CLIENT: CST Engineers, Sligo

PROJECT: Drumshanbo Narrow Gauge Trail

Ecological Impact Assessment (EcIA)

Prepared by: AONA Environmental Consulting Ltd.

Date: May 2023

REPORT CONTROL

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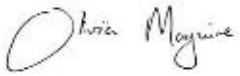
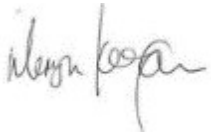
Author:	Olivia Maguire, B.Sc, M.Sc.	Signed:	
Review By:	Mervyn Keegan, B.Sc, M.Sc.	Signed:	

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1 INTRODUCTION

AONA Environmental Consulting Ltd. was commissioned by CST Engineers on behalf of Leitrim County Council to prepare an Ecological Impact Assessment (EcIA), for the proposed Drumshanbo Narrow Gauge Trail in Drumshanbo, Co Leitrim. The Report is prepared in the context of an application under Part VIII of the Planning & Development Regulations 2001 (as amended).

This assessment quantifies any potential effects relating to flora/fauna and identifies the measures required to avoid, reduce and mitigate likely significant effects.

The assessment of the project site began with a desk study obtaining information from a range of published data, including environmental records centre, previous reports from projects in the surrounding area and published data on sites designated for nature conservation, habitats, and species of interest in the vicinity of the proposed project. A review of OSI mapping, online environmental web-mappers and ortho-photography was also undertaken.

Following the desk studies, ecological walkover surveys were conducted of the proposed project site. This survey aims to undertake habitat assessment through classification, mapping and compilation of flora species lists and habitat suitability assessments for faunal species. The ecological surveys undertaken provided baseline information regarding the existing ecology of the study area.

An Appropriate Assessment Screening Report which assesses the potential of the proposed project to adversely affect the integrity of Natura 2000 sites within 15km of the proposed project site has also been prepared for the proposed project and will be submitted to the competent authority as part of the Part VIII application.

1.1 Statement of Authority

This report has been compiled by Olivia Maguire (B.Sc., M.Sc.) who is a Senior Environmental Consultant with AONA Environmental Consulting Ltd. and reviewed by Mervyn Keegan (B.Sc., M.Sc.) who is a Director with AONA Environmental Consulting Ltd.

Olivia has over 17 years of experience in Environmental Consultancy. She has a BSc in Hons Geography and a MSc in Applied Environmental Science from Queens University, Belfast and a BSc in Occupational Health and Safety from Atlantic University, Sligo. Olivia is a member of the Institute of Environmental Management & Assessment and the Occupational Hygiene Society of Ireland and operates in accordance with their respective codes of professional conduct. Olivia's role involves the delivery of a wide range of environmental and occupational health & safety consultancy services to public and private sector clients in the following areas;

- Environmental Impact Assessment in accordance with relevant legislation & guidance
- Appropriate Assessment in accordance with the Habitats Directive.
- Environmental Noise & Air Quality Surveys & Impact Assessment.
- Occupational Health Assessments including noise at work and indoor air quality surveys.

Ecological baseline surveys were undertaken in April 2023 and May 2023 and were conducted by Olivia Maguire.

1.2 Relevant Legislation and Guidance

This EcIA has been prepared in accordance with relevant legislation and best practice guidance including:

- The Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment in the UK and Ireland: terrestrial, freshwater and Coastal 2nd Edition. CIEEM (2018).
- The EPA's Draft Advice Notes on Preparing Environmental Impact Statements (EPA, 2015a)
- The EPA's Draft Revised guidelines on Information to be Contained in Environmental Impact Statements (EPA, 2015b).
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009).

2 PROPOSED PROJECT

2.1 Description of Proposed Project

The Cavan and Leitrim Railway operated from 1887 to 1959 and was known locally as 'The Narrowgauge'. The proposal is to develop a scenic recreational trail along the route of the Narrow-Gauge Railway which ran from Arigna to Ballinamore and closed in 1959. It is the intention to extend a trail along the route of the Narrow-Gauge Railway from the R207 (Dowra approach Road), across the Church Road and link back to the R208 (Ballinamore approach road). The trail would complete a walking loop of Drumshanbo. This route would allow walkers and cyclists to travel a circular route of the town in a series of short walks with different terrain & scenery. They range from the Canal Bank walk to the Convent Wall walk, the Rockwell walk, the Lake Shore walk & the Blueway Boardwalk.

Leitrim County Council proposes a linear trail for walkers and cyclists, of approx. 1km as shown in Figure 3.1. The project will be phased construction. Phase 1 section is depicted in Figures 3.2 and 3.3. Phase 2 section is depicted in Figures 3.4 and 3.5.

Phase 1 is from R207 Dowra Rd to the L3306 Convent Avenue (Church Road) along the old railway line. This will be a 2.57m wide trail with a bituminous macadam finish with low level lighting. The lighting will be on bollards or 4m high columns. Excavation will be required at the start of the route, adjacent to the Dowra Road. The trail will be at a 1 in 12 maximum gradient with the cut section continuing east for c.50 - 60m. Native hedgerow will be planted on the north bank in this cut section. A linear land drain designed in short sections, is proposed for the southern side of the trail to prevent ponding of runoff water. The outfall will be to existing field drainage. The project will also involve the construction of a footpath for c. 40m along the Dowra Road, and provision of a raised controlled Zebra crossing and metal railing.

Phase 2 is the remainder of the trail, east of Convent Road. This section of trail will run through woodland vegetation and agricultural fields and will be a 2.75m trail with a bituminous macadam finish.

The initial section follows the footprint of the old railway line under the old railway bridge and through a wooded ravine, south of the new Cemetery on Convent road. At the end of this ravine, the route will turn 90 degrees and continue west up the incline of a field, south of the existing hedgerow. The proposed route will once more turn 90 degrees and proceed south, west of the existing hedgerow, to meet the regional road R208.

The removal of trees and trimming of any overhanging branches that fall within the working area will be required. Proposed landscaping for the site outlines that native trees and other native vegetation will be planted in order to replace any habitat being removed thereby improving wildlife corridors and limiting potential impacts to the commuting/foraging areas of bat species, birds and mammals. The proposed works are unlikely to cause any significant habitat fragmentation.

2.2 Construction Methodology

The construction phase will be c.12 weeks from commencement and in accordance with low impact principles. Construction will concur with Leitrim County Council appropriate Health and Safety standards and Safety Management Systems. Drawings, provided by CST engineers demonstrates that the design of the project has considered necessary measures and best practice will be put in place to avoid any impacts to the Natura 2000 sites occurring.

A site compound shall be established at the start of Phase 2, in the area of amenity grassland between Convent Road and the cemetery. The compound shall be stripped of vegetation and a stone base laid. This area shall be secured with a silt fence and all construction materials shall be stored in this defined area.

Machinery used in construction will be mostly lightweight excavators and dumpers with a suitable excavator used in cut and fill areas near the Dowra road at the start of Phase 1, and in part of Phase 2 where the route runs east to west up the incline of the field.

Figure 3.1: Proposed Narrow Gauge Trail

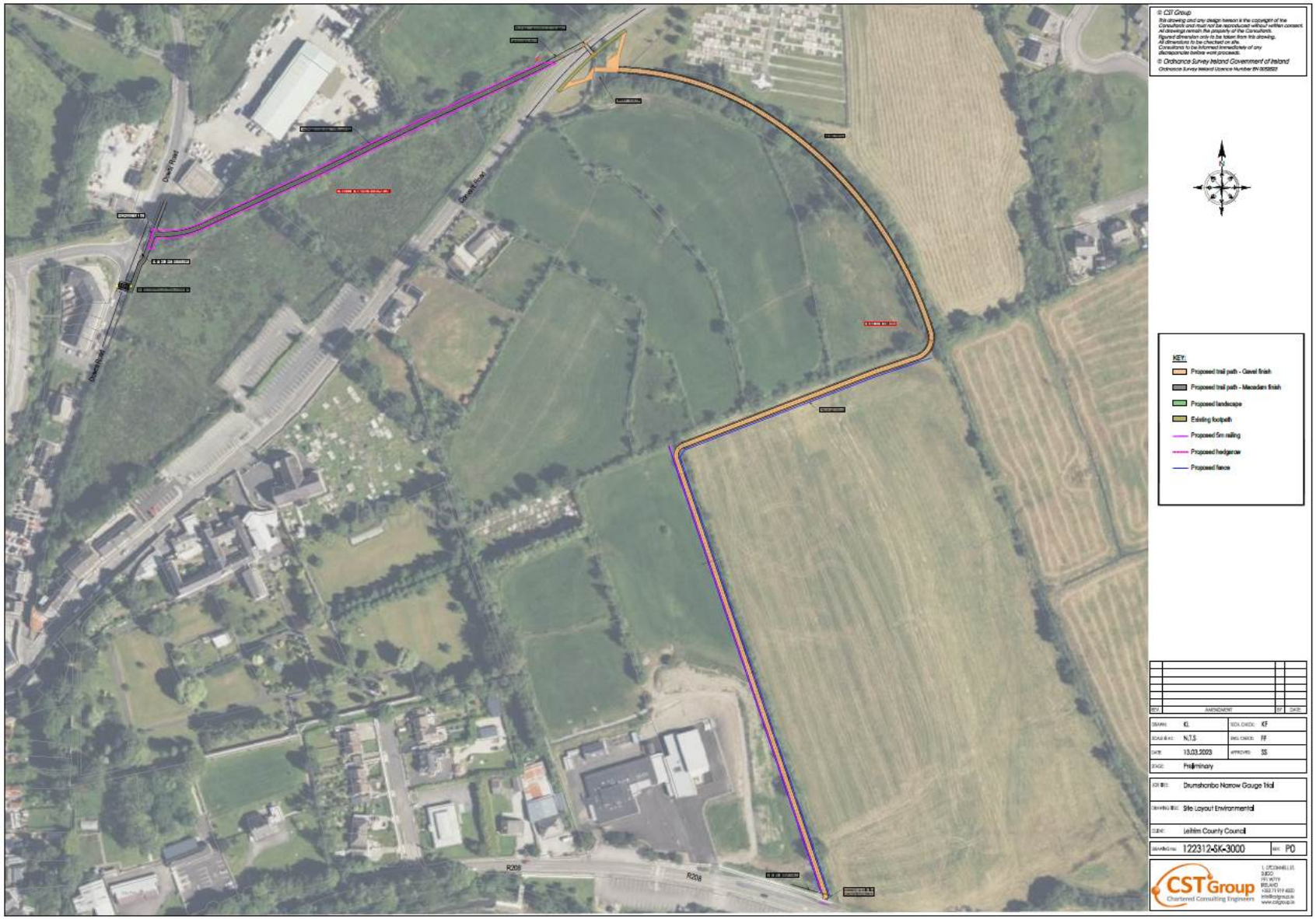


Figure 3.2: Phase 1 – Dowra Road to Convent Road

Figure 3.3: Cross section through Trail in Phase 1, with Macadam Finish

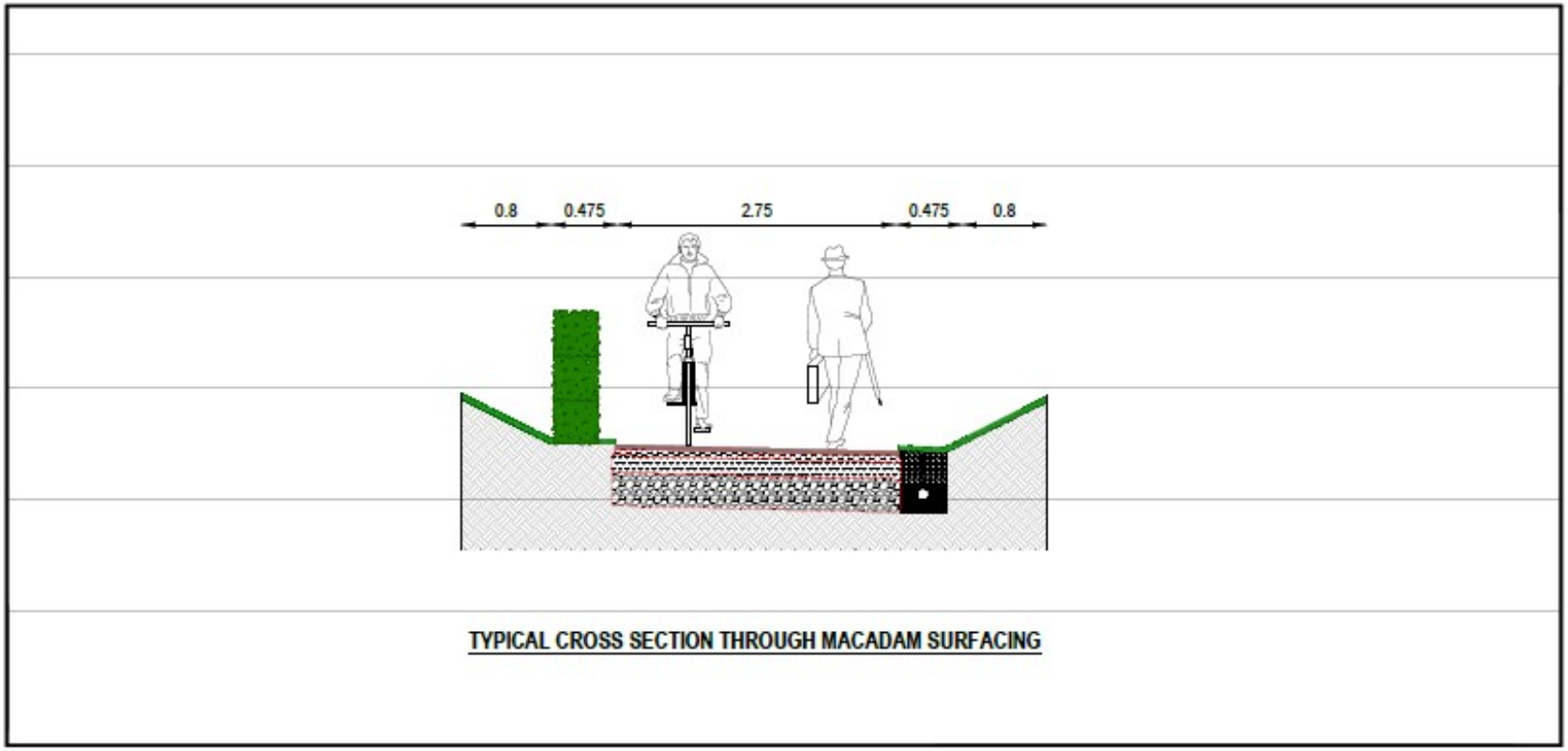


Figure 3.4: Phase 2 - Convent Road to R208

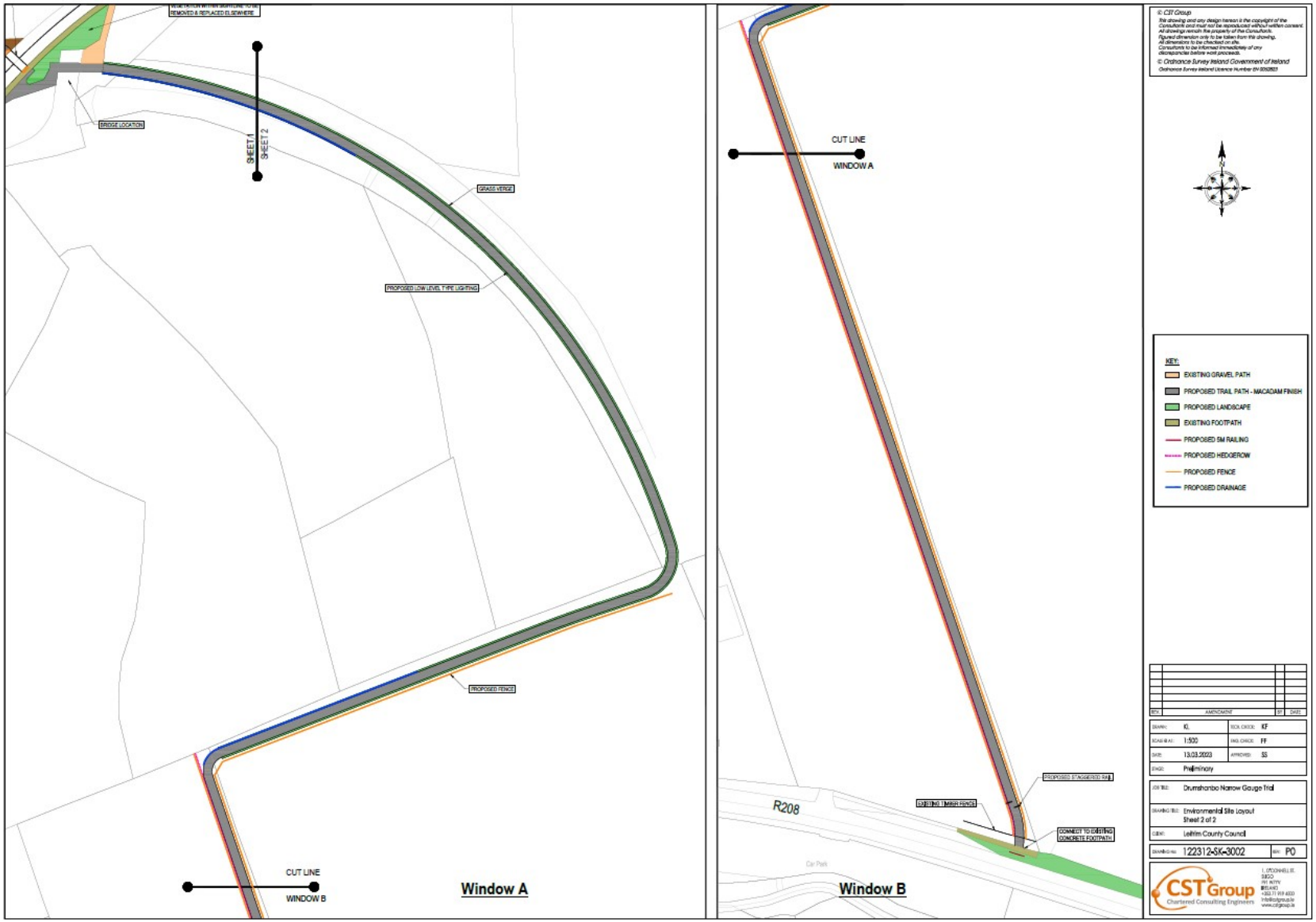
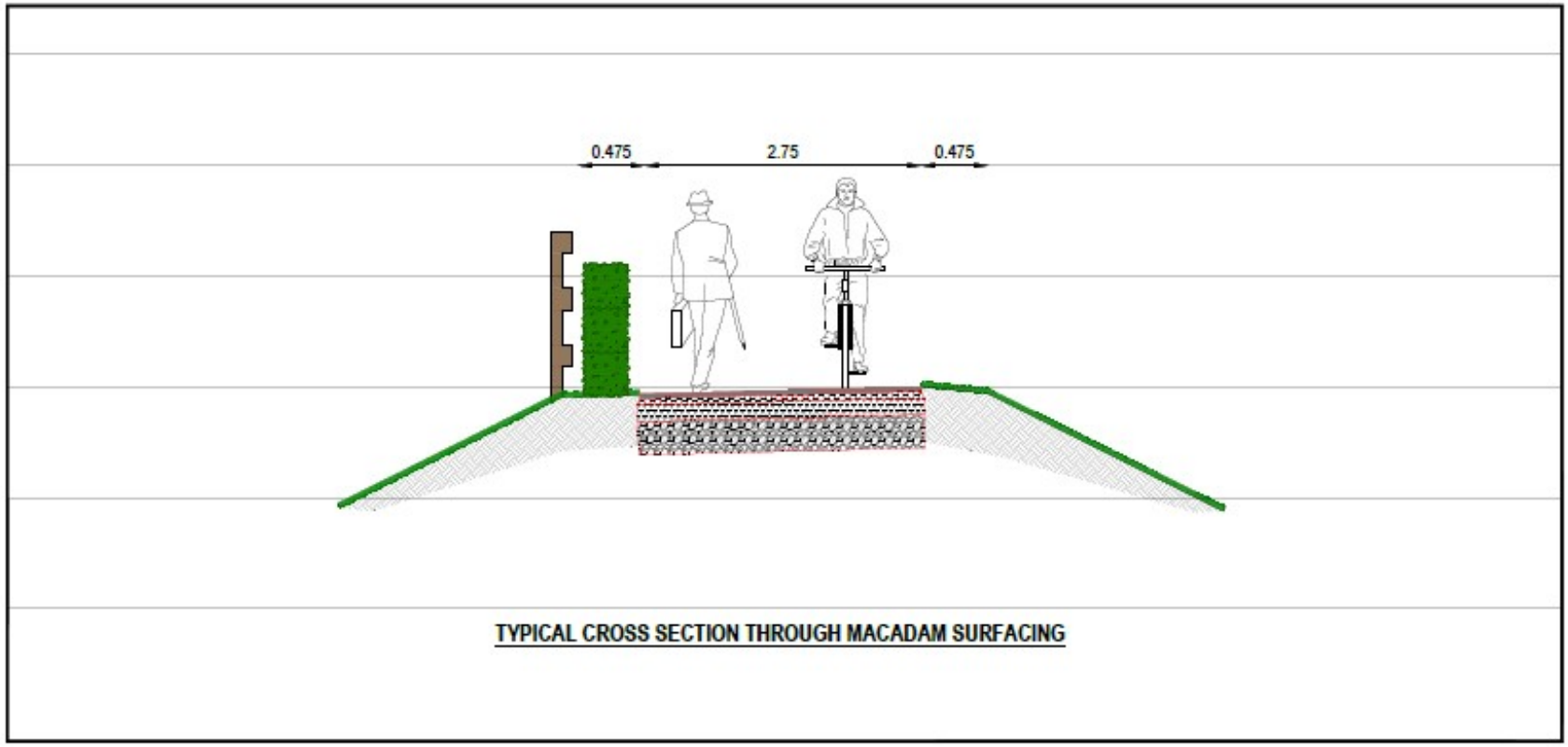


Figure 3.5: Cross section through Trail in Phase 2, with tarmacadam finish



3 METHODOLOGY

Assessing the impacts of any project and associated activities requires an understanding of the ecological baseline conditions prior to and at the time of the project proceeding. Ecological baseline conditions are those existing in the absence of proposed activities (CIEEM 2016). The following sections outline the methodologies utilised to establish the baseline ecological condition of the proposed project site.

3.1 Desk Study

The desk study undertaken for this assessment included a thorough review of the available ecological data associated with the study area of the proposed project. This desk study included a review of the National Parks and Wildlife Service (NPWS) mapping tool, the National Biodiversity Data Centre mapping tool, an internet search, and a review of scientific papers. The NPWS and NBDC websites were accessed for information on nearby sites designated for nature conservation and information on protected habitats and species known from the 1km grid squares G9711 and G9710 within which the proposed project site is located. The absence of a rare or protected species from the NPWS and NBDC databases does not necessarily mean that it does not occur within the area, rather it has not formally been recorded as present. Similarly, the presence of a recent record within the study area does not imply it is present, rather it is known to be present within the study area chosen for desk study.

Environmental Protection Agency (EPA) maps were accessed for other environmental information, such as surface water features, relevant to the preparation of this report.

Birds of Conservation Concern in Ireland (BoCCI) published by BirdWatch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. The BoCCI lists birds which breed and / or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened. The Birdwatch Ireland website was studied for information on birds of conservation concern.

The conservation status of mammals within Ireland and Europe is evaluated using one or more of the following documents; Wildlife Acts 1976 – 2021, the Red List of Terrestrial Mammals (Marnell et al., 2009) and the EU Habitats Directive 92/43/EEC.

The Appropriate Assessment (AA) Screening report and the Environmental Impact Assessment (EIA) Screening report which were both completed by AONA Environmental as part of the proposed project Part VIII application, have been reviewed as part of this desk study.

3.2 Ecological Survey

A field survey was carried along the proposed route on 23rd April 2023 and 14th May 2023. The survey was undertaken by Olivia Maguire (AONA). The aim of the field survey was to map the habitats and record plant, bird and mammal species within the study area, while highlighting habitats and species of particular importance (e.g. rare or protected, invasive, etc.).

Incidental sightings or evidence of birds, mammals or amphibians were also noted during the habitat survey and the habitats within the study area were evaluated for their potential to support protected species. Evidence of use of the area by mammals, including signs such as droppings, footprints, potential dwellings (holts/setts/warrens, *etc*.), latrines, tracks and feeding signs were noted where they occurred within the study area. Trees or structures suitable for bat roosts and potential suitable bat foraging were noted where they occurred within the study area. Potential roosts / roost features and bat foraging habitat were evaluated using the criteria set out in the Bat Conservation Trust (BCT) guidelines (Collins 2016).

3.3 Methodology for Assessment of Effects

3.3.1 Ecological Evaluation

Ecological evaluation and Effect assessment within this chapter follows a methodology that is set out in Chapter 3 of the 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (NRA, 2009). These guidelines set out the context for the determination of value on a geographic basis with a hierarchy assigned in relation to the importance of any particular receptor. The guidelines provide a basis for determination of whether any particular site is of importance on the following scales:

- International
- National
- County
- Local Importance (Higher Value)
- Local Importance (Lower Value)

The NRA Ecological Impact Guidelines (2009) clearly sets out the criteria by which each geographic level of importance can be assigned. Locally Important (lower value) receptors contain habitats and species that are widespread and of low ecological significant and of any importance only in the local area. Internationally Important sites are either designated for conservation as part of the Natura 2000 Network (SAC or SPA) or provide the best examples of habitats or internationally important populations of protected flora and fauna.

3.3.2 Assessment of Effects

When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative
- Extent
- Magnitude
- Duration
- Timing
- Frequency
- Reversibility

The criteria for assessment of effect magnitude, type and significance are given in Table 3.1 and 3.2.

The following terms are defined when quantifying duration: (EPA, 2002):

- Temporary – up to 1 year
- Short-term – 1 to 7 years
- Medium term – 7 to 15 years
- Long term – 15 to 60 years
- Permanent – over 60 years

Table 3.1 Criteria for assessing significance of effects based on (EPA, 2002)

Effect Magnitude	Definition
No change	No discernible change in the ecology of the affected feature
Imperceptible Effect	An effect capable of measurement but without noticeable consequences
Slight Effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate Effect	An effect that alters the character of the environment that is consistent with existing and emerging trends
Significant Effect	An effect which, by its character, its magnitude, duration or intensity alters a sensitive aspect of the environment
Profound Effect	An effect which obliterates sensitive characteristics

Table 3.2 Criteria for assessing effect quality based on (EPA, 2002)

Effect Type	Criteria
Positive	A change which improves the quality of the environment e.g. increasing species diversity, improving reproductive capacity of an ecosystem or removing nuisances
Neutral	A change which does not affect the quality of the environment
Negative	A change which reduces the quality of the environment e.g. lessening species diversity or reducing the reproductive capacity of an ecosystem

4 BASELINE ECOLOGICAL CONDITIONS

This section sets out the baseline conditions for the ecological features within the site using the findings of the desk study and field survey.

4.1 Sites Designated for Nature Conservation

Natura 2000 sites are designated under the Habitats Directive (92/43/EEC) (Special Areas of Conservation. SACs) and the Birds Directive (2009/147/EC) (Special Protection Areas. SPAs), which is transposed into Irish law by European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). NHAs are designated under the Wildlife Acts 1976 to 2012 and are subject to the full protections provided by this legislation. pNHAs have not been fully designated and therefore have no statutory protection but are often considered in County Development Plans.

The only Natura 2000 designated site within the potential zone of influence of the site is the Cuilcagh -Anierin Uplands SAC (000584), which is located 4.7km northeast of the proposed project.

There are several other nature conservation sites within the zone of influence of the project site including:

- Kilronan Mountain Bog NHA (000617) – 5.7km
- Corry Mountain Bog NHA (002321) – 8.3km
- Carrane Hill Bog NHA (002415) – 12.7km
- Lough Allen South End and Parts pNHA (000427) – 3.17km
- Carrickaport Lough pNHA (001920) - 3.2km
- Sheemore Wood pNHA (001421) - 5.68km
- Drumhierny Wood pNHA (001412) - 5.9km
- Lough Drumharlow pNHA (001643) - 7.65km
- Annaghearly Lough pNHA (001402) - 6.85km
- Kilgarriff Marsh pNHA (000426) - 11.5
- Fin Lough pNHA (001636) - 13km
- Owengar Wood pNHA (001419) - 13.8km

An Appropriate Assessment Screening Report which assesses the potential of the proposed project to adversely affect the integrity of Natura 2000 sites within 15km of the proposed project site has also been prepared for the proposed project and will be submitted to the competent authority as part of the Part VIII application. This report should be read in conjunction with the EcIA.

This Screening Assessment demonstrated that the proposed project will not pose significant threat to the integrity of Cuilcagh and Anierin Uplands SAC, and its conservation objectives will

remain the same as before the scheme. Consequently, this proposed project does not require a NIS or need to advance in the Appropriate Assessment process. However, a determination of the need for a Stage 2 'Appropriate Assessment and the preparation of a Natura Impact Statement will be decided upon by the Competent Authority (Leitrim County Council).

4.2 Habitats

The habitats present within the project site, as recorded during the field survey, are described in this section. The habitat classifications and codes correspond to those described in 'A Guide to Habitats in Ireland' (Fossitt, 2000). The habitats recorded during the site visits are listed below in Table 4.1. A habitat map, which extends beyond the proposed redline boundary, is provided as Figure 4.1 in Appendix 1. Where a habitat does not neatly fit a Fossitt habitat classification code, the closest classification is assumed in terms of species present. The ecological survey did not identify any habitat which corresponds with Annex I habitat. The habitat types identified within the proposed project boundary and immediate surrounding area are summarised in **Table 4.1** below.

The proposed trail is approximately 1km in length and begins on the Dowra Road and proceeds east onto Convent Road (Church Road) along the old railway line. The trail proceeds east, again along the footprint of the old railway line, before crossing agricultural fields and proceeding south to meet the R208. The following site photographs and accompanying detail describes the proposed route starting at the most westerly point on the Dowra Road, at the start of Phase 1.

Table 4.1: Habitat types identified within and surrounding the proposed project boundary.

Phase 1	
	
At the beginning of Phase 1, the earth bank as shown in the picture, will require excavation. The initial cut section will continue for 50-60 m. Some trees will require felling to allow for construction of the trail. This area of Amenity grassland (GA2) includes perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), creeping buttercup (*Ranunculus repens*), primrose (*Primula vulgaris)*, spear thistle (*Cirsium vulgare*), dandelion (*Taraxacum vulgare*), clover (*Trifolium* spp.) and frequent mosses. Large trees to be removed here, include white willow (*Salix alba*), fir (*Abies* sp.) and alder (*Alnus glutinosa*). A tarmacadam pathway will extend north and south along Dowra road as shown in Figure 3.2, on a strip	

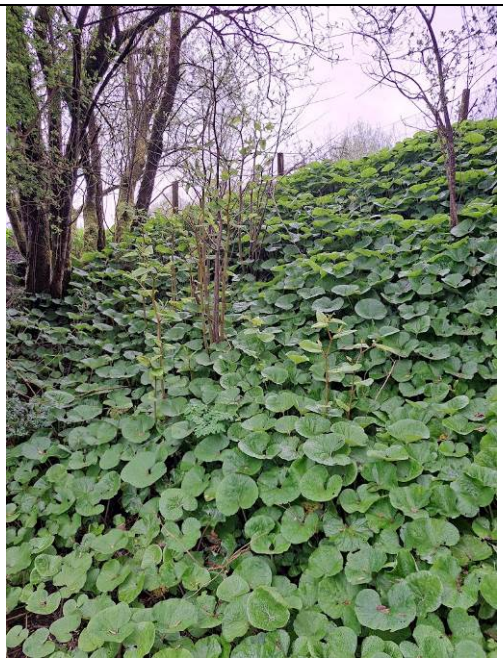
of grassy verge (GS2) west of the existing kerb. This is bordered by a hawthorn hedge (WL1), which will remain in situ.

The north bank of the proposed trail (as shown in the left of the photograph), is a treeline (WL2) on a steep north facing bank, south of Mulveys commercial premises (buildings and artificial surfaces - BL3). Semi mature trees consist of ivy (*Hedera helix*), ivy covered alder and willow trees with a sycamore (*Acer pseudoplatanus*), blackthorn (*Prunus spinosa*) and hawthorn (*Crataegus monogyna*) understorey and a bramble (*Rubus fruticous*) dominated ground flora. As the trail proceeds east a row of semi-mature evergreen trees, followed by a thicket of Blackthorn encompass the tree line.

Further east, the treeline develops into a narrow, linear strip of semi natural woodland, containing willow, ash (*Fraxinus excelsior*), holly (*Ilex acquifolium*) and blackthorn. Ground flora here contains Yorkshire fog, meadowsweet, hairy sedge (C*arex hirta*) and buttercup. This woodland has affinities with the Oak-Ash-Holly (WN2) Fossitt (2000) classification but lacks oak in the canopy. Ash trees were showing signs of Ash dieback.

The south bank (as shown in the right of the photograph), contains Hedgerow (WL1), less than 4m wide on a low-level bank. This hedgerow comprises willow, blackthorn, and hawthorn. Ground vegetation consists of lords and ladies (*Arum maculatum*), nettle (*Urtica dioica*), lesser celandine (*Ficaria verna*), meadowsweet (*Filipendula ulmaria*), sycamore seedlings, bramble and cleavers (*Galium aparine*). A drainage ditch at the base of the bank (FW4), c.50cm wide holds c.4cm of water. No aquatic vegetation is present. This ditch converges with a perpendicular drainage ditch, terminating in a stagnant ponded ditch confluence.

The footprint of the existing railway line evident in the photograph comprises dense needle vegetation with ivy, primrose, sycamore and blackthorn seedlings.



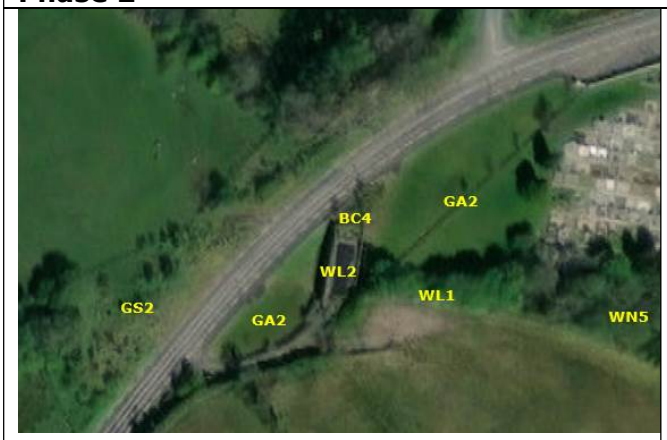
Near the end of Phase 1, perpendicular with the boundary between Mulveys buildings (BL3) and agricultural grassland (GS4) to the east, a drainage ditch runs north to south across the footprint of the trail. Another drainage ditch runs north (west to east) of the trail for a short distance as shown in the photograph above.

Near the end of the phase 1 section, the trail rises up an embankment to meet the level of Convent road. This steep embankment is colonised by a large infestation of winter heliotrope (*Petasites pyrenaicus*) with patches of japanese knotweed (*Fallopia japonica*) protruding alongside the drainage ditch.

A sheep wire fence forms the boundary between the embankment and GS2 vegetation on Convent Road.

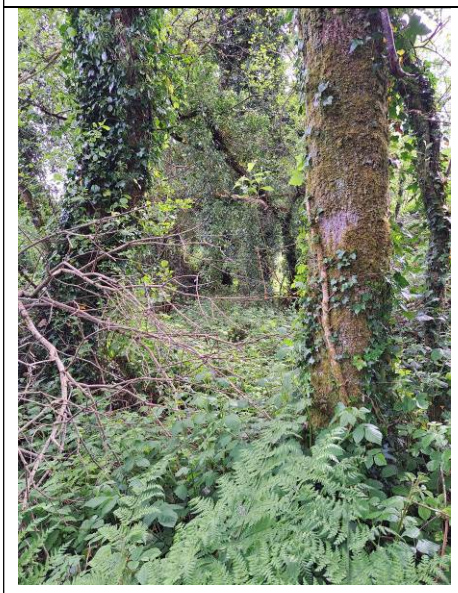
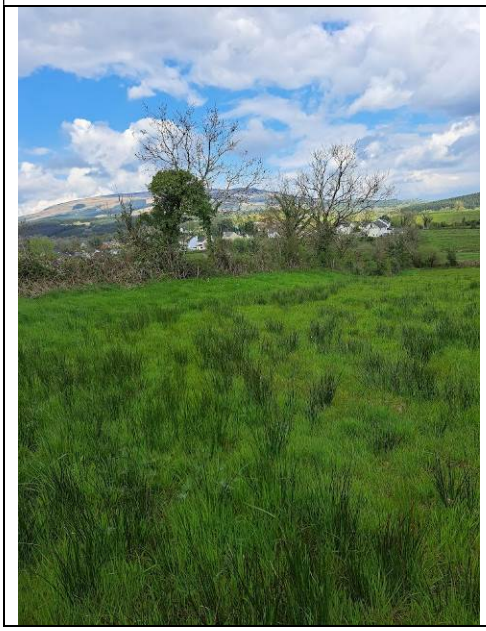
Fringing the north of Convent road is an area of GS2 – Dry Meadows and Grassy verges, with small pockets of willow scrub and occasional snowberry (*Symphoricarpos albus*). Three clumps of Japanese knotweed were noted here, approximately 3x3 metres wide at time of survey. Winter heliotrope is also present throughout, with grasses, willowherb, primrose, bramble and buttercup (Appendix 1 – TN1)

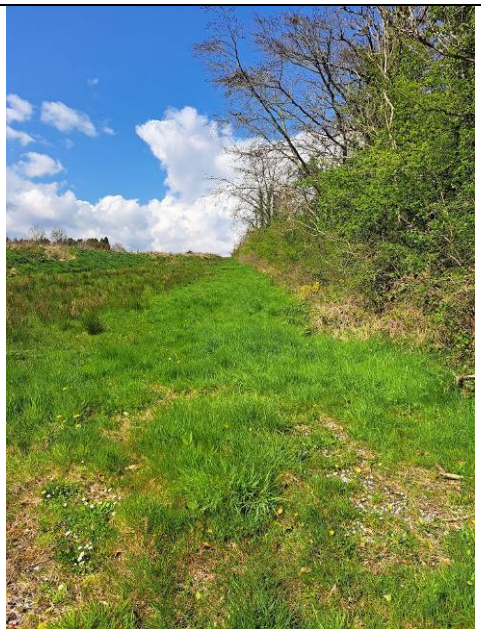
Phase 2



At the start of Phase 2, east of convent road is an area of amenity grassland (GA2) with occasional silver birch (*Betula pendula*). Within this area is an old railway bridge (WL2) with adjacent ornamental planting (BC4). These flower beds contain heather (*Calluna* sp.) and abundant horsetail (*Equisetum arvense*). This vegetation will be removed and replaced elsewhere within the project boundary to allow for appropriate sightlines.

The proposed trail will proceed under the bridge and continue east, north of the treeline (WL1). This line of trees contains Willow (*Salix cineria, Salix viminalis*) with occasional hawthorn and holly. Ground flora is comprised of dandelion, nettle, dock (*Rumex obtusifolius*), buttercup, wood avens (*Geum urbanum*), herb robert (*Geranium robertianum*) and butterbur (*Petasites hybridus*). Dumping of garden waste noted.

	The tree line develops into a linear woodland strip (affinities with the Wet willow-alder-ash woodland, WN6 type). This woodland is the footprint of the old railway line. The footprint of the trail is located within steep sided ravine, heavily shaded with overhanging vegetation. The base is damp with pooling water in places. A reasonable amount of dumping was noted, including garden waste and rubble from the adjoining cemetery and silage bales from surrounding agricultural fields. A drainage ditch (FW4) was noted along the southern boundary c.10 cm wide with c.3 cm of flowing water. An outflow drainage pipe from the adjacent cemetery was observed on the northern bank with water trickling down into the woodland ravine.
	To enable construction of the trail in this area, vegetation removal is required, including c.25-30 trees and patches of willow scrub. The base is open in areas with little ground floor vegetation present. In other areas dense bramble makes it impassable. Bank side vegetation comprises hawthorn, willow and ash with male fern (*Dryopteris filix-mas*) and bramble dominating the ground flora. The majority of trees requiring removal are large mature alder and willow with occasional hawthorn and ash. Most of these trees are multi-stemmed with dense ivy coverage. A standing dead densely ivy covered tree was noted (Appendix 1 - TN2). The last third of this section was impenetrable and was subsequently surveyed from the field above. Therefore the quantity of vegetation to be removed cannot be accurately determined at this point. However, it appears additional trees or at the least tree limbs and willow scrub will require removal.
	A section of hedgerow at the eastern end of the woodland requires removal. This comprises ash and hawthorn bramble. The proposed route turns 90 degrees and proceeds west parallel to the hedgerow, up a low incline within GS4 agricultural grassland. The hedgerow comprises beech (*Fagus sylvatica*), elder (*Sambucus nigra*)., blackthorn, hawthorn, holly, ash, sycamore and willow with a bramble understorey.



A further section of hedgerow will require removal to enable the trail route to turn 90 degrees and proceed south to meet the R208. The hedgerow at this point comprises mature hawthorn, bramble and honeysuckle (*Lonicera* sp.) with a shallow drainage ditch at its base.

As it proceeds south towards the R208, the hedgerow contains semi mature ash, beech, and hawthorn, with a bramble understorey.

The wet grassland surrounding the proposed site is dominated by soft rush (*Juncus effusus*) with Yorkshire fog, creeping bent-grass (*Agrostis stolonifera*), creeping buttercup, thistle (*Cirsium* spp.), nettle and Curled Dock (*Rumex crispus*).

4.3 Significance of Habitats

The habitats within and adjacent to the project site were evaluated in accordance with the criteria developed by the National Roads Authority (NRA) -outlined in Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009) which classifies sites in terms of their ecological importance, i.e. International Importance, National Importance, County Importance, Local Importance (Higher Value) or Local Importance (Lower Value). The evaluation methodology also took cognisance of the geological context evaluation criteria outlined in Chapter 4 of CIEEM 2016.

None of the habitats within the project site boundary correspond to habitats listed on Annex I of the EU Habitats Directive. The linear areas of woodland, tree lines, hedgerows and wet grassland, recorded were assigned Local Importance (Higher Value) given habitats with high biodiversity in a local context that maintain links and provide ecological corridors between features of higher ecological value. The remaining terrestrial habitats, including roads, amenity grassland, dry meadows and grassy verges, and flower beds and borders were assigned Local Importance (Lower Value).

4.4 Plant Species

Approximately 35 vascular plant species (including invasive species) were recorded in the course of the survey. Bryophytes were not recorded as part of this survey but were not commonly found in the habitats surveyed. A full list of all plant species recorded is presented in Appendix 2.

No rare or protected plants were recorded in the course of the current survey.

A review of NBDC online mapping returned records of one invasive plant species within or adjacent (1km) to the proposed scheme, namely Japanese knotweed (*Fallopia japonica*). Alien invasive plant species are a major and increasing threat to biodiversity in Ireland. Locations where invasive plant species; Japanese Knotweed and Winter heliotrope were recorded in the course of the current survey are discussed above. Other species that are considered invasive which were recorded within the study area include Snowberry (*Symphoricarpos albus*)). Snowberry was found together with Winter Heliotrope and Japanese Knotweed on Convent Road.

4.5 Fauna

4.5.1 Mammals

No evidence of otter, badger or additional protected species was recorded during the site visit. However, the semi-natural habitats recorded along the route within the proposed site area are suitable for supporting many of Ireland's mammal species. Mammal paths were evident in numerous places along the woodlands, treelines and hedgerows. It is assumed species likely to occur include badger (*Meles meles*), Pine martin (*Martes martes*), fox (*Vulpes vulpes)*, wood mouse (*Apodemus sylvaticus*) and hedgehog (*Erinaceus europaeus*).

4.5.2 Bats

All bat species in Ireland are protected under both national legislation – (Wildlife Act, 1976, as amended in 2017) and European legislation – (Habitats Directive (92/43/EEC).

A review of NBDC online mapping showed no records of bat species in the 1km grid squares, G9710 or G9711. The five-point scale bat habitat suitability index available from NBDC online mapping was utilised to assess the importance of the study area for bat species. This index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. For all bat species an Index number of 27.22 was returned indicating moderate potential. The soprano pipistrelle (*Pipstrellus pygmaeus*) returned the highest score at 40 while the score for the Annex II bat lesser horseshoe bat (*Rhinolophus hipposideros*) is 3.

No dedicated bat survey was carried out as part of this survey. No evidence of bat use was noted on the bridge structure but cannot be ruled out. The proposed project route will have an impact on the linear landscape features in the area as some selective felling of trees and tree limbs in Phase 1 and a felling of c.25-30 immature to semi-mature trees in the woodland in Phase 2 will be necessary to facilitate the trail construction. Generally, the trees which may be felled do not have suitable holes, crevices, snagged or broken limbs which are useful for bat roosts. However, many of the trees are densely covered in ivy which means they have some potential for roosting bat species. A standing dead tree noted also displays good bat potential. (see Target Note - TN2 on habitat map). The linear woodland and treeline/hedgerow habitats along the route have moderate-high potential to support foraging bats. Small sections (3.7m in length) of treelines/hedgerow will be removed to facilitate the trail. The removal of these sections is unlikely to result in adverse impacts on foraging bats as the main linear features will remain intact. The selective felling of trees within the ravine is also unlikely to impact on foraging bats as the linear corridor will remain. A bat survey is recommended before construction works commence of the trees proposed for felling and of any trees where limbs may be cut back.

4.5.3 Birds

No Annex I listed bird species were recorded on days of ecological survey. The hedgerows, treelines and areas of woodland provide nesting and feeding habitat for many terrestrial bird species. Commonly recorded species on days of survey included wood pigeon(*Columba palumbus),* robin (*Erithacus rubecula)*, chaffinch(*Fingilla coelebs)*, blue tit *(Cyanistes caeruleus)*, blackbird (*Turdus merula)*, song thrush (*Turdus philomelos)* and Wren (*Troglodytes troglodytes*). See Appendix 2.

4.5.4 Amphibians

Despite carrying out spot checks in the drainage ditches and ponded pool areas, no evidence of smooth newt (*Lissotriton vulgaris*) was recorded in the course of the survey. Common frogs (*Rana temporaria*) were not observed but can be assumed to exist within the study area.

4.6 Hydrology

The proposed project is located within the Upper Shannon Hydrometric Area and Catchment and Yellow [Ballinaglera]_SC_010 Sub-Catchment, the Drumshanbo Stream River Sub-Basin and the Geevagh groundwater catchment. Rivers and streams (those included on the EPA-MAPS database) were reviewed in the vicinity of the proposed project. There are no drains or streams evident within the study area. Drumshanbo Stream is located to the west (45m at closest point) and to the south (30m at closest point) of the proposed project. It has been assigned 'Moderate' WFD Status (2016-2021) and classified as being 'At Risk' of failing to achieve WFD objectives.

Water Framework Directive (WFD) Priority Areas for Action are areas where action will be carried out in the River Basin Management Plan (RBMP). The Areas for Action (AFA)were selected based on the priorities in the RBMB, the evidence from the WFD characterisation process, and the expertise, data and knowledge of public body staff with responsibilities for water and the different pressure types. The Local Authority Waters Programme (LAWPRO) conduct assessment work within the Area for Action. In total, 10 Areas for Action (AFA) within County Leitrim are recommended in the draft 3rd Cycle RBMP. The Drumshanbo Stream_010 water body forms part of the Lough Allan AFA. This watercourse is not designated as a Salmonid River under the Salmonid Regulations (S.I. 293 EC(Quality of Salmonid Waters) Regulations, 1988). The proposed trail does not cross this watercourse at any point and no watercourse was found on the day of survey to connect with this watercourse. Field drainage ditches were observed in the study area.

4.7 Geology and Soils

According to GSI online mapping, the underlying soils for the best part of the footprint of the proposed project are shales and sandstones till with cutover peat in the wooded ravine section of Phase 2. The groundwater aquifer is classified as regionally important with groundwater flowing through conduits. Groundwater that readily and quickly receives water (and contaminants) from the land surface is considered to be more vulnerable than groundwater that receives water (and contaminants) more slowly, and consequently in lower quantities. Also, the slower the movement and the longer the pathway, the greater is the potential for attenuation of many contaminants. Groundwater is most at risk where the subsoils are absent or thin and in areas of karstic limestone, where surface streams sink underground at swallow holes. Groundwater vulnerability for the most part is classified as low with very small sections of Phase 1 and at the end of phase 2 being classified as moderate and high.

5 ASSESSMENT OF IMPACTS

5.1 Construction Impacts

5.1.1 Loss and disturbance of habitat

The construction of the proposed tarmacadam trail will result in the loss of the existing habitat under the footprint of the proposal and has the potential to disturb other habitats.

The proposed scheme is located 4.7km (as the crow flies) from the boundary of Cuilcagh - Anierin Uplands SAC (000584). The proposed project will not result in the loss or fragmentation of any habitat supporting Special Conservation Interests of Cuilcagh -Anierin Uplands SAC or

any Annex I habitat as these habitats are not present within the proposed project boundary or adjacent area.

The proposed project will result in the loss/alteration of habitats of Local Importance (Higher Value) which include , treelines, hedgerows, semi natural woodland (WN6) and wet grassland and Local Importance (Lower Value) which include amenity grassland, Dry meadows and grassy verges, Flowerbeds, (BC4).

There will be a requirement to remove some trees at the beginning of Phase 1 and prune branches elsewhere along this section. Many trees require removal in Phase 2 (~25-30) and pruning of overhanging branches and areas of scrub. . Some hedgerow removal will be required in Phase 2 to allow the trail to pass through (2 x 3.7m). Loss of wet grassland will also be required in Phase 2. Overall the majority of linear landscape features will be retained. This loss of habitat present is considered a permanent, slight, negative impact.

5.1.2 Disturbance to species

The loss of trees with potential for bat use would be considered to impact negatively on bats and bat populations. This is also likely to be an issue for birds.

The construction of the proposed walkway has the potential to disturb bird and mammal species present along the route. Noise from the operation of machinery and the presence of people can result in species moving away from an area for a period of time. The fact that construction works will be limited to a small area at any given time, similar habitat in the area can facilitate this temporary displacement. This may only be an issue for birds, as mammals are generally nocturnal, and so are unlikely to be active at the same time as the construction works are on-going. This is considered a temporary, slight, negative impact.

5.1.3 Spread of Invasive Species

Invasive plant species can negatively impact on native habitats and species. There are several invasive species present within the study area including Japanese Knotweed, Winter Heliotrope and Snowberry. Construction activities, and the movement of construction vehicles, could potentially result in the spread of these species to other, previously uninfected areas.

In addition to the spread of species that are already within the study area, the importation of construction materials (crushed stone, *etc*.) and construction vehicles has the potential to bring additional invasive species into the area. The addition of new invasive species to the study area would have a cumulative impact on the native habitats and species along with the existing invasive species. The spread of invasive species would be considered a permanent, moderate, negative, impact.

5.1.4 Water pollution

The operation of plant and machinery along the route during the construction of the proposed trail has the potential to cause pollution of water through the release of suspended solids and hydrocarbons. This impact is considered a temporary, slight, negative impact.

5.2 Operation Impacts

5.2.1 Disturbance to Species

The trail is aimed at promoting the area for walkers and cyclists and so its development and operation is likely to lead to an increase in such traffic along the proposed route and linking infrastructure such as the Canal Bank walk, the Convent Wall walk, the Rockwell walk, the Lake Shore walk & the Blueway Boardwalk. The presence of humans can temporarily or permanently displace various species from an area.

No evidence of mammals was recorded within the study area but are assumed to use these habitats as wildlife corridors. They are unlikely to be impacted by the operation of the proposed walkway. Mammals are generally nocturnal, and so will be temporally separated from the human activity along the route.

Most of the bird species recorded in the course of the survey will not be impacted in any significant way by the presence of humans along the proposed walkway. Passerines such as Blackbird, Robin, Blue Tit, *etc*. may move away from humans, but will continue to use the tree lines, hedgerows and woodland along the route and in the surrounding area.

Over the lifetime of the project it is likely that minor maintenance works will be required; however these are likely to be of a small scale in nature and are unlikely to have any impacts on the surrounding environment. Significant impacts resulting from the operation of the project are not anticipated given that much of the area is used as access roads, paths with commercial and agricultural activites common throughout.

Overall this impact is considered a temporary, slight, negative impact.

5.2.2 Loss and disturbance of habitat

Removal of vegetation should not significantly impact on linear landscape features. The proposed landscaping for the site outlines that native trees and other native vegetation will be planted in order to replace any habitat being removed thereby improving wildlife corridors limiting potential impacts to the commuting/foraging areas of bat species, birds and mammals. The proposed works are unlikely to cause any significant habitat fragmentation. Overall this impact is considered a permanent, slight, negative impact.

6 MITIGATION

6.1 Loss and disturbance of habitat

The principal measure to reduce the effect of this impact on the habitats of within the study area is keeping the width of the proposed walkway to a minimum. The walkway should be as restricted in width as possible in order to maximise the habitat along the route.

The disturbance to habitats outside the footprint of the path should be minimised by restricting machinery movement and the storage or material, such as crushed stone, to the footprint of the trail or areas such as car parks.

- A detailed environmental management plan should be prepared and implemented during site works which specifies mitigation measures including relevant planning conditions.
- The disturbance to habitats outside the footprint of the path should be minimised by restricting machinery movement and the storage or material, such as crushed stone, to the footprint of the path or to adjacent hard core areas.
- Prior to the outset of works the proposed works corridor will be marked out with marking tape or temporary fencing and no works will take place outside of this area.
- Re-fuelling of machinery and vehicles will not be undertaken on site.
- No storage of spoil in the woodlands to avoid damage to tree roots.
- Stockpile areas of crushed stone will be kept to a minimum size and surrounded by a silt fence to prevent sediment washing out in wet weather.
- Crushed stone will be dampened before use on the path construction, to minimise the spread of dust into the woodland.
- Works will avoid the wintering bird season (September to March). This will minimise the disturbance to any wintering/migratory bird species utilising the area during this period.
- The majority of the trees to be removed are mature and semimature alder and willow. An occasional Ash tree requires removal or at least overhanging limbs removed. It must be noted that much of the ash is enduring ash dieback. Ash dieback is a serious disease

of ash trees caused by the fungal pathogen *Hymenoscyphus fraxineus* (previously known as *Chalara fraxinea*). It is estimated that up to 90% of ash trees will succumb to the disease, resulting in a major change to our landscape and woodland structure (Teagasc).

The disease was first identified in Ireland in a plantation in Co. Leitrim in Autumn 2012 on plants imported from continental Europe. The disease is now prevalent throughout most of the island of Ireland and is likely to cause the death of the majority of the ash trees over the next two decades. The decline poses a risk to landowners and others for both public safety and deterioration of woodland cover and the ecological, social and economic benefits these woodlands provide.

Leitrim County Council supports the measures underway by the Department of Agriculture, Food and the Marine, Teagasc and Council for Forest Research and Development in the development of an ash breeding programme identifying and planting species of ash that are tolerant to the disease.

It is recommended that this site is surveyed by a professional to determine if these Ash trees are safe to leave in situ.

6.2 Disturbance to species

- It is imperative a bat survey is undertaken prior to construction works to ascertain bat presence in the trees that require removal. Many of these densely ivy covered trees along the footprint of the old railway line in Phase 2 displayed good bat potential.
- If possible, the construction of the walkway should be completed outside the bird nesting season to prevent any disturbance to birds nesting in the vegetation and their young (1 March – 31 August according to Section 40 of the Wildlife Acts 1976 to 2012).
- Vegetation removal and trimming will be carried out in line with the Wildlife Acts 1976-2017.
- Felled trees must be left in place for a period of at least 24 hours (preferably 48 hours) to allow individual bats to escape.
- Works will primarily take place during hours of daylight to minimise disturbance to any roosting birds and/or feeding nocturnal mammal species.
- The use of lighting on Phase 1 can impact on bats. Bats are nocturnal animals that have adapted to a life in darkness, partly to avoid predation during daylight hours from bird of prey species such as sparrowhawks. Therefore the artificial lighting of bat roosts, access points and foraging pathways can be extremely disturbing to bats and should be avoided.

6.3 Spread of Invasive Species

- Biosecurity is essential during the construction phase of the project.

Japanese knotweed can spread easily when its underground rhizomes are disturbed. Rhizomes can grow up to 7m from the plant and the knotweed identified during the ecology survey is located within 7m of proposed works. During construction there is potential for disturbance of rhizomes (machinery, human disturbance). During operation there is also potential for disturbance of knotweed (e.g. machinery during landscaping activities, human disturbance).

Under Regulation 49(2) a of the European Communities (Birds and Natural Habitats Regulations, 2011 'any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow Japanese knotweed or any of the other invasive plants listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011) shall be guilty of an offence. Furthermore, Sections 52(7) and (8) of the Wildlife Act, 1976, as amended, make it an offence to plant or otherwise cause to grow in a wild state exotic species of plants.

A pre-construction Invasive Species Management Plan should be prepared which details the effective biosecurity required to avoid unintentional spread and maximise the

effectiveness of any measures undertaken. The plan should advise on appropriate measures to put in place, including the necessary equipment for washing the wheels and undercarriage of vehicles and the PPE of surveyors. It should include the following measures:

- Particular care should be taken to avoid transport of soil or vegetation off site where it is within 7m of a stand of Japanese knotweed – instead, soil in this area should remain in the vicinity to avoid the spread of this species.
- The risk of spread can be reduced by parking vehicles away from the infested site.
- Vehicles and equipment used within the survey area (e.g. tractors, mowing equipment and dredging equipment) should be periodically checked to ensure they are free from contamination.
- Vehicles should be washed down before coming on-site and should not move from an area of existing invasive species to an uncontaminated area without being thoroughly cleaned.
- It must be ensured that the stone used in creating the trail is free of invasive species and also does not introduce native pest species.
- Any future planting carried out should use native species, preferably of local provenance.

Over the construction and operational phases of the trail, targeted works should be carried out to commence control treatment of existing areas of invasive species identified in the course of this survey.

Leitrim County Council Roads Department has programs in place to deal with species such as Japanese Knotweed on National and Regional roads. A contractor is employed to survey and treat the affected areas, using herbicide treatment. It is a recommendation to commence control treatment of Japanese Knotweed, and Winter heliotrope (also an invasive alien species), at their locations. The proposed treatment should be detailed in the pre-construction Invasive Species Management Plan.

6.4 Water Pollution

The construction operations should be carried out in such a manner so as to preclude any pollution event that may affect the water quality of the Drumshanbo Stream. Reference should be made to the Eastern Regional Fisheries Board (now part of Inland Fisheries Ireland) *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites* (Murphy, 2004) for relevant actions to take to protect water quality, or other best practice guidance for the protection of water quality for the construction industry.

7 RESIDUAL IMPACTS

7.1. Loss and disturbance of habitat

Some measures (new hedgerow and tree planting) have been incorporated into the design, this impact remains a permanent, slight, negative impact.

7.2 Disturbance to species

Some measures (new hedgerow and tree planting) will go towards lessening the disturbance to species during the construction of the proposed project, but this impact remains a temporary, slight, negative impact.

7.3 Spread of invasive species

With the implementation of appropriate biosecurity measures, the risk of the spread of invasive species as a result of the proposed works is low; therefore the impact is considered to be a slight, negative, permanent impact.

7.4 Water pollution

With the implementation of the recommended pollution control measures, the risk of significant water pollution from the construction works is low; therefore the impact is considered to be a slight, negative, temporary impact of low likelihood.

8 CONCLUSION

The proposed project will result in localised effects on biodiversity of the project site. Standard mitigation measures with proven effectiveness, based on recognised good practice, have been developed to reduce the effects of all identified impacts and effects.

The proposed project will not have any significant negative ecological impacts, assuming mitigation measures are implemented, and the proposed project is undertaken in accordance with the Wildlife Act (1976) as amended.

The proposed project will not result in significant residual effects. However Leitrim County Council as the competent authority shall make the determination based on the above.

It must be noted that an Appropriate Assessment Screening report and an Environmental Impact Assessment screening report have been prepared for the proposed project.

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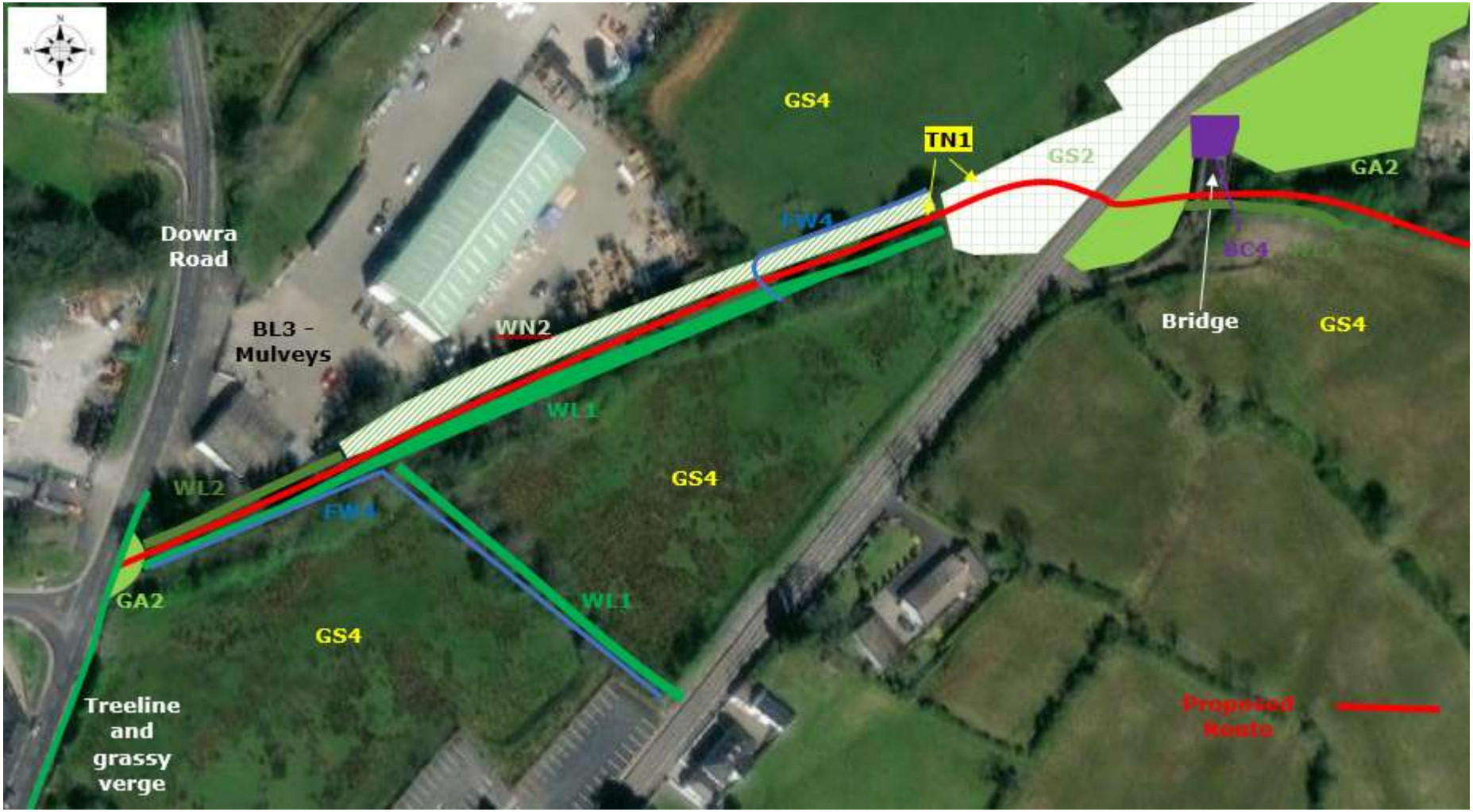
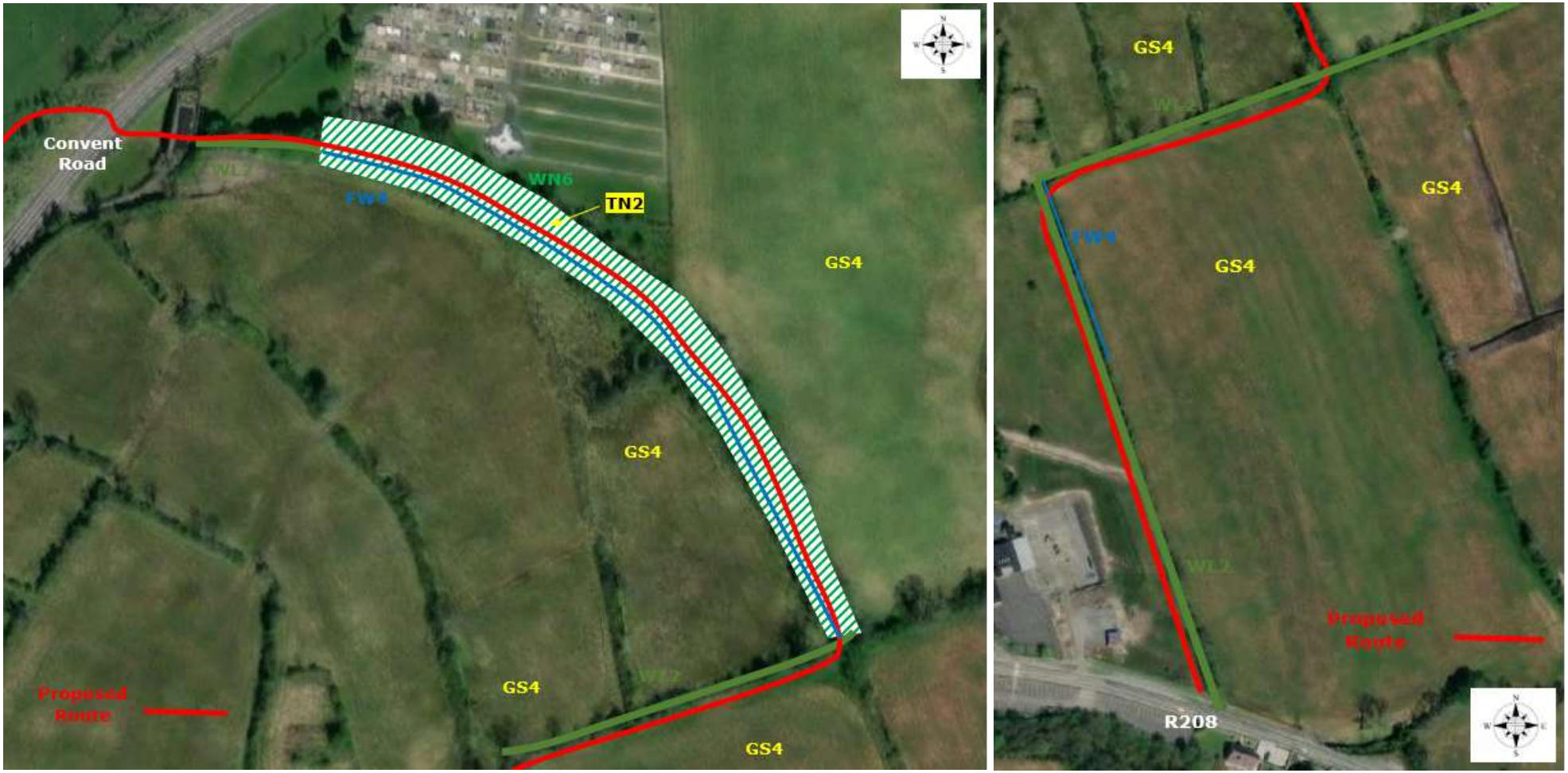
APPENDIX I
HABITAT MAP

Phase 1 Habitats



Phase 2 Habitats



APPENDIX II
SPECIES LIST

Plants

Common Name	**Scientific Name**
Alder	*Alnus glutinosa*
Ash	*Fraxinus excelsior*
Beech	*Fagus sylvatica*
Blackthorn	*Prunus spinosa*
Butterbur	*Petasites hybridus*
Buttercup	*Ranunculus repens*
Cleaver	*Galium aparine*
Clover	*Trifolium* spp
Creeping Bent-Grass	*Agrostis stolonifera*
Creeping Buttercup	*Ranunculus repens*
Dandelion	*Taraxacum vulgare*
Dock	*Rumex obtusifolius*),
Elder	*Sambucus nigra*
Fir	*Abies* sp
Hairy Sedge	*Carex hirta*
Hawthorn	*Crataegus monogyna*
Heather	*Calluna sp.*
Herb Robert	*Geranium robertianum*
Holly	*Ilex acquifolium*
Horsetail	*Equisetum arvense*
Ivy	*Hedera helix*
Japanese Knotweed	*Fallopia japonica*
Lesser Celandine	*Ficaria verna*
Lords And Ladies	*Arum maculatum*
Male Fern	*Dryopteris filix-mas*
Meadowsweet	*Filipendula ulmaria*
Nettle	*Urtica dioica*
Perennial Ryegrass	*Lolium perenne*
Primrose	*Primula vulgaris*
Snowberry	*Symphoricarpos albus*
Spear Thistle	*Cirsium vulgare*

Birds

Common Name	**Latin name**
Blackbird	*Turdus merula*
Blue tit	*Cyanistes caeruleus*
Chaffinch	*Fingilla coelebs*
Robin	Robin
Song Thrush	*Turdus philomelos*
Woodpigeon	*Columba palumbus*
Wren	*Troglodytes troglodytes*