

Chapter 15 Material Assets and Land – Agriculture

15.1 Introduction

This Chapter of the EIAR discusses the impact of the proposed Foynes to Limerick Road (including Adare Bypass) on agricultural property.

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

- Chapter 6 Population and Human Health;
- Chapter 9 Hydrogeology;
- Chapter 10 Hydrology;
- Chapter 11 Landscape and Visual Analysis;
- Chapter 12 Noise and Vibration;
- Chapter 13 Air Quality and Climate;
- Chapter 14 Archaeology, Architecture & Cultural Heritage;
- Chapter 16 Material Assets and Land – Non-Agriculture.

15.2 Methodology

This chapter will describe the receiving environment and determine the significance of the impact of the proposed road on agriculture. The assessment methodology has considered the following guidelines:

- *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft) (EPA 2017);*
- *Advice Notes for Preparing Environmental Impact Statements (Draft) (2015);*
- *Environmental Impact Assessment of National Road Schemes – A Practical Guide (TII, 2008);*
- *Advice notes on current practice in the preparation of Environmental Impact Statements (EPA, 2003); and,*
- *Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002).*

The methodology for the assessment of the significance of impacts on agriculture comprised of a desktop survey of project mapping and information. Subsequently roadside surveys of the areas potentially impacted by the proposed road development were undertaken and followed by detailed farm surveys involving direct landowner consultation and walkover farm surveys where possible.

The baseline environment and impact assessment relied on information from several sources as outlined in Table 15.1.

Table 15.1 Information Used in Assessment and Sources

| Information | Source |
|---|---|
| Land registry / landownership information | Limerick City and County Council & landowner consultation. |
| Land use, farm details | Roadside surveys, landowner consultations & walkover farm surveys. |
| Agricultural statistics | National census of agriculture statistics derived from the June 2010 census of agriculture (Central Statistics Office, 2012). Farm Structure Survey 2016 (Central Statistics Office, 2016). |
| Soils information | Irish National Soils Map, 1:250,000k, V1b(2014).Teagasc, Cranfield University (EPA, 2014). Creamer, R. "Irish SIS Final Technical Report 13: Irish Soil Information System Legend" (EPA, 2014). Creamer, R. "Irish SIS Final Technical Report 10: Soil Profile Handbook" (EPA, 2014). |
| Planning and zoning objectives | Limerick County Development Plan (2010-2016) (as extended); Askeaton LAP 2015-2021; Rathkeale LAP 2012-2018 (extended until 2022); Adare LAP 2015-2021; |
| Road design mapping & project information, Compulsory Purchase Order (CPO) deposit mapping & schedule | ROD-AECOM Alliance. |

There are 105 agricultural properties impacted by the proposed road. Landowner consultation has taken place in relation to 103 properties with the remainder unavailable.

Farm surveys, conducted by the project agronomist, involved on-site meetings with agricultural property owners, walk-over survey of affected lands and the completion of detailed farm questionnaires. In addition, nine farm holdings were assessed by the equine specialist for the proposed road development in line with the above methodology. The walk-over surveys of the affected lands enabled an assessment of the impact of the proposed road development and the exploration of possible mitigation measures necessary to alleviate negative impacts.

15.2.1 Study Area

The study area comprises of the agricultural land and property impacted by the proposed Foynes to Limerick Road (including Adare Bypass).

There are 105 agricultural properties impacted by the proposed road development. The total landtake from agricultural properties will comprise of approximately 332.1ha of agricultural lands, 2.8ha of other lands and 6.1ha of public road.

15.2.2 Assessment Methodology

The baseline environment for agricultural property was evaluated on an individual property basis and assigned a baseline rating. This baseline rating combined with a magnitude of impact from construction and operational impacts associated with the proposed road development will determine the significance of the agricultural impact.

Baseline Rating

Farm holdings within the study area were assigned a baseline rating which is determined by the farm type, farm size, land quality, sensitivity to construction and operational impacts and any existing adverse effects. This information was sourced from landowner consultations and walkover surveys on farm holdings directly affected by the proposed road development.

Farm type influences the degree of the baseline rating with higher ratings for specialist farm types or enterprises that consist of the breeding or farming of high value livestock. Enterprises that are farmed at an intensive level, such as dairying i.e. with a high stocking rate, and indoor farm enterprises such as pig or poultry farms are indicative of a high baseline rating. Tillage-based and horticultural farm enterprises are also indicative of a high baseline rating. Less intensive farm enterprises such as beef and sheep farms are generally indicative of a medium baseline rating.

Larger farm holdings or single unit farms will allow for greater scale of production and are indicative of a high baseline rating. Farms that are smaller or fragmented in structure are generally indicative of a medium baseline rating.

Land quality on a farm holding will determine farm productivity and lands of good quality will be indicative of a high baseline rating. Farms with lands that are limited in agricultural usage due to soil type, topography or drainage will be indicative of a medium or low baseline rating.

The sensitivity of some farm enterprises to the effects of construction and/or operational impacts of the proposed road will influence the baseline rating of farm holdings. Such farms will include specialist dairy farms and specialist equine farms. Dairy farms are sensitive to impacts that will reduce available grassland area and existing access to the milking platform, i.e. access for dairy cows between the farmyard and the grazing paddocks. Equine livestock used for the breeding and training of horses can be regarded as sensitive to impacts such as noise, dust and visual impacts.

The determination of a baseline rating may also be influenced by existing adverse effects such as the proximity of the lands to urban areas and the zoning of lands.

Baseline Rating Criteria

The criteria used to determine the baseline rating for the farm holdings on the proposed road are shown in Table 15.2. The criteria for each of the baseline ratings have been developed in consideration of the relevant EPA guidelines on describing the existing environment.

Table 15.2 Baseline Rating Criteria

| Baseline | 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. |

| Baseline | Criteria |
|-----------------|--|
| Medium | Livestock and / or tillage enterprises on medium 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. |

Impact Magnitude

Impacts on agricultural properties arising from construction and operation of the proposed road include:

- Land-take;
- Land severance;
- Impact on farm buildings / facilities;
- Other impacts such as impacts on land drainage and services.

Land-take

The effect of agricultural land-take can be significant and the acquired area 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 proposed road is almost entirely offline on agricultural lands and will involve significant areas of land-take on some individual farms. Details of the permanent areas of land-take on individual properties are presented in Table 15.6.

Land Severance

The severance 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 severed lands, their location relative to remaining lands and the duration of severance will influence the magnitude of impact. The severance of a significant area or proportion of available land will indicate a high magnitude of impact. The severance of lands adjoining a farmyard, particularly an intensive farm such as a dairy farm, will have a higher magnitude of impact than the severance of lands at the external boundary of a farm. The permanent severance of lands will have a greater magnitude of impact than temporary severance.

The proposed road development will result in land severance on some of the affected farm holdings. During the construction period, there may be temporary impacts on access to both severed and remaining lands due to works involved and traffic diversions required for the construction of the proposed road and the associated junctions. Where severance of land occurs, mitigation measures may be necessary to restore access to lands.

Impact on Farm Buildings / Facilities

The impact of a proposed road on farm buildings or facilities is generally indicative of a medium to high magnitude of impact. 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 road development will impact on farm facilities on one farm consisting of several farm buildings for animal housing and fodder storage, animal handling pen / crush, concrete yards and hard-core areas. There is an impact on animal handling pens on five farms.

Other Impacts such as Impacts on Land Drainage and Services

The construction activities on a proposed road may result in the disturbance of existing land drainage and the interruption of services such as water, power and other utilities. The magnitude of impact will be influenced by the type of disturbance and the duration involved. These impacts are generally of a temporary to short term duration being limited to the extent of construction works.

The proposed road development will temporarily impact on the local drainage network and field drainage immediately adjacent to the proposed road. There will be a temporary impact on water supply where existing connections to water mains are affected. There will be a temporary disruption of power supply (for agricultural fencing) where existing fencing is affected.

Magnitude of Impact Criteria

The criteria used to determine the magnitude of impact for the farm holdings on the proposed road are shown in Table 15.3. The criteria for each of the impact ratings have been developed in consideration of the relevant EPA guidelines on the assessment of impact.

Table 15.3 Magnitude of Impact Criteria

| Magnitude | Criteria |
|------------------|--|
| Very High | <ul style="list-style-type: none"> • The impact on the farm is such that the farm enterprise(s) cannot continue. • Permanent land-take of such an area that the farm enterprise(s) is unworkable. • Permanent land severance of such an area that the farm enterprise is unworkable. • Essential farm buildings / facilities may be significantly impacted. |
| High | <ul style="list-style-type: none"> • The impact on the farm is such that the farm enterprise(s) cannot continue without considerable management changes. • Permanent land-take of such an area that the continued management of the farm enterprise will require considerable change. • Permanent land severance 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 | <ul style="list-style-type: none"> • The impact on the farm is such that the farm enterprise(s) can be continued as before but with increased management difficulties. • Permanent land-take of such an area that the management of the farm enterprise(s) can be continued but with increased difficulties. • Permanent land severance 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 | <ul style="list-style-type: none"> • The impact on the farm is such that the farm enterprise(s) can be continued as before with minor management changes. • 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 land severance 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. • Temporary construction impacts. |
| Very Low | <ul style="list-style-type: none"> • The impact on the farm is such that the farm enterprise can be continued as before or with temporary management changes. • Temporary land-take of such an area without noticeable consequences. • Permanent land-take of very small areas of land or of public roadbed only. • Temporary land severance of a nature that the farm enterprise can be continued but with minor management changes. • Farm buildings / facilities would not be directly impacted. There may be indirect impacts. • Temporary construction impacts. |

Significance of Impact

The significance of impact on an agricultural property is determined by the baseline rating of a farm holding combined with the magnitude of impact of the proposed road development. 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 15.4 using the baseline rating and magnitude of impact. The likely significance of impact is prior to the implementation of any mitigation measures.

Table 15.4 Significance of Impact

| Baseline Rating | Magnitude of Impact | | | | |
|-----------------|---------------------|-------------|----------|-----------------|-----------------|
| | Very High | High | Medium | Low | Very Low |
| High | Profound | Significant | Moderate | Slight | Not Significant |
| Medium | Very Significant | Significant | Moderate | Slight | Not Significant |
| Low | Significant | Moderate | Slight | Not Significant | Not Significant |
| Very low | Moderate | Slight | Slight | Not Significant | Imperceptible |

15.3 Description of Existing Environment for Agriculture

15.3.1 Agricultural land in Ireland

The development of a road which will require the permanent acquisition of agricultural lands will result in a reduction in the national utilisable agricultural land area. The national agricultural land area is 4,883,600ha including commonage and rough grazing. When these categories are excluded there is 4,088,000ha of grassland, 280,400ha of cereals and 71,100ha of other crops, fruit and horticulture (Central Statistics Office, 2016).

There are 137,500 farms in Ireland with an average farm size of 32.4ha. The main agricultural enterprises are beef (57.0%), dairying (11.7%), sheep (11.0%) and mixed grazing livestock (8.5%). Mixed field crops (6.0%), tillage (3.4%), mixed crops and livestock (1.5%) and other (0.9%) are the remaining enterprises (Central Statistics Office, 2016).

15.3.2 Agricultural land in Co. Limerick

The total agricultural area of County Limerick is 209,133ha and when commonage and rough grazing are excluded there is 196,303ha grassland, 923ha cereals and 1,135ha of other crops, fruit and horticulture (Central Statistics Office, 2012).

There are 5,991 farms in County Limerick with an average farm size of 34.5ha. The main agricultural enterprises are beef (58.4%), dairy (24.1%) mixed field crops (7.4%), mixed grazing livestock (6.9%), sheep (0.9%), mixed crops & livestock (0.5%), tillage (0.3%) and other (1.5%) (Central Statistics Office, 2012).

15.3.3 Soils

Soil series information is organised as Soils Associations – the mapping of local soils series or soil types that commonly occur in the landscape. There are two main soil associations found within the study area, principally Elton and Ballinacurra and to a much lesser extent Soil Associations Gurteen, Boyne and Peat. The Soil Associations within the study area are presented in Plate 15.1.

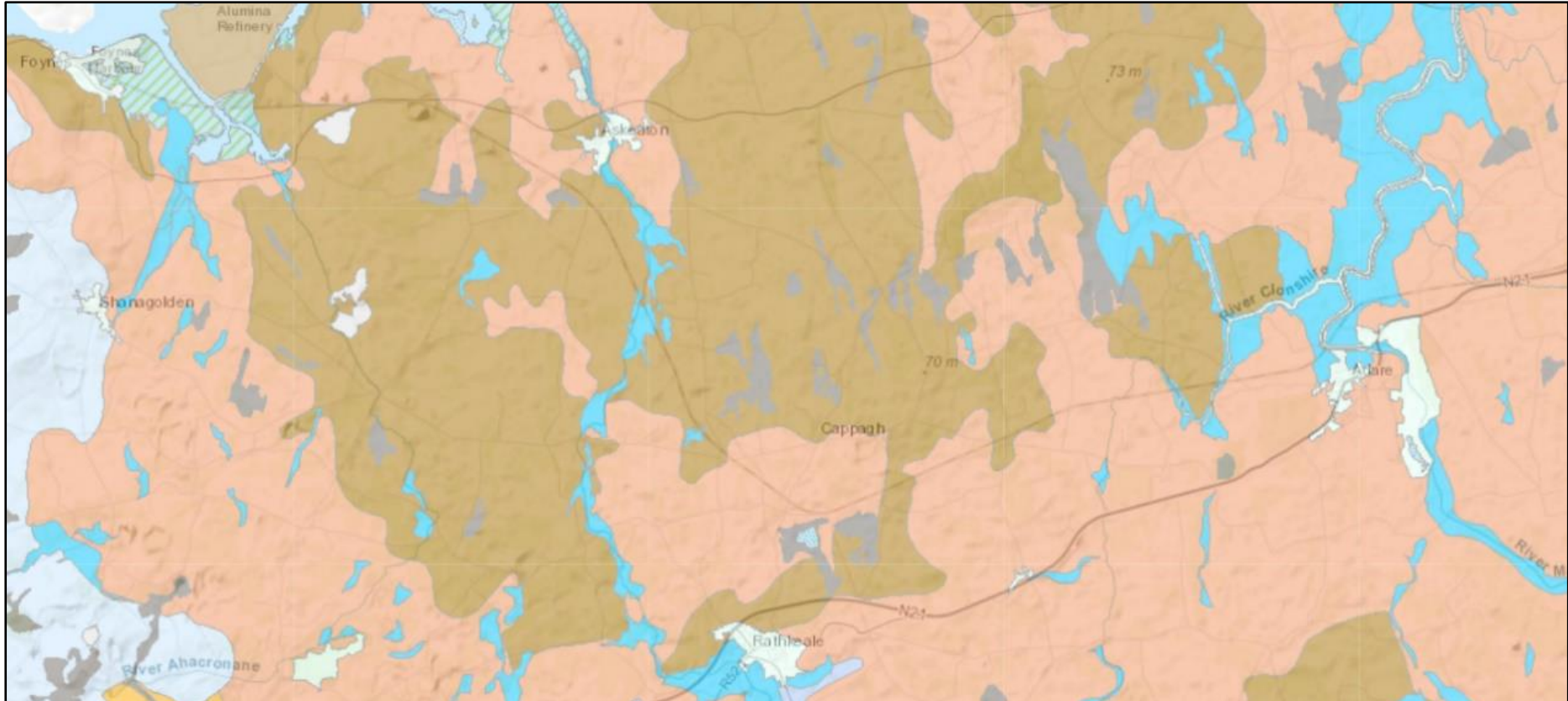


Plate 15.1 Soil Associations (Teagasc, Cranfield University, 2014)

Soil Association Elton (area shaded in salmon colour in Fig. 15.1) is classified as a Luvisols or soils with clay enriched subsoils. Along the proposed road Elton soils are found near Foynes, north of Rathkeale and between Croagh and Adare. They represent Typical Luvisols with distinct topsoil and are described as fine loamy in texture and the parent material is drift with limestones. Elton soils are associated with Surface water Gleys, Stagnic Brown Earths and Calcareous Brown Earths.

Ballinacurra soils (areas shaded in Brown) are Typical Calcareous Brown Earths and are described as Fine Loamy over Limestone bedrock. These soils are found from Mulderricksfield to Graigeen, Rathkeale and Rower More / Tuogh.

Soil Association Gurteen soils (areas shaded in Light Blue) are a Loamy Lake Alluvium and are classified as a Typical Alluvial Gley soil. They are found at Sroolane North near Foynes. Soil Association Boyne soils (areas shaded in Light Blue) are a Silty River Alluvium and are classified as a Typical Alluvial Gley soil. They are found at a number of locations including Sroolane North, at the Robertstown River, at the River Deel, Graigeen, Graigue, at the Clonshire River and at the Mague River.

The Peat soils (areas shaded Grey) are composed of organic material and are located at Ballyclogh and Blossomhill / Clogh West.

15.3.4 Agriculture in the Study Area

The agricultural lands in the study area are typical of the Golden Vale region and are generally comprised of high-quality grassland suited for livestock and in particular to intensive dairy and beef production. The topography is flat to undulating with elevations of between 10m and 50m. The agricultural lands mainly comprise of dry mineral soils and are ideally suited to grassland use while also being suitable for tillage production.

The affected plots and farm holdings along the proposed road range in size from <1ha to greater than 100ha and the average farm size at 38.9ha is higher than the average farm size at a national level and for County Limerick. Farming enterprises range from moderate to intensive in nature and they comprise predominantly of specialist beef farming (36.8%), specialist dairy (14.2%) and mixed grazing livestock (11.3%).

In addition to the specialist dairy farms there are six farms (5.6%) with dairy as part of a mixed livestock or mixed crops and livestock farm enterprise. The overall level of dairy farming along the proposed road is lower than the level within County Limerick.

There is a significant equine industry within the region and farms along the proposed road include specialist equine farms (5.7%) and farms with significant equine interests (3.8%) as part of a mixed livestock farm enterprise.

There is a significant level (22.6%) of farm holdings that are leased out on either a long-term basis, annually (conacre) or on a shorter-term basis i.e. summer grazing. Land-use on these holdings is predominantly grassland for beef farming with some involved in dairy and / or tillage.

There are a small number of plots under forestry or Peat being limited to parts of larger plots or holdings.

Summary details of baseline ratings for agricultural property along the proposed road are presented in Table 15.5.

Table 15.5 Baseline Ratings for Agricultural Property

| Baseline rating | No. of farms | % of total |
|-----------------|--------------|------------|
| High | 38 | 36.2% |
| Medium | 60 | 57.1% |
| Low | 7 | 6.7% |
| Very low | 0 | 0% |
| | 105 | 100.0% |

Further detail on farm size, farm type and baseline rating for farms affected by the proposed road are presented in Table 15.6.

15.4 Description of Likely Impacts on Agricultural Land

The proposed road development will involve a total land-take of 332.0862ha from agricultural holdings. This figure consists of the acquisition of 323.3838ha agricultural lands, 2.5779ha other lands (private road, river, etc.) and 6.1245ha public road.

15.4.1 Impact on Agricultural land Nationally

The permanent acquisition of approximately 323.4ha of land is not significant at a national level.

15.4.2 Impact on Agricultural land in County Limerick

The proposed road development will involve the acquisition of approximately 323.4ha of land from 105 agricultural properties. The landtake will be very high on some of the individual farms but is not significant at a county level.

15.4.3 Impact on Agricultural land in the Study Area

The impact on agricultural land is confined to farm holdings impacted by the proposed road development. An assessment of the impact of the proposed road development on agricultural property is presented in Table 15.6 and a summary of the results prior to any mitigation is presented in Table 15.7.

All impacts are treated as operational unless otherwise mentioned. Details of specific construction impacts are presented in Section 15.6.

Measures to mitigate the adverse effects of the proposed road development are described in Section 15.5 and included in Table 15.6. An assessment of the significance of the residual impact following the implementation of mitigation measures is presented in Section 15.7.

Table 15.6 Assessment of the Impact of the Proposed Road on Agricultural land

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|-----------|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 001 | 76.9 | Beef | Medium | 2.3116 | 0.0000 | 0.1161 | Reduction in agricultural area of two plots due to Junction 1 Foynes Roundabout and an attenuation pond. Impact on existing access points. Impact on existing field boundaries. | Medium | Moderate | Relocate access to the remaining area. Replace boundary with permanent stockproof boundary. | Moderate |
| 002 | 48.6 | Beef | Medium | 6.8821 | 0.0366 | 0.0000 | Reduction in agricultural area due to main alignment and access track. Severance of internal farm road and main plot into two separate areas. Loss of access to eastern severed area. Loss of direct access from western severed area to farmyard facilities. Impact on existing field boundaries. | Very High | Very Significant | Provide access to the severed area. Replace boundary with permanent stockproof boundary. | Moderate |
| 003 | 45.3 | Beef | Medium | 3.1420 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. Severance of main plot into two separate areas. Loss of access to severed area. Loss of access from severed area to farmyard facilities. Severance impact on right of way access to second plot. Impact on existing field boundaries. | High | Significant | Provide access to the severed area via Access Accommodation track and Access Accommodation Structure at Ch. 2+000m (3.0m in height). Restore right of way access to second plot of land. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 004 | 60.7 | Dairy | High | 3.9553 | 0.0104 | 0.0746 | Reduction in agricultural area due to main alignment and N69 overbridge. Severance of plot into two separate areas. Loss of direct access to severed area. Loss of access from western area to a handling pen on severed area. Impact on existing field boundaries. | High | Significant | Replace boundary with permanent stockproof boundary. | Significant |
| 005 | 33.6 | Beef | Medium | 1.8070 | 0.0917 | 0.1311 | Reduction in agricultural area due to main alignment and N69 Overbridge. Severance of plot into two separate areas. Loss of direct access to severed area. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 006 | 6.9 | Leased - short term | Medium | 1.2479 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. No land severance. Impact on external field boundary. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 007 | 11.7 | Mixed Grazing Livestock - Beef & Equine | Medium | 4.6982 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and an attenuation pond. No land severance. Impact on existing field boundaries. | High | Significant | Replace boundary with permanent stockproof boundary. | Significant |
| 008 | 80.9 | Mixed Grazing Livestock - Dairy & Beef | High | 0.1575 | 0.0000 | 0.0000 | Minor reduction in agricultural area due to main alignment and access track. No land severance. Impact on existing field boundaries. | Very Low | Not Significant | Replace boundary with permanent stockproof boundary. | Not Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|-----------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 009 | 30.8 | Beef | Medium | 8.5303 | 0.0000 | 0.1481 | Reduction in agricultural area due to main alignment, access track, an attenuation pond and areas for a utility diversion. Severance of western plot into two separate areas. Loss of direct access to severed area. Loss of direct access from severed area to farmyard facilities. Impact on existing field boundaries. | High | Significant | Provide access gate to the severed area. Replace boundary with permanent stockproof boundary. | Significant |
| 010 | 24.3 | Beef | Medium | 2.6863 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment, an attenuation pond and an area for a utility diversion. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 011 | 68.8 | Beef | Medium | 0.0577 | 0.0000 | 0.0000 | Minor reduction in agricultural area. Impact on existing field boundaries. | Very Low | Not Significant | Replace boundary with permanent stockproof boundary. | Not Significant |
| 012 | 26.3 | Grassland | Low | 2.1708 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and an access track to an attenuation pond. No land severance. Impact on existing field boundaries. | Medium | Slight | Replace boundary with permanent stockproof boundary. | Slight |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|--|------------------------------|
| 013 | 30.4 | Leased - short term | Medium | 9.9981 | 0.3886 | 0.0025 | Significant reduction in agricultural area of two separate plots due to main alignment and Accommodation Road 3 - new Coopers Lane. Severance of main plot into two separate areas. Loss of direct access to two severed areas. Loss of access from severed areas to farmyard facilities. Impact on existing field boundaries. | Very High | Very Significant | Provide private access to the severed area via field access gate on access accommodation tracks and Accommodation Structure at Ch. 5+000m (4.5m in height). Provide access to eastern area via field access gate. Replace boundary with permanent stockproof boundary. | Moderate |
| 014 | 7.1 | Leased - short term | Medium | 0.8919 | 0.0000 | 0.0056 | Reduction in agricultural area due to main alignment and Accommodation Road 3 - new Coopers Lane. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 015 | 11.7 | Beef | Medium | 0.1241 | 0.0136 | 0.0000 | Minor reduction in agricultural area due to Accommodation Road 3 - new Coopers Lane. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 016 | 8.5 | Beef | Medium | 0.0223 | 0.0000 | 0.0151 | Minor reduction in agricultural area due to access track. No land severance. Impact on existing field access. Impact on animal handling pen. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|-----------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 017 | 35.6 | Beef | High | 6.0425 | 0.0000 | 0.0000 | Significant reduction in agricultural area due to main alignment and an area for a utility diversion. Severance of main plot into two separate areas. Impact on private farm road. Loss of access to severed area. Loss of access from severed areas to farmyard facilities. Slight land-take impact on second plot due to Askeaton link and access track. Impact on existing field boundaries. | Very High | Profound | Provide access via Overbridge (OB01) to the severed area. Replace boundary with permanent stockproof boundary. | Significant |
| 018 | 40.5 | Beef | Medium | 0.9463 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 019 | 112.5 | Beef | High | 15.3137 | 0.0306 | 0.9860 | Significant reduction in agricultural area due to main alignment, Junction 4 Ballyclogh roundabout and an attenuation pond. Division of main plot into three separate areas. Severance of internal farm road. Loss of access to dwelling house and remaining area. Loss of access from severed areas to handling facilities. Impact on existing field boundaries. | Very High | Profound | Provide private access to the severed areas via Access Accommodation track off Sideroad 7 (L-1220) and Accommodation Structures at Ch. 6+825m (4.5m in height) and Ch. 20+560m (3.0m in height). Replace boundary with permanent stockproof boundary. | Moderate |
| 020 | 24.3 | Beef | Medium | 0.5105 | 0.0000 | 0.1426 | Minor reduction in agricultural area due to Sideroad 5B (L-6062). No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|--|------------------------------|
| 021 | 3.2 | Leased - short term | Medium | 0.2606 | 0.0000 | 0.0000 | Reduction in agricultural area due to local road (L-1220) overbridge. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 022 | 39.3 | Dairy | High | 1.4764 | 0.0000 | 0.1229 | Reduction in agricultural area due to local road (L-1220) overbridge. Acquisition of entire plot. | Medium | Moderate | None | Moderate |
| 023 | 18.2 | Mixed Grazing Livestock - Beef & Equine | High | 4.1746 | 0.0000 | 0.4033 | Reduction in agricultural area due to Askeaton link and local road (L-1220) overbridge. No land severance. Impact on existing field access. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 024 | 12.5 | Equine | High | 2.0353 | 0.0000 | 0.0480 | Reduction in agricultural area due to Askeaton link, Sideroad 5A (L-1220) and an attenuation pond. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 025 | 38.4 | Mixed Grazing Livestock - Dairy & Beef | High | 3.6812 | 0.0000 | 0.0000 | Reduction in agricultural area due to Askeaton link road and access track to attenuation pond. No land severance. Impact on existing field boundaries. | High | Significant | Replace boundary with permanent stockproof boundary. | Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 026 | 18.2 | Leased - short term | Medium | 1.7002 | 0.0000 | 0.0000 | Reduction in agricultural area due to Askeaton link and attenuation pond. Severance of plot into two separate areas. Loss of access to severed area. Impact on existing field boundaries. | High | Significant | Provide private access to the severed area via Access Accommodation Structure at Ch. 11+220m (4.5m in height). Replace boundary with permanent stockproof boundary. | Moderate |
| 027 | 13.8 | Beef | Medium | 1.8645 | 0.0000 | 0.0000 | Reduction in agricultural area due to Askeaton link on two plots and access track on southern plot. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 028 | 11.1 | Leased - long term | Medium | 0.3107 | 0.0000 | 0.0000 | Minor reduction in agricultural area due to Askeaton link. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 029 | 18.2 | Beef | Medium | 1.2252 | 0.0000 | 0.0000 | Reduction in agricultural area due to Askeaton link. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 030 | 80.9 | Dairy | High | 2.0671 | 0.0000 | 0.0000 | Reduction in agricultural area due to Askeaton link and an attenuation pond. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 031 | 12.1 | Dairy | High | 1.5314 | 0.1803 | 0.0279 | Reduction in agricultural area due to Askeaton link and Junction 6 Askeaton roundabout. Severance of plot into two separate areas. Loss of access from severed area to handling facilities. Impact on existing field access. Impact on existing field boundaries. | Medium | Moderate | Provide field accesses to remaining areas. Replace boundary with permanent stockproof boundary. | Moderate |
| 032 | 28.3 | Beef | Medium | 0.3907 | 0.0000 | 0.1014 | Minor reduction in agricultural area due to Junction 6 Askeaton. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 033 | 4.9 | Leased - short term | Low | 0.2243 | 0.1020 | 0.1200 | Acquisition of a small plot due to N69 realignment at Junction 6 (Askeaton). | Low | Not Significant | None | Not Significant |
| 034 | 8.1 | Beef | Medium | 0.3643 | 0.0000 | 0.0000 | Acquisition of a small plot due to N69 realignment at Junction 6 (Askeaton). | Medium | Moderate | None | Moderate |
| 035 | 1.3 | Leased - short term | Low | 1.4142 | 0.0000 | 0.0597 | Acquisition of plot including a dwelling house (uninhabited) due to Sideroad 7 (L1220) realignment and an access track to an attenuation pond. | Very High | Significant | None | Significant |
| 036 | 25.9 | Beef | Medium | 3.0016 | 0.0000 | 0.0519 | Reduction in agricultural area due to main alignment, Sideroad 7 (L1220), access track and an attenuation pond. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 037 | 56.7 | Mixed Grazing Livestock - Dairy & Beef | High | 12.3368 | 0.0360 | 0.0000 | Significant reduction in agricultural area due to main alignment, attenuation pond and ecological considerations. Severance of main plot into two separate areas. Loss of access to severed area. Loss of access from severed area to farmyard facilities. Impact on existing field boundaries. | High | Significant | Provide private access to the severed area via Access Accommodation Structure at Ch. 21+775m (4.5m in height). Replace boundary with permanent stockproof boundary. | Moderate |
| 038 | 64.8 | Beef | Medium | 6.6673 | 0.0000 | 0.2648 | Reduction in agricultural area due to main alignment, Sideroad 8 (L-1236) overbridge and an attenuation pond. No land severance. Impact on existing access gate. Impact on animal handling pen. Impact on existing field boundaries. | Medium | Moderate | Relocate field access to remaining area. Replace boundary with permanent stockproof boundary. | Moderate |
| 039 | 5.7 | Beef | Low | 0.8814 | 0.0000 | 0.0209 | Reduction in agricultural area due to main alignment and Sideroad 8 (L-1236) overbridge. No land severance. Impact on existing farm entrance. Impact on existing field boundaries. | Medium | Slight | Restore field access to remaining area. Replace boundary with permanent stockproof boundary. | Slight |
| 040 | 53.1 | Mixed Grazing Livestock - Equine & Beef | High | 2.6536 | 0.0062 | 0.1683 | Reduction in agricultural area due to main alignment and Sideroad 8 (L-1236) overbridge. Impact on existing access. No land severance. Impact on existing field boundaries. | Medium | Moderate | Restore field access to remaining area. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 041 | 113.3 | Beef | High | 1.8953 | 0.0000 | 0.0323 | Reduction in agricultural area due to main alignment and access track. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 042 | 78.1 | Mixed Grazing Livestock - Dairy & Equine | High | 6.2970 | 0.1709 | 0.0071 | Significant reduction in agricultural area due to main alignment and River Deel bridge. Division of plot into three separate areas. Severance of existing access road. Loss of access to larger severed area. Loss of access from farmyard facilities to two severed areas. Impact on existing field boundaries. | Very High | Profound | Provide private access to the severed areas via Accommodation Track from Sideroad 8 (L1236), access track to south and track under River Deel Bridge at Ch. 23+980m (>4.5m in height). Provision of a 1 metre high noise barrier at the top of the southern side of the embankment extending from chainage 23+100 to 24+000. Replace boundary with permanent stockproof boundary. | Moderate |
| 043 | 25.9 | Beef | Medium | 0.4679 | 0.0000 | 0.0000 | Minor reduction in agricultural area due to main alignment and access track. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 044 | 50.6 | Dairy | High | 0.0070 | 0.0173 | 0.0000 | Minor reduction in agricultural area due to main alignment and River Deel bridge. No land severance. Impact on existing field boundaries. | Very Low | Not Significant | Replace boundary with permanent stockproof boundary. | Not Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|--|------------------------------|
| 045 | 27.1 | Dairy | High | 2.7070 | 0.1250 | 0.0000 | Reduction in agricultural area due to main alignment and River Deel bridge. Division of plot into two separate areas. Loss of access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field boundaries. | High | Significant | Provide access to the severed area via access track under River Deel Bridge at Ch. 24+050m (>4.5m in height). Replace boundary with permanent stockproof boundary. | Moderate |
| 046 | 85.8 | Mixed Grazing Livestock - Beef, Equine, Forestry | Medium | 5.2202 | 0.0000 | 0.0000 | Significant reduction in agricultural area due to main alignment and stream diversion. Impact on both forestry plantation and grassland. Division of plot into two separate areas. Loss of access to River Deel. Impact on existing field boundaries. | Medium | Moderate | Provide private access to the severed area and River Deel via Access Accommodation Structure at Ch. 24+500m (3.0m in height). Replace boundary with permanent stockproof boundary. | Slight |
| 047 | 37.6 | Beef | Medium | 3.0550 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and an attenuation pond. No land severance. Impact on existing field boundaries. | High | Significant | Replace boundary with permanent stockproof boundary. | Significant |
| 048 | 32.4 | Beef | Medium | 5.5801 | 0.0148 | 0.0000 | Reduction in agricultural area due to main alignment and attenuation pond. Severance of main plot into two separate areas. Loss of access to severed area. Loss of access from severed area to farmyard facilities. Impact on existing field boundaries. | High | Significant | Provide private access to the severed area via Access Accommodation Structure at Ch. 25+685m (4.5 in height). Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 049 | 48.6 | Dairy | High | 3.0710 | 0.0229 | 0.0000 | Reduction in agricultural area due to main alignment and attenuation pond. Division of plot into two separate areas. Loss of access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field boundaries. | High | Significant | Provide private access to the severed areas via Access Accommodation Structure at Ch. 26+160m (4.5 in height). Replace boundary with permanent stockproof boundary. | Moderate |
| 050 | 132.7 | Dairy | High | 0.9024 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 051 | 1.0 | Leased - short term | Low | 0.0237 | 0.0287 | 0.0198 | Reduction in agricultural area due to access tracks. Impact on existing access and internal farm road. Impact on existing field boundaries. | Medium | Slight | Provide access to remaining area. Replace boundary with permanent stockproof boundary. | Slight |
| 052 | 18.2 | Leased - short term | Medium | 3.5525 | 0.0446 | 0.0950 | Reduction in agricultural area due to main alignment, R518 overbridge, an attenuation pond and access tracks. Division of plot into three separate areas. Loss of access from severed areas to farmyard facilities. Impact on existing northern access. Impact on existing field boundaries. | Very High | Very Significant | Provide access to the severed areas via Access Accommodation tracks. Replace boundary with permanent stockproof boundary. | Significant |
| 053 | 8.1 | Beef | Medium | 0.0046 | 0.0094 | 0.0079 | Minor reduction in agricultural area due to access track. No land severance. Impact on existing field boundary. | Very Low | Not Significant | Replace boundary with permanent stockproof boundary. | Not Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 054 | 48.6 | Dairy | High | 3.2676 | 0.0486 | 0.0337 | Reduction in agricultural area due to main alignment, local road (L-6132) underbridge and the Proposed Greenway. Division of southern lands into two separate areas. Loss of access to severed area. Loss of access to farmyard facilities from severed areas. Impact on internal farm road. Impact on existing field boundaries. | High | Significant | Provide access to severed area via access tracks and private Access Accommodation Structure at Ch. 28+050m (4.5m in height). Replace boundary with permanent stockproof boundary. | Moderate |
| 055 | 36.4 | Mixed Crops & Livestock - Dairy & Tillage | High | 1.9240 | 0.0000 | 0.0477 | Reduction in agricultural area due to main alignment, local road (L-6132) underbridge (UB05). No land severance. Impact on existing access. Impact on existing field boundary. | Medium | Moderate | Relocate access to the remaining area. Replace boundary with permanent stockproof boundary. | Moderate |
| 056 | 2.0 | Beef | Medium | 0.0518 | 0.0000 | 0.0000 | Reduction in agricultural area due to the proposed Greenway. No land severance. Impact on existing field boundary. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 057 | 40.5 | Beef | Medium | 4.6963 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment, attenuation ponds and the proposed Greenway. No land severance. Impact on existing field boundary. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 058 | 40.5 | Beef | Medium | 0.0370 | 0.0000 | 0.0000 | Minor reduction in agricultural area due to stream realignment. No land severance. Impact on existing field boundary. | Very Low | Not Significant | Replace boundary with permanent stockproof boundary. | Not Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 059 | 11.7 | Leased - short term | Medium | 3.4979 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and stream realignment. No land severance. Impact on existing field boundary. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 060 | 13.4 | Leased - short term | Medium | 6.8262 | 0.0000 | 0.0000 | Reduction in agricultural area due to Junction 10 Rathkeale, compound area and an attenuation pond. Severance of remaining plot into two separate areas. Loss of access to severed areas. Impact on existing access. Impact on existing field boundaries. | Very High | Very Significant | Provide access tracks to the severed area and Access Accommodation Structure at Ch. 29+150m (4.5m in height). Replace boundary with permanent stockproof boundary. | Significant |
| 061 | 11.7 | Leased - short term | Medium | 1.0419 | 0.0000 | 0.0075 | Reduction in agricultural area due to main alignment, attenuation ponds and access tracks. No land severance. Impact on existing field boundary. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 062 | 64.3 | Equine | Medium | 5.1700 | 0.0000 | 0.0000 | Significant reduction in agricultural area due to Junction 10 Rathkeale. Impact on existing access. Impact on handling pen. Impact on existing field boundary. | Medium | Moderate | Provide access to remaining areas. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 063 | 101.2 | Beef | Medium | 14.0673 | 0.0234 | 0.2990 | Significant reduction in agricultural area of two plots at Graigeen and Rathkeale due to the main alignment, a local road underbridge (L-1222), a stream realignment and two attenuation ponds. Severance of northern Graigeen plot into two separate areas. Loss of access to a dwelling house, farmyard and significant severed area. Impact on existing accesses. Impact on existing field boundaries. | Very High | Very Significant | Provide access to the dwelling house, farmyard and severed area at Rathkeale via Access Accommodation Structure (4.5m in height) at Ch. 50+750m. Restore field accesses to remaining Graigeen areas. Replace boundary with permanent stockproof boundary. | Significant |
| 064 | 25.1 | Dairy | High | 3.3676 | 0.1349 | 0.4678 | Reduction in agricultural area due to the main alignment and Sideroads 12A, 12B and 12D. Severance of lands at two separate locations. Loss of access to main block of grazing paddocks. Impact on access to farmyard. Impact on existing field access. Impact on existing field boundaries. | Very High | Profound | Provide private access to the severed areas via the Access Accommodation Structure (3.0m in height) at Ch. 51+840m. Provide field access to the remaining areas. Replace boundary with permanent stockproof boundary. | Significant |
| 065 | 12.1 | Leased - short term | Low | 0.0143 | 0.0000 | 0.0000 | Reduction in agricultural area due to an access track. Impact on access to lands. Impact on existing boundary. | Medium | Slight | Provide access to remaining area. Replace boundary with permanent stockproof boundary. | Not Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 066 | 0.6 | Leased - short term | Low | 0.2914 | 0.0077 | 0.0089 | Reduction in agricultural area due to main alignment and access tracks. Impact on existing access to remaining area. Impact on existing field boundary. | Very High | Significant | Provide access to remaining area. Replace boundary with permanent stockproof boundary. | Moderate |
| 067 | 42.0 | Dairy | High | 0.0699 | 0.0084 | 0.0598 | Minor reduction in agricultural area due to Sideroad 12A. Impact on existing field boundary. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 068 | 11.9 | Beef | Medium | 0.2816 | 0.0022 | 0.1938 | Reduction in agricultural area of several plots due to Sideroads 12A, 12B and 12D. No land severance. Impact on existing field accesses. Impact on existing field boundary. | Medium | Moderate | Provide accesses to remaining areas. Replace boundary with permanent stockproof boundary. | Slight |
| 069 | 99.2 | Dairy | High | 1.7633 | 0.0438 | 0.1125 | Reduction in agricultural area due to main alignment, Sideroads 12A, 12B and 12D. Impact on three plots. Severance of one plot into two separate areas. Loss of access to severed areas. Loss of access to farmyard facilities from severed areas. Impact on existing field accesses. Impact on existing field boundaries. | High | Significant | Provide private access to the severed areas via the Access Accommodation Structure (3.0m in height) at Ch. 51+800m. Provide field accesses to the remaining areas. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 070 | 32.2 | Beef | High | 2.6623 | 0.0000 | 0.0608 | Reduction in agricultural area due to main alignment, Sideroad 12D (L-8027) and access tracks. Severance of land into two separate areas. Loss of direct access to farmyard facilities from severed area. Impact on existing accesses. Impact on existing field boundaries. | Medium | Moderate | Provide private access to the severed area via the Access Accommodation Structure (4.5m in height) at Ch. 52+150m. Restore field access gate. Replace boundary with permanent stockproof boundary. | Moderate |
| 071 | 15.4 | Leased - long term | Medium | 3.1001 | 0.0000 | 0.0140 | Significant reduction in agricultural area due to main alignment, access tracks and drainage. Severance of main plot into two separate areas. Loss of direct access to severed area. Impact on existing field boundaries. | Very High | Very Significant | Provide private access to the severed area via the Access Accommodation Structure (4.5m in height) at Ch. 52+150m. Replace boundary with permanent stockproof boundary. | Moderate |
| 072 | 32.4 | Beef | Medium | 1.9505 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 073 | 101.2 | Mixed Crops and Livestock - Beef & Tillage | Medium | 2.6048 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and Enforcement Area. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 074 | 75.7 | Dairy | High | 1.6804 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and Enforcement Area. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|--|------------------------------|
| 075 | 10.5 | Beef | Medium | 0.8971 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and Enforcement Area. No land severance. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 076 | 25.5 | Leased - long term | Medium | 1.0146 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 077 | 32.4 | Leased - long term | Medium | 5.4621 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment and two attenuation ponds. Impact on existing field boundaries. | Medium | Moderate | Replace boundary with permanent stockproof boundary. | Moderate |
| 078 | 28.3 | Mixed Crops and Livestock - Beef & Tillage | Medium | 0.3301 | 0.0000 | 0.0598 | Minor reduction in agricultural area due to main alignment and access track. Impact on existing field boundary. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |
| 079 | 16.2 | Leased - short term | Medium | 2.8312 | 0.0000 | 0.0592 | Reduction in agricultural area due to main alignment, Sideroad 13 (L-1421) underbridge and an attenuation pond. Acquisition of the entire plot. No land severance. | Medium | Moderate | None | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 080 | 114.5 | Mixed Crops & Livestock - Beef, Equine & Tillage | High | 8.6779 | 0.0000 | 0.0848 | Significant reduction in agricultural area due to main alignment, Sideroad 13 (L-1421), access tracks and additional areas for utility diversion. Severance of the main plot into two separate areas. Loss of direct access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field access. Impact on existing field boundaries. | High | Significant | Provide private access to the severed area via access tracks and the Access Accommodation Structure at Ch. 54+450m. Replace boundary with permanent stockproof boundary. | Significant |
| 081 | 61.9 | Beef | High | 13.5096 | 0.0274 | 0.0425 | Significant reduction in agricultural area due to main alignment, Junction 14 Croagh, an attenuation pond and access track. Impact on existing farm entrance. Impact on existing field boundaries. | High | Significant | Restore farm entrance to the property. Replace boundary with permanent stockproof boundary. | Significant |
| 082 | 45.7 | Mixed Crops & Livestock - Dairy & Tillage | High | 1.1415 | 0.0423 | 0.0000 | Reduction in agricultural area due to main alignment, Junction 14E and Croagh Link Road. Severance of main plot into two separate areas. Loss of direct access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field boundaries. | High | Significant | Provide private access to the severed area via the Access Accommodation Structure (4.5m in height) on Croagh Link Road. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 083 | 6.3 | Poultry & Grassland (Leased - short term) | Medium | 3.2046 | 0.0192 | 0.0410 | Reduction in agricultural area due to Croagh Link Road, N21 Roundabout and an attenuation pond. No land severance. Impact on existing farm access road. Impact on existing field boundaries. | Medium | Moderate | Restore farm access onto N21. Replace boundary with permanent stockproof boundary. | Moderate |
| 084 | 7.7 | Equine & Grassland (Leased - short term) | High | 2.1720 | 0.0000 | 0.0369 | Significant reduction in agricultural area due to main alignment and Junction 14 Croagh. No land severance. Impact on existing field boundaries. | Very High | Profound | Provide a temporary barrier, of a minimum 2.4m in height, erected to screen the noise and visual impacts during construction stage. Provide recommended screening as illustrated in Figures 11.1 to 11.24 and 12.1 to 12.23, including a supplementary equine barrier of 3.5m from Ch. 55+900 to Ch. 55+975m to mitigate the noise and visual effects of operational activities. Replace boundary with permanent stockproof boundary. | Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 085 | 57.9 | Mixed Grazing Livestock - Dairy & Beef | High | 3.5699 | 0.0409 | 0.1451 | Reduction in agricultural area due to the main alignment, Sideroad 15, Sideroad 16, attenuation pond and pedestrian underpass on lands at Graigue. Minor reduction on the main farm at Croagh. Severance of Graigue plot into two separate areas. Loss of direct access between severed areas. Impact on existing access gates. Impact on animal handling pen. Impact on existing field boundaries. | Very High | Profound | Provide access via the Accommodation Access Structure (3.0m in height) at Ch. 56+325m. Replace boundary with permanent stockproof boundary. | Significant |
| 086 | 72.8 | Equine | High | 0.4819 | 0.0505 | 0.0841 | Reduction in agricultural area due to main alignment and local road (L-8025) underbridge. No land severance. Impact on existing field boundaries. | High | Significant | Provide recommended screening as illustrated in Figures 11.1 to 11.24 and 12.1 to 12.23 including a 2.5m high supplementary equine barrier from Ch. 56+725 to 56+875m, to mitigate the noise and visual effects of construction and operational activities. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|-----------|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 087 | 36.4 | Beef | Medium | 4.9657 | 0.1058 | 0.0000 | Significant reduction in agricultural area due to the main alignment, access tracks and attenuation pond. Loss of access to dwelling house, farmyard and remaining area of lands. Impact on existing field boundaries. | Very High | Very Significant | Provide private access via the Accommodation Access Structure (4.5m in height) at Ch. 56+745m. Replace boundary with permanent stockproof boundary. | Significant |
| 088 | 44.5 | Beef | Medium | 2.0245 | 0.1176 | 0.0133 | Reduction in agricultural area of two plots due to main alignment and local road (L-8025) underbridge and full acquisition of smaller plot. No land severance. Impact on existing field boundaries. | Low | Slight | Replace boundary with permanent stockproof boundary. | Slight |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|-----------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 089 | 12.1 | Equine | High | 2.7094 | 0.0000 | 0.0212 | Significant reduction in agricultural area due to main alignment and access track. Severance of main plot into two separate areas. Impact on existing field boundaries. | High | Significant | Provide screening of a minimum of 2.4 metres high for the construction stage along the working ground level. Provide recommended screening as illustrated in Figures 11.1 to 11.24 and 12.1 to 12.23, including 1.5m high supplementary equine barriers from Ch. 57+350 to 57+475 (North) and Ch. 57+250 to 57+475 (South) mitigate the noise and visual effects of operational activities. Replace boundary with permanent stockproof boundary. | Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 090 | 48.6 | Equine | High | 0.0000 | 0.0000 | 0.0000 | No direct impact on property. Indirect impact on the operation of equestrian activities at the parking area and at the outdoor arena. | Very High | Profound | Provide screening of a minimum of 2.4 metres high for the construction stage above the working ground level. Provide recommended screening as illustrated in Figures 11.1 to 11.24 and 12.1 to 12.23, including a supplementary equine barrier of 1.5m from Ch. 58+025 to 58+150m to mitigate the noise and visual effects of operational activities. | Significant |
| 091 | 13.0 | Leased - short term | Medium | 3.8782 | 0.0000 | 0.0947 | Reduction in agricultural area due to main alignment, local road (L-8024) underbridge, an attenuation pond and access tracks. Loss of access to the remaining area. Impact on existing field access. Impact on existing field boundaries. | High | Significant | Provide field access to the severed area. Replace boundary with permanent stockproof boundary. | Significant |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 092 | 91.1 | Mixed Crops & Livestock - Beef & Tillage | High | 6.6350 | 0.2583 | 0.0000 | Significant reduction in agricultural area due to main alignment, accommodation structure, an attenuation pond and access tracks. Severance of northern plot into two areas. Impact on existing internal farm road. Loss of direct access to severed area. Loss of direct access to farmyard facilities from severed area. Impact on existing field boundaries. | High | Significant | Provide access to the severed area via a private Access Accommodation Structure at Ch. 58+490m and a shared Access Accommodation Structure (3.0m height) with Accommodation Tracks (one shared). Replace boundary with permanent stockproof boundary. | Moderate |
| 093 | 10.5 | Leased - short term | Medium | 1.3584 | 0.0000 | 0.0441 | Reduction in agricultural area of two plots due to main alignment, local road (L-1422) underbridge and access tracks. Loss of access to remaining area on southern plot. Impact on existing field boundaries. | High | Significant | Provide private access to the severed area via the access track (shared) and Access Accommodation Structure (3.0m height) at Ch. 58+940m. Replace boundary with permanent stockproof boundary. | Moderate |
| 094 | 57.9 | Mixed Grazing Livestock - Beef & Equine | Medium | 2.3395 | 0.0545 | 0.0866 | Reduction in agricultural area due to main alignment, local road (L-1422) underbridge, an attenuation pond, access track and the Greanagh River Bridge. Severance of main plot into two separate areas. Loss of direct access to severed area. Impact on existing access. Impact on existing field boundaries. | Medium | Moderate | Provide field access to the severed area. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|---------------------|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|---|------------------------------|
| 095 | 11.3 | Beef | Medium | 5.3019 | 0.1044 | 0.0000 | Significant reduction in agricultural area due to main alignment, an attenuation pond, access track and the Greanagh River Bridge. Impact on existing field boundaries. | High | Significant | Replace boundary with permanent stockproof boundary. | Significant |
| 096 | 28.3 | Beef | Medium | 2.7306 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. Severance of main plot into two areas. Loss of access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field boundaries. | High | Significant | Provide private access via the Accommodation Access Structure (4.5m in height) at Ch. 59+425m. Replace boundary with permanent stockproof boundary. | Moderate |
| 097 | 17.8 | Leased - short term | Medium | 1.0175 | 0.0000 | 0.1175 | Reduction in agricultural area due to main alignment and Sideroad 17 (L-1423). Severance of main plot into two areas. Loss of access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field boundaries. | Medium | Moderate | Provide field access to the severed area. Replace boundary with permanent stockproof boundary. | Moderate |
| 098 | 60.7 | Dairy | High | 0.8426 | 0.0368 | 0.1060 | Minor reduction in agricultural area due to Sideroad 17 (L-1423). Impact on existing field access. Impact on existing field boundaries. | Low | Slight | Restore field access to the remaining area. Replace boundary with permanent stockproof boundary. | Slight |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|--|---------------------|--------------------------------------|---|------------------------------|
| 099 | 6.7 | Leased - short term | Medium | 1.8487 | 0.0311 | 0.1152 | Reduction in agricultural area due to main alignment, Sideroad 17 (L-1423) and access road. Severance of the plot into two separate areas. Impact on existing field boundaries. | Medium | Moderate | Provide field access to the severed area. Replace boundary with permanent stockproof boundary. | Moderate |
| 100 | 101.2 | Mixed Grazing Livestock - Dairy & Beef | High | 1.3214 | 0.0000 | 0.0000 | Reduction in agricultural area due to main alignment. Severance of main plot into two areas. Loss of direct access to severed area. Loss of access to farmyard facilities from severed area. Impact on existing field boundaries. | Medium | Moderate | Provide shared access to the severed area via the access track (>4.5m in height) at Ch. 60+850m under River Maigne Bridge. Replace boundary with permanent stockproof boundary. | Slight |
| 101 | 5.7 | Leased - short term | Medium | 3.4978 | 0.0000 | 0.0112 | Reduction in agricultural area due to main alignment, access track and River Maigne Bridge. Impact on existing field boundaries. | Medium | Moderate | Replace field access to the remaining area. Replace boundary with permanent stockproof boundary. | Moderate |
| 102 | 17.8 | Beef | Medium | 2.6374 | 0.0000 | 0.0284 | Reduction in agricultural area due to main alignment, attenuation pond, access track and River Maigne Bridge. Impact on existing access to lands west of disused rail line. Loss of access to severed area. Impact on existing field boundaries. | High | Significant | Provide access via the access accommodation tracks to severed lands. Replace boundary with permanent stockproof boundary. | Moderate |

| Ref. No. | Farm Size (ha) | Farm Type | Baseline Rating | Agri Land (ha) | Other Land (ha) | Public Road (ha) | Impact Details | Magnitude of Impact | Impact Significance (Pre-mitigation) | Mitigation Measures | Residual Impact Significance |
|----------|----------------|--|-----------------|----------------|-----------------|------------------|---|---------------------|--------------------------------------|--|------------------------------|
| 103 | 161.9 | Mixed Grazing Livestock - Beef & Sheep | High | 19.0294 | 0.0000 | 0.3124 | Significant reduction in agricultural area due to the main alignment, Junction 18 Adare, Link Road and three attenuation ponds. Acquisition of a dwelling house, main farmyard and farm buildings. Severance of impacted lands into three areas. Loss of direct access to each of these areas. Impact on existing field boundaries. | Very High | Profound | Provide access to the severed area via the Access Accommodation Structure (4.5m in height) at Ch. 61+375m. Restore field accesses to remaining areas. Replace boundary with permanent stockproof boundary. | Significant |
| 104 | 56.7 | Dairy | High | 6.4870 | 0.0905 | 0.1176 | Significant reduction in agricultural area due to main alignment and an attenuation pond. Impact on existing N21 underpass structure to lands south of N21. Impact on internal farm road. Impact on existing field boundaries. | Very High | Profound | Phased construction of proposed road to be implemented to ensure maximum access to lands south of N21 during period of construction. Section of redundant N21 to be returned to agricultural use. Replace boundary with permanent stockproof boundary. | Significant |
| 105 | 48.6 | Sheep & Hay / Silage | Medium | 0.5589 | 0.0000 | 0.0245 | Impact on existing access to the dwelling house and lands. Impact on existing field boundaries. | Low | Slight | Provide new access accommodation track from Kilgobbin local road (L-1424). Provide field access gates to severed lands. | Slight |

15.4.4 Summary of Impact on Agricultural land (Pre-Mitigation)

Details of the impact assessment of the proposed road development on individual farm enterprises is presented in Table 15.6 above. A summary of the results is presented in Table 15.7 below.

Table 15.7 Summary of the Impact on Agricultural land pre-mitigation

| Magnitude of impact | No. of farms | % of total |
|-------------------------------|---------------------|-------------------|
| Very high | 19 | 18.1% |
| High | 24 | 22.9% |
| Medium | 36 | 24.3% |
| Low | 22 | 20.9% |
| Very low | 5 | 4.8% |
| | 105 | 100.0% |
| Significance of impact | No. of farms | % of total |
| Profound | 9 | 8.6% |
| Very Significant | 7 | 6.7% |
| Significant | 26 | 24.8% |
| Moderate | 32 | 30.4% |
| Slight | 25 | 23.8% |
| Not Significant | 6 | 5.7% |
| Imperceptible | 0 | 0 |
| | 105 | 100.0% |

The magnitude of impact on agricultural land and property ranges from Very Low to Very High. There are 43 agricultural properties (41.0%) where the magnitude of impact is High or Very High. On these properties the farm enterprise cannot continue or can only continue with significant considerable management changes. Such management changes may involve changes to livestock type and numbers, areas of fodder / crop production and the use of farmyard facilities.

The assessment of the impact on of the proposed road development on agricultural property includes the acquisition of two dwelling houses (including one uninhabited).

The significance of impact, which is determined by combining the magnitude of impact with the baseline rating for that farm, ranges from Not Significant to Profound.

There are nine farms (8.6% of all farms) on the proposed road where the level of impact is Profound and eight farms (7.6% of all farms) where the level of impact will be Very Significant. These impacts are due to the individual or combined impact of land-take, land severance and / or the impact on essential farm buildings or facilities. The impact is such that the farm enterprise cannot continue in the absence of any mitigation.

On 26 farms (24.8% of all farms), the level of impact will be Significant.

On 32 farms (30.4% of all farms), the level of impact is Moderate.

15.5 Mitigation Measures for Agriculture

This section describes the measures that when implemented will mitigate the adverse impact on agricultural land. At this stage measures such as compensation for land acquisition and disturbance are not considered. These matters will be agreed, if possible, with landowners or their representative(s) once approval for the proposed road development has been granted. If agreement is not possible, such compensation will be decided upon by an arbitrator.

The following general mitigation measures will be provided:

- Access will be restored to lands where it is removed or restricted. Details of proposed access structures to lands are presented in Table 15.8. Access will also be provided to lands via accommodation access tracks and the replacement of field access gates. The location of such field access gates will be at a suitable location and, where possible, with the agreement of the landowner.

Table 15.8 Details of Access Accommodation Structures

| Chainage | Reference | Location | Type and Size |
|----------|-----------|---------------------------|---|
| 2+000 | UP01 | Ardaneer | Farm Underpass: 4.5m wide x 3.0m high |
| 4+990 | UP02 | Craggs | Farm Underpass: 4.5m wide x 4.5m high |
| 6+825 | UP03 | Ballyclogh | Farm Underpass: 4.5m wide x 4.5m high |
| 11+225 | UP04 | Clonreask | Farm Underpass: 4.5m wide x 4.5m high |
| 20+550 | UP05 | Ballyclogh | Farm Underpass: 4.5m wide x 3.0m high |
| 21+760 | UP06 | Lismakeery | Farm Underpass: 4.5m wide x 4.5m high |
| 24+000 | RVB01 | Ballynacaheragh | Farm Underpass: 4.5m wide x >4.5m high |
| 24+050 | RVB01 | Boolaglass | Farm Underpass: 4.5m wide x >4.5m high |
| 24+500 | FR-C15 | Boolaglass | Farm Underpass: 4.5m wide x 3.0m high |
| 25+675 | UP07 | Feeagh | Farm Underpass: 4.5m wide x 4.5m high |
| 26+175 | UP08 | Ardgoul South | Farm Underpass: 4.5m wide x 4.5m high |
| 28+075 | UP09 | Ballingarrane | Farm Underpass: 4.5m wide x 4.5m high |
| 29+150 | UP10 | Rathkeale | Farm Underpass: 4.5m wide x 4.5m high |
| 50+750 | M21-C1 | Wolfeburgess East | 10m span across stream and access track (4.5m wide x 4.5m high) |
| 51+800 | UP11A | Blossomhill | Farm Underpass: 4.5m wide x 3.0m high |
| 51+840 | UP11B | Blossomhill | Farm Underpass: 4.5m wide x 3.0m high |
| 52+150 | UP12A | Clogh West | Farm Underpass: 4.5m wide x 4.5m high |
| 52+150 | UP12B | Clogh West | Farm Underpass: 4.5m wide x 4.5m high |
| 54+450 | OB05 | Croagh | L-1421 Overbridge: 4.0m wide x >4.5m high |
| 55+550 | UP13 | Croagh Junction Link Road | Farm Underpass: 4.5m wide x 4.5m high |
| 56+320 | UP14B | Graigue | Farm Underpass: 3.0m wide x 3.0m high |
| 56+740 | UP15 | Clonshire More | Farm Underpass: 4.5m wide x 4.5m high |
| 58+500 | OB07 | Rower More | Farm Access Overbridge: 4.0m wide |

| Chainage | Reference | Location | Type and Size |
|----------|-----------|--------------|--|
| 58+950 | UP16 | Tuogh | Farm Underpass: 4.5m wide x 3.0m high |
| 59+425 | UP17 | Kilknockan | Farm Underpass: 4.5m wide x 4.5m high |
| 60+325 | OB08 | Curraghbeg | L-1423 Station Road Overbridge: backspan access 4.5m wide X 4.5m high |
| 60+850 | RVB04 | Islandea | Farm Underpass: 4.5m wide x 4.5m high |
| 61+360 | UP18 | Ardshanbally | Farm Underpass: 4.5m wide x 4.5m high |

- In general, permanent fencing will be a stock-proof timber post fence in accordance with TII CC-SCD-00301 and TII CC-SCD-00320. Where permanent fencing occurs within the clear-zone area it will be timber post and tension mesh construction in accordance with CC-SCD-00320. At locations beyond the clear-zone the fence may be timber post and rail construction with PVC coated chain link complying with TII CC-SCD-00301. Where permanent fencing is erected on the boundary of the proposed mainline or the associated attenuation ponds, it will be maintained by the Local Authority. Further fencing details are presented in Section 4.12 of Chapter 4 (Description of the Proposed Road Development) of this EIAR.
- For farm holdings with equestrian livestock, permanent fencing will be a stock-proof timber post fence in accordance with TII CC-SCD-00302 and TII CC-SCD-00321. Where permanent fencing occurs within the clear-zone area it will be timber post and tension mesh construction in accordance with CC-SCD-00321. At locations beyond the clear-zone the fence may be timber post and rail construction with PVC coated chain link complying with TII CC-SCD-00302. Where permanent fencing is erected on the boundary of the proposed mainline or the associated attenuation ponds, it will be maintained by the Local Authority.
- Where boundaries at dwelling houses are removed as part of the works boundary, treatment is proposed on a like for like basis.
- In general, on non-national side-road tie-ins with the proposed road, the permanent fencing will be timber post and rail fence with chain-link wire mesh in accordance with TII CC-SCD-00301 unless otherwise agreed with the landowner and will be maintained by the landowner.
- All existing land drains and watercourses severed by the proposed road development will either be directed to a culvert under the proposed road and / or associated side road realignments or will be incorporated into the new road drainage system. The new drainage system will be designed to ensure that there will be no increased risk of flooding as a consequence of the proposed road development.
- Any services that are interfered with as a result of the proposed road 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 on a number of farms. The screening measures to reduce noise and visual impacts will comprise of an acoustic barrier on the works boundary, or where the section is elevated, an acoustic barrier on earth bunding. The noise barriers proposed for the operational stage of the proposed road development are illustrated in Figures 12.1 to 12.23 of Volume 3. In addition, Supplementary Equine barriers have been

provided where required, as illustrated. These are illustrated in the above referenced figures and are detailed in Table 15.6 above.

Details of mitigation measures for individual farms affected by the proposed road development are presented in Table 15.6.

15.6 Construction Impacts and Mitigation Measures for Agriculture

15.6.1 Construction Impact

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

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

The nature of each specific impact is discussed below.

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 road construction. 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. Blasting activity can be of particular concern for livestock with certain farm enterprises such as breeding and training of horses. Intermittent noises close to farm buildings can distress livestock.

Mitigation

Measures to mitigate noise impacts on sensitive receptors are detailed in Chapter 12 (Noise and Vibration). In addition, construction stage mitigation has been included for a number of agricultural properties which is detailed in Table 15.6. 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.

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.

Mitigation

Measures to control the production of dust will be put in place by the contractor (refer Chapter 13 Air Quality and Climate which presents a series of measures to control dust). Good communication between the contractor and the farmers 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.

Restricted Access to Land

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

Mitigation

Access will be restored, as soon as possible, to lands where it is removed or restricted by the proposed road development. 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. Temporary access gates may be required until such time as the permanent access arrangements are in place.

Disturbance of Field Drainage

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

Mitigation

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.

Disturbance of Services

Access to either piped water or drinking points on watercourses may be affected during construction through the severance of 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.

Mitigation

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

15.7 Residual Impacts for Agriculture

The significance of the residual impact on agricultural land has been assessed following the implementation of general mitigation measures as outlined in Sections 15.5 and 15.6. A summary of the residual impact on agriculture is presented in Table 15.9.

Table 15.9 Summary of the Residual Agricultural Impact

| Significance of impact | No. of farms | % of total |
|-------------------------------|---------------------|-------------------|
| Profound | 0 | 0 |
| Very Significant | 0 | 0 |
| Significant | 22 | 21.0% |
| Moderate | 49 | 46.7% |
| Slight | 27 | 25.7% |
| Not Significant | 7 | 6.7% |
| Imperceptible | 0 | 0 |
| | 105 | 100.0% |

After mitigation, no Profound residual impact on Agriculture is predicted from the proposed road development. This represents a reduction of nine farms with a Profound impact following the implementation of recommended mitigation measures.

There are no farms on which the residual impact on Agriculture is predicted to be Very Significant. This represents a reduction of seven farms with a Very Significant impact following mitigation.

On twenty-two farms, the residual impact will be rated as Significant. This represents a reduction of four farms with a Significant impact.