2025

Stage 1 Screening for Appropriate Assessment

Large Scale Residential Development, Railpark West, Maynooth, County Kildare

Russell Environmental and Sustainability Services Limited

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1.0 Introduction

This ecological report relates to planning permission for a Large-scale Residential Development (LRD) at Railpark, Maynooth, County Kildare for Maynooth Montane Limited. The screening report has been completed to determine the likely impact on any European Sites within the Zone of Influence (ZoI) of the development.

1.1 Background and Legislative Context

Article 6(1) and article 6(2) of Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and of wild fauna and flora aims to promote the maintenance of biodiversity. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments (EEC, 1992).

Article 6(1) and 6(2) are concerned with Special Areas of Conservation (SAC) and Special Protection Areas (SPA), whereby Member States are required to establish necessary conservation measures and appropriate statutory measures to ensure the protection of natural habitat types in Annex I and the species in Annex II present on the sites. This includes the avoiding the deterioration of natural habitats as well as the disturbance of any species included in Annex II (EHLG, 2009, p18).

The focus of Appropriate Assessment (AA) is targeted specifically on Natura 2000 sites and their conservation objectives. Articles 6(3) and 6(4) of the Habitats Directive (including the Birds Directive) place strict legal obligations on Member States, with the outcomes of AA fundamentally affecting the decisions that may lawfully be made. Articles 6(3) and 6(4) also detail the procedures to be completed when a development is likely to or has affected a Natura 2000 site. There are a number of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are within 15km of the site or potential ZoI. As SAC and SPA sites are European sites and thus Natura 2000 sites, the likely effect of the proposed development requires screening for appropriate assessment (EHLG, 2009, p18).

Articles 6(3) and 6(4) are detailed as follows:
6(3) – Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the 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.

6(4) – If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission to other imperative reasons of overriding public interest (EHLG, 2009, p18).

1.1.1 Stage 1 and 2 Appropriate Assessment

There are four stages involved in completing an AA. Stages 1-2 deal with the main requirements for assessment under Article 6(3). Stage 3 may be part of Article 6(3) or may be a necessary precursor to Stage 4. Stage 4 is the main derogation step of Article 6(4).

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):

i) whether a plan or project is directly connected to or necessary for the management of the site.
ii) whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 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) (EHLG, 2009, p27).

Stage 2 for Appropriate Assessment

This stage considers whether the plan or project, alone or in combination with other project or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures 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 targeted professionals' scientific examination of the plan or project and the relevant Natura 2000 sites, to identify and characterise any possible implications for the site in view of the conservation objectives, taking into account of in combination effects (EHLG, 2009, p28).

Based on potential source pathway receptor model, the site maybe within reach of European Sites, hence, a Stage 1 Screening for Appropriate Assessment is required to determine the likely effect that the proposed development will have on the Annex I habitat and Annex II species as per Article 6(3) and 6(4), that detail the procedures to be completed when a development is likely to or has affected a Natura 2000 site.

1.2 Description of the Proposed Development

The development will comprise a Large-Scale Residential Development (LRD) on a site at "Railpark West", in the townland of Railpark, Maynooth, Co. Kildare.

The proposed development is for 139 no. units comprising 36 no. houses (ranging in heights up to 3 storeys), 95 no. apartments (5 no. blocks ranging in heights up to 5 storeys partially over podium parking) and 08 no. duplexes (1 no. 3/4 storey Block).
The proposal includes for a new vehicular/pedestrian/cyclist access from the permitted Maynooth Eastern Ring Road (MERR) to the east and the adjoining development to the South, and pedestrian/cyclist access (and vehicular access for one of the proposed houses) to Parklands Grove/Old Railpark to the north of the site.

The development also includes all car and bicycle parking at surface and podium underdeck level, new streets and footpaths, bin stores, residential private open spaces, public & communal open spaces, boundary treatments, waste management areas, landscaping and all associated site development works.

1.3 Author of the Report

Russell Environmental and Sustainability Services Limited (RESS Ltd.) were contracted to complete a Stage 1 Screening Assessment to determine the likely impacts on any European Sites within the Zone of Influence (ZoI). This is in preparation for the planning application for the LRD development at Railpark, Maynooth, County Kildare. The site was surveyed on the 4th and 5th of October 2024 and the 16th of September 2025 by ecologists from Russell Environmental and Sustainability Services Limited.

Statement of Authority

Dr Jane Russell-O'Connor holds a PhD in Ecology and a Degree in Ecology and Environmental Science from the University of Wolverhampton as well as a HDip in Science. She has been working in private industry in Ireland for over 12 years providing ecological and environmental services to private developers, architects and engineers, as well as local authorities, government agencies, the HSE and the Heritage Council. She previously managed a nature reserve and country parks in the UK. She also lectures part-time in Ecology and Environmental

Science at South East Technological University, has published in peer reviewed journals and presented research at international conferences.

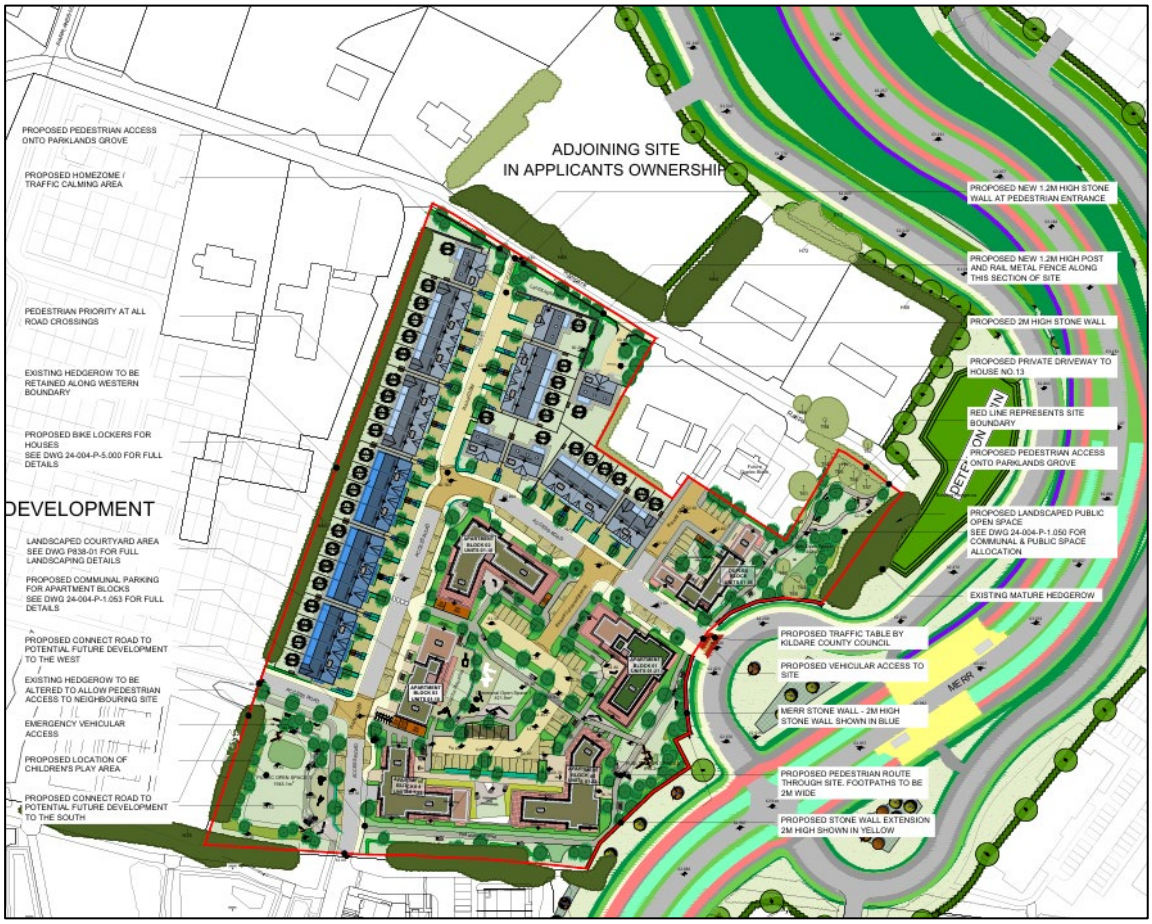

Figure 1 Site Plan (Duignan Queen Architects, 2025)

2.0 Site Description and Baseline Information

2.1 Site Location and Topography

The site is located to the east of the R405 Straffan Road and approximately 1.25km from Maynooth Town Centre in Co. Kildare. (Figure 2). To the north of the site is the Maynooth to Dublin train line and the Royal Canal. The Longitude is -6.5755320 and the Latitude is 53.3774201 (EPA, 2025).

The site is relatively level ranging from elevations of 64m to 58m above sea level (OSI, 2025).

Figure 2 Location map (OSI, 2025)

2.2 Geology and Soils

The site has bedrock geology of Dinantian pure unbedded limestones (EPA, 2025).

The soil type overlying the bedrock for the site is basic, deep well drained mineral soils comprised of acid brown earths and grey-brown podzolics (EPA, 2025).

2.3 Hydrology

The site is located on a greenfield site in Maynooth, adjacent to a housing Estate in Railpark, Maynooth. There is no flowing or standing water on the site. The site is approximately 300m from the Royal Canal, which drains into the River Liffey and down river into South Dublin Bay and River Tolka Estuary SPA. Also, the site is in close proximity to the Rye Water Valley/Carton SAC (Figure 4). However as there is no flowing water on the site, there is no direct hydrological connection to the Royal Canal or the Rye Water Valley/Carton SAC. Furthermore, the Royal Canal is physically separated from the site by rail embankments.

The groundwater vulnerability for the site is high and the sub-soil permeability moderate, thus percolation of pollutants through the soil to the aquifer may be possible (GSI, 2025). There are no nearby karsts to the site or wells on the site

(GSI, 2025). Thus groundwater may provide a pathway for source pollutants to enter the Rye Water Valley/Carton SAC from the site.

Figure 3 Location Map (EPA, 2025)

With reference to the most recent Water Framework Directive report (EPA, 2024), the two Rye Water, water bodies (Rye Water_030 and _040) in this sub-catchment are at risk as a result of continuing poor ecological Status in 2013-2015 monitoring cycle. However the groundwater was not at risk (ibid). The main risks to the Rye Water are nutrient enrichment from agriculture, diffuse urban pollution from surface water runoff and domestic wastewater (ibid).

The foul water will be served by a new pumping station that will facilitate the additional capacity required by the proposed housing in this area. The pumping station will connect with the existing wastewater network pumping onwards to the Lower Liffey Sewage Scheme Wastewater Treatment Plant. According to the Wastewater Treatment Capacity Register (Uisce Eireann, 2025) has available capacity for the proposed development. The AER in 2023 for this WWTP had a number of incidents that have been closed out (Uisce Eireann, 2023).

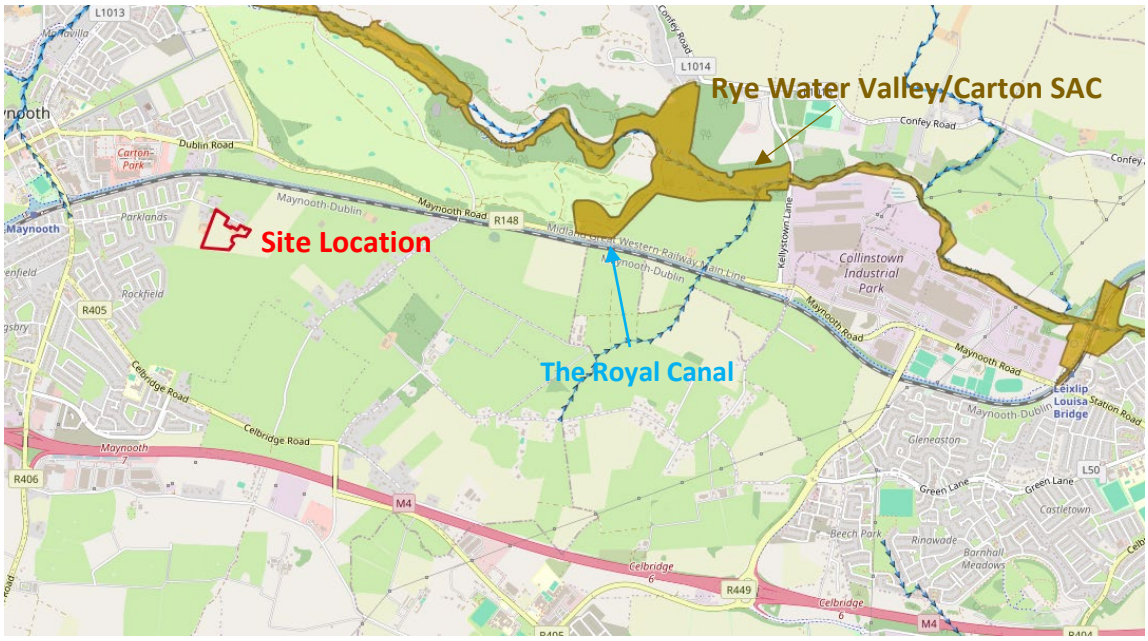

Figure 4 Site location in relation to the flow network (EPA, 2025)

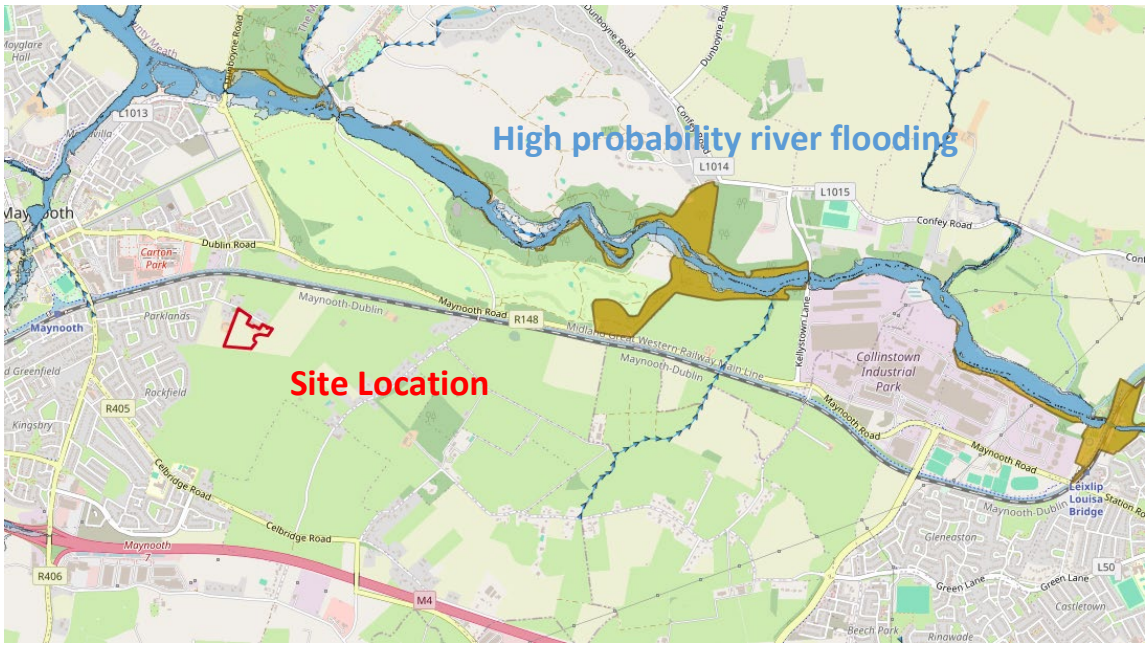

Figure 5 Proximity of the site to the flood plain showing high probability at 1 in 10 (OPW, 2025)

Sustainable Drainage System (SuDS) measures will be incorporated into the design of the development to manage surface water (Kavannagh Burke Consulting Engineers, 2025). These measures include:

- A green/blue roof on each apartment block and the creche
- Permeable paving in driveways and parking areas
- Soakaway in central green area
- Rain butts
- Tree pits
- Bio-retention areas
- Rain gardens

- Vegetated detention basins x 3
- Silt traps and hydrocarbon interceptors

As per Kavannagh Burke Consulting Engineers, accompanying engineering plans and report (2025), the flow of surface water will be captured and retained within the site.

The site is located outside of the flood zone as detailed in Figure 5 (EPA 2025; OPW, 2025).

2.4 Desk Based Study

A desk-based study was undertaken to determine the proximity of any designated sites within the vicinity of the proposed development site.

The EPA provides the AA Geotool that is a database of the protected sites and associated flow network for water courses within Ireland. The details of the European Sites within a 15km radius are detailed in Table 1 and Figure 6. The radius of 15km is as per the DEHLG Guidance (2010).

The NBDC provides a national database of biological records from Ireland. The database was consulted with regard to species distribution within the vicinity of the site. The site is within the 10km grid square N93, the 2km grid square N93N and the 1km grid square N9437

The National Parks and Wildlife website was consulted to review the Site Synopsis and Conservation Objectives for the identified European Sites.

Site Synopsis and Conservation Objectives reports available at Search Results | National Parks & Wildlife Service (npws.ie)

Source-Pathway-Receptor Model

Although there are a number of sites within the order of 11 to 15km radius of the site as indicated in Figure 6, a more accurate assessment is where the Source-Pathway-Receptor (SPR) model is applied together with the Zone Of Influence (ZOI), which in the case of rivers may be outside of the larger radius. The Zone of Influence' is the area over which the development proposals will have ecological impacts. The size and shape of the Zone of Influence will depend on the ecological features present on site and the nature of the proposals.

Table 1 identifies the European Sites where there may be a potential impact as a result of the SPR model (OPR, 2021).

The Zone of influence relating to this development is the course of the Royal Canal, which drains directly into the South Dublin Bay SPA and River Tolka Estuary SPA, that directly connects with the adjoining South Dublin Bay SAC,

North Dublin Bay SAC, North Bull Island SPA and North-West Irish Sea SPA. The source in this instance is likely to be pollutants to groundwater and pollutants and particulate matter to surface water during the construction phase. During the operation phase there is also a potential of pollutants to enter groundwater and surface water via runoff. However as there are no hydrological links to the Royal Canal, which is located at a higher elevation to the site and separated by the rail track embankment, there is unlikely to be surface water runoff during the construction or operation phases. Therefore, there are unlikely to be any impacts on the receptors of the European Sites connected to the Royal Canal within the ZoI in relation to surface water*. However due to the permeability of the soil and groundwater vulnerability in this location there is a potential indirect pathway for source pollutants to impact on the receptors of the Rye Water Valley/Carton SAC (Table 1).

* Although there is no permanent or standing water on the site, there may still be discharge to nearby drains within the adjacent housing development and thus there is a potential for discharge into the Rye Water River and thus Rye Water Valley/Carton SAC.

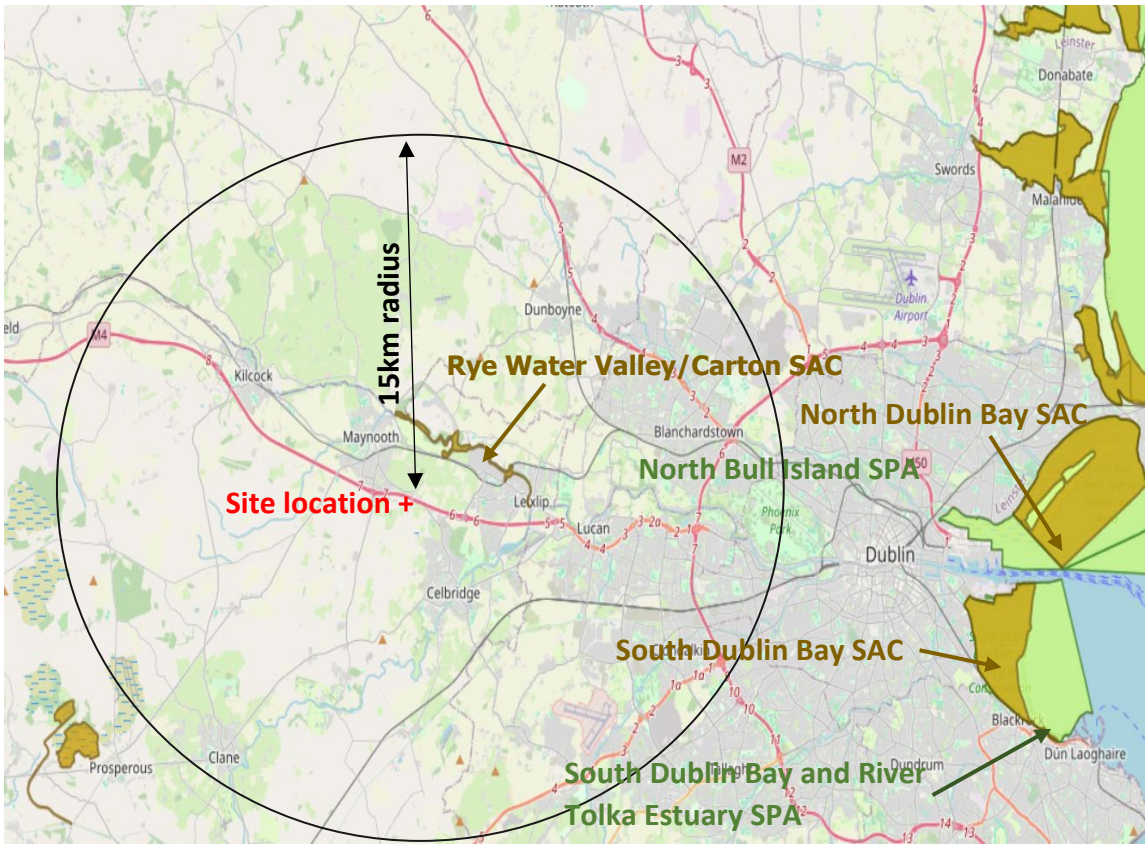

Figure 6 European Sites within a 15km radius and potential ZoI (EPA, 2025)

Name of Site	Approximate distance	Direction	Potential Risk
Rye Water Valley/Carton SAC IE0001398	1.15km	Northeast	No direct hydrological connectivity of surface waters however potential indirect impact via groundwater

			pathway and discharges to surface water through the drainage network
North Dublin Bay SAC IE0000206	24.0km	East	No hydrological connectivity and sufficient geographical separation, so no potential for impacts
South Dublin Bay SAC IE0000210	23.2km	East	No hydrological connectivity and sufficient geographical separation, so no potential for impacts
South Dublin Bay and River Tolka Estuary SPA IE0004024	24.9km	East	No hydrological connectivity and sufficient geographical separation, so no potential for impacts
North Bull Island SPA IE0004006	27.24km	East	No hydrological connectivity and sufficient geographical separation, so no potential for impacts
North-West Irish Sea SPA IE0004236	29.57 Km	East	No hydrological connectivity and sufficient geographical separation, so no potential for impacts

Table 1 European Sites within the potential ZOI and their distance from the proposed site (EPA, 2025).

As detailed in Table 1, there are potential source pathways for impacts on the receptors for one of the European Sites, the Rye Water Valley/Carton SAC.

2.5 Field survey

Flora

The field survey that took place was based on the Best Practice Guidance for Habitat Surveying and Mapping (Smith *et al.*, 2011) whereby the habitats are classified according to Fossitt (2000). In addition, the habitats mapped were compared with the habitats and indicator species for the SACs.

The letter and number codes i.e., GA1 for *Improved grassland* are the standard codes for habitat classification in Ireland (Fossitt, 2000). The vegetation was also mapped to the habitats listed on Annex I/II of the E.U. Habitats Directive

This report presents the results of a site visit by ecologists from RESS Ltd. on the 4th and 5th of October 2024 and 16th of September 2025 on which the site was surveyed. The conditions were dry and there were no constraints to the survey.

The site is comprised of fields bounded by hedgerow/treelines (Appendix i).

Within the site and adjacent to it, there were five vegetation habitats identified on the site as well as a barn (Fossitt, 2000) (See Appendix i for the habitat map). These are as follows:

GS1 Neutral Grassland

The majority of the site is indicative of former grazed field, although the species are more indicative of less intense grazing, hence the *GS1 Neutral Grassland* classification. The following species relate to the fields labelled as F1 and F2 (Appendix i).

F1 - The predominant grass species are Annual meadow grass *Poa annua*, Black bent *Agrostis gigantea,* Cocks-foot *Dactylis glomerata*, Common bent *Agrostis tenuis,* Creeping bent *Agrostis stolonifera*, False oat-grass *Arrhenatherum elatus*, Perennial rye-grass *Lolium perenne,* Timothy *Phleum pratense* and Yorkshire fog *Holcus lanatus.* There are a range of broad-leaved species, such as American willowherb *Epilobium ciliatum*, Chickweed (Common) *Stellaria media*, Creeping buttercup *Ranunculus repens*, Creeping thistle *Cirsium arvense,* Dandelion *Taraxacum officinale,* Dock *Rumex acetosa,* Hawkbit (Rough) *Leontodon hispidus,* Hogweed *Heracleum sphondylium,* Nettle *Urtica dioica,* Ragwort *Jacobaea vulgaris*, Red bartsia *Odontites vernus,* Red clover *Trifolium pratense*, Ribwort plantain *Plantago lanceolata,* Rosebay willowherb *Chamaenerion angustifolium,* Sorrel *Rumex acetosa* and Spear thistle *Cirsium vulgare* (Figure 6). Small amounts of Dog rose *Rosa canina* with juvenile Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna* have begun to colonise (Figure 7).

F2 – The majority of the species present are the same as for F1, however there are additional juvenile trees that have colonised of Ash *Fraxinus excelsior* and Grey willow *Salix cinerea* together with Bramble *Rubus fruiticosus agg.,* Bush vetch *Vicia sepium,* Lesser Burdock *Arctium minus* and Willowherb (hoary) *Epilobium parviflorum*. Rosebay willowherb *Chamaenerion angustifolium* is much more prolific in this field (Figure 8).

Figure 7 F1 GS1 Neutral Grassland

Figure 8 F2 GS1 Neutral Grassland

GS1 Neutral Grassland/WD5 Scattered Trees Mosaic

Only a small portion of this field (F3) is within the site, however a large portion of the field will be excavated for the proposed Maynooth Eastern Ring Road (MERR). The vegetation in this field is very similar to F1 and F2 however with additional broad-leaved species Fleabane *Pulicaria dysenterica*, Self-heal *Prunella vulgaris* and Sweet vernal grass *Anthoxanthum odoratum.* There are significantly more juvenile trees, hence the classification, which are Blackthorn *Prunus spinosa*, Goat willow *Salix caprea,* Grey willow *Salix cinerea,* Hawthorn *Crataegus monogyna,* Oak *Quercus robur* and Silver Birch *Betula pendula.* Like F2 Rosebay willowherb *Chamaenerion angustifolium* is much more prolific (Figure 9).

WS1 Scrub

There are small sections of scrub comprised of Bramble *Rubus fruiticosus agg.,* near where the barn is located.

Figure 9 GS1 Neutral Grassland/WD5 Scattered Trees Mosaic

Figure 10 GS1 Neutral Grassland/WD5 Scattered Trees Mosaic with WL1 Hedgerow/WL2 Treeline

WL1 Hedgerows/WL2 Treelines

There are five hedgerows/treelines within the site. These are mostly hedgerows where the hedge trees have grown to maturity.The hedges are described individually as below:

H1 – This hedgerow/treeline is at the western boundary of the site and forms a thick hedgerow/treeline without any gaps. The predominate species are Elder *Sambucus nigra* and English elm *Ulmus procera,* with Bramble *Rubus fruiticosus agg.* and Nettle *Urtica dioica.*

H2 – This hedgerow/treeline runs to the south of the site and has a number of mature Ash *Fraxinus excelsior* used as bats roosts in the active season (See Bat Survey, RESS Ltd., 2024). Other species present are Blackthorn *Prunus spinosa,* Elder *Sambucus nigra,* Hawthorn *Crataegus monogyna,* with Bramble *Rubus fruiticosus agg.* and Dog rose *Rosa canina.*

H3 – This hedgerow bisects F1 and F2 and is not an entire boundary as it has numerous gaps and the southern section is missing completely. There are not many trees in this boundary apart from some Elder *Sambucus nigra* and Hawthorn *Crataegus monogyna,* with predominantly Bramble *Rubus fruiticosus agg.* and Ivy *Hedera helix.*

H4 – This boundary borders the lane at the northern boundary of the site and is entire with Cherry *Prunus avium,* Elder *Sambucus nigra* and Hawthorn *Crataegus monogyna,* with Privet *Ligustrum vulgare,* Bramble *Rubus fruiticosus agg.* and Dog rose *Rosa canina.*

H5 – This hedgerow/treeline is on the eastern boundary of the site and is Elder *Sambucus nigra* and Hawthorn *Crataegus monogyna,* with Bramble *Rubus fruiticosus agg.,* Dog rose *Rosa canina* and Ivy *Hedera helix* (Figure 10).

WL2 Treeline

H6 – This is a short section of a WL2 Treeline of Lawson's Cypress *Chamaecyparis lawsoniana* around the house in the northern section of the site.

BL3 Buildings and Artificial Surfaces

There is an open sided barn, that it is mostly overgrown with Bramble *Rubus fruiticosus agg.* There were no bats present roosting in this barn and due to its open sides, it is not suitable as a hibernaculum either.

There were no invasive species of Union Concern identified during either survey.

Fauna

No Badger setts were present or was there any evidence of Otter *Lutra lutra* at the time of the survey.

As there was no flowing or standing water within the site itself, the presence of amphibians are unlikely.

Common pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Leisler's Bat *Nyctalus leisleri* were identified roosting in large trees in H2 hedgerow/treeline and using the overall site for foraging during the dusk and dawn survey on the 4th and 5th of October 2024 (RESS Ltd., 2024).

Within the overall site the species of birds present, either heard or seen were Blackbird *Tardus merula,* Bullfinch *Pyrrhula Pyrrhula*, Blue tit *Cyanistes caeruleus*, Goldfinch *Carduelis carduelis,* Great tit *Parus major,* House sparrow *Passer domesticus*, Robin *Erithacus rubecula,* Rook *Corvus frugilegus*, Song thrush *Turdus philomelos* and Wren *Troglodytes troglodytes.*

There were no overwintering birds on the site at the time of the survey or the presence of any ground nesting birds at the time of the survey.

3.0 Identification of Relevant European Sites

3.1 Background to European Sites

The Habitats Directive (92/43/EEC) together with the Birds Directive (2009/147/EC) form the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all, the Habitats Directive protects over 1,000 animal and plant species and over 200 "habitat types" (e.g., special types of forests, meadows, wetlands, etc.), which are of European importance. With the introduction of the EU Habitats Directive and Birds Directive which were transposed into Irish law as S.I. No. 94/1997 European Communities (Birds and Natural Habitats) Regulations 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and importantly, their habitats.

The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011- European Communities (Birds and Natural Habitats) Regulations 2011. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

Based on the desk-based study. Table 1 identifies the sites identified within the potential Zone of Influence considering the Source-Pathway-Receptor Model (OPR, 2021).

The sites listed in Table 1 are a number of European Sites which are designated as Special Areas of Conservation (SAC) and/or Special Protection Areas (SPA) (Figure 6).

4.0 Assessment of Likely Significant Effects on the European Sites

A full assessment of the impacts is detailed below in Table 2.

Likely direct, indirect or secondary impacts of the proposed development on the European Site	
Size and scale	The size and scale of the proposed development is relatively large at approximately 2.77ha
Land-take	The development will take place on a green field site.
Distance from the European site	The distance of the site from the European sites are detailed in Table 1. The potential pathways for indirect impacts are described below. The nearest European Site is Rye Water Valley/Carton SAC 1.15km
Resource requirements	There will be no exploitation of resources within any of the European Sites listed in Table 1.

Emissions	Potential percolation of source pollutants, such as hydrocarbons from the construction phase and operation phase to ground water is likely. Potential discharge to the drainage network from surface water runoff may be likely.
Excavation requirements	There will be no development undertaken within any of the European Sites and therefore no directs impacts
Transportation requirements	As the proposed development is located outside of the European Sites there will be no direct impacts. Access to the site will be through existing roads and the new Maynooth East Ring Road
Duration of construction, operation, decommissioning	The construction phase is likely to take more than 2 years. There is no decommissioning in relation to the proposed development.
Timing of Works	Tree and vegetation clearance will take place from 1st September to 28th February to minimise disturbance to wildlife, unless otherwise stated for bats (Derogation Licence Granted by NPWS)
Cumulative/In-combination impacts with other projects or plans	The EIA portal was checked with the Kildare County Council planning portal for any large scale known developments within the area which are detailed in Table 3

Table 2 Likely Impacts of the proposed development on the European Sites

Planning Reference	Location and Details	Reports
2360485	Planning for a Large-Scale Residential Development (LRD) at this site of c.8.6ha at "Leixlip Gate", in the townlands of Kilmacredock Upper and Castletown, Leixlip, Co Kildare. The site is located to the east of the R449, north of the M4, and south of the "Harpur Lane" residential and creche development currently under construction (Reg. Ref. ABP-307223-20, and as amended by KCC Reg Ref.22/1226 and Reg. Ref. 23/606). The development will consist of: Construction of 229 no. dwellings 255 no. car parking spaces (including e-charging points) and 250 no. secure bike parking spaces (with residential spaces located within dedicated bicycle stores). Vehicular accesses to the development via the Harpur Lane development to the north with pedestrian/cyclist access via Harpur Lane and the R449 to the west. This includes a second access to Harpur Lane provided via the creation of a second permanent opening in the existing boundary demesne wall. Minor amendments to the permitted Harpur Lane development (Ref. ABP-307223-20) to provide the proposed accesses/connections and for connections to services. Provision of new open spaces and landscaped areas including a new public park to the south and west of the site. All associated site development works (including reprofiling of the land), boundary treatments, acoustic fencing (along the boundary with the R449 and M4 slip road), bin stores, ESB substations, public lighting; site services, drainage works and all associated infrastructure.	NIS, EIAR,
2022130	40km rail upgrade from Connolly Station and new Spencer Dock station in the east to M3 Parkway and a new depot west of Maynooth.	EIAR

2022167	Construction of 360 no. residential units comprising 196 houses, 102 duplexes and 62 apartments, provision of public park, creche, scout den, 4 no. bridge structures, 500m of distributor road, road improvements, access, car parking, and associated works.	EIAR
21360	A new wastewater pumping station with an underground emergency storage tank; inlet chamber, wet well chamber, valve and flow chambers; above ground welfare building, control kiosk, fixed lifting gantry, 1 No. odour control unit, security gate and fencing. All associated ancillary and enabling works including hardstanding, landscaping and site drainage. All the above is proposed on a site of approximately 0.1 hectares at lands to the north of Celbridge Road within the townland of Railpark	Screened Out
21155	Development on this 2.18 ha site, approximately, at lands adjoining an existing residential development (Rockfield Park), Railpark, Celbridge Road, Maynooth, Co. Kildare. (This forms Phase 1 of a residential masterplan for some 105 no. units in total on a wider c. 3.26 ha landholding under the Applicant's control). The proposed Phase 1 development will consist of: Construction of a residential development comprising 58 no. dwellings in total. The development will also include new vehicular, cyclist and pedestrian access from Celbridge Road; a new pedestrian footpath and cycle track along the main site frontage to Celbridge Road; the provision of future access connection points to adjacent lands to the northeast (Phase 2), northwest and the southeast; works to facilitate connections to existing services infrastructure to the northeast via Phase 2 lands. The development will also comprise internal roads, footpaths, cycle tracks, public open spaces, and bicycle store areas; parking at surface level (117 no. total spaces for car parking and 30 no. bicycles spaces); drainage attenuation; all hard and soft landscaping; boundary treatments; removal of the existing hedgerows adjacent to Celbridge Road, changes in levels; and all ancillary site development works and site services provision (including wayleave to the north-east) above and below ground	Screened Out CEMP
21156	Development on this 1.99 ha site, approximately, at lands adjoining an existing residential development (Rockfield Court), Railpark, Celbridge Road, Maynooth, Co. Kildare. (This forms Phase 2 of a residential masterplan for some 105 No. units in total on a wider c. 3.26 ha landholding under the Applicant's control). The proposed Phase II development will consist of: Construction of a residential development comprising 47 No. dwellings in total.	Screened Out CEMP
P82019-08	Maynooth Eastern Ring Road The scheme provides for the provision of a new single carriageway relief road to the east of Maynooth town to facilitate the connection of the R148 Leixlip Road to the R405 Celbridge Road (circa 1.55km). It includes a 41m crossing of the Royal Canal and Dublin to Sligo railway line. Pedestrian and cycle facilities are provided on each side. Some 800 metres of existing road will also require upgrading.	EIAR
2561119 Live Application	Lands at Railpark, Maynooth, Co. Kildare, Maynooth, ACP Ref: 312671-22 (Phase 1) and Reg. Ref.: 21156 / ACP Ref: 312685-22 (Phase 2), which is currently under construction. north of Maynooth Educate Together National School on the Celbridge Road (R405) and bordered by agricultural lands to the N, E, S.	EIAR, NIS

	The proposed development will consist of 581 no. residential units, a neighbourhood centre and all associated development, on a site of approximately 15.27 hectares	
2561101 Incomplete Application	Lands at Railpark, Maynooth, Co. Kildare, Maynooth, ACP Ref: 312671-22 (Phase 1) and Reg. Ref.: 21156 / ACP Ref: 312685-22 (Phase 2), which is currently under construction. north of Maynooth Educate Together National School on the Celbridge Road (R405) and bordered by agricultural lands to the N, E, S. The proposed development will consist of 581 no. residential units, a neighbourhood centre and all associated development, on a site of approximately 15.27 hectares	EIAR, NIS

Table 3 Known plans and developments within the vicinity of the site

With reference to Table 3 it is unlikely that any known projects are likely to create a cumulative (In-combination) effect as they were either 'Screened Out' at Stage 1 Screening for Appropriate Assessment and/or if 'Screened In', have mitigation measures included in the accompanying documents to protect any watercourses/European Sites from pollutants etc. There is however potential cumulative risk to the Rye Water River as a result of the existing pressures on this water body as identified in the WFD Report (EPA, 2019) in combination with potential risks from runoff during the construction and operation phases of the proposed development and thus the cumulative impacts require further investigation.

As the European sites listed in Table 1 are not directly involved in the proposed development, there are no likely changes anticipated. However due to the amount of development proposed in the Railpark area, there is undoubtedly likely to be a cumulative effect on the ecology of the area. However as a result of the mitigation measures to be employed, in particular in the other large projects, these impacts are unlikely to have a cumulative impact on the European Site/natura 2000 Site, Rye Water Valley/Carton SAC.

In the assessment of possible impacts on the structure and function of the European Sites, there are no potential likely direct threats anticipated however potential indirect effects may affect the structure and function of in particular, the petrifying springs. Thus there is a potential impact for interference with the key relationships that define the structure of the identified European Site.

The assessment of the indicators of significance are detailed in Table 4.

Indicators of Significance	
Loss	No loss of habitat within any European site as a result of the proposed development
Fragmentation	No habitat fragmentation of any European Site is predicted
Disruption	Potential indirect disruption of the identified European Site may occur as a result of the proposed development in the form of pollutants entering groundwater/surface water
Disturbance	Potential indirect risk of disturbance to any European Site is likely as a result of the proposed development in the form of pollutants entering groundwater/surface water

Changes to key elements of the site (e.g. water quality etc.)	There may be potential long-term changes to key elements of the European Site as a result of the proposed development in the form of pollutants entering groundwater/surface water

Table 4 Assessment of indicators of significance

Habitat Code	**Habitat**	**Potential for Significant Impact**
7220	Petrifying springs with tufa formation (Cratoneurion)	Yes, indirect impact through groundwater pathway (also potential SW)
Species Code	**Species**	**Potential for Significant Impact**
1014	*Vertigo angustior* (Narrow-mouthed Whorl Snail)	Yes, indirect impact through groundwater pathway (also potential SW)
1016	*Vertigo moulinsiana* (Desmoulin's Whorl Snail)	Yes, indirect impact through groundwater pathway (also potential SW)

Table 5 Potential for impacts on the Qualifying Interests of Rye Water Valley/Carton SAC (NPWS, 2021) (SW = Surface Water)

4.1 Statement of Screening

In relation to the effects to the qualifying species and habitats of the European Sites listed in Table 1 there are no likely direct impacts however there are potential indirect impacts through groundwater to Rye Water valley/Carton SAC from the proposed development. In addition, there may be discharge to nearby drains within the adjacent housing development during the construction and operation phases and thus there is a potential for discharge of Surface Water (SW) into the Rye Water River and Rye Water Valley/Carton SAC.

Therefore, the proposed development must be Screened In' and a Stage 2 Appropriate Assessment (AA) is required for the aforementioned European Site listed in Table 1.

This Stage 1 Screening has demonstrated that, the proposed development has no potential direct but potential indirect effects on the qualifying species and or habitats of the listed European Site.

4.2 Conclusion

In conclusion, with reference to Tables 1, 2, 4 and 5, the effects to the qualifying species and habitats of the aforementioned European Site have the potential for significant indirect impacts due to the potential source pathways through groundwater (and potential SW) to the receptor qualifying species and habitats.

As a result, the development must be 'Screened In' and a Stage 2 Appropriate Assessment (AA) is required for Rye Water Valley/Carton SAC detailed in Table 1.

This report has demonstrated that, the proposed development has no likely potential direct but there may be indirect effects on the qualifying species or habitats of the aforementioned European Site.

This assessment has been undertaken on the basis of the best scientific knowledge in the field and the Precautionary Principle.

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Russell Environmental and Sustainability Services Limited

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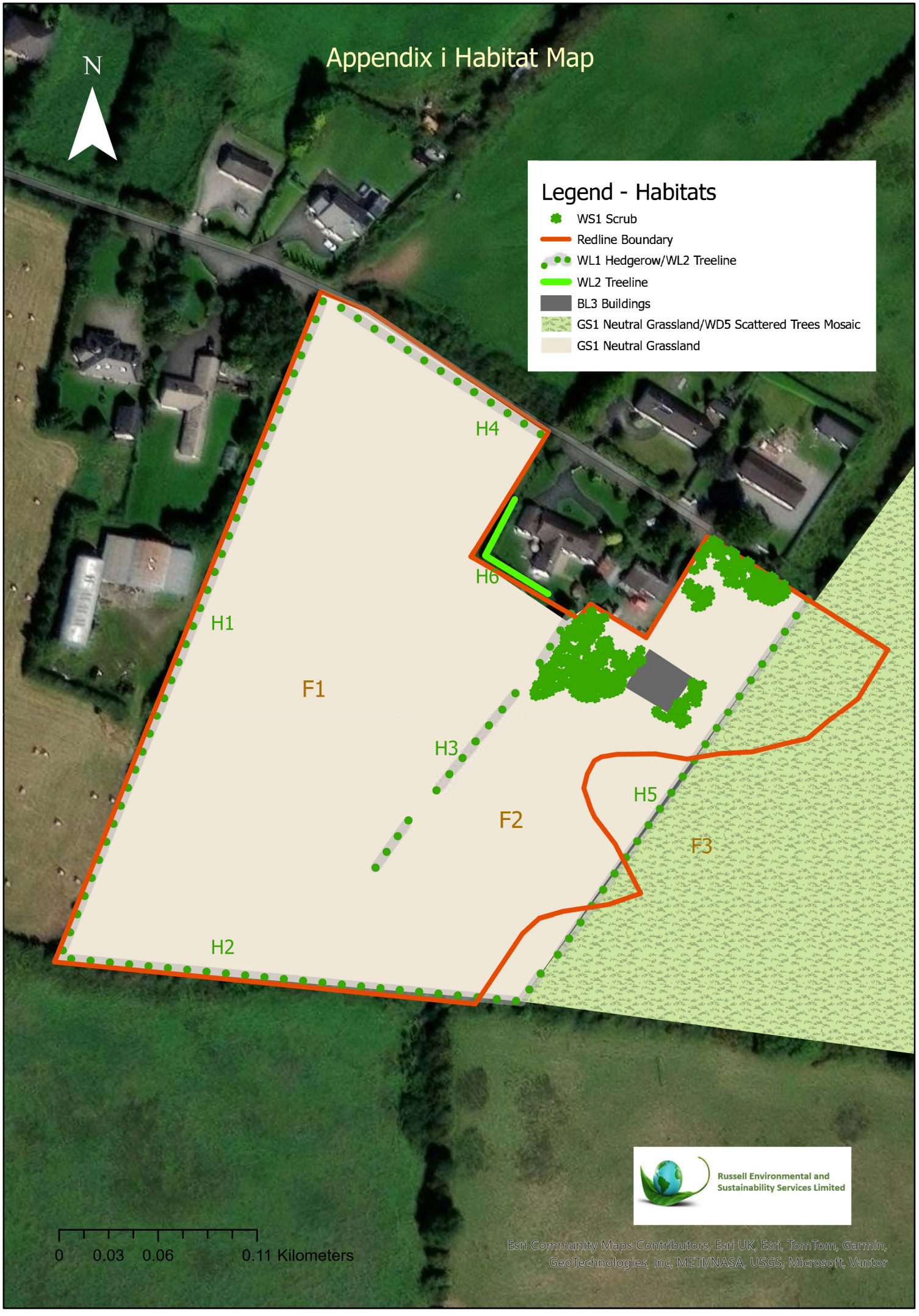
APPENDICES


Appendix i Habitat Map
N
Legend - Habitats
WS1 Scrub
Redline Boundary
WL1 Hedgerow/WL2 Treeline
WL2 Treeline
BL3 Buildings
GS1 Neutral Grassland/WD5 Scattered Trees Mosaic
GS1 Neutral Grassland
H1
H2
H3
H4
H5
H6
F1
F2
F3
0 0.03 0.06 0.11 Kilometers
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Rye Water Valley/Carton SAC 001398

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Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

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.

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

001398	Rye Water Valley/Carton SAC
1014	Narrow-mouthed Whorl Snail *Vertigo angustior*
1016	Desmoulin's Whorl Snail *Vertigo moulinsiana*
7220	Petrifying springs with tufa formation (Cratoneurion)*

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	2009
Title :	Ireland Red List No. 2: Non-marine molluscs
Author :	Byrne, A.; Moorkens, E.A.; Anderson, R.; Killeen, I.J.; Regan, E.C.
Series :	Ireland Red List series, NPWS
Year :	2010
Title :	Ireland Red List No. 4: Butterflies
Author :	Regan, E.C.; Nelson, B.; Aldwell, B.; Bertrand, C.; Bond, K.; Harding, J.; Nash, D.; Nixon, D.; Wilson, C.J.
Series :	Ireland Red List series, NPWS
Year :	2011
Title :	Monitoring and condition assessment of populations of *Vertigo geyeri*, *Vertigo angustior* and *Vertigo moulinsiana* in Ireland
Author :	Moorkens, E.; Killeen, I.
Series :	Irish Wildlife Manuals, No. 55
Year :	2012
Title :	Ireland Red List No. 8: Bryophytes
Author :	Lockhart, N.; Hodgetts, N.; Holyoak, D.
Series :	Ireland Red List series, NPWS
Year :	2013
Title :	Conservation status assessment for petrifying springs
Author :	Lyons, M.D.; Kelly, D.L.
Series :	Unpublished report to NPWS
Year :	2016
Title :	Monitoring guidelines for the assessment of petrifying springs in Ireland
Author :	Lyons, M.D.; Kelly, D.L.
Series :	Irish Wildlife Manuals, No. 94
Year :	2016
Title :	Ireland Red List No. 10: Vascular Plants
Author :	Wyse Jackson, M.; FitzPatrick, Ú.; Cole, E.; Jebb, M.; McFerran, D.; Sheehy Skeffington, M.; Wright, M.
Series :	Ireland Red Lists series, NPWS
Year :	2019
Title :	Monitoring of sites and habitat for three Annex II species of whorl snail (*Vertigo*)
Author :	Long, M.P.; Brophy, J.T.
Series :	Irish Wildlife Manuals, No. 104
Year :	2019
Title :	Monitoring of sites and habitat for three Annex II species of whorl snail (*Vertigo*). Appendix IV. *Vertigo angustior* site reports
Author :	Brophy, J.T.; Long, M.P.
Series :	Irish Wildlife Manuals, No. 104
Year :	2019
Title :	Monitoring of sites and habitat for three Annex II species of whorl snail (*Vertigo*). Appendix VI *Vertigo moulinsiana* site reports
Author :	Brophy, J.T.; Long, M.P.
Series :	Irish Wildlife Manuals, No. 104

Year :	2019
Title :	Checklists Protected and Threatened Species in Ireland 2019
Author :	Nelson, B.; Cummins, S.; Fay, L.; Jeffrey, R.; Kelly, S.; Kingston, N.; Lockhart, N.; Marnell, F.; Tierney, D.; Wyse Jackson, M.
Series :	Irish Wildlife Manuals, No. 116
Year :	2021
Title :	Checklists Protected and Threatened Species in Ireland. Version 2.1. 3 December 2021
Author :	Nelson, B.; Cummins, S.; Fay, L.; Jeffrey, R.; Kelly, S.; Kingston, N.; Lockhart, N.; Marnell, F.; Tierney, D.; Wyse Jackson, M.
Series :	Irish Wildlife Manuals, No. 116

Other References

Year :	2008
Title :	Hydrological report for Leixlip Spa, Co. Kildare
Author :	Kuczyńska, A.; Bartley, P.
Series :	Unpublished report to Kildare County Council
Year :	2011
Title :	The Fen Management Handbook
Author :	McBride, A.; Diack, I.; Droy, N.; Hamill, B.; Jones, P.; Schutten, J.; Skinner, A.; Street, M. (eds.)
Series :	Scottish Natural Heritage, Perth
Year :	2015
Title :	The flora and conservation status of petrifying springs in Ireland
Author :	Lyons, M.D.
Series :	Unpublished Ph.D. thesis, Trinity College Dublin
Year :	2016
Title :	Tufa springs survey, Ryewater Valley/Carton SAC, Leixlip, Co. Kildare. Tufa spring report. Version 1.1
Author :	JBA
Series :	Report by JBA Consulting, Limerick

Spatial data sources

Year :	2016
Title :	Point file associated with Lyons (2015)
GIS Operations :	Dataset created from spatial references; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	7220 (map 2)
Year :	2021
Title :	NPWS rare and threatened species database
GIS Operations :	Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising
Used For :	1014, 1016 (map 3)

7220 Petrifying springs with tufa formation (Cratoneurion)*

To restore the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion)* in Rye Water Valley/Carton SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Square metres	Area stable or increasing, subject to natural processes	The habitat Petrifying springs with tufa formation (Cratoneurion)* was surveyed by Lyons (2015) at Louisa Bridge (sub-site code PS001) within Rye River Valley/Carton SAC. The area of the habitat estimated by Lyons (2015) is c.1,250m². This is a dynamic habitat and one which is likely to be significantly impacted by any reduction in water supply. Tufa sites may also decrease naturally due to natural blockages of upwelling springs. See Lyons (2015) and Lyons and Kelly (2016) for further details on this and all attributes. It is important to note that further unsurveyed areas may be present in the SAC. See also JBA (2016)
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 2	See map 2 for the point location of habitat 7220* surveyed by Lyons (2015) at Louisa Bridge (sub-site code PS001). It is important to note that further unsurveyed areas of the habitat may be present within the SAC
Hydrological regime: height of water table; water flow	Metres; metres per second	Maintain appropriate hydrological regimes	Petrifying springs rely on permanent irrigation, usually from upwelling groundwater sources or seepage sources (Lyons and Kelly, 2013). Water flow should not be altered anthropogenically. See Lyons and Kelly (2016) for further details. At Louisa Bridge (PS001), the hydrology was modified during the 19th century when the warm spring in the area was a popular visitor destination. PS001 is of hydrogeological importance as the spring and seepage complex is irrigated by two independent spring systems which differ in the chemical composition of the spring waters (Lyons, 2015; Lyons and Kelly, 2016). The separate water sources comprise a deeper, older and warmer artesian groundwater system with high concentrations of sodium and chloride, and a more recent, shallow, alkaline groundwater system (Kuczyńska and Bartley, 2008). The water from the two sources mixes as it trickles down the hillside towards the Rye Water River, creating a series of shallow pools and paludal habitats (Lyons, 2015)
Physical structure: tufa formations	Seepage rate to the spring and groundwater quality (saturated calcium carbonate, pH, temperature and alkalinity conditions)	Maintain appropriate levels of tufa formation	Petrifying springs are springs that typically form small calcareous or 'tufa' deposits. On contact with the atmosphere at the spring head, carbon dioxide is lost from calcium saturated water to the atmosphere or is depleted by the photosynthetic activities of plants. This results in the precipitation of a calcium carbonate marl or tufa. Seepage flow rates are crucial for the development of tufa. In this SAC, the surveyed sub-site (PS001) was described as containing a complex of tufa-forming springs, flushes and pools with paludal tufa, oncoids/ooids and marl (Lyons, 2015; Lyons and Kelly, 2016)
Ecosystem function: water quality - nitrate level	mg/l	Maintain nitrate level at less than 10mg/l	Attribute and target based on Lyons and Kelly (2016). A nitrate level of 0.13mg/l was recorded at PS001 within Rye River Valley/Carton SAC by Lyons (2015)
Ecosystem function: water quality - phosphate level	µg/l	Restore phosphate level to less than 15µg/l	Attribute and target based on Lyons and Kelly (2016). A phosphate level of 16µg/l was recorded at PS001 by Lyons (2015), just marginally failing the attribute target

Vegetation composition: community diversity	Variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	Lyons and Kelly (2016) describe eight plant communities of petrifying springs in Ireland based on relevé data. At Louisa Bridge (PS001) in Rye River Valley/Carton SAC, the main community recorded by Lyons (2015) was *Carex lepidocarpa* small sedge springs. Further information on the vegetation communities associated with this habitat is presented in Lyons and Kelly (2016)
Vegetation composition: positive indicator species	Number per spring	At least three positive/high quality indicator species as listed in Lyons and Kelly (2016) and no loss from baseline number	Attribute and target based on Lyons and Kelly (2016), where lists of positive and high quality indicator species are presented. Lyons (2015) recorded 23 positive indicator species at PS001; *Carex dioica, C. hostiana, C. lepidocarpa, C. panicea, Festuca rubra, Eleocharis quinqueflora, Anagallis tenella, Crepis paludosa, Neottia ovata, Parnassia palustris, Pinguicula vulgaris, Samolus valerandi, Triglochin palustris*, the cyanobacterium *Rivularia biasolettiana* and the bryophytes *Aneura pinguis, Bryum pseudotriquetrum, Campylium stellatum, Eucladium verticillatum, Fissidens adianthoides, Pellia endiviifolia, Palustriella commutata, P. falcata* and *Scorpidium cossonii*
Vegetation composition: negative indicator species	Cover (DAFOR scale)	Potentially negative indicator species should not be Dominant or Abundant; woody species should be absent in unwooded springs; invasive species should be absent	Attribute and target based on Lyons and Kelly (2016), where the lists of potentially negative herbaceous, bryophyte, algal and woody species, and details on potentially invasive species are presented. If two or more potentially negative bryophyte/alga species are present, and if at least two are Frequent, or at least one is Abundant, then this attribute fails (Lyons and Kelly, 2016). The potentially negative herbaceous species *Eupatorium cannabinum* was recorded as Occasional at PS001 by Lyons (2015) and the potentially negative bryophyte *Cratoneuron filicinum* was Rare. The potentially negative woody species *Fraxinus excelsior, Salix cinerea* and *Hedera helix* were all recorded as Rare at PS001, an unwooded spring; however, the attribute was allowed pass on expert judgement (Lyons, 2015). It was noted that scrub encroachment poses a threat to the habitat, but has been kept under control by manual removal of seedlings in recent years (see Lyons, 2015)
Vegetation composition: algal cover	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of algae less than 2%	Algal cover is indicative of nutrient enrichment from multiple sources (McBride et al., 2011)
Vegetation structure: sward height	Centimetres	Field layer height between 10cm and 50cm (except for bryophyte-dominated ground <10cm)	Attribute and target based on Lyons and Kelly (2016). See Lyons (2015) for further details
Physical structure: trampling/dung	Cover (DAFOR scale)	Cover should not be Dominant or Abundant	Attribute and target based on Lyons and Kelly (2016). See Lyons (2015) for further details
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes	This includes species on the Flora (Protection) Order, 2015 and/or Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.; see Nelson et al., 2019, 2021). Two species of *Vertigo* snail listed on Annex II of the Habitats Directive (*Vertigo angustior* and *V. moulinsiana*) have been reported in the SAC, each with different habitat requirements (Moorkens and Killeen, 2011; Long and Brophy, 2019). See the conservation objectives for the species 1014 and 1016 in this volume

1014 Narrow-mouthed Whorl Snail *Vertigo angustior*

To restore the favourable conservation condition of Narrow-mouthed Whorl Snail (*Vertigo angustior*) in Rye Water Valley/Carton SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Number of occupied 1km squares	Population restored to baseline. There is one recorded site for the species in the SAC within the 1km grid square N9936. See map 3	Narrow-mouthed whorl snail (*Vertigo angustior*) was last recorded in Rye Water Valley/Carton SAC in 1997 at one site within the 1km grid square N9936; the species was not found in 2006, 2010 or 2016. See details for the site Louisa Bridge (site code VaCAM19) in Moorkens and Killeen (2011), Long and Brophy (2019) and Brophy and Long (2019). Further work is required to definitively establish the status of the species in this SAC
Occurrence in suitable habitat	Percentage positive records in a representative number of samples	Restore to self-sustaining population	This attribute should be assessed following the methodology in Long and Brophy (2019) taking a representative number of samples in suitable habitat across the site in an appropriate time frame to detect successful reproduction. A self-sustaining population will be indicated by detection of both adults and juveniles
Habitat area	Hectares	Restore area of suitable habitat, subject to natural processes	The area that supported narrow-mouthed whorl snail (*Vertigo angustior*) within this SAC is the floodplain habitat at the base of the spring-fed slope along the banks of the Rye Water River. In 1997, the vegetation was defined as wet grassland vegetation dominated by yellow iris (*Iris pseudacorus*), low herbs and mosses up to 0.9m high growing on damp, friable soil covered with a layer of humid, open structured moss and litter. This vegetation occurred in a narrow zone between the riverside vegetation and the springs, and appears to have become increasingly rank and shaded by willows (*Salix* spp.) over time
Habitat quality: water levels	Hydrological regime	Restore suitable hydrological regime, subject to natural processes	The area that supported narrow-mouthed whorl snail (*Vertigo angustior*) was in a narrow zone between the saturated ground influenced by the tufaceous springs and the river floodplain. This delicate hydrology may have been negatively impacted by increased flooding or by changes to the springs

1016 Desmoulin's Whorl Snail *Vertigo moulinsiana*

To maintain the favourable conservation condition of Desmoulin's Whorl Snail (*Vertigo moulinsiana*) in Rye Water Valley/Carton SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Number of occupied 1km squares	No decline, subject to natural processes. There is one known site for this species in the SAC within the 1km grid square N9936. See map 3	Desmoulin's whorl snail (*Vertigo moulinsiana*) is known from one site in Rye Water Valley/Carton SAC, at Louisa Bridge, within the 1km grid square N9936. See details for the site Louisa Bridge (site code VmCAM05) in Moorkens and Killeen (2011), Long and Brophy (2019) and Brophy and Long (2019)
Occurrence in suitable habitat	Percentage positive records in a representative number of samples	No decline, subject to natural processes. A baseline figure of 50% positive samples is set	Desmoulin's whorl snail (*Vertigo moulinsiana*) should be present in 50% of samples taken across the site. This attribute should be assessed following the methodology in Long and Brophy (2019) taking a representative number of samples in suitable habitat across the site
Density within habitat	Number of adults per sample	No decline, subject to natural processes; at least 25% of samples should have more than 10 individuals	At least 25% of samples should have at least 10 individuals of Desmoulin's whorl snail (*Vertigo moulinsiana*). This attribute should be assessed following the methodology in Long and Brophy (2019) taking a representative number of samples in suitable habitat across the site
Habitat area	Hectares	Area of suitable habitat stable or increasing, subject to natural processes; no less than 0.2ha of at least sub-optimal habitat	The baseline figure for the amount of habitat in at least sub-optimal condition for this site is 0.2ha. Optimal and sub-optimal habitat is defined in Moorkens and Killeen (2011) and given in Long and Brophy (2019) and Brophy and Long (2019)
Habitat quality: occupied patches in at least sub-optimal condition	Percentage	No decline, subject to natural processes. A baseline of 50% is set	Suitable habitat that is at least sub-optimal is patchy on the site. The baseline target is that at least 50% of the occupied habitat patches should be in at least sub-optimal condition. This is derived from Moorkens and Killeen (2011), Brophy and Long (2019) and Long and Brophy (2019) where optimal and sub-optimal habitat is also defined
Habitat quality: soil wetness	Soil wetness criteria	No decline, subject to natural processes	The baseline is that 50% of the site should meet the soil wetness criteria (classes 3-5) that is defined and assessed according to the definitions and methodology given in Moorkens and Killeen (2011), Brophy and Long (2019) and Long and Brophy (2019)

Legend

Rye Water Valley/Carton SAC 001398

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 1:
RYE WATER VALLEY/CARTON SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

Map to be read in conjunction with the NPWS Conservation Objectives Document

SITE CODE:
SAC 001398; version 3.01
CO. KILDARE/MEATH

0 125 250 500 Metres

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
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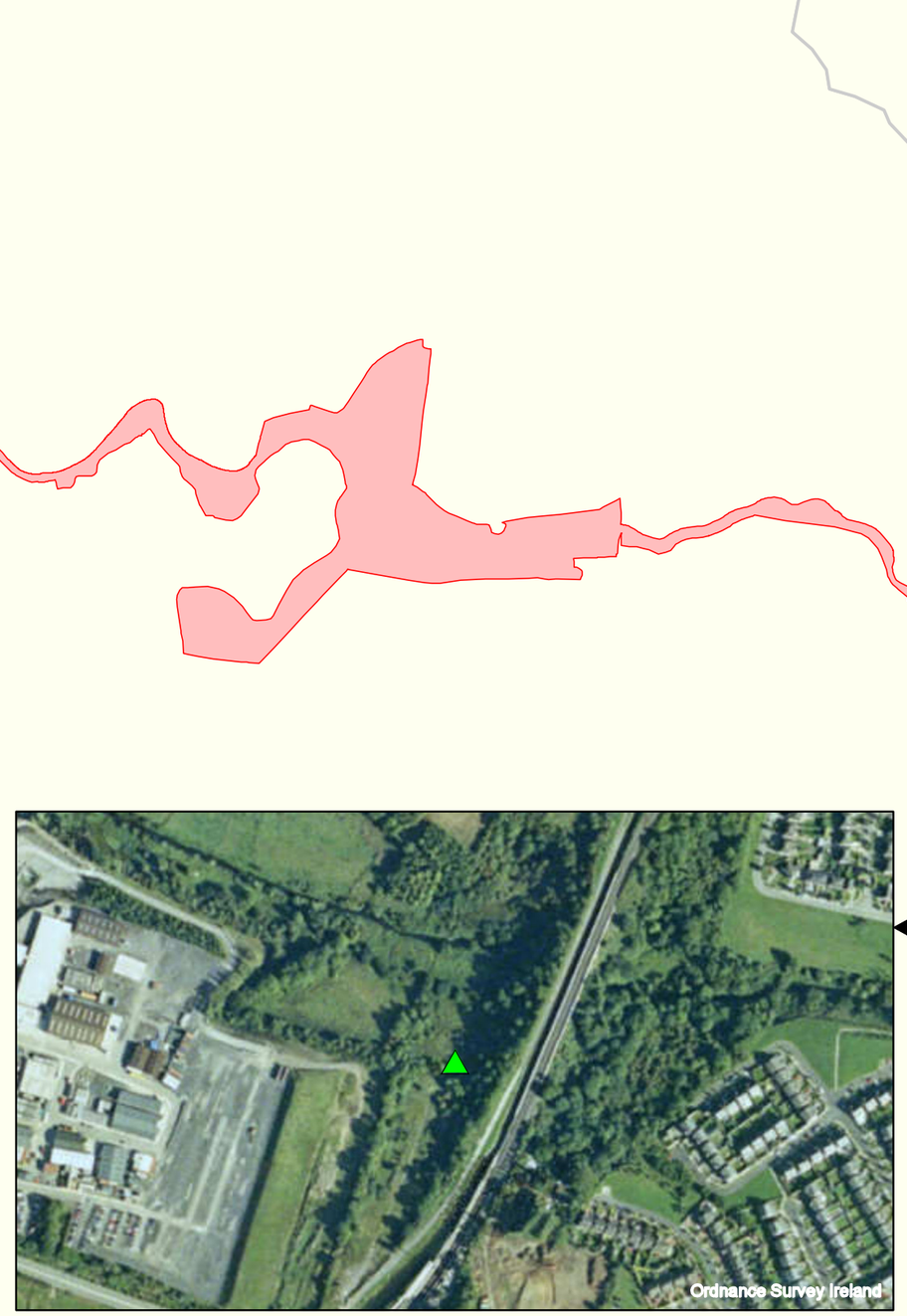
Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Suirbhéarachta Ordonáis na hÉireann Ceadúnas Uimh OSI-NMA-014. © Suirbhéarachta Ordonáis na hÉireann Rialtas na hÉireann

N

Date: November 2021



Legend

- *Petrifying springs with tufa formation (*Cratoneurion*)
- Rye Water Valley/Carton SAC 001398
- OSI Discovery Series County Boundary

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 2:
RYE WATER VALLEY/CARTON SAC
CONSERVATION OBJECTIVES
PETRIFYING SPRINGS

Map to be read in conjunction with the NPWS Conservation Objectives Document

SITE CODE:
SAC 001398; version 3.01
CO. KILDARE/MEATH

0 130 260 520 Metres

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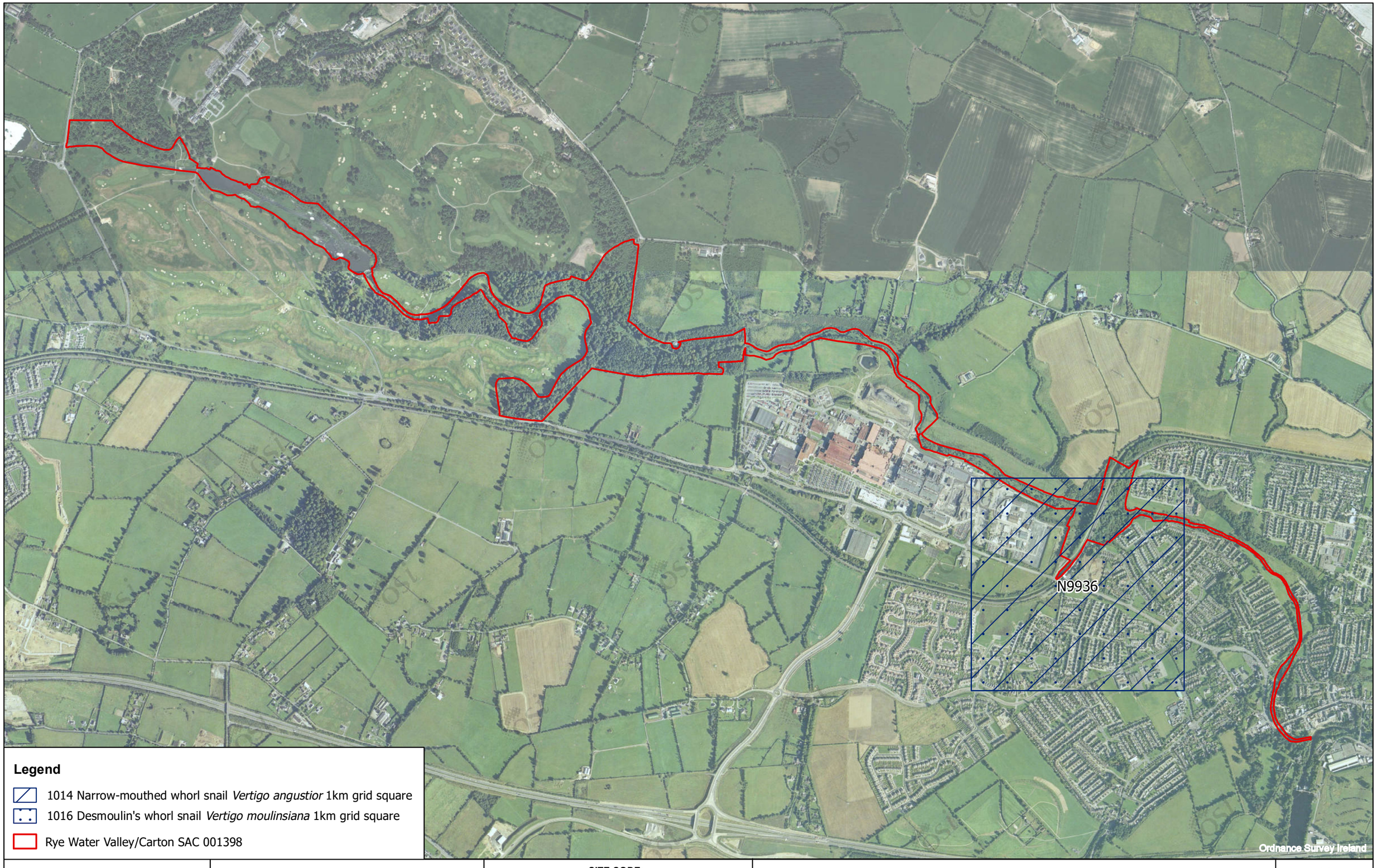
N

Date: November 2021



Legend

- 1014 Narrow-mouthed whorl snail *Vertigo angustior* 1km grid square
- 1016 Desmoulin's whorl snail *Vertigo moulinsiana* 1km grid square
- Rye Water Valley/Carton SAC 001398

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 3:
RYE WATER VALLEY/CARTON SAC
CONSERVATION OBJECTIVES
VERTIGO SPECIES

Map to be read in conjunction with the NPWS Conservation Objectives Document

SITE CODE:
SAC 001398; version 3.01
CO. KILDARE/MEATH

0 125 250 500 Metres

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Date: November 2021