



Chapter 17
Material Assets and Land
(Agriculture)

Table of Contents

17.	MATERIAL ASSETS AND LAND (AGRICULTURE)	1
17.1	Introduction	1
17.2	Legislation, Policy and Guidance	1
17.2.1	Legislation	1
17.2.2	Policy	1
17.2.3	Guidelines	1
17.3	Methodology	2
17.3.1	Study Area	2
17.3.2	Survey methodology	2
17.3.3	Assessment Methodology	2
17.3.4	Evaluation of potential impacts	4
17.3.5	Consultation	7
17.3.6	Difficulties encountered	7
17.4	Receiving Environment	7
17.4.1	Current Baseline Environment	8
17.5	Description of Potential Impacts	9
17.5.1	Potential Construction Impacts	9
17.5.2	Potential Operational Impacts	10
17.6	Mitigation Measures	24
17.6.1	Construction Phase	24
17.6.2	Operation Phase	25
17.7	Monitoring	25
17.8	Residual Effects	25

17. MATERIAL ASSETS AND LAND (AGRICULTURE)

17.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) describes and assesses the likely direct and indirect significant impacts of the proposed project on agricultural property. This chapter sets out the methodology used to undertake the assessment (Section 17.3), describes the existing environment (Section 17.4), examines the predicted impacts of the proposed project (Section 17.5), proposes mitigation measures (Section 17.6) and identifies residual impacts (Section 17.7).

Other impacts on Material Assets are also addressed throughout this EIAR, most particularly in the following chapters

- Chapter 6 Population & Human Health.
- Chapter 9 Land and Soils.
- Chapter 10 Hydrology.
- Chapter 12 Air Quality.
- Chapter 14 Noise and Vibration.
- Chapter 15 Landscape and Visual Amenity.
- Chapter 18 Material Assets: Non-agricultural Properties.

17.2 Legislation, Policy and Guidance

17.2.1 Legislation

There is a requirement to consider and assess the effects of a greenway project on material assets and agricultural properties under the following legislation:

- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
- Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

17.2.2 Policy

The proposed project is located in the administrative area of Clare County Council and the following have been considered in the preparation of this chapter:

- Clare County Development Plan 2023-2029.

17.2.3 Guidelines

The assessment has been completed with due consideration of the following guidance documents:

- Environmental Protection Agency (EPA) (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.
- Department of Transport (DoT) (2021), 'Code of Best Practice National and Regional Greenways'.
- Transport Infrastructure Ireland (TII) (2022). *Project Managers Manual for Greenway Projects (PE-PMG-02047)*.

17.3 Methodology

17.3.1 Study Area

The study area for this assessment comprises of the agricultural property directly impacted by the proposed project. The zone of influence extends to the agricultural lands, to include owned or rented lands, being farmed as part of directly affected agricultural properties.

17.3.2 Survey methodology

The methodology for the agricultural property assessment comprised of a desktop review of project mapping and the collation of information from sources that include roadside surveys and agricultural property landowner surveys. The landowner surveys for each directly impacted agricultural property will complete the baseline assessment.

The assessment was informed using information from sources as outlined in **Table 17-1**.

Table 17-1 Information sources

Information	Source
Project design mapping & project information	Roughan O'Donovan Consulting Engineers / Clare County Council - Digital mapping files.
Land registry / landownership information	Property Registration Authority of Ireland (PRAI)
Land use, farm enterprise details	Landowner consultation and walkover surveys
Agricultural statistics,	Central Statistics Office – National census of agriculture statistics derived from the June 2020 Census of Agriculture (2022).
Soils information	Teagasc - Irish National Soils Map, 1:250,000k, V1b (2014). Environmental Protection Agency (EPA) - Creamer, R. "Irish SIS Final Technical Report 13: Irish Soil Information System Legend".

17.3.3 Assessment Methodology

The key parameters for assessment that have potential to result in likely significant effects on agricultural properties are outlined below:

- Land-take
- Farm division
- Farm enterprise
- Effects on farm buildings / farm facilities.

17.3.3.1 Land-Take

Land-take has the potential to have a significant effect on an agricultural property. The area of land-take together with its location and duration will determine the magnitude of impact. The greater the area of land-take indicates a higher magnitude of impact. The area and location of land-take are often interlinked as land-take near a farmyard on a single unit farm will generally be of a greater magnitude than a similar area on a fragmented part of the farm holding. The duration of land-take can vary from permanent (greater than sixty years) to short term (one year to seven years). The degree of the magnitude of impact decreases with shorter durations.

The area of land-take involved will depend on the length of greenway alignment through the particular property. On some agricultural properties there may be additional areas of land-take associated with other elements of the project such as trailheads, biodiversity enhancement areas and temporary construction compounds. Details of the type and area of land-take on individual agricultural properties are presented in Table 17-7.

17.3.3.2 Farm Division

The effect of farm division is as a direct result of the location of land-take on an agricultural property and has the potential to have a significant effect on farm holdings. The effect can often be more significant than that of land-take on the farm holding.

The division of lands is largely determined by the land-take location which can often result in more significant impacts on farm holdings. Similar to the effect of land-take, the area of divided lands, their location relative to remaining lands and the duration of farm division will influence the magnitude of impact. The division of a significant area or proportion of available land will indicate a high magnitude of impact. The division of lands adjoining a farmyard, particularly an intensive farm, will have a higher magnitude of impact than the division of an area of land at the external boundary of a farm. The permanent division of lands will have a greater magnitude of impact than short term or temporary division.

The proposed development will result in farm division occurring on farm holdings. Where farm division occurs, mitigation measures may be necessary to restore access to lands. For many agricultural properties with lands on both sides of the proposed greenway the mitigation of farm division will involve the provision of a gated farm crossing (refer to Chapter 4 of the EIAR).

During the construction period, there may be temporary impacts on access to both divided and remaining lands due to the works involved and alternative access arrangements may be required on a temporary basis during the construction period until such time as permanent access is provided.

On some agricultural properties the former West Clare Railway is used for access to lands or as an internal farm access road to lands. As the proposed greenway alignment will occupy the corridor of the former West Clare Railway, reinstatement of access arrangement on these properties may involve access accommodation tracks which will be progressed through accommodation works negotiations with landowners on retained lands.

17.3.3.3 Farm Enterprise

The effect of land-take and / or farm division on farm holdings will differ according to farm enterprise(s). Some farms enterprises are considered more sensitive to the construction and / or operation effects of a proposed project due to the intensity or type of farming activities on the farm holding.

Dairy farm enterprises typically involve intensive agricultural production and are sensitive to direct effects of land-take and farm division. Equine enterprises involving interaction with horses at a moderate to intensive level are considered to be sensitive to the direct and indirect construction and operation effects of a proposed project. Other livestock enterprises are considered to have a lower sensitivity to direct effects of land-take and farm division. Tillage enterprises typically indicate high quality lands and are sensitive to land-take effects. Pig and Poultry farms are typically highly intensive farming enterprises within a farmyard setting and are considered sensitive to direct impacts. Agribusinesses typically are locations of local employment within the sector and may be considered sensitive to direct impacts.

17.3.3.4 Effects on Farmhouses, Farm Buildings and Farm Facilities

Direct impacts on farmhouses, farm buildings and / or farm facilities have the potential to have a significant effect. The degree of magnitude will depend on the type and nature of farm buildings that are affected. Where animal housing and animal manure storage or fodder storage facilities are affected the degree of magnitude will be high. Farm buildings such as general-purpose sheds or animal handling facilities are indicative of a medium magnitude of impact. Other facilities such as the loss of natural shelter are indicative of a low to medium magnitude of impact.

The proposed development is not expected to have a direct impact on farm buildings, animal handling pens or yard facilities.

17.3.4 Evaluation of potential impacts

17.3.4.1 Baseline Rating

A baseline environment for agricultural property will be evaluated on an individual property basis and assigned a baseline rating. This baseline rating combined with a magnitude of impact from construction and operational effects impacts associated with the proposed project will determine the significance of the agricultural impact.

The criteria used to determine the baseline rating for agricultural property on the proposed project are shown in Table 17-2 **Table 17-2**. The criteria for each of the baseline ratings have been developed in consideration of the relevant EPA guidelines on describing the existing environment.

Table 17-2 Baseline rating criteria

Rating	Criteria
High	Intensively managed farm enterprises on good quality lands. Specialist dairy enterprises or farm enterprises involved in the breeding of high-quality livestock. Tillage enterprises on good quality lands. Mixed livestock and/or tillage enterprises on good quality lands. Agricultural lands used for research and education.
Medium	Livestock and / or tillage enterprises on medium to good quality lands. Agricultural lands of good quality leased for livestock or tillage production. Agricultural lands of good quality which is zoned or planning permission exists for non-agricultural purposes.
Low	Extensively managed farm enterprises on medium quality lands. Land parcels with limited agricultural capacity due to size or shape. Agricultural lands of medium or poor quality leased for livestock or tillage production. Lands under commercial forestry or woodland. Agricultural lands of medium quality which is zoned or planning permission exists for non-agricultural purposes.
Very low	Extensively managed livestock farm enterprises on poor quality lands. Unused agricultural lands of medium or poor quality. Agricultural lands of poor quality which is zoned or planning permission exists for non-agricultural purposes.
Soils information	Teagasc - Irish National Soils Map, 1:250,000k, V1b (2014). Environmental Protection Agency (EPA) - Creamer, R. "Irish SIS Final Technical Report 13: Irish Soil Information System Legend".

17.3.4.2 Impact Magnitude

The criteria used to determine the magnitude of impact rating for agricultural property on the proposed project are shown in Table 17-3 **Table 17-3**. The criteria for each of the impact ratings have been developed in consideration of the relevant EPA guidelines on the assessment of impact.

Table 17-3 Magnitude rating criteria

Rating	Criteria
Very High	Permanent land-take of such an area that the farm enterprise(s) is unworkable. Permanent farm division of such an area that the farm enterprise is unworkable. Essential farm buildings / facilities may be significantly impacted.
High	Permanent land-take of such an area that the continued management of the farm enterprise will require considerable change. Permanent farm division of a nature that the continued management of the farm enterprise will require considerable change. Essential farm buildings / facilities may be directly or indirectly impacted.
Medium	Permanent land-take of such an area that the management of the farm enterprise(s) can be continued but with increased difficulties. Permanent farm division of a nature that the management of the farm enterprise(s) will require management changes. Farm buildings and/or farm facilities may be directly or indirectly impacted.
Low	Permanent or short-term land-take of such an area that the farm enterprise(s) incurs minor difficulties as a result. Permanent or short-term farm division of a nature that the farm enterprise(s) will require minor management changes. Farm buildings / facilities would not be directly impacted. There may be indirect impacts.
Very low	Short-term or temporary land-take of such an area that the farm enterprise(s) incurs minor difficulties as a result. Permanent land-take of very small areas of land or of public roadbed only. Temporary construction impact may include minor land and drainage clearance works. Farm buildings / facilities would not be directly impacted. There may be indirect impacts.

17.3.4.3 Significance of Impact

The significance of effects on an agricultural property is determined by the baseline rating of a farm holding combined with the magnitude of impact of the proposed project. There are four categories of baseline rating ranging from 'very low' to 'high'. There are five categories of magnitude of impact ranging from 'very low' to 'very high'. The likely significance rating is determined by reference to the matrix in **Table 17-4** using the baseline rating and magnitude of impact. The likely significance of effects is prior to the implementation of any mitigation measures.

Table 17-4 Significance of effect

Baseline	Magnitude of impact				
	Very high	High	Medium	Low	Very low
High	Profound	Very Significant to Significant	Moderate	Slight	Not Significant to Imperceptible
Medium	Profound to Very Significant	Significant	Moderate	Slight	Not Significant to Imperceptible
Low	Profound to Significant	Moderate	Slight	Not Significant	Not Significant to Imperceptible
Very Low	Profound to Moderate	Slight	Slight	Not Significant	Imperceptible

Table 17-5 presents a definition of the significance of impact ratings according to EPA guidance and the assessment of the impact on agricultural property.

Table 17-5 Significance of impact definition

Rating	EPA definition	Definition of impact(s)
Profound	An effect which obliterates sensitive characteristics.	The impact on the farm is such that the farm enterprise(s) cannot continue. Permanent land-take of such an area and / or permanent farm division of such an area that the farm enterprise is unworkable. Essential farm buildings / facilities may be significantly impacted.
Very Significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.	The impact on the farm is such that the farm enterprise(s) cannot continue. Permanent land-take of such an area and / or permanent farm division of such an area that the farm enterprise is unworkable. Essential farm buildings / facilities may be significantly impacted.
Significant	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.	The impact on the farm is such that the farm enterprise(s) can continue. Permanent land-take of such an area and / or permanent farm division of a nature that the continued management of the farm enterprise will require considerable change. Essential farm buildings / facilities may be directly or indirectly impacted.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.	The impact on the farm is such that the farm enterprise(s) can continue. Permanent land-take of such an area and / or permanent farm division of a nature that the farm enterprise will require some management changes. Farm buildings and/or farm facilities may be directly or indirectly impacted.
Slight	An effect which causes noticeable changes in the character of the environment	The impact on the farm is such that the farm enterprise(s) can continue.

Rating	EPA definition	Definition of impact(s)
	without affecting its sensitivities.	Permanent or short-term land-take of such an area and / or permanent farm division of a nature that the farm enterprise will require minor management changes. Farm buildings / facilities would not be directly impacted. There may be indirect impacts.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.	Short-term or temporary land-take of such an area that the farm enterprise(s) incurs minor difficulties as a result. Temporary construction impact may include minor land and drainage clearance works.
Imperceptible	An effect capable of measurement but without significant consequences.	Permanent or temporary land-take of public roadbed only.

17.3.5 Consultation

Consultation took place with 37 landowners to inform the assessment of the effect of the proposed project on the property and the required mitigation measures. On three properties consultation was not deemed to be required as the proposed works were considered not to be significant.

17.3.6 Difficulties encountered

There was a high level of landowner participation involving landowner consultation and walkover surveys on affected properties. There were no properties on which landowners declined to participate in consultation.

There is a low number of small land plots where property registration does not correspond with existing field boundaries and current landuse. Assumptions have been made to assess these land plots as part of existing field boundaries and current landuse.

17.4 Receiving Environment

The study area for the West Clare Greenway encompasses agricultural properties and lands from Kilkee Town to Kilrush via the village of Moyasta. The study area is rural in nature, consisting of agricultural and non-agricultural property. Agricultural property comprises of both residential and non-residential farm holdings involving dwelling houses, farmyards and agricultural lands.

The baseline study area includes 40 No. agricultural properties directly impacted by the proposed project extending from Dough Townland at Kilkee to Kilrush Townland. Agricultural lands in the study area are predominantly agricultural pasture with areas of marginal grasslands and a low level of forestry. Land use on some properties is entirely grassland based and predominantly involves livestock farm enterprises and those involved in grass / fodder production.

The agricultural farms holdings affected by the proposed project range in area from less than 1ha to greater than 120ha with an average area of 27.0ha. This is less than the average farm sizes in County Clare and nationally. There are moderate to intensive farm enterprises present involving dairy farms and beef farm enterprises. The remaining farm enterprises are extensively managed or leased out for livestock grazing. The predominant farm enterprises are beef (40.0%), leased (20.0%), dairy (10.0%), mixed dairy and beef (5.0%). There is a

level of grassland-based holdings where the lands are either unused or available for fodder production or short-term grazing (20.0%). There is one holding (2.5%) involved in forestry and one holding (2.5%) is for equine use.

17.4.1 Current Baseline Environment

The proposed project will require the permanent acquisition of agricultural lands and will result in a reduction in the national utilisable agricultural land area.

17.4.1.1 National Level

The national agricultural farmed area is 4,509,256 ha including rough grazing. When this category is excluded, there is 3,699,919 ha of grassland, 265,592ha of cereals and 92,208 ha of other crops, fruit and horticulture (Central Statistics Office, 2022).

There are 135,037 farms in Ireland with an average farm size of 33.4ha nationally. The main agricultural enterprises are beef (54.9%), sheep (12.9%), dairying (11.4%), and mixed field crops (8.5%). Mixed grazing livestock (6.3%), tillage (3.4%), mixed crops and livestock (1.3%) and other (1.3%) are the remaining enterprises (Central Statistics Office, 2022).

17.4.1.2 County Clare

The total agricultural area of County Clare is 201,828.7 ha and when commonage and rough grazing are excluded there is 169,743.2 ha grassland. There are 164.1 ha of cereals and 754.1 ha of lands under other crops, fruit and horticulture (Central Statistics Office, 2022).

There are 6,292 farms in County Clare with an average farm size of 32.1 ha. The main agricultural enterprises are beef (81.1%), dairy (7.7%), mixed field crops (6.7%), mixed grazing livestock (2.4%), sheep (1.5%) and tillage (0.1%) (Central Statistics Office, 2022).

17.4.1.3 Soils

Soil series information is organised as Soils Associations – the mapping of local soils series or soil types that commonly occur in the landscape. The main soil associations found within the study area are Kilrush, Ashgrove and Peat soil associations (Environmental Protection Agency, 2014).

Soil Association Kilrush is classified as a Surface-water Gley or water influenced soil. In the study area, Kilrush soils are found on agricultural lands from Lisdeen Td. to Moyasta and from Carrownacalla North to Carrownacalla South. They are described as fine loamy in texture and the parent material is drift with siliceous stones. Kilrush soils are somewhat limited due to their heavy texture though with management are suited to grass production.

Soil Association Ashgrove is classified as a Brown Earth soil and is present in Leadmore Td. These soils are described as fine loamy drift with siliceous stones. These soils are well drained and are best suited to pasture.

Peat soils are present in Lisdeen Td. and at Moyasta Td. These soils are of limited use with poor drainage and are suited to more extensive grazing.

Further information regarding land and soils is included in Chapter 9 of this EIAR.

17.4.1.4 Agriculture in the Study Area

The study area is comprised of 40 agricultural properties directly impacted by the proposed project.

The baseline rating for agricultural property along the proposed project is presented in Table 17-6.

Table 17-6 Baseline rating

Rating	No. of properties	% of total
High	7	17.5%
Medium	25	62.5%
Low	6	15.0%
Very low	2	5.0%
Total	40	100.0%

17.5 Description of Potential Impacts

17.5.1 Potential Construction Impacts

The assessment of the impact on agricultural land includes the effects of the construction impacts. Construction activity associated with the proposed project will give effect to further impacts on agricultural property such as:

- Temporary land-take;
- Construction noise;
- Dust;
- Restricted access to land;
- Disturbance of field drainage;
- Disturbance of services.

The nature of each specific impact is discussed below.

17.5.1.1 *Temporary Land-Take*

The construction works for the proposed project will involve a total temporary land-take of 6.37ha agricultural lands. Temporary land-take is comprised of 6.28ha agricultural lands and 0.09ha public roads.

17.5.1.2 *Construction Noise*

The activity of earth moving machinery, transport lorries and other ancillary vehicles will generate additional noise emissions in the immediate vicinity of the construction area. Noise can be of significance for farm animals (i.e., when noise becomes excessively loud). In general, animals become accustomed to regular noises and sounds. Intermittent noises can cause fright and distress. Intermittent noises close to farm buildings can distress livestock.

17.5.1.3 *Dust*

Dust generated from the exposure of soil to the atmosphere during construction may cause annoyance or nuisance to the farmer and farm animals. Livestock are at risk of eye irritations from high levels of windblown dust particles. This stress may reduce productivity and increase management difficulties.

17.5.1.4 *Restricted Access to Land*

Access to land will be maintained, as much as possible, during the proposed project construction process (i.e., following the commencement of construction but before the accommodation works have been completed).

17.5.1.5 Disturbance of Field Drainage

Field drainage systems currently in situ will be interrupted by the construction works. These systems will be restored as part of the completed proposed project works. However, there may be temporary impaired drainage in the period of time between initial disturbance and final reinstatement of such drainage works.

17.5.1.6 Disturbance of Services

Access to either piped water or drinking points on watercourses may be affected during construction through the interruption of existing water supply piping on the farm or the diversion of watercourses used by livestock on the farm. Electric fencing used on farms to stock proof farm boundaries or control the movement of stock may also be affected.

17.5.2 Potential Operational Impacts

On agricultural properties, the proposed project will involve a total permanent land-take of 16.27ha from 40 holdings. Permanent land-take is comprised of 15.40ha agricultural lands and 0.87ha public road.

The proposed project will directly impact on 40 farms with 16 beef farms, eight leased farms, four dairy farms, two mixed livestock (dairy and beef) farms, one equine farm and seven grassland farms (short term grazing / silage production / unused), one grassland and woodland farm and one forestry plot. Sensitive impacts identified on the proposed project include three dairy farms where the milking platform will be affected by the proposed development.

The proposed development will not directly impact on farm buildings, animal handling pens or yard facilities.

17.5.2.1 Impact on Agricultural Land Nationally

The permanent acquisition of agricultural and other lands is not significant at a national level.

17.5.2.2 Impact on Agricultural Land in County Clare

The permanent acquisition of agricultural and other lands is not significant at a county level.

17.5.2.3 Impact on agricultural land in the study area

Land-take associated with the proposed development is predominantly on agricultural lands. For a significant section of the project the land-take on agricultural properties is comprised of the former West Clare Railway route alignment between Kilkee and Kilrush towns. On the remaining agricultural properties, land-take is generally comprised of a narrow corridor along field and farm boundaries.

An assessment of the impact of the proposed project on agricultural property is presented in Table 17-7. A summary of the magnitude of impact and the significance of impact on agricultural properties prior to mitigation is presented in Table 17-8 and Table 17-9. Land-take is not considered to be a significant impact on many agricultural properties.

Table 17-7 Impact assessment on agricultural properties

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
113 / 115	1.2	Grassland - Short term grazing	Low	0.5625	0.0	0.0013	0.0	Permanent and temporary reduction in agricultural area at Dough Td. due to proposed greenway alignment. Impact on existing access to retained area.	Low	Slight	Provide access crossings at Ch. 0+235 and 0+390 for existing right of way accesses to agricultural lands. Provide access gate to retained lands. Provide permanent stockproof boundary.	Slight
128	2.8	Beef	Medium	0.2666	0.0	0.2098	0.0	Permanent reduction in agricultural area at Dough Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of access to northern area. Impact on existing field access off former rail corridor. Impact on existing field boundaries.	Medium	Moderate	Provide access crossing at Ch. 0+830 to divided lands. Provide new field access gate to retained lands. Provide permanent stockproof boundary.	Moderate
131	0.8	Grassland - Unused	Very Low	0.1001	0.0	0.0470	0.0	Permanent reduction in agricultural area at Lisdeen Td. due to proposed greenway alignment.	Low	Not Significant	Provide permanent stockproof boundary.	Not Significant
134 / 137 / 152	29.7	Leased	Medium	0.7120	0.0	0.8333	0.0	Permanent reduction in agricultural area at Lisdeen Td. due to proposed greenway alignment. Farm division of lands into	High	Significant	Provide access crossings at Ch. 1+060, 2+050, 2+180 and 2+340. Provide permanent stockproof	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								three separate areas. Loss of direct access to two southern areas. Impact on existing field boundaries.			boundary. Provide agricultural crossings of watercourses at Ch. 2+100 and Ch. 2+275.	
139	73.3	Beef	Medium	0.1940	0.0	0.0175	0.0	Permanent reduction in agricultural area on two plots of lands at Lisdeen Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access to retained areas. Impact on private access road. Impact on existing field boundaries.	Medium	Moderate	Provide access crossing at Ch. 1+950. Provide permanent stockproof boundary.	Moderate
140 / 141	36.6	Mixed Livestock - Dairy & Beef	High	0.0018	0.0	0.0089	0.0	Permanent reduction in agricultural area at Lisdeen Td. due to proposed greenway alignment.	Very Low	Not Significant	Provide permanent stockproof boundary.	Not Significant
144 / 145 / 146 / 148	28.5	Beef	Medium	0.0131	N/A	0.0315	N/A	Permanent reduction in agricultural area at Lisdeen Td. due to proposed greenway alignment.	Low	Slight	Provide permanent stockproof boundary.	Slight
136 /	14.2	Beef	Medium	0.1791	0.0	0.3488	0.0	Permanent reduction in agricultural area at Lisdeen Td. due to proposed greenway alignment. Farm division of lands into two separate areas.	Medium	Moderate	Provide access crossings at Ch. 1+150 and Ch. 1+250. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								Loss of direct access to retained areas.				
149	15.7	Forestry	Low	0.1936	0.0	0.0	0.0	Permanent reduction in forestry area at Lisdeen Td. due to proposed greenway alignment. Division of lands into two separate areas. Loss of direct access to retained areas.	Low	Slight	Provide access crossing at Ch. 1+730. Provide permanent stockproof boundary.	Moderate
151	40.7	Beef	Medium	0.9133	0.0	0.0483	0.0	Permanent reduction in agricultural area at Lisdeen Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access to southern area from farmyard. Impact on private access road. Impact on existing field boundaries.	Medium	Moderate	Provide access crossings at Ch. 2+500, Ch. 2+575 and 2+830. Provide permanent stockproof boundary.	Moderate
153 / 153A	73.3	Dairy	High	0.6643	0.0	0.2635	0.0	Permanent reduction in agricultural area at Garraun Td. / Lisdeen Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access to southern area from farmyard for dairy herd. Impact on short term rented lands. Impact on access to lands via former rail	High	Significant	Provide access crossing at Ch. 3+475, Ch. 3+720 and Ch. 3+775. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								corridor. Impact on existing field boundaries.				
154	4.1	Grassland - Silage production	Medium	0.0036	0.0	0.0021	0.0	Permanent reduction in agricultural area at Garraun Td. due to proposed greenway alignment. Impact on existing access to retained lands via former rail corridor. Impact on existing field boundaries.	High	Significant	Maintain existing access to retained lands. Provide permanent stockproof boundary.	Not Significant
202	4.1	Grassland & Woodland	Low	0.3107	0.0	0.0	0.0	Permanent reduction in agricultural and woodland area at Garraun Td. due to proposed greenway alignment. Impact on existing field boundaries.	Low	Slight	Provide permanent stockproof boundary.	Slight
203	15.5	Leased	Medium	0.8993	0.0034	0.0992	0.0021	Permanent reduction in agricultural area at Garraun Td. due to proposed greenway alignment. Landtake along field boundary on lands north of local road. Farm division of southern lands into two separate areas. Loss of direct access between retained lands. Impact on existing field boundaries.	Medium	Moderate	Provide access crossings at Ch. 4+290 and 4+380. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
209	40.7	Equine	High	0.0900	0.0060	0.0503	0.0	Permanent reduction in agricultural area at Garraun Td. due to proposed greenway alignment. Impact on existing field boundaries.	Low	Slight	Provide permanent stockproof boundary.	Not Significant
208	15.1	Beef	Medium	0.0588	0.0	0.0402	0.0	Permanent reduction in agricultural area at Baunmore Td. due to proposed greenway alignment. Impact on existing field access to retained lands. Impact on existing field boundaries.	Medium	Moderate	Provide new field access access gate to retained lands. Provide permanent stockproof boundary.	Slight
211	50.9	Dairy	High	1.4413	0.0	0.0018	0.0	Permanent reduction in agricultural area at Baunmore Td. due to proposed greenway alignment. Impact on existing field boundaries.	Low	Slight	Provide access crossing at Ch. 5+860. Provide permanent stockproof boundary.	Slight
212	14.2	Beef	Medium	0.4860	0.0026	0.1834	0.0	Permanent reduction in agricultural area on two plots of lands at Baunmore Td. and Moyasta Td. due to proposed greenway alignment. Landtake along field boundary on Baunmore Td. plot. Farm division of lands into two separate areas on Moyasta Td. plot. Loss of direct access	Medium	Moderate	At Baunmore plot, maintain access on lane at Ch. 6+170. At Moyasta plot, provide access crossing to northern area at Ch. 6+900 and holding pen. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								between retained areas. Impact on shore access between lands. Temporary impact on existing lane. Impact on existing field boundaries.				
213	1.2	Grassland - Silage production	Low	0.0235	0.0018	0.0477	0.0	Permanent reduction in agricultural area at Baunmore Td. due to proposed greenway alignment. Impact on existing field boundaries.	Low	Slight	Provide permanent stockproof boundary.	Slight
217	28.5	Beef	Medium	0.1650	0.0	0.1509	0.0	Permanent reduction in agricultural area on lands at Baunmore Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access to farmyard from divided area. Impact on existing field boundaries.	Medium	Moderate	Provide access crossing to southern area at Ch. 6+460 and Ch. 6+650. Provide permanent stockproof boundary.	Moderate
220 / 221 /222	75.3	Dairy	High	0.4848	0.0	0.0758	0.0	Permanent reduction in agricultural area at Moyasta Td. due to proposed greenway alignment. Farm division of lands into three separate areas. Loss of direct access to two southern areas.	Medium	Moderate	Provide access crossings at Ch. 7+025 and 7+225. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								Impact on existing field boundaries.				
223	14.2	Beef	Medium	0.2921	0.0	0.1565	0.0	Permanent reduction in agricultural area at Moyasta Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access from the southern area to the farmyard. Impact on existing field boundaries.	High	Significant	Provide access crossings at Ch. 7+275 and 7+575. Provide permanent stockproof boundary.	Moderate
225	40.7	Beef	Medium	0.0728	0.0	0.0391	0.0	Permanent reduction in agricultural area at Moyasta Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access from the farmyard to the southern owned and share of commonage lands. Impact on existing field boundaries.	Medium	Moderate	Provide access crossing at Ch. 7+650. Provide permanent stockproof boundary.	Moderate
226	93.6	Mixed Livestock - Dairy & Beef	High	0.1651	0.00	0.00	0.00	Permanent reduction in agricultural area at Moyasta Td. due to proposed greenway alignment. Loss of access to all owned lands and share of commonage lands. Farm division of lands	High	Significant	Provide access to the retained lands via a shared section of the greenway using the Railway Bridge at Moyasta. Provide access crossing at Ch. 7+750. Provide	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								into two separate areas. Loss of direct access between retained areas. Impact on existing field boundaries.			permanent stockproof boundary.	
305	16.3	Grassland - Short term grazing	Low	0.2712	0.0998	0.0885	0.0052	Permanent reduction in agricultural area at Moyasta Td. due to proposed greenway alignment. Farm division of lands into two separate areas. Loss of direct access between retained lands. Impact on two field access gates. Impact on existing field boundaries.	Low	Slight	Provide access crossings at Ch. 8+300. Provide permanent stockproof boundary.	Slight
308 / 311	26.5	Beef	Medium	0.6891	0.0285	0.00	0.00	Permanent reduction in agricultural area on two plots of lands at Moyasta Td. and Carrownacalla North Td. due to proposed Moyasta Trailhead and greenway alignment. Impact on existing access to the shore.	Medium	Moderate	Provide access crossing at Ch. 8+700. Provide permanent stockproof boundary.	Slight
314	5.3	Leased	Medium	0.0107	0.0	0.00	0.0	Permanent reduction in agricultural area on lands at Carrownacalla North Td. due to proposed greenway alignment.	Very Low	Not Significant	Provide permanent stockproof boundary.	Not Significant

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
314A	0.1	Grassland - Unused	Very Low	0.0264	0.0	0.00	0.0	Permanent reduction in agricultural area on lands at Carrownacalla North Td. due to proposed greenway alignment.	Very Low	Not Significant	Provide permanent stockproof boundary.	Not Significant
315	10.6	Beef	Medium	0.0990	0.0	0.00	0.0	Permanent reduction in agricultural area on lands at Carrownacalla North Td. due to proposed greenway alignment.	Very Low	Not Significant	Provide permanent stockproof boundary.	Not Significant
316	8.6	Leased	Medium	0.3721	0.0	0.0	0.0	Permanent reduction in agricultural area on lands at Carrownacalla North Td. due to proposed greenway alignment.	Low	Slight	Provide permanent stockproof boundary.	Not Significant
317	28.1	Leased	Medium	1.5318	0.0	0.1670	0.0	Permanent reduction in agricultural area on two plots at Carrownacalla North Td. and Carrownacalla South Td. due to proposed greenway alignment. On northern plot, impact on existing field access gate and along the plot boundary. On southern plot, farm division of lands into three separate areas. Impact on direct access between retained lands. Impact on existing field boundaries.	Medium	Moderate	Provide access crossings at Ch. 9+920 and 10+275. Replace field access gate to retained lands to northern plot. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
322	122.1	Dairy	High	1.6566	0.7257	0.8424	0.0788	Permanent reduction in agricultural area at Carrownacalla South Td. due to proposed greenway alignment. On northern lands, impact on existing shore access to yard and lands. On southern lands, impact on existing field access gates along local road. Impact on access from farmyard to the southern lands for dairy herd. Impact on existing field boundaries.	High	Significant	Provide box culvert underpass structure (2.7m X 6.2m) at Ch. 11+490. Provide access crossings at Ch. 10+820, 11+400 and 11+825. Provide permanent stockproof boundary.	Moderate
323	16.3	Leased	Medium	0.5611	0.0	0.0	0.0	Permanent reduction in area of former railway corridor at Carrownacalla South Td. due to proposed greenway alignment.	Very Low	Not Significant	Provide permanent stockproof boundary.	Not Significant
402 / 403 / 404	24.4	Beef	Medium	0.7089	0.0	1.6895	0.0	Permanent reduction in agricultural area at Carrownacalla South Td. due to proposed greenway alignment. Farm division of holding into two separate areas. Loss of direct access between retained areas. Impact on internal farm access road. Impact on existing field access gate at Brews Bridge car park.	High	Significant	Provide access accommodation overbridge structure (3.4m wide) at Ch. 12+400. Provide access crossings at Ch. 12+520, 12+560 and 12+850. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
								Impact on existing field boundaries.				
410	31.9	Beef	Medium	0.1931	0.0	0.2256	0.0	Permanent reduction in agricultural area at Carrownacalla South Td. and Leadmore West Td. due to proposed greenway alignment. Farm division of holding into two separate areas. Loss of direct access between retained areas. Impact on existing field access gate at Brews Bridge car park. Impact on existing field boundaries.	High	Significant	Provide access crossings at Ch. 13+025 and 13+225. Provide new field access gate at Brews Bridge Car Park. Provide permanent stockproof boundary.	Moderate
411	38.7	Beef	Medium	0.4575	0.0	0.4413	0.0	Permanent reduction in agricultural area at Leadmore West Td. due to proposed greenway alignment. Farm division of holding into two separate areas. Loss of direct access between retained areas. Impact on internal farm access road to southern yard. Impact on existing field access gate at Brews Bridge car park. Impact on existing field boundaries.	High	Significant	Provide access crossings at Ch. 13+400 with holding pens, 13+440 and 13+500. Provide new field access gate at Brews Bridge Car Park. Provide permanent stockproof boundary.	Moderate

Farm ref.	Farm Size (ha)	Farm Type	Baseline Rating	Perm. Agri Land (ha)	Perm. Public Road (ha)	Temp. Agri Land (ha)	Temp. Public Road (ha)	Impact Details	Magnitude of Impact	Impact Significance (Pre-mitigation)	Specific Mitigation Measures	Residual Impact Significance
413	24.8	Leased	Medium	0.3649	0.0	0.1052	0.0	Permanent reduction in agricultural area at Leadmore West Td. due to proposed greenway alignment. Farm division of holding into two separate areas. Loss of direct access between retained areas. Impact on existing field boundaries.	Medium	Moderate	Provide access crossings at Ch. 13+690. Provide permanent stockproof boundary.	Moderate
418	9.8	Beef	Medium	0.0566	0.0	0.0	0.0	Permanent reduction in agricultural area at Leadmore West Td. due to proposed greenway alignment. Impact on existing field boundaries.	Low	Slight	Provide permanent stockproof boundary.	Slight
421	2.7	Leased	Low	0.0677	0.0	0.0594	0.0	Permanent reduction in agricultural area at Leadmore West Td. due to proposed greenway alignment. Impact on access to small retained area. Impact on existing field boundaries.	Low	Slight	Provide access crossings at Ch. 14+800. Provide permanent stockproof boundary.	Slight
424	0.59	Grassland	Medium	0.0249	0.0	0.0	0.0	Permanent reduction in agricultural area at Leadmore West Td. due to proposed greenway access track.	Very Low	Not Significant	Provide permanent stockproof boundary.	Not Significant

A summary of the magnitude of impact on agricultural properties is outlined in Table 17-8.

Table 17-8 Magnitude of impact assessment

Rating	No. of properties	% of total
Very High	0	0.0%
High	9	22.5%
Medium	13	32.5%
Low	12	30.0%
Very low	6	15.0%
Total	40	100.0%

The magnitude of impact on agricultural land and property ranges from Very Low to High. There are nine agricultural properties (22.5%) where the magnitude of impact is High. On these properties the impact is such that the farm enterprise can only continue with considerable management changes. Such management changes may involve changes to livestock type and numbers, areas of fodder / crop production and the continued use of existing farmyard facilities.

A summary of the significance of the impact on agricultural properties is outlined in Table 17-9.

Table 17-9 Significance of impact

Rating	No. of properties	% of total
Profound	0	0.0%
Very Significant	0	0.0%
Significant	9	22.5%
Moderate	13	32.5%
Slight	11	27.5%
Not Significant	7	17.5%
Imperceptible	0	0.0%
Total	40	100.0%

The significance of effect, which is determined by combining the magnitude of impact with the baseline rating for that farm, ranges from *not significant to significant*.

There are nine agricultural properties (22.5%) on the proposed project where the level of effect is considered *significant*. On seven of these agricultural properties, the significant effect is the impact of farm division and to a degree the land-take on the farm holdings. On two of these agricultural properties, the significant effect is the loss of access to the retained lands. In addition to recommended mitigation, these farm enterprises will require management changes to deal with the effect on the farm enterprise.

There are 13 agricultural properties (32.5%) on the proposed project where the level of effect is considered *moderate*. These are primarily due to the combined impact of land-take and farm division on farm holdings. In addition to recommended mitigation, these farm enterprises will require management changes to deal with the effect on the farm enterprise.

There are 11 agricultural properties (27.5%) where the level of effect is considered *slight*. These are mainly agricultural properties where the proposed greenway will run along existing field or farm boundaries or along a section of the abandoned rail line. On these properties, any required management changes to deal with the effect on the farm enterprise will be minor.

There are seven agricultural properties (17.5%) where the level of effect is considered *not significant*. On these agricultural properties, there is a relatively low level of land-take involved along the existing field or farm boundaries. On these farm enterprises, management changes will not be required.

17.6 Mitigation Measures

17.6.1 Construction Phase

17.6.1.1 Temporary Land-Take

Following the completion of relevant construction works, lands temporarily acquired will be reinstated to existing agricultural condition. Measures will be considered on a site-by-site basis, subject to proposed construction works. Where construction compounds will involve installing a hard-core surface it will be necessary for topsoil to be removed and stored. Where new access is proposed affecting existing property boundaries these will be reinstated on a like for like basis. This may require storage of stone wall material during construction or replanting of hedgerow / trees, as required.

17.6.1.2 Construction Noise

Measures to mitigate noise impacts on sensitive receptors are detailed in Chapter 14 (Noise and Vibration). Good communication between the contractor and adjacent landowners during the construction phase, especially when excessively loud activities are programmed, will prevent undue disturbance to farm animals due to noise. It will also facilitate farm enterprises so that livestock can be moved away from the construction work during critical times.

17.6.1.3 Dust

Measures to control the production of dust will be put in place by the contractor (refer Chapter 12 Air Quality). Good communication between the contractor and landowners in the proximity of construction activities will facilitate on-going farm enterprises so that livestock may be kept as far as possible from the construction work during critical times.

17.6.1.4 Restricted Access to Land

Where farm division has occurred, temporary access across the proposed construction works corridor will need to be maintained on farms until such time as permanent alternative access is provided. Access will be restored, as soon as possible, to lands where it is removed or restricted by the proposed project. The location of such access will be at a suitable location and, where possible, with the agreement of the landowner.

Good communication between individual farmers and the contractor will minimise difficulties caused by the restriction of access to land. Temporary fencing will be erected as required to delineate the site boundary and to minimise disturbance to adjacent lands.

17.6.1.5 Disturbance of Field Drainage

In cases where drainage is impeded during construction and causes obvious difficulty to a particular landowner, temporary measures will be considered on a site-specific basis. This may include allowing waters to drain to less critical areas, so as to minimise the impact.

17.6.1.6 Disturbance of Services

Where required, an alternative source of water / electricity will be provided to ensure that disruption to farming is minimised during the construction phase.

17.6.2 Operation Phase

The following general mitigation measures will be provided:

- For landowners with land on either side of the greenway, access crossing points will be provided as required for crossing movements of livestock and machinery. The default gate type that is to be provided is a single field gate arrangement per Chapter 4 Description of the Proposed Development. Gates will be hung on opposite piers either side of the greenway, and when opened, will temporarily close off the greenway to allow the landowner to cross. The location of such field access gates will be at a suitable location and, where possible, with the agreement of the landowner.
- On 4 No. agricultural properties, access will be provided via an access accommodation structure to divided lands.

Table 17-10 Access accommodation structures

Chainage	Location	Type and Size
Ch. 7+900	Moyasta Townland	Shared section of greenway for agricultural access for livestock and machinery via Moyasta River Bridge.
Ch. 11+575	Carrownacalla South Townland	Private farm accommodation box culvert cattle underpass (6.2m wide, 3m long, and 2.7m high).
Ch. 12+400	Carrownacalla South Townland	Private farm accommodation overbridge (3.4m wide x 10m long) for livestock.

- Permanent boundary treatment along agricultural lands will consist of a stockproof boundary that is comprised of timber post and tension mesh wire (per TII standard CC-SCD-00320) or similar alternative (e.g. concrete, etc.).
- The new drainage system will be designed to ensure that there will be no increased risk of flooding as a consequence of the proposed project.
- Any services that are interfered with as a result of the proposed project will be repaired / replaced without unreasonable delay.
- Ducting for the restoration of water and power supply services will be provided, as necessary.
- Screening will be provided, where required, to mitigate the noise and visual effects of construction works and operational traffic.

17.7 Monitoring

No specific monitoring is required in respect of impact on agricultural lands, however, Clare County Council will engage proactively with landowners through the land acquisition and accommodation works processes to ensure complaints are promptly addressed, where feasible.

17.8 Residual Effects

The significance of the residual impact on agricultural land has been assessed following the implementation of general mitigation measures as outlined in Section 17.6. A summary of the residual impact on agriculture is presented in Table 17-11 .

Table 17-11 Significance of residual impact

Rating	No. of properties	% of total
Profound	0	0.0%
Very Significant	0	0.0%
Significant	0	0.0%
Moderate	19	47.5%
Slight	10	25.0%
Not Significant	11	27.5%
Imperceptible	0	0.0%
Total	40	100.0%

After mitigation, there are no agricultural properties on which the residual impact is likely to be *profound*, *very significant* or *significant*. This represents a reduction of nine agricultural properties with a *significant* impact prior to mitigation.

There are 19 agricultural properties (47.5%) on the proposed project where the level of impact is *moderate*. There are ten agricultural properties (25.0%) on which the residual impact is likely to be *slight* and eleven agricultural properties (27.5%) on which the residual impact is likely to be *not significant*. There are no agricultural properties with an impact deemed to be *imperceptible*.