



August '21

Title

APPROPRIATE ASSESSMENT

SCREENING REPORT

Development Description

“Housing development consisting of 39 residential units, ranging for 1 to 3 storeys high and modification of existing stone vehicular bridge over Pausdeen stream to include footpath and associated and ancillary services and site works”

Location

Ardclough Road, Celbridge, Co. Kildare

Applicant

Kildare County Council

Prepared by:

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APPENDICES

APPENDIX A Site Layout Plan

APPENDIX B NPWS Site Synopses for Rye Water Valley/Carton SAC

Note: The scope of this report is to provide the necessary information to the competent authority, to assess whether the proposed development alone and in combination with other projects, could have significant effects on Natura 2000 sites in the area in view of the sites conservation objectives, in accordance with Article 6 of the Habitats Directive, and does not purport to be an ecological assessment of the subject site.

1 INTRODUCTION

This Appropriate Assessment Screening Report has been prepared by Megan Lee (BSc (Hons), MSc (Hons)) in partnership with James O'Donnell, Planning Consultant (MA, MRUP, Dip APM) on behalf of Kildare County Council who are applying for planning permission for "*Housing development consisting of 39 residential units, ranging for 1 to 3 storeys high and modification of existing stone vehicular bridge over Pausdeen stream to include footpath and associated and ancillary services and site works.*" at Ardclough Road, Celbridge, Co. Kildare. This report should be read in conjunction with the Flood Risk Assessment prepared by Tobin Consulting Engineers, submitted as part of this application.

Megan Lee is an experienced and qualified ecologist. She has obtained a Bachelor's degree in Environmental Science (BSc Hons) and a Master's degree in Biodiversity and Land-use Planning (MSc Hons) at the National University of Ireland, Galway. She has been involved in the completion of numerous Appropriate Assessment Screening Reports (AASR's), Natura Impact statements (NIS's), Construction Environmental Management Plans (CEMP's), Ecological Impact Assessments (EclA's) and Bat Surveys in the Republic of Ireland.

Colette Casey (Bsc Hons) is a qualified ecologist and a member of Chartered Institute of Ecology and Environmental Management (CIEEM). She has been involved in the preparation of several bat surveys and assessments. She has also prepared several Appropriate Assessment Screening Reports, Natura Impacts Statements, Construction Environmental management Plan and EIA Screening reports. She has conducted a number of Bat surveys and Otter surveys in the Republic of Ireland and is a member of Bat Conservation Ireland.

James O' Donnell is a qualified Town Planner and Project Manager with over 22 years planning experience in both the public and private sector in the west of Ireland, including 6 years experience as a local authority planning officer. James has particular experience in the project management and delivery of a wide range of complex planning applications requiring environmental and ecological assessment, in accordance with the requirements of the EU Habitats Directive and EIA Directives.

The site for the proposed development lies approximately 5.69km from the Rye Water Valley/Carton SAC, which has been designated under the EU Habitats Directive, and so it is necessary that the potential impacts of the proposed works be assessed by the competent authority, in accordance with Article 6 of the Habitats Directive. The application site lies adjacent to an indicative flood risk area in the national Catchment Flood Risk Assessment and Management (CFRAM) study. This report provides the information necessary for the competent authority to complete an Appropriate Assessment of the potential impacts of the proposed works on sites of European importance in the area. This report has also had regard to the provisions of the March 2021 publication entitled "*OPR Practice Note PN01- Appropriate Assessment Screening for Development Management.*"

Table 1.1: Step One: Description of the project/proposal and local site characteristics

Brief description of the project plan	<i>Permission is being sought for a “Housing development consisting of 39 residential units, ranging for 1 to 3 storeys high and modification of existing stone vehicular bridge over Pausdeen stream to include footpath and associated and ancillary services and site works”</i>
Brief description of site characteristics	<p>The application site is located on Newton Road L2008, Ardclough Road, Celbridge, Co. Kildare. The application site is composed of an unused agricultural field and an unused dwelling house. The north of the site consists of a greenfield site along the southern edge of the River Liffey. The lands to the east consist of large houses on large plots arranged in a linear pattern along the western edge of the Ardclough road.</p> <p>The Celbridge Local Area Plan 2017-2023 was used to understanding the zoning context of the site. The main body of the subject site is zoned “C: New Residential”, whilst the location of the proposed pedestrian bridge is zoned “B:Existing Residential/Infill”. The lands to the north along the edge of the Liffey are zoned “F2:Strategic open Space”.</p> <p>The proposed housing site is located 1.6km south from Celbridge Town Center.</p>

1.1 LEGISLATIVE BACKGROUND

1.1.1 EU Nature Conservation Legislation and Natura 2000 Sites.

There are three main types of designation for nature conservation in Ireland: Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (NHAs). NHAs are designated under the Irish Wildlife Act 1976 (amended 2000). SACs and SPAs are designated under European legislation, the EU Habitats Directive 92/43/EEC (transposed into Irish law in the European Union (Natural Habitats) Regulations, 1997 as amended in 1998 and 2005) and the EU Birds Directive 79/409/EEC, respectively. These European designated sites (SACs and SPAs) are also known as Natura 2000 sites. This means that they are part of the Natura 2000 Network, a network of important ecological sites across the European Union.

Sites are designated on the basis of the presence of certain ‘Qualifying Features’, i.e. the habitats listed under Annex I and the species listed under Annex II of the EU Habitats Directive.

Once a site is designated as a SAC and publicly advertised it is legally protected and becomes a proposed candidate SAC (pcSAC). A three month period follows during which landowners may lodge an objection to the designation. Details

of each proposed SAC are then given to the EU Commission, and thereafter the site is called a “candidate SAC”. Once the sites are approved by the commission, they are formally designated by the Minister.

1.1.2 Appropriate Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites

Due to the proximity of the proposed development site to a candidate Special Area of Conservation, also known as a Natura 2000 site, an Appropriate Assessment may be required under the Habitats Directive 92/43/EEC, Article 6(3) and (4), Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites. Such assessments are required where it is identified that a proposed plan or project could have significant impact on a Natura 2000 site. Articles 6(3) and (4) of the Directive, state the following;

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... 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....'

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... the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected...'

1.2 METHODOLOGY

The screening exercise will be conducted in line with the recommendations and protocol set out in the Guidance from the Commission (EC, 2002). This protocol involves a four-stage process to complete an Appropriate Assessment. At each stage, the findings of certain issues and tests will determine whether the next stage in the process is required.

1.2.1 Appropriate Assessment Stages

The four stages in the Appropriate Assessment process are outlined below:

Stage 1: Screening

This step consists of examining the likely potential impacts of a project or plan, alone or in combination with other projects, upon a Natura 2000 site or sites, and considers whether these impacts may be considered significant. If no significant impacts are foreseen, then a 'finding of no significant effects' (FONSE) statement is issued to the appropriate authority, and the process is complete. If the effects are considered significant or their significance is unknown, then the process moves on to Stage 2.

Stage 2: Appropriate Assessment

Where the screening process has identified potential impacts which are considered significant or unknown, this process examines these potential impacts in detail, in relation to the conservation interests of the Natura 2000 site or sites. Mitigation measures may be suggested to reduce the likelihood or severity of these impacts. If the impacts are still considered to be significant or unknown after this stage is complete, then alternative solutions must be considered (Stage 3).

Stage 3: Assessment of Alternative Solutions

If the potential impacts are still considered to be significant or unknown after the Appropriate Assessment stage, then alternative ways of implementing the project are considered at this stage. If no alternative solutions are possible, then it is considered whether the project or plan may go ahead regardless, if imperative reasons of overriding public interest (IROPI) are found.

Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)

If significant negative impacts on the Natura 2000 site are unavoidable, and no alternative solutions may be found, then this stage involves the consideration of whether the project or plan may go ahead despite these effects, for 'imperative reasons of overriding public interest' (IROPI).

The results of a Stage 1 (Screening) Exercise are detailed in **Section 2** of this report.

2 STAGE 1: SCREENING FOR APPROPRIATE ASSESSMENT

2.1 DESCRIPTION OF THE PLAN OR PROJECT

It is proposed to construct “Housing development consisting of 39 residential units, ranging for 1 to 3 storeys high and modification of existing stone vehicular bridge over Pausdeen stream to include footpath and associated and ancillary services and site works” The overall site has an area of 1.4 ha. A Site Layout Plan is included as **Appendix A** to this report.

2.2 DESCRIPTION OF THE EXISTING ENVIRONMENT

2.2.1 Site Location in Relation to Natura 2000 Sites

The proposed site lies at Ardclough Road, Celbridge, Co. Kildare (Grid Ref: E: 696555.53, N: 731568.32). The site for the proposed housing development lies approximately 5.69km from the Rye Water Valley/ Carton SAC (see **Figure 2.1** below).

All Natura 2000 sites within a 15km buffer of the proposed development are listed in **Table 2.1** and **Figure 2.2**.

Table 2.1: Step Two: Identification of relevant Natura 200 sites using Source-Pathway-Receptor Model and Compilation of information on QI and Conservation Objectives

Name of Site	List of Qualifying Interest/Special Conservation Interest	Distance to Proposed development (km)	Receptor/Connection	Screen In – Yes/No
Rye Water Valley/Carton SAC Site code: 001398	QIs- 1 Habitat and 2 Species https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001398.pdf	5.59km	Yes. Indirect hydrological connection. I. Potential for surface water runoff to flood risk area, to the protected site. II. Removal of existing stone parapet/ Construction of pedestrian bridge over Pausdeen stream	Yes- See Step 3
Glenasmole Valley SAC Site code: 001209	QIs- 3 Habitats https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001209.pdf	14.08km	None. Due to distance and lack of any relevant ex-situ factors of significance to these habitats.	No

Red Bog, Kildare SAC Site code: 000397	QIs- 1 Habitat https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000397.pdf	14.23km	None. Due to distance and lack of any relevant ex-situ factors of significance to this habitat.	No
Ballynafagh Bog SAC Site code: 000391	QIs- 3 Habitats http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000391.pdf	14.74km	None. Due to distance and lack of any relevant ex-situ factors of significance to these habitats.	No

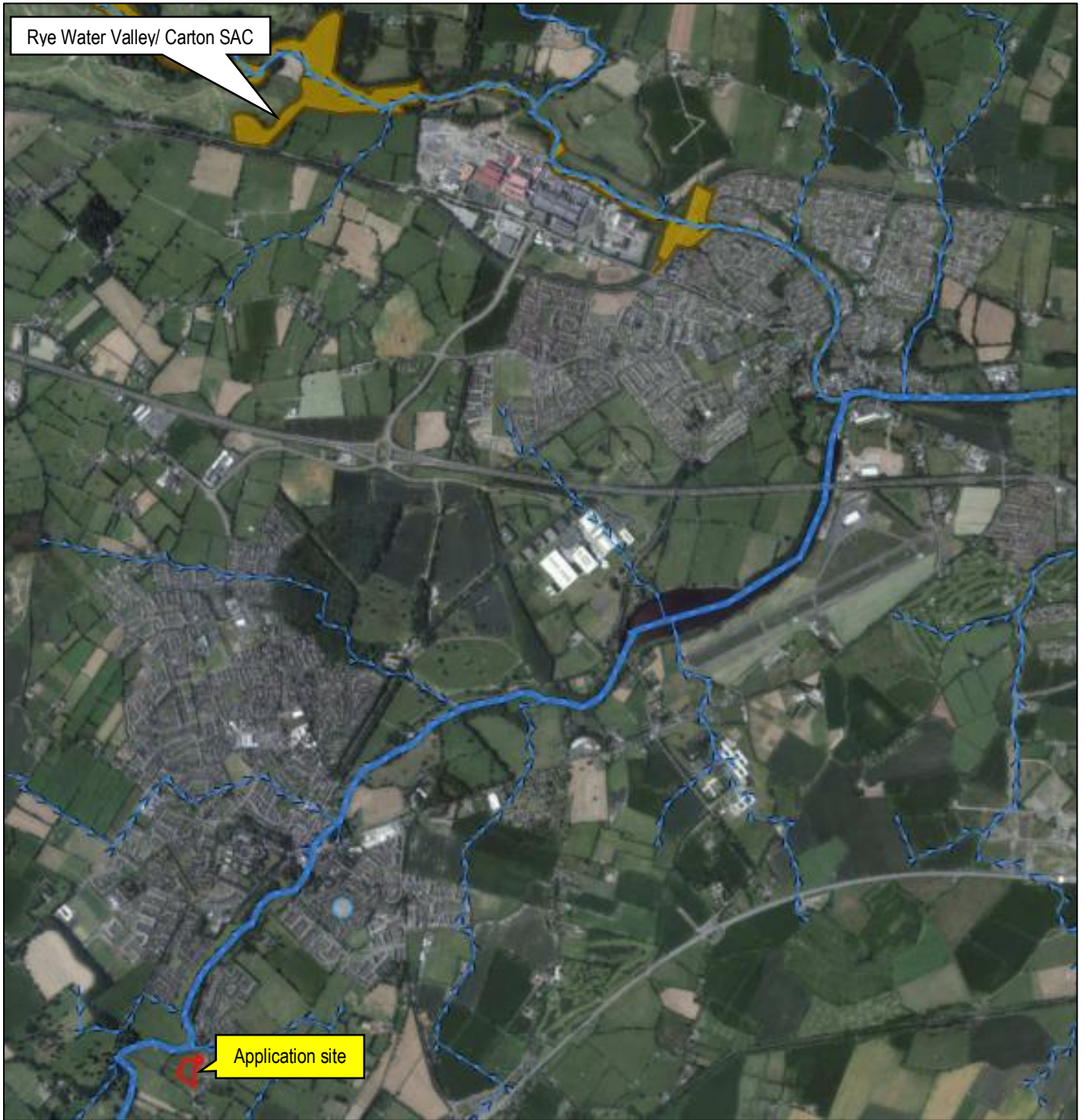


Figure 2.1: Site Location in Relation to the Rye Water Valley/ Carton SAC Natura 2000 site and Flood risk.

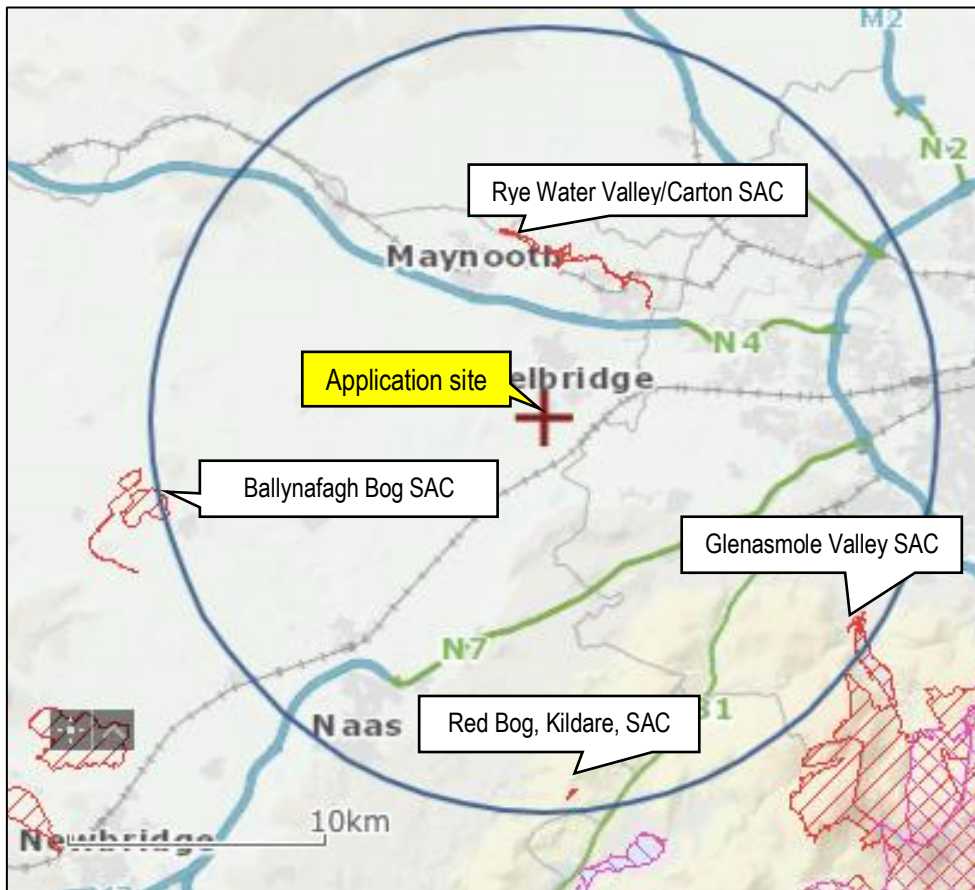


Figure 2.2: 15km Buffer Surrounding Site.

2.2.2 Brief Description of the Natura 2000 Sites which may be affected

Qualifying Features

Natura 2000 sites are designated on the presence of certain habitats and species which are afforded protection under the Birds and Habitats Directives. These habitats and species are regarded as ‘qualifying features’ of the Natura 2000 sites. The following section provides details on the qualifying features of the Natura 2000 sites in question - Rye Water Valley/Carton SAC Natura 2000 site. The NPWS site synopses for the designated sites are given as **Appendix B** to this report.

Table 2.2 Rye Water Valley/Carton SAC Habitat Information

Habitat code	Habitat name	Cover (ha)	Representativity
7220	Petrifying springs with tufa formation (Cratoneurion)	0.72ha	B

For species, a value is given for ‘Population Significance’. This value is based on the relative density or size of the population of that species within the Natura 2000 site with that of the national population. Population Significance is ranked on a scale from A to D where A - 100>=p>15%, B - 15>=p>2%, C - 2>=p>0% and D - Non-significant population. The qualifying species found in the Rye Water Valley/Carton SAC Natura 2000 site are outlined in Table 2.3.

Table 2.3 Rye Water Valley/Carton SAC Species Information

Species code	Latin name	English name	Population significance
1014	<i>Vertigo angustior</i>	Narrow-mouthed Whorl Snail	B
1016	<i>Vertigo moulinsiana</i>	Desmoulin’s Whorl Snail	B

Potential Pressures and Threats to the Natura 2000 Sites

The European Nature Information System (EUNIS) website contains data on all Natura 2000 sites, including details of the main threats to and pressures on their qualifying features. Potential threats to and pressures on the qualifying features of the Rye Water Valley/Carton SAC Natura 2000 site are listed in Table 2.4

Table 2.4 Potential Pressures and Threats to the Rye Water Valley/ Carton Natura 2000 Site

Activity	Location	Intensity	Influence
Fertilisation	Both	Low	Negative
Continuous urbanization	Outside	Medium	Negative
Modifying structures of inland water courses	Inside	Medium	Negative
Removal of hedges and copses or scrub	Inside	Low	Negative

Sylviculture, forestry	Inside	Medium	Negative
Grazing	Both	Low	Negative
Dispersed habitation	Outside	Low	Negative
Roads, motorways	Outside	Low	Negative

Conservation Objectives of the Natura 2000 Sites

Once a site has been designated as a Natura site, a management plan should be put together for the site which sets out the Conservation Objectives for the site. Every effort should then be made to ensure that these objectives are fulfilled, in order to prevent potential impacts to the qualifying features of the site and maintain as far as possible their favourable conservation status.

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

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, is stable or increasing, and
- the ecological factors that 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 data on the species concerned indicate that it is maintaining itself, and
- the natural range of the species is neither being reduced or 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.

Conservation Objectives have been published for the Rye Water Valley/Carton SAC and other relevant Natura sites.

Table 2.5 Conservation Objectives for the relevant Natura 2000 Sites

Conservation objectives	Potential impacts/effects requiring mitigation	Are mitigation measures required?	Residual impacts
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Attribute/Measure/Target			
Conservation Objectives of the Rye Water Valley/Carton SAC¹			
<i>Petrifying springs with tufa formation (Cratoneurion) (Priority Habitat) [7220]</i>			
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	Yes. There is the potential for surface water runoff during the construction and operational phase to the adjacent River Liffey & Flood risk area, which is connected via the River Liffey to this habitat of the Rye Water Valley/Carton SAC. This surface water runoff may result in the water quality deterioration of this habitat, which in turn may result in habitat deterioration. The removal of the existing stone parapet/ construction of the pedestrian bridge over Pausdeen stream has the potential to deteriorate water quality of the Liffey which flows into the Rye Water Valley/Carton SAC.	Yes. Mitigation measures are required to prevent this potential water quality deterioration. Mitigation measures will be provided in the Natura Impact Statement and Construction Environmental Management Plan accompanying this application.	No.
Its natural range, and area it covers within that range, are stable or increasing.			
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.			
The conservation status of its typical species is favourable.			
<i>Narrow-mouthed Whorl Snail (Vertigo angustior) [1014]</i>			
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	Yes. There is the potential for surface water runoff during the construction and operational phase to the adjacent River Liffey & Flood risk area, which is connected via the River Liffey to this habitat of the Rye Water Valley/Carton SAC. The removal of the existing stone parapet/ construction of the pedestrian bridge over Pausdeen stream has the potential to deteriorate water quality of the Liffey which flows into the Rye Water Valley/Carton SAC. This surface water runoff and proposed construction may result in the water quality deterioration of the wetland habitats and transitional wetland habitats inhabited by the Narrow-mouthed Whorl Snail, which in turn may result in disturbance to this species.	Yes. Mitigation measures are required to prevent this potential water quality deterioration. Mitigation measures will be provided in the Natura Impact Statement and Construction Environmental Management Plan accompanying this application.	No.
Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats.			
The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.			
There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.			
<i>Desmoulin's Whorl Snail (Vertigo moulinsiana) [1016]</i>			
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	Yes. There is the potential for surface water runoff during the construction and operational phase to the adjacent River Liffey & Flood risk area, which is	Yes. Mitigation measures are required to prevent this potential water quality deterioration. Mitigation	No.

¹ NPWS (2021) Conservation objectives for Rye Water Valley/Carton SAC [001398]. Generic Version 8.0. Department of Housing, Local Government and Heritage.

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.	connected via the River Liffey to this habitat of the Rye Water Valley/Cartron SAC. The removal of the existing stone parapet/ construction of the pedestrian bridge over Pausdeen stream has the potential to deteriorate water quality of the Liffey which flows into the Rye Water Valley/Cartron SAC. This surface water runoff and proposed construction may result in the water quality deterioration of the wetland habitats and transitional wetland habitats inhabited by the Desmoulin's Whorl Snail, which in turn may result in disturbance to this species.	measures will be provided in the Natura Impact Statement and Construction Environmental Management Plan accompanying this application.	
The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future.			
There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.			
Glenasmole Valley SAC²			
<i>Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia) (*important orchid sites)* [6210]</i>			
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	No. As there is no connectivity and no ecological pathway between the application site and the Glenasmole Valley SAC and the habitats associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Glenasmole Valley SAC and the habitats associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.
Its natural range, and area it covers within that range, are stable or increasing.			
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.			
The conservation status of its typical species is favourable.			
<i>Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) [6410]</i>			
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	No. As there is no connectivity and no ecological pathway between the application site and the Glenasmole Valley SAC and the habitats associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Glenasmole Valley SAC and the habitats associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.
Its natural range, and area it covers within that range, are stable or increasing.			
The specific structure and functions which are necessary for its long-term maintenance exist and are likely to			

² NPWS (2021) Conservation objectives for Glenasmole Valley SAC [001209]. Generic Version 8.0. Department of Housing, Local Government and Heritage

continue to exist for the foreseeable future.			
The conservation status of its typical species is favourable.			
<i>Petrifying springs with tufa formation (Cratoneurion)* [7220]</i>			
To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.	No. As there is no connectivity and no ecological pathway between the application site and the Glenasmole Valley SAC and the habitats associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Glenasmole Valley SAC and the habitats associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.
Its natural range, and area it covers within that range, are stable or increasing.			
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.			
The conservation status of its typical species is favourable.			
Red Bog, Kildare SAC³			
<i>Transition mires and quaking bogs [7140]</i>			
To maintain the favourable conservation condition of Transition mires and quaking bogs in Red Bog, Kildare SAC	No. As there is no connectivity and no ecological pathway between the application site and the Red Bog, Kildare SAC and the habitat associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Red Bog, Kildare SAC and the habitat associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.
Habitat area/Hectares/Area stable or increasing, subject to natural processes			
Habitat distribution/Occurrence/No decline, subject to natural processes			
Ecosystem function: soil nutrients/ Soil pH and appropriate nutrient levels at a representative number of monitoring stops/Maintain soil pH and nutrient status within natural ranges			
Ecosystem function: peat formation/Percentage cover of peat-forming vegetation and water table levels/Maintain active peat formation, where appropriate			

³ NPWS (2019) Conservation Objectives: Red Bog, Kildare SAC 000397. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

Ecosystem function: hydrology – water levels/Centimetres; duration of water levels/Maintain appropriate water levels necessary to support the natural structure and functioning of the habitat			
Ecosystem function: hydrology – flow patterns/Flow direction/ Maintain appropriate topography and water movement regime necessary to support the natural structure and functioning of the habitat			
Ecosystem function: water quality/ Water chemistry measures/ Maintain appropriate water quality to support the natural structure and functioning of the habitat			
Community diversity/Abundance of variety of vegetation communities/Maintain variety of vegetation communities, subject to natural processes			
Vegetation composition: typical vascular plants and bryophytes/Percentage cover at a representative number of 2m x 2m monitoring stops/Maintain adequate cover of typical vascular plant and bryophyte species			
Vegetation composition: native negative indicator species/Percentage cover at a representative number of 2m x 2m monitoring stops/Native negative indicator species at insignificant levels			
Vegetation composition: nonnative species/Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops/Cover of non-native species less than 1%			
Physical structure: drainage/Percentage area in local vicinity of a representative number of monitoring stops/Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%			
Physical structure: disturbed bare ground/Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops/Cover of disturbed bare ground less than 10%			

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			
Ballynafagh Bog SAC⁴			
<i>Active raised bogs [7110]</i>			
To restore the favourable conservation condition of Active raised bogs in Ballynafagh Bog SAC	No. As there is no connectivity and no ecological pathway between the application site and the Ballynafagh Bog SAC and the habitats associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Ballynafagh Bog SAC and the habitats associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.
Habitat area/Hectares/Restore area of active raised bog to 26.6ha, subject to natural processes			
Habitat distribution/Occurrence/ Restore the distribution and variability of active raised bog across the SAC. See map 3 for distribution in 2011			
High bog area/Hectares/No decline in extent of high bog necessary to support the development and maintenance of active raised bog. See map 2			
Hydrological regime: water levels/Centimetres/Restore appropriate water levels throughout the site			
Hydrological regime: flow patterns/Flow direction; slope/Restore, where possible, appropriate high bog topography, flow directions and slopes. See map 4 for current situation			
Transitional areas between high bog and adjacent mineral soils (including cutover areas)/Hectares; distribution/ Restore adequate transitional areas to support/protect active raised bog and the services it provides			
Vegetation quality: central ecotope, active flush, soaks, bog woodland/Hectares/Restore 13.3ha of			

⁴ NPWS (2015) Conservation Objectives: Ballynafagh Bog SAC 000391. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

central ecotope/active flush/soaks/bog woodland as appropriate			
Vegetation quality: microtopographical features/Hectares/Restore adequate cover of high quality microtopographical features			
Vegetation quality: bog moss (Sphagnum) species/Percentage cover/Restore adequate cover of bog moss (Sphagnum) species to ensure peatforming capacity			
Typical ARB species: flora/Occurrence/Restore, where appropriate, typical active raised bog flora			
Typical ARB species: fauna/Occurrence/Restore, where appropriate, typical active raised bog fauna			
Elements of local distinctiveness/Occurrence/ Maintain features of local distinctiveness, subject to natural processes			
Negative physical indicators/ Percentage cover/Negative physical features absent or insignificant			
Vegetation composition: native negative indicator species/Percentage cover/Native negative indicator species at insignificant levels			
Vegetation composition: nonnative invasive species/Percentage cover/ Non-native invasive species at insignificant levels and not more than 1% cover			
Air quality: Nitrogen deposition kg N/ha/year/Air quality surrounding bog close to natural reference conditions. The total N deposition should not exceed 5kg N/ha/yr			
Water quality/Hydrochemical measures/Water quality on the high bog and in transitional areas close to natural reference conditions			
<i>Degraded raised bogs still capable of natural regeneration [7120]</i>			

The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Ballynafagh Bog SAC.	No. As there is no connectivity and no ecological pathway between the application site and the Ballynafagh Bog SAC and the habitats associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Ballynafagh Bog SAC and the habitats associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.
<i>Depressions on peat substrates of the Rhynchosporion [7150]</i>			
Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Ballynafagh Bog SAC.	No. As there is no connectivity and no ecological pathway between the application site and the Ballynafagh Bog SAC and the habitats associated with this Natura 2000 site, no potential impacts/effects are expected.	No. There are no potential impacts expected on the Ballynafagh Bog SAC and the habitats associated with this Natura 2000 site, therefore no mitigation measures are necessary.	No.

2.3 SOILS, GEOLOGY & HYDROGEOLOGY

The Geological Survey of Ireland (GSI) website was consulted for available geological / hydrological information. The site is underlain by Visean Limestone and calcareous shale. Topsoil on site consists of shallow brown earths. The groundwater vulnerability within the site is ranges from Moderate to High throughout the site. Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease at which groundwater may be contaminated by human activities.

Table 2.6 details information gleaned from catchments.ie on the water status of the groundwater waterbody. This concludes that the Dublin groundwater waterbody is of good status.

Dublin Groundwater Waterbody Information	
Name	Dublin
Code	IE_EA_G_0008
WFD Catchments	07 Boyne 08 Nanny-Devlin 09 Liffey and Dublin Bay 14 Barrow
WFD Sub-catchments	Liffey_SC_070
Longitude	53.3593898
Latitude	-6.4891473
Cycle 1 RBD	Eastern
Local Authority	South Dublin County Council
Waterbody Category	Groundwater
WFD Risk	Not at risk
Protected Area	N/A
High Status Objective	No

Heavily Modified	N/A
Artificial	N/A
Area (km ²)	N/A
Length (km)	N/A
Transboundary	No
Canal	No
GW 2013-2018 Overall Groundwater Status	Good

Table 2.7 details information gleaned from catchments.ie on the water status of the adjacent Liffey river waterbody. This concludes that the Liffey river waterbody is of good status.

Liffey River Waterbody Information	
Name	Liffey_140
Code	IE_EA_09L011700
WFD Catchments	Liffey and Dublin Bay
WFD Sub-catchments	09 14Liffey_SC_070 09 07 Liffey_SC_050
Longitude	53.3183771
Latitude	-6.57506
Cycle 1 RBD	Eastern
Local Authority	Kildare County Council
Waterbody Category	River
WFD Risk	Not at risk
Protected Area	Yes
High Status Objective	No
Heavily Modified	Unknown
Artificial	Unknown
Area (km ²)	N/A
Length (km)	19.80
Transboundary	No
Canal	No
GW 2013-2018 Overall Surface Water Status	Good

2.4 OTHER PLANS AND PROJECTS IN THE AREA

It is a requirement of the Appropriate Assessment process to consider the 'in combination' effects of the proposed development with other plans and projects in the area. Table 2.8 below gives details of the other plans and projects in the area which may be affecting the Rye Water Valley/Carton SAC Natura site.

Table 2.8: Other Plans and Projects Affecting the Natura 2000 Site

Name of Plan or Project	Key policies/issues/objectives directly related to the relevant Natura 2000 sites	Potential cumulative or in-combination effects on the relevant Natura 2000 sites
Kildare County Development Plan 2017-2023	Designated Sites, Habitats and Species Policies and Objectives, Natural Heritage and Biodiversity Policies and Objectives, Natural Water Systems Polices	Positive Impact/effects
Celbridge Local Area Plan 2017-2023	Designated Sites, Habitats and Species Policies and Objectives, Natural Heritage and Biodiversity Policies and Objectives, Natural Water Systems Polices	Positive Impact/effects
River Basin Management Plan for Ireland 2018 – 2021	The River Basin Management Plan for Ireland, issued in April 2018, sets out a number of objectives and measures for all national water bodies which aim: (1) to prevent the deterioration of water bodies and to protect, enhance and restore them with the aim of achieving at least good status and (2) to achieve compliance with the requirements for designated protected areas.	Positive impact/effects
NPWS Conservation Management Plans	Conservation Objectives are in place for the Rye Water Valley/Carton SAC site and its aims and objectives are outlined from Page 10 above.	Positive impacts/effects
Inland Fisheries Ireland (IFI) Corporate Plan 2016-2020	Goals: To improve the protection and conservation of the resource. To develop and improve wild fish populations. To increase the number of anglers. To generate a better return for Ireland from the resource	Positive impact/effect
Planning Applications in the area	A search was carried out on Kildare County Council's online planning query system. It was ascertained that there have been nine other local planning applications granted within a 300m radius of the site in the past 5 years, which are listed below. PI. Ref no. 161271 - Extension of Duration of Planning Ref. 11/213 - for a two storey dormer style dwelling house and detached garage with all associated site works including a new vehicular entrance. PI. Ref. no. 161338 - Alterations to the existing kitchen roof, a new sliding door to existing rear elevation and internal alterations to the existing house to provide for the construction of a new two storey side extension, including a new kitchen, utility, office, main bedroom,	Neutral Impact/effect

	<p>dressing room and ensuite, of 88.2sqm and all associated site works.</p> <p>Pl. Ref. no. 18877 - A single storey extension to the side of existing dwelling comprising of family room, WC and storage room.</p> <p>Pl. Ref. no. 21144 - Demolition of existing sub-standard lean-to extension to rear of house and construction of new single storey sunroom and storeroom extension with internal alterations to house and for all ancillary site and drainage works. Also, for installation of new external insulation to existing house with selected smooth plaster finish.</p> <p>Pl. Ref. no. 21621 - Extension of Duration of planning Ref. No. 16/1338 - alterations to the existing kitchen roof, a new sliding door to existing rear elevation and internal alterations to the existing house to provide for the construction of a new two storey side extension, including a new kitchen, utility, office, main bedroom, dressing room and ensuite, of 88.2sqm and all associated site works.</p> <p>Pl. Ref. no. 18676 - Sought for side and rear single storey extensions to an existing two storey semi detached dwelling, associated alterations to side and rear elevations and all associated site works.</p> <p>Pl. Ref. no. 21277 - An attic conversion to a non-habitable storage space with roof windows to front of existing roof and ancillary works.</p> <p>Pl. Ref. no. 16340 - Conversion of attic into habitable room, sky-lights to front for light and fire escape and all ancillary site works.</p> <p>Pl. Ref. no. 181089 - 1 No. two storey dwelling house (190sqm approximately) to include new vehicle and pedestrian access, service and drainage connections, car parking, garden storage, surface treatments, new boundary fence, landscaping and other associated site works including demolition of existing 28sqm shed, on site comprising 0.0510 hectares approximately.</p>	
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2.5 SCREENING MATRIX FOR APPROPRIATE ASSESSMENT IN LINE WITH EU COMMISSION GUIDANCE

Having established the extent of the proposed project and the details of the Natura 2000 site, a screening assessment for possible impacts can be generated. This section follows the format of the Screening Matrix provided in Annex 2 of the following document;

“Assessment of plans and projects significantly affecting Natura 2000 sites- Methodology guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission, 2001”

Table 2.9: Step Three: Assessment of Likely Significant Effects

(a) Identify all potential direct and indirect impacts that may have an effect on the conservation objective of a European site taking into account the size/scale of the project under the following headings:	
Impacts:	Possible significance of Impacts (Duration/Magnitude)
Construction Phase (Examples) <ul style="list-style-type: none"> • Vegetation Clearance • Demolition • Surface water runoff from excavation/infill • Dust, noise, vibration • Lighting disturbance • Impact on groundwater • Storage of excavation/construction materials • Access to site • Pests 	<p>There is the potential for surface water runoff from site works to the surrounding environment during the construction phase. There is also potential for water deterioration associated with the proposed removal of the existing stone parapet/ construction of a pedestrian bridge over the Pausdeen stream.</p> <p>There is an indirect hydrological connection to the River Liffey in the form the adjacent flood risk. In the absence of mitigation, the water quality in the Rye Water Valley/Carton SAC may be negatively affected by any contaminants, such as silt from construction activities.</p> <p>The construction phase has the possibility of resulting in significant environmental impacts/effects that could affect the Rye Water Valley/Carton SAC within the wider catchment area, in the form of water quality deterioration, resulting from surface water runoff.</p>
Operation Phase (Examples) <ul style="list-style-type: none"> • Direct emissions to air and water • Surface water runoff containing contaminant/sediment • Lighting Disturbance • Noise/vibration • Changes to water/groundwater due to drainage/abstraction • Presence of people, vehicles and activities • Physical presence of structures (collision risks) • Potential for accidents/incidents 	<p>It is proposed to install a storm drainage pipe, that will drain north of the site into the River Liffey. In the absence of mitigation, it is expected that there will be waste emissions released during the operational phase of the proposed development.</p> <p>The River Liffey is connected via the flood risk area (adjacent to the application site), to the Rye Water Valley/Carton SAC. The surface water runoff during the operational phase, can potentially result it the water quality deterioration of the habitats associated with the Rye Water Valley/Carton SAC.</p> <p>It is proposed to connect to the public sewer network.</p> <p>As such, that there is the potential likelihood of surface water runoff and water quality deterioration of the River Liffey, which in turn can result in the deterioration of the habitats associated with the Rye Water Valley/Carton SAC during the operation phase.</p>
In combination/ other:	<p>All extant developments are similarly served by urban drainage systems and the existing public sewer and have been screened out for appropriate assessment.</p> <p>No likely significant in-combination effects are identified.</p>
(b) Describe any likely changes to the European site:	
Examples of the type of changes to give consideration to include: <ul style="list-style-type: none"> • Reduction/fragmentation of habitat • Disturbance to QI species • Habitat/species fragmentation • Reduction/fragmentation in species density 	<p>Yes. The application has an indirect hydrological connection to the Rye Water Valley/Carton SAC in the form of the adjacent flood risk, therefore there is the risk of habitat loss or fragmentation on the Qualifying Interests directly or ex-situ.</p> <p>The existing environment includes a public sewer.</p>

<ul style="list-style-type: none"> • Changes in key indicators of conservation status value • Changes to areas of sensitivity/threats to QI • Interference with the key relationships that define the structure or ecological function of the site 	<p>The presence of an identifiable indirect ecological pathway between the application site is such that the proposal will result in any likely changes to the Rye Water Valley/Carton SAC in the form of water quality deterioration, resulting from potential surface water runoff.</p> <p>It is expected that there will be waste emissions released during the operational phase of the proposed development. It is proposed to install a storm drainage pipe, that will drain into the River Liffey. In the absence of mitigation, this may result in water quality deterioration of the habitats associated with the Rye Water Valley/Carton SAC during the operation phase.</p>
<p>(c) Are 'mitigation' measures necessary to reach a conclusion that likely significant effects can be ruled out at screening?</p>	
<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	

The findings of the screening matrix are summarised in **Table 2.10** below.

Table 2.10 Stage 1 - Screening Matrix for the Proposed Development

Brief Description of the Project or Plan
<p>Location: The proposed site lies in Ardclough Road, Celbridge, Co. Kildare (Grid Ref: E: 696555.53, N: 731568.32).</p> <p>Distance from Designated Site: The site for the proposed development lies approximately 5.69km from the Rye Water Valley/Carton SAC.</p> <p>Brief Description of the Project: Planning permission is being sought for a <i>“Housing development consisting of 39 residential units, ranging for 1 to 3 storeys high and modification of existing stone vehicular bridge over Pausdeen stream to include footpath and associated ancillary services and site works”</i> A Site Layout Plan for the proposed development is included as Appendix A to this report.</p>
Brief Description of the Natura 2000 Site
<p>Site Designation Status: The Rye Water Valley/Carton SAC is designated under EU Habitats Directive (92/43/EEC).</p> <p>Qualifying Features</p> <p>The Rye Water Valley/Carton SAC is of conservation significance due to the presence of one habitat listed under Annex I of the EU Habitats Directive and two species listed under Annex II of the same directive.</p> <p>Qualifying Habitats</p> <p>Rye Water Valley/Carton SAC</p> <ul style="list-style-type: none"> • Petrifying springs with tufa formation (Cratoneurion) [7220] <p>Qualifying Species</p> <p>Rye Water Valley/Carton SAC</p> <ul style="list-style-type: none"> • Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) [1014]

- Desmoulin's Whorl Snail (*Vertigo moulinsiana*) [1016]

(EU Habitats Directive 92/43/EEC).

Habitats and Species of Interest

Full details of the sites are found in the Site Synopses included as **Appendix B** to this report.

Unit Size: 70.48ha

ASSESSMENT CRITERIA

Describe the individual elements of the project likely to give rise to impacts on the Natura 2000 site.

Impacts are expected on the Rye Water Valley/Carton SAC Natura 2000 sites in question, as a flood risk area adjacent to the site, may result in surface water runoff from the proposed development into the Natura site, the removal of the existing stone parapet/construction of the pedestrian bridge to be constructed over Pausdeen stream may also result in water quality deterioration of the River Liffey, which in turn may result in water quality deterioration of habitats associated with the Natura 2000 site.

Describe any likely direct, indirect or secondary impacts of the project on the Natura 2000 site by virtue of the following;

- **Size and Scale**

The development site comprises an overall area of 1.4 ha. At this size and scale, with the proposed development area being 3,715 sqm and due to the fact that the works will be located entirely outside the designated area, it is not expected that the development will have any significant impact (direct, indirect or secondary in nature) on the Natura 2000 site in this regard.

- **Land-Take**

The proposed works will be entirely located outside the designated site and so there will be no impacts in this regard.

- **Distance from Natura 2000 site or key features of the site**

The site for the proposed development lies approximately 5.69km from the Rye Water Valley/Carton SAC. At this distance, no impacts are expected on the Natura 2000 sites in this regard.

- **Resource Requirements**

It is not expected that the proposed development will have any significant impact or effects (direct, indirect or secondary in nature) on the designated sites in this regard.

- **Emissions**

It is proposed to install a connection to the existing public sewer. Provided that there is sufficient capacity within the network and on the basis that the connection is installed and maintained correctly, it is not expected that emissions arising from the development will result in any significant effects on the Natura 2000 site in this regard.

It is proposed to install a storm drainage pipe, that will drain into the River Liffey. In the absence of mitigation, it is expected that there will be waste emissions released during the construction and operational phase of the proposed development. The River Liffey is connected via the flood risk area (adjacent to the application site), to the Rye Water Valley/Carton SAC. Again, in the absence of mitigation, this surface water runoff can potentially result in the water quality deterioration of the habitats associated with the Rye Water Valley/Carton SAC during the operation phase.

- **Excavation Requirements**

No impacts are expected on the Natura 2000 site in this regard.

- **Transportation Requirements**

During the construction phase of the proposed development, there will be a slight increase in the volume of traffic in the area for a short time. It is not expected that this slight increase will result in direct, indirect or secondary impacts or effects /on the Natura 2000 site.

- **Duration of construction, operation, decommissioning**

The construction phase of the proposed development will last approximately 12-24 months. It is expected that the dwelling will remain in use for at least 50 years. The eventual decommissioning of the proposed development is not likely to result in direct, indirect or secondary impacts on the Natura 2000 site. However, there is the potential for surface water runoff into the adjacent flood risk, which flows into the River Liffey, which in turn may result in the water quality deterioration of the habitats associated with the Rye Water Valley/Carton SAC during the construction phase. It is proposed to install a storm drainage pipe, that will drain into the River Liffey. This surface water runoff can potentially result in the water quality deterioration of the habitats associated with the Rye Water Valley/Carton SAC during the operational phase.

Describe any likely changes to the site arising as a result of the following;

- **Reduction of Habitat**

The potential surface water runoff from the construction and operational phases and the removal of existing stone parapet/construction of the pedestrian bridge over the Pausdeen stream, may result in water quality deterioration may result in the reduction of Petrifying springs with tufa formation (Cratoneurion) habitat, which is a qualifying interest of the Rye Water Valley/Carton SAC.

- **Disturbance to Key Species**

The potential surface water runoff and removal of existing stone parapet/construction of the proposed pedestrian bridge, potentially resulting in water deterioration may result in the disturbance of wetland and transitional wetland habitats inhabited by the Narrow-mouthed Whorl Snail and the Desmoulin's Whorl Snail.

- **Habitat or Species Fragmentation**

There will be no changes in this respect.

- **Reduction in species density**

There will be no changes in this respect.

- **Changes in key indicators of conservation value**

There will be no changes in this respect.

- **Climate Change**

There will be no changes in this respect.

Describe any likely impacts on the Natura 2000 site as a whole in terms of the following;

- **Interference with key relationships that define the structure and function of the site**

In the absence of mitigation, such interference cannot be ruled out.

Provide Indicators of significance as a result of the identification of effects set out above in terms of the following;

- **Loss**

No loss is expected.

- **Fragmentation**

No fragmentation is expected.

- **Disruption**

In the absence of mitigation, disruption cannot be ruled out.

- **Disturbance**

In the absence of mitigation, disruption cannot be ruled out.

- **Change to key elements of the site**

No change is expected

Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.

It is not considered that the proposed development will have any significant direct impacts/effects on the Rye Water Valley/Carton SAC, in combination with the other plans or projects in the area (outlined in Section 2.3 of this report). However, there is potential for indirect significant impacts/effects, due to the potential for surface water runoff during the construction phase and operational phase and the removal of existing stone parapet/construction of the pedestrian bridge over the Pausdeen stream, both ecological pathways are connected (via the flood risk area, via the River Liffey) to the Rye Water Valley/Carton SAC, resulting in the water quality deterioration of the associated habitats.

CONCLUSIONS

Planning permission is being sought “*Housing development consisting of 39 residential units, ranging for 1 to 3 storeys high and modification of existing stone vehicular bridge over Pausdeen stream to include footpath and associated and ancillary services and site works.*” at Ardclough Road, Celbridge, Co. Kildare. A Site Layout Plan for the proposed development is included as **Appendix A** to this report. The screening exercise examined impacts on the Rye Water Valley/Carton SAC Natura 2000 site.

The site for the proposed development lies approximately 5.69km from the Rye Water Valley/Carton SAC. At this distance, it is not expected that the proposed development will give rise to any direct impacts on the Natura 2000 sites in question.

It is proposed to connect the development to the existing public sewer. Provided that the connection is installed and maintained correctly, it is not expected that the proposed development will result in significant effects on the Natura 2000 network in this regard.

It is also proposed to install a storm drainage pipe, that will drain into the River Liffey. The River Liffey is connected via the flood risk area (adjacent to the application site), to the Rye Water Valley/Carton SAC. This surface water runoff during the operational phase, can potentially result in the water quality deterioration of the habitats associated with the Rye Water Valley/Carton SAC during the operation phase.

During the construction phase and operational phase, there is the potential for surface water runoff, via the flood risk, via the River Liffey, resulting in the water quality deterioration of habitats associated with the Rye Water Valley/Carton SAC.

It is proposed to remove an existing stone parapet and construct a pedestrian bridge over the Pausdeen stream. During the construction phase of this there will be the potential for water quality deterioration. Pausdeen stream flows into River Liffey and further downstream to the Rye Water/Valley Carton SAC, a Natura 2000 site. These works have the potential to have significant indirect impacts/effects on the qualifying interests of the Natura 2000 site.

Therefore, the conclusion of this screening exercise is that no significant direct impacts/effects are expected on the qualifying interests or conservation objectives of the Rye Water Valley/Carton SAC, as a result of the proposed development in question. However significant indirect impacts/effects are predicted during both the construction and operational phases of the proposed development and therefore that a Natura Impact Statement is required in this case, in accordance with the EU Commission’s methodological guidance (EC, 2001)

APPENDIX A- Drainage Layout Plan



APPENDIX B-NPWS Site Synopses for Rye Water Valley/Carton SAC

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*) and [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 oppositifolium*), 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 hederæ*) 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 (*Molinia 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, Whiteclawed 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.