

19 AGRICULTURE

19.1 Introduction

This chapter reports the assessment of likely significant effects of the Proposed Scheme on the agricultural environment. In accordance with the requirements of the EIA Directive, it identifies, describes and assesses the likely significant agricultural effects of the Proposed Scheme on the receiving environment during the Construction and Operational Phases of the Proposed Scheme.

This chapter sets out the methodology used, describes the existing environment, examines the likely significant effects of the Proposed Scheme, proposes mitigation measures and identifies the residual effects. The assessment has been conducted in accordance with best practice guidance and methodology.

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The professional judgement expressed herein is the true and bona fide opinion of the professional agronomist. The information prepared and provided is accurate at the time of issue of this report and has been prepared and provided in accordance with the Philip Farrelly & Co Code of Professional Conduct.

A full description of the Proposed Scheme is detailed within Chapter 5 (Project Description) of this Environmental Impact Assessment Report (EIAR). An outline Construction Method Statement is included in Appendix 5.1.

This chapter should be read in conjunction with the following chapters of the EIAR and supporting documentation:

- Chapter 3 (Consultations)
- Chapter 5 (Project Description)
- Chapter 6 (Biodiversity: Aquatic)
- Chapter 7 (Biodiversity: Terrestrial and Birds)
- Chapter 17 (Waste)
- Chapter 20 (Interactions and Cumulative Effects)
- Chapter 21 (Mitigation Measures and Conclusions)

This chapter is also supported by the following documents:

- IBE1760Rp026_Burnfoot Buildability O&M Report

19.2 Assessment Methodology

19.2.1 Methodology

A methodological approach in accordance with best practice and guidance was adopted to assess the impact of the Proposed Scheme on the agricultural environment, as outlined in Table 19.1.

Table 19.1: Methodological Approach for the Agriculture Assessment

Tasks	The Proposed Scheme	Parameters
1. Define Proposed Scheme elements that affect agriculture	Flood Embankments to be removed	What is being proposed?
2. Define the Proposed Scheme phases	Construction Phase (defined in Section 19.4.1) Operational Phase (defined in Section 19.4.2)	When and for what duration are the effects likely to be experienced?
4. Define assessment parameters	Farm sensitivity (defined in Section 19.2.8.4) Impact magnitude (defined in Section 19.2.8.2) Duration (defined in Section 19.2.8.3)	List potential impacts based on professional judgement
5. Define level of effect	Significance of effects are defined according to Section 19.2.9 and are as follows: <ul style="list-style-type: none"> • Imperceptible (not significant) • Not Significant (not significant) • Slight (not significant) • Moderate (significant) • Significant (significant) • Very Significant (significant) • Profound (significant) 	How to describe and compare the predicted impacts?
6. Define impact scale	National (Defined in Section 19.2.1.1) County (Defined in Section 19.2.1.1) Individual farm level (defined in Section 19.2.1.1)	Consider the wider implications?
7. Present assessment results.	Presented in Section 19.4 Impact Assessment through to 19.9 Summary of Effects.	-

The following definitions are used in carrying out the assessment of the agricultural impact:

- Field: an area of land which is surrounded by a permanent boundary (fence, ditch, hedge, wall, etc.) and is not subdivided by any permanent boundary
- Land parcel: an integral undivided area of land comprising one or more fields, which is in single ownership
- Land holding: a single farming enterprise. Some farms will comprise just one land parcel, but others may consist of two or more land parcels.

19.2.1.1 Scope of the Assessment

The purpose of this chapter is to describe the impact each element of the proposed scheme may have on the agricultural environment at a national, county and individual farm level. The following is an explanation of the terminology:

- National impact - national impacts are defined as impacts that would be of national significance which would have an effect on agricultural production or production within a major section of agriculture at a national scale. Such impacts would be unlikely from a single infrastructure scheme and would more likely occur through policy decisions, for example, the imposition of control on fertiliser usage or the imposition of control on emissions in relation to greenhouse gases.
- County impacts - county impacts are defined as impacts that are felt at a county level. Impacts might be described as significant at county level where an enterprise of county importance, perhaps with large-scale employment consequences, is interrupted or must cease production
- Impacts at an individual farm level - these are the impacts of the Proposed Scheme that would be felt at an individual farm level.

The assessment is primarily based on an individual farm level, as reported in Section 19.4 however, consideration has been given to the residual effect on agriculture at a national and county level in Section 19.8. The classification of impacts has been prepared in accordance with the Environmental Protection Agency (EPA) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022).

No specific issues have been scoped out of the agriculture assessment.

'Farm Enterprise Primary Use' is the main enterprise identified on the holding. It is not uncommon for more than one enterprise to be identified on anyone holding, e.g. Dairy & Tillage. The primary enterprise described and one or multiple of the following:

- Drystock: Includes beef, sucklers, and contract rearing
- Dairy: Is used to describe dairy only.
- Equine: Is used to describe equine only.
- Forestry: Is used to describe forestry only.
- Grassland: Includes grazing, silage, hay & leased grassland.
- Horticulture: Is used to describe horticulture only.
- Mixed Livestock: Is used to describe a combination of sheep, equine and or drystock.
- Sheep: Is used to describe sheep only.
- Tillage: Is used to describe all land tilled or marked for tillage — private, leased, or within mixed use.
- Mixed Use: Crops & livestock.

The Proposed Scheme would deliver locally important strategic infrastructure. The strategic importance of the Proposed Scheme for flood relief is such that there is no plan to decommission these structures and Donegal

County Council is committed to maintaining and repairing them into the future. On this basis it is not likely that the structures will be decommissioned and therefore, decommissioning of the Proposed Scheme has not been considered further in this assessment.

19.2.2 Summary of Proposed Scheme to Agricultural lands

The Proposed Scheme includes removal of two sections of embankment downstream of the town to allow floodplain reconnection. One of these, on the left bank of the Burnfoot River is part of an existing OPW maintained Arterial Drainage Scheme. The other, on the right bank of the River Skeoge, is a privately owned embankment. This will involve simple removal of the embankments using an excavator and dumper/lorry to remove the material from the site.

- The first 165m of Arterial Drainage Scheme embankment, downstream of Burnfoot, would be removed to allow the fields behind to flood, refer to (*Submitted Planning Drawing, Drawing IBE2204_Bt_111*).
- The removal of 520m of embankment from the right bank of the Skeoge River and an embankment constructed around the three properties adjacent to the Skeoge River, refer to (*Submitted Planning Drawing, Drawings IBE2204_Bt_115*).
- Construction of embankment to protect the wastewater treatment package plant serving the Grianán estate, refer to (*Submitted Planning Drawing, Drawings IBE2204_Bt_117*).

19.2.3 Study Area

Burnfoot is a rural village situated at the base of the Inishowen Peninsula in northern County Donegal. The Burnfoot River flows east to west, draining a narrow valley before passing under the R238 and through the village. To the west of Burnfoot, it meets the Skeoge River, which originates near the outskirts of Derry City and flows in a north-westerly direction through Bridge End before joining the Burnfoot River. Together, these rivers discharge into Lough Swilly via a tidal lagoon behind Inch Island. The Burnfoot River is prone to flash flooding, while the low-lying, reclaimed agricultural lands downstream are vulnerable to both coastal and river flooding. Flooding has been a recurring issue in Burnfoot, and due to the area's topography, history of land reclamation, and existing infrastructure, such as roads and bridges, the risk of future flood events remains high in the absence of remedial measures.

The study area encompasses approximately 126 acres of agricultural land, owned by the An Grianán Estate, situated within an active floodplain between the Burnfoot and Skeoge rivers. The area is owned and managed by one landowner (Table 19.2). It is located at the base of the Inishowen Peninsula, east of their confluence, where the Burnfoot catchment plays a critical role in local drainage pattern and flood management.

Table 19.2: Farm Enterprise Primary Use Description

Total Number of Agricultural Holdings identified	One
Planning Application Boundary	
Farm Enterprise Primary Use (FEPU) Identified	Grassland used for grazing at the time of site visit, historical uses include Tillage

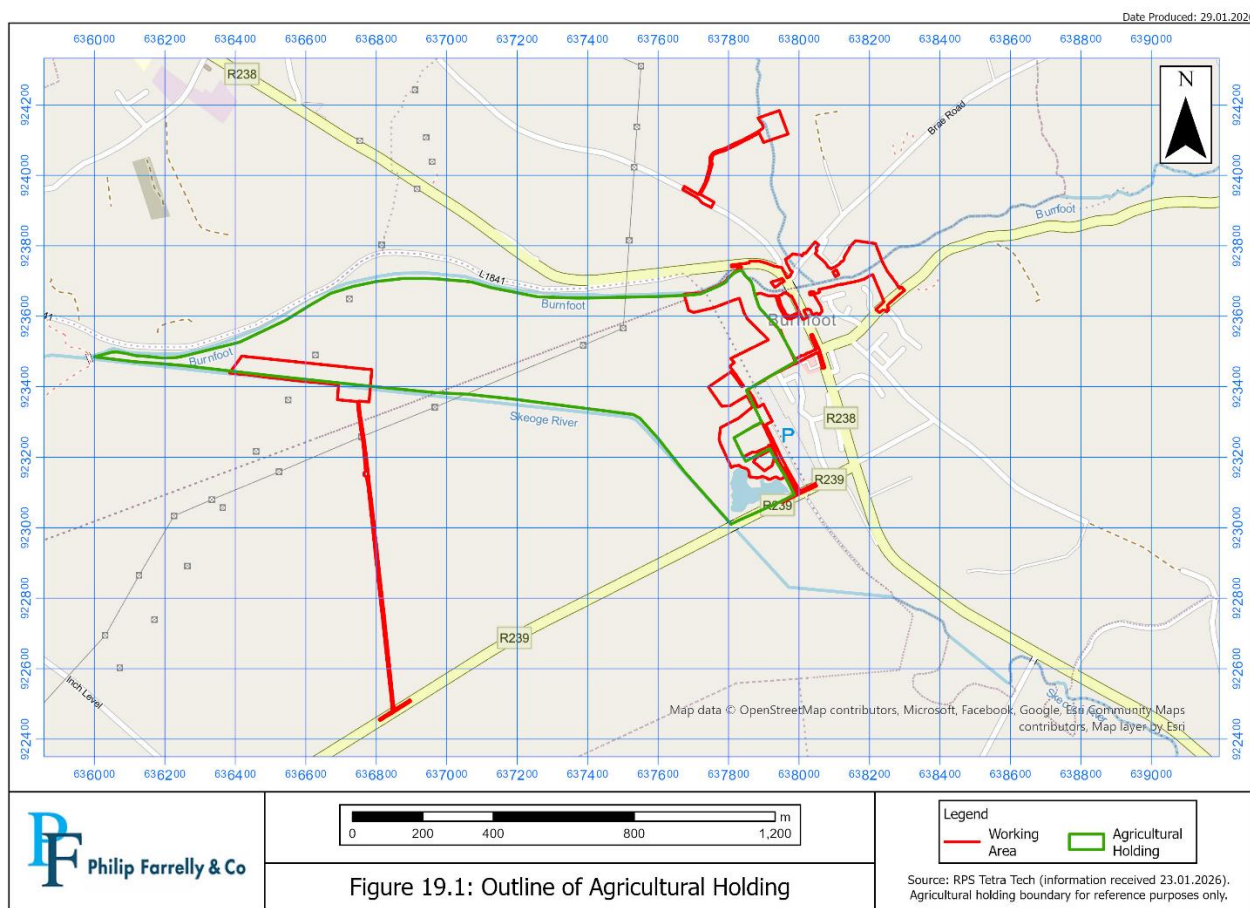


Figure 19.1: Outline of Agricultural Holding

19.2.4 Baseline

The lands surrounding the Burnfoot River, particularly those forming part of the An Grianán Estate, are characterised by their low-lying, reclaimed nature and are already subject to regular flooding, particularly during the winter months and following heavy rainfall events. This area has historically functioned as an active floodplain, with agricultural adapted accordingly.

A detailed modelling report, prepared by RPS as part of the design development for the Proposed Scheme, provides insights into the future flood regime post-implementation. The modelling includes scenario mapping for a range of Annual Exceedance Probability (AEP) events. Notably, the 50% AEP event, which represents a flood with a 50% chance of occurring in any given year (i.e. a 1-in-2-year return period) indicates that a significant portion of adjacent lands owned by Glenmore Estate Farms would be subject to more frequent shallow flooding following the removal of existing embankments.

This change reflects the scheme's intended use of the agricultural area as functional flood storage zones under more frequent flood conditions. While these lands already experience periodic flooding, the scheme may modestly increase the frequency, depth, or duration of flooding events during medium to high flows. These effects are further discussed in relation to operational impacts and mitigation in later sections of this chapter. Full flood extent mapping is provided in *Appendix 19.1: Flood Event Map*.

19.2.5 Legislation and Guidance

This assessment has been undertaken in accordance with the Planning and Development Act 2000 (as amended), the EIA Directive 2014/52/EU, and EPA Guidelines (2022), with reference to relevant national datasets from CSO, DAFM and Teagasc. Consideration has also been given to the Water Framework and Habitats Directives due to the site's proximity to the Lough Swilly SPA and its agricultural use as supporting habitat for SCI bird species.

19.2.6 Data Collection Methods

The baseline data collection and collation involved a desktop study of currently available mapping to identify agricultural land parcels within the Proposed Scheme that would be directly or potentially indirectly impacted by the Proposed Scheme.

The Proposed Scheme was delineated on Ordnance Survey of Ireland (OSI) maps, orthorectified aerial photography and scheme-specific data held on ArcGIS web GIS service, last accessed in June 2025.

Land boundary information was assessed throughout each revision of works to identify individual land holdings, using the Land Direct website (Property Registration Authority 2020), accessed November 2024. In-person Site visit was undertaken in September 2024. Land ownership and use details were confirmed with the affected landowner.

The data contained on the Proposed Scheme specific ArcGIS webGIS service were assessed to identify the potential impacts of the Proposed Scheme to the affected land holding. The following sources were also consulted to obtain information on the nature of farming at county and farm level:

- Census of Agriculture (Central Statistics Office (CSO) 2020).
- National Farm Survey (Teagasc, 2022).
- County Donegal Development Plan 2024 – 2030.

19.2.7 Consultation

Consultations were undertaken as part of the development of this E I A R to inform the design and assessment process. These engagements included relevant stakeholders, statutory bodies, and members of the public. Full details of the consultation activities, feedback received, and outcomes are provided in *Chapter 3: Consultations*.

Philip Farrelly, Senior Consultant and Director from Philip Farrelly & Co held a consultation with the affected landowner in November 2024. The details of that consultation are used as a basis to complete our agronomy assessment.

19.2.8 Assessment Criteria and Assignment of Significance

19.2.8.1 Assigning the Significance of Effects to Each Agricultural Holding

Professional judgement and the EPA Guidelines (EPA 2022) were used to determine the significance of the effect on the receiving environment. There are no specific guidelines associated to 'agronomy' or 'agriculture'; however, an experienced agronomist can identify how infrastructural schemes will impact on agricultural

practices based on its character, magnitude, duration probability, consequence, and the sensitivity of the affected agricultural enterprise(s).

19.2.8.2 Identifying and Categorising the Magnitude of the Impacts

The magnitude of impact was identified by the agronomist through professional judgement, informed by a detailed review of farm visit notes, questionnaires, mapping, and the Proposed Project design. Magnitude reflected both the severity of the impact and the duration over which it was likely to be experienced.

In line with EPA (2022) guidance, magnitude was not assigned by a single numeric threshold (e.g. percentage land take), as such thresholds could be misleading and failed to reflect how agricultural enterprises functioned. Instead, a structured framework of considerations was applied to ensure that all assessments are transparent, consistent, and tailored to each holding.

The key considerations taken into account included, but were not limited to, the following:

- Farm enterprise type and sensitivity, e.g. dairying, tillage, equine, stud farms.
- Proportion and configuration of land take, including whether affected land was strategically important (yards, high-quality fields, land close to buildings).
- Severance of land and the practicality/safety of accessing severed parcels.
- Location of the Proposed Project on the holding, including proximity to dwellings, farmyards, and specialist units (e.g. milking parlours, foaling boxes).
- Impacts on farm buildings, yards, water sources or infrastructure, and whether these could be replaced or reinstated.
- Drainage and water supply impacts, including irrigation and stock water provision.
- Construction Phase impacts, such as disturbance, noise, vibration, dust, and loss of privacy.
- Operational Phase impacts, such as restrictions on land use, safety considerations, or interference with farm machinery.
- Biosecurity and animal health risks, including specific sensitivities of equine enterprises.
- Health and safety implications for farm staff, handlers, and animals.
- Extent to which mitigation measures could address or reduce impacts.

Professional judgement was applied to weight these considerations together and assign an overall impact mitigation category (ranging from Negligible to High), which then fed into the assessment of Significance of Effect. This approach provided a robust, transparent, and evidence-based assessment ensuring that all material factors were captured in a manner consistent with good practice and EPA guidance.

19.2.8.3 Duration of the Impacts

The duration of impact is based on the EPA definitions. For the Proposed Scheme, the duration of impacts is short term (1-7 years) for the construction of the various flood relief elements and permanent (>60 years) for any permanent acquisitions associated to same.

Significance of effects within the Construction and Operational Phases is considered to be determined by the expected onset, duration, and frequency of the impacts. The duration is a key element to determining significance of the impact. Table 19.3 is used to define duration.

Table 19.3: Criteria for the Assessment of the Duration of Impact

Criteria	Duration
Momentary	Effects lasting seconds to minutes
Brief	Less than one day
Temporary	Less than one year
Short-term	One to seven years
Medium-term	Seven to 15 years
Long-term	15 to 60 years
Permanent	More than 60 years
Reversible	Effects that can be undone, for example through remediation or restoration
Frequency of Effects	How often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)

19.2.8.4 Sensitivity of the Receptor

Table 19.4 is used to identify the sensitivity of the farm enterprise (receptor) depending on the farm's intensity and other factors, for example, a stud farm or a dairy farm at high intensity might be rated very high for sensitivity. Intensity of land holding is concluded following the farm visit, interview and walkover to determine, among other things, land quality, farm management practice, assessment of farm facilities and the professional opinion of the agronomist. Generally, intensive farms will be found on good quality productive agricultural land and have the benefit of the highest management skills.

Table 19.4: Criteria for Categorisation of Sensitivity

Enterprise Type	Intensity* of the Farm Enterprise (Assessed by Site Evaluation)	Sensitivity
Stud farm/ Equine Facilities – Riding arenas, gallops – Intensive Equine	High	Very high
	Medium	High
	Low	Medium
Dairy farm, intensive equine enterprise	High	High
	Medium	High
	Low	Medium

Enterprise Type	Intensity* of the Farm Enterprise (Assessed by Site Evaluation)	Sensitivity
Non-dairy grazing livestock enterprises (includes beef, sheep and non-intensive equine) and grass cropping enterprise	High	Medium
	Medium	Low
	Low	Very low
Tillage	High	Medium
	Medium	Low
	Low	Very low
Rough grazing, bog, forestry, woodland	Low	Low
	Low	Medium

*Note: The intensity of the farm enterprise is assessed by site evaluation and details provided at the time of the farm survey.

The sensitivity ratings for farms are defined in Table 19.5. Each affected land holding was evaluated to determine the sensitivity and any site-specific factors. The main criteria in determining the farm sensitivity were the enterprise type and intensity. This information was obtained from the farm surveys and farm visits. Site-specific factors such as soil quality, access type to farm and location of farm were assessed on a farm-by-farm basis.

Table 19.5: Baseline Environment Sensitivity Rating for Farms

Sensitivity	Criteria
High to Very high	Intensively managed farms on good quality lands. Typical farms in this category include specialist dairy, stud farms or equine farms
Medium	Grassland used for livestock or tillage enterprises on good quality land Agricultural lands of good quality, zoned for non-agricultural purposes
Low	Extensively managed farm enterprises on medium-quality lands Agricultural lands of medium quality, zoned for non-agricultural purposes
Very low	Extensively managed farm enterprises on poor quality lands Rough grazing, bog, or forestry Agricultural lands of poor quality, zoned for non-agricultural purposes

19.2.9 Significance of Effects

The significance criteria are based on EPA criteria which are defined in Table 19.6. Regarding the agricultural assessment, the third column interprets the significance of the effects using examples relevant to agronomy. Significance of effect is derived by a combination of professional opinion, enterprise type, sensitivity of enterprise, intensity of enterprise coupled with the magnitude of impacts, and the duration of impact.

In the context of agriculture, and in accordance with the EPA’s Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022), effects assessed as ‘Slight’ or lower are considered not significant in EIA terms. Effects assessed as ‘Moderate’ or higher are deemed significant, particularly where

they result in permanent land loss, disruption to enterprise viability, or long-term changes in land use. This classification is based on both the EPA's effect significance criteria and professional agricultural judgement.

Table 19.6: Significance Criteria for Overall Effect on Land Holdings

EPA Effects Criteria	Definition of Significance from EPA Guidelines	Level of Effect for Agronomy
Imperceptible (not significant)	An effect capable of measurement but without significant consequences.	An effect so small it is imperceptible or incapable of measurement and without noticeable consequences.
Not Significant (not significant)	An effect which causes noticeable changes in the character of the environment but without significant consequences.	An effect is Not Significant where the farm enterprise suffers a slight inconvenience such as relocation of access or loss of shelter or other temporary disturbance.
Slight (not significant)	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.	An effect which causes noticeable changes in the character and management of the farm. The farm enterprise experiences inconvenience as a result of the Proposed Project.
Moderate (significant)	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.	A Moderate effect occurs where the farm enterprise can be continued as before but with increased management or operational difficulties. While portions of the land might be sub-divided, the enterprise mix would be such that the farming system could continue perhaps with reduced stock numbers or additional labour, contractor or other changes.
Significant (significant)	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.	A Significant effect occurs where the farm enterprise suffers significant inconvenience as a result of the Proposed Project. Sub-division would occur, but access could be achieved.
Very Significant (significant)	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.	A Very Significant effect occurs where the farm enterprise cannot be continued without considerable management or operational changes. There would be significant sub-division on the affected parcel(s). The Proposed Project may affect farm buildings and/or facilities. Access to the sub-divided land can only be achieved through the use of non-farm roads. Where the effect is Very Significant an enterprise change may be necessitated e.g. from dairy to dry stock.
Profound (significant)	An effect which obliterates sensitive characteristics.	A Profound effect occurs where the farm enterprise cannot be continued as a result of the Proposed Project. This would occur where the land-take was of such a nature to make the holding unworkable and/or where important farm buildings and facilities are removed. An effect of this degree would be rare and would be most likely to occur on a dairy/horticultural or stud farm.

19.2.10 Worst Case

Key risks include flood events that exceed the design parameters of the scheme, particularly in low-lying or a river located adjacent to farmland. The combined impact of prolonged rainfall, river surges, and tidal influences can overwhelm defences, if future climate change allowances such as sea level rise and increased rainfall

intensity have not been properly factored in. Inadequate modelling of these combined events may result in under-engineered infrastructure, leading to the loss of arable land, livestock, and farm infrastructure.

Operational and environmental challenges also carry significant implications for agriculture:

- Construction phase incidents, such as hazardous material spills, can contaminate soil or watercourses, affecting crop health and livestock safety.
- Geotechnical instability, such as embankment failures, can disrupt drainage and damage productive land.
- Delays due to planning approvals, land access issues, or opposition from neighbouring landowners, particularly where downstream effects are feared, can stall progress and create uncertainty for farm businesses.
- Effective flood relief in rural areas must also account for critical farm access routes and infrastructure that support agricultural operations.

To reduce the likelihood and impact of such worst-case scenarios, the project has adopted a proactive, mitigation-focused approach. The scheme incorporates climate-resilient design standards and extensive hydrological and geotechnical analysis to anticipate future conditions. A Construction Environmental Management Plan (CEMP) will be in place to ensure environmental monitoring, and soil protection measures are in place to minimise accidental incidences during construction. Early and ongoing engagement with landowners has helped shape the design and build trust, particularly regarding floodwater displacement or access issues. These efforts enhance the scheme's ability to safeguard agricultural productivity, protect rural infrastructure, and deliver long-term resilience for farming communities.

19.3 Baseline Environment

19.3.1 Land Use

The agricultural land surrounding the village of Burnfoot Co. Donegal consists of flat, very fertile and reclaimed land protected by sea embankments and drainage channels arising from a series of small initiatives undertaken over time, some from as early as the 1830s, primarily for agricultural purposes. The affected land area now forms part of one of the largest organic farming holdings in Ireland, Glenmore Estate Farms Ltd (purchased in 2017). Glenmore Estate Farms continues to farm an organic system while adding on-farm renewable energy in a bid to achieve feed and energy self-sufficiency.

19.3.1.1 Agriculture in County Donegal

According to the Census of Agriculture (2020), there are 16,973 Agricultural Holdings in County Donegal, of these the average holding size is c. 38.7Ha. The average farm size in Ireland is 33.4 Ha. Beef and Sheep farms together account for c. 80% of the agricultural holdings, Dairy accounts for <2% while mixed livestock (livestock grazing and crop production) account for almost 17%.

19.3.1.2 About Glenmore Estate

Glenmore Estate Farms Ltd, operating on the historic An Grianán Estate near Burnfoot, County Donegal, manages one of Ireland's largest organic farms. The estate spans approximately 2,400 acres, with over half of

it certified organic, and supports a mixed farming enterprise. Core activities include the cultivation of organic cereals such as oats and barley, root crops including potatoes, and red clover for silage. Livestock farming also plays a role, with beef cattle grazing managed alongside crop rotation systems. In addition to traditional farming, the estate hosts a large-scale anaerobic digestion facility that processes organic material into biogas, electricity, and nutrient-rich digestate used as natural fertiliser. This integration of renewable energy with sustainable agriculture positions Glenmore Estate as a leading example of environmentally responsible, high-output farming in the region.

19.3.1.3 Affected Land Use

At the time of assessment, the agronomy team visited the affected land in November 2024. The land was being managed as organic grassland, primarily used for grazing. It was observed that the fields were not subdivided into paddocks, suggesting that a mob grazing system was in place. Under this approach, livestock are rotated across larger field areas and remain in one location for an extended period until the available grass is depleted, before being moved on. This grazing strategy aligns with low-input, organic pasture management practices.

The land associated with the proposed scheme is already subject to regular flooding, particularly during periods of heavy rainfall and high river levels. The land associated with the proposed scheme already experiences regular flooding, most recently during an extremely high-intensity rainfall event in late August 2017 (approximately 60–70 mm over 8 hours from 22–23 August), which led to the Burnfoot River overtopping its banks, inundating parts of the agricultural land, local roads, and around 30 homes and 7 businesses, an event characterised as a 1-in-100 year flood event.

19.4 Impact Assessment

19.4.1 Assessment of Construction Effects

19.4.1.1 Construction Impacts on Agricultural Land Use

As part of the Proposed Scheme, there are three embankment interventions planned that will affect land in agricultural use. These interventions include both the removal and construction of embankments in selected areas but have been designed to minimise disruption to ongoing farming practices.

- The first 165 metres of Arterial Drainage Scheme embankment, located downstream of Burnfoot, will be removed to enable controlled flooding of the adjacent fields behind the embankment. (*Refer to submitted Planning Drawing, Drawing IBE2204_Bt_111*).
- A further 345 metres of embankment will be removed from the right bank of the Skeoge River, with a new embankment constructed around three properties situated close to the river. (*Refer to submitted Planning Drawing, Drawing IBE2204_Bt_115*).
- In addition, a protective embankment will be constructed around the wastewater treatment package plant serving the Grianán Estate to prevent flood damage. (*Refer to submitted Planning Drawing, Drawing IBE2204_Bt_117*).

Construction works will take place within a working width of 20 to 50 metres, depending on the location and specific embankment intervention. It is not proposed to alter the current land use of agricultural fields within

these working areas. Where temporary access or laydown areas intersect agricultural land, measures will be implemented to maintain the integrity of the land for future use.

Excavated material arising from embankment removal will be either:

- Reused on site, where suitable, in the construction of new embankments associated with the Proposed Scheme; or
- Removed off site for appropriate disposal, particularly in cases where material is found to be contaminated. (*Refer to Chapter 17: Waste.*)

The 345 metres of embankment on the southern boundary of the affected agricultural field will be accessed via an existing internal farm roadway (*Refer to Figure 19.1*). This access route will be upgraded as needed to support excavators and truck traffic during works. Fencing will be installed to ensure stock-proof boundaries are maintained throughout construction, protecting both livestock and site safety.

The overall duration of the Proposed Scheme is 18 months, though this represents the timeframe for all scheme elements, including ecologically sensitive works. Embankment removals in agricultural areas will be completed within this timeframe, though not necessarily over the full 18-month period. The extended programme allows for scheduling flexibility to avoid disturbance to ecologically sensitive habitats, including river environments and wintering bird populations.

In summary, while some temporary disturbance will occur, no permanent loss of agricultural land use is proposed, and all construction activities will be managed to minimise disruption to ongoing or future farming operations.

19.4.2 Assessment of Operational Effects

19.4.2.1 Operational Impacts on Agricultural Land use

In the operational phase of the Proposed Scheme, no significant adverse effects on agricultural land use are anticipated. Where embankments are being removed to facilitate controlled flooding (e.g. downstream of Burnfoot and along the Skeoge River), the affected fields are already subject to regular flooding, and the proposed interventions aim to formalise this function as part of a managed floodplain. While the overall extent of flooding may increase slightly, it will remain within the range of what typically occurs under current conditions.

Under severe flood events, there may be some increase in flood depth and a slightly longer retention time before water recedes, due to the sheer volume of water involved. However, these effects are expected to be infrequent and limited to conditions that already result in substantial flooding. Elsewhere, newly constructed embankments (e.g. around the Grianán wastewater treatment plant) will have a minimal footprint and are not expected to impact access, land management, or grazing activities. Internal farm roads used during construction will remain in use post-works. Overall, the Proposed Scheme has been designed to complement existing agricultural land use, and no long-term disruption to farming practices is expected.

19.5 Inter-relationships

Agricultural land surrounding the Burnfoot River does not function in isolation; it is intrinsically connected to the ecological value of Lough Swilly SPA. Dedicated wintering-bird surveys carried out in 2020/21, 2021/22 and 2023/24 (see Appendix 7.3, *Chapter 7 Biodiversity: Terrestrial and Birds*) confirmed that the low-lying improved grassland west of Burnfoot, particularly the fields affected by the proposed embankment removals, supports significant numbers of several Special Conservation Interest (SCI) species namely Whooper Swan, Black-headed gull and Greylag goose. (Refer to Table 7.4). These birds forage almost exclusively on the very grassland parcels that are grazed by livestock and periodically flooded.

19.5.1.1 Hydrology - Agriculture - Wintering Birds

Flood-regime changes from partial embankment removal will marginally extend flooding depth and recession time under severe events, this may affect sward structure and the timing of grass availability for both livestock and birds.

Grassland management (e.g. grazing intensity, mowing dates) influences sward height and nutrient status, which in turn affects the suitability of feeding habitat for geese and swans.

Disturbance during construction is being timed outside the core wintering period, and stock-proof fencing will double as a buffer to reduce human and machinery intrusion into key foraging areas (see mitigation, *Chapter 7 Biodiversity: Terrestrial and Birds*).

19.5.1.2 Population & Rural Economy

Sustaining productive grassland while maintaining its value for wintering waterfowl underpins both local farm incomes and eco-tourism associated with activities such as bird watching in the SPA.

These cross-cutting effects illustrate why the agricultural assessment has been undertaken in tandem with the hydrology and biodiversity chapters. Mitigation measures (Section Mitigation & Monitoring) have been coordinated so that flood-management objectives are achieved without compromising the ecological function of grasslands for bird species of special conservation interest or the viability of farming operations.

19.6 Mitigation and Monitoring

19.6.1 Mitigation

19.6.1.1 Mitigation Measures

To minimise disruption to agricultural land use during construction, a range of mitigation measures will be implemented:

- Working areas for embankment removal and construction will be clearly defined and kept as narrow as practical (typically 20–50 m) to reduce the footprint and avoid encroaching onto the agricultural land.
- Stock-proof fencing will be installed where required to maintain livestock containment and farm boundary integrity during works.

- Access to agricultural land will be maintained, with temporary upgrades to internal farm roads where necessary to support machinery. These routes will be reinstated to their original condition following construction.
- Topsoil and subsoil handling will follow best practice to prevent compaction and facilitate full reinstatement of productive land after works.
- Excavated material will be reused elsewhere on the scheme where appropriate. Any material unsuitable for reuse or identified as contaminated will be removed and disposed of in accordance with the scheme's Waste Management. (see *Chapter 17: Waste*).
- Construction timing will be managed to avoid sensitive ecological windows, particularly in relation to river habitats and wintering bird activity, while also ensuring that works in agricultural areas are completed efficiently within the overall 18-month programme.

19.6.2 Monitoring

19.6.2.1 Monitoring Measures

During and after construction, the following monitoring measures will be put in place to ensure that land use impacts remain minimal and consistent with the design intent:

- Regular site inspections will be carried out to ensure the protection of agricultural boundaries, fencing, and access routes during construction.
- Post-construction inspections will confirm that land has been reinstated to a condition suitable for continued agricultural use.
- Drainage and flood behaviour monitoring will be undertaken in key areas where embankments have been removed, to assess any changes in flood extent or duration under severe events. This will allow for early identification of any issues that could affect land use.
- Feedback from the landowner will be considered, particularly in relation to grazing access, flood behaviour, or soil conditions following the completion of works.

These mitigation and monitoring measures are designed to ensure that agricultural land continues to be used productively and safely both during and after implementation of the Proposed Scheme.

19.7 Potential Cumulative Effects

The EIA Directive includes the consideration of existing projects within the cumulative effects assessment, and this is addressed through a consideration of the incremental impact of the Proposed Scheme within the context of the existing baseline as described, and where applicable, the carrying capacity of the environment.

Generally, agricultural impacts tend to be highly localised, with effects from one farm or landholding typically confined to that specific area. Farming operations are often independent of one another, and issues such as land disturbance, drainage changes, nutrient management, or crop disruption do not generally extend beyond

the boundaries of the affected holding. As such, agricultural impacts rarely result in wider cumulative effects across multiple farms, particularly when activities are small in scale or well-managed.

As part of the cumulative assessment for the Proposed Scheme a total of 35 projects were initially identified and reviewed for potential interaction with the proposed works. Following screening based on location, timing, and project scale, this list was narrowed down to six projects. The screened-in projects consist primarily of small-scale residential, industrial, and infrastructure works, none of which involve significant agricultural land-take, drainage changes affecting farmland, or operational overlaps that would impact agricultural practices in the affected area.

Based on the nature of agriculture in the study area and having regard to the scale and character of the other projects screened in for cumulative assessment (*Refer to Chapter 20: Interactions and Cumulative Effects*), no cumulative effects on agriculture are foreseen as a result of the Proposed Scheme.

19.8 Residual Impacts

Following the implementation of the Proposed Scheme, and assuming the successful application of mitigation measures, residual impacts on agricultural land use are expected to be minor. The primary residual effect relates to the increased frequency and extent of shallow flooding on the low-lying land, due to the removal of existing embankments. While these lands already function as floodplain and are regularly grazed, modelling indicates that under certain flood scenarios (e.g. 50% AEP events), floodwater may persist slightly longer or reach greater depths than under existing conditions. This may occasionally delay access or reduce short-term grass productivity during wetter periods. In addition, parts of the affected lands are used by wintering bird species of special conservation interest associated with the Lough Swilly SPA, which may lead to future ecological management considerations. However, these effects are expected to be localised and seasonal and are not considered significant in the context of ongoing farm operations. Overall, no substantial long-term disruption to agricultural viability is anticipated.

19.9 Summary of Effects

In summary, the Proposed Scheme is not expected to result in any significant adverse effects on agricultural land use. During construction, there will be temporary disturbance to the affected land area due to the construction works associated to the embankment removals and construction; however, these impacts will be confined to defined working areas, and access will be managed using the existing farm roadway.

Land reinstatement and fencing will ensure continuity of grazing and field use. In the operational phase, the low-lying agricultural land, will be subject to slightly more frequent or prolonged shallow flooding under certain conditions, such as the 50% AEP (1-in-2-year) event. This area is already prone to regular flooding, and while changes in flood behaviour may marginally affect grazing routines or grass recovery, such effects are considered minor and within the range of usual farm management for the location.

Additionally, the affected agricultural area is recorded as used by wintering bird species listed as Special Conservation Interests (SCI) of the Lough Swilly SPA, future land management may need to take seasonal

ecological sensitivities into account. Overall, any residual impacts are expected to be minor, localised, and not significant in terms of long-term agricultural productivity or viability.

19.10 Limitations of Assessment

While this assessment has been informed by a site visit, land use mapping, winter bird surveys, flood modelling outputs, and consultation with the design team, there are a number of inherent limitations.

Firstly, the agricultural land use baseline reflects a snapshot in time (primarily based on conditions observed in November 2024), and changes in farm management practices, stocking rates, or land ownership over time can alter how land is used in the future.

Secondly, while the modelling which has been undertaken provides a robust prediction of likely flood extents under different scenarios, real-time flood behaviour can vary due to unpredictable weather patterns, climate change, or changes in the hydrology of a catchment. The assessment also does not account for potential cumulative effects arising from future, not yet known, land development or infrastructure upgrades that could interact with the floodplain function.

Finally, although efforts were made to consider ecological-agricultural interactions (e.g. wintering birds on grasslands), detailed farm-level biodiversity management practices were outside the scope of this assessment. These limitations have been acknowledged and addressed, where possible, through conservative assumptions and close coordination with other relevant EIA chapters, particularly Biodiversity and Hydrology.