

Specialist Report to Inspector

R318408_App1

Development:	Construction within the Newmarket-on-Fergus
	Wastewater Treatment Plant, high chemical
	storage tanks, ground discharge pumping station,
	high tertiary treatment system, electrical control
	kiosk, standby generator, outfall rising main, outfall
	diffuser and site development works.
Type of Application:	Normal Planning Appeal
Торіс:	Impact of proposed development during the
	construction phase on the saltmarsh and intertidal
	flats QIs of the Lower River Shannon SAC
Ecologist	Conor Donnelly
Planning Inspector	Gary Farrelly
Date:	5 th November 2024

Contents

1.0	Introduction	2
2.0	Information on QIs at the proposed outfall	4
3.0	Conservation objectives	7
4.0	Appropriate assessment screening and the Natura Impact Statement (NIS)	8
5.0	Mitigation 1	1
6.0	Submissions 1	5
7.0	Conclusion 1	5

1.0 Introduction

1.1. Scope of Report to Inspector

- 1.1.1. This report to the Inspector and available to the Board is a written record of my review and examination of the submitted information provided by the applicant specifically regarding the impact of the proposed development during the construction phase on the qualifying interests (QIs) of the Lower River Shannon SAC, with particular focus on the following QIs:
 - Atlantic salt meadows (1330)
 - Mudflats and sandflats not covered by seawater at low tide (1140) (hereafter referred to as 'intertidal flats')
- 1.1.2. These habitats have the potential to be affected by the part of the proposed development involving construction of a rising main on the south bank of the River Rine and its connection to an outfall diffuser to be installed in the riverbed.
- 1.1.3. I have reviewed and examined the following documents including relevant appendices and figures:
 - Report to Inform the Screening of Appropriate Assessment. July 2023.
 - Natura Impact Statement. July 2023. Note: where 'NIS' is referred to in this document this is referring to the updated July 2023 version.
 - Construction Environmental Management Plan (CEMP). July 2023.
- 1.1.4. I have also considered the submissions received, further information (FI) requests made and the applicant's response to the FI.
- 1.1.5. The documents have been reviewed with respect to the following current best practice guidance:
 - European Commission (2019). Managing Natura 2000 sites the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC¹.

¹ <u>https://op.europa.eu/en/publication-detail/-/publication/11e4ee91-2a8a-11e9-8d04-01aa75ed71a1</u>

 European Commission (2021). Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC. 2021/C 437/01².

1.2. Expertise and technical content of reports

1.2.1. The AA Screening report and NIS were prepared by suitably qualified and experienced Ecologists from Mott MacDonald using appropriate guidance.

A report providing further details of the proposed saltmarsh translocation was provided as part of the applicants response to the FI request by Clare County Council (July 2023). The report entitled, "Outline of salt marsh translocation along the Rine river, Newmarket-on-Fergus, Co. Clare" is enclosed within Appendix A of the FI response and was prepared by Dr. John Conaghan, dated 26th July 2023. I note that Dr. Conaghan is an experienced botanist who was part of the team who undertook the successful translocation and reinstatement of saltmarsh for the Corrib Gas Pipeline project at Leenamore Inlet, north-west Mayo in 2013.

1.2.2. Scientific information on surveys, nature conservation sites, species, and habitats is adequate and up to date (at the time of submission) and, with regard the QIs I've been asked to consider in this report, included a walkover survey carried out using appropriate guidance in June 2021 and a follow-up survey in September 2022.

In his report, Dr. Conaghan describes the saltmarsh at the proposed outfall on the River Rine and by inference this appears to have been based on information from a site visit, but this is not made explicitly clear in his report.

² <u>https://op.europa.eu/en/publication-detail/-/publication/99a99e59-3789-11ec-8daf-01aa75ed71a1/language-en/format-PDF/source-search</u>

2.0 Information on QIs at the proposed outfall

2.1. Atlantic salt meadows

2.1.1. Existing information on saltmarsh in the vicinity of the outfall site comes from the Saltmarsh Monitoring Project (SMP) surveys in 2007-2008 (McCorry & Ryle, 2009)³. This report forms a key source in the saltmarsh conservation objectives⁴ and the supporting document for coastal habitats⁵, including for the Atlantic salt meadows QI.

The closest SMP survey station (SMP site code: 0082; site name: Shepperton, Fergus Estuary) is located to the west of Latoon Bridge, such that the northern boundary of the survey area is immediately downstream of the proposed outfall (see Figure 1).

https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002165.pdf

³ McCorry, M. & Ryle, T. (2009). Saltmarsh Monitoring Project 2007-2008. Volume 2. Contract Reference D/C/227. Final Report (2009). A Report for Research Branch, National Parks and Wildlife Service. https://www.npws.ie/sites/default/files/publications/pdf/McCorry & Ryle 2009 Saltmarsh survey V2.pdf

⁴ NPWS (2012) Conservation Objectives: Lower River Shannon SAC 002165. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁵ Lower River Shannon SAC (site code 2165). Conservation objectives supporting document - coastal habitats. NPWS. Version 1, May 2012.

https://www.npws.ie/sites/default/files/publications/pdf/002165_Lower%20River%20Shannon%20SAC%20Co astal%20Supporting%20Doc V1.pdf



Figure 1. Northern section of the SMP survey station 0082, Shepperton, Fergus Estuary. The northern limit of the survey area is at Latoon Bridge. Note: the survey station extends further south beyond the area shown in the above figure (source: McCorry & Ryle, 2009).

- 2.1.2. A more recent Saltmarsh Monitoring Project was undertaken in 2017-2018 (Brophy *et al.*, 2019)⁶, using a revised survey methodology. It covered 85 sites including survey station 0082 at Shepperton.
- 2.1.3. Application-specific information comes from the walkover of the proposed development site in June 2021 and follow-up survey in September 2022. It also appears that Dr. Conaghan's report includes information from a site visit, but this is not made explicitly clear.
- 2.1.4. Based upon the information in the NIS and Dr. Conaghan's report the saltmarsh occupies a relatively narrow fringing zone (circa 30m wide) along a tidal riverbank. There is an estuarine influence on the vegetation with brackish vegetation including sea club-rush (*Bolboschoenus maritimus*) dominant. Dr Conaghan notes that,

⁶ Brophy, J.T., Perrin, P.M., Penk, M.R., Devaney, F.M. & Leyden, K.J. (2019) Saltmarsh Monitoring Project 2017-2018. Irish Wildlife Manuals, No. 108. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland. <u>https://www.npws.ie/sites/default/files/publications/pdf/IWM108.pdf</u>

"saltmarsh indicator species such as Aster tripolium, Plantago maritima, Glaux maritima and Cochlearia sp. are present but at low cover. There can be little doubt that the functioning of the habitat and vegetation zonation has been significantly altered by the construction of a river embankment in the past. The saltmarsh habitat quality is generally good within the survey area due to low levels of grazing and other disturbance".

The NIS describes a mosaic of non-Annex upper saltmarsh (CM2 under the Fossitt Habitat Classification) and Annex 1 Atlantic salt meadows changing to fringing reedbed (FS1) dominated by common reed, to the west and further upstream of the proposed development site (see Figure 2).



Figure 2. Habitat map of River Rine discharge point where works are proposed (source: NIS, July 2023).

2.2. Intertidal flats

2.2.1. The NIS does not provide a map of this habitat in the proposed development area but describes the QI as occurring in small areas under the M18 over pass and implies that shading from the bridge prevents vegetation from developing here.

Map 9 of the Lower River Shannon SAC conservation objective shows the marine community types present in the site including the two communities listed under the intertidal flats QI and these do not appear to be shown as occurring in the proposed outfall area. However, it should be noted that these maps are indicative only.

3.0 **Conservation objectives**

3.1. Atlantic salt meadows

3.1.1. The Atlantic salt meadows QI in the Lower River Shannon SAC has a 'restore' conservation objective.

The Conservation Objectives supporting document for coastal habitats indicates that the main factors behind the unfavourable condition of the habitat in the SAC as:

- Loss of habitat at four of the SMP sub-sites which affects the habitat extent attribute;
- Overgrazing and poaching affecting vegetation height and cover, and;
- Expansion of the invasive alien species, common cordgrass *Spartina anglica* which is a negative indicator species. The latter pressure is described by the supporting document as, "*the main impact affecting the SAC*".
- Historic reclamation of saltmarsh habitat behind embankments is also noted but does not appear to be described as a current factor behind unfavourable condition. Nonetheless, the supporting document notes that the target for the 'physical structure: sediment supply' attribute' is to maintain, or where necessary restore, the natural circulation of sediment and organic matter, without any physical obstructions.
- 3.1.2. The SMP 2007-2008 (McCorry & Ryle, 2009) provides useful information on saltmarsh in the Shepperton survey station immediately downstream of the proposed outfall. The saltmarsh was assessed as unfavourable due to the impact of repair works to parts of the embankment which involved excavating soil from the saltmarsh and putting it on top of the berm. This activity left deep bare trenches of mud in the marsh and some of these have re-vegetated with a mosaic of *Spartina* sward and Atlantic salt meadow or with stands of sea club-rush. This activity reduced the extent of Atlantic salt meadow habitat and also unfavourably affected habitat structure and function of the QI.

- 3.1.3. The most recent SMP report (Brophy *et al.*, 2019) continues to assess the saltmarsh at Shepperton as unfavourable. Whilst saltmarsh area is considered favourable, the report notes that targeted measures are required to improve saltmarsh structure and function and spread of *S. anglica* is likely to continue.
- 3.1.4. With regards the site of the proposed works, aside from the construction of the embankment, the factors referred to in the conservation objectives as impacting condition of the Atlantic salt meadows QI do not appear to be locally important. In his report, Dr. Conaghan notes that the site is subject to low levels of grazing and other disturbance and neither he nor the walkover surveys undertaken to inform the NIS refer to the presence of *Spartina* at the site, nor is there reference to use of the saltmarsh soil for repairs to the embankment as has occurred in the Shepperton SMP survey station. With regards the presence or absence of Spartina at the proposed development location, McCorry & Ryle, 2009, in their assessment of the Shepperton SMP survey station note that, "there is a significant decline in the abundance and distribution of Common Cordgrass further upstream where conditions become more estuarine and it is effectively replaced by sea club-rush or common reeds within the Latoon Creek".

3.2. Intertidal flats

3.2.1. The intertidal flats QI of the Lower River Shannon SAC has a 'maintain' conservation objective.

4.0 Appropriate assessment screening and the Natura Impact Statement (NIS)

4.1. Appropriate Assessment Screening

4.1.1. The Appropriate assessment screening report prepared by the applicant concluded that there is a potential for significant effects to the Lower River Shannon SAC in view of the sites' conservation objectives. I note that no in-combination effects were identified by the applicant at screening stage but the conclusion of the screening report is that the proposed development could have significant effects alone and in combination with other plans or projects.

- 4.1.2. The significant effects arising from the proposed development include potential direct and indirect impacts to the SAC's QIs including Atlantic salt meadows and intertidal flats.
- 4.1.3. As likely significant effects on the SAC cannot be excluded on the basis of objective information an appropriate assessment of the implications of the proposed development on the integrity of the site is required and an NIS was prepared by the applicant.

4.2. NIS

- 4.2.1. In accordance with the scope of this report, my assessment of the applicant's NIS has focused on potential impacts arising during construction on the Atlantic salt meadows and intertidal flats QIs. Detailed comments are set out below.
- 4.2.2. The in-combination section refers to some works that have been completed (works to Latoon Creek Bridge, see section 5.6.2.1 of the NIS). These should be as assessed as part of baseline conditions rather than as an in-combination project. Nonetheless, the works were found not to have an in-combination effect with the proposed development.
- 4.2.3. Section 5.7.1 of the NIS assesses the potential for adverse effects on the integrity of the Lower River Shannon SAC. It identifies a number of potential impacts to the Atlantic salt meadow and intertidal flats QIs:
 - Potential for direct impact to several QIs including the Atlantic salt meadows and intertidal flats.
 - Potential for impact to Atlantic salt meadows and Mediterranean salt meadows from dust
 - Potential for impact to QIs including the intertidal flats from surface water emissions.

These potential for adverse effects are assessed further for each QI in Table 5.3 of the NIS.

4.2.4. Table 5.3 provides a combined assessment for the Atlantic salt meadows and Mediterranean salt meadows QIs. It identifies a potential adverse effect on site integrity arising from the impact of the proposed works on these QIs before implementation of mitigation. I note that the potential impact on the habitat area

attribute focuses solely on the area information from the Atlantic salt meadows conservation objective, it doesn't consider the information from the Mediterranean salt meadows objective. Given the risk of these sort of errors or omissions, it would have been better to assess the two QIs separately. Having said this, I do not consider the omission affects the ultimate conclusion of the assessment in relation to the Mediterranean salt meadows QI since the QI has not been identified in the area of the proposed development from the site-specific surveys, although it has been recorded in the vicinity (SMP Shepperton survey station; Brophy *et al.*, 2019) and the proposed mitigation measures would avoid loss of habitat even if it were present.

- 4.2.5. I note that Table 5.3 does not include all the saltmarsh attributes listed under the Atlantic salt meadows and Mediterranean salt meadows QIs; the vegetation structure: vegetation height and vegetation cover attributes for both QIs are omitted. The proposed development will require works within the Atlantic salt meadows QI which has the potential to affect vegetation cover in the habitat, particularly if the proposed translocation and then reinstatement of the marsh is unsuccessful. The conservation objectives supporting document for coastal habitats notes that, in relation to the vegetation cover attribute, "excessive bare mud is often a sign of overuse by livestock or humans and can lead to destabilisation and accelerated erosion of the system". If the proposed development were to give rise to a similar effect, this could constitute an adverse effect on site integrity unless mitigated for. However, I consider the mitigation proposed for the saltmarsh habitats addresses this risk.
- 4.2.6. With regards the intertidal flats QI, no potential adverse effects on site integrity in relation to the potential impact of the proposed works are identified in Table 5.3 of the NIS.
- 4.2.7. Taking into account my comments above, I consider the NIS has otherwise identified the potential impact pathways and assessed potential impacts on the Atlantic salt meadows and intertidal flats QIs correctly and I agree with the conclusions reached.

5.0 Mitigation

5.1. Saltmarsh translocation and reinstatement

- 5.1.1. Section 6.7 and Table 6.6 of the NIS provides details of the mitigation proposed to address potential loss of saltmarsh and disturbance to its structure and function from the proposed development.
- 5.1.2. It provides evidence that the proposed approach involving translocation of the saltmarsh, its temporary storage and then its reinstatement will be effective in this location. The evidence cited is Louise Denning's PhD thesis (December 2017), entitled, "Vegetation recovery of saltmarsh and sand dune habitat following cable and pipeline installation" and experience from the one previous instance where this method has been used in Ireland before, the Corrib Gas Pipeline at the Leenamore Inlet, northwest Mayo.
- 5.1.3. <u>Denning, 2017</u>

The NIS quotes Denning, "...in the mid-upper marsh, as shown at South Morecambe (and at Corrib Pipeline (Neff, 2014)), impacts to this vegetation zone can be successfully minimised by lifting and reinstating turves (especially in areas dominated by *Festuca rubra, Juncus gerardii* or *Puccinellia maritima*)."

Denning also made the following findings in relation to the Corrib pipeline works which are relevant to the proposed development:

"The main challenges included the temporary storage of the turves at the correct height in the intertidal zone for as short a period as possible; and then reinstating those turves at the correct elevation to ensure the correct vegetation type was maintained. The GPS location of each of the 182 saltmarsh turves were recorded before being lifted, and their location in the temporary storage area mapped, so that each turf could be returned to its original location after pipeline installation. The turves were lifted and stored for 10 days during pipeline installation. The reinstatement was considered a success".

"Further difficulties arise with turf storage as the turves and plugs cannot be stacked and require regular watering and attention (as found at both Corrib Gas Onshore Pipeline and South Morecambe). As with seeding the optimal time for planting is from

mid-spring/early summer. Hot weather should be avoided to avoid the shock of being transplanted".

5.1.4. Corrib Gas Pipeline, 2013

The NIS refers to the Corrib Biodiversity Action Plan $2021 - 2026^7$ (hereafter referred to as the Corrib BAP) and notes that the proposed saltmarsh mitigation is in line with the measures followed during the construction of the Corrib Gas Pipeline.

The construction of the pipeline at the Leenamore Inlet disturbed saltmarsh habitat which is described as Annex 1 habitat, although not a QI of the SAC the area occurs within (Glenamoy Bog Complex SAC).

The Corrib BAP describes the reinstatement of the saltmarsh as successful and provides photographs showing the area during construction and the same location following reinstatement with vegetation present. Section 8.4.7 of the BAP provides a table listing the plant species recorded at the Leenamore Inlet and a simple indication of presence/absence from the pre-construction surveys in 2008 and 2012 and then post-construction surveys in 2016 and 2019. For the post-construction surveys, information is also provided on the broad location in which the species occurs, namely within the saltmarsh, in the margins, in the western track or on the intertidal.

In referring to this information in the BAP, the NIS notes that virtually all species surveyed within the permanent quadrats have remained present with the exception of two higher plants and one bryophyte. The NIS describes the higher plants as non-saltmarsh plants and notes that none of the plants occur at the proposed development. I note the NIS omitted a third higher plant listed in section 8.4.7 of the BAP, marsh pennywort *Hydrocotyle vulgaris*, that has also been absent post-construction but as with the other species referred to above this wouldn't be a 'typical species' in terms of the Atlantic salt meadows QI (Table 9, Brophy *et al.*, 2019).

The NIS states that, "*it is important to note that the Corrib saltmarsh impacted was much more extensive and had a higher diversity of species* [than the site of the proposed works] *including non-typical saltmarsh species detailed above*". The area

⁷ Vermilion E&P Ireland Limited. Corrib Biodiversity Action Plan 2021-2026. <u>https://www.vermilionenergy.com//ie/wp-content/uploads/sites/8/2023/01/VER-BiodiversityPlan-FULL-Apr21-v14-web-1.pdf</u>

disturbed by the Corrib works covered an area of 2000m² (0.2ha)⁸ which is significantly greater than the area affected by the proposed works, described as <0.04ha in the NIS.

- 5.1.5. In Table 6.6 of the NIS, it is stated that work within the saltmarsh habitat will be undertaken from 'outside of the marked-out area', using a long reach excavator. I would recommend confirming with the applicant that vehicles, including the excavator, will not be operated on the saltmarsh on either bank of the River Rine.
- 5.1.6. On the basis of my consideration of the information in the NIS, further information report provided by the applicant and the additional technical reports referred to above, I agree with the conclusion of the applicant, in their Further Information Response, that the mitigation to translocate and reinstate the saltmarsh will be effective with a high degree of confidence, provided it is implemented in full as set out in Table 6.6 of the NIS.

This assessment is based on the experience with the successful Corrib Gas Pipeline saltmarsh translocation and reinstatement, which used the same methods, involved similar mid-upper marsh habitat and taking into account that it affected a significantly larger, more species diverse area of habitat. The vegetation composition of the proposed development site includes species which have been shown to be suited to this approach.

5.2. Saltmarsh restoration

5.2.1. The mitigation identified in Table 6.6 of the NIS also covers a 'worst-case scenario' where turve integrity is not retained during storage and/or saltmarsh vegetation dies off. An adaptive approach is proposed here, whereby post-construction monitoring will assess whether the saltmarsh vegetation reinstatement is successful. Should the reinstatement prove unsuccessful, a commitment is made to reprofile and re-seed the mud with seed material from the local saltmarsh habitat.

The NIS does not go into significant detail of this mitigation. However, evidence from the site supports the conclusion of the client's ecologist that provided mitigation is carefully implemented it would be expected, with a high degree of confidence that saltmarsh will be re-established successfully (Applicant's response to FI request). In

⁸ <u>https://assets.gov.ie/85801/99579f73-02ff-48cf-a8e9-9cd09f999440.pdf</u>

their analysis of impacts on the Shepperton SMP survey station, and specifically the removal of saltmarsh soil to repair embankments, McCorry & Ryle (2009) state that the trenches so created, "become infilled with fresh mud and gradually become revegetated – at first with Spartina or sea club-rush. However, the spread of Common Saltmarsh-grass among some of these areas is indicative of the restoration of some ASM [Atlantic salt meadow] vegetation".

Should the re-instatement fail and re-profiling and re-seeding is required, the consequences of this would be slower recovery time post-construction and the risk of the negative indicator species *S. anglica*, colonising areas of bare mud / disturbed soil. This is important given *Spartina* is a negative indicator species and, according to the conservation objective supporting document for coastal habitats, is the main factor behind unfavourable condition of the Atlantic salt meadows QI in the site. Brophy *et al.* (2019) consider *Spartina* control measures in their report and note the potential benefit of removing small infestations of *S. anglica* but this is focused more on waterbodies which are otherwise uninvaded, so less relevant here. However, as previously noted, *Spartina* is less likely to colonise the more estuarine conditions present at the proposed development site and colonisation by sea club-rush or common reeds already present at the site (NIS walkover surveys; Conaghan, 2023) is more likely.

Guidance is available on saltmarsh restoration in the UK and Ireland (Environment Agency, 2023⁹) which draws on experience in the successful restoration of saltmarsh (e.g. from managed realignments) and provides recommendations on restoration methods which can be used to inform the mitigation measures should this approach be required.

5.3. Other mitigation (water quality impacts to surface water, dust)

5.3.1. The mitigation identified in relation to water quality impacts to surface water and dust is detailed in Tables 6.2 and 6.3 of the NIS. I note these measures are based on standard best practice and relevant industry guidelines and consider that these

⁹ Hudson, R., Kenworthy, J. and Best, M. (eds) (2023). Saltmarsh Restoration Handbook: UK and Ireland. Environment Agency, Bristol, UK. <u>https://catchmentbasedapproach.org/learn/saltmarsh-restoration-handbook/</u>

address the potential impact pathways identified, i.e. prevent / remedy the uncontrolled release of pollutants and dust into the environment.

6.0 **Submissions**

6.1.1. I have considered the submissions received relevant to the appropriate assessment process including those from the DAU in preparing this report.

7.0 Conclusion

- 7.1.1. With regard the impact of the proposed development during the construction phase on Atlantic salt meadow and intertidal flats QIs of the Lower River Shannon SAC, having reviewed the NIS and the supporting documentation including appendices, submissions, FI requests and response received to these, and in consideration of my detailed comments above, I am satisfied that together this provides adequate information in respect of the baseline conditions, identifies the possible impacts and any potential adverse effects in relation to these QIs and uses the best scientific information and knowledge to determine those effects in view of their conservation objectives.
- 7.1.2. Details of mitigation measures to exclude adverse effects are provided and will be implemented via the CEMP. I consider the mitigation measures as detailed to be best practice, follow established guidelines (where applicable) and will be effective in achieving their aims.
- 7.1.3. I would recommend confirming with the applicant that vehicles, including the excavator, will not be operated on the saltmarsh on either bank of the River Rine.
- 7.1.4. Taking mitigation measures into account, the applicant determined that the development will not result in any adverse residual effects on these QIs and has not contributed and will not contribute to any cumulative effect when considered in combination with other plans and projects.
- 7.1.5. I consider that adverse effects on the integrity of the European site in relation to these QIs can be excluded and there is no reasonable doubt remaining as to the absence of such effects.

smelly.

Conor Donnelly Inspectorate Ecologist 5th November 2024