manager.

Another key concern is the presence and potential spread of invasive species in the area. Both sides of the River Foyle exhibit extensive invasive species growth of Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*). There are also concerns over the presence of Asian clams (*Corbicula fluminea*) within and/or being introduced to the river itself and that proposed works may contribute to the spread of this species. Therefore, the following mitigation

---

measures are proposed to proactively prevent the introduction and spread of this species via construction machinery brought to the site: -

- Before any piece of construction 'machinery' including crane or mobile machinery / plant, (excavators, rollers, dumpers, tele-handlers etc.), is delivered to the site, the invasive species Clerk of Works shall be provided documentation providing details of all sites close to or involving works in water that the machinery has been working on or stored on in the last 60 days.
- The invasive species Clerk of Works may consider the need for additional biosecurity measures, such as quarantining or pre-delivery disinfection, for any high-risk machinery that has recently involved in in-river works.
- Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invasive bivalve species is as follows: -
  - On arrival at or departure from the site, **ALL** construction machinery and delivery vehicles travelling within the site beyond the construction compound/delivery bays should be visually inspected and disinfected in the biosecurity washing area of the Construction Compounds.
  - The disinfection process shall involve dosing of the exterior of the machinery with a diluted solution of 1% Vircon Aquatic solution or an approved alternative.
  - The machinery should then be power hosed with water of 60 °C + to remove disinfection solutions and any invasive species debris and any residual treated clams / eggs which may be present, followed by a final off-site visual inspection.
  - The treatment and inspection of machinery shall be overseen and approved by a qualified ecological Clerk of Works, including verification records to confirm completion of the disinfection for each piece of machinery, including any replacement / standby units intended to be used on the project. Records shall be retained for inspection by the client's representatives.
  - During the operational phase signage will be erected at key points within the site to advise that construction workers and users of the waterway at Riverine shall follow all relevant Invasive Species Ireland, NIEA & Loughs Agency Biosecurity Guidance before entering the site.

An invasive species management plan should be implemented along with strict biosecurity protocols to include thorough disinfection and cleaning of all machinery, vehicles and tools used within an area with invasive species, (see Appendix: 8-13). All staff should utilise foot dips and operate away from species such as giant hogweed which also poses a health and safety risk.

It is also recommended that all proposed construction works and mitigation measures within the SAC are carried out under the supervision of a qualified ecologist in the form of an ecological clerk of works, (ECOW).

Lighting was also raised as a concern due to its potential impacts on the local fish population. Fish are often attracted to light sources, and heavy underlighting of the bridge may cause unnatural illumination of the water surface, in particular, during the night-time hours. This may cause fish to congregate in large numbers near these light sources at the water surface making them more vulnerable to predation and poaching. Proposed lighting for the bridge structure includes the Garda Classic, asymmetric module at 2700K (less white light) and some feature lighting directed away so as to not directly land on the water surface.

**Table 9. Proposed Bridge Lighting Schedule**

Area	No.	Description	Image
Bridge	6	Handrail Lighting	
Bridge	7	Feature Lighting	

Bridge CCTV	Tubular CCTV columns with tilt over option	
----------------	---	--

Lower lux level lighting has been chosen with a warmer coloured light have been chosen in order to reduce potential impacts on local and migrating fish avoiding white, blue and green light as this can disorient and attract fish.

### 5.3 Conclusion

The River Foyle contains a diverse aquatic ecosystem and provides suitable habitat for commuting and residential fish species. Despite the lack of data for the River Foyle itself the survey data collected from the surrounding catchments and those rivers which are hydrologically linked, River Finn and Mourne, illustrates the importance of the Foyle River for migrant species such as Atlantic salmon. While overall there appears to have been a decrease in the last 50 years, currently numbers appear to be holding steady with the potential to improve so long as the riverine habitat is maintained and protected.

The mitigation outlined in this report provides suitable measures to help reduce any potential impacts on the river system and local fish stocks. This will allow for continued migration of the salmon and will minimise disturbance to the riverbed ecosystem utilised by many other species such as river lamprey. The project is not expected to have any impact on pinnipeds, sharks or cetaceans and the proposed mitigation will help prevent any impacts from spreading down river, keeping them localised to the immediate area of the bridge, and protecting the wider aquatic environment.

Due to the lack of survey data and proposed development methods it is recommended that regular monitoring of the site and the fish within the river be carried out throughout development to ensure proposed mitigation is thoroughly enforced and maintained.

---

**Report Prepared By: -**

**Reviewed By: -**

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**Emily Taylor BSc (Hons), MSc  
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---

## 6.0 REFERENCES

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**FIGURES**



**Figure 27. Salmon remains**



**Figure 28. Riverine Habitat**



**Figure 29. Banks of the Foyle Lifford Side**



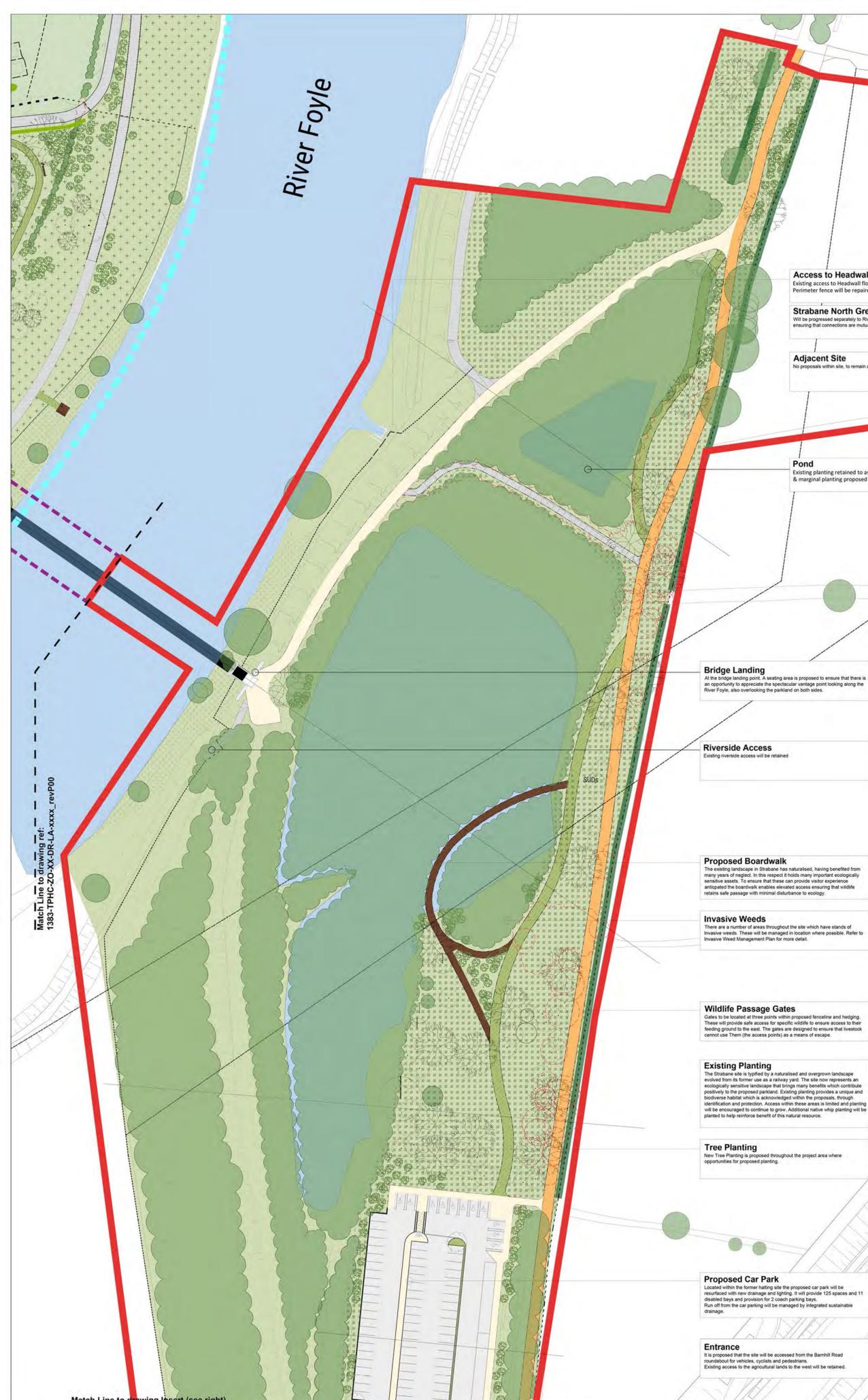
**Figure 30. Banks of the Foyle Strabane Side**

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## APPENDICIES

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## Appendix I: Proposed Site Layout Strabane



- LEGEND**
- SOFTWORKS**
- Existing Trees & Planting To be retained and protected during works in accordance with BS5827
  - Existing Trees & Planting To be removed. Groups identified in the absence of individual trees
  - Proposed Native Trees Refer to planting schedule
  - Proposed Native Wetland Trees Refer to planting schedule
  - Proposed Specimen Trees Refer to planting schedule and details
  - Proposed Hedgerow planting Refer to planting schedule and details
  - Proposed Amenity Grassland Refer to planting schedule
  - Proposed Wildflower (WF1) Refer to planting schedule
  - Proposed Woodland Wildflower (WF2) Refer to planting schedule
  - Proposed Riverside Edge Mix Refer to planting schedule. To be prepared and supplied as turf
  - Proposed SUDS Mix Refer to planting schedule. To be prepared and supplied as turf
  - Proposed Native shrubs Refer to planting schedule
  - Proposed Ornamental shrubs Refer to planting schedule
- SURFACES**
- Proposed Asphalt To pedestrian and Cycleway For detail refer to engineers drawing
  - Proposed Asphalt Vehicular For detail refer to engineers drawing
  - Strabane North Greenway Progressed separately to this project
  - Proposed High Friction Surface To pedestrian crossing Strabane bridge For detail refer to engineers drawing
  - \*Natural Stone Paving Refer to detail
  - Proposed Boardwalk Refer to detail
  - Reinforced Grass Refer to detail
  - Proposed Gravel Path Refer to detail
  - \*Proposed Slipway Surface Refer to detail also engineers drawings for detail
  - \*Wetpour Safety Surfacing Refer to detail
  - \*Reinforced Grass Safety Surfacing Refer to detail
  - \*Play Bark Safety Surface specifically for play areas
  - Stone Clusters Refer to detail
- FEATURES**
- Existing Walls To be retained
  - Existing Fencing To be retained / replaced as required
  - 2.4m Security Fencing Refer to detail
  - Metal Estate Fencing Refer to detail
  - Stock Proof Fencing Refer to detail
  - Existing Fencing to be removed
  - Steps and Terracing Refer to detail
  - Proposed Benches Refer to detail
  - Bicycle stand locations Typical Sheffield stand
  - Proposed Litter Bins 100L bins with single 300L recycled bin adjacent to Community Facilities
  - Proposed Metal Gates Refer to detail
  - Vehicular Upstand Kerb 125mm upstand. Pre Cast Concrete
  - Vehicular Flush Kerb Pre Cast Concrete
  - Pis Kerb Pre Cast Concrete
- MISCELLANEOUS**
- Site Boundary - Application under Roads Act, Section 51(2)
  - Adjoining Rivierine Community Park Boundary (R0)
  - Rivierine Community Park Boundary (N)
  - Proposed Bridge
  - Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying or planting pattern
- Layout should be read in conjunction with all other drawing information and reports
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length
- For proposed drainage refer to engineers layout
- For lighting, electrical requirements refer to M&E drawings
- Walking Routes & Connections All main routes within the park boundary will be accessible to the broadest range of abilities. In accordance to Countryside Access code
- Riverside Access Existing riverside access to be retained
- Planting The general planting strategy is to use a primarily native planting palette, introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and added to create diversity and improve ecological benefit. This planting will be suggested from the naturalised fauna surveyed.
- Bridge Refer to engineers proposals
- Invasive Weeds Refer to invasive weed management plan
- Topographic Survey Information There are substantial areas within the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to have been made with regard detail of:

**Planting Loss:**  
The extent of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.

Guarding is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref. 2072

The revision cloud highlighted areas of the park which were inaccessible for the

This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.

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Rev	Issue Date	Description	Author
P02	26.01.2022	Reissued for Planning (amended car park location)	DM
P01	13.09.2021	Issued for Planning	HB
P00	19.08.2021	Issued for Planning	HB

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Dhúna na nGall  
Donegal County Council

Project Status  
**STAGE 3 - PLANNING**

Project  
**RIVERINE COMMUNITY PARK**

Drawing  
**STRABANE RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale  
**1:500 @ A0**

Drawn	Checked	DM	Approved	DM
Date: 12.02.2021	Date: 12.02.2021	Date: 12.02.2021	Date: 19.08.2021	

Project Organisation - Zone - Level - Type - Role - Number  
RVCPC - TPHC - Z0 - XX - DR - LA - 2051

Revision  
ST2 Issued for Information

Project Number  
1383

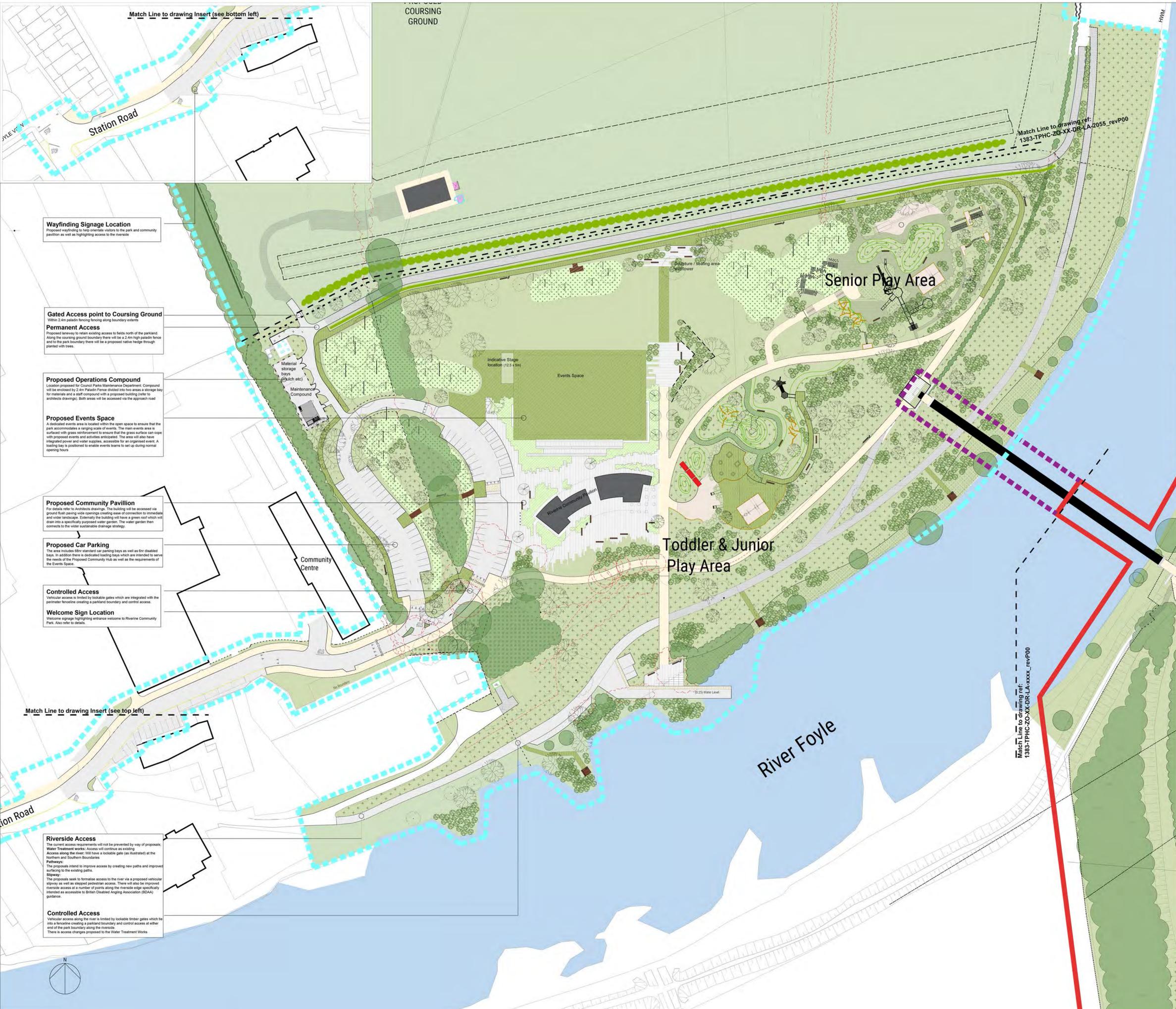
Sheet code & Description  
ST2 Issued for Information

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Drawing Insert  
Scale 1:500 @ A0

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## Appendix II: Proposed Site Layout Lifford



**LEGEND**

**SOFTWORKS**

- Existing Trees & Planting
- Existing Trees & Planting (To be removed)
- Proposed Native Trees
- Proposed Native Wetland Trees
- Proposed Specimen Trees
- Proposed Hedgerow plantings
- Proposed Amenity Grassland
- Proposed Wildflower (WF1)
- Proposed Woodland Wildflower (WF2)
- Proposed Riverside Edge Mix
- Proposed SUDS Mix
- Proposed Native shrubs
- Proposed Ornamental shrubs
- \*Proposed Grass Mounding

**SURFACES**

- Proposed Asphalt
- Proposed Asphalt
- Proposed High Friction Surface
- \*Natural Stone Paving
- Proposed Boardwalk
- Reinforced Grass
- Proposed Gravel Path
- \*Proposed Slipway Surface
- \*Wetpou Safety Surfacing
- \*Reinforced Grass Safety
- \*Play Bark Safety Surface

**FEATURES**

- Existing Walls
- Existing Fencing
- 2.4m Security Fencing
- Metal Estate Fencing
- Stock Proof Fencing
- Existing Fencing to be removed
- Steps and Terracing
- Proposed Benches
- Bicycle stand locations
- Proposed Litter Bins
- Proposed Metal Gates
- Vehicular Upstand Kerb
- Vehicular Flush Kerb
- Pin Kerb

**MISCELLANEOUS**

- Riverine Community Park Boundary (NI)
- Riverine Community Park Boundary (RI)
- Site Boundary - Application under Roads Act, Section 51(2)
- Proposed Bridge
- Water

**NOTES**

- All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated.
- All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- All hatches are indicative and do not relate to the actual laying or planting pattern.
- Layout should be read in conjunction with all other drawing information and reports.
- All new kerbs adjacent to existing roads will require a 300mm reinstatement strip within the carriageway running the entire length.
- For proposed drainage refer to engineers layout.
- For lighting, electrical requirements refer to MSE drawings.
- Walking Routes & Connections: All main routes within the park boundary will be accessible to the broadest range of abilities, in accordance to Countryside Access code.
- Riverside Access: Riverside access to be retained.
- Planting: The general planting strategy is to use a primarily native planting palette introducing some specimen trees within the new car park to add formality. Where possible existing areas of native planting will be increased and supplemented to create diversity and improve ecological benefits. This planting will be suggested from the naturalised fauna surveyed.
- Suds: Attenuation basin locations and extents shown indicatively. Basins will be planted with a mix of native wet woodland (indicated with trees) and marginal type planting (indicated with hatch) to highlight their location and integrate them as an attractive feature within the overall site context.
- Bridge: Refer to engineers proposals.
- Invasive Weeds: Refer to invasive weed management plan.
- Topographic Survey Information: There are substantial areas of the Project boundary that remain unsurveyed (due to poor access). In this respect assumptions have had to be made with regard detail of.
- Planting Loss: The extents of existing vegetation and wetland are shown indicatively. In this regard the amount of trees (shown within a group) identified as removed is unclear.
- Guarding: is not identified on the layouts but will be located on pathways adjacent to an immediate level change of 600mm or greater or slopes steeper than 1:2. Guarding will be 1100mm high responding to building regulations and countryside access code. As an example please refer to Boardwalk drawing ref. 2022.
- Play Areas: The Play areas have been located next to the existing embankment making the most of connecting paths and using graded terracing to maximise accessibility through the play spaces. Play equipment within both the Junior / Senior play areas will also be considered to ensure broadest age range and ability is catered for. Also refer to the section drawing which illustrates section through the accessible High Tower in the Senior Play Area.
- Legend: All items with \* are only relevant to Lifford.

*The revision cloud highlighted areas of the park which were inaccessible for the*

*This is a concept design that illustrates the main elements to be delivered within the park. The exact location, layout and smaller details of the park may change during the detailed design phase.*

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PO1	13.09.2021	Issued for Planning	HB
Rev	19.02.2021	Issued for Planning	HB

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Donegal County Council

Derry City & Strabane District Council  
Comhairle Chontair Dhún na nGall  
Donegal County Council  
Derry City & Strabane District Council

Project Status

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**LIFFORD RIVERINE COMMUNITY PARK LANDSCAPE LAYOUT (NI PLANNING)**

Scale

**1:500 @ A0**

Drawn	HB	12.02.2021	Checked	DM	12.02.2021	Approved	DM	19.08.2021
Date			Date			Date		

Project - Organisation - Zone - Level - Type - Role - Number

1383 - TPHC - Z0 - XX - DR - LA - 2052 - P01

Project Number

1383

Issue title & Description

ST2 Issued for Information

All dimensions are in metres. P figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

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## Appendix III: CEDaR Fish Records with 2km Buffer



**Legend**

- CEDaR Fish Records
- Red Lined Boundary
- Buffer

Appendix III: CEDaR Fish Records with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:60961 @ A3

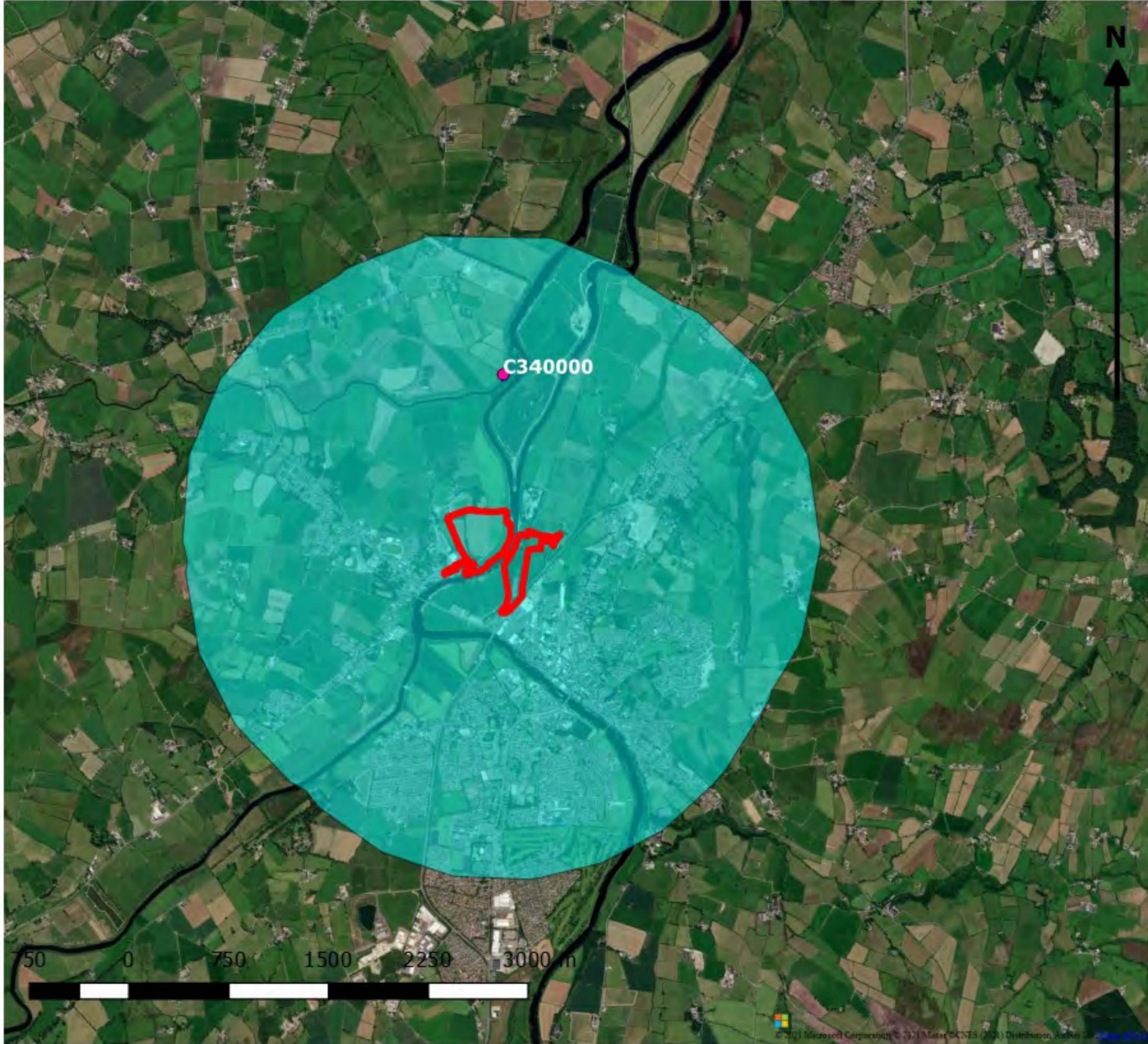
Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue Street  
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 Tel: 02890747766

---

## Appendix IV: NPWS Fish Records with 2km Buffer



### Legend

-  NPWS Fish Records
-  Red Lined Boundary
-  Buffer

Appendix III: NPWS Fish Records with 2km Buffer

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:39881 @ A3

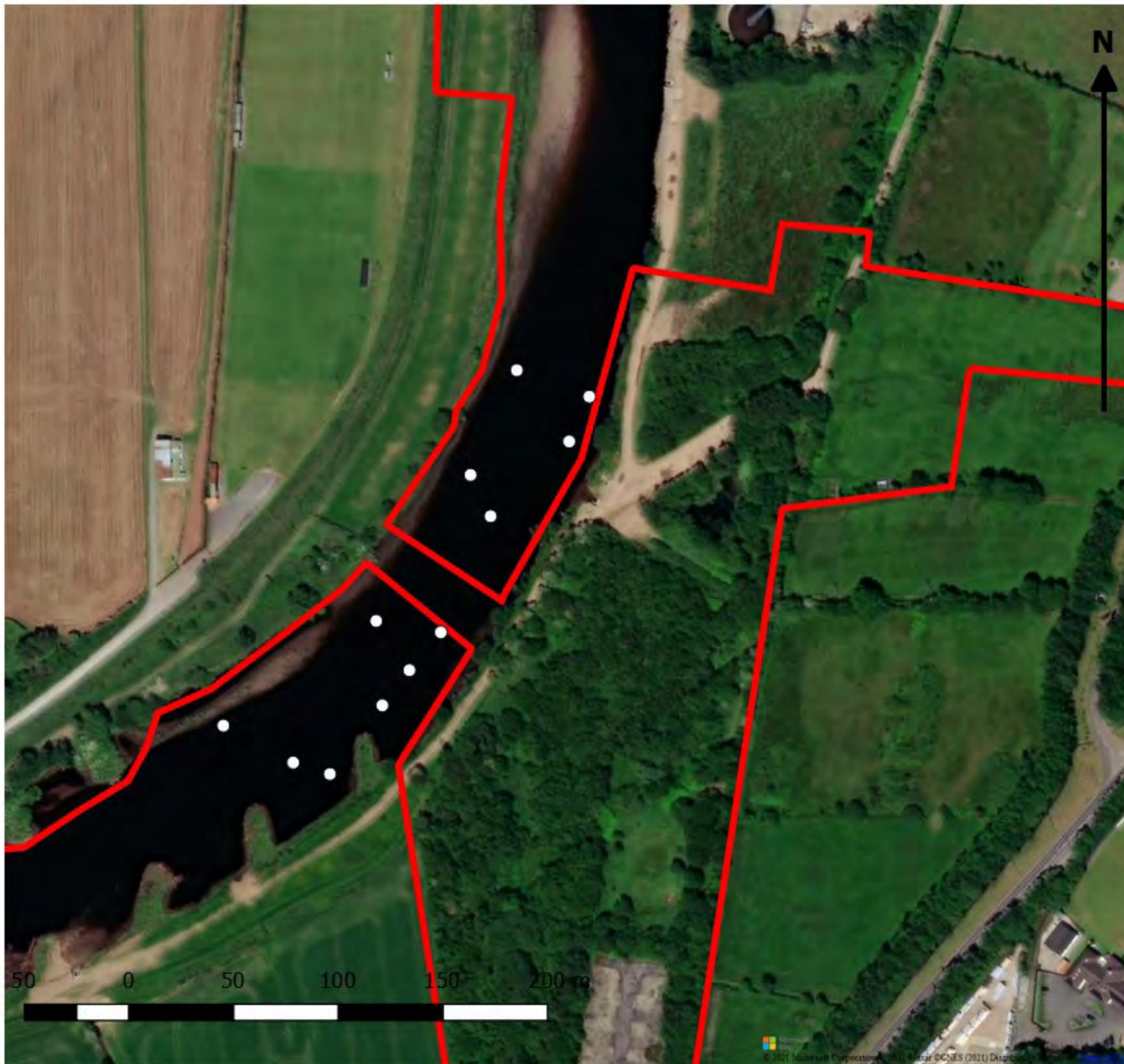
Date: 08/08/2021



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Tel: 02890747766

---

Appendix V: Salmon Jumps 06.07.2021



## Legend

- Salmon Jumps 06/07/2021
- Red Lined Boundary

Appendix V: Salmon Jumps 06.07.2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:2576 @ A3

Date: 08/08/2021



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---

Appendix VI: Salmon Jumps 15.07.2021



## Legend

- Salmon Jumps 15/07/2021
- Red Lined Boundary

Appendix VI: Salmon Jumps 15.07.2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:2576 @ A3

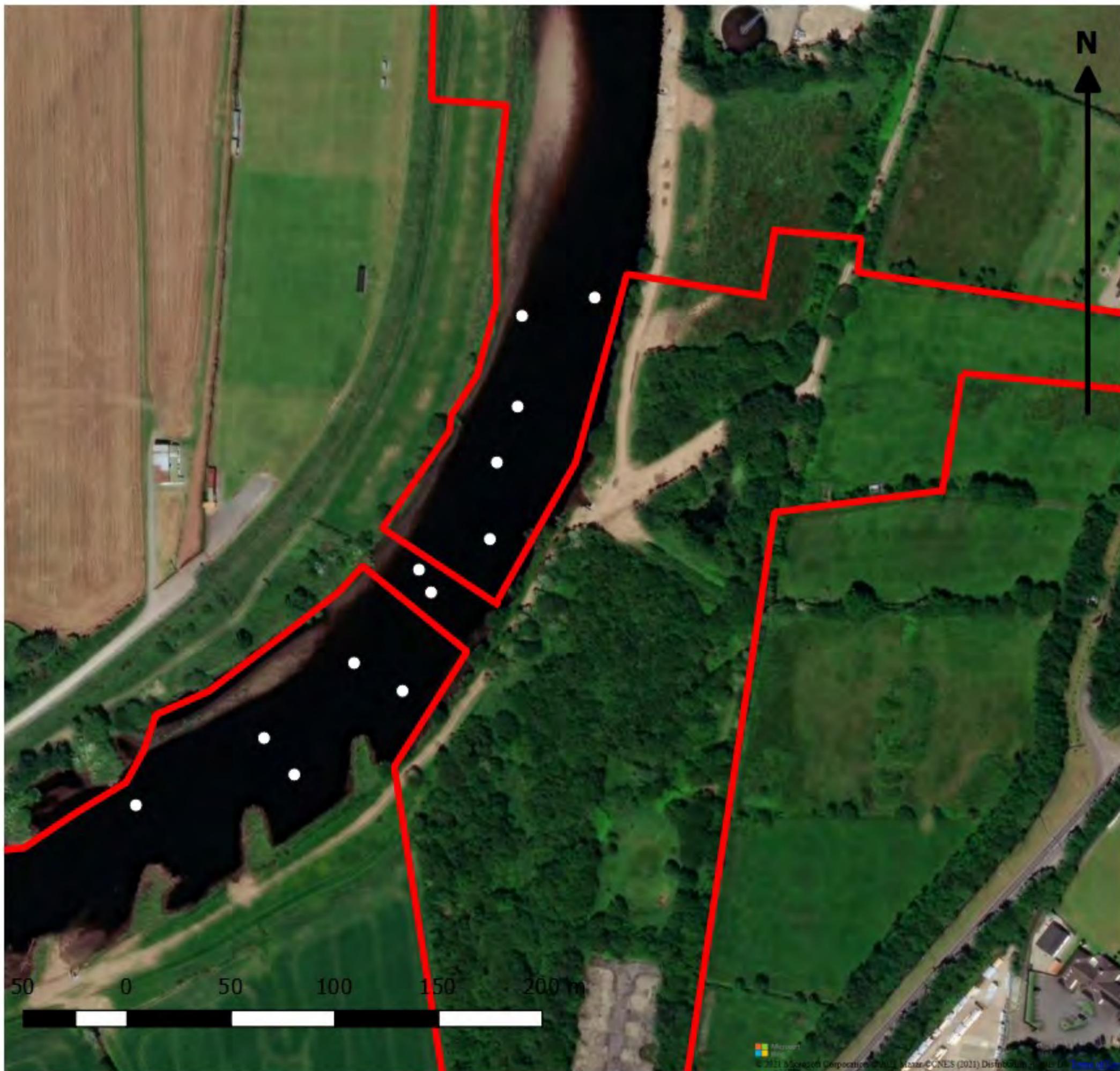
Date: 08/08/2021



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---

Appendix VII: Salmon Jumps 20.07.2021



## Legend

- Salmon Jumps 20/07/2021
- Red Lined Boundary

Appendix VII: Salmon Jumps 20.07.2021

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:2576 @ A3

Date: 08/08/2021



Unit 5, Forty Eight North, Duncrue  
Street  
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BT3 9BJ  
Tel: 02890747766

Appendix VIII: A5 Freshwater Fish Electrofishing and Netting Survey Results

River	Aquatic site number	Species recorded (composition and abundance)
<b>Burn Dennet</b>	6	Atlantic salmon: 2 Brown trout: 2 European eel: 4 Lamprey sp.: 34 Flounder: 1 3-spined stickleback: 2 Minnow: 63
<b>Glenmornan River</b>	7	Atlantic salmon: 21 Brown trout: 3 European eel: 4 Flounder: 30 3-spined stickleback: 1
<b>Mourne River</b>	8	Atlantic salmon: 4 Brown trout: 5 Flounder: 60 Stone loach: 1 Minnow: 183 3-spined stickleback: 498
<b>River Finn</b>	9	Atlantic salmon: 2 Lamprey: 1 Flounder: 1 Stone loach: 1 Minnow: 103 3-spined stickleback: 414
<b>Mourne River</b>	10	Brown trout: 2 European eel: 2 Lamprey: 32 Flounder: 10 Stone loach: 10 Gudgeon: 1 Minnow: 65 3-spined stickleback: 3

River	Aquatic site number	Species recorded (composition and abundance)
River Derg	14	Atlantic salmon: 31 Brown trout: 3 European eel: 4 Stone loach: 15 Roach: 1 Minnow: 51
River Strule	18	Atlantic salmon: 25 Brown trout: 15 Lamprey: 2 Minnow: 61 3-spined stickleback: 28
River Strule	20	Atlantic salmon: 1 Stone loach: 6 Roach: 3 Minnow: 416 3-spined stickleback: 22
Fairy Water	28	Brown trout: 1 Pike: 1 Roach: 39 Gudgeon: 90 Perch: 3
Drumragh River	32	Atlantic salmon: 3 Lamprey: 1 Stone loach: 12 Minnow: 61 3-spined stickleback: 1
Camowen River	34	Atlantic salmon: 31 Brown trout: 3 Lamprey: 6 Stone loach: 33 innow: 6
Ranelly Drain	36	Atlantic salmon: 11 Brown trout: 1 Stone loach: 83

River	Aquatic site number	Species recorded (composition and abundance)
Routing Burn	38	Brown trout: 13 Lamprey: 7 Stone loach: 9 Minnow: 3 3-spined stickleback: 1
Roughan River	41	Brown trout: 7 Lamprey: 18 3-spined stickleback: 2
Ballygawley River	42	Brown trout: 3 Stone loach: 3 3-spined stickleback: 1
River Blackwater	47	Minnow: 5

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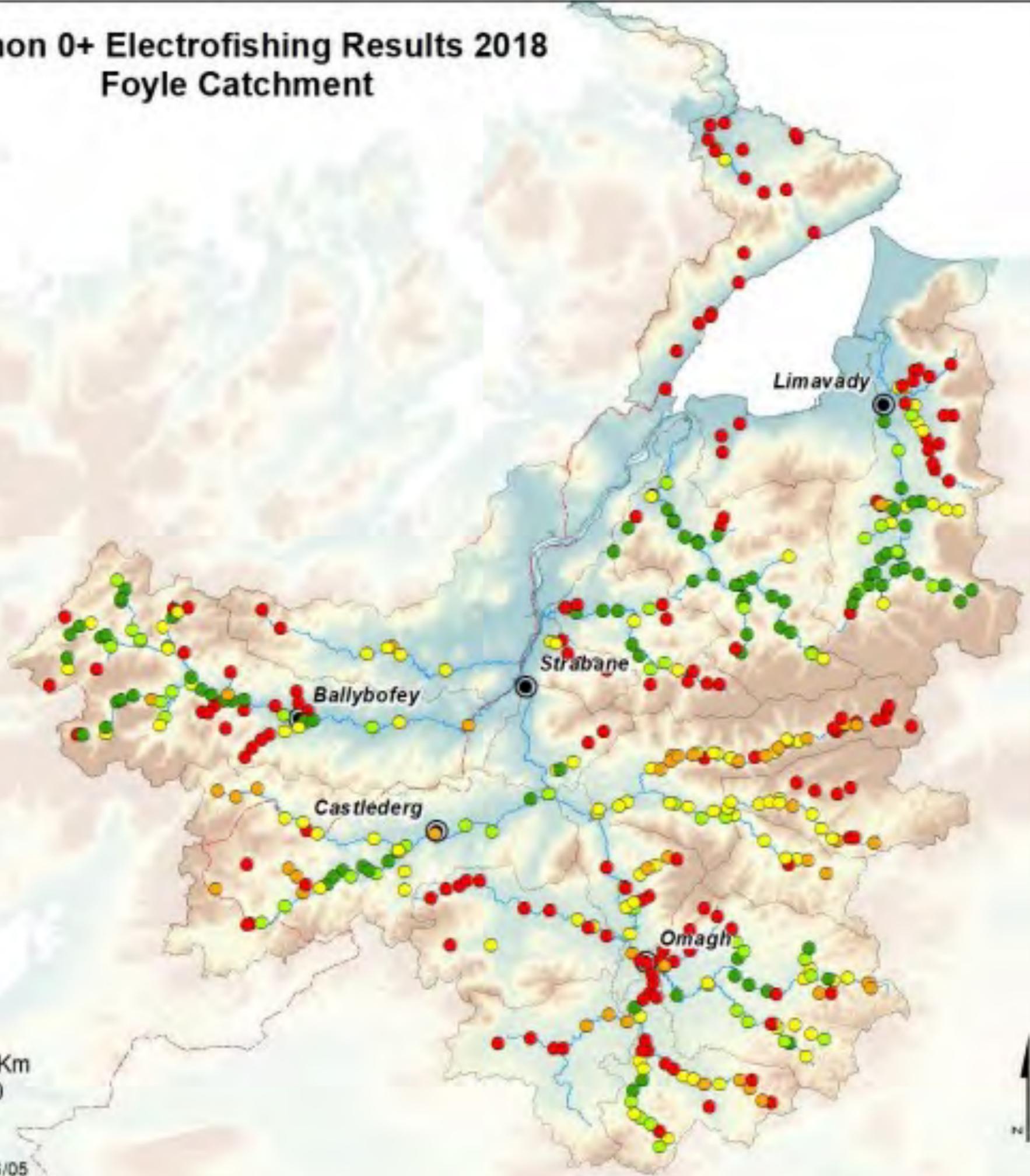
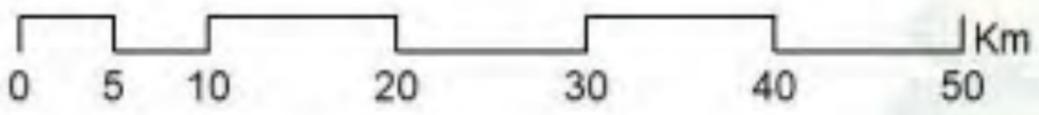
Appendix IX: Foyle Area Salmon Electrofishing Classifications 2018 Loughs Agency

# Salmon 0+ Electrofishing Results 2018 Foyle Catchment



## Salmon 0+

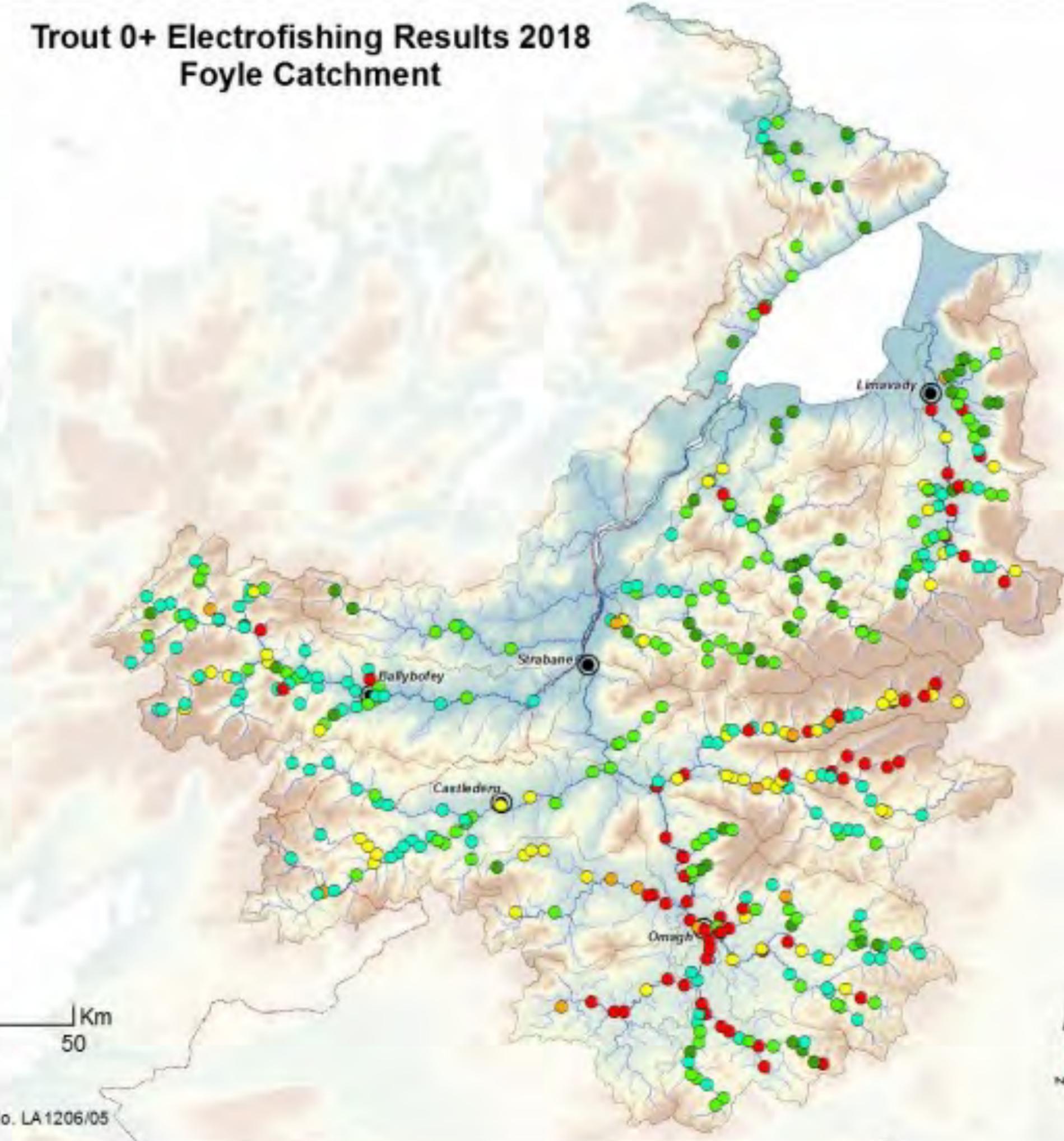
- None (0)
- Poor (1 - 4)
- Fair (5 - 14)
- Good (15 - 24)
- Excellent (25+)
- Major Towns



---

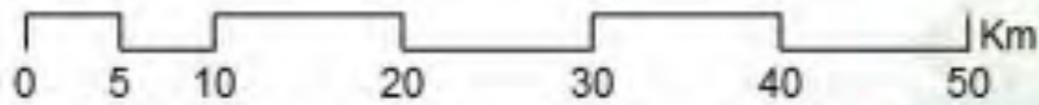
Appendix X: Foyle Area Trout Electrofishing Classifications 2018 Loughs Agency

# Trout 0+ Electrofishing Results 2018 Foyle Catchment



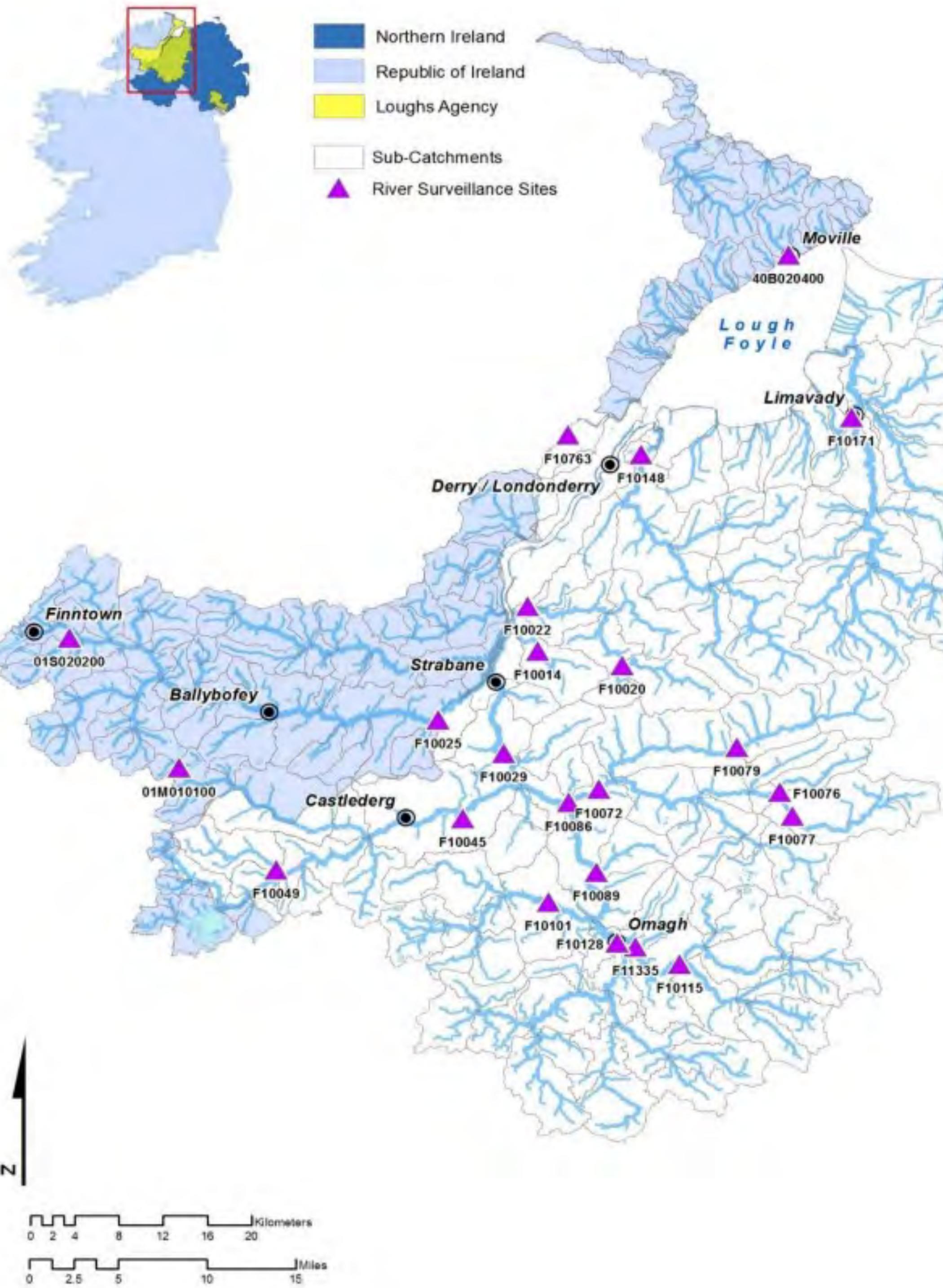
## Trout 0+

- Absent (0)
- Poor (0 - 1)
- Poor/Mod (2 - 3)
- Fair (4 - 8)
- Good (9 - 17)
- Excellent (18+)
- Major Towns



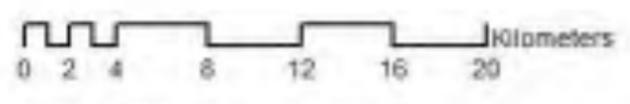
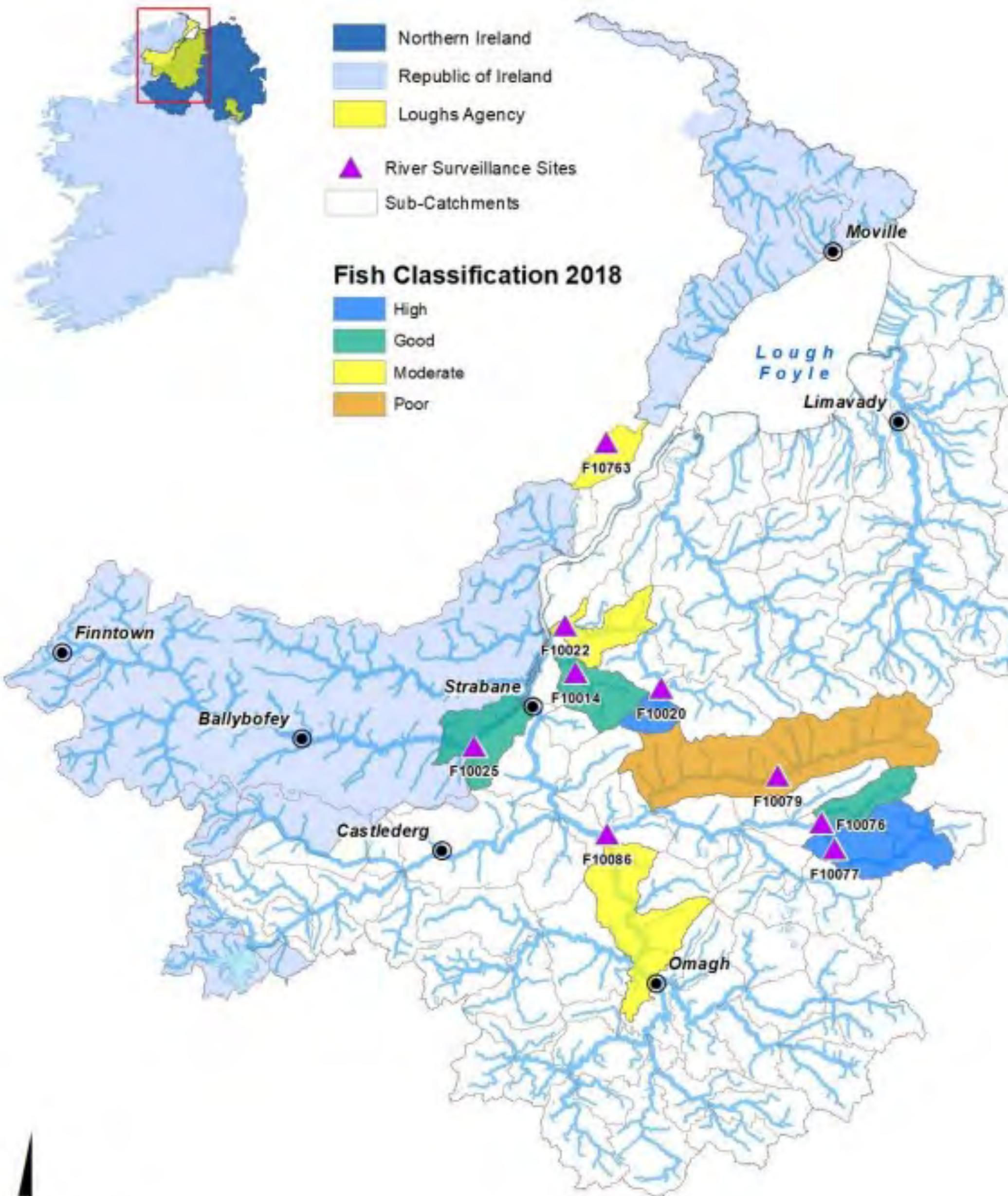
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## Appendix XI: Fish Surveillance Monitoring Stations Within the Foyle Area Loughs Agency



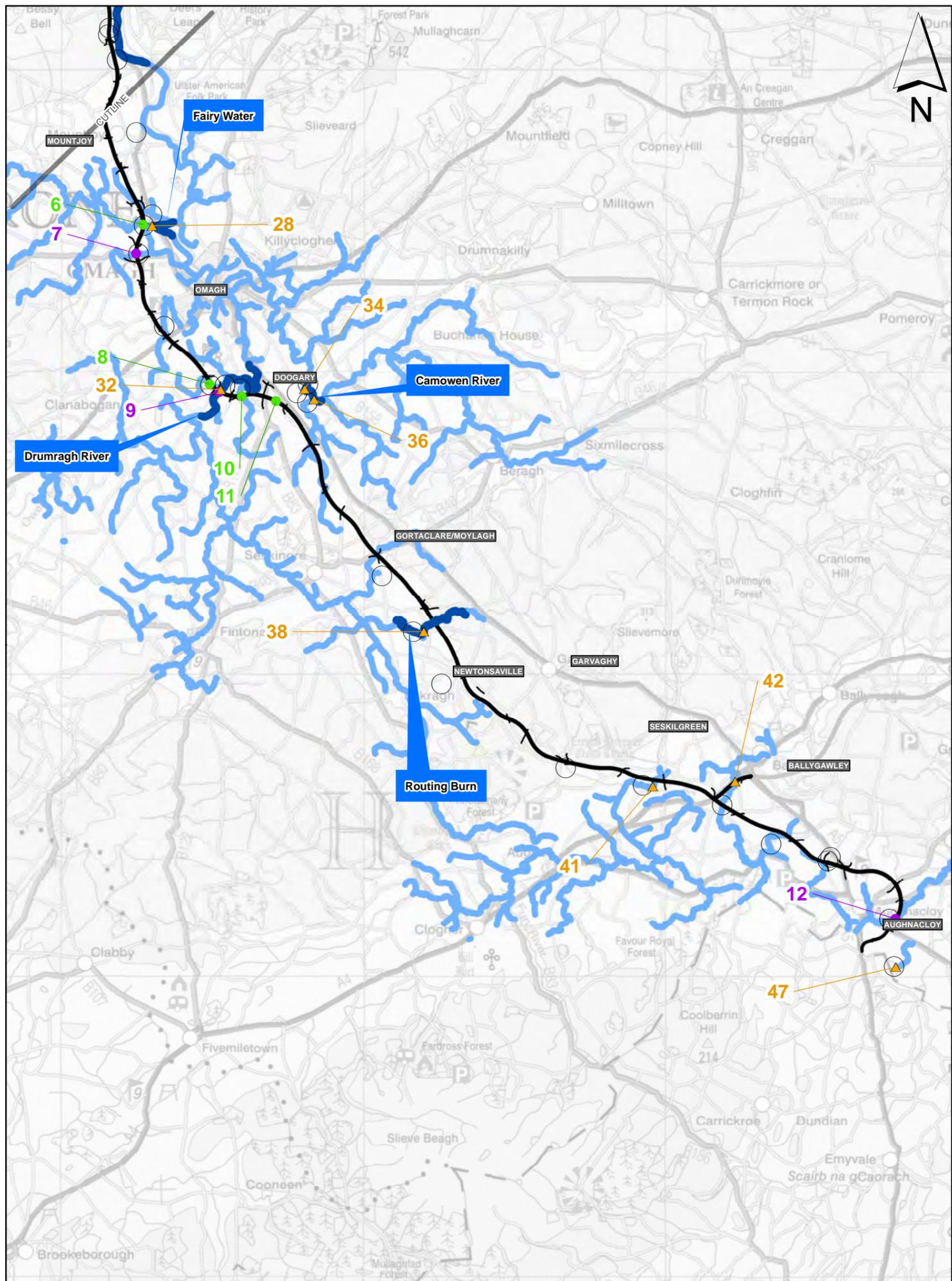
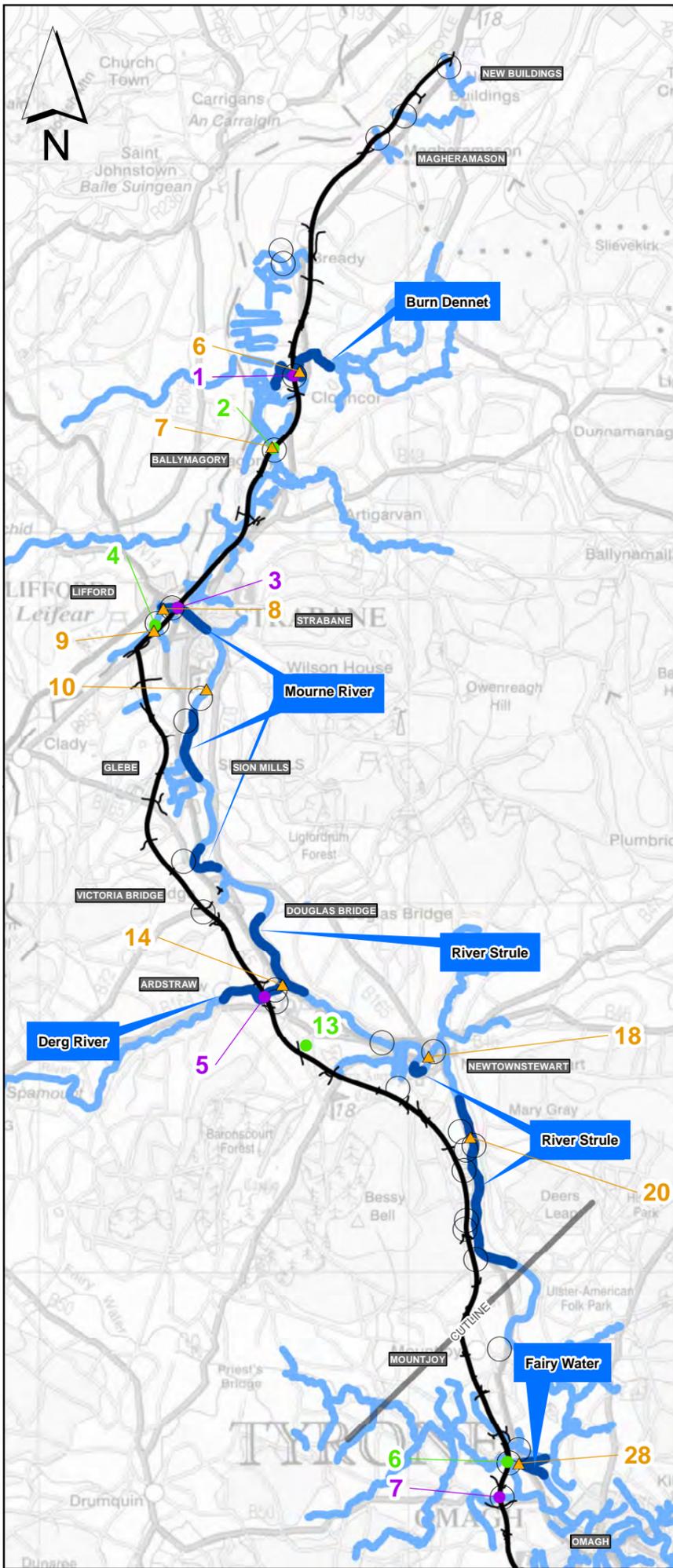
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Appendix XII: Lough's Agency WFD Fish Surveillance Water Body Classifications 2018 Foyle Area



---

## Appendix XIII: A5 River Biodiversity Map



**Legend**

- PROPOSED SCHEME
- MACROPHYTE SURVEY (2009 & 2013)
- MACROPHYTE SURVEY (2009)
- ▲ FISH SURVEY SITE (2009)
- RIVER HABITAT SURVEY SITE

WATERCOURSES CONTAINING IMPORTANT SALMONID HABITAT, INCLUDING HOLDING, SPAWNING AND NURSERY HABITAT (Data Supplied by Loughs Agency)

0 2 4 8  
Kilometres

Scale @A3  
**1:150,000**

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Client  
**transportni**

Project  
**A5WTC**

**mouchel**  
building great relationships

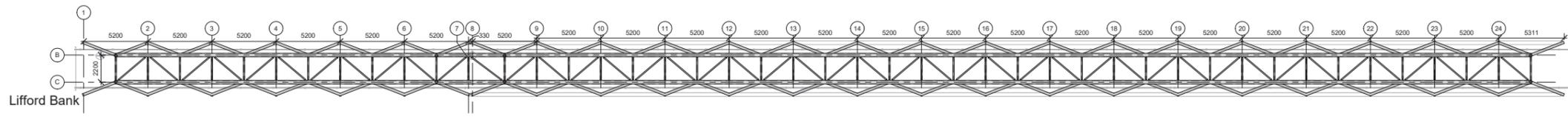
Drawing Title  
**ENVIRONMENTAL STATEMENT  
MACROPHYTES AND FRESHWATER FISH**

Figure No  
**Figure 11.35**

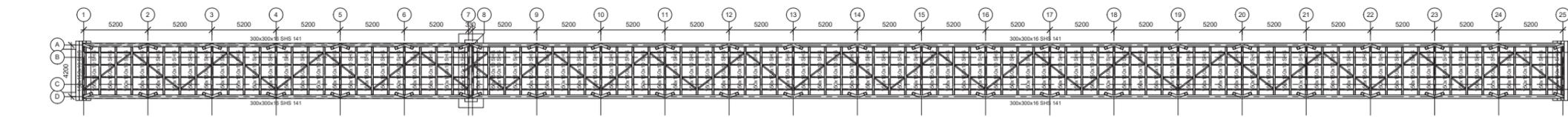
Version  
A

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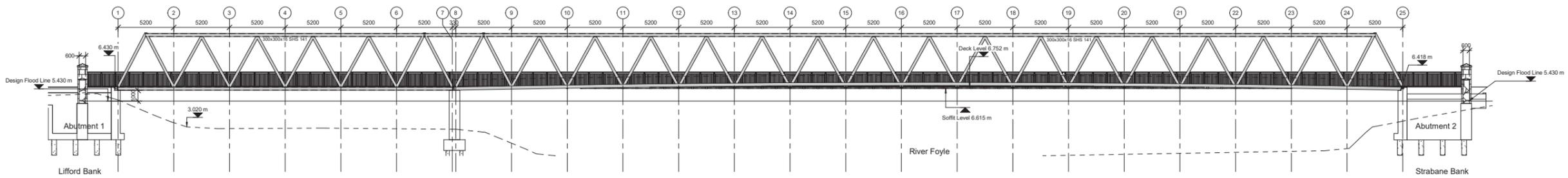
## Appendix XIV: Proposed Bridge Design



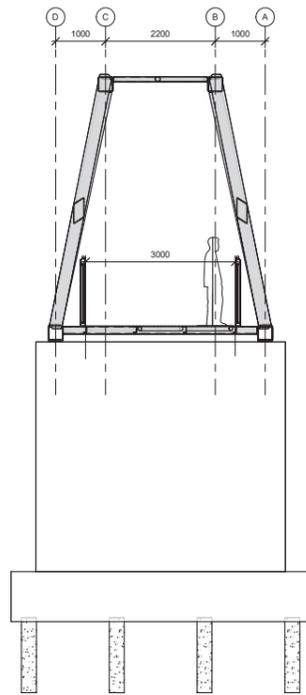
Plan View @ Top Rail  
Scale: 1 : 150



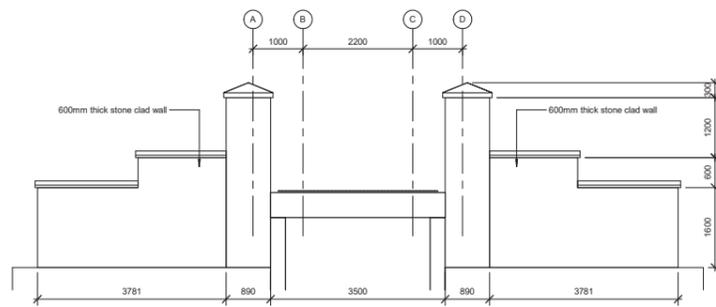
Plan View @ Deck Level  
Scale: 1 : 150



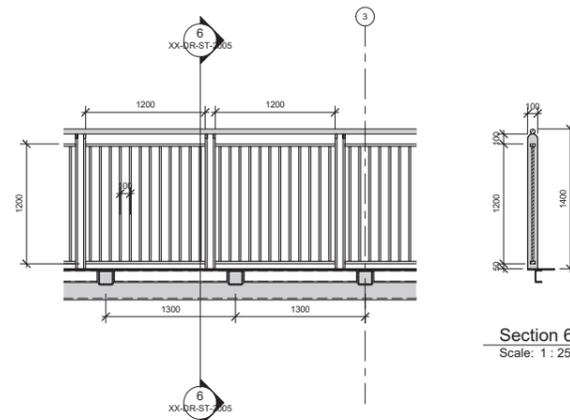
Typical Bridge Section  
Scale: 1 : 150



Typical Bridge Section  
Scale: 1 : 50



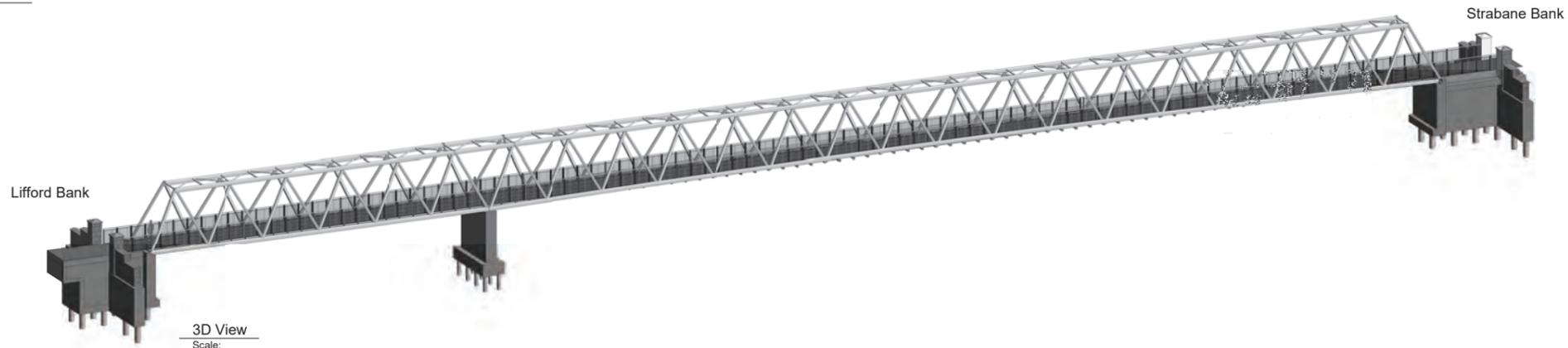
Elevation on Bridge Entrance  
Scale: 1 : 50



Parapet Detail  
Scale: 1 : 25



View point from Lifford side towards Strabane side



3D View  
Scale:

- NOTES
- All dimensions are in mm unless otherwise noted. Do not scale.
  - All levels to be A.O.D.
  - This drawing to be read in conjunction with all relevant drawings.
  - The Contractor shall verify all existing conditions and dimensions prior to beginning construction and/or ordering materials. Any discrepancies shall be brought to the attention of the Engineer immediately.
  - All in-situ concrete to be in accordance with Specification Appendix 17/1. All in-situ concrete must be vibrated and compacted in secure formwork, all workmanship, materials, etc. to BS EN 1992-3 & UK Annex BS8007 and BS8110.
  - Reinforcement in accordance with BS 4449:2005 scheduled as class H shall be Grade B500A, Grade B500B or Grade B500C. Scheduling, dimensioning, bending and cutting of steel reinforcement for concrete i.a.w. BS 8666:2005. Steel fabric for reinforcement of concrete to BS 4483:2005, minimum lap 400mm. All securely fixed and held with minimum cover.
  - Any dowel bars required to be Hot Dip Galvanised to BS EN 1461:1999.
  - Concrete finishes to Series 1700, Clause 1708.4.
  - F1 - all vertical buried surfaces.  
U1 - all horizontal buried surfaces.  
F2 - stair risers  
U2 - stair treads  
F3 - N/A  
U3 - N/A  
F4 - all exposed vertical surfaces including Navigation lock walls, Steel Sheet Pile Capping Beam, Bridge Piers and Bridge Abutments.  
U4 - all exposed horizontal surfaces including Lockside Reinforced Concrete slab, Navigation Lock walls, Steel Sheet Pile Capping Beam, Bridge Piers and Bridge Abutments.
  - Joint fillers, sealants, waterstops including secura clips, etc. shall be installed strictly i.a.w. manufacturer's instructions.
  - 75mm binding concrete to be provided below all foundations and ground beams as mass concrete in accordance with Appendix 17/1 or prescribed max S11.
  - All surfaces to be clean, free of water & loose material before placing of the concrete.
  - All external arises to have 25mm x 25mm chamfer unless noted otherwise.
  - All buried surfaces shall be painted with two coats of bitumen emulsion and primer coat in accordance with Series 2000 of the MCHW.
  - 6N Structural Fill to be used to raise levels in Lockside areas.

P01 10.09.21 Stage 3 Issue - Planning

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Northern Ireland - Ireland

Client  
Comhairle Contae  
Dhúna na nGall  
Donegal County Council

Project Status  
STAGE 3 - PLANNING

Project  
RIVERINE  
COMMUNITY PARK

Drawing  
Proposed Bridge Layout

Scale: @ A0	0.5	0	0.5	1	1.5	2	2.5
As indicated	SCALE 1:50						
Drawn	FD	Checked	BO	Approved	BO		
Date	06.09.21	Date	06.09.21	Date	06.09.21		
Drawing No.	RVCP-MCA-Z4-XX-DR-ST-2005						P01
Project Number:	E2256		Status Code & Description		S3		

All dimensions are in millimetres. Figured dimensions to be taken in preference to scale dimensions. Dimensions to be checked onsite. © 2020 McAdam Design Ltd.  
Plot Date: 10-Sep-21 7:54:01 AM

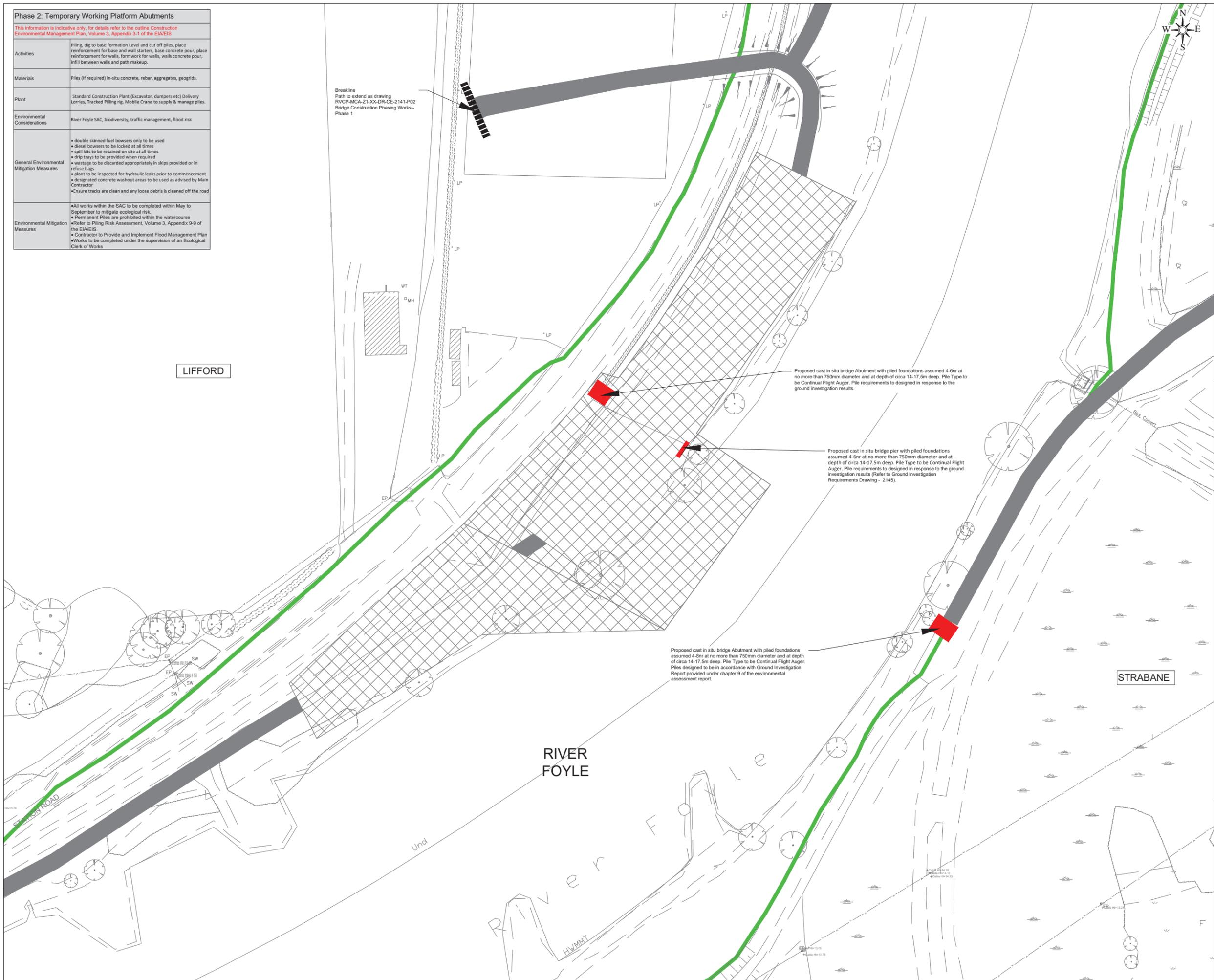
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## Appendix XV: Temporary Platform

**Phase 2: Temporary Working Platform Abutments**

This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS

Activities	Piling, dig to base formation level and cut off piles, place reinforcement for base and wall starters, base concrete pour, place reinforcement for walls, formwork for walls, walls concrete pour, infill between walls and path makeup.
Materials	Piles (if required) in-situ concrete, rebar, aggregates, geogrids.
Plant	Standard Construction Plant (Excavator, dumpers etc) Delivery Lorries, Tracked Piling rig, Mobile Crane to supply & manage piles.
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• double skinned fuel bowers only to be used</li> <li>• diesel bowers to be locked at all times</li> <li>• spill kits to be retained on site at all times</li> <li>• drip trays to be provided when required</li> <li>• wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>• plant to be inspected for hydraulic leaks prior to commencement</li> <li>• designated concrete washout areas to be used as advised by Main Contractor</li> <li>• Ensure tracks are clean and any loose debris is cleaned off the road</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• All works within the SAC to be completed within May to September to mitigate ecological risk</li> <li>• Permanent Piles are prohibited within the watercourse</li> <li>• Refer to Piling Risk Assessment, Volume 3, Appendix 9-9 of the EIA/EIS.</li> <li>• Contractor to Provide and Implement Flood Management Plan</li> <li>• Works to be completed under the supervision of an Ecological Clerk of Works</li> </ul>



- NOTES**
1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
  2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.



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P02	21/04/2022	ABPFI Platform Area Increased	P McM
Rev	Issue Date	Description	App

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European Regional Development Fund

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Donegal County Council

Derry City & Strabane District Council  
Comhairle Chathair Dhóire & Chantair an tSráine Bám  
Derry City & Strabane District Council

Project Status: **STAGE 3 - PLANNING**

Project: **RIVERINE COMMUNITY PARK**

Drawing: **BRIDGE CONSTRUCTION PHASING WORKS - PHASE 2**

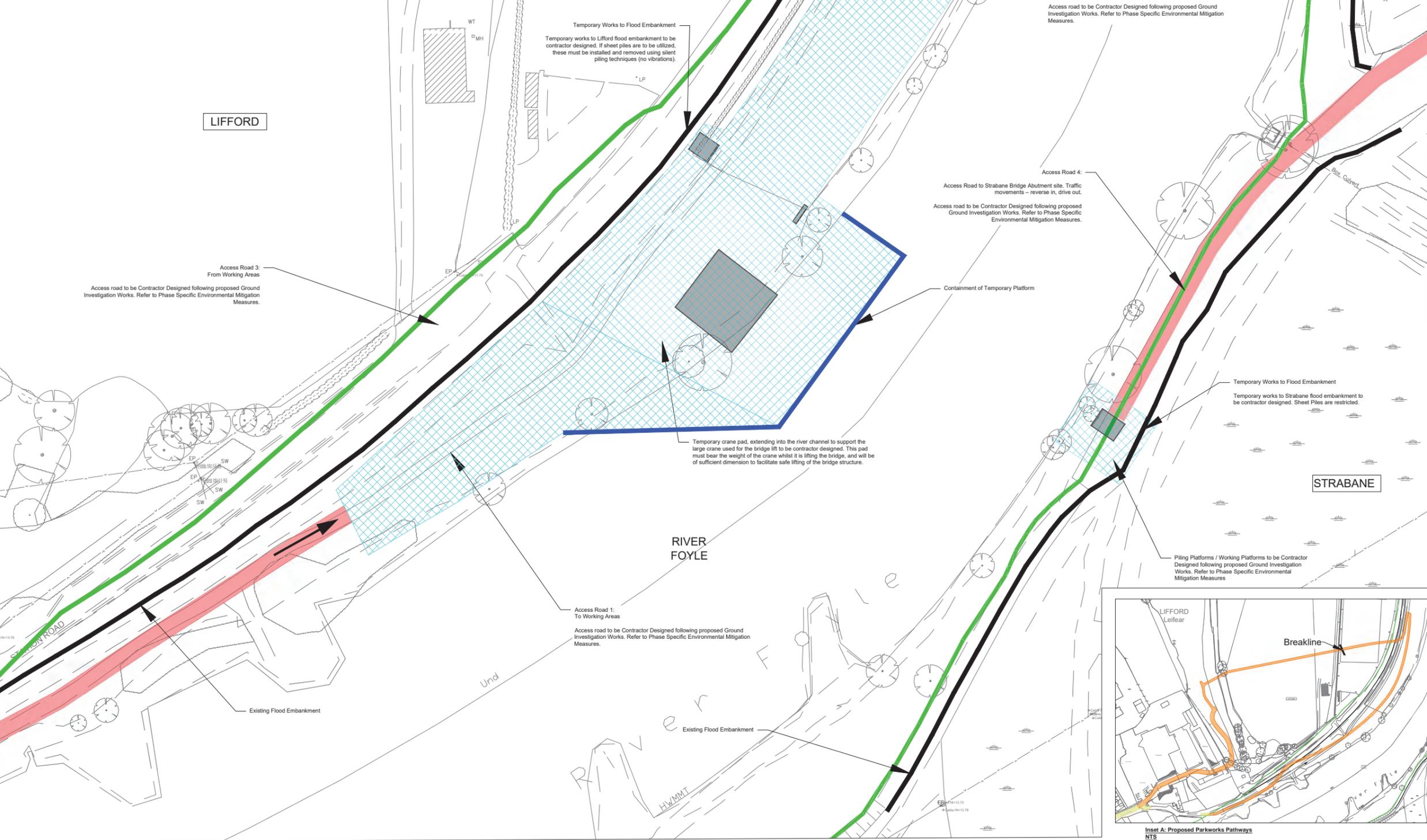
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Drawn CR	Checked DA	Approved CM
Date 25/08/21	Date 25/08/21	Date 25/08/21

Project	Organisation	Zone	Level	Type	Role	Revision
RVCP	MCA	Z1	XX	DR	CE	2142
Project Number	Status code & Description					
E2256	S2 - For Information					

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Phase 1: Haul Road & Working Area Construction	
<i>(This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS)</i>	
Activities	Construction of Access Roads and Realignment and Construction of Temporary Flood Embankments
Materials	Aggregates, geotextiles, geogrids, sheet piles (if applicable)
Plant	Standard Construction Plant (Excavator, dumpers etc) Delivery Lorries, Rollers, hydraulic ram, tracked piling rig.
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• double skinned fuel bowsters only to be used</li> <li>• diesel bowsters to be locked at all times</li> <li>• spill kits to be retained on site at all times</li> <li>• drip trays to be provided when required</li> <li>• wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>• plant to be inspected for hydraulic leaks prior to commencement</li> <li>• designated concrete washout areas to be used as advised by Main Contractor</li> <li>• Ensure tracks are clean and any loose debris is cleaned off the road</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• Geogrid to be used reduce depth off road make up and therefore excavation.</li> <li>• Access Road to be unbound mixtures to Specification for Highway Works Series 800 and NRA addendums to reduce the risk of contaminated material import to site.</li> <li>• Geotextile to be used as a protective layer / barrier between existing ground and River Foyle.</li> <li>• Temporary alignment of flood embankment, sheet piled to be installed by vibration free methods if required, e.g., silent piling.</li> <li>• All works within the SAC to be completed within May to September to mitigate ecological risk.</li> <li>• Temporary working platform within River Channel to facilitate Main Crane and bridge lift to be contractor designed following proposed ground investigation works. A containment method must be provided to prevent infiltration, siltation and contamination of the river channel. If used, sheet piles must be installed and removed using silent piling techniques (no vibrations).</li> <li>• Contractor to Provide and Implement Flood Management Plan</li> <li>• Works to be completed under the supervision of an Ecological Clerk of Works.</li> </ul>



- NOTES**
1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
  2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.
- LEGEND**
- Crane & Bridge Assembly Working Area
  - Proposed Access Road to be moved prior to Main Works
  - Proposed Access Road to be retained for Main Works
  - Temporary Works to Flood Embankment
  - Existing Flood Embankment
  - Containment of Temporary Platform
  - SAC Boundary

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P02	21/04/2022	ABPFI Platform area increased	P McM
Rev	Issue Date	Description	App

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Comhairle Chathair Dhóire & Cheantar an tSleithe Baine  
Derry City & Strabane District Council

Project Status

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**BRIDGE CONSTRUCTION PHASING WORKS - PHASE 1**

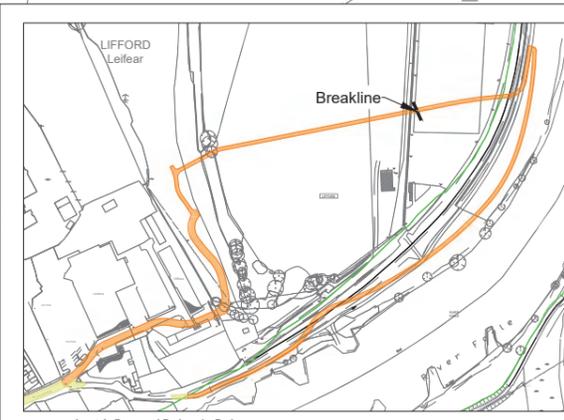
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Date	25/08/21	Date	25/08/21	Date	25/08/21

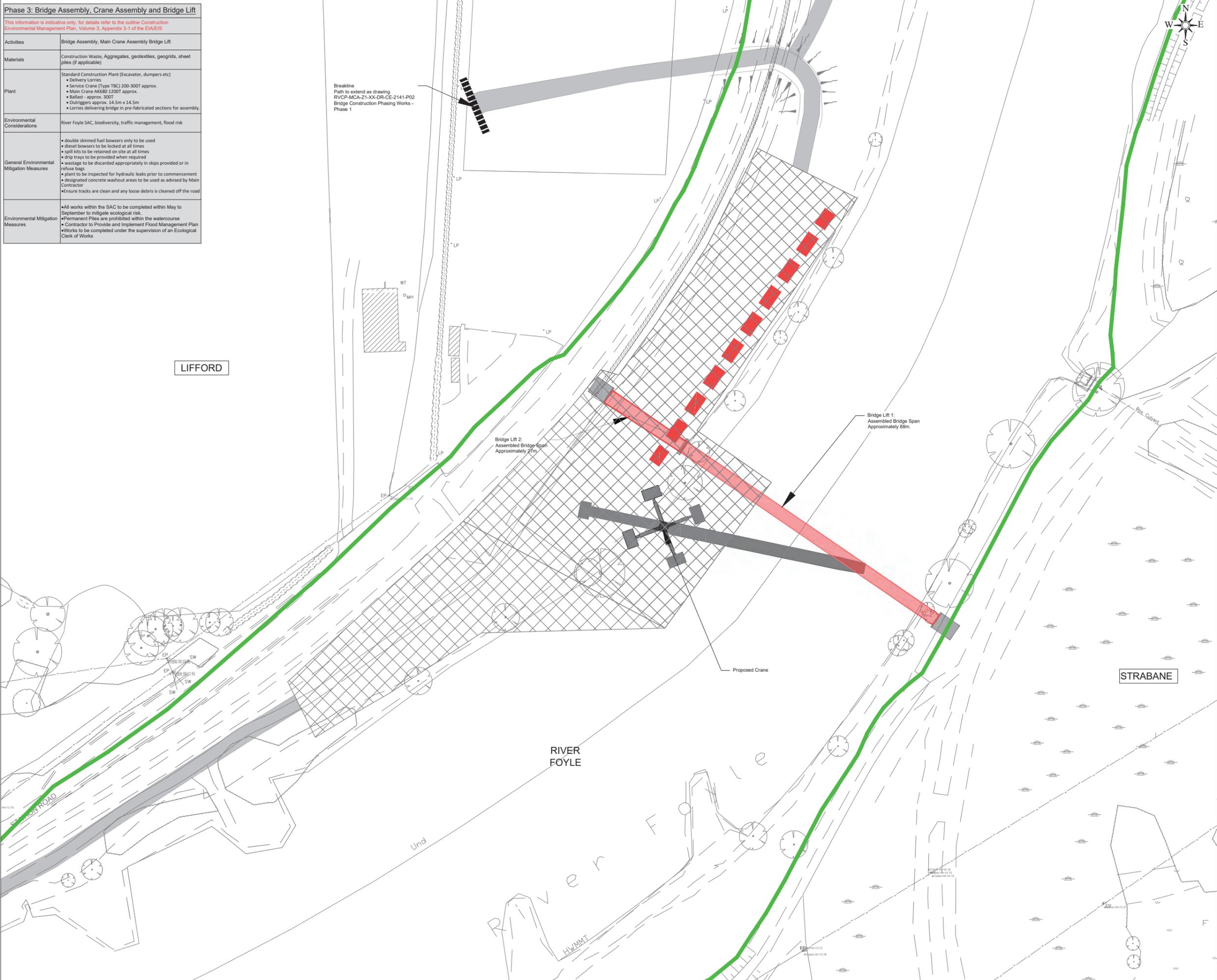
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Project Number	E2256														
Status code & Description	S2 - For Information														

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.



Inset A: Proposed Parkworks Pathways NTS

Phase 3: Bridge Assembly, Crane Assembly and Bridge Lift	
<i>This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS</i>	
Activities	Bridge Assembly, Main Crane Assembly Bridge Lift
Materials	Construction Waste, Aggregates, geotextiles, geogrids, sheet piles (if applicable)
Plant	Standard Construction Plant (Excavator, dumpers etc) <ul style="list-style-type: none"> <li>• Delivery Lorries</li> <li>• Service Crane (Type TBC) 200-300T approx.</li> <li>• Main Crane MK680 1200T approx.</li> <li>• Ballast - approx. 300T</li> <li>• Outriggers approx. 14.5m x 14.5m</li> <li>• Lorries delivering bridge in pre-fabricated sections for assembly.</li> </ul>
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• double skinned fuel bowzers only to be used</li> <li>• diesel bowzers to be locked at all times</li> <li>• spill kits to be retained on site at all times</li> <li>• drip trays to be provided when required</li> <li>• wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>• plant to be inspected for hydraulic leaks prior to commencement</li> <li>• designated concrete washout areas to be used as advised by Main Contractor</li> <li>• Ensure tracks are clean and any loose debris is cleaned off the road</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>• All works within the SAC to be completed within May to September to mitigate ecological risk.</li> <li>• Permanent Piles are prohibited within the watercourse</li> <li>• Contractor to Provide and Implement Flood Management Plan</li> <li>• Works to be completed under the supervision of an Ecological Clerk of Works</li> </ul>



- NOTES**
1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated
  2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.

**LEGEND**

- Crane & Bridge Assembly Working Area
- Proposed Crane
- Proposed Access Road
- Bridge Sections for Assembly on Site
- Assembled Bridge
- SAC Boundary

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P02	21/04/2022	ABPFI Platform Area Amended	P McM
Rev	Issue Date	Description	App

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European Regional Development Fund

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Donegal County Council

Derry City & Strabane District Council  
Comhairle Chathair Dhóire & Chathair an tSráine Bám  
Derry City & Strabane District Council

Project Status

**STAGE 3 - PLANNING**

Project

**RIVERINE COMMUNITY PARK**

Drawing

**BRIDGE CONSTRUCTION PHASING WORKS - PHASE 3**

Scale

**1:500 @ A1**

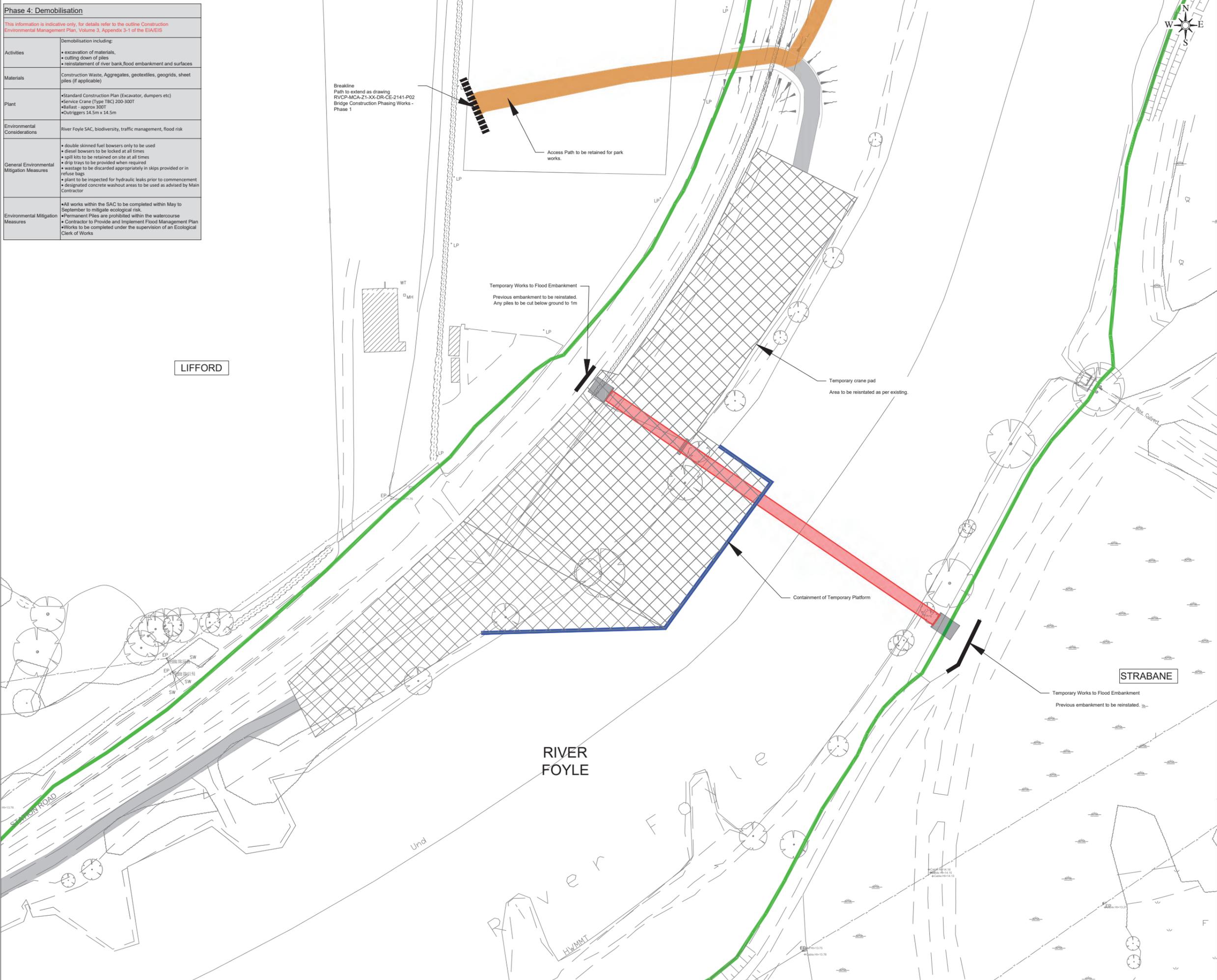
Drawn	CR	Checked	DA	Approved	CM
Date	25/08/21	Date	25/08/21	Date	25/08/21

Project	Organisation	Zone	Level	Type	Role	Number	Revision
RVCP	MCA	Z1	XX	DR	CE	2143	P02

Project Number: **E2256** | Status code & Description: **S2 - For Information**

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Phase 4: Demobilisation	
This information is indicative only, for details refer to the outline Construction Environmental Management Plan, Volume 3, Appendix 3-1 of the EIA/EIS	
Activities	Demobilisation including: <ul style="list-style-type: none"> <li>excavation of materials,</li> <li>cutting down of piles</li> <li>reinstatement of river bank, flood embankment and surfaces</li> </ul>
Materials	Construction Waste, Aggregates, geotextiles, geogrids, sheet piles (if applicable)
Plant	<ul style="list-style-type: none"> <li>Standard Construction Plan (Excavator, dumpers etc)</li> <li>Service Crane (Type TBC) 200-300T</li> <li>Ballast - approx 300T</li> <li>Outriggers 14.5m x 14.5m</li> </ul>
Environmental Considerations	River Foyle SAC, biodiversity, traffic management, flood risk
General Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>double skinned fuel bowzers only to be used</li> <li>diesel bowzers to be locked at all times</li> <li>spill kits to be retained on site at all times</li> <li>drip trays to be provided when required</li> <li>wastage to be discarded appropriately in skips provided or in refuse bags</li> <li>plant to be inspected for hydraulic leaks prior to commencement</li> <li>designated concrete washout areas to be used as advised by Main Contractor</li> </ul>
Environmental Mitigation Measures	<ul style="list-style-type: none"> <li>All works within the SAC to be completed within May to September to mitigate ecological risk.</li> <li>Permanent Piles are prohibited within the watercourse</li> <li>Contractor to Provide and Implement Flood Management Plan</li> <li>Works to be completed under the supervision of an Ecological Clerk of Works</li> </ul>



**NOTES**

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- All Coordinates are to Irish Grid (TM65), unless otherwise noted.

**LEGEND**

- Access Road to be excavated and removed
- Access Road to be retained as sub-base to proposed pathway infrastructure
- Proposed Bridge
- Temporary Crane Pad to be excavated and removed and river bank made good
- Temporary Works to Existing Flood Embankment to be removed and original alignment to be reinstated
- Temporary Containment Measures to be removed
- SAC Boundary

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P02	21/04/2022	ABPFI Platform area increased	P McM
Rev	Issue Date	Description	App

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Project Status  
**STAGE 3 - PLANNING**

Project  
**RIVERINE COMMUNITY PARK**

Drawing  
**BRIDGE CONSTRUCTION PHASING WORKS - PHASE 4**

Scale  
**1:500 @ A1**

Drawn Date	CR 25/08/21	Checked Date	DA 25/08/21	Approved Date	CM 25/08/21
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Project	RVCP	Organisation	MCA	Zone	Z1	Level	XX	Type	DR	Role	CE	Number	2144	Revision	P02
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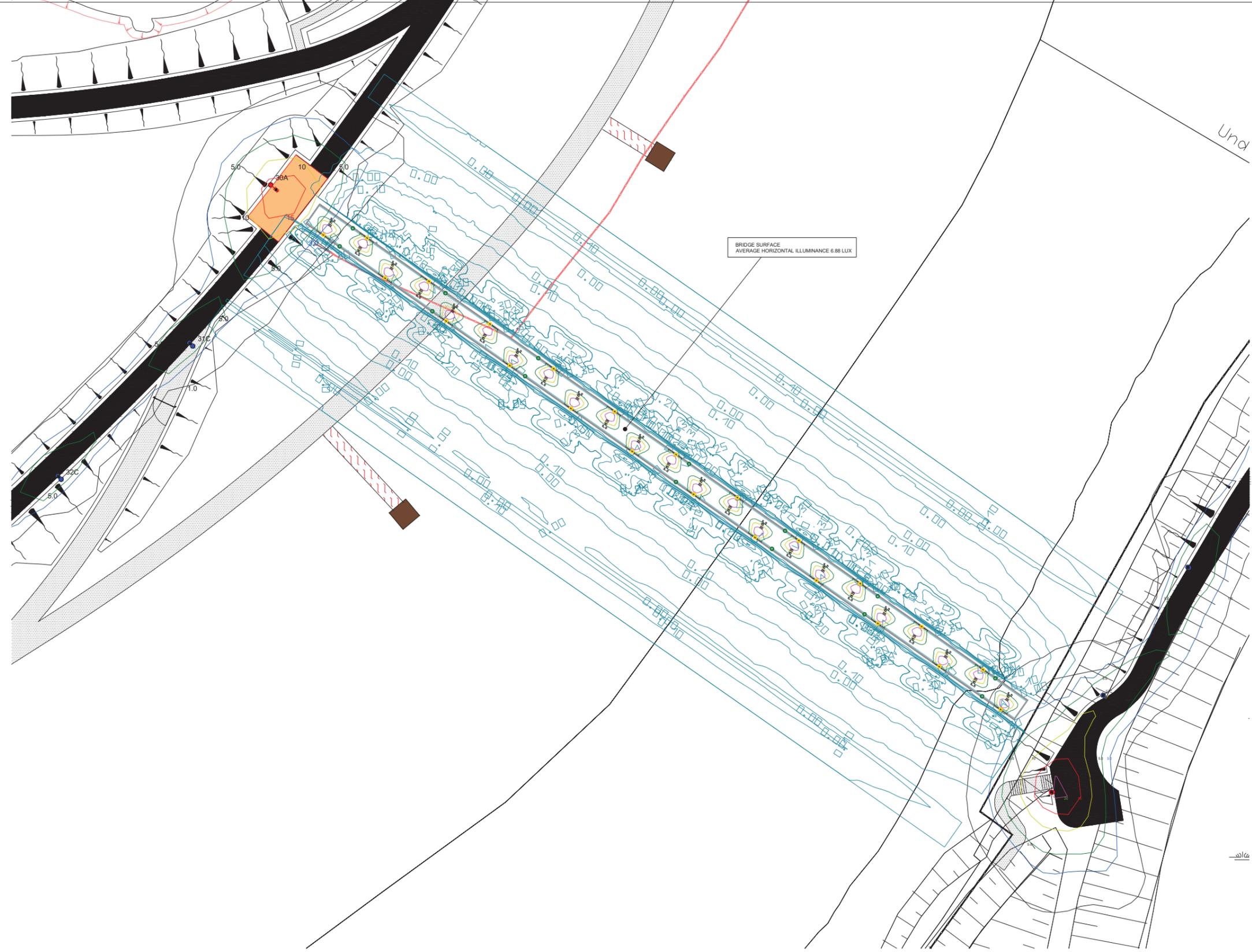
Project Number  
**E2256**

Status code & Description  
**S2 - For Information**

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

---

## Appendix XVI: Proposed Bridge Lighting



BRIDGE SURFACE  
AVERAGE HORIZONTAL ILLUMINANCE 6.88 LUX



**NOTES**  
 1. All measurements shown are in metres, and all levels are to ordnance datum unless otherwise indicated  
 2. All Coordinates are to Irish Grid (TM65), unless otherwise noted.

- Key**
- Handrail Luminaire 300mm Asymmetric
  - Bridge Feature Lighting - Low level/deck mounted feature lighting to point upwards with a narrow spot optic to illuminate the vertical trusses in a controlled way. There is therefore no lux lines associated with this luminaire.
  - Indicative location - not to scale



Exemplar Image of Lantern



Exemplar Image of Lantern

- Lux Level Contours**
- 20 LUX
  - 10 LUX
  - 5.0 LUX
  - > 0.5 LUX ALL AT WATER LEVEL

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Rev	Issue Date	Description	App
P01	Aug 21	Issued for Information	

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Project Status  
 Stage 3a Planning  
 Project  
**RIVERINE COMMUNITY PARK**

Drawing  
 Bridge External Lighting

Scale  
 1:200 @ A0

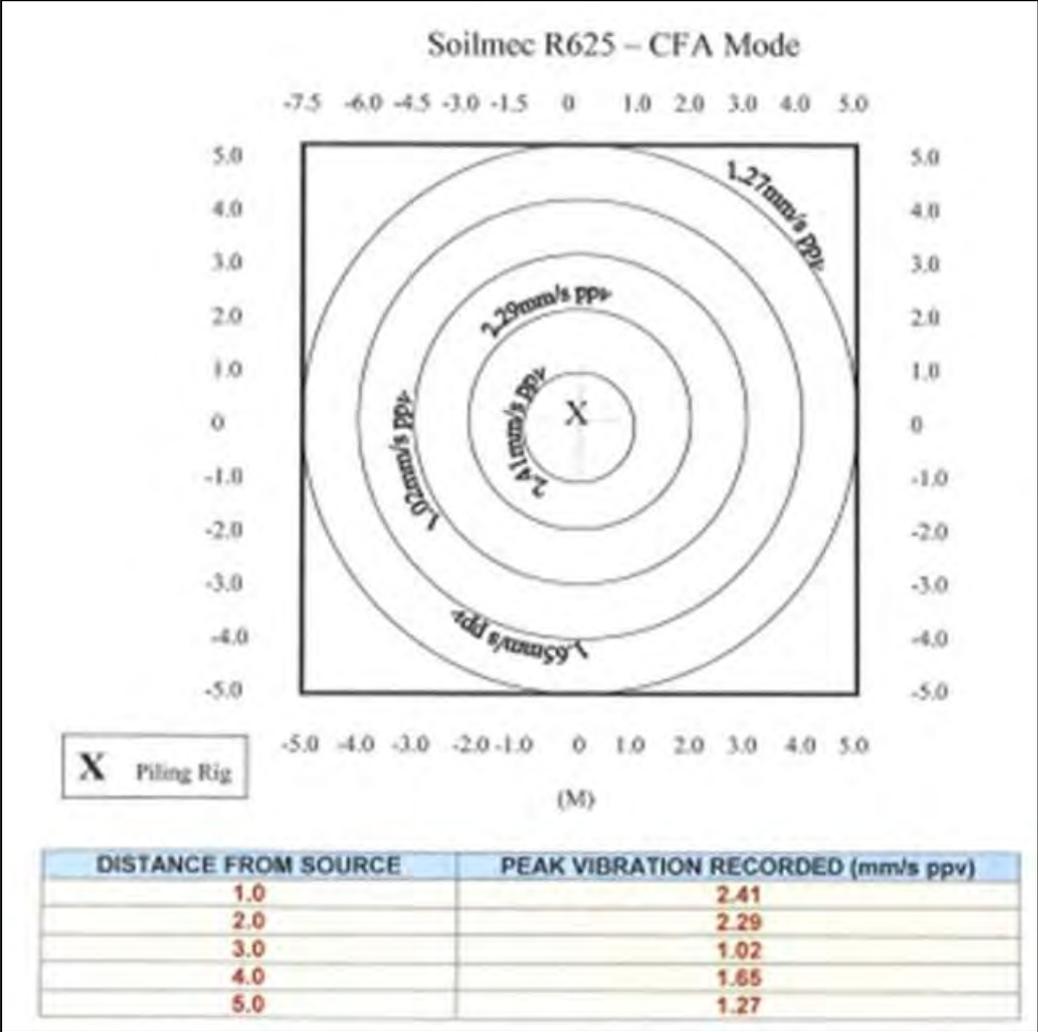
Drawn	PO	Checked	AS	Approved	GMG
Date	AUG 21	Date	AUG 21	Date	AUG 21

Project	Revision
RVCPC - WWL - ZZ - XX - PL - MEP-0008	P01

Project Number  
 E2256  
 Status code & Description  
 Issued for Information

All dimensions are in metres. Figured dimensions to be taken in preference to scaled dimensions. Dimensions to be checked on site. © 2021 McAdam Design Ltd.

Appendix XVII: Diagram illustrating a vibration contour graph for a 70t CFA piling rig



---

## Appendix 8-13

### Invasive Species Assessment (Plants) and Invasive Management Plan



**APPENDIX 8-13**

**Invasive Species Assessment (Plants)  
and Invasive Species Management Plan**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

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## 1.0 INTRODUCTION

### 1.1 REPORT INTRODUCTION

MCL Consulting Ltd (MCL) was appointed by McAdam Design to undertake an Invasive Species Assessment and prepare an Invasive Species Management Plan for the Construction Phase and Operational Phase for the Riverine Community Park Development Scheme. The site straddles the River Foyle between the eastern side of Lifford Town, County Donegal, Republic of Ireland and the western side of the town of Strabane in County Tyrone, Northern Ireland. This assessment applies only to invasive plants. For an assessment of invasive bivalves (Asian Clam) refer to the Aquatic Ecology Assessment (Chapter 9, **Appendix 8-12**).

The project will comprise the creation of new community park infrastructure in excess of twenty-one hectares either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities.

### 1.2 INVASIVE PLANT SPECIES OVERVIEW

#### 1.2.1 INVASIVE SPECIES LEGISLATION

##### Northern Ireland

Japanese knotweed, Giant Hogweed and Himalayan Balsam are listed on Schedule 9 of the Wildlife (Northern Ireland) Order 1985 as amended by the WANE Act in 2010. The Wildlife and Countryside Act 1981 / Wildlife (Northern Ireland) Order 1985 controls the spread of these invasive plants into wild habitats. Part I (WILDLIFE – Miscellaneous), Section 14, Clause 2 of the Act states:

*“if any person plants or otherwise causes to grow in the wild any plant which is included in “Part II of Schedule 9, he shall be guilty of an offence.”*

---

Under the Environmental Protection Act 1990, Duty of Care Regulations 1991, Invasive species material and soil containing rhizomes and seeds must be removed to an appropriate licensed landfill site for disposal, accompanied by appropriate Waste Transfer documentation.

**N.B. The Responsibility for dealing with invasive weeds rests with individual landowners. Strategic, widespread control is currently not the sole responsibility of any statutory organisation.**

The current Northern Ireland Environment Agency policy on disposal of Japanese knotweed, Giant Hogweed, and Himalayan Balsam material and contaminated soils follows the Environment Agency guidelines and thereby places a duty of care on all waste producers to ensure Japanese knotweed is disposed of at a suitable licensed landfill site and that the site operator is notified in advance.

### **Republic of Ireland**

Japanese Himalayan, Giant Hogweed, and Himalayan balsam are all listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011).

Under the European Communities (Birds and Natural Habitats) Regulations 2011, Regulation 49 places restrictions on the introduction of any plant species listed in Part 1 of the Third Schedule. A person shall be guilty of an offence if they: plant, disperse, allow or cause to disperse, spread or cause to grow the plant in the Republic of Ireland.

To move soil in the Republic of Ireland that contains Japanese knotweed, Giant Hogweed and Himalayan Balsam material, rhizomes or seeds will require a license from National Parks and Wildlife Service (NPWS).

---

## 1.3 JAPANESE KNOTWEED OVERVIEW

Japanese Knotweed (*Fallopia japonica*), is a non-native highly invasive plant species originally from Japan and was distributed throughout Europe in the 1800s as an ornamental plant. After being naturalised in the UK in the late 1800s, the species soon spread through the UK due to its invasive properties.

Reproduction is primarily by vegetative regeneration of rhizomes and fresh stems. The rhizome system may extend from a parent plant up to 7 metres laterally and to a depth of 2 - 3 metres. Very small fragments of rhizome (as little as 0.7 grams – about the size of a fingernail) can give rise to new plants.

Established Japanese knotweed with large reserves of stored energy contained within the rhizome system can be vigorous enough to penetrate hard surfaces such as bitumen, concrete and even foundations. The threat from Japanese Knotweed to buildings and property is real, making sites containing Japanese Knotweed difficult to sell as banks and lenders can often refuse mortgages.

### 1.3.1 JAPANESE KNOTWEED GROWING SEASON

Japanese knotweed will begin to shoot in spring (March- April) through the appearance of reddish, purple fleshy shoots that emerge from crimson buds at ground level.

These grow rapidly through the summer (May -July) and produce dense stands of tall bamboo like canes (up to 7ft), with heart shaped leaves up to 15cm in length.

Flowering occurs in late summer towards the end of the growing season (August-October), producing clusters of small, creamy-white flowers at the points where the leaves join the stem.

Towards the end of autumn, (November) leaves begin to turn a yellowy-brown and eventually drop. The hollow canes will turn brown and die off. The cycle will commence again in spring through new shoots

JAPANESE KNOTWEED GROWING SEASON	J	F	M	A	M	J	J	A	S	O	N	D
-------------------------------------	---	---	---	---	---	---	---	---	---	---	---	---

	Appearance of shoots
	Summer Growth Period
	Onset of Flowering
	Winter dieback (visible canes)

### 1.3.2 JAPANESE KNOTWEED TREATMENT

Japanese knotweed can be controlled using both physical, or chemical methods or a plan may include a hybrid technique of both.

Physical methods include the excavation (dig & dump, onsite burial, root barrier or soil screening).

#### Dig and Dump

The “dig and dump” method involves the excavation of Japanese Knotweed material and infected soils until the rhizomes are longer present which could be as deep as 3m.

All the contaminated material and soils are then transported to a licenced landfill via licenced haulage for disposal.

This is often the most expensive way of eradication and is only recommended if other options are not viable.

#### Onsite burial

Onsite burial method involves the excavation of Japanese Knotweed and infected soils until the rhizomes are longer present this could be as deep as 3m.

The contaminated material can then be buried onsite in which a depth of 5m cover is required, however this depth can be reduced if the contaminated soils and material are encapsulated with a cell membrane.

This is only viable in certain ground conditions where the required depths are achievable.

---

### Root Barrier

A root barrier is a physical membrane that protects structures, hardstanding etc and stops encroachment of Japanese knotweed. It's often used along with other methods like herbicidal treatments, excavation, screening and sifting, helping to prevent the plant's spread. It is effectively a preventative measure not to be used as a standalone measure.

### Soil Screening

The soil screening method involves the excavation of Japanese Knotweed material and infected soils. The soil is processed via an allu bucket or similar where Japanese Knotweed rhizome material is separated from the soil material.

The contaminated Japanese Knotweed material can then be removed from site at a vastly reduced amount with the "clean" soils being re-engineered into the site.

Although more cost effective than dig & dump, there are still sizeable costs involved.

The physical control of Japanese Knotweed can occur at any time of the year, after an initial survey detailing the location of the stands and possible spread of rhizomes.

Chemical control is through the application of herbicide (usually Glyphosate), this can be applied through foliar application by spraying or weed wiping. Herbicide can also be applied by stem injection, or by cut and filling the stems. Herbicide treatment can take up to three years treatment followed by two years monitoring for regrowth.

Glyphosate Treatment	J	F	M	A	M	J	J	A*	S*	O*	N	D
----------------------	---	---	---	---	---	---	---	----	----	----	---	---

	Suitable for Use
*	Preferred period of Use

---

## 1.4 HIMALAYAN BALSAM OVERVIEW

Himalayan Balsam (*Impatiens glandulifera*) a non-native invasive terrestrial plant species. Since it was introduced, it has spread to most parts of Ireland, and is listed on Schedule 9 of the Wildlife (Northern Ireland) Order 1985.

The species frequently grows along the banks of watercourses. It can also establish itself in damp woodland, flushes, mires and similar damp semi-shaded ground conditions. In Ireland it is the tallest annual species of plant (completes its life cycle in one year) due to its rapid growth, it shades out most of the native flora species.

Individual plants can reach 2m in height, the plant have translucent fleshy stems, pink-purple slipper-shaped flowers and large oval pointed leaves with obvious teeth around their edges. Each tooth carries a small globular 'gland' and produces large numbers of flowers which are followed by 'seed pods' about 25mm long. When mature and dry, the fruits split open explosively if touched, flinging the seeds a considerable distance (>7m) from the parent plant.

### 1.4.1 HIMALAYAN BALSAM SPREAD

Himalayan Balsam is spread via seed, each plant produces about 2,500 seeds which fall to the ground, and with several parent plants close together, seeds can occur at a density of between 5000-6000 seeds per square metre. The seeds float, making watercourses a prime route for dispersal of the species. Seeds can also begin to germinate in water on their way to new sites. Seeds may also be transported unintentionally by wildlife, machinery, grazing livestock and people using sites for recreation. Plants may still be grown for aesthetic purposes and can be easily spread in garden waste and soil.

### 1.4.2 HIMALAYAN BALSAM CONTROL METHODS

Himalayan Balsam can be controlled by using physical or chemical methods, both treatment methods should aim to control flowering before seeds have developed and have had the chance to spread and are most effective before June.

TREATMENT	J	F	M	A	M	J	J	A	S	O	N	D
Glyphosate												
Mechanical												

	Optimal Treatment Time
	Suboptimal

### 1.4.3 HIMALAYAN BALSAM CHEMICAL CONTROL METHODS

Himalayan Balsam can be chemically controlled using a Glyphosate based herbicide. This can be through foliar spray or weed wiping in areas of mixed growth. Herbicide treatment should be carried out in the springtime before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the spray. Only recommended approved Glyphosate can be used working near a watercourse.

### 1.4.4 HIMALAYAN BALSAM PHYSICAL CONTROL METHODS

Physical or mechanical control methods for Himalayan Balsam include repeated cutting or mowing, and regular grazing. Access to the sides of riverbanks can be difficult and inaccessible stands can quickly recolonise accessible cleared areas, so vigilance is needed if an area is to be effectively cleared.

Small infestation can easily be controlled by hand-pulling as the species is shallow rooted. Padded gloves should be worn to avoid risk of injury to hands. Seeds are not very robust and only survive for up to 18 months so a two-year control programme can be successful in eradicating this plant if there is not further infestation from upstream or adjacent sites.

To avoid additional spread do not disturb plants if seeds pods are visible (usually sometime after May). Programmes should be undertaken in April or early May. If hand pulling after this time, bag plant tops to prevent seed spread.

---

## 1.5 GIANT HOGWEED OVERVIEW

Giant hogweed (*Heracleum mantegazzianum*), is a non-native invasive terrestrial plant which is listed on Schedule 9 of the Wildlife (Northern Ireland) Order 1985. The species is a tall, cow parsley-like plant with thick bristly stems that are often purple-blotched.

The flowers are white and held in umbels, (flat-topped clusters, like those of carrots or cow parsley), with all the flowers in the umbel facing upwards. The flower heads can be as large as 60cm (2ft) across. It can reach a height of 3.5m (11.5ft) or more and has a spread of about 1-2m (3.5-7ft).

Giant hogweed is usually biennial, forming a rosette of jagged, lobed leaves in the first year before sending up a flower spike in the second year and then setting seed. True biennials only live for two years, dying after flowering, but giant hogweed does not always behave as a true biennial and in fact some are perennial, coming up year after year.

### 1.5.1 GIANT HOGWEED SPREAD

Giant Hogweed spread depends entirely on seed dispersal to spread. The majority of seeds fall within 4m of a parent plant (60-90%) resulting in densely populated localised and prolific patches. Seed dispersal is often exacerbated by other natural and human mechanisms: -

- Wetlands: Flowing water can spread Giant Hogweed seed, where it colonises bare and
- floodplain sediments downstream of the parent plant. Distance of dispersal can be increased by flood events. Some Sewage Treatment Works have also been the source of Hogweed seed.
- Transport Margins: Seeds produced by populations growing alongside roadside margins can be transported long distances by vehicle tyres
- Public site or grazing land: Seeds can be unintentionally transported by livestock / humans or when flowers are taken for aesthetic value. Some are planted deliberately in exotic gardens.
- Wind: Localised dispersal is frequently aided by wind, especially during the winter months.

### 1.5.2 GIANT HOGWEED CONTROL METHODS

Giant Hogweed can be controlled by using physical or chemical methods.

Physical control may be preferred for small stands because chemical control creates open sites for the establishment of other invasive species, involves risks of contamination of nearby waters and can cause unwanted plant community changes. Treatment with chemicals can be regarded as a first step, followed by sowing grass mixtures and the use of manual methods or combined chemical and manual methods to re-establish a dense vegetation cover. Unfortunately, giant hogweed plants have a high regeneration ability which allows them to survive some manual control measures.

TREATMENT		F	M	A	M	J	J	A	S	O	N	D
Glyphosate												
Mechanical												

	Optimal Treatment Time
	Suboptimal

### 1.5.3 GIANT HOGWEED PHYSICAL CONTROL METHODS

Manual and mechanical control methods include root cutting, cutting the plant, covering the soil, mowing, ploughing and removing the umbels (flower heads). Except for root cutting, manual control will not cause immediate death of the plant. All other methods will need two to three treatments per year for several years to deplete the root reserves and kill the plants. All methods will need to occur for multiple years until no new plants grow from the seed bank. Monitor the site for at least three more years to make sure no new seedlings appear.

### 1.5.4 GIANT HOGWEED CHEMICAL CONTROL METHODS

Giant hogweed is susceptible to systemic herbicides, such as glyphosate and triclopyr, and the application of these herbicides is considered effective and cost efficient. Herbicide application can be used for controlling a single plant or large stands of giant hogweed. These systemic herbicides will be absorbed by the leaves and will move into the root to prevent regrowth. Triclopyr is a selective herbicide that acts only on broadleaf plants and

---

will not harm grasses in the area. Glyphosate is non-persistent in the soil but is also a non-selective herbicide. Areas sprayed with triclopyr can recolonize with grasses and other herbaceous species within the same growing season, this can help suppress Giant Hogweed recolonization.

Spray Giant Hogweed leaves with an herbicide containing triclopyr or glyphosate as the active ingredient. Use the recommended manufacturer's dose and follow label instructions. Apply the herbicide between late April and early June when hogweed leaves are green and actively growing. A follow-up treatment, in July or August, may be needed for the plants that did not die from the first herbicide application (e.g. seedlings, now leaf rosettes, which were once covered by leaves of the plants originally sprayed). During this follow-up treatment it is strongly recommended to remove any flower heads present to decrease next year's seed source. Giant hogweed plants can be sprayed through mid-October as long as they are still green and not dying back. It is easiest to spray before the plants grow overly tall. Options for dealing with tall plants are: spray them as they are, cut them down to ground level and spray the re-growth, or carefully cut the plants above waist height and spray remaining leaves. To be successful in eradicating giant hogweed, herbicide treatments (or another control method) will have to be repeated for multiple years, in order to kill the plants missed the prior year as well as the plants emerging from the seedbank.

Spray during dry and calm weather. Cover leaf surfaces thoroughly with spray droplets, but do not spray to the point that liquid is dripping off the leaves. Dye added to the herbicide can help see where has been already sprayed. Do not apply herbicide to non-target organisms as you want the other plants to live and revegetate the area. Do not cut or dig up the plant until the top growth has died back. If the leaves remain green several weeks or a month after the initial treatment, spray them with herbicide again.

### **1.5.5 GIANT HOGWEED DANGERS**

Giant Hogweed can be dangerous to human health, wildlife, pets and livestock causing severe burns and blisters.

---

The sap of Giant Hogweed contains toxic chemicals known as furanocoumarins. When the sap comes into contact with the skin, and in the presence of sunlight, they cause a condition called Phyto-photodermatitis: a reddening of the skin, often followed by severe burns and blistering. The burns can last for several months and even once they have died down the skin can remain sensitive to light for many years.

## 2.0 SURVEY DESCRIPTION

For the purpose of this report the findings will record Lifford and Strabane in separate sections (Lifford in Section 3 and Strabane in Section 4).

### 2.1 SURVEY LIMITATIONS

The findings from this survey are the result of a visual inspection only and should not be taken as a guarantee that invasive plant species are not present on the property or neighbouring properties.

Invasive plants can sometimes be concealed by landowners or occupants deliberately or by accident. This includes the physical removal of the plants stems and crowns, mowing lawns or covering the suspect area with turf, hard standing, landscape fabric, ornamental gravel, bark mulch etc.

Invasive species which have undergone herbicide treatment may not be visible at the time of survey.

During winter, some invasive plant species like Japanese Knotweed can lay temporary dormant, which leaves no viable material above ground. Larger, more mature stands, dead canes can remain in place and provide a clear visual marker of the plant's location. However, on young or disturbed growth, canes can fall over and be blown away, leaving no indication of knotweed whatsoever. For these reasons, we recommend conducting surveys during the growing season of Invasive plant species (wherever possible), where plant growth presence is much more evident.

---

Some highly invasive species like Himalayan Balsam may also encroach to a significantly larger area from the beginning to the end of the season so may look quite different from when it was originally surveyed.

The survey conducted at Riverine has taken place at an optimal time during the growing season.

## **2.2 SITE LOCATION / DESCRIPTION LIFFORD & STRABANE**

The subject site (Figure 1) straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns. The site measures approximately 21.6 hectares in total, with approximately 14.9 hectares on the Lifford side and 6.7 hectares on the Strabane side.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way.

The access road leads to the former halt site, with the rest of the site consisting of overgrown woodland with a laneway through the site along the Eastern Boundary.

There is a clearing just North of the former halt site which consists of grassland.

An access lane runs towards the river through the woodland in the Northern portion of the site.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road.

The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1. Site red line boundary**

### **2.3 SURVEY METHOD LIFFORD & STRABANE**

A comprehensive site walkover / survey was undertaken on the 21<sup>st</sup> June 2021 to establish the presence, location and extent of any Invasive plant species.

The survey was undertaken by an Ecologist & Invasive species PCA qualified from MCL Consulting. The survey included checking all borders, boundaries, hedgerows, overgrown areas, woodland, lane ways, pathways, riverbanks, watercourses, fields and associated lands for Invasive plant species.

The location and extent of the Invasive species was photographed, a description recorded, and location was mapped out with GNSS survey equipment.

The walkover and approximate extent of the survey of all lands is shown in the blue boundary in Figure 2.



**Figure 2. Site Survey area**

**There were invasive plant species observed during an extensive site walkover. This includes Japanese Knotweed, Giant Hogweed, and Himalayan Balsam which were all observed on both Lifford and Strabane sites.**

The locations and extents of all invasives plants as surveyed are presented in site drawings as DWG.2 (Lifford) and DWG.3 (Strabane) at the back of the report.

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## 3.0 LIFFORD SURVEY FINDINGS

The locations and extents of all invasive plants as surveyed are presented in site drawing DWG.2 (Lifford) at the back of the report. Invasive Species was observed to be present on the Lifford side this include:

- Japanese Knotweed at 3 No. locations (JK14, JK15, JK16)
- Giant Hogweed at 1 No. locations (GH2)
- Himalayan Balsam at 3 No. locations (HB8, HB9, HB10)

### 3.1 JAPANESE KNOTWEED

Japanese Knotweed occurrences in the Lifford site are described in the text within this section and are summarised in Table 1.

JK 14 was observed on the southern side of the existing riverside path. The approximate area of the stand was 30m<sup>2</sup> which was in a linear formation along the path. The stand had undergone some herbicide treatment as the Japanese Knotweed was experiencing die back. The canes of JK14 had dried and were brown/ black in colour, no leaves were apparent in the stand not exceeding heights 1.5m. Likely rhizome spread of the stand would cover an area of approximately 195m<sup>2</sup>.

JK 15 was observed on the Northern side of the existing riverside path approximately 15m North East of JK14. The approximate area of the stand was 35m<sup>2</sup>. The stand had undergone herbicide treatment as the Japanese Knotweed was experiencing die back. At the time of the survey the canes of JK15 had dried and were brown / black in colour, no leaves were apparent in the stand. Likely rhizome spread of the stand would cover an area of approximately 225m<sup>2</sup>.

JK16 was observed on the bank of the River Foyle east of the riverside path close to the proposed bridge landing site. The stand covered an area of approximately 12m<sup>2</sup>. The stand had under-gone herbicide treatment with the stand experiencing dieback. There was regrowth noted closer to the water's edge the growth was stunted and leaves were discoloured and disfigured. Likely rhizome spread of the JK16 could cover as much as 80m<sup>2</sup>.

**Table 1 Japanese Knotweed, Lifford**

JK	PROXIMITY TO WATER (>12m)	PLANT HEIGHT (m)	VISABLE AREA (m <sup>2</sup> )	PLANT VISIBLE ONSITE	DISTANCE FROM BOUNDARY >7M
14	NO	1.5-2.0m	30m <sup>2</sup>	YES	NO
15	NO	1.5-2.0m	35m <sup>2</sup>	YES	NO
16	YES	1.5-2.0m	12m <sup>2</sup>	YES	NO

### 3.2 GIANT HOGWEED

Giant Hogweed was located at No.1 location GH2 along the bank of the River Foyle at the proposed slipway site. The plants were spread out over an area of approximately 40m<sup>2</sup>. At the time of the survey, it was apparent that the Giant Hogweed GH2 had been treated with herbicide as there were signs of dead plant material.

### 3.3 HIMALAYAN BALSAM

Himalayan Balsam was noted in 3 locations at the time of the survey HB8, HB9, HB10.

HB8 was noted along the banks of the River Foyle it covered an area of approximately 1300m<sup>2</sup>. The Himalayan Balsam had reached heights of approximately 1m and was in good health. Some plants had begun to flower but seeding had not occurred at this stage.

HB9 is located just south of JK16 was along the banks of the River Foyle at the proposed bridge landing site it covered an area of approximately 270m<sup>2</sup>. The Himalayan Balsam had reached heights of approximately 1m and was in good health. Some plants had begun to flower but seeding had not occurred at this stage.

HB10 is located just to the North of JK16 along the banks of the River Foyle it covered an area of approximately 100m<sup>2</sup>. The Himalayan Balsam had reached heights of approximately 1m and was in good health. Some plants had begun to flower but seeding had not occurred at this stage.

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## 4.0 STRABANE SURVEY FINDINGS

The locations and extents of all invasive plants as surveyed are presented in site drawing DWG.3 (Strabane) at the back of the report. Invasive Species was observed to be present on the Strabane side this include:

- Japanese Knotweed at 13 No. locations (JK1-JK13)
- Giant Hogweed at 1 No. location (GH1)
- Himalayan Balsam at 7 No. locations (HB1-HB8)

### 4.1 JAPANESE KNOTWEED

Japanese Knotweed occurrences are described in the text within this section and are summarised in Table 2.

JK 1 was observed on the southern portion of the halt site along the western side of the concrete hardstanding area. This was the most significant infestation noted on site with an approximate area of 425m<sup>2</sup> which ran in a linear formation along the edge of the existing hardstanding.

The dimensions of the stand JK1 is approximately 55m long by 9m depth the stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour.

Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. Total rhizome spread of JK1 could cover as much as 900m<sup>2</sup>.

JK 2 is located to the north of the concrete hardstanding area with an approximate area of 35m<sup>2</sup>.

The dimensions of the stand JK1 is approximately 8m long by 5m depth the stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant It is likely that total rhizome spread of the infestation could cover approximately 150m<sup>2</sup>.

JK 3 was observed in a wooded area north of the concrete hardstanding area with an approximate area of 80m<sup>2</sup>. The dimensions of the stand JK1 is approximately 25m long by 7.5m wide. The stand

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was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 340m<sup>2</sup>.

JK 4 was observed growing within a clay bund next to the path/lane way with an approximate area of 35m<sup>2</sup>. The dimensions of the stand JK 4 is approximately 7.5 long by 6m wide. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 170m<sup>2</sup>.

JK 5 was observed growing north west of the clearing beside a utilities pole on the edge of the main wetland which covers an area of approximately 85m<sup>2</sup>. The dimensions of the stand JK 4 is approximately 7.5 long by 6m wide. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m with an average thickness of stems around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 280m<sup>2</sup>.

JK 6 was observed growing north west of the clearing next to the lane way covering an area of approximately 75m<sup>2</sup> in close proximity to JK7. The dimensions of the stand JK 6 is approximately 16m long by 5m wide. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 270m<sup>2</sup>.

JK 7 was observed growing north west of the clearing next to the lane way covering an area of approximately 105m<sup>2</sup> near JK6. The dimensions of the stand JK 7 is approximately 14m long by 14m wide at the widest points. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing

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plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 310m<sup>2</sup>.

JK 8 was observed growing along the southern side the Nancy burn just of the lane way approximately 100m<sup>2</sup>. The dimensions of the stand JK 6 is approximately 13m long by 8.5m wide. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 290m<sup>2</sup>.

JK 9 was observed growing along the northern side of the Nancy burn across from JK8 just of the lane way covering approximately 75m<sup>2</sup>. The dimensions of the stand JK 9 is approximately 20m long by 4m wide. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 2.5m-3m and average thickness of the stems were around 2cm-3cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 270m<sup>2</sup>.

JK 10 was observed growing where the eastern path meets the old railway embankment covering an area of approximately 10m<sup>2</sup>. The dimensions of the stand JK 9 is approximately 5m long by 2m wide. The stand had experienced die back, canes had dried and were discoloured with no leaves, this is most likely from herbicide treatment but there was some minimal regrowth that had occurred. It is likely that total rhizome spread of the infestation could cover approximately 70m<sup>2</sup>.

JK 11 was observed along the lane way just north east from JK10 in the proposed carpark covering approximately 45m<sup>2</sup>. The dimensions of the stand JK 11 is approximately 7m long by 7m wide. The stand had experienced die back, canes had dried and discoloured with no leaves, this is It is likely that total rhizome spread of the infestation could cover approximately 200m<sup>2</sup>.

JK 12 was observed along the lane way just North from JK11 (outside red line boundary) covering an area of approximately 120m<sup>2</sup>. The stand had experienced some die back in patches, these canes had dried and discoloured with no leaves. There was a mixture of regrowth throughout the stand which had achieved Heights of 1m, at the time of the survey. It is likely that total rhizome spread of the infestation could cover approximately 400m<sup>2</sup>.

JK 13 was observed along the lane way just North from JK12 (outside the red line boundary) covering an area of approximately 40m<sup>2</sup>. The stand was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 1m-1.5m and average thickness of the stems were around 2cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant. It is likely that total rhizome spread of the infestation could cover approximately 200m<sup>2</sup>.

JKO1 was observed along the path next to the river at the North of the site as an outlying plant. This was a single plant which cover an area of >1m. The plant was observed growing in a good healthy condition, the plants were leafy, and of typical colour. Typical height of the growth in this area was 1m-1.5m and average thickness of the stems were around 2cm, the leaves were around 5-7cm wide and growing plentiful for the size of the plant.

Note: (JK11-JK13) will be eradicated/controlled under an earlier development of the path by the Strabane North Greenway team and will be not considered in this Management Plan.

The Japanese Knotweed infestations of JK1-JK10 will be controlled / eradicated as part of this Management Plan.

**Table 2, Japanese Knotweed Strabane**

JK	PROXIMITY TO WATER (>12m)	PLANT HEIGHT (m)	VISABLE AREA (m <sup>2</sup> )	PLANT VISIBLE ONSITE	DISTANCE FROM BOUNDARY >7M
1	NO	2.5-3.0m	425	YES	NO
2	NO	2.5-3.0m	35	YES	NO
3	NO	2.5-3.0m	80	YES	NO
4	NO	2.5-3.0m	35	YES	NO
5	YES	2.5-3.0m	85	YES	NO
6	No	2.5-3.0m	75	YES	NO
7	YES	2.5-3.0m	105	YES	NO
8	YES	2.5-3.0m	100	YES	NO
9	YES	2.5-3.0m	70	YES	NO
10	NO	1m	10	YES	NO
11	NO	1m	45	YES	YES
12	NO	1m	120	YES	YES

<b>13</b>	NO	1.5m-2m	40	YES	YES
<b>JKO1</b>	YES	1.5-2m	>1m	YES	YES

Note: JK11-JK13 (highlighted) controlled under the path development by the Strabane North Greenway team

## 4.2 GIANT HOGWEED

Giant Hogweed was located at No.1 location (GH1) along the bank of the River Foyle under a tree. The Giant Hogweed plants were spread out over an area of approximately 40m<sup>2</sup>. At the time of the survey The Giant Hogweed had reach heights in excess of 2m, with some small plants towards the edge of the infestation. The plants were observed in good health and of typical colour flowering had begun in some plants, but seed dispersal had not yet occurred.

## 4.3 HIMALAYAN BALSAM

Himalayan Balsam was noted at No.7 locations at the time of the survey HB1- HB7. HB1 was noted along the banks of the River Foyle and down along the east side of the old railway embankment, the infestation also extended along the railway embankment around to where the badger setts were located. The plants were generally 1m -1.5m at the but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred. The footprint of the infestation was in excess of 1500m<sup>2</sup>.

HB2 was observed along the lane way which continues North along the old railway embankment. The Himalayan Balsam plants were generally 1m -1.5m but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred. The footprint of the infestation was in excess of 2500m<sup>2</sup>.

HB3 was observed along the lane way which accesses the river. The infestation surrounds JK10 with an area of around 150m<sup>2</sup>. The Himalayan Balsam plants were generally 1m -1.5m but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred.

HB4 was observed along the lane way just North of HB3 and covers an area of around 200m<sup>2</sup>. The Himalayan Balsam plants were generally 1m -1.5m but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred.

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HB5 was observed along the lane way just opposite HB4 in the proposed car park and covers an area of around 70m<sup>2</sup>. The Himalayan Balsam plants were generally 1m -1.5m but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred.

HB6 was observed along the lane way just to the North of JK11 and covers an area of around 70m<sup>2</sup>. The Himalayan Balsam plants were generally 1m -1.5m but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred.

HB7 was observed the edge of the concrete hardstanding area and covers an area of around 2000m<sup>2</sup>. The Himalayan Balsam plants were generally 1m -1.5m but some had exceeded these heights. At the time of the survey plants were beginning to flower but seed dispersal had not yet occurred.

Note: (HB2, HB4-HB6) will be eradicated/controlled under an earlier development of the path by the Strabane North Greenway team and will be not considered in this Management Plan.

The Himalayan Balsam infestation of HB1, HB3 and HB7 will be controlled eradicated as part of this Management Plan.

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## 5.0 REMEDIATION

### 5.1 INVASIVE SPECIES MANAGEMENT PLAN / RECOMMENDATIONS

From the findings in Section 2. and Section 3 the following Invasive Management plan was developed to control / eradicate Japanese Knotweed, Giant Hogweed, and Himalayan Balsam for the lands on the Lifford Side Section 5.2 and Strabane.

The location of and extent of the Invasive species, with potential rhizome spread are shown in DWG1.

## 6.0 INVASIVE SPECIES MANAGEMENT PLAN LIFFORD

### 6.1 JAPANESE KNOTWEED

The proposed plan is to feature two main objectives to deal with the Japanese Knotweed (JK14, JK15 & JK16):

- The in-situ herbicide treatment of the Japanese Knotweed. (JK16).
- The excavation of Japanese Knotweed contaminated material which lies in areas critical to the development and relocated to a set aside containment area for continued herbicide treatment. (JK14 & JK15).

Table 3 summarises the management plan approach for each stand of Japanese Knotweed for the construction and operational phases.

**Table 3 Management Measures, Japanese Knotweed, Lifford**

JK	CRITICAL TO DEVELOPMENT	CONSTRUCTION PHASE	OPERATIONAL PHASE
<b>14</b>	YES	Excavate & Relocate to CA1	Monitored
<b>15</b>	YES	Excavate & Relocate to CA1	Herbicide applied & monitored
<b>16</b>	NO	Fenced off & Herbicide applied	Herbicide applied & monitored

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### 6.1.1 JAPANESE KNOTWEED INSITU HERBICIDE TREATMENT

#### **In situ Herbicide treatment of JK16**

It is recommended to treat the Japanese Knotweed stand JK16 in situ as it is situated in an area that is not critical to the development which will not be disturbed during construction.

The herbicide treatment can be applied through various methods depending on the size of plants at the time of treatment. This would be through foliar application via Knapsack spot spraying or weed wiping and stem injection if the plants stems are large enough.

It is likely that application via Knapsack spot spraying would be used in this instance. The herbicide applied will be Glyphosate based (Round up Proactive or similar) as it is approved for use in both forestry and aquatic environments, the product is also rain safe in 1hr. The herbicide will be applied in accordance with the manufacturer's instructions, at the recommended dosage during suitable conditions by fully certified Technician/s (PCA accredited and PA 6 and PA 6W certified).

Any treatment will be recorded in accordance with the Control of Pesticides Regulations 1986. It is proposed to treat the Japanese Knotweed when it is actively growing, twice per season for a minimum of three years, with the treatment beginning August of Year 1 with a follow up treatment applied in late August – October Year 1. The treatment will recommence the following season Year 2 with an herbicide application in June- August in Year 2 with a follow up application treatment later in the season August -October of Year 2.

The treatment will follow the same pattern for the following season in Year 3 with an herbicide application in June-August of Year 3 with a follow up application treatment later in the season August -October of Year 3.

After the scheduled treatment plan has finished (End of Year 3) the area will be continued to be monitored for any sign of regrowth for a period of at least two further years (Years 4 & 5).

If any regrowth appears it will be re-treated using the same method as before via herbicide application.

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## 6.1.2 JAPANESE KNOTWEED TO BE RELOCATED

### Japanese Knotweed stands of JK 14 & JK15

The areas affected by Japanese Knotweed of JK14 and JK15 will be excavated along with the infected soils and relocated to a set aside area CA1 (shown in DWG.1) for continued herbicide treatment.

The areas lay within an area which are going to be developed therefore it is recommended to relocate the stands and subsequent infected materials.

The infected areas will be excavated out until there are no more visible signs of the rhizome which could be as deep as 3m, but are most likely around 1.5-2m.

This material will be selected by the onsite supervisor who will decide the extent of the excavation footprint and depth based on visual inspections. This material selected by the onsite supervisor will then be moved either by excavator or dump truck to the containment area for on-going treatment. It is recommended that the onsite supervisor is adequately trained (PCA) or similar.

## 6.1.3 MATERIAL TO BE RELOCATED

The potential rhizome spread is most likely to be around 3m-3.5m from the edge of the visible growing plant base on the size and maturity of the stand.

This has been assumed at 3.5m to base the potential rhizome spread.

There would be two significant areas that would contain Japanese Knotweed rhizomes JK14 and JK15 for relocation.

JK14 with a potential Rhizome spread of  $200\text{m}^2 \times 2\text{m Depth} = 400\text{m}^3$ .

JK15 with a potential Rhizome spread of  $200\text{m}^2 \times 2\text{m Depth} = 400\text{m}^3$ .

Total amount to be relocated to treatment area **800m<sup>3</sup>**.

## 6.1.4 CONTAINMENT TREATMENT AREA, LIFFORD

A containment area, comprising a fenced off area with exclusion signage, is to be created to hold ex-situ invasive species for on-going ex-situ treatment. This is to be located outside the SAC and within the confines of the site for the construction and operational phases of the site for as long as treatment is necessary.

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The set aside treatment area (suggested location CA1, DWG 4) needs to be large enough to hold around 950m<sup>3</sup> of infected material (800m<sup>3</sup> of Japanese Knotweed infected material & 150m<sup>3</sup> Himalayan Balsam of Infected Material), the location is shown in DWG.4 with dimensions of 30m X 15m covering a footprint of approximately 450m<sup>2</sup>. The height of the treatment area will be approximately 2.1m in height.

The containment area (suggested location CA1, DWG 4) is based on what is excavated from the No.2 Japanese Knotweed Stands JK14 & JK15 and the stripped Himalayan Balsam infected soils, therefore the size and scale of the containment area will be reduced if there is significantly less contaminated material which has been excavated.

### **6.1.5 THE RELOCATION OF JAPANESE KNOTWEED INFECTED SOILS**

The soils and material that have been selected for relocation can then be placed in the containment area (CA1) via dump truck or by excavator. There will be a designated haul route to and from the containment area to ensure greater biosecurity, by reducing the chance of further spread to other areas. This haul route will be monitored via visual inspections to ensure no infected material is has fell on to the haul route during transportation.

Site management of the relocation to the containment area includes making sure the dump trucks are not overfilled, while transporting infected material.

During excavation adequate membrane will be laid beside the excavation while excavators are loading infected material on to dump trucks. So that any material falling from the excavators' bucket can be caught in the membrane and reduce spread.

## **6.2 HIMALAYAN BALSAM**

The proposed plan is to feature two main objectives to eradicate/control the Himalayan Balsam (HB8-HB10):

- The stripping of lands that contain Himalayan Balsam which lie in areas critical to the development are to be relocated to a set aside containment area for continued herbicide treatment and monitoring. (HB8, HB9 & HB10).

- The in-situ herbicide treatment of the Himalayan Balsam which may remain close to the waters edge from HB8, HB9 & HB10.

It is necessary to strip the lands in development critical areas that contain Himalayan Balsam as this is best suited to timescale of the project. In situ herbicide application is not a viable option in the development critical areas as this requires a two-year treatment plan, therefore the stripping of these lands and relocation of material is the preferred treatment option. Table 4 summarises the management plan approach for each area of the Himalayan Balsam for the construction and operational phases.

**Table 4 Management Measures, Himalayan Balsam, Lifford**

HB	CRITICAL TO DEVELOPMENT	CONSTRUCTION PHASE	OPERATIONAL PHASE
<b>HB8</b>	PARTIAL	Strip & Relocate to CA1/ Apply herbicide what remains in situ	Herbicide applied & monitored
<b>HB9</b>	YES	Strip & Relocate to CA1/ Apply herbicide what remains in situ	Herbicide applied & monitored
<b>HB10</b>	PARTIAL	Strip & Relocate to CA1/ Apply herbicide what remains in situ	Herbicide applied & monitored

### 6.2.1 HERBICIDE TREATMENT

It is proposed to treat the remaining areas of Himalayan Balsam infestations of HB8, and HB10 in situ via herbicide application during periods of active growth. The herbicide treatment process, the most efficient way is via foliar application through Knap sack spot spraying by certified technicians. A glyphosate-based Herbicide (Round up Proactive) will be used as it is approved in both forestry and aquatic environments, the product is also rain safe in 1hr.

The herbicide will be applied in accordance to the manufacturers' recommendations to the recommended dosage for the treatment of each Invasive Species. Appropriate PPE, including Coverall, Face shield, gloves, and rubber boots, will be worn while the carrying out of the spraying. Spraying will only be carried out only in suitable weather conditions, to reduce spray drift. The Knap sacks used will be calibrated, and the relevant details of spraying will be recorded as industry standard. Long lance sprayers may be used in areas that are hard to reach or inaccessible.

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### 6.2.2 TIMING

Herbicide application should be carried out during periods of active growth, before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the herbicide (50+ cm would be suitable).

The initial application should ideally be carried out in May/June with subsequent treatments/monitoring likely being required in July/August. (via the treatment process in 6.2.1).

The 2<sup>nd</sup> season would follow the same course followed by two years of monitoring.

### 6.2.3 MONITORING

The site will be continued to be monitored for a minimum of two years for any signs of regrowth upon completion of two years herbicide treatment. Any regrowth will be treated with herbicide using the same techniques used previously on site.

Due to the location of the site on the banks of the River Foyle, further recolonisation may occur from seed dispersal from the river especially on the riverbank.

### 6.2.4 STRIPPING OF HIMALAYAN BALSAM

This involves the stripping of ground critical to the development and moved to a set aside non-critical part of the site for continued herbicide treatment. A midi or standard excavator with a wide grading/ Ditching bucket will be used to strip the infected soils from the site and transport the material to a bunded treatment area via dumper.

The areas will be stripped to a depth of 150mm, the extent of the areas will be confirmed by the supervisor during excavation. Based on the survey estimated that approximately an area of as much as 1000m<sup>2</sup> would need to be stripped as part of this process.

This would result in  $(1000\text{m}^2 \times 150\text{mm} = 150\text{m}^3)$  150m<sup>3</sup> of material being moved from critical development area to the set aside treatment area (CA1).

The removal of the infected soil will be supervised by a suitable qualified Invasive species technician/surveyor who will designate the area and extent for removal to the required depth.

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This will be inspected visually so that there are no visible signs of invasive species plant material or seeds in areas that are to be developed. The Invasive species in the treatment area will be treated for at least 2 seasons and will be continued to be monitored for regrowth.

The remaining infestations of Invasive Species which are not proposed to be stripped will be fenced off and treated in situ via herbicide application also for at least two seasons and monitored for regrowth.

## **6.3 GIANT HOGWEED**

### **6.3.1 HERBICIDE TREATMENT**

The Giant Hogweed on located on site has already undergone herbicide treatment it is proposed to continue this process and treat the Giant Hogweed (GH2) in situ. The herbicide treatment process, the most efficient way is via foliar application through knapsack spot spraying by certified technicians.

A glyphosate-based Herbicide (Round up Proactive) will be used as it is approved in both forestry and aquatic environments, the product is also rain safe in 1hr. The herbicide will be applied in accordance to the manufacturers' recommendations to the recommended dosage for the treatment of each Invasive Species.

Appropriate PPE, including Coverall, Face shield, gloves, and rubber boots, will be worn while the carrying out of the spraying. Spraying will only be carried out only in suitable weather conditions, to reduce spray drift. The Knap sacks used will be calibrated, and the relevant details of spraying will be recorded as industry standard.

### **6.3.2 TIMING**

It is recommended to treat the Giant Hogweed twice per season for a period of at least two years. The 1st foliar spraying for Giant Hogweed commencing between late April and June (if possible) before seeding and flowering, also Giant Hogweed can become less accessible later in the season due to increasing heights.

A follow up treatment later in the season should be applied for any late germinating plants before seed set. The 2<sup>nd</sup> season would follow the same course followed by two years of monitoring.

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### 6.3.3 MONITORING

The site will be continued to be monitored for a minimum of two years for any signs of regrowth upon completion of two years herbicide treatment. Any regrowth will be treated with herbicide using the same techniques used previously on site.

Due to the location of the site on the banks of the River Foyle, further recolonisation may occur from seed dispersal from the river especially on the riverbank.

### 6.4 BIOSECURITY

To ensure biosecurity on site and reduce the spread of the invasive species throughout the site and on to other sites the following measures are to be implemented:

- Erect fencing around the invasive species (Japanese Knotweed & Giant Hogweed) and place relevant signage
- Erect Fencing around Containment Treatment Area and relevant signage.

The general Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invertebrate species is as follows:-

#### **Invasive Species (Plants and Bivalves) Construction Phase**

- Before any piece of construction 'machinery' including crane or mobile machinery / plant, (excavators, rollers, dumpers, tele-handlers etc.) is delivered to the site, the invasive species Clerk of Works shall be provided documentation providing details of all sites close to or involving works in water that the machinery has been working on or stored on in the last 60 days.
- The invasive species Clerk of Works may consider the need for additional biosecurity measures, such as quarantining or pre-delivery disinfection, for any high risk machinery that has recently involved in in-river works.
- Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invasive bivalve species is as follows:-
  - On arrival at or departure from the site, **ALL** construction machinery, and delivery vehicles travelling beyond the Construction Compound / delivery bays

- 
- should be visually inspected and disinfected in the self-contained biosecurity washing area of the Construction Compounds.
- The disinfection process shall involve dosing of the exterior of the machinery with a diluted solution of 1% Vircon Aquatic solution or an approved alternative.
  - The machinery should then be power-hosed with water of 60 °C + to remove disinfection solutions and any invasive species debris and any residual treated clams / eggs which may be present, followed by a final off-site visual inspection.
  - The treatment and inspection of machinery shall be overseen and approved by a qualified ecological Clerk of Works, including verification records to confirm completion of the disinfection for each piece of machinery, including any replacement / standby units intended to be used on the project. Records shall be retained for inspection by the client's representatives.
  - Sludge from the self-contained biosecurity facility shall be routinely (on at least a weekly basis) removed from the washing area and transferred to a water-tight covered skip for storage, awaiting off-site disposal to an appropriately licensed landfill site for deep burial. This is necessary, rather than on-site treatment at the proposed invasive species treatment areas due to the potential for the machinery washings to contain other residual contaminants such as oils.

#### **Mitigation Measures Invasive Species (Plants only) Construction Phase**

- The Invasive Species Clerk of Works and Ecological Clerk or Works shall be jointly responsible for the monitoring of biosecurity onsite. These responsibilities include site management, restrict personal and movement to designated areas, restrict access to site, clean maintain PPE, equipment and plant machinery.
- Plant Machinery are to restrict to in movement around the site, and within given work areas and haul routes to from containment areas.
- Plant machinery will remain on site in restricted area until excavation, and replacement to the containment area have been completed.
- Recommend the use of rubber tyre plant wherever possible rather than tracked plant.

- 
- Plant machinery to be thoroughly cleaned down upon completion of works including tracks, tyres, buckets, trailers etc and material placed in the containment area.
  - PPE especially boots to be deep clean and any material placed in containment area.
  - Cleaning of Plant Machinery and PPE will be overseen and undertaken by onsite Invasive Species supervisor who will instruct if the plant and personal are safe to leave.
  - Installation of a root barrier membrane under the footpath: where the Japanese Knotweed remains in close proximity to the path or where required excavated is not achievable.

## 6.5 UPDATE SURVEY

It is recommended that before any of the excavation or stripping elements of the treatment strategies to update the Invasive Species survey and management plan if required.

This is due to the nature of site along situated along the River Foyle which the lands are at risk from further spread of invasive species and the nature of such species in particular Himalayan Balsam.

Himalayan Balsam infestations can change significantly from season to season due its ability to rapidly spread from seed dispersal.

## 7.0 INVASIVE SPECIES MANAGEMENT PLAN STRABANE

### 7.1 JAPANESE KNOTWEED

The proposed plan is to feature three main objectives to eradicate/control with the Japanese Knotweed (JK1-JK10):

Note: JK11-JK13 will be eradicated/controlled under an earlier development of the path by the Strabane North Greenway team and is not considered in this Management Plan.

- The in-situ herbicide treatment of the Japanese Knotweed. (JK1, JK2, JK3, JK4, JK5, JK01 & remainder of JK8, JK9 & JK10)
- The excavation of Japanese Knotweed contaminated material which lies in areas critical to the development and relocated to a set aside containment area for continued herbicide treatment. (JK4, JK6, JK8, JK9, JK10)
- The installation of root barrier membrane in areas that are in close proximity to hard standing. (JK1, JK8, JK9 & JK10)

Table 5 summarises the management plan approach for each stand of Japanese Knotweed for the construction and operational phases.

**Table 5 Management Measures, Japanese Knotweed, Strabane**

JK	CRITICAL TO DEVELOPMENT	CONSTRUCTION PHASE	OPERATIONAL PHASE
<b>JK1</b>	NO	Fenced off & Herbicide applied Membrane Installed	Herbicide applied & monitored
<b>JK2</b>	NO	Fenced off & Herbicide applied	Herbicide applied & monitored
<b>JK3</b>	NO	Fenced off & Herbicide applied	Herbicide applied & monitored
<b>JK4</b>	NO	Fenced off & Herbicide applied	Monitored
<b>JK5</b>	NO	Fenced off & Herbicide applied	Herbicide applied & monitored
<b>JK6</b>	YES	Excavate & Relocate to Containment Area	Monitored
<b>JK7</b>	YES	Excavate & Relocate	Monitored

		to Containment Area	
<b>JK8</b>	PARTIAL	Excavate & Relocate to CA2 Membrane Installed Fenced off & Herbicide applied	Herbicide applied & Monitored
<b>JK9</b>	PARTIAL	Excavate & Relocate to Containment Area Membrane Installed Fenced off & Herbicide applied	Herbicide applied & Monitored
<b>JK10</b>	PARTIAL	Excavate & Relocate to Containment Area Membrane Installed Fenced off & Herbicide applied	Herbicide applied & Monitored

### 7.1.1 JAPANESE KNOTWEED INSITU HERBICIDE TREATMENT

#### **In situ Herbicide treatment of JK1, JK2, JK3, JK4, JK5, JKO1 & remainder of JK 8, JK9 & JK10**

It is recommended to treat the Japanese Knotweed stands JK1, JK2, JK3, JK4, JK5 and JKO1 in situ as they are located areas that are not critical to the development which will not be disturbed during construction.

The herbicide treatment can be applied through various methods depending on the size of plants at the time of treatment. This would be through foliar application via Knapsack spot spraying, weed wiping and also stem injection if the plants stems are large enough. It is likely that application via Knapsack spot spraying would be used in this instance.

The herbicide applied will be Glyphosate based (Round up Proactive or similar) as it is approved for use in both forestry and aquatic environments, the product is also rain safe in 1hr. The herbicide will be applied in accordance with the manufacturer's instructions, at the recommended dosage during suitable conditions by fully certified Technician/s (PCA accredited and PA 6 and PA 6W certified).

Any treatment will be recorded in accordance with the Control of Pesticides Regulations 1986. It is proposed to treat the Japanese Knotweed when it is actively growing, twice per season for a minimum of three years, with the treatment beginning in August of Year 1 with a follow up treatment applied August – October of Year 1.

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The treatment will recommence the following season Year 2 with an herbicide application in June-August of Year 2 with a follow up application treatment later in the season August -October of Year 2. The treatment will follow the same pattern for the following season in Year 3 with an herbicide application in June- August of Year 3 with a follow up application treatment later in the season August -October of Year 3.

After the scheduled treatment plan has finished (End of Year 3) the area will be continued to be monitored for any sign of regrowth for a period of at least two further years (Years 4 & 5).

If any regrowth appears it will be re-treated using the same method as before via herbicide application.

### **7.1.2 JAPANESE KNOTWEED TO BE RELOCATED**

#### **Japanese Knotweed stands of JK6, JK7, and partial stands of JK8, JK9 & JK10.**

The areas affected by Japanese Knotweed along with the infected soils will be excavated and relocated to a set aside area CA2 & CA3 for continued treated shown in DWG.3. The areas are within lands which are going to be developed therefore it is recommended to relocate the stands and subsequent infected materials.

The infected areas will be excavated out until there is no more visible signs of the rhizome which could be as deep as 3m, but most likely around 2m.

This material will be selected by the onsite supervisor who will decide the extent of the excavation footprint and depth based on visual inspections. This material selected by the onsite supervisor will then be moved either by excavator or dump truck to the containment areas (CA2 & CA3) for burial. It is recommended that the onsite supervisor is adequately trained (PCA) or similar.

### **7.1.3 MATERIAL TO BE RELOCATED**

The potential Rhizome spread is most likely to be around 3m-3.5m from the edge of the visible growing plant base on the size and maturity of the stand. This has been assumed at 3.5m to base the potential Rhizome spread.

There are 5 stands of Japanese Knotweed and infected material JK6, JK7, JK8, JK9, JK10, for total or partial relocation:-

- 
- JK6 & JK7 (Total Removal) with a potential Rhizome spread of 500m<sup>2</sup> X 2m Depth = **1000m<sup>3</sup>**.
  - JK8 & JK9 (Partial Removal) with a potential Rhizome spread of 130m<sup>2</sup> X 2m Depth = **260m<sup>3</sup>**.
  - JK10 (Partial Removal) with a potential Rhizome spread of 25m<sup>2</sup> X 2m Depth = **50m<sup>3</sup>**.

Total amount to be relocated to treatment area **1310m<sup>3</sup>**.

#### **7.1.4 CONTAINMENT TREATMENT AREA**

The set aside treatment areas (suggested location CA2 and CA3, DWG. 4) needs to be large enough to hold around 1515m<sup>3</sup> of infected material (1310m<sup>3</sup> of Japanese Knotweed infected material & 255m<sup>3</sup> Himalayan Balsam of infected material), the locations of CA2 and CA3 is shown in DWG.4.

CA2 is proposed to be located just North of the proposed carpark with an irregular shape and dimensions of 30m X 15.5m covering a footprint of approximately 450m<sup>2</sup> holding approximately 1012m<sup>3</sup> (450m<sup>2</sup> x 2.25m)

CA3 is proposed to the west of the proposed carpark in a rectangular shape and dimensions of 20m X 12.5m covering a footprint of approximately 250m<sup>2</sup> holding approximately 562m<sup>3</sup> (250m<sup>2</sup> x 2.25m)

The maximum height of the treatment area will be approximately 2.25m in height.

Both CA2 and CA3 combined can hold up to 1575m<sup>3</sup> if required.

The containment areas (suggested location CA2 & CA3, DWG. 4) is based on what is excavated from the No.5 Japanese Knotweed Stands JK6-JK10 and the stripped Himalayan Balsam infected soils, therefore the size and scale of the containment areas will be reduced if there is significantly less contaminated material which has been excavated.

#### **7.1.5 THE RELOCATION OF JAPANESE KNOTWEED INFECTED SOILS**

The soils and material that have been selected for onsite burial can then be placed in the constructed lined containment cell via dump truck or by excavator. There will be a designated haul route to and from the containment area to ensure greater biosecurity, by reducing the chance of further spread to other areas. This haul route will be monitored via visual inspections to ensure no infected material is has fell on to the haul route during transportation.

Site management of the relocation to the containment cell includes making sure the dump trucks are not overfilled, while transporting infected material.

During excavation adequate membrane will be laid beside the excavation while excavators are loading infected material on to dump trucks. So that any material falling from the excavators' bucket can be caught in the membrane and reduce spread.

## 7.2 HIMALAYAN BALSAM

The proposed plan is to feature two main objectives to eradicate/control the Himalayan Balsam (HB1, HB2 partial, HB3 & HB7):

Note: (HB2 Partial, HB4-HB6) will be eradicated/controlled under an earlier development of the path by the Strabane North Greenway team and is not considered in this Management Plan.

- The in-situ herbicide treatment of the Himalayan Balsam. (HB1 Partial, HB2 Partial, HB3 Partial, HB7 Partial).
- The stripping of lands that contain Himalayan Balsam which lie in areas critical to the development are to be relocated to a set aside containment area for continued herbicide treatment and monitoring. (HB1 Partial, HB2 Partial HB3 Partial HB7 Partial).

It is necessary to strip the lands in development critical areas that contain Himalayan Balsam as this is best suited to timescale of the project.

In situ herbicide application is not a viable option in the development critical areas as this requires a two-year treatment plan, therefore the stripping of these lands and relocation of material is the preferred treatment option.

Table 6 summarises the management plan approach for each area of the Himalayan Balsam for the construction and operational phases.

**Table 6 Management Measures, Himalayan Balsam, Strabane**

HB	CRITICAL TO DEVELOPMENT	CONSTRUCTION PHASE	OPERATIONAL PHASE
<b>HB1</b>	PARTIAL	Strip & Relocate/ Apply herbicide what remains in situ	Herbicide applied & monitored

<b>HB2</b> <b>PARTIAL</b>	PARTIAL	Strip & Relocate/ Apply herbicide what remains in situ	Herbicide applied & monitored
<b>HB3</b>	PARTIAL	Strip & Relocate/ Apply herbicide what remains in situ	Herbicide applied & monitored
<b>HB7</b>	PARTIAL	Strip & Relocate/ Apply herbicide what remains in situ	Herbicide applied & monitored

### 7.2.1 HERBICIDE TREATMENT

It is proposed to treat the Himalayan Balsam infestations (the remainder of HB1, HB3 and HB7 after being partially stripped) in situ via herbicide application during periods of active growth. The herbicide treatment process, the most efficient way is via foliar application through Knap sack spot spraying by certified technicians. A glyphosate-based Herbicide (Round up Proactive) will be used as it is approved in both forestry and aquatic environments, the product is also rain safe in 1hr.

The herbicide will be applied in accordance to the manufacturers' recommendations to the recommended dosage for the treatment of each Invasive Species. Appropriate PPE, including Coverall, Face shield, gloves, and rubber boots, will be worn while the carrying out of the spraying. Spraying will only be carried out only in suitable weather conditions, to reduce spray drift. The Knap sacks used will be calibrated, and the relevant details of spraying will be recorded as industry standard. Long lance sprayers may be used in areas that are hard to reach or inaccessible.

### 7.2.2 TIMING

Herbicide application should be carried out during periods of active growth, before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the herbicide (50+ cm would be suitable).

The initial application should ideally be carried out in May/June with subsequent treatments/monitoring likely being required in July/August. (via the treatment process in 6.21).

The 2<sup>nd</sup> season would follow the same course followed by two years of monitoring.

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### 7.2.3 MONITORING

The site will be continued to be monitored for a minimum of two years for any signs of regrowth upon completion of two years herbicide treatment. Any regrowth will be treated with herbicide using the same techniques used previously on site.

Due to the location of the site on the banks of the River Foyle, further recolonisation may occur from seed dispersal from the river especially on the riverbank.

### 7.2.4 STRIPPING OF HIMALAYAN BALSAM

This involves the stripping of ground critical to the development and moved to a set aside non-critical part of the site for continued herbicide treatment. A midi or standard excavator with a wide grading/ Ditching bucket will be used to strip the infected soils from the site and transport the material to a bunded treatment area via dumper.

The areas will be stripped to a depth of 150mm, the extent of the areas will be confirmed by the supervisor during excavation.

Based on the survey it is estimated that approximately an area of as much as 1700m<sup>2</sup> (HB1 1000m<sup>2</sup>, HB7 700m<sup>2</sup>) would need to be stripped as part of this process. This would result in (1700m<sup>2</sup> x 150mm = 255m<sup>3</sup>) 255m<sup>3</sup> of material being moved from critical development areas to the set aside treatment areas (CA2 or CA3).

The removal of the infected soil will be supervised by a suitable qualified Invasive species technician/surveyor who will designate the area and extent for removal to the required depth. This will be inspected visually so that there are no visible signs of invasive species plant material or seeds in areas that are to be developed.

The Invasive species in the treatment area will be treated for at least 2 seasons and will be continued to be monitored for regrowth.

The remaining infestations of Himalayan Balsam (HB1, HB2, HB3 & HB7) which are not stripped will be fenced off and treated in situ via herbicide application also for at least 2 seasons and monitored for regrowth.

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## 7.3 GIANT HOGWEED

### 7.3.1 HERBICIDE TREATMENT

It is proposed to treat the Giant Hogweed (GH1) in situ via herbicide application. The herbicide treatment process, the most efficient way is via foliar application through Knap sack spot spraying by certified technicians. A glyphosate-based Herbicide (Round up Proactive) will be used as it is approved in both forestry and aquatic environments, the product is also rain safe in 1hr.

The herbicide will be applied in accordance with the manufacturers' recommendations to the recommended dosage for the treatment of each Invasive Species. Appropriate PPE, including Coverall, Face shield, gloves, and rubber boots, will be worn while the carrying out of the spraying. Spraying will only be carried out only in suitable weather conditions, to reduce spray drift. The Knap sacks used will be calibrated, and the relevant details of spraying will be recorded as industry standard.

### 7.3.2 TIMING

It is recommended to treat the Giant Hogweed twice per season for a period of at least two years. The 1st foliar spraying for Giant Hogweed commencing between late April and June (if possible) before seeding and flowering, also Giant Hogweed can become less accessible later in the season due to increasing heights.

A follow up treatment later in the season should be applied for any late germinating plants before seed set. The 2<sup>nd</sup> season would follow the same course followed by two years of monitoring.

### 7.3.3 MONITORING

The site will be continued to be monitored for a minimum of two years for any signs of regrowth upon completion of two years herbicide treatment. Any regrowth will be treated with herbicide using the same techniques used previously on site.

Due to the location of the site on the banks of the River Foyle, further recolonisation may occur from seed dispersal from the river especially on the riverbank.

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## 7.4 BIOSECURITY

To ensure biosecurity on site and reduce the spread of the invasive species throughout the site and on to other sites the following measures are to be implemented:

- Erect fencing around the invasive species (Japanese Knotweed & Giant Hogweed) and place relevant signage
- Erect Fencing around Containment Treatment Area and relevant signage.

### **Invasive Species (Plants and Bivalves) Construction Phase**

- Before any piece of construction 'machinery' including crane or mobile machinery / plant, (excavators, rollers, dumpers, tele-handlers etc.) is delivered to the site, the invasive species Clerk of Works shall be provided documentation providing details of all sites close to or involving works in water that the machinery has been working on or stored on in the last 60 days.
- The invasive species Clerk of Works may consider the need for additional biosecurity measures, such as quarantining or pre-delivery disinfection, for any high risk machinery that has recently involved in in-river works.
- Biosecurity Process for machinery arriving or leaving the site during the construction phase with regard to invasive plant and invasive bivalve species is as follows:-
  - On arrival at or departure from the site, **ALL** construction machinery should be visually inspected and disinfected in the self-contained biosecurity washing area of the Construction Compounds.
  - The disinfection process shall involve dosing of the exterior of the machinery with a diluted solution of 1% Vircon Aquatic solution or an approved alternative.
  - The machinery should then be power-hosed with water of 60 °C + to remove disinfection solutions and any invasive species debris and any residual treated clams / eggs which may be present, followed by a final off-site visual inspection.
  - The treatment and inspection of machinery shall be overseen and approved by a qualified ecological Clerk of Works, including verification records to confirm completion of the disinfection for each piece of machinery, including any

- 
- replacement / standby units intended to be used on the project. Records shall be retained for inspection by the client's representatives.
- Sludge from the self-contained biosecurity facility shall be routinely (on at least a weekly basis) removed from the washing area and transferred to a water-tight covered skip for storage, awaiting off-site disposal to an appropriately licensed landfill site for deep burial. This is necessary, rather than on-site treatment at the proposed invasive species treatment areas due to the potential for the machinery washings to contain other residual contaminants such as oils.

### **Mitigation Measures Invasive Species (Plants only) Construction Phase**

- The Invasive Species Clerk of Works and Ecological Clerk or Works shall be jointly responsible for the monitoring of biosecurity onsite. These responsibilities include site management, restrict personal and movement to designated areas, restrict access to site, clean maintain PPE, equipment and plant machinery.
- Plant Machinery are to restrict to in movement around the site, and within given work areas and haul routes to from containment areas.
- Plant machinery will remain on site in restricted area until excavation, and replacement to the containment area have been completed.
- Recommend the use of rubber tyre plant wherever possible rather than tracked plant.
- Plant machinery to be thoroughly cleaned down upon completion of works including tracks, tyres, buckets, trailers etc and material place in the containment area.
- PPE especially boots to be deep clean and any material placed in containment area.
- Cleaning of Plant Machinery and PPE will be overseen and undertaken by onsite Invasive Species supervisor who will instruct if the plant and personal are safe to leave.
- Installation of a root barrier membrane under the footpath: where the Japanese Knotweed remains in close proximity to the path, or where required excavated is not achievable.

The following seasonality restrictions will apply to the development, and this details the periods for invasive species treatment:-

**Seasonal Constraints for Construction and Associated Works**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
In-River Piling, Bridge Construction, In-river works, riverbank Works and piling within SAC	Red	Red	Red	Red	Green	Green	Green	Green	Green	Red	Red	Red
Tree and Shrub Clearance, works within 150m of owl nest	Green	Green	Red	Green	Green	Green						
JK Treatment	Red	Red	Red	Red	Green	Green	Green	Opt	Opt	Opt	Red	Red
Balsam Treatment	Red	Red	Red	Opt	Opt	Green	Green	Green	Green	Green	Red	Red
Hogweed Treatment	Red	Red	Red	Opt	Opt	Opt	Green	Green	Green	Green	Red	Red

Opt : Optimal Period                      Red: Exclusion Period                      Green: Approved Period

### 7.5 UPDATE SURVEY

It is recommended before that before any of the excavation or stripping elements of the treatment strategies to update the Invasive Species survey and management plan if required.

This is due to the nature of site along situated along the River Foyle which the lands are at risk from further spread of invasive species and the nature of such species in particular Himalayan Balsam.

Himalayan Balsam infestations can change significantly from season to season due its ability to rapidly spread from seed dispersal.

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## 8.0 APPENDICES

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**DWG**



- Key:
-  JK1 Japanese Knotweed ID & Location
  -  Potential Rhizome Spread (3.5m)
  -  HB1 Himalayan Balsam ID & Location
  -  GH1 Giant Hogweed ID & Location

Note:  
 JK11, JK12 & JK13  
 HB2 Partial, HB3, HB4, HB5 & HB6  
 Will be controlled under an earlier development of the path by Strabane North Greenway

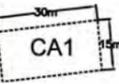
Riverine Lifford & Strabane	
DWG.1	
Invasive Species Location (JUNE 2021)	
Scale 1:2500	Date 21/01/22



Unit 5, Forty Eight North, Duncrue Street, Belfast  
 BT3 9BJ  
 Tel: 028 9074 7766



**Key:**

-  JK1 Japanese Knotweed ID & Location
-  Potential Rhizome Spread (3.5m)
-  HB1 Himalayan Balsam ID & Location
-  GH1 Giant Hogweed ID & Location
-  CA1 Containment Treatment Area (30m x 15m= 450m<sup>2</sup>)

Riverine Lifford & Strabane

DWG.2

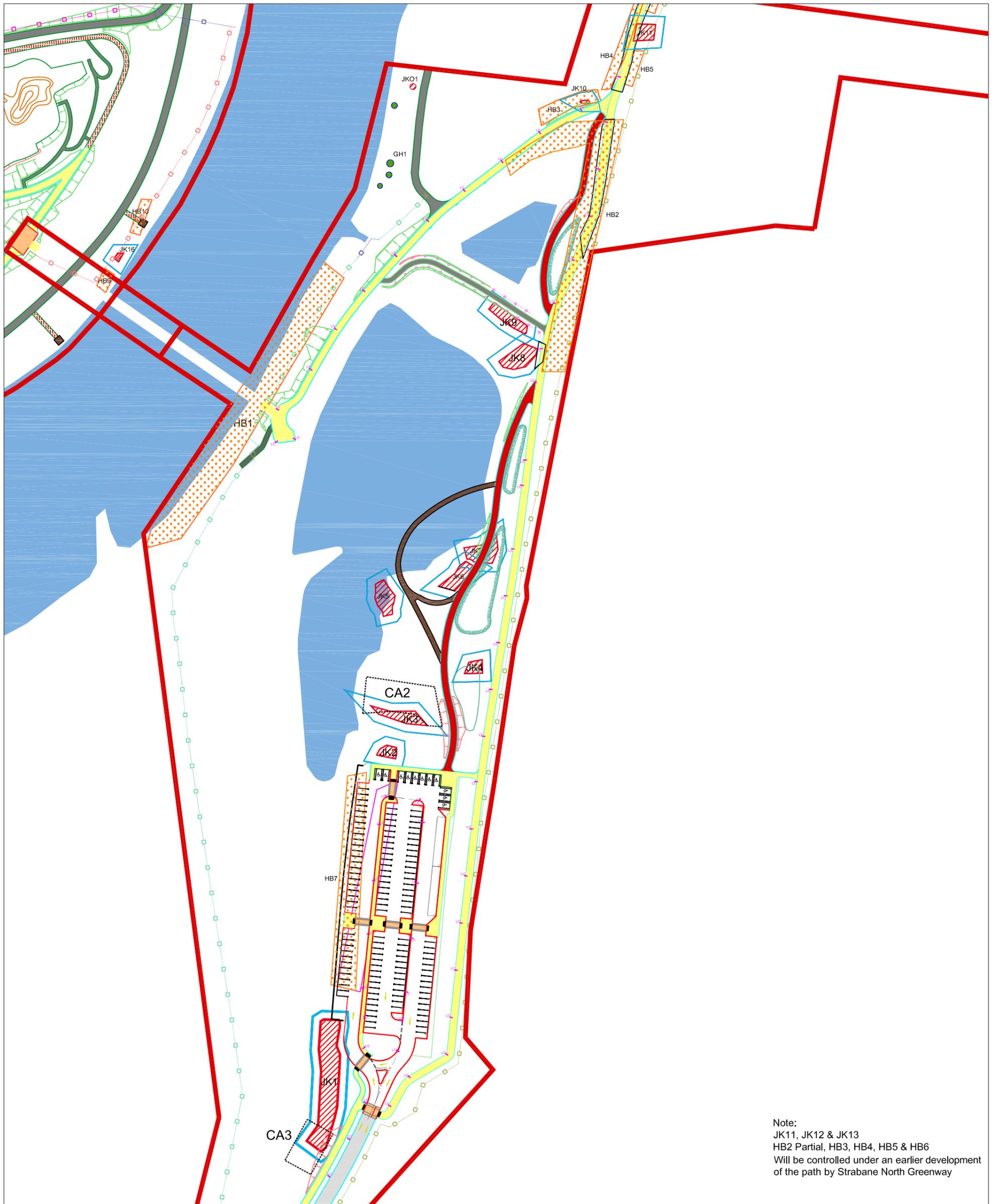
Lifford  
Invasive Species Location  
with Containment Area

Scale  
1:2500

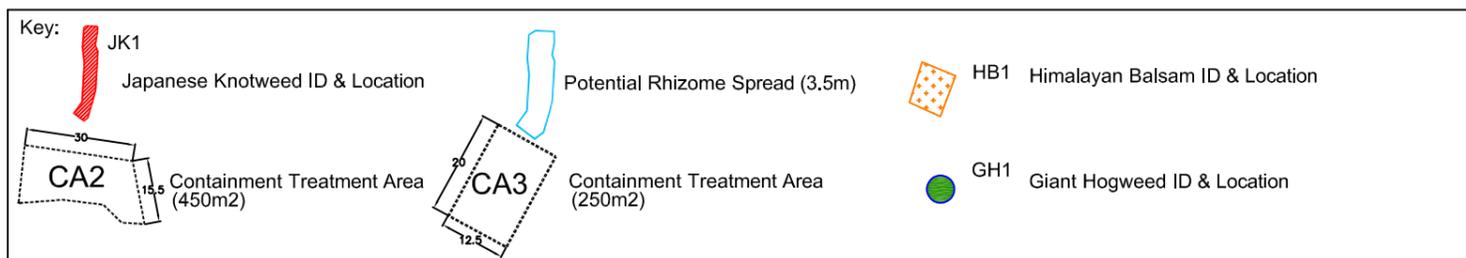
Date  
21/01/22



Unit 5, Forty Eight North, Duncrue Street, Belfast  
BT3 9BJ  
Tel: 028 9074 7766

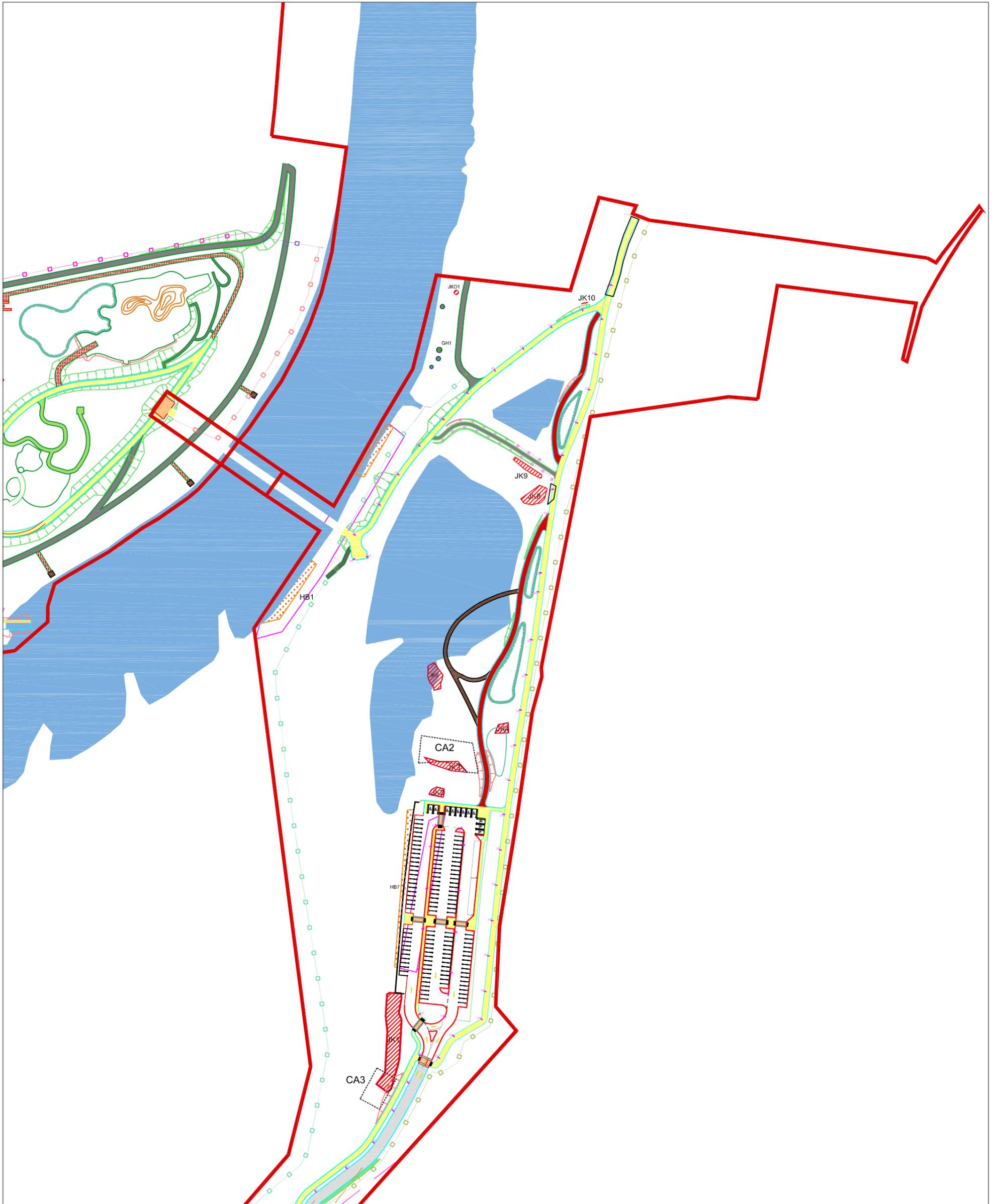


Note:  
 JK11, JK12 & JK13  
 HB2 Partial, HB3, HB4, HB5 & HB6  
 Will be controlled under an earlier development  
 of the path by Strabane North Greenway



DWG.3	Riverine Lifford & Strabane
Scale 1:500	Strabane Invasive Species Location with Containment Treatment Area (JUNE 2021)
Date 25/01/22	

Unit 5, Forty Eight North, Duncrue Street, Belfast  
 BT3 9BJ  
 Tel: 028 9074 7766



**Key:**

- JK1 Japanese Knotweed ID & Location
- Potential Rhizome Spread (3.5m)
- HB1 Himalayan Balsam ID & Location
- GH1 Giant Hogweed ID & Location
- CA2 Containment Treatment Area (450m<sup>2</sup>)
- CA3 Containment Treatment Area (250m<sup>2</sup>)

Multidisciplinary Environmental Consultants

**MCL**  
CONSULTING

Unit 5, Forty Eight North, Duncrue Street, Belfast  
BT3 9BJ  
Tel: 028 9074 7766

DWG.4	Riverine Lifford & Strabane	
Scale 1:1250	Strabane Invasive Species Locations after relocation with Containment Treatment Areas	
Date 25/01/22		

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**PHOTOS FROM SURVEY 22/06/21**

Photos from survey 22<sup>nd</sup> June 2021- Lifford



Plate.1 JK14 growing along pathway



Plate.2 JK15 growing along pathway

Photos from survey 22<sup>nd</sup> June 2021- Lifford



Plate.3 JK16 growing along riverbank.



Plate.4 Himalayan Balsam along the River Bank. (HB8)

Photos from survey 22<sup>nd</sup> June 2021- Lifford



Plate.5 Himalayan Balsam along lane way (HB8)



Plate.6 Himalayan Balsam rivers edge (HB9)

Photos from survey 22<sup>nd</sup> June 2021- Lifford



Plate.7 Himalayan Balsam along lane way (HB8)

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.1 JK1 growing along disused carpark.



Plate.2 JK2 growing along the north edge of disused carpark.

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.3 JK3 growing in overgrown area North of the disused carpark.



Plate.4 JK5 growing near to pond next to utilities pole.

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.5 JK6 & JK7



Plate.6 JK8 & JK9 Growing along the drain

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.7 JK10 growing along the access lane



Plate.8 JK11 growing along the access lane

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.9 JK12 growing along the access lane



Plate.10 JK13 growing along the access lane

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.11 JKO1 growing along path along river side.



Plate.12 GH1 beside the path along river side.

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.13 GH1 along path along river side



Plate.12 HB1 near to the badger sets

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.13 HB2 along the lane way



Plate.14 HB3 along the access lane

Photos from survey 22<sup>nd</sup> June 2021- Strabane



Plate.15 HB along the laneway



Plate.15 HB5 along the laneway

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## Appendix 8-14

### Kick Sample Survey



**APPENDIX 8-14**

**Kick Sample Survey**

**Riverine Community Park  
Lifford-Strabane**

**Client: McAdam Design**

**Issued: April 2022**

**MCL Consulting Ltd  
Unit 5, Forty Eight North  
Duncrue Street  
Belfast  
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Appendix I: Kick Sampling Survey Locations

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## 1.0 INTRODUCTION

In 2021 MCL Consulting were appointed by McAdam Design to provide a freshwater invertebrate survey as part of a water feature survey on behalf of their clients in order to form part of a requested ES for the proposed riverine scheme encompassing Strabane and Lifford.

### 1.1 Site Description

The subject site straddles the border between Strabane, Northern Ireland (NI) and Lifford, Republic of Ireland (ROI) with the River Foyle flowing between the two towns.

On the Strabane side, the site is accessed via a small access road exiting from a roundabout which connects Lifford Road, Barnhill Road, Railway Street, and Bradley Way. The access road leads to a disused car park, with the rest of the site consisting of woodland.

On the Lifford side, the site is accessed via a small access road which egresses on to Station Road. The subject site on this side consists mostly of open grassed land, with a sports pitch located to the north east and a band of woodland running in a north-south line to the west of the site.



**Figure 1: Site location**



**Figure 2: Site boundary**

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## 1.2 Development Proposal

The development aims to address the impact of the conflict in the Lifford and Strabane area, and its hinterlands, by regenerating the border riverside area to create an iconic cross-border community park straddling the River Foyle as a shared space to bring communities together from both sides of the border, to re-connect and form new, long lasting connections and relationships.

Riverine Community Park will be of local and regional importance and will incorporate the core elements of a pedestrian and cycle bridge between Lifford and Strabane, Riverine Park Building, multi-functional outdoor space and external stage provision, play area, river walk and access, landscaped green-spaces interlaced with a network of pathways, cycleways and retained wetlands. The development will be supported by car parking provision.

The project will comprise the creation of new community park infrastructure by utilising agricultural land (Lifford) and former railway land and wetlands (Strabane) lying along either side of the border connected through the creation of a new pedestrian and cycle bridge between Lifford and Strabane. The bridge will be a single span (the central in river piling having been previously discounted through initial consultation with loughs agency), with landing points on either side of the riverbanks. The Park on the Lifford site will be a designed landscape incorporating indoor and outdoor recreational features, smaller meeting & events spaces for programmed activity, complemented by the use of the naturalised flood plain environment on the Strabane site for informal recreation and environmental education/conservation activities. This diversity of offering makes for a more inclusive and freeing sharing experience.

The proposed project, although not restricted to, comprises the following key components:

- Building providing indoor space for use on a shared basis for activities including music, drama, multi-media activities on the Lifford side of the proposed development.
- Outdoor flexible multi-functional space to accommodate a range of outdoor programmed & non-programmed activities both small & large scale. The space will

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have a maximum capacity of c.3,000 persons & will be dual facing for small or large events on the Lifford side of the proposed development.

- A new bridge connection that spans both sides of the River Foyle forming a strong, symbolic statement in terms of the unifying theme of bringing together all of the communities who will use the project.
- Wetland and park space to encourage participants to enjoy & learn key environmental assets of the area.
- River based recreational facilities for the increasing number of water sports groups in Lifford & Strabane will be made available on the Lifford side of the proposed development.
- Family Space incorporating unique play experience, designed to support children focused events & related programming.
- Associated car parking at the former halting site, accessed from the roundabout at the Barnhill Road, Strabane.

### 1.3 Surveyors/Authors

MCL Consulting is a Northern Ireland based multidisciplinary environmental consultancy which provides expert advice for a wide range of ecological services in support of Environmental Impact Assessments (EIA).

#### **Ryan Boyle BSc MSc – Consultant Ecologist**

Fieldwork was carried out and assisted by Ryan Boyle a consultant ecologist at MCL Consulting. Ryan has a MSc in Ecological Management and Conservation Biology from Queen's University Belfast and a BSc (Hons) in Bioveterinary Sciences from Harper Adams University. He has 7 years of professional and voluntary experience in the ecological, environmental and conservation sector having worked as a herpetological keeper at Chester Zoo working on conservation breeding programmes with the aim of wild reintroductions, a zookeeper at Belfast Zoo, environmental assistant at GRAHAM, volunteered with the Belfast Hills Partnership partaking in a number of surveys such as bats, phase 1 habitat surveys, preliminary ecological appraisals, environmental farming schemes, soil carbon surveys, river fly surveys and is the chair for the Northern Ireland Amphibian and Reptile Group. He is experienced in species identification, management and mitigation, badger surveys, otter surveys bat activity surveys, preliminary ecological appraisals, biodiversity checklists, bat

roost potential surveys, newt surveys, breeding bird surveys, vantage point surveys as well as in-depth research desk studies to generate informative conclusions based upon historical data with experience in applying these skills to development industries.

### **Emily Taylor BSc – Graduate Ecological Consultant**

Field work and reporting was assisted by Emily Taylor, a graduate ecological consultant at MCL Consulting. She is currently working towards an MSc in Ecological Management and Conservation Biology from Queen’s University Belfast and has a BSc (Hons) in Biological Sciences from Durham University. She has a range of experience in ecological field skills, having undertaken placements with both the RSPB and the Armagh, Banbridge and Craigavon Borough Council. She has two years of professional experience having worked as a part of the membership team for the RSPB, before becoming a graduate associate for PwC. She is a current regional surveyor for the Northern Ireland Amphibian and Reptile Group, a seasonal volunteer for the Bat Conservation Trust and a member of the Botanical Society of Britain and Ireland. She regularly takes part in newt, lizard and bat surveys, as well as botanical identification outings.

## **1.4 Survey Parameters**

Table 1 below summarises the dates of surveys, timings and weather conditions experienced at the time of survey (temperature °C, Beaufort scale, cloud-cover Oktas and precipitation)

**Table 1: Summary of weather conditions and survey periods**

Surveyor	Date	Survey Start	Survey Finish	°C	W/s	Oktas	Ppt
Ryan Boyle BSc (Hons), MSc Emily Taylor BSc (Hons)	27/06/21	13:00	15:00	16	9	8/8	75%

## **2.0 KICK SAMPLE SURVEY**

### **2.1 Rationale of Kick Sample Survey**

The aim of the kick sample survey and assessment was to:

- Determine if there is a difference in freshwater invertebrate species between the various water bodies throughout the site; and

- To help determine water quality based on species diversity or presence/absence through use of a qualitative technique

## 2.2 Desk Study

A previous water features survey had been carried out by MCL Consulting to identify water bodies located throughout the proposed site. This survey also assessed water quality of the water bodies located as well as assessed the risk to these water bodies from the proposed development plan. Based on this several locations were identified for further investigation by method of kick sampling, (see Appendix: I).

**Table 2: Kick Sampling Survey Locations**

Sample Location	Grid reference	Description
1	H 34184 98630	Small watercourse known as the Nancy Burn flowing east from Strabane towards the River Foyle along a deep-set shuck on the Strabane side
2	H 34182 98611	Park Road Drain running parallel the eastern boundary on the Strabane side
3	H 34125 98659	Nancy Burn drain entrance leading out to the River Foyle, set within a deep shuck with densely
4	H 33807 98959	Field drain culvert running through the northern area of the site on the Lifford side
5	H 33886 99026	Deep-set field drain located on the Lifford side's north-east corner
6	H 33843 98955	Field drain culvert running through the northern area of the site on the Lifford side
7	H 34099 98573	Flooded wet woodland area on the Strabane side
8	H 34066 98547	Flooded wet woodland area on the Strabane side
9	H 34083 98503	Flooded wet woodland area on the Strabane side
10	H 34070 98444	Flooded wet woodland area on the Strabane side

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## 2.3 Field Study

### 2.3.1 Equipment

- A sampling tray - a pale coloured tray is best, as it contrasts with the brown/green invertebrates in the sample
- D frame net
- Hand lens, plastic spoon and/or pipette
- Chest height waders

### 2.3.2 Methodology

- Hold a fine-mesh net in the direction that you are facing. This should be downstream of where the surveyor is standing;
- Use one foot to kick the bottom of the stream, dislodging the substrate in the direction of the net;
- Animals dislodged from the substrate will be washed into the net;
- As sampling disturbs the substrate, always take the first sample at the lowest point upstream, then work back upstream.;
- Standardise time spent kicking each sample site, (e.g. 40 seconds);
- Standardise area of stream bed sampled, (e.g. 50x50cm quadrat);
- Identify invertebrates to the lowest taxonomic level as possible;
- Record the number of individuals of each species or estimate abundance if they are in large numbers, such as water fleas (*Daphnia* sp);
- 10-30 samples for each area.

### 2.3.3 Survey Constraints

Selected sites for kick sampling were located throughout the site. several of these locations posed issues with access due to being at the bottom of steep sided, deep field drains. Treacherous terrain was difficult to observed and navigate due to densely overgrown banks as well as operating in water the depth can be undetermined until the surveyor is in the water. However, no constraints prevented the survey from being carried out.

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## 2.4 Results

### 2.4.1 Field Study

Kick sampling surveys were carried out at 10 locations through the proposed Riverine Scheme site in order to help assess the aquatic habitats on site and to assess potential risks to the quality of these habitats.

### 2.4.2 Kick Sample Survey Results

Kick sample surveying was undertaken on the 21/06/2021 to ascertain freshwater invertebrate diversity and abundance at specific locations throughout the proposed Riverine Scheme site to help assess the quality of the aquatic habitats and assess the risks to these habitats.

A walkover of the proposed site and previous water features survey was carried out to identify and map out all open water bodies, courses and drains on site, collect water samples and field chemistry from all identified water features.

Several key locations were identified for further ecological investigation to assess invertebrate diversity in order to inform the significance of these water features as well as the risk to these features from existing and proposed developments.

**Table 3: Summary of Findings for Kick Sample Survey**

Sample Location	Grid reference	Description	Species Present
1	H 34184 98630	Small watercourse known as the Nancy Burn flowing east from Strabane towards the River Foyle along a deep-set shuck on the Strabane side	Caddisfly larvae x 25 Hoglouse x 20 Non-biting midge larvae x 33 Pond snail x 41
2	H 34182 98611	Park Road Drain running parallel the eastern boundary on the Strabane side	Pond Snail x 4 Non-biting midge larvae x 13 Caddisfly larvae x 2 Hoglouse x 14 European fingernail clam x 13

Sample Location	Grid reference	Description	Species Present
3	H 34125 98659	Nancy Burn drain entrance leading out to the River Foyle, set within a deep shuck with densely	Caddisfly larvae x 6 Hoglouse x 15 Non-biting midge larvae x 2
4	H 33807 98959	Field drain culvert running through the northern area of the site on the Lifford side	Pond Snail x 50 Hoglouse x 50
5	H 33886 99026	Deep-set field drain located on the Lifford side's north-east corner	Hoglouse x 18
6	H 33843 98955	Field drain culvert running through the northern area of the site on the Lifford side	Pond Snail x 15 Hoglouse x 32
7	H 34099 98573	Flooded wet woodland area on the Strabane side	Pond skaters x 45 Water beetles x 10 Waterboatman x 5
8	H 34066 98547	Flooded wet woodland area on the Strabane side	Pond skaters x 40 Water beetles x 5 Waterboatman x 20
9	H 34083 98503	Flooded wet woodland area on the Strabane side	Pond skaters x 12 Water beetles x 9 Flatworms x 38 Waterboatman x 3
10	H 34070 98444	Flooded wet woodland area on the Strabane side	Water beetles x 11 Pond skaters x 19 Horse leeches x 8

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### 2.4.3 Summary of Results

The site is considered to be suitable for aquatic life with various waterbodies and field drains throughout the site on both sides of the River Foyle. The site's location on the banks of the River Foyle hydrologically links it to the River Foyle's extended tributaries providing unrestricted access and commuting passage for all aquatic life within the great area. Many of the water bodies surveyed had heavy silt or mud layers at the bottom with the wet woodland area having a dense layer of leaf litter on top of a deep layer of mud and silt. The most common species within the field drains and stream systems were caddisfly larvae, hoglouse and pond snails. However, the wet woodland area on the Strabane side exhibited a different species variety due to the nature of this water body being a large still waterbody which is prone to drying out. Most common species for the wet woodland water body were pond skaters as these were observed on the surface of the water throughout the area as well as getting caught in the net during sampling. Flat worms and leeches were the least common and only found in selected areas during sampling, however, it is possible they are wider spread throughout the wet woodland region.

## 3.0 ASSESSMENT AND RECOMMENDATIONS

Survey locations 1-6 are considered to exhibit a relatively low diversity of invertebrate species with the dominant species being pond snails suggesting water quality is poor with low nutrient content. While the presence of hoglouse is often associated with more alkaline pond or stream systems suggesting the water bodies are more alkaline in nature at these locations. The presence of European fingernail clams at location 3 suggests a slightly more eutrophic water habitat.

Survey locations 7-10 are more reminiscent of a standing water body such as a pond exhibiting a different species list, however, the diversity observed at these locations was reduced. The presence of leeches at location 10 suggests the habitat is suitable due to its seasonal presence and susceptibility to drying out during summer months. While a lower species diversity may suggest poorer water quality it is assumed the water quality of the wet woodland area is higher than the locations 1-6. Tadpoles and developing frog larvae were also observed near locations 7-10 while species such as pond skaters and water beetles are capable of travelling between water bodies for better foraging they are not good indicators

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of water quality. However, the wet woodland area is considered an important habitat for these species due to its shallow depth, seasonal nature and location within a woodland it would provide sufficient foraging and sheltered habitat for these species.

**Report prepared By:-**

**Ryan Boyle**

**Consultant Ecologist**

**Reviewed By:-**

**Emily Taylor**

**Graduate Ecologist**

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**FIGURES**



**Figure 3: Pond Snail**



**Figure 4: Hoglouse and Pond snail**



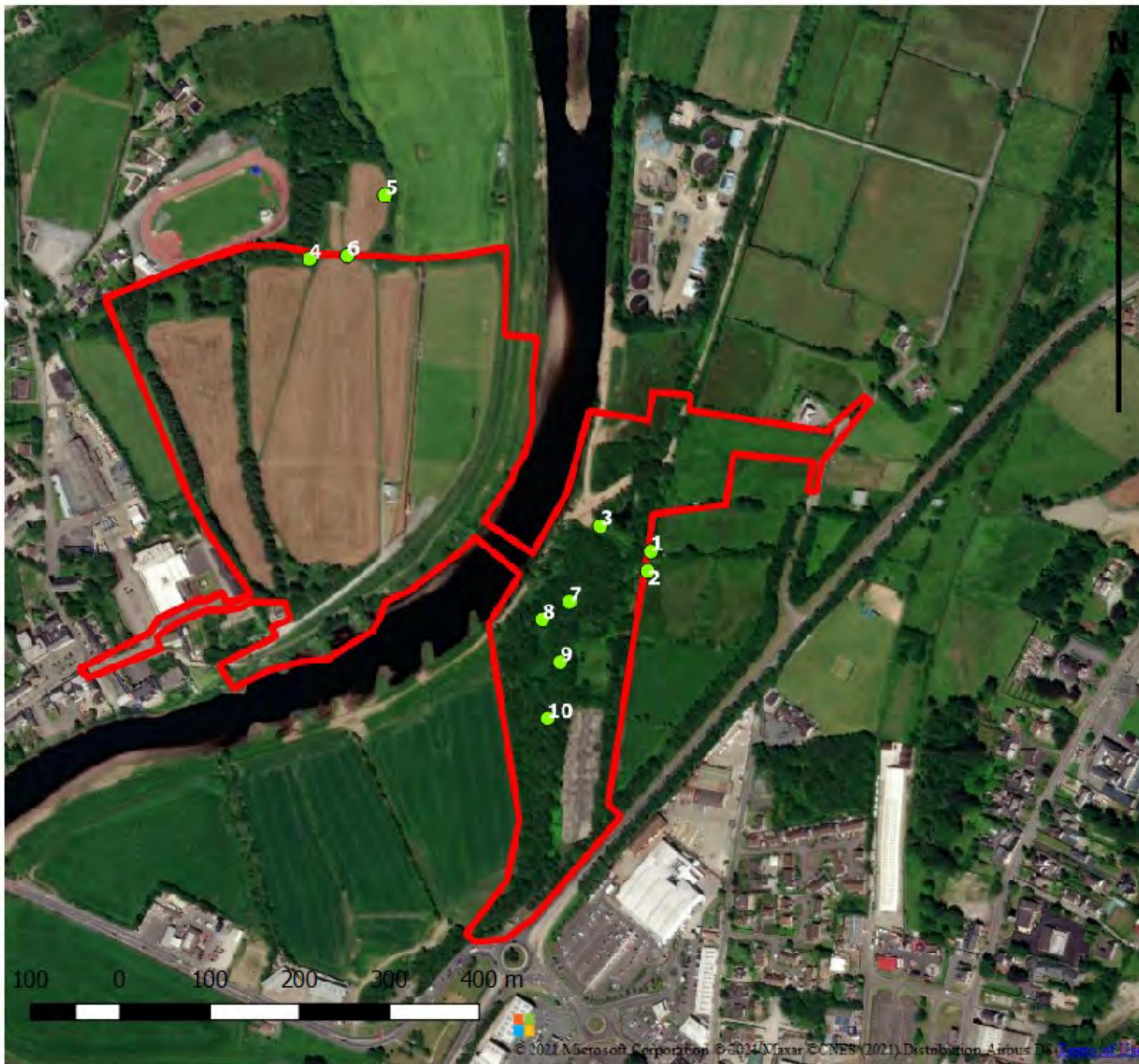
**Figure 5: Caddisfly Larvae**



**Figure 6: Non-biting Midge Larvae**

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## APPENDICIES



## Legend

-  Kick Sample Locations
-  Red Lined Boundary

Appendix I: Sample Locations

Created by: Ryan Boyle

Reviewed by: Emily Taylor

Client: McAdam Design

Scale: 1:6000 @ A3

Date: 03/08/2021



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