2025

Natura Impact Statement in support of Appropriate Assessment

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

Russell Environmental and Sustainability Services Limited

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1.0 Introduction

In preparation for the planning application for the Large-scale Residential Development Railpark, Maynooth, County Kildare for Maynooth Montane Limited, this Natura Impact Statement (NIS) has been produced to determine the likelihood of any significant effects to the Rye Water Valley/Carton SAC and surrounding environs, due to the hydrological connectivity of the SAC to the development site via groundwater (and potentially through surface water runoff).

1.1 Background

A Screening for Appropriate Assessment was prepared the residential development.

The screening assessment concluded as follows:

In conclusion,…. 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.

Table 1 below provides a screening summary and identifies the potential impacts that could not be excluded at screening stage.

European Site	Distance from Proposed Development	Screening Summary
Rye Water Valley/Carton SAC	1.15km	Potential pathways for direct impact on the Annex species of the Rye Water Valley/Carton SAC, have been identified in the form of emissions through the ground to the groundwater and potentially through surface water runoff to the Rye Water River. Consequently, the potential for indirect impacts on the Annex species associated with the SAC requires further assessment. Pathways for significant effect was identified at screening stage with regard to all three of the SAC Qualifying Interests (QI).

Table 1 Natura 2000 Sites that have been 'Screened In'

1.2 Legislative Context

In light of the finding of the screening report for the residential development at Railpark, Maynooth, an NIS has now been prepared for the development,

having regard to the European Commission guidance document Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001) and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

1.2.1 EU Habitats Directive

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), 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 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. The Rye Water Valley/Carton is an SAC and as thus is a Natura 2000 site (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).

1.2.2 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 it 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).

As the site is hydrologically connected to the Rye Water Valley/Carton SAC, an Appropriate Assessment (Stage 2) is required to determine the 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.

1.3 Appropriate Assessment Methodology

The information contained in this NIS is designed to allow the Competent Authority to assess:

1) the implications of the project, alone or in combination with other plans and projects, for a European Site in view of its Conservation Objectives.

2) whether there will be any adverse effects on the integrity of a European Site.

Firstly, in Section 2 of the report, the proposed development is fully described.

Following on from this in Section 2.5, the results of the desk and field surveys that were undertaken are provided to provide all necessary details of the ecological baseline conditions at the site of the proposed development.

The interaction of the proposed development on the baseline environment is then considered in the context of potential effects thereon. This is undertaken with particular reference to the potential for the proposed development to result in adverse effects on the integrity of any European Site.

In Section 3, the Qualifying Interests and Conservation Objectives of the "screened in" European site are described, with subsequent identification of potential pathways for effects on each individual Qualifying Interest. Where potential pathways for effects are identified, the potential for adverse effects on each Qualifying Interest is assessed with respect to the national level pressures and threats.

Where available, the site-specific attributes and targets, associated with the individual Qualifying Interest, are also assessed with regard to the proposed development taking into consideration best practice and design features.

The assessment of potential adverse effects follows the precautionary principle as detailed in Article 191 of the Treaty on the Functioning of the European Union (EU). It aims at ensuring a higher level of environmental protection through preventative decision-taking in the case of risk and underpins the Habitats Directive (EEC, 2019). The precautionary principle is the underlying concept of sustainable development which implies that prudent action be taken to protect the environment even in the absence of scientific certainty (EEC, 2019).

In Section 4 the preventative measures to avoid impact are detailed, in particular the direct and indirect impacts on the EU Site. The impact during the construction phase is considered and the mitigation measures are proposed.

Following the assessment of potential adverse effects on a European Site resulting from the project itself, a further assessment of the potential for effects when the project is considered cumulatively and in combination with other proposed developments is made in Section 5.

Finally in Section 6, a concluding statement is made. This includes a summary of the results of the assessment and the potential adverse effects on the integrity of any European Site (limited to the Conservation Objectives of the site) (EEC, 2019).

The information contained in this report will allow the Competent Authority to determine that the proposed development will not adversely affect the integrity of any European Site.

1.4 Author of the Report

Russell Environmental and Sustainability Services Ltd. were contracted by Maynooth Montane Limited to complete a Natura Impact Statement. This was in preparation for the planning application for the Large-scale Residential Development at Railpark, Maynooth, County Kildare. The site has a bedrock of limestone and the groundwater underneath the site is hydrologically connected to Rye Water Valley/Carton SAC and therefore, it was deemed necessary to prepare an NIS based on the Stage 1 Screening. 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.

2.0 Site Description and Baseline Information

2.1 Development Description

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.

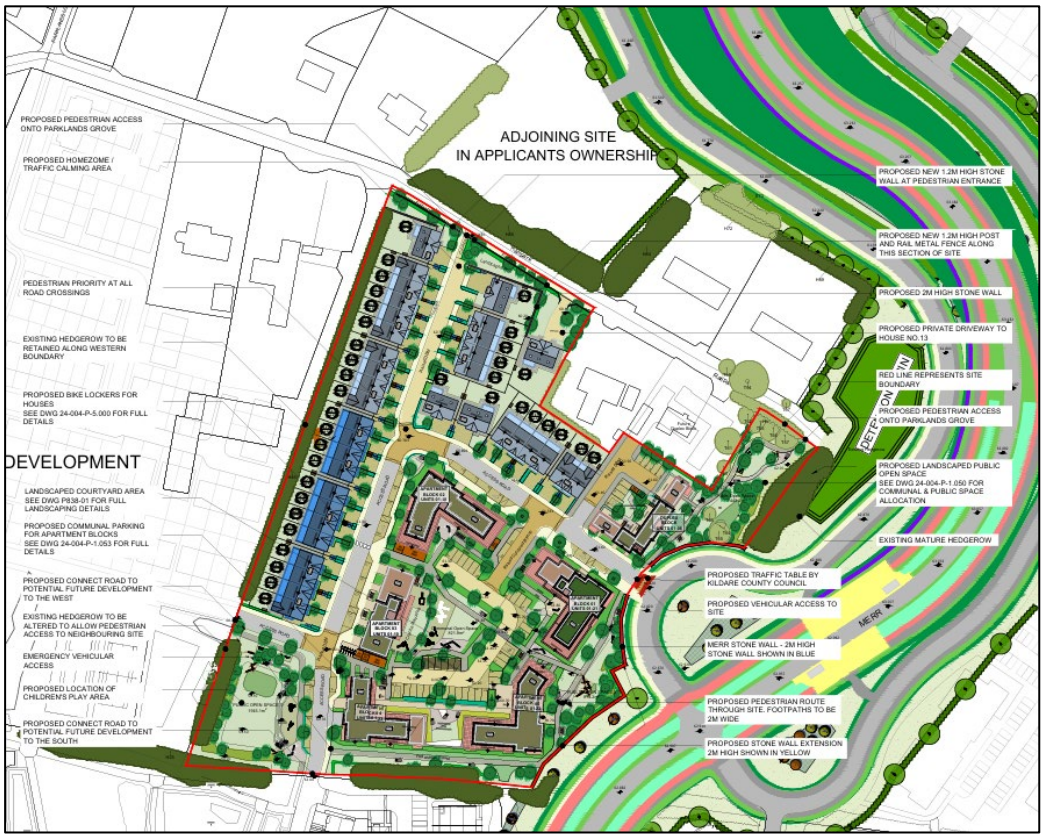

Figure 1 Site Plan (Duignan Queen Architects, 2025)

2.2 Baseline Ecology of the Site

The Qualifying Interest (QI) species and habitats associated with the Rye Water Valley/Carton SAC, for which potential pathways for impact require further assessment, are detailed in Table 2.

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

Table 2 Qualifying habitats and species of the Rye Water Valley/Carton SAC considered for impacts and effects (NPWS, 2021).

2.2.1 Desk Study

The EPA provides the AA Geotool that is a database of protected sites and associated flow network for water courses within Ireland. There is no surface water flow network that connects the site to Rye Water Valley/Carton SAC.

The Geological Survey of Ireland is a database on the geology and hydrogeology of Ireland and thus details of the groundwater were reviewed. 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). The groundwater may provide a pathway for source pollutants to enter the Rye Water Valley/Carton SAC from the site.

The National Biodiversity Data Centre provides a national database of biological records from Ireland. The database was consulted with regard to all QI species records within the area where the proposed development is located. The most recent records for each of the QI species were in 2006 on the Biodiversity Ireland database. These were located in Louisa Bridge in the 1km Grid N9936 which is within the Rye Water Valley/Carton SAC and approximately 4.5km away from the development site. The proposed development site is within the 1km grid N9437 and 2km grid N93N.

The EPA WFD reports for the catchment for the site were reviewed. As stated in the Stage 1 Screening for AA Report (RESS Ltd., 2025), 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 (EPAS, 2019). 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).

Species	Grid Reference	Location	Dataset	Date Recorded
Desmoulin's Whorl Snail *Vertigo moulinsiana*	N994367	Louisa Bridge	All Ireland Non-Marine Molluscan Database	2006
	N995368	Louisa Bridge	All Ireland Non-Marine Molluscan Database	2006
	N9936	Louisa Bridge	All Ireland Non-Marine Molluscan Database	2006
Narrow-mouthed Whorl Snail *Vertigo angustior*	N9936	Louisa Bridge	All Ireland Non-Marine Molluscan Database	2006
	N994367	Louisa Bridge	All Ireland Non-Marine Molluscan Database	2006

Table 3 Records of Whorl snail species in Rye Water valley/Carton SAC (Biodiversity Ireland, 2025).

2.2.2 Field Survey

Flora

The vegetation 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 Qualifying Interests (QI) listed for the Rye Water Valley/Carton SAC.

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 on the 4th and 5th of October 2024 and the 16th of September 2025, when the site was surveyed. The conditions were dry and there were no constraints to the survey (Full details of the species identified are in the Stage 1 Screening for Appropriate Assessment Report and the Ecological Impact Assessment Report (RESS Ltd, 2025)).

Within the site where the proposed development is to be located, there were five vegetation habitats identified (Fossitt, 2000) (Appendix i). These were as follows:

GS1 Neutral Grassland
GS1 Neutral Grassland/WD5 Scattered Trees Mosaic
WL1 Hedgerow
WL1Hedgerow/WL2Treeline
WS1 Scrub
BL3 Buildings and Artificial Surfaces

There were no invasive species of national concern recorded on the site.

Fauna

No Badger setts were present nor 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.

There were no overwintering birds on the site at the time of the survey.

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.*

3.0 Assessment of Likely Significant Effects on the European Sites.

The Stage 1 AA Screening Report in Part 1 of this document 'Screens In' the potential for significant effects on Rye Water Valley/Carton SAC.

This Natura Impact Statement presents the data and information on the proposed residential development and provides an analysis of the potential adverse effects on the above listed European Site.

Potential adverse effects are assessed in view of best scientific knowledge, on the basis of objective information in relation to the proposed residential development, including the proposed avoidance, reduction and preventive measures.

3.1 Identification of Potential Impacts on Rye Water Valley/Carton SAC

The Stage 1 Screening has identified the potential for the likely effects on the Rye Water Valley/Carton SAC. Potential significant effects on the Qualifying Interest (QI) may arise in the form of emissions to groundwater resulting from the construction and operation of the proposed residential development.

Indirect habitat loss or deterioration of Natura 2000 sites as a result of groundwater quality within the underground aquifer can occur from the effects of run-off or discharge into the groundwater in particular from pollutants during the construction phase, where excavations may expose groundwater if the water table is high. As there is connectivity with the development site and Rye Water Valley/Carton SAC via groundwater (Figure 2), therefore there is an indirect pathway for the receptors (Qualifying Species) of this European Site. Furthermore, there is also a potential of discharge to surface water from the site into the drainage network of the nearby existing housing development that may create a potential for pollution to the Rye Water River. This is further illustrated in Figure 3.

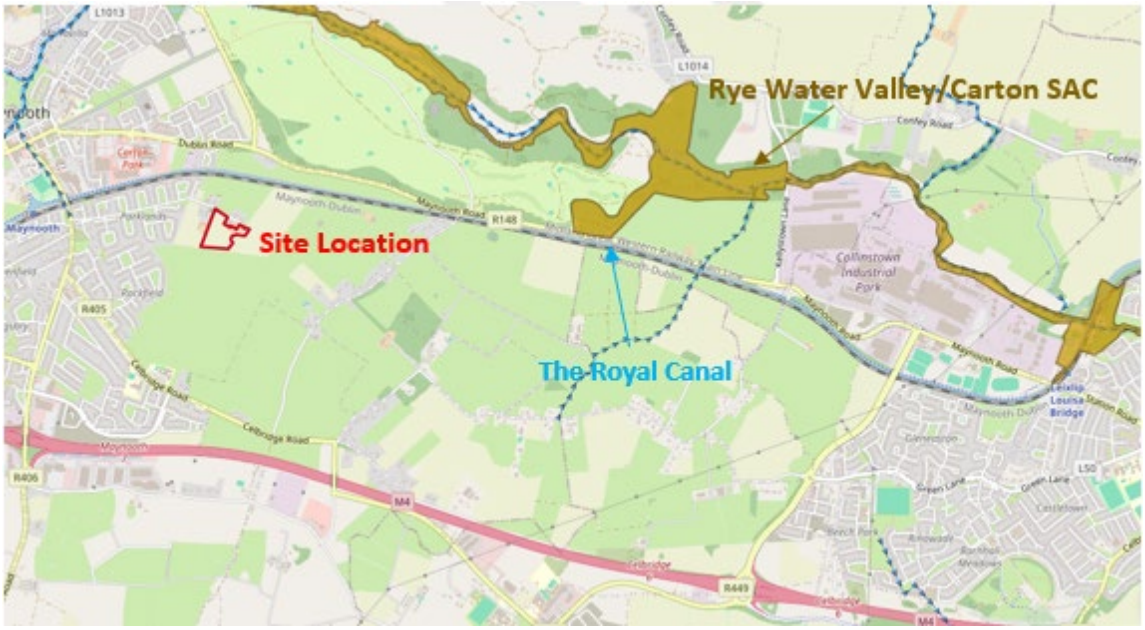

Figure 2 Flow network and hydrological links to the Rye Water Valley/Carton SAC (EPA, 2025)

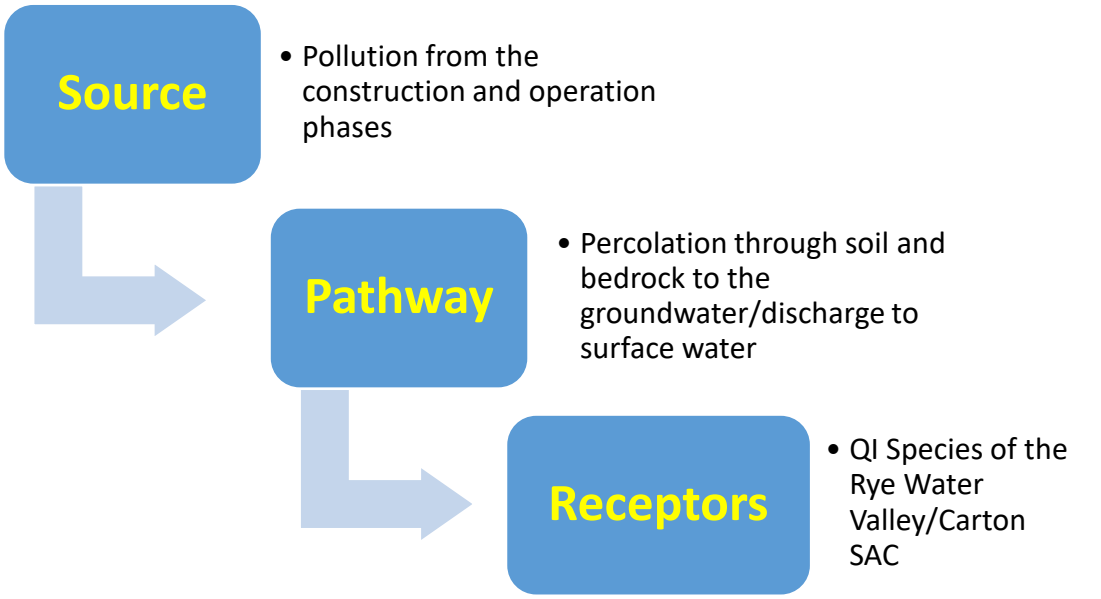

Figure 3 Source-Pathway-Receptor model for the site.

3.1.1 Water Framework Directive

In response to the increasing threat of pollution, physically damaging activities and the increasing demand from the public for cleaner rivers, lakes and beaches, the EU developed the Water Framework Directive 2000 (WFD) (2000/60/EC). This Directive establishes a framework for the protection of all water bodies (including groundwater) for the benefit of everyone, in terms of water quality and quantity. The protection of water for wildlife and their habitats is also included under the Directive.

The WFD sets out the strategic response to the threat of pollution and its four objectives are:

- Prevent further deterioration of water quality;
- Restore 'good' status of water quality and quantity for ground waters and 'good' or 'high' status for surface waters;
- Reduce chemical pollution of water sources;
- Achieve protected area objectives.

The WFD has been considered in this report due to the potential risk to groundwater and surface water. Therefore, measures must be put in place to ensure that the development in either the construction phase or operation phase does not negatively impact on the water quality of the ground water or the surface waters i.e. Rye Water River.

3.1.2 Petrifying Springs

This habitat is located in Grid N9937 within the Rye Water Valley/Carton SAC, approximately 4.5km from the development site. It has been considered for assessment in this report as the ecology of petrifying springs is seldom confined to the point source and relates to the overall hydrological conditions, which in this case is the aquifer that connects with the development site as well as the Rye Water River (NPWS, 20179a).

With reference to Table 4, J01 Mixed source pollution to surface and groundwater and K01 Drainage are both pressures and threats of 'High' importance that relate to the proposed development.

There are currently a lack of conservation actions being implemented for this habitat and an evidence-based programme of conservation measures is required. Proposed conservation measures are a follows:

- *CA03 Maintain existing extensive agricultural practices and agricultural landscape features*
- *CA04 Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures*
- *CA05 Adapt mowing, grazing and other equivalent agricultural activities*
- *CE01 Reduce impact of transport operation and infrastructure*
- *CE06 Habitat restoration of areas impacted by transport*
- *CF03 Reduce impact of outdoor sports, leisure and recreational activities*

- *CJ01 Reduce impact of mixed source pollution*
- *CJ02 Reduce impact of multi---purpose hydrological changes*
- *CJ03 Restore habitats impacted by multi---purpose hydrological changes*

(NPWS, 2019a,p889)

CJ01 Reduce mixed source pollution is the conservation measure that applies to the proposed development and therefore to comply with this conservation measure, mitigation measure are required to ensure that there is no pollution to groundwater or surface water. Furthermore, as detailed in Table 5, the overall trend in conservation status for this habitat is deteriorating, possibly due to the lack of implementation of conservation actions, especially as the future prospects are also 'inadequate' (NPWS, 2019a).

7 Main pressures and threats		
7.1 Characterisation of pressures/threats		
a) Pressure/threat	**b) Ranking of pressure/threat** *Indicate whether the pressure/threat is of:* *H = high importance (maximum 5 entries for pressures and 5 for threats)* *M = medium importance*	
	Pressure	**Threat**
	A06 Abandonment of grassland management (e.g. cessation of grazing of mowing) (M) **A10** Extensive grazing or undergrazing by livestock (M) **E01** Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (H) **F07** Sports, tourism and leisure activities (M) **J01** Mixed source pollution to surface and ground waters (limnic and terrestrial) (H) **K02** Drainage (H) **K04** Modification of hydrological flow (H)	**A06** Abandonment of grassland management (e.g. cessation of grazing of mowing) (M) **A10** Extensive grazing or undergrazing by livestock (M) **E01** Roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels) (M) **F07** Sports, tourism and leisure activities (M) **H08** Other human intrusions and disturbance not mentioned above (H) **J01** Mixed source pollution to surface and ground waters (limnic and terrestrial) (H) **K02** Drainage (H) **L02** Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (M)

Table 4 Pressures and threats to Petrifying Springs (NPWS, 2019a, p885) H = High importance, M = Medium importance.

10 Conclusions	
Assessment of conservation status at end of reporting period	
10.1 Range	***Favourable*** *(FV) / Inadequate (U1) / Bad (U2) / Unknown (XX)*
10.2 Area	***Favourable*** *(FV) / Inadequate (U1) / Bad (U2) / Unknown (XX)*
10.3 Specific structure and functions (incl. typical species)	*Favourable (FV) /* ***Inadequate*** *(U1) / Bad (U2) / Unknown (XX)*
10.4 Future prospects	*Favourable (FV) /* ***Inadequate*** *(U1) / Bad (U2) / Unknown (XX)*
10.5 Overall assessment of Conservation Status	*Favourable (FV) /* ***Inadequate*** *(U1) / Bad (U2) / Unknown (XX)*
10.6 Overall trend in Conservation Status	*Indicate the trend (qualifier) for FV, U1 and U2:* *improving /* ***deteriorating*** */ stable / unknown*

Table 5 Assessment of conservation status at the end of reporting period (NPWS, 2019a p889)

3.1.3 Narrow-mouthed Whorl Snail *Vertigo angustior*

The Narrow-mouthed whorl snail was identified in Grid N9936 in the Rye Water Valley/Carton SAC Conservation Objectives (NPWS, 2021). The last records for the site from the NBDC were in Louisa Bridge (N9936) in 2006 (Table 3). More recent surveys were conducted from 2013-2018 (Long and Brophy, 2019) where the habitat was considered 'not in in a good condition' and there were no individuals recorded; however it was also stated that this species is difficult to detect in small populations (ibid).

With reference to Table 6 there are no pressures or threats that relate to the proposed development. However, as identified in the Long and Brophy report (2019) the impacts and activities that are likely to have a negative impact on this species and that the proposed development are:

- *E03.03 Disposal of inert material*
- *H05 Soil pollution*
- *H07 Other pollution*

(Long and Brophy, 2029)

The Narrow-mouthed whorl snail is very sensitive to changes in hydrology and occupies a narrow ecotone. Furthermore, this species is classed as vulnerable in the Irish Red List and on the global IUCN Red List of Threatened Species (Byrne et. al., 2009). With reference to Table 7, the overall trend in conservation status is that of 'deteriorating'. Due to its threatened status it is imperative that site specific measures are implemented to ensure that this species is protected from contaminants to ground and surface water during both the construction and operation phases of the development.

8 Main pressures and threats		
8.1 Characterisation of pressures/threats		
a) Pressure/threat	**b) Ranking of pressure/threat** *Indicate whether the pressure/threat is of:* *H = high importance (maximum of 5 entries for pressures and 5 for threats)* *M = medium importance*	
	Pressure	**Threat**
List a maximum of 10 pressures and a maximum of 10 threats using code list provided in the Reference portal	**A06** Abandonment of grassland management (e.g. cessation of grazing or of mowing) (H) **A10** Extensive grazing or undergrazing by livestock (H) **F07** Sports, tourism and leisure activities (M) **F05** Creation or development of sports, tourism and leisure infrastructure (outside the urban or recreational areas) (M)	**A06** Abandonment of grassland management (e.g. cessation of grazing or of mowing) (H) **A10** Extensive grazing or undergrazing by livestock (H) **F07** Sports, tourism and leisure activities (M) **F05** Creation or development of sports, tourism and leisure infrastructure (outside the urban or recreational areas) (M)
8.2 Sources of information *Optional*	Long & Brophy (in prep.)	

Table 6 Main pressures and threats to Narrow-mouthed whorl snail (NPWS, 2019b, p177).

11 Conclusions	
Assessment of conservation status at end of reporting period	
11.1 Range	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.2 Population	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.3 Habitat for the species	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.4 Future prospects	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.5 Overall assessment of Conservation Status	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.6 Overall trend in Conservation Status	*Indicate the trend (qualifier) for FV, U1 and U2:* *improving / **deteriorating** / stable / unknown*

Table 7 Assessment of conservation status at the end of reporting period (NPWS, 2019b p179)

3.1.4 Desmoulin's Whorl Snail *Vertigo moulinsiana*

Desmoulin's whorl snail was also identified in Grid N9936 in the Rye Water Valley/Carton SAC Conservation Objectives (NPWS, 2021). The last records for the site in were also in Louisa Bridge (N9936) in 2006 from the NBDC (Table 3). More recent surveys were conducted from 2013-2018 (Long and Brophy, 2019) this species was still found to be occupying the wetland habitat at Louisa Bridge (ibid). This species requires a stable hydrology where the water table is required to be at or above the surface for most of the year. The Desmoulin's whorl snail is classed as endangered in the Lists of species evaluated as regionally extinct or under threat of regional extinction (Brophy, et. al.,2009).

Despite there being no pressures or threats that relate to the proposed development as identified in Table 8, the overall trend in conservation status (Table 9) is that or 'deteriorating' and thus, this species also requires protection from contaminants to ground and surface water during both the construction and operation phases of the development.

8 Main pressures and threats		
8.1 Characterisation of pressures/threats		
a) Pressure/threat	**b) Ranking of pressure/threat** *Indicate whether the pressure/threat is of:* *H = high importance (maximum of 5 entries for pressures and 5 for threats)* *M = medium importance*	
	Pressure	**Threat**
List a maximum of 10 pressures and a maximum of 10 threats using code list provided in the Reference portal	**L02** Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (H) **L01** Abiotic natural processes (e.g. erosion, silting up, drying out, submersion, salinization) (H) **A07** Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (M) **A10** Extensive grazing or undergrazing by livestock (M)	**L02** Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (H) **L01** Abiotic natural processes (e.g. erosion, silting up, drying out, submersion, salinization) (H) **A07** Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (M) **A10** Extensive grazing or undergrazing by livestock (M)
8.2 Sources of information *Optional*	Long & Brophy (in prep.)	

Table 8 Main pressures and threats to Desmoulin's whorl snail (NPWS, 2019b, p192).

11 Conclusions	
Assessment of conservation status at end of reporting period	
11.1 Range	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.2 Population	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.3 Habitat for the species	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.4 Future prospects	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.5 Overall assessment of Conservation Status	*Favourable (FV) / **Inadequate (U1)** / Bad (U2) / Unknown (XX)*
11.6 Overall trend in Conservation Status	*Indicate the trend (qualifier) for FV, U1 and U2:* *improving / **deteriorating** / stable / unknown*

Table 9 Assessment of conservation status at the end of reporting period (NPWS, 2019b p194)

4.0 Preventative Measures to Avoid Impacts

The potential pathways for impacts on the various Special Conservation Interests of the Rye Water Valley/Carton SAC are listed in the sections below, and the measures employed in the design of the project to prevent any such impacts are also discussed.

These measures are designed to ensure that the proposed development does not prevent or obstruct any of the qualifying interests from reaching favourable conservation status as per Article 1 of the EU Habitats Directive.

A definition of Favourable Conservation Status is provided below:
"conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;
The conservation status will be taken as 'favourable' 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.'*

As discussed in Section 3.1 the overall conservation status is considered as 'deteriorating' for all three of the Qualifying Interests with reference to Article 17 Reports (NPWS, 2019a; NPWS, 2019b).

4.1 Potential for Direct Impacts on European Sites

The proposed development site is located outside the boundary of European Sites.

No pathways for direct impacts as a result of the development on any of the QIs/SCIs of any European Site were identified.

4.2 Potential for Indirect Impacts on the European Sites

Emissions to groundwater were identified as a potential indirect effect on the Qualifying Interests of the Rye Water Valley/Carton SAC.

4.3 Construction Phase

Potential significant effects on the Qualifying Interests (QI) may arise in the form of emissions to groundwater and potentially also to surface water during the construction phase of the development. Measures to protect water quality during the construction phase are described below.

4.4 Mitigation Measures

4.4.1 Construction Phase

The accompanying CEMP (Montane Developments Ltd., 2025) details site specific measures to protect both groundwater and surface water during the construction process. With reference to the IGSL Geotechnical Report, borehole investigations have identified that structural capabilities of the underlying rock and depths at which the water table is accessible. Therefore construction excavations will not exceed these depths.

Site specific mitigation measures that will be implemented that relate to the protection of the environment and thus the QI of the Rye Water Valley/Carton SAC are taken from the CEMP (Montane Developments Ltd., 2025) as follows:

Pollution Prevention – Suspended solids/Silt

Where runoff water is contaminated with silt or other pollutants such as oil, this water must not be pumped or allowed to flow directly or indirectly into surface waters or groundwater without treatment.

Sediment control will comprise a combination of the control measures as detailed below; it is envisioned that a combination of these measures will be implemented, thus minimize the likelihood of a negative impact from run off.

- All spoil generated during the construction phase will be stored in areas at a minimum distance of 30m from any existing surface water gully or entry point.
- Standard dust suppression measures will be implemented during demolition works and periods of dry weather. This will help to avoid impacts arising from the spread of dust particles during the construction phase.
- An area of clean hard standing will be provided inside the site boundary, this area will be used for all loading & unloading operations and will be maintained in good condition and free from contamination.
- Where required the area will be topped up with compacted stone as works progress.
- The surrounding road network will be maintained in good condition, thus preventing debris deposits which in turn may get washed into the existing surface water system.
- No pumping of waste water or other water from site directly into surface water drains.

- Stockpiles will be located away from site boundaries in a sheltered location. These stockpiles will be monitored during dry weather conditions to prevent dusts entering the watercourses.

- Weather conditions will be considered when planning construction activities to minimise risk of runoff from the site.

  - Heavy civil works in proximity to site boundaries will be suspended during periods of heavy rain.
  - Water used for dust suppression purposes will be carefully applied to minimize silty runoff from the site.

Pollution Prevention – Chemical Substances

- Storage – all equipment, materials and chemicals will be stored a minimum distance of 30m away from any surface waterbody.

- Chemical, fuel and oil stores will be sited on impervious bases and within a secured bund of 110% of the storage capacity.

- Spill kits will be provided on site, training in the use of these kits will be provided to key members of the site team.

- All chemical substances being brought to the site must be preapproved by the Waste & Environmental Manager.

- Designated re-fueling points will be established on site in the compound area away from the watercourse and all machines will re-fuel at this point only. Diesel spill kits will be provided at this location for the duration of the works.

- Daily plant inspections will be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, the plant will be removed from operation until repairs are completed.
- All fuel oil fill areas will have an appropriate spill apron and spill kits will be provided on site.

- Vehicles and refueling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable, refueling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface waterbody.

- Maintenance – maintenance to construction plant will not be permitted on site, unless vehicles have broken down and require it at the point of

breakdown. In this case all necessary pollution prevention measures will be put in place before commencement of maintenance.

- Concrete - Wet concrete operations will be carried out in dry conditions.

- Refuse, sanitation and welfare facilities will be required during construction and will be located within the construction compound. Foul effluent will be connected to the existing onsite network, where required chemical facilities with periodic removal for offsite disposal will be provided.

- As part of the site induction, all site staff will be made aware of the presence of the sensitive ecological areas in the vicinity of the site. Employees will also be informed about the risks associated with stormwater runoff to soakaways/attenuation areas on site and will be required to remain vigilant to prevent runoff or chemicals spillages.

Sediment and Run-off Control

Where runoff water is contaminated with silt or other pollutants such as oil, this water must not be pumped or allowed to flow directly or indirectly into surface waters or groundwater without treatment.

Sediment control will comprise a combination of the control measures as detailed below; it is envisioned that a combination of the measures as listed will be implemented on the project, thus minimise the potential impacts of the proposed development on water quality:

- All road gullies local to the site must be protected.
- No pumping of wastewater directly into surface water drains.
- Designated refueling area to be set up on site.
- Ensure spill kits are available on site.
- Ensure all loading operations are carried out in an area of clean hard standing, thus preventing contamination to wheels.
- Road sweeping will be provided as required.

Ensure operations do not give rise to the discharge of 'dirty' water into the surrounding surface water network, the control measures outlined below will be implemented

The main construction related potential impact on water quality on site is the release of sediments into existing watercourses. Silt and silt laden water/contaminated water can be caused by various construction related activities, such as dewatering and pumping of excavations, run-off from exposed ground, run-off from spoil storage areas, etc.

Environmental Management

The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures

prescribed are adhered to. The details of these responsibilities are identified in the accompanying CEMP (Montane Developments Ltd., 2025).
Following completion of the works, the ecologist will complete a final audit report to show how the works complied with the environmental provisions described in this document.

This audit report may be forwarded to Kildare CC for their records if required.

4.4.2 Operation Phase

With reference to the accompanying report from Kavannagh Burke Consulting Engineers (2025), a sustainable urban drainage scheme (SuDS) has been designed.

The purpose of these measures is to mimic natural drainage, which is now reduced due to the creation of man-made surfaces in the form of dwellings, other buildings and associated impermeable footpaths and roadways as part of the development. Furthermore the SuDs measures as proposed will ensure that there is also no pollution to groundwater and thus the QI species of the Rye Water Valley/Carton SAC will be protected.

The SuDs measures are as follows:

As mentioned above the proposed SuDS 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

The bioretention areas, rain gardens and detention basins will be planted with native /pollinator friendly species that will serve not only to contain and act as soakage for any rain/storm water but will enhance the biodiversity in the area.

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 proposed Sustainable Drainage (SuDS) measures will also comply with the EU Water Framework Directive 2000 (2000/60/EC) and other legislation pertaining to surface water quality.

Furthermore, proposed SuDS components such as bioretention areas, rain gardens and green roofs can be used to remove pollutants thereby improving

water quality before soaking away through the ground.

The proposed development is located in the planned residential zoned lands as identified in the Maynooth Local Area Plan 2013-19 and as the site is a greenfield site it is not currently serviced by any wastewater infrastructure, however a new pumping station will be constructed that will connect to the existing wastewater network that connects to the Lower Liffey Valley 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).

4.5 Discussion of Proposed Preventative Measures to Avoid Impacts

Emissions to groundwater were identified as a potential indirect effect on the Qualifying Interests of the European Site and to a lesser extent surface water. Although the most recent EPA report stated that the groundwater body for the site was not at risk, none the less, protection of the groundwater from both the construction phase and the operation phase of this development is required to ensure the continued 'good' quality of the groundwater. Furthermore, the Rye Water River is at risk from a range of pollutants and there should not be any cumulative impacts on this water body as a result of the development.

The prevention measures outlined in the sections above (and in the CEMP) are site specific and have been derived from scientific analysis of the development site. The proposed preventative measures, in view of best practice guidance and scientific knowledge, are appropriate to effectively avoid, reduce and remedy any impacts from runoff during construction and operation of the development.

The proposed development will not prevent the QIs/SCIs of the European Sites from achieving favourable conservation status in the future as defined in Article 1 of the EU Habitats Directive.

5.0 Cumulative Impacts

As discussed in the Stage 1 Screening for Appropriate Assessment (RESS, Ltd., 2025), the main concern with regard to cumulative impacts (in-combination effect) are to the groundwater and its connection with Rye Water Valley/Carton SAC. Furthermore there is a potential for surface water pollution, in particular, during the construction process. However, with reference to the CEMP (Montane Developments Ltd., 2025) comprehensive mitigation measures will be implemented to protect pollution of both surface water and groundwater and thus impact on the Rye Water Valley/Carton SAC.

With the SuDS measures planned for the operation phase, there will be no

runoff of surface water outside of the site and therefore the potential for runoff through surface water is eliminated. In addition, the proposed SuDS measures will also ensure that there is no infiltration of pollutants through the soil to the groundwater and thus the Rye Water Valley/Carton SAC.

The proposed development was considered in combination with other developments and activities in the area that could result in cumulative/in-combination impacts on European Sites as detailed in Table 3 in the Stage 1 Screening for Appropriate Assessment (RESS Ltd, 2025) (and reproduced here in Table 10 for ease of reading) that found that all developments in the area have either been 'Screened Out' or have mitigation measures included in the reports, to protect water quality.

Furthermore, the two significant developments within the vicinity of the site, (Table 10, P82019-08 and 2561119) also have considered the impacts on the hydrology and included to ensure that there are no cumulative impacts. As mentioned in Section 4.4.2, all of the surface water for the proposed development will be attenuated within the site, thus this means that there will be no impact on the local hydrology. The site and that of the two significant developments (P82019-08 and 2561119) are outside of the flood zone, even that of low probability (1 in 1000) (OPW, 2025).

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 Application Invalid	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 10 Known plans and developments within the vicinity of the site

5.1 Cumulative Impact Conditions

The potential cumulative/in-combination impacts of the proposed development were considered following research of known and likely plans and projects in the area and on the basis that the proposed development has been designed to avoid significant adverse impacts on the integrity of European Sites.

It is concluded that there will be no significant cumulative/in-combination impact on the ecology of the area as a result of the proposed development.

5.2 Biodiversity Net loss/Net gain

Please refer to the Ecological Impact Assessment Report (RESS Ltd., 2025) where the Biodiversity Net Loss/Net Gain is addressed.

6.0 Conclusion

This NIS has been prepared in accordance with the relevant provisions of the Habitats Directive, the Habitats Regulations and the Planning and Development Act (2000), as well as the relevant case law and current guidance.

It has demonstrated that, the proposed housing development will not adversely affect the integrity of any European site.

During this assessment a pathway for potential impacts on the Qualifying Interests of the nearby European Site were identified. These included potential indirect pathways that were identified as a result of connectivity with the groundwater network with the Rye Water Valley/Carton SAC and potential surface water runoff into the flow network of the Rye Water River. On this basis, mitigation measures to avoid the potential for any significant impact during the construction phase and during operation once the residential development is complete, have been identified in Section 4.4.

It can be concluded that this development can be excluded from cumulative effects, on the basis of objective scientific information, that the project,

individually or in combination with other plans or projects will not affect the integrity of any 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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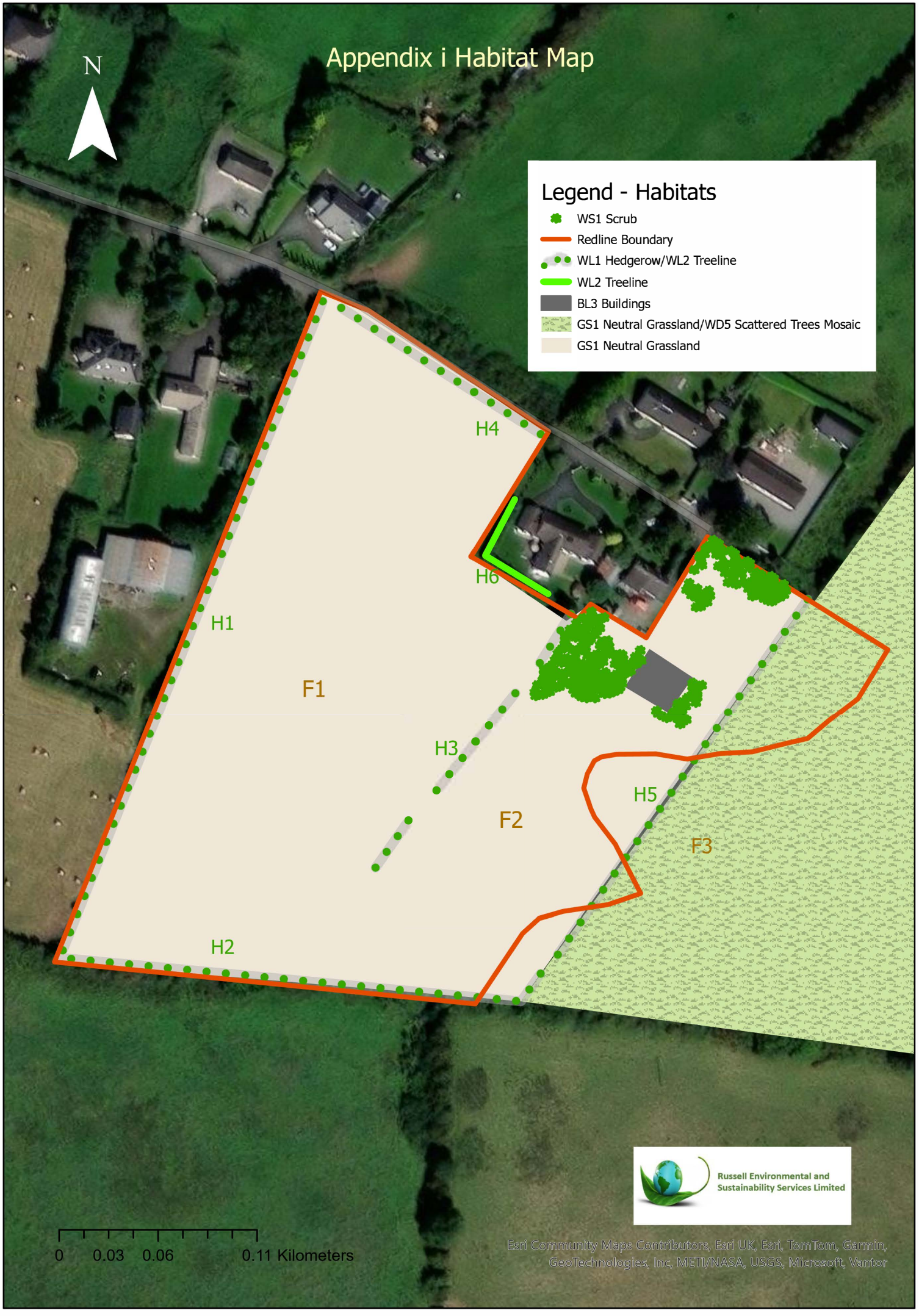
APPENDICES


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
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An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

SITE SYNOPSIS

Site Name: Rye Water Valley/Carton SAC

Site Code: 001398

Rye Water Valley/Carton SAC is located between Leixlip and Maynooth, in Counties Meath and Kildare, and extends along the Rye Water, a tributary of the River Liffey.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7220] Petrifying Springs*
[1014] Narrow-mouthed Whorl Snail (*Vertigo angustior*)
[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)

The Rye Water in Carton Estate is dammed at intervals, creating a series of lakes. Reed Sweet-grass (*Glyceria maxima*) is frequent around the lakes, along with Yellow Iris (*Iris pseudacorus*), Reed Canary-grass (*Phalaris arundinacea*), Bulrush (*Typha latifolia*), Water Forget-me-not (*Myosotis scorpioides*), Marsh-marigold (*Caltha palustris*) and starworts (*Callitriche* spp.). Along the remainder of the site the river has been dredged and much of the reed fringe removed.

To the north-west of Carton Bridge a small clump of willows (*Salix* spp.), with dogwood (*Cornus* sp.), Alder (*Alnus glutinosa*), Ash (*Fraxinus excelsior*) and Elder (*Sambucus nigra*) occurs. The ground flora found here includes Golden Saxifrage (*Chrysosplenium oppostifolium*), Meadowsweet (*Filipendula ulmaria*), Common Valerian (*Valeriana officinalis*), Wavy Bitter-cress (*Cardamine flexuosa*) and Bittersweet (*Solanum dulcamara*).

The woods on Carton Estate are mostly old demesne woods with both deciduous and coniferous species. Conifers, including some Yew (*Taxus baccata*) – a native species, are dominant, with Beech (*Fagus sylvatica*), oak (*Quercus* sp.), Sycamore (*Acer pseudoplatanus*), Ash and Hazel (*Corylus avellana*) also occurring. The ground flora is dominated by Ivy (*Hedera helix*), with such species as Hedge Woundwort (*Stachys sylvatica*), Wood Speedwell (*Veronica montana*), Woodruff (*Galium odoratum*), Wood Avens (*Geum urbanum*), Common Dog-violet (*Viola riviniana*), Wild Angelica (*Angelica sylvestris*), Ramsons (*Allium ursinum*), Ground-ivy (*Glechoma hederacea*) and Ivy Broomrape (*Orobanche hederae*) also found.

Hairy St. John's-wort (*Hypericum hirsutum*), a species legally protected under the Flora (Protection) Order, 1999, occurs in Carton Estate and there is an old record from the estate for the similarly protected Hairy Violet (*Viola hirta*). However, this latter species has not been recorded from the site in recent years. Another species

listed in the Red Data Book, Green Figwort (*Scrophularia umbrosa*), occurs on the site in several locations by the Rye Water. The woods at Carton Demesne are the site of a rare Myxomycete fungus, *Diderma deplanatum*.

The marsh, mineral spring and seepage area found at Louisa Bridge supports a good diversity of plant species, including stoneworts, Marsh Arrowgrass (*Triglochin palustris*), Purple Moor-grass (*Molinea caerulea*), sedges (*Carex* spp.), Common Butterwort (*Pinguicula vulgaris*), Marsh Lousewort (*Pedicularis palustris*), Grass-of-parnassus (*Parnassia palustris*) and Cuckooflower (*Cardamine pratensis*). The mineral spring found at the site is of a type considered to be rare in Europe and is a habitat listed on Annex I of the E.U. Habitats Directive. The Red Data Book species Blue Fleabane (*Erigeron acer*) is found growing on a wall at Louisa Bridge.

Within the woods, Blackcap, Woodcock and Long-eared Owl have been recorded. Little Grebe, Coot, Moorhen, Tufted Duck, Teal and Kingfisher, the latter a species listed on Annex I of the E.U. Birds Directive, occur on and about the lake.

The Rye Water is also a spawning ground for Trout and Salmon, and the rare, White-clawed Crayfish (*Austropotamobius pallipes*) has been recorded at Leixlip. The latter two species are listed on Annex II of the E.U. Habitats Directive. The rare Narrow-mouthed Whorl Snail and Desmoulin's Whorl Snail occur in marsh vegetation near Louisa Bridge. Both are rare in Ireland and in Europe, and are listed on Annex II of the E.U. Habitats Directive. The scarce dragonfly, *Orthetrum coerulescens*, has also been recorded at Louisa Bridge.

The conservation importance of the site lies in the presence of several rare and threatened plant and animal species, and the presence of petrifying springs, a habitat type listed on Annex I of the E.U. Habitats Directive. The woods found on Carton Estate and their birdlife are of additional interest.