Specialist Report: Supplementary Report Informing Appropriate Assessment

ABP-318220-23

ABP-318217-23

Development	N6 Galway City Ring Road
Planning Authority	Galway County Council Galway City Council
Applicant	Galway County Council on behalf of itself and Galway City Council
Type of Application	Section 51 of the Roads Act 1993, as amended Section 49 of the Roads Act 1993, as amended
Ecologist	Dr Maeve Flynn BSc. PhD. MCIEEM

Contents

1.0 Introduction

1.1. Background

1.1.1. As part of the Appropriate Assessment (AA) for N6 Galway City Ring Road application submitted by the Applicant in 2018 under reference number ABP-302848-18 and ABP-302885-18, Mr Richard Arnold of Thomson Ecology prepared an Appropriate Assessment Report to support and inform the detailed examination and analysis of the implications of the proposed N6 GCRR Project on European sites designated Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Mr Arnold undertook a detailed examination and analysis of the AA Screening Report and Natura impact statement (NIS) taking account of observations and submissions, further information received and the information obtained at the oral hearing, thereby informing the Inspector's Report prepared by Ms Kellett (Senior Planning Inspector) and dated 22nd June 2021.

1.1.2. The Appropriate Assessment presented in the Inspector's Report of 2021 concluded that with the application of mitigation measures, adverse effects on the integrity of European sites could be excluded beyond reasonable scientific doubt with respect to the proposed road, both alone and in combination with other plans and projects.

1.1.3. The N6 GCRR crosses one European Site, Lough Corrib SAC which is the site impacted to the greatest degree and a key focus of the assessment and there are three further European sites in close proximity to the project including Lough Corrib SPA, Galway Bay Complex SAC and Inner Galway Bay SPA. A further 19 European sites are identified as being within a possible zone of influence (ZOI) of the Project.

1.1.4. The sequence of events since the case was remitted back to An Coimisiún Pleanála is set out in the updated Inspectors report. Following a request for further information as part of the remitted case by An Coimisiún Pleanála, the Applicant submitted an updated EIAR and NIS (2023) and the statutory submission period was reopened. The Applicant has also had the opportunity to provide responses to submissions (October 2025).

1.1.5. Mr Arnold was not in a position to complete a review of the updated Environmental Impact Assessment Report or the updated Natura Impact Statement submitted under new case numbers ABP-318220-23 and ABP-318217-23 therefore, an Inspectorate

Ecologist of An Coimisiún Pleanála (ACP) was requested to provide an independent review of the updated documents, taking account of any changes and submissions relevant to nature conservation.

1.2. Updated AA Screening Report and Natura Impact Statement (NIS)

1.2.1. The order of the High Court stated that the remitted application shall take effect from the point in time immediately after the submission of the initial Inspector's Report prepared by Ms Kellett and dated 22nd June 2021. Therefore, the Commission can largely rely on the AA completed in the previous Inspector's Report and associated appendices including Mr Arnold's assessment. The updated AA Screening Report and NIS have been prepared in view of changes to the baseline environment, any changes to guidance and standards and consolidate information arising from modifications of the project that arose from the further information and the oral hearing in the course of that application.

1.2.2. The ecological consultants Scott Cawley, involved in the 2018 application were retained for the biodiversity assessment in the EIAR, updated AA Screening Report, and NIS and the competencies of the main authors are presented in Table 1.3 of Chapter 1 of the EIAR. Scott Cawley Ltd. is a specialist ecological consultancy with demonstrated scientific experience and competencies to undertake complex ecological assessments. I am satisfied that the authors of the updated AA documents have the necessary qualifications, experiences and competencies to undertake the assessment and that the survey work that informed the assessment has been undertaken by competent experts also in line with best practice and scientific and technical methods.

1.2.3. Section 9 of the RFI Response document also includes a summary of the updates to the NIS. As for individual environmental topics including biodiversity, updates to the NIS are considered in context of the following questions:

- Are there any changes to the guidance and standards for the methodology for the stage 2 Appropriate Assessment? Is so, what are they?
- Has the baseline changed? If so, how and where?

- Do these changes to the baseline alter the conclusions of the impact assessment taking cognisance of updated impact assessment guidance? If so, how?
- Do any changes to the conclusions of the impact assessment alter the mitigation strategy? If so, how?
- Do any changes to the mitigation strategy alter the residual impact assessment? If so, how?
- Are there any changes to the in -combination assessment? If so, how?

1.2.4. I agree with the applicant that this is a pragmatic approach in order to present a coherent assessment and avoid undue repetition particularly where there have been no material changes.

1.2.5. In general, the reports follow the original format (2018) in line with standard guidance for undertaking AA and take account of and are consistent with guidance and standards that have been published since 2018 including the following (see updated NIS, Section 4 Methodology).

- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2021)
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC (European Commission, 2019)
- OPR Practice Note PN01. Appropriate Assessment Screening for Development Management (Office of the Planning Regulator, 2021)

1.2.6. The updated suite of AA documents includes the following:

- N5 GCRR Updated NIS volume 1 Executive Summary 2025
- N6 GCRR updated AA Screening report 2025
- N6 GCRR updated NIS volume 2 main report (411 pages)
- Volume 3 Figures
- Volume 4 appendices A-R (includes Relevé data sets, hydrology, hydrology assessment, CEMP, Corrib bridge construction, Melo Viaduct construction, Lackagh tunnel geo and hydro appraisal, survey data, updated habitat surveys, breeding bird surveys, winter bird surveys, fish surveys,

ecohydrologeology, Traffic assessment and potential recreational pressures, aquatic habitats, air quality, shading analysis, Plan level environmental protection policies and Objectives, In combination assessment)

1.2.7. Volume 1 of the updated NIS is an executive summary which helpfully summarises the key changes since 2018 and presents a summary of the examination and analysis of potential impacts on European sites. While the focus of the updated AA Screening report and NIS is on changes since the previous iteration and any changes to the ecological baseline in the interim period, the assessment by necessity considers the entirety of the scheme and runs to three volumes of over 500 pages of reporting, 21 Figures (>94 individual pages) and 24 appendices (A-R).

1.2.8. In summary, key changes to the documents that will inform the AA (to be undertaken by An Coimisiún Pleanála) i.e. AA Screening Report and NIS include the following:

- Description of all minor changes to the proposed N6 GCRR and consideration of works required at Galway Racecourse
- Description of receiving environment taking account of updated ecological surveys undertaken between 2022 and 2024
- Updated figures and appendices
- Consolidates ecological information provided over the timeframe of the proposed development since preparation of the 2018 EIAR, including data and assessment arising from further information submitted, briefs of evidence presented at the Oral Hearing in 2020, amendments that arose during the course of the oral hearing.
- Takes account of the Inspector's Report of 2021.
- Includes consideration of additional potential impact pathways identified in Mr Arnolds AA report namely: increase in recreational pressure, increase in construction related traffic and potential for deterioration of qualifying interest (QI) habitats or species due to associated effects from loss of supporting habitats/ populations

- Updates to site specific conservation objectives, inclusions of additional qualifying interest (QI) species for a number of European Sites and changes to site boundaries.

1.3. Submissions

1.3.1. The Department of Housing, Local Government and Heritage submitted observations on Nature Conservation via a Development Applications Unit submission) on the 1st of August 2025 and this submission is appended to my report (Appendix I). The observations comprised of three recommendations regarding mitigation measures and identified three technicalities that could be incorporated into the consideration of the project. These are summarised as follows:

- Treatment of all invasive species (all third schedule non-native species) identified within the development zone should be treated prior to the commencement of construction works.
- Water quality monitoring should be agreed before consent granted.
- No stockpiling of surplus materials on habitat identified as Annex I habitat (outside of European Sites).
- Clarification on status of Lough Corrib SAC- no longer candidate site.
- Reclassification of aquatic vegetation as corresponding to Annex I Vegetation of Flowing Waters 3260- a number of maps in the updated EIAR do not reflect this change.
- Requirement for Ecological Clerk of Works (ECoW) as stated in NIS and EIAR is not reflected accurately in the CEMP.

1.4. A number of submissions from third parties also raise concerns related to biodiversity including impacts on sites designated for nature conservation including Lough Corrib SAC.

1.5. The applicant submitted a detailed response to An Coimisiún Pleanála on the observations made by statutory consultees and third parties on the updated (October 2025). Section 4 of the document addresses the Departments submission (DAU).

1.6. I am satisfied that the Applicant has comprehensively addressed each of the Department's points. The technicalities relating the River Corrib SAC, classification of Annex I 3260 habitat and clarification on SAC status are noted.

1.7. I note that over the course of this Project there has been extensive consultation and engagement with the National Parks and Wildlife Service (NPWS) which has shaped the design, mitigation and compensation measures (See NIS Section 3 Consultations for a summary of NPWS and other nature conservation bodies) and the relatively minor issues raised in the 2025 observations are reflective of the engagement of the Applicant with the concerns of the NPWS.

1.8. Scope of Report

1.8.1. This report to the Planning Inspector and available to the Commission is a written record of my review and examination of the updated AA Screening Report, Natura Impact Statement and associated appendices and figures, RFI Response Document, and response to submissions. This report should be considered in conjunction with the report prepared by Mr Arnold and the Planning Inspectors Report (2021).

1.8.2. The purpose of my report is not to undertake the AA, rather to identify any key issues for the Planning Inspector and the Commission and provide advice on the approach to the updated AA. For ease of reference, the format of my report follows the general headings and approach of assessment undertaken by Mr Arnold. However, the focus of my assessment is on any significant changes since the 2018 application only, where these are relevant to likely significant effects, and I do not revisit the assessment already undertaken by Mr Arnold and the Inspector's Report of 2021.

1.8.3. Therefore, for the avoidance of doubt, I am accepting of the assessment undertaken in terms of approach and methodology, competencies of all ecologists and specialist involved in survey and assessment, validity of scientific data, and impact assessment of the Planning Inspector (2021) including Mr Arnold's report.

2.0 Description of existing environment

2.1. Section 5 of the updated NIS describes the ecological baseline including European Sites, and an overview of the local hydrological and hydrogeological baseline data. Results of updated desk and field surveys inform this section and the overall

assessment. The findings are broadly consistent with that recorded previously and I am satisfied that no significant changes in QI habitats or species, records or distribution of special conservation interest bird species (SCI) or the hydrological or hydrogeological baseline have been recorded.

2.2. Updates to European Sites

2.3. Of relevance is that since 2018, the NPWS has updated spatial data for Lough Corrib SAC which is the only European Site directly crossed by the N6 GCRR. The boundary has been slightly reduced by 0.5ha at the area intersected by the Project. The River Corrib has also been reclassified as corresponding to the Annex I vegetation of flowing waters habitat [3260]. (S.I. No. 384 of 2022

2.4. The list of SCI bird species for Inner Galway Bay SPA has been updated (2019) to include Black-throated diver and to exclude Shoveler.

2.5. Bottlenose Dolphin and Harbour Porpoise have been added as QIs to several Marine SACs including Inishmore Island SAC and Kilkieran Bay and Islands SAC (for Harbour Porpoise).

2.6. I have appended the updated Statutory Instrument for each European Site where QI/ SCI lists have been amended. Note that site specific conservation objectives with specific attributes and targets have not been set for all updates (as of January 2026).

2.7. Field assessment

2.7.1. The level of field surveys that informed the 2018 application was significant and included a spectrum of ecological survey from standard habitat characterisation to highly specific and specialised surveys which required varied specialist ecological expertise in flora and fauna and these surveys were further supplemented with additional field surveys as part of a response to a further information request in 2019 as part of that application.

2.7.2. Additional field surveys were undertaken between 2022 and 2024 for certain ecological topics. The updated surveys included the following which are of relevance to European sites and QI/ SCIs :

- Habitat surveys
- Aquatic habitat and aquatic vegetation surveys (Lough Corrib SAC)

- Otter Survey (River Corrib and Coolagh Lakes)
- Breeding bird surveys
- Wintering bird survey
- Fisheries surveys
- Marsh Fritillary survey
- White clawed crayfish survey

2.7.3. Habitat surveys at showed some minor changes to baseline habitats within Lough Corrib SAC but this applied to non-QI habitats only.

2.7.4. Minor changes to the fauna baseline are reported in the NIS (Section 5.1.2) but overall and as expected distribution and abundance are in line with the 2018 Application. I note that four additional bird species listed as SCI species for SPA sites were recorded and have been incorporated into the assessment including, common gull, Gadwall, Ringed plover and Whooper swan.

2.7.5. Based on the information presented, I am satisfied that this a comprehensive and up to date dataset compiled in line with industry standards, guidelines and methodology and in terms of the adequacy of the data presented and lifespan of ecological data (CIEEM, 2019[1]). The most up to date information on European Sites has been incorporated into the updated assessments and overall, I consider that the updates to the baseline data is in line with best available scientific knowledge.

3.0 Screening the need for Appropriate Assessment (Stage 1) Test of Likely Significant Effects

Recommended approach

3.1. The screening stage is a preliminary examination to determine if a proposed project could result in significant effects on a European Site. As the proposed development is not necessary or related to the management of any European Site it must be examined in line with the provisions of the Article 6(3) of the Habitats Directive as transposed by part XAB of the Planning and Development Act 2000 (as amended). It

[1] CIEEM (2019) Advice note on the lifespan of ecological data

is necessary to revisit this stage of the AA process in order to ensure that all European Sites that could potentially be affected are considered in view any changes to the proposed development, ecological baseline and changes to European Sites.

3.2. Description of the proposed project

3.3. The Applicant provides a full and detailed description of the proposed N6 GCRR including all amendments since the 2018 EIAR in Chapter 5 Project Description the AA Screening Report, Section 2 of the NIS and it is summarised throughout the updated Project information including the RFI document (Sections 3-5) and summarised in the updated Planning Inspector's Report.

3.4. The updated description of the proposed N6 GCRR reflects the relatively minor modifications that were agreed during the oral hearing mainly related to access and land acquisition and incudes incorporation of public transport requirements to support a large housing development at Knocknacarra.

3.5. Works required to facilitate the project at Galway Racecourse at Ballybritt include the demolition of existing stable yard and provision for both temporary and permanent stables are also considered in detail. I note that this was subject to a separate and approved planning application but due to its connection to the N6 GCRR road scheme, is considered in the updated AA screening and NIS. The total area within the assessment boundary has increased from 280ha in the 2018 application to 334ha due to the inclusion of additional lands at Galway Racecourse.

3.6. Zone of Influence

3.6.1. Section 3.2-3.6 of the updated AA screening report describes the potential zone of influence (ZOI) considered in determining European sites that should be included in the screening stage. This is expanded upon in the updated NIS (see Section 7).

3.6.2. A key point in the report prepared by Mr Arnold to support the AA was that the zone of influence should be extended beyond the distances referenced in the 2018 Application for a number of additional potential impact mechanisms and he undertook his assessment on this basis. I am satisfied that the Applicant has incorporated the considerations raised by Mr Arnold and extended the ZOI to take account of the potential for increased recreational pressure, construction traffic impacts potential loss or degradation of supporting habitats on European Sites due to the construction and/or operation of the proposed project.

3.7. **Identification of European Sites**

3.7.1. The N6 GCRR traverses Lough Corrib SAC impacting habitats not listed as QI (as determined through extensive survey and analysis) and includes a bridge crossing over the River Corrib and there are three European sites in close proximity to the project including Lough Corrib SPA, Galway Bay Complex SAC and Inner Galway Bay SPA and for which there is no doubt regarding the zone of influence and the likelihood of significant effects occurring in the absence of mitigation.

3.7.2. A further 19 European sites are identified as being within a possible ZOI of the Project and these are listed along with the QI/ SCIs in Table 1 of the updated AA Screening Report. This is an increased list from that provided in the 2018 EIAR due to the expansion of the potential ZOI on a precautionary basis based on the AA detailed in the Inspectors Report 2021.These include the following:

Ardrahan Grassland SAC, Castletaylor Complex SAC, Kiltiernan Turlough SAC, Lough Fingall Complex SAC, Rahasane Turlough SPA, Rahasane Turlough SAC, Cregganna Marsh SPA, Maumturk Mountains SAC, Ballyvaughan Turlough SAC, The Twelve Bens/Garraun Complex SAC, Connemara Bog Complex SAC, Connemara Bog Complex SPA, Ross Lake and Woods SAC, East Burren Complex SAC, Moneen Mountain SAC, Black-Head Black Head-Poulsallagh Complex SAC, Gortnandarragh Limestone Pavement SAC, Inishmore Island SAC and Kilkieran Bay and Island SAC.

3.8. Identification of potential impact pathways

3.8.1. Section 3.4 of the updated AA Screening Report details potential impact pathways to European sites, the likely zone of influence of individual impact mechanisms and incorporates those additional impact pathways from the Inspectors Report 2021. In summary these include:

- Direct habitat loss, fragmentation and/or degradation because of tunnelling, excavation or other construction works.
- Direct habitat loss or degradation because of shading from elevated structures.
- Indirect habitat degradation because of impacts to the existing hydrogeological regime.

- Indirect habitat degradation because of a reduction in water quality in receiving watercourses/waterbodies.
- Indirect habitat degradation from the introduction or spread of non-native invasive plant species (including both terrestrial and surface water pathways).
- Indirect habitat degradation because of a reduction in air quality.
- Direct/ indirect disturbance and/or displacement impacts to fauna species, including their breeding, resting and feeding sites/resources.
- Construction works or permanent structures creating a barrier to species movement and increasing mortality risk for fauna species.
- Increase in recreational pressure.
- Increase in construction-related traffic.
- Potential deterioration/decline in European site qualifying interests (QIs)/special conservation interests (SCIs) due to associated effects from the loss of supporting habitats/populations.

3.8.2. The updated AA Screening Report concludes that, taking a precautionary approach, based on the nature of the Project, potential interactions with European sites and taking account of other plans and projects the potential for significant effects cannot be excluded for 22 European Sites (Table 3.7).

3.9. Screening stage recommendation

3.9.1. I recommend that the Planning Inspector and the Commission adopt the updated screening conclusion presented by the Applicant. The findings align with the AA Screening presented in the Inspectors Report (2021) which adopts the comprehensive and precautionary approach recommended by the external consultant Mr Arnold (Table 2 Appendix 6). The Applicant has gone further and included additional SAC sites for which Harbour porpoise has recently (February 2024) been added as a QI on the basis of potential water quality impacts in Galway Bay. I consider that this may be overly cautious approach as these are highly mobile species that would be unlikely be affected to any significant degree, however given the wider consideration of all potential downstream receptors the inclusion is wholly inclusive and comprehensive of all coastal and marine species within a possible ZOI.

3.9.2. The Inspector and the Commission will also note that the potential impact mechanisms have not been considered in view of site-specific conservation objectives by the Applicant at the screening stage. Impact pathways were identified and more detailed examination of the implications in view of conservation objectives was not presented which in my opinion may have reduced the number of European Sites being taken forward to stage 2 AA, particularly for more remote sites. The approach taken is precautionary and therefore, this element of analysis must be undertaken as part of more detailed assessment in the AA (stage 2).

4.0 Appropriate Assessment (Stage 2) Integrity Test

Recommended approach

4.1. As outlined throughout this report, the assessment presented by the Applicant in the updated NIS has consolidated matters raised since the 2018 Application and incorporates the assessment undertaken in the Inspector's Report of 2021 thereby including more sites in the NIS and for consideration as part of the AA.

4.2. A complete and precise AA is provided in the Inspector's Report of 2021, and associated supplementary reports prepared by Mr Arnold and I do not repeat the assessment here. I am satisfied that the assessment undertaken by Mr Arnold which informed the Inspector's Report of 2021 was very comprehensive and took a precautionary approach to the identification and magnitude of likely significant effects. The updated NIS must be considered against this baseline to ensure that conclusions are unchanged and that a definitive conclusion can be reached with regard to the exclusion of adverse effects on the integrity of European Sites based on the best available scientific knowledge.

4.3. Likely significant effects on remote SAC, SPA sites as part of the extension of the ZOI arising from the Inspectors Report (2021) and in particular Mr Arnold's consideration of construction related traffic impacts and impacts on nature conservation sites from increased access due to the operation of the road have been assessed by the applicant. The Planning inspector and the Commission should note that the conclusions of assessment undertaken by Mr Arnold did not differ greatly from that of the Applicant for impacts on Lough Corrib SAC, including Lough Corrib SPA, Galway Bay Complex SAC and Inner Galway Bay SPA.

4.4. The additional potential impact mechanisms identified by Mr Arnold were considered low to medium risk in terms of affecting conservation objectives due largely to in combination effects and with the application of mitigation measures set out in the NIS and some additional measures, adverse effects on site integrity were excluded for all European Sites considered.

4.5. A detailed re-examination and analysis of potential impacts on affected QIs/SCIs of Lough Corrib SAC, Galway Bay Complex SAC, Lough Corrib SPA and Inner Galway Bay SPA is presented in view of the conservation objectives set for those sites including where minor changes have occurred to QI/ SCI lists.

4.6. Section 9.1 of the updated NIS re-assess the implications of the proposed N6 GCRR on Lough Corrib SAC. The design of the proposed Project incorporated measures to avoid direct impacts on QI habitats and in particular avoid the loss of irreplaceable priority Annex I habitat Limestone pavement [8420*] is a key aspect of the proposed Project and has been subject to detailed and highly specialised review and assessment. No new impact mechanisms from the project alone have been identified and I am satisfied that the assessment presented in the updated NIS is robust, and the findings of the Inspectors Report 2021 remain valid. Minor changes in the ecological baseline have been taken into account.

4.7. Section 9.2-9.4 of the updated NIS re-assess the implications of the proposed N6 GCRR on Galway Bay Complex SAC (9.2) , Lough Corrib SPA (9.3) and Inner Galway Bay SPA in view of the conservation objectives of these sites, taking account of the slight change to distribution of SCI bird species recorded in updated surveys and in view of the updated SCI list for Inner Galway Bay SPA. No new impact mechanisms from the project alone have been identified and I am satisfied that the assessment presented in the updated NIS is robust, and the findings of the Inspectors Report 2021 remain valid.

4.8. Further to the information assessed in the 2018 NIS, examination and analysis of potential impacts on Inishmore Island SAC and Kilkieran Bay Island SAC is presented in view of Harbour porpoise only as this QI species is recently added to the SAC list of species and this mobile species is found in Galway Bay.

4.8.1. Section 9.5.1 of the updated NIS assesses the implications of habitat degradation as a result of the project affecting water quality in Galway Bay during construction or

operation in view of conservation objectives set for Harbour porpoise, a species that occurs in the bay and a recent addition to the remote SAC sites of Inishmore Island and Kilkieran Bay Island SAC. I note that site specific conservation objectives have been updated for Inishmore Island SAC only (2024) but the Kilkieran Bay Island SAC conservation objectives have not yet been updated for Harbour porpoise. As the risk of the project negatively affecting water quality of the coastal and marine waters of Galway Bay can be fully mitigated as assessed in the 2018 NIS and in the Planning Inspector report 2021, the potential for risk to Harbour porpoise is excluded. (Note, it follows that any risk to Bottlenosed dolphin, a QI for more distance SACs is also excluded).

4.9. Further detailed examination and analysis of European Sites in the wider zone of influence are considered under the headings of construction related traffic, recreational pressure and potential deterioration due to loss of supporting habitats/ populations in view of particular habitat sensitivities and site-specific conservation objectives.

4.9.1. Section 9.6 of the updated NIS assesses the implications raised regarding the potential for **construction related traffic** to affect European Sites associated with the wider existing road network which on a precautionary basis may extend south of Galway along the M18, R458 and N67. The assessment considered, the potential for increased risk of spills and leaks which could contaminate surface and ground water, increased generation of dust and emissions affecting air quality, introduction and spread of invasive species. Mitigation measures for those sites in close proximity to the N6 GCRR were considered adequate to exclude adverse effects from this impact mechanism. Further mitigation is proposed to prevent adverse effects on Ardrahan Grassland SAC, Castletaylor Complex SAC, Cregganna Marsh SPA, Kiltiernan Turlough SAC, Lough Fingall Complex SAC and Rahasne Turlough SAC.

4.9.2. Section 9.7 of the updated NIS assesses the implications raised regarding the potential for the N6 GCRR to lead to **increased recreational pressure** on European Sites close to and distant from the proposed road. The assessment finds that while the project will contribute to an overall increase in recreational traffic in the surrounding and supporting road network, the increase is predicted to be less than 10% and that not all traffic is destined for interaction with European Sites. This

impact mechanism has been excluded as a risk factor for adverse effect on European sites.

4.9.3. Section 9.8 of the updated NIS assesses potential deterioration or decline in European Site Qis/ SCIs due to **loss of supporting habitats/ populations** with particular focus on Lough Corrib SAC as this is the only site directly impacted by habitat loss. The assessment finds that while there will be loss of individual plants of typical and positive indicator species, none are critically rare or of such relevance to result in significant effects on the quality or function of QI habitats or populations within the immediate area of Lough Corrib SAC and such impacts are excluded as potential adverse effects on other European Sites examined.

4.10. Mitigation measures

4.11. The mitigation strategy has been reviewed and updated and incorporates all relevant amendments made during the oral hearing and takes account of a number of additional mitigation measures recommended by Mr Arnold, where assessed as relevant and required (note that these were considered in the Inspector's Report of 2021 and by Mr Arnold in the assessment presented in 2021).

4.12. Section 10.1 of the updated NIS begins with an overview of the mitigation strategy and updates since 2018. The updates to the assessment presented in the NIS did not necessitate any material changes to the mitigation strategy and therefore are not repeated here. Table 10.1 of the updated NIS provides a summary of mitigation measures and how they relate to individual Qis/ SCI and conservation objectives.

4.13. I am satisfied that the mitigation strategy followed by the Applicant follows the principles of the mitigation hierarchy as applies to AA with the avoidance of direct impacts on QI habitats prioritised in the design process and the integration of design features to avoid impacts or reduce impacts to non-significant levels. Further mitigation measures to prevent or reduce impacts are targeted at specific impact pathways including the following:

- **Habitat loss/fragmentation:**
  Measures to minimise habitat loss in Lough Corrib SAC and to avoid loss of QI habitats within Lough Corrib SAC during construction.

- **Habitat degradation – tunnelling/excavation:**
  Measures to maintain the structural integrity of limestone pavement during the construction of the proposed Lackagh Tunnel (and its western approach).
- **Habitat degradation – hydrogeology:**
  Measures to avoid habitat degradation as a result of potential hydrogeological impacts.
- **Habitat degradation – hydrology:**
  Measures to protect water quality in receiving watercourses.
- **Habitat degradation – air quality:**
  Measures to control dust emissions during construction.
- **Habitat degradation – shading**
- **Habitat degradation – non-native invasive species:**
  Mitigation measures to avoid the introduction or spread of non-native invasive species to European sites.
- **Disturbance/displacement:**
  Mitigation measures to avoid/reduce the disturbance/displacement effects of blasting on wintering birds using Ballindooley Lough.
- **Barrier effect**
- **Mortality risk:**
  Mitigation measures to avoid mortality of QI species.
- **Construction-related traffic**

4.14. I am satisfied the measures proposed will be effective and can be delivered with Ecological supervision including monitoring, implemented via a detailed Construction Environmental Management Plan. I am satisfied that the applicant has fully engaged with the recommendations arising from the assessment prepared by Mr. Arnold (Appendix 4 of the Inspector's Report of 2021) and recommendations related to European sites have been incorporated into the updated NIS.

4.15. The submission made by DHLGH in 2025 identified a number of clarifications required in relation to mitigation and monitoring measures and I am satisfied that these have been fully addressed by the Applicant.

4.16. I bring the Inspector and the Commissions attention to the points regarding water quality monitoring which have been clarified by the Applicant and should be included

in the schedule of planning conditions in the event that the proposed road is granted permission.

4.17. Residual effects

4.17.1. Section 11 of the updated NIS considers the potential for any residual impacts, i.e. any impacts that remain after the application of mitigation measures. This section is an examination of the likely effectiveness of the proposed mitigation measures for the various impact mechanisms. The findings of this section will assist the Planning Inspector and the Comision in the overall integrity test. Where residual direct or indirect impacts on conservation objectives can be excluded with certainty, adverse effects on site integrity can be excluded beyond reasonable scientific doubt.

4.17.2. For clarity, it should be noted that there are no predicted residual direct or indirect impacts that could adversely affect the integrity of the identified European sites and the mitigation measures prescribed will be effective which is a reasonable conclusion based on the scientific assessment and remains unchanged from those presented in the 2018 NIS.

4.18. In combination assessment

4.18.1. Section 12 of the updated NIS considers updated plans and new, planned or committed projects relevant to the area since the conclusion of the oral hearing held in 2020. A detailed assessment is presented in Appendix R.

4.18.2. The consideration and incorporation of strategic level environmental protection policies, objectives and mitigation measures set out the Galway city and County Development Plans was assessed and included as a component in the Inspectors Report 2021 in ensuring that adverse effects on site integrity could be excluded.

4.18.3. As detailed in the supplementary Biodiversity impact assessment report, Galway City Biodiversity Plan (2025-2030) has been published since the Applicant submitted further information. The plan sets out standard policy objectives with regard to European Sites, and I am satisfied that no new issues require consideration as part of that plan.

4.18.4. Given the timeframe since the submission of the further information, the Inspector and the Commission should ensure that they are satisfied that no other Plans or

Projects could act in combination with the proposed N6 GCRR to generate significant effects on European Sites.

5.0 Conclusion

5.1. It is my professional opinion that the updated AA Screening and NIS submitted as part of further Information by the Applicant in 2023 provides a comprehensive integration of minor changes to the baseline environment, updated guidance, and takes account of the Inspectors Report 2021.

5.2. I consider that the Inspector and the Commission can rely on the information presented as conforming with the requirement for best available scientific knowledge and that the assessment of implications of the N6 GCRR on European Sites has been undertaken in line with best practice and addresses tests required for AA.

5.3. The updated examination and analysis of impacts reach the same overall conclusion as the 2018 application and aligns with the assessment presented in the Inspectors Report 2021 which remains relevant.

5.4. I am satisfied that no submissions or observations on impacts on European from statutory bodies or third parties raise new issues that have not been considered in detail.

5.5. I recommend that the Inspector and the Commission update the screening determination based on the Applicants conclusions and undertake an updated Appropriate Assessment based on the scientific information presented in the updated NIS with particular focus on any changes highlighted since the 2018 application.

5.6. I am satisfied that the assessment presented in Natura Impact Statement is adequate to allow the Inspector and the Commission to reach complete, precise and definitive findings on the implications of the proposed N6 GCRR on European Sites in view of the conservation objectives of those Sites.

Signed:

Maeve Flynn BSc. PhD. MCIEEM

Inspectorate Ecologist, An Coimisiún Pleanála

13/01/2026

Appendix I

Submission from Development Applications Unit on behalf of the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage (01st August 2025)

(next page)

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

Planning Ref: 177AE-N6 Galway Ring Road
(Please quote in all related correspondence)

01 August 2025

The Secretary
An Coimisiún Pleanála
64 Marlborough Street
Dublin 1
D01 V902

Via email: laps@pleanala.ie

Re: Notification under the Planning and Development Act, 2000, as amended

Proposed Development: S177AE application for N6 Galway City Ring Road (GCRR) around Galway City.

A chara

I refer to correspondence received in connection with the above. Outlined below are heritage-related observations/recommendations co-ordinated by the Development Applications Unit under the stated headings.

Nature Conservation
The following observations are made by the Department in its role as a prescribed body under planning legislation and as the authority with overarching responsibility for nature conservation and the nature directives (i.e. the Birds and Habitats Directives). The observations are not exhaustive and are intended to assist An Coimisiún Pleanála in its review and evaluation of the current proposal in the context of, among other things, obligations and commitments in relation to nature conservation, European sites, biodiversity and environmental protection generally. These observations are should be read together with all relevant previous Departmental observations.

Recommendations:

1. Section 9 of the Construction Environmental Management Plan (CEMP) states that advance treatment of invasive species may be required, such as Japanese Knotweed, and will be decided on a site-by-site basis. For example, in summary Table 9.2, areas of confirmed Japanese Knotweed within the development footprint states that "*isolating the species may not be possible, likely that treatment may be required*". The Department recommends all third Schedule non-native species subject to restrictions under Regulations 49 and 50 Part 1: Plants listed in S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011

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Development Applications Unit
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Newtown Road, Wexford, County Wexford, Y35 AP90

identified in the development zone should be treated prior to the commencement of construction works.

2. In relation to Water Quality Monitoring, the Natura Impact Statement (NIS) section 10.5 states "*regular monitoring of downstream receptor water quality…will be carried out*" and section 8.5 in CEMP states the "*Local Authority will make recommendations on the water quality parameters to be assessed, sampling intervals and locations*". Monitoring is essential to assess the effectiveness of any mitigation measures outlined in the NIS and Environmental Impact Assessment Report (EIAR). The Department recommends the details should be agreed before any consent is granted.

3. Regarding stockpiling of surplus materials, the Department notes the commitment for no stockpiling on lands within a European site (NIS 2.4.8 and CEMP 8.4.3), and stockpiling of materials will be 50m away from Annex I habitat within a designated site. Annex I habitats outside designated sites have not been explicitly considered here, and the Department recommends no stockpiling on Annex I habitats outside designated sites.

Technicalities:

A. Lough Corrib SAC – The Statutory Instrument for this site was published in 2022. 'EUROPEAN UNION HABITATS (LOUGH CORRIB SPECIAL AREA OF CONSERVATION 000297) REGULATIONS 2022' - S.I. no 384 of 2022. Therefore Lough Corrib is no longer a candidate SAC (cSAC). Lough Corrib is referred to as a cSAC in some updated reports, for example the 'River Corrib Bridge Constructability Report – updated March 2025'.

B. The Department notes the aquatic vegetation in the River Corrib has been reclassified, on a precautionary basis, as corresponding to the Annex 1 habitat '*Vegetation of Flowing Waters 3260*'. The NIS states '*At the site of the proposed River Corrib bridge where the elevated structure passes over habitats within the SAC, including Annex I habitat, Vegetation of Flowing Waters 3260…*'. However, some maps have not been updated to reflect this change. For example, plate 2 at the start of the NIS technical summary, and plate 8.1 in EIAR. The Department recommends An Coimisiún Pleanála take this into account.

C. The requirement for an Ecological Clerk of Works (ECoW) is stated in the NIS and EIAR. However, the CEMP makes reference to an Environmental Manager (EM) and there is no ECoW role outlined. The Department recommends An Coimisiún Pleanála takes this into account.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at manager.dau@npws.gov.ie where used, or to the following address:

The Manager
Development Applications Unit (DAU)
Government Offices

.....
2

Newtown Road
Wexford
Y35 AP90

Is mise, le meas

Simon Dolan
Development Applications Unit
Administration

Appendix II

Site Synopsis for SAC sites included in assessment for Harbour porpoise (*Phocoena Phocoena):*

Site Synopsis updated (Version date 20.30.2024) Inishmore Island SAC (000213): Inishmore Island SAC | National Parks & Wildlife Service

Site Synopsis updated (Version date 20.03.2024) Kilkieran Bay Island SAC (002111):Kilkieran Bay and Islands SAC | National Parks & Wildlife Service

Site Name: Inishmore Island SAC

Site Code: 000213

Inishmore Island is the largest of the three Aran Islands, situated approximately 8 km off the south coast of Co. Galway. Geologically an extension of the Burren, Co. Clare, the island is formed of Upper Carboniferous limestone strata, interleaved with layers of shale and clay. In places along the coast, spectacular cliffs rise to 90 m. A thin cover of rendzina occurs in pockets between blocks of bare limestone. This soil is combined with a mixture of sand and seaweed to form a partially man-made soil cover, built up over the centuries. The site also includes a large area of marine waters surrounding the island.

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):

[1150] Coastal Lagoons*
[1170] Reefs
[1220] Perennial Vegetation of Stony Banks
[1230] Vegetated Sea Cliffs
[2110] Embryonic Shifting Dunes
[2120] Marram Dunes (White Dunes)
[2130] Fixed Dunes (Grey Dunes)*
[2170] Dunes with Creeping Willow
[2190] Humid Dune Slacks
[21A0] Machairs*
[4030] Dry Heath
[4060] Alpine and Subalpine Heaths
[6210] Orchid-rich Calcareous Grassland*
[6510] Lowland Hay Meadows
[8240] Limestone Pavement*
[8330] Sea Caves
[1014] Narrow-mouthed Whorl Snail (*Vertigo angustior*)
[1351] Harbour Porpoise (*Phocoena phocoena*)

Inishmore has many good examples of submerged reef communities that are extremely exposed to wave action. On the infralittoral reef are two exceptional communities. Ireland's only recorded example of a population of sublittoral Purple Sea Urchins (*Paracentrotus lividus*) is on the west of the island, while at the reef in

Blind Sound, is found Ireland's best example of an extremely exposed, shallow, infralittoral community that is dominated by a forest of the brown seaweed, *Alaria esculenta*, with a red seaweed and anemone turf. Rare species are present in the infralittoral reef community, including soft corals, sea fans and anemones. In deeper water, there are many unusual and fragile circalittoral reef communities. Communities that are characterized by the rare sea fan, *Eunicella verrucosa*, are widespread and species-rich despite their fragility. A number of other notable circalittoral species are found, including sponges, hydroids, nudibranchs, soft corals and ascidians. Large submerged marine caves on the south-east coast are unusually species-rich (76 species recorded) and are characterized by a diverse fauna of sponges, hydroids, bryozoans, soft corals, anemones, nudibranchs, echinoderms and ascidians. Some of the caves extend back as far as 20 to 30 m. They are probably the best known sea caves in Ireland.

Limestone pavement and its associated plant communities dominate the upland area in the south of the island. The limestone pavement includes smooth-blocky and shattered types. The bare pavement is interspersed with fine examples of species-rich, dry calcareous grasslands. Dry heath, alpine heath and lowland hay meadows are additional habitats which occur on Inishmore.

A network of small, stone-walled fields dissect the island. Many fields enclose areas of limestone pavement and/or fine examples of species-rich, dry calcareous grasslands. Common species include Blue Moor-grass (*Sesleria albicans*), eyebrights (*Euphrasia* spp.), Wood Sage (*Teucrium scorodonia*), Carline Thistle (*Carlina vulgaris*) and Burnet Rose (*Rosa pimpinellifolia*), along with Knapweeds (*Centaurea nigra* and *C. scabiosa*), Orchids, Bloody Crane's-bill (*Geranium sanguineum*) and Spring Gentian (*Gentiana verna*). Two Red Data Book plant species have been recorded, Pyramidal Bugle (*Ajuga pyramidalis*) and Wood Small-reed (*Calamagrostis epigejos*). The latter species is legally protected under the Flora (Protection) Order, 1999.

Dry limestone heath has developed in places, with Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Purple Moor-grass (*Molinia caerulea*) and Black Bog-rush (*Schoenus nigricans*). Hoary Rock-rose (*Helianthemum canum*), a species listed in the Irish Red Data Book, occurs regularly throughout the dry heath and alpine heath habitats on the island. Other species found commonly in the heathy areas include Juniper (*Juniperus communis*), Blue Moor-grass, Bloody Crane's-bill, Quaking-grass (*Briza media*), Oxeye Daisy (*Leucanthemum vulgare*) and Wild Madder (*Rubia peregrina*).

A range of coastal habitats, some of which are listed on Annex I of the E.U. Habitats Directive, occur around the island. Sea cliffs occur along much of the southern coast of Inishmore and reach in excess of 80 m at the south-west end. The cliffs are mostly sheer and very exposed to the force of the Atlantic Ocean. They support a typical cliff flora, including the scarce species Roseroot (*Rhodiola rosea*). Inishmore also supports a variety of karstic lagoons, a type which is believed to be rare in Europe. All are in a natural state and of good quality. Loch Phort Chorrúch and Loch Dearg are good examples of karstic lagoons with cobble barriers. Loch an Chara, in particular, is a

good example of a karstic saline lagoon with underground connections to the sea. It behaves almost like a 'tidal turlough'. The flora is typically lagoonal with three lagoonal specialists. The fauna is not rich but comprises a high number of lagoonal specialists, including the rare corixid species *Sigara selecta* (Order Hemiptera).

Machair is a form of coastal grassland which is characterised by a species-rich, dry calcareous grassland, with a short turf and a low abundance of sand-binding species such as Marram (*Ammophila arenaria*). The coastal habitats of Inishmore support a range of rare plant species. Purple Milk-vetch (*Astragalus danicus*) grows on machair and sandy places close to the sea. It is confined in Ireland to Inishmore and Inishmaan and is legally protected under the Flora (Protection) Order, 1999. Sea-kale (*Crambe maritima*) occurs on coastal sands and shingle around the island; Hairy Violet (*Viola hirta*) and Bee Orchid (*Ophrys apifera*) can be found among the coastal grasslands. All three species are listed in the Irish Red Data Book, and Hairy Violet is legally protected under the Flora (Protection) Order, 1999.

A number of sand dune habitats are found at this site, including embryonic dunes, Marram dunes, Fixed dunes, dunes with Creeping Willow (*Salix repens*) and dune slacks. Sand Couch (*Elymus farctus*) typically dominates the embryonic dunes, with accompanying species such as Sandwort (*Honkenya peploides*), Hairy Rock-cress (*Arabis hirsuta*), Sea Spurge (*Euphorbia paralias*), Sea-holly (*Eryngium maritimum*) and Sea Bindweed (*Calystegia soldanella*). Marram (*Ammophila arenaria*) dominates the Marram, or white, dunes, with some of the species listed above also being found. Additional important species in the fixed dunes include Red Fescue (*Festuca rubra*) and a number of compositae; Groundsel (*Senecio vulgaris*), Common Ragwort (*Senecio jacobaea*) and Dandelion (*Taraxacum* agg.). Rarer species, also linked to the fixed dunes, include Purple Milk-vetch, Autumn Lady's-tresses (*Spiranthes spiralis*), Bee Orchid (*Ophrys apifera*) and Dodder (*Cuscuta epithymum*). In the dune slacks, Creeping Willow, Kidney Vetch (*Anthyllis vulneraria*) and Common Bird's-foot-trefoil (*Lotus corniculatus*) are all common.

On Inishmore, the vegetation of stony banks consists of such species as the rare Red Data Book species Sea-kale, along with Sea Couch, Sea Mayweed (*Matricaria maritima*), Spear-leaved Orache (*Atriplex prostrata*), and Sea Beet (*Beta vulgaris* subsp. *maritima*).

Traditional farming practices, in the form of rye cultivation for thatching, has maintained suitable habitat for a number of Rare and threatened arable weeds. Darnel (*Lolium temulentum*), Smooth Brome (*Bromus racemosus*), Cornflower (*Centaurea cyanus*) and Bristle Oat (*Avena strigosa*) all occur on Inishmore. All four species are listed in the Irish Red Data Book and, prior to their discovery on the Aran Islands, some of these species were thought to have been extinct in Ireland. These lowland hay meadows are excellent examples of this rare and floristically diverse habitat.

The birdlife of Inishmore is considered to be of international significance, due to the presence of significant numbers of bird species listed under Annex I of the E.U. Birds

Directive. Chough, Little Tern, Arctic Tern and Peregrine Falcon all breed here. Additional bird species on Inishmore include Merlin, Kestrel, Sparrowhawk, Linnet and Goldfinch. Along the western coastline, cliffs provide excellent nesting sites for Guillemot, Fulmar, Razorbill, Shag, Herring Gull, Great Black-backed Gull and Kittiwake.

A colony of Common Seals is occasionally seen, resting on the island's shores. This species is listed under Annex II of the E.U. Habitats Directive.

The mollusc, *Vertigo angustior*, a species that is listed on Annex II of the E.U. Habitats Directive, occurs at three different locations within the site, two on dune and one on maritime grass, the latter an unusual habitat for the species. This is the only known island population of this rare snail.

Most of the island is grazed by cattle and sheep and, in places, goats. Agricultural intensity is relatively higher here than on the other two Aran Islands. Parts of the site have been damaged by over-grazing and agricultural improvement. Elsewhere, the abandonment of farming, in favour of tourism and related enterprises, has resulted in the increase in scrub and particularly Bramble (*Rubus fruticosus* agg.) thickets. This is at the expense of species-rich grasslands. An increase in leisure activities, in particular scrambling and walking, on the Marram dunes at the east of the island, has resulted in damage to this habitat. Maintenance of traditional farming practices, which include winter grazing, absence of fertilisers and the cultivation of rye for thatching, is vital to preserve the species-richness and high diversity of the island flora. Development plans for tourism and amenity require close monitoring, to safeguard the wildlife and scientific value of this unique environment.

Inishmore is of considerable scientific interest primarily for the wide range of good quality habitats which occur, and the floristic richness of many of these habitats. The island supports an impressive array of rare and threatened plant species, and it also provides excellent habitat for several bird species. The cultural heritage of Inishmore (and in particular the continuation of traditional, low-intensity farming practices) is intrinsically linked with its scientific interest. The island is also of high scenic and amenity value.

SITE SYNOPSIS

Site Name: Kilkieran Bay and Islands SAC

Site Code: 002111

Kilkieran Bay and Islands SAC is located just north of Galway Bay and extends from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna, all in Co. Galway. The site contains a large area of open marine water, many islands and rocky islets, and the coastline is much indented with a series of bays (notably the inter-connected Kilkieran Bay and Greatman's Bay), channels and inlets. The entrances of the bays face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels. A number of streams, lakes and lagoons drain into the bays. The bedrock of the site is igneous, composed of granite, felsite and other intrusive rocks rich in silica. Generally, the site has a rocky shoreline which in most places gives way to mud in shallow water. The surrounding land is dominated by lowland blanket bog, with rock outcrops and small hills to the north.

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):

[1140] Tidal Mudflats and Sandflats
[1150] Coastal Lagoons*
[1160] Large Shallow Inlets and Bays
[1170] Reefs
[1330] Atlantic Salt Meadows
[1410] Mediterranean Salt Meadows
[21A0] Machairs*
[3130] Oligotrophic to Mesotrophic Standing Waters
[6510] Lowland Hay Meadows

[1355] Otter (*Lutra lutra*)
[1365] Common (Harbour) Seal (*Phoca vitulina*)
[1833] Slender Naiad (*Najas flexilis*)
[1351] Harbour Porpoise (*Phocoena phocoena*)

The marine habitats found within Kilkieran Bay and Greatman's Bay are of very high conservation value. Both bays have a wide variety of habitats and Kilkieran Bay has a very high diversity of marine species (only Kenmare River is more diverse than Kilkieran Bay, according to studies thus far carried out). A high number of species that are rare or considered to be worthy of conservation in Ireland occur in the area.

Communities of particular importance are the extensive and varied beds of free-living red calcareous algae or maerl (which may be known locally as 'coral'). Kilkieran Bay is one of three known localities in Ireland where the maerl species *Lithothamnion corallioides, Lithophyllum dentatum* and *Lithothamnion fasciculatum* co-occur. The range of maerl deposits in Kilkieran Bay, including banks of maerl debris, live maerl and mixtures of maerl, gravel and mud gives rise to a variety of communities. Within these communities are a number of rare anemones, e.g. *Scolanthus callimorphus, Mesacmaea mitchellii* and *Aureliania heterocera*. The last-named species is rare in Ireland, being known only from Donegal Bay and Kilkieran Bay, as well as a small number of areas on the north-east coast. The population in this site is the largest on the west coast. Kilkieran Bay is the only known Irish locality for the anemone *Mesacmaea mitchellii*. *Scolanthus callimorphus*, another anemone species, is known only from Kilkieran Bay, Valencia Harbour in Co. Kerry and the Dorset coast in the U.K. The best recorded example of the community characterised by the sea cucumber *Neopentadactyla mixta* occurs in the banks of dead maerl of Kilkieran Bay. The very rare anemone *Halcampoides elongatus*, known only from Kilkeran Bay and Ards Bay in Ireland, occurs in a narrow bed of clean dead maerl at the edges of some of the live maerl beds. Greatman's Bay, like Kilkieran Bay, has extensive maerl beds. A population of the large burrowing anemone *Pachycerianthus multiplicatus* occurs at two muddy sites within Kilkieran Bay and is known from only three other localities in Ireland. The seagrass *Zostera marina* occurs in a number of areas in Kilkieran Bay and in some areas co-occurs with maerl. This association is known from a number of areas in Ireland but has not been recorded in the U.K. Beds of the native oyster *Ostrea edulis* occur in Inner Kilkieran Bay. The outer part of the site has sandy bays, e.g. Mweenish Bay, which support populations of polychaetes, burrowing anemones and bivalves. Sheltered shores have a variety of communities down the shore, with the lower shore generally being species-rich and supporting a variety of polychaetes and bivalves.

The rocky shores of the site are comprised of bedrock or a mixture of bedrock, boulders and gravel; they support a very wide variety of shore communities, with the zonation being typical of shores that range from being exposed to wave action through to extremely sheltered shores and some tide-swept shores. Shores exposed to wave action have a zonation of Channel Wrack (*Pelvetia canaliculata*) and barnacles in the upper shore, Bladder Wrack (*Fucus vesiculosus*) and barnacles in the mid shore, Serrated Wrack (*Fucus serratus*) in the low shore and the kelp *Laminaria hyperborea* on the very low shore. Sheltered shores have the mid shore dominated by Knotted Wrack (*Ascophyllum nodosum*). In the inner part of both bays the brown alga *Ascophyllum nodosum* var. *mackii*, which has very specific habitat requirements, is found. The rapids at Carrickaglegaun Bridge, Lettermore Island, are extremely species-rich (119 species recorded) and include the rarely-recorded star fish *Asterina phylactica*. This represents the highest number of species recorded on any shore in a recent Irish survey. The inner parts of Kilkieran Bay have channels to several extensive lagoons.

Mixed kelp forests of *Laminaria hyperborea* and *Laminaria saccharina* frequently form a canopy in the very sheltered areas. In contrast, in exposed situations there are

extensive areas of *Laminaria hyperborea*, in particular to the south of Golam Head. The rare alga *Dermocorymus montagnei* is known only from the very sheltered narrow inlet Coill Saile on the northern shore of Kilkieran Bay and a handful of sites in Brittany, France. Also in this creek are large plants of the maerl species *Phymatolithon polymorphum* on which the rare, creeping red alga *Gelidiella calcicola* and the recently described *Gelidium maggsiae* occur. The creek is also unusual for its large population of the red alga *Meredithia microphylla*, which is more characteristic of exposed areas, and for the large form of the sea slug *Akera bullata* var. *farrani*.

In Kilkieran Bay, on subtidal reefs dominated by animals, the sponge/sea squirt community of *Raspailia ramosa* and *Corella parallelogramma* is widespread; the best examples in Ireland of this community occur in Gurraig Sound within the site, where a high diversity of encrusting and branching sponges and ascidians are found. The rare sponges *Plakortis simplex* and *Tricheurypon viride* are found in this community. In more exposed situations such as the Namackan Rocks there are good examples of the Axinellid sponge community with the sea fan *Eunicella verrucosa*. The sponge *Axinella damicornis* occurs here and although it is found at ten locations on the west coast it is never abundant. *Phakellia vermiculata*, a deep-water species, has been recorded in shallow water at only a limited number of locations on the south-west and west coasts of Ireland.

The site is extremely important for the number of lagoons that it includes - it is considered to be one of the best sites in the country for this habitat and provides an excellent example of a particularly unusual type of saline lake lagoon situated on peat. This habitat type appears to be rare in Europe but characteristic of south Connemara. Examples of lagoons in the site include Lettermullen Pool, Lough Tanai, Mill Lough, Carafinla Lough, the Lough Fhada complex and Loch an Aibhnín.

Taking one lagoon as an example, Lettermullen Pool is approximately 1 ha in size, and represents a particularly good example of a rock lagoon lying on granite. Salinity is generally high, but freshwater is received from a small stream and from several small groundwater springs at the edges. The vegetation comprises an interesting community of Spiral Tasselweed (*Ruppia cirrhosa*) and the stonewort *Lamprothamnion papulosum* (both of which are lagoonal specialists), along with Eelgrass (*Zostera marina*) and small amounts of red algae. This community is found only in south Connemara. The fauna is rich, particularly for such a small lagoon, with 52 taxa recorded from a wide range of ecological groups, with five lagoonal specialists.

Areas of saltmarsh occur frequently throughout the site - a thin fringe of saltmarsh is found along most stretches of coastline. The habitat occurs most frequently in the many sheltered bays in the eastern half of the site and has developed in the lee of causeways built to connect islands to the mainland, e.g. Gorumna Island. The area of saltmarsh between Costelloe and Kinvara is particularly well-developed and extensive. The saltmarshes in the site are of the fringe type and most occur on peat. Although there are a large number of discrete and often narrow areas, taken together the habitat within the site is likely to be one of the largest areas of saltmarsh on peat in the country. The saltmarshes on the site include both the Atlantic and

Mediterranean types, but low-growing Atlantic salt meadow appears to be the most common. The vegetation is typically dominated by various mixtures of species such as Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Saltmarsh-grass (*Puccinellia maritima*), Creeping Bent (*Agrostis stolonifera*), Sea Plantain (*Plantago maritima*), Buck's-horn Plantain (*P. coronopus*) and Sea Aster (*Aster tripolium*). Stands of Sea Rush (*Juncus maritimus*) occur in the site, and these correspond to the Mediterranean salt meadow type.

Machair occurs most extensively on Mweenish Island, Finish Island and Mason Island, which lie in the west of the site. These machair areas appear to be the remains of formerly more extensive systems; they are some of the most southerly machair systems in the country and are of conservation value from both vegetational and geomorphological perspectives. Common species include Red Fescue, White Clover (*Trifolium repens*), Yarrow (*Achillea millefolium*), Daisy (*Bellis perennis*), Sand Sedge (*Carex arenaria*), Bulbous Buttercup (*Ranunculus bulbosus*), Ribwort Plantain (*P. lanceolata*), Wild Thyme (*Thymus praecox*), Common Mouse-ear (*Cerastium fontanum*), Selfheal (*Prunella vulgaris*), among others, as well as a number of moss species.

Lowland hay meadows are relatively rare within the site, but some good examples are known. The habitat is most commonly found in small, unimproved fields located behind beaches, which are influenced by blown sand. Perhaps the most extensive area of the habitat is to be found at Ardmore Point. The vegetation here is dominated by a species-rich mixture of grasses and low- to medium-sized forbs. A number of relatively rare orchids and other vascular plants have been recorded from this site, including Lesser Butterfly-orchid (*Platanthera bifolia*), Common Twayblade (*Listera ovata*) and Autumn Lady's-tresses (*Spiranthes spiralis*).

The submerged aquatic plant Slender Naiad (*Najas flexilis*) occurs in several of the coastal freshwater lakes. These are oligotrophic lake systems and include Lough Keeraun, Lough Truskan, Lough Killa and Lough Natawnymore. Slender Naiad is listed on Annex II of the E.U. Habitats Directive and also on the Flora (Protection) Order, 2015.

Otter, a species also listed on Annex II of the E.U. Habitats Directive, occurs commonly throughout the site. The site is used by Common Seal (maximum count of 116 in the all-Ireland survey of 2003). Grey Seal is a regular visitor and may breed.

The islands and islets of Kilkieran Bay, mainly those on its western side, are important for their colonies of seabirds, particularly breeding terns - Arctic Tern (99 pairs recorded in 1995; 308 pairs, 1984), Common Tern (47 pairs, 1995; 371 pairs, 1984), Little Tern (7-9 pairs, 1995; 11 pairs 1984). All of these tern species are listed on Annex I of the E.U. Birds Directive. Inishmuskery, and probably other islands, are used by a population of Barnacle Goose in winter (370 in spring 1994), a species that is also listed on Annex I of the Birds Directive. Eagle Rock is of interest for its population of Black Guillemot (30 individuals, 1984). The site also supports colonies of gulls - Herring Gull (310 individuals, 1994), Great Black-backed Gull (6 individuals, 1984) and Black-headed Gull.

Kilkieran Bay and Islands is an extensive coastal complex site that is of high conservation value, particularly for the fine examples of marine and terrestrial E.U. Habitats Directive Annex I habitats that it supports and for its important Slender Naiad, Otter, seal and seabird populations.