Drumlins Park Wind Farm Substation & Grid Connection

Chapter 13: Material Assets

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Contents

13.0 Introduction

Material Assets are defined as *"resources that are valued and that are intrinsic to specific places"* which can be of human or natural origin[1]. While the meaning is less clear than other environmental factors, Material Assets are taken to mean *"built services and infrastructure"*[2]. The majority of assets of natural origin are assessed elsewhere within this EIAR such as biodiversity, water quality, air quality and landscape. This chapter addresses, therefore, assets which are intrinsically of human origin, including transport, access, aviation, telecommunications, and resources & utility infrastructure. Another material asset of human origin, archaeology and cultural heritage, is addressed in **Chapter 10**.

13.0.1 Description of Proposed Development

A full description of the proposed development is presented in **Chapter 3**. In summary, the proposed development comprises the following main components:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electrical substation, including single-storey control buildings and all associated electrical equipment;
- Approximately 700m of 110kV underground electricity lines;
- Replacement of 1 no. existing pole-set with 2 no. lattice-type end masts, to a maximum height of up to 16m; and
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure.

The entirety of the proposed development is located within the administrative area of County Monaghan; while candidate quarries which may supply construction materials are also located within County Cavan.

13.1 Transport & Access

13.1.1 Introduction

13.1.1.1 Background and Objectives

The following section provides an assessment of the likely significant effects on transport and access resulting from the construction, operation and decommissioning of the proposed development including an assessment of the suitability of the local road network for construction, operational and decommissioning traffic.

It should be noted that the likely effects, in terms of transport & access, of the construction and operation of a 110kV electricity substation have previously been fully assessed in the EIAR prepared for the Drumlins Park Wind Farm[3] and were found not to be significant. However, due to alterations to the precise design of the proposed development versus that previously assessed and to ensure that the proposed development is fully evaluated within this Volume I EIAR; the likelihood of significant effects, both individually and cumulatively with other developments, has been fully assessed in this chapter.

[1] Draft Advice Notes for preparing Environmental Impact Statements (EPA, 2015)

[2] Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2017)

[3] See **Volume III**, **Chapter 13**, **Section 13.1.1.3**.

13.1.1.2 Statement of Authority

This section has been prepared by members of the GES Environment & Planning Team. GES has substantial experience having prepared Material Asset (Transport & Access) chapters for multiple EIAR developments.

13.1.2 Methodology

13.1.2.1 Assessment Methodology

This assessment used the following method, further details of which are provided in the following sections:-

- Review of planning policy and guidance review;
- Desk study, including review of available maps and published information;
- Site walkover, including review of road network to be used;
- Evaluation of likely effects;
- Evaluation of the significance of these effects; and
- Identification of measures to avoid and mitigate any likely effects.

13.1.2.2 Planning Policy & Guidelines

This assessment has been prepared and carried out in accordance with guidance contained in the following published documents:-

- *Draft Advice Notes on Current Practice (in the preparation on Environmental Impact Statements)* (EPA, 2015);
- *Draft Revised Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2017);
- *Advice Notes on Current Practice (in the Preparation on Environmental Impact Statements)* (EPA, 2003);
- *Guidelines on the Information to be Contained in Environmental Impact Statements* (EPA, 2002);
- *Monaghan County Council Development Plan 2019-2025* ('the CDP');
- *Cavan County Development Plan 2014-2020*;
- *The Design Manual for Urban Roads and Streets* ('DMURS') (Government of Ireland, 2013[4]);
- *The Design Manual for Roads and Bridges* ('DMRB') published by Transport Infrastructure Ireland ('TII', 2011); and
- *Traffic and Transport Assessment Guidelines* (TII, 2014[5]).

The (Monaghan) CDP states that, in relation to renewable energy projects, particular regard will be paid to the project's likely significant effects on the road network in the area. The CDP also states the following:-

> *"It is acknowledged that road transport is the only form of transport available in County Monaghan therefore investment, maintenance and improvement of our existing road infrastructure and the protection of the carrying capacity of our national road network is of key importance to the economic and social development of the county."*

An assessment of the relevant transport policies and objectives of the CDP are set out in **Table 13.1** below.

[4] http://www.housing.gov.ie/sites/default/files/migrated-files/en/Publications/DevelopmentandHousing/Planning/FileDownLoad%2C32669%2Cen.pdf

[5] https://www.tiipublications.ie/library/PE-PDV-02045-01.pdf

Planning Policy / Objective	Assessed	Comment
TP 1: To implement government policy as set out in Transport 21, A Sustainable Transport Future - A new transport policy for Ireland 2009-2020, Spatial Planning and National Roads – Guidelines for Planning Authorities 2012, National Cycle Policy Framework 2009, Traffic and Transport Assessment Guidelines 2014, Smarter Travel and any other National Policy which is adopted during the lifetime of this development plan.	Yes	The appropriate management of traffic during the construction and operational phases has been assessed in this chapter.
TP 2: To support the creation of an integrated and sustainable transport system to promote a choice of transport modes including public transport, cycling and walking facilities	No	Not considered relevant to the proposed development.
TP 3: To capitalise on the County's existing transport infrastructure by implementing appropriate traffic management measures to reduce congestion and minimise travel times.	Yes	The appropriate management of traffic during the construction and operational phases has been assessed in this chapter.
TP 4: To plan for future traffic and transportation needs in County Monaghan and to ensure that new development does not prejudice the expansion of road and cycling corridors in the County. Proposed road routes, road realignment schemes and future cycle route corridors shall be kept free from development that would compromise their future delivery.	Yes	The design, construction and operation of the proposed development has and will be undertaken to avoid any impact on the expansion of road and cycling corridors in the County. The proposed development is not assessed to be located within or in the proximity of any proposed road routes, road realignment schemes or future cycle route corridors.
TP 5: To ensure that all new developments and extensions to existing developments have adequate car parking provision.	Yes	During construction, parking will not be permitted on the public road network and will only be facilitated at the Drumlins Park Wind Farm temporary construction compound or within the proposed substation footprint. Car parking provision for the operational phase has been incorporated into the design of the proposed substation.
TP 6: To prepare a Transportation Study for Carrickmacross Town and environs subject to the availability of resources.	No	The proposed development will not affect Carrickmacross.
TP 7: To support the provision of charging infrastructure for electric vehicles to meet the objectives set out in the National	No	The proposed development will facilitate the provision of renewable energy to the

Planning Policy / Objective	Assessed	Comment
Renewable Energy Action Plan for 10% electric vehicles by 2020 or any other related target adopted during the lifetime of this plan.		National Grid which will in turn support the objectives of the National Renewable Energy Action Plan.
TP 8: To require the submission of a Traffic and Transport Assessment (TTA), Road Safety Audit (RSA) and/or a Road Safety Impact Assessment (RSIA) as deemed necessary in accordance with Appendix 13 Road Safety Audit and 14 Traffic and Transport Assessment for significant development proposals.	Yes	This chapter serves as a TTA. In accordance with the TII publication *Road Safety Audit GE-STY-01024* (December 2017), the proposed development does not propose permanent works to the National Road Network nor does it fall within the scheme categories requiring an RSA set out in Appendix A of the publication.
NRP 1: To protect the traffic carrying capacity of national roads, the level of service they deliver and the period over which they continue to perform efficiently, by avoiding the creation of new access points or the generation of increased traffic from existing accesses onto the N-2, N-53, N-54, and N-12 outside the 60 km/h speed limit, in accordance with the DoECLG's publication Spatial Planning and National Roads - Guidelines for Planning Authorities (2012).	No	There will be no new access points onto the N2, N53, N54, and N12.
NRP 2: To consider, in exceptional circumstances, permitting access onto national roads for developments of national and regional strategic importance where the locations concerned have specific characteristics that make them particularly suitable for the developments proposed, subject to such developments being provided for through the Local Area Plan or Development Plan making process in accordance with Section 2.6 of the DoECLG Spatial Planning and National Road Guidelines, and in consultation with the TII.	No	There will be no access onto national roads from the proposed development.
NRP 3: To prohibit the erection of non-traffic road signage on or adjacent to National Roads in line with the provisions of the Department of Environment, Community and Local Governments - Spatial Planning and National Roads (2012).	No	There will be no signage erected on or adjacent to the national road network.
NRP 4: Any development with the potential to impact on the carrying capacity and/or safety of any national primary or national	No	The proposed development does not have the potential to impact on the carrying capacity of the

Planning Policy / Objective	Assessed	Comment
secondary road shall include proposals to avoid, remedy or mitigate the impact on the national road network. Such proposals may include the payment of a contribution toward the cost of any required mitigation works.		national primary or national secondary road networks.
NRP 5: To seek to progress and ensure the upgrade of the N2 in co-operation with Transport Infrastructure Ireland and the relevant adjoining local authorities.	No	Aside from the possible utilisation of the N2 for the delivery of electrical equipment or other construction materials, using standard HGVs, the proposed development will not interact with the N2 and will not impede the upgrade of the N2.
NRP 6: To resist the use of National, Regional and Local roads for advertising purposes and to implement the provisions of the TII policy document "Policy on the Provision of Tourism and Leisure Signage on National Roads" (2011).	No	There will be no advertising signage erected on the public road network. Temporary signage will be erected, advising of the site entrances and construction works in progress etc., during construction.
NNRP 1: Facilitate the improvement of non-public accommodation roads under the Local Improvement Scheme Programme funded by state grants and contributions from benefiting landowners.	No	This is not applicable to the proposed development.
NNRP 2: To carry out improvement works on local roads subject to the availability of resources.	Yes	It is proposed that the carriageway of the LT62013 local road, in the vicinity of the proposed development, will be increased to a width of 4m to facilitate ease of access to the proposed development site.
NNRP 3: To ensure that the traffic carrying capacity and the strategic nature of the County's road network is not adversely affected.	No	The proposed development will not adversely affect the carrying capacity of the County's road network. The proposed development does not propose any works to the public road network other than the short section of the LT62013 which will improve the condition of this section of public road.
NNRP 4: To carry out improvement works including specific works on bridges, signage, road markings, footpaths, public lighting and traffic management facilities to improve road safety and traffic management.	Yes	It is proposed to widen the carriageway of the LT62013 local road in the vicinity of the proposed development to facilitate access to the proposed development site. These works will assist the local authority to achieve this policy.

Planning Policy / Objective	Assessed	Comment
NNRP 5: To upgrade roads, junctions, footpaths and car parking facilities within the County's towns and villages in accordance with the provisions of the Design Manual for Urban Roads and Streets subject to the availability of resources.	No	This is not applicable to the proposed development.
NNRP 6: To relieve traffic congestion and facilitate the development of new roads and safe access points to serviceable lands, in partnership with benefiting landowners and developers, to improve traffic management and access in and around urban centres.	No	This is not applicable to the proposed development.

Table 13.1: Monaghan County Development Plan (2019-2025) Transport Policies and Objectives

The N2 is part of the Trans-European Transport Network (TEN-T) and categorised as being part of the 'comprehensive network' defined as:-

> *"a multi-modal network of relatively high density which provides all European regions with accessibility that supports their further economic, social and territorial development as well as the mobility of their citizens."*

The CDP outlines that TII has committed to providing additional funding for an upgrade of the N2 and this project is at a preliminary project design stage.

The R162, R183 and R188 regional roads; which may be used for the delivery of construction materials; are identified as Strategic Non-National Routes in the CDP which provide a strategic link to main settlements in the County and carry significant volume of traffic.

Thresholds relating to traffic impact assessments for new developments are detailed in the TII publication 'Traffic and Transport Assessment Guidelines'. The thresholds for the mandatory preparation of a traffic impact assessment, set out at Tables 2.1, 2.2 and 2.3 of the guidelines, have not been exceeded by the proposed development.

13.1.2.3 Desk Study

A desk study of the proposed development site, haul routes and the surrounding area was undertaken. The sources of information included documentary sources, such as those outlined at **Section 13.1.2.2** and an evaluation of aerial imagery and visualisations (e.g. Google Maps and Streetview) to assess the nature and condition of the local road network.

Matters raised by consultees in previous submissions related to the Drumlins Park Wind Farm, as they relate to transport and access, were also assessed in the preparation of this chapter.

13.1.2.4 Field Work

A site visit, including a walkover survey of the proposed development site and a windshield survey of the local road network, was undertaken on 3 September 2020. The site visit was used to verify information obtained as part of the desk study and to visually assess the site entrance locations and associated vehicle visibility splays. In

addition, the LT62013 local road was surveyed to assess its suitability to accommodate construction phase traffic volumes and to determine to extent of upgrade works to be undertaken.

13.1.2.5 Evaluation of Likely Effects

Following the assessment of the baseline environment, the available data was used to identify and categorise effects likely to affect the local road network used for the delivery of construction materials and movement of staff and personnel.

The statutory criteria (EPA, 2017 and EPA, 2003) for the assessment of impacts require that likely effects are described with respect to their magnitude, nature (i.e. negative, positive or neutral), transboundary nature (if applicable), intensity and complexity, probability, duration, frequency, reversibility, cumulation and possibility of reducing the effects). The descriptors used in this chapter are those set out in EPA (2002) 'Glossary of Impacts'.

Impacts may be categorised as follows:-

- Direct: where the existing traffic and transport environment in proximity to the proposed development is altered, in whole or in part;
- Indirect: where the traffic and transport environment beyond the proposed development is altered by activities related to the construction or operation of the proposed development; and
- No Impact: Where the proposed development has neither negative nor a positive impact upon the traffic and transport environment.

Sensitivity

The sensitivity of the local transport infrastructure has been identified using the criteria outlined within the TII Guidance. These criteria are outlined in **Table 13.2** below.

Importance	Criteria
Very High	Attribute has a high quality, significance or value on a regional or national scale.
High	Attribute has a high quality, significance or value on a local scale.
Medium	Attribute has a medium quality, significance or value on a local scale.
Low	Attribute has a low quality, significance or value on a local scale.

Table 13.2: Criteria for Rating Site Attributes

Magnitude

The magnitude of likely effects has been defined in accordance with the criteria provided in the 2017 EPA publication *Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports* as outlined within **Table 13.3** below.

Magnitude of Impact	Description
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.

Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

Table 13.3: Impact Assessment Criteria

Significance Criteria

The significance of the likely effects of the proposed development has been classified by taking into account the sensitivity of receptors and the magnitude of the impacts on them, combined with the likelihood of an event occurring as defined in **Table 13.4**.

Importance of Attribute	Magnitude of Impact			
	Negligible	Small	Moderate	Large
Extremely High	Imperceptible	Significant	Profound	Profound
Very High	Imperceptible	Significant/ Moderate	Profound/ Significant	Profound
High	Imperceptible	Moderate/ Slight	Significant/ Moderate	Severe/ Significant
Medium	Imperceptible	Slight	Moderate	Significant
Low	Imperceptible	Imperceptible	Slight	Slight/ Moderate

Table 13.4: Rating of Significant Environmental Impacts

13.1.3 Description of Existing Environment

13.1.3.1 Local Road Network

The road network in the vicinity of the proposed development site generally comprises regional and local roads. In addition, the N2 National Primary Road is located approximately 16km to the northeast of the proposed development site and, as outlined above, may be used for the transportation of electrical components and/or other construction materials. The N54 National Secondary Road is located approximately 6km north of the subject site and may also be used during the transportation of construction materials, subject to the selection of suppliers.

The R189, R183 and R188 regional roads (not upgraded)[6], which are also likely to be used in the delivery of construction materials, each have an 80km/h speed limit and are approximately 6m wide. The roads are generally in good condition with road markings; however, have no pedestrian walkways or road lighting in rural areas.

[6] As per Table 15.5 of the Monaghan County Development Plan 2019-2025

13.1.3.2 Access to the Proposed Development Site

The proposed development site will be accessed through a combination of public roads and private access tracks associated with the permitted Drumlins Park Wind Farm. All construction vehicles will be instructed to utilise the national and regional road network and to avoid local roads insofar as possible. As a result, all construction traffic will access the proposed development site from the R189, utilising access tracks (for c. 2km) and site entrances associated with the permitted wind farm to their junction with the LT62013. At this junction, construction traffic will turn in a south easterly direction and will follow the LT62013 to the proposed site entrances (see **Annex 13.1**)

13.1.3.3 Vehicle Specification

Delivery of general construction materials and drawing of aggregates and waste materials to and from site for the construction of the proposed development will be generally undertaken using standard HGVs, cement mixer trucks, and dump trucks, the largest of which is anticipated to be a 16.5m articulated vehicle as shown in **Figure 13.1** below. The transportation of aggregates will generally be undertaken by 8-wheel tipper trucks, the typical specifications of which are illustrated at **Figure 13.2**.

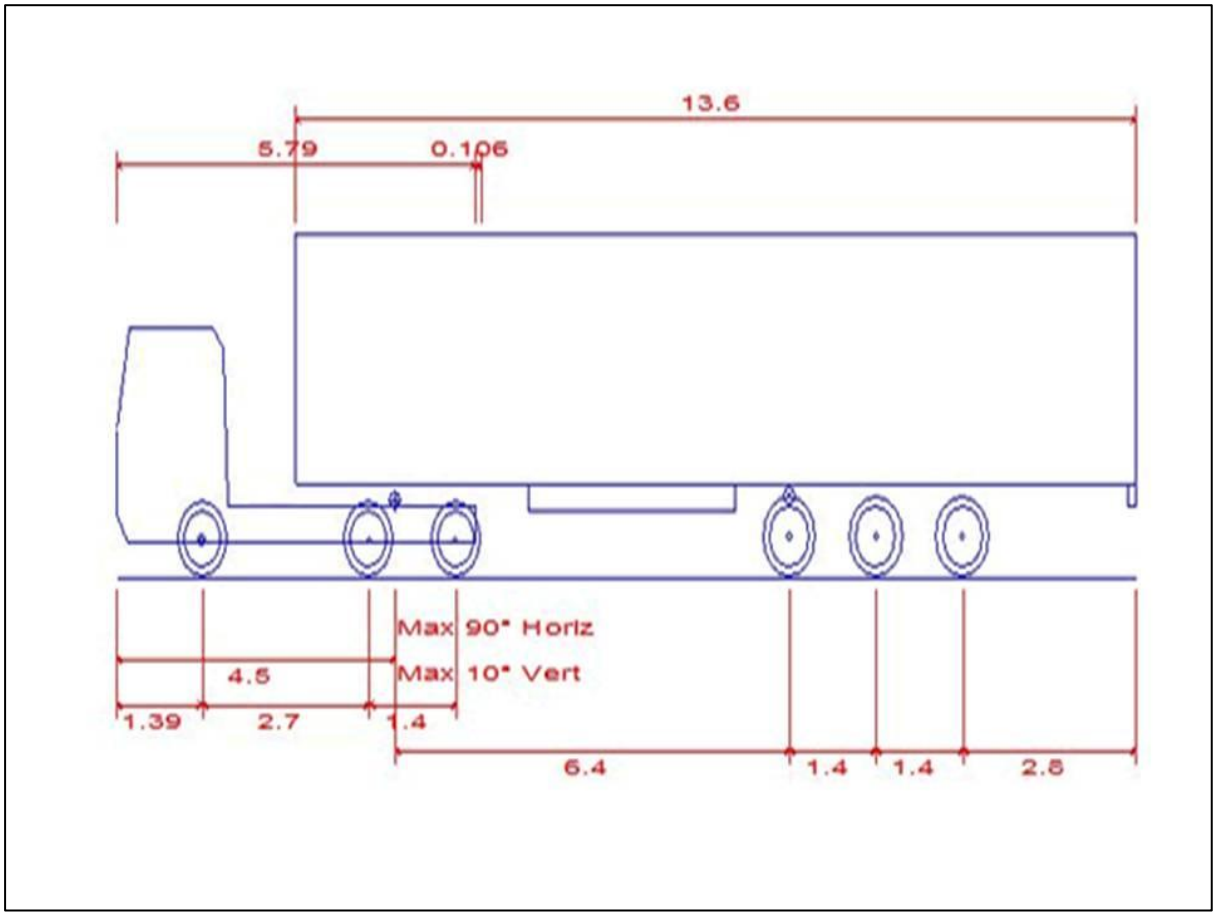

Figure 13.1: Standard HGV

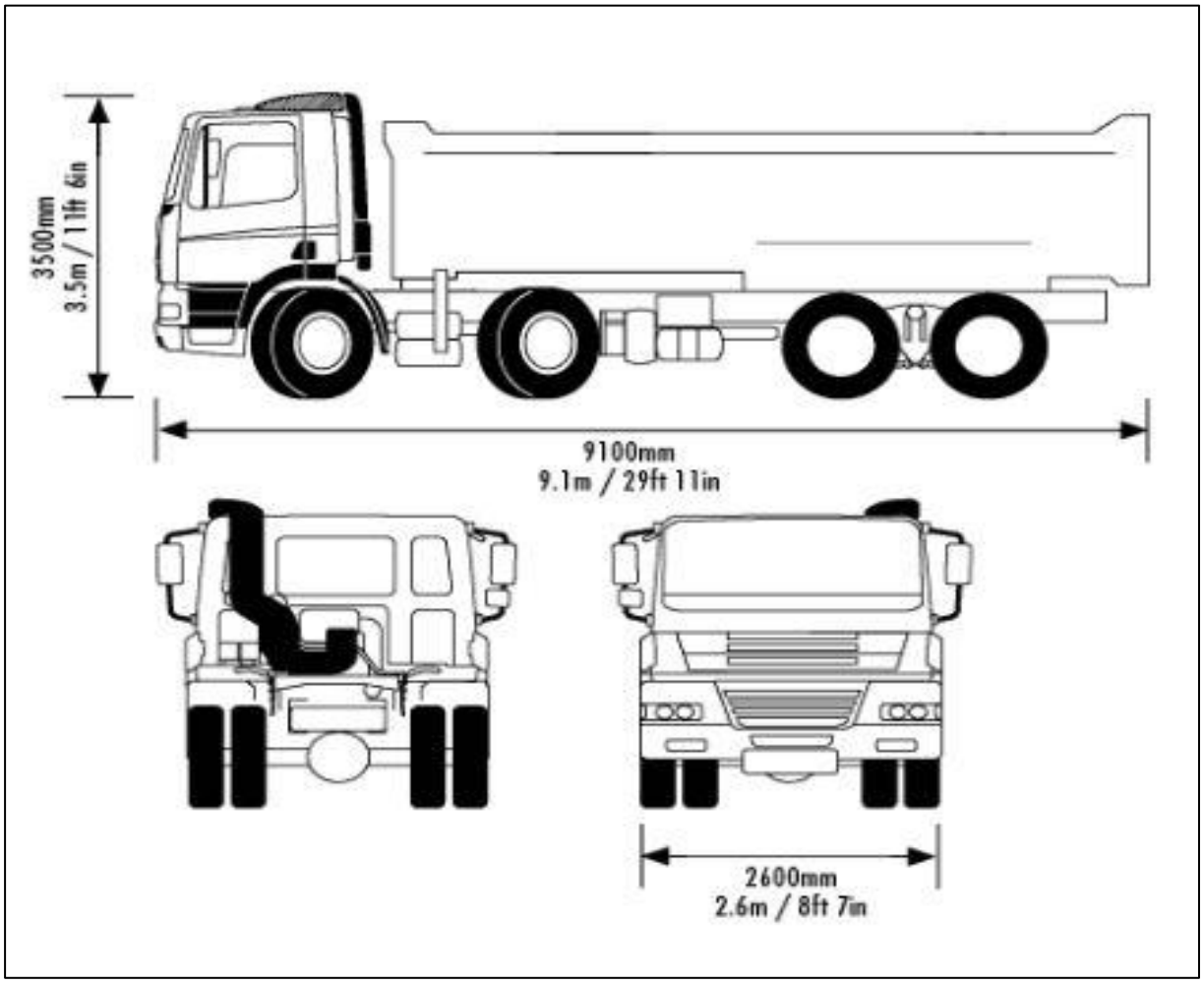

Figure 13.2: Standard Rigid Tipper Truck

13.1.4 Description of Likely Effects

At the outset, it is important to note that the LT62013 local road, which will provide access to the proposed development site, is not a heavily utilised road and currently experiences extremely low levels of vehicular traffic with 2-4 no. movements per day. As a result, significant disruption to local residents and landowners is not predicted as likely to occur.

13.1.4.1 Construction Phase

The construction period of the proposed development is estimated to have a duration of approximately 15-18 months, with the majority of traffic movements being associated with the construction of the substation compound and the delivery of electrical apparatus and equipment. During this period, trips will be associated with the arrival and departure of construction staff; the delivery of aggregates, ready-mix concrete and electrical equipment; and the removal of waste.

Staff trips will mainly be made using LGVs and crew vehicles, while deliveries of stone, concrete, electrical equipment and other general construction materials will be made by HGV.

The construction phase of the proposed development will comprise a six-day week with normal working hours from 07:00 to 19.00 Monday to Friday and 07:00 to 13.00

on Saturdays. It may be necessary to undertake works outside of these hours to avail of favourable weather conditions or in the event of an emergency. Where construction activities are necessary outside of the normal working hours, local residents and the Planning Authority will receive prior notification.

Road Network Upgrade Works

To accommodate construction traffic along the LT62013, in particular the delivery of electrical components associated with the proposed substation, it is proposed that the running width of the existing carriageway (relevant section) will be increased from its current width of c. 2.5m to c. 4m. These works will include the hardcoring of existing grass verges and trimming back of roadside vegetation and hedgerows; however, is not proposed to remove any hedgerows.

It is also proposed to remove a number of overhanging tree branches along the LT62013 to ensure that sufficient headroom is available during the delivery of electrical equipment. The tallest loads to be brought to site will be 5m in height and, therefore, all overhanging branches below 5.5m are proposed to be removed.

Construction of Site Entrance

As discussed in **Chapter 3**, access to the proposed substation will be provided by 2 no. new site entrances. During the construction phase, all works related to the construction of the entrances will be undertaken from private lands which will ensure that there are no significant direct transport and access effects on the local road network through disruption or delay to traffic flows. As a result, effects are assessed to be moderate, negative, short-term and of a high probability.

In relation to the provision of vehicle visibility splays, all site entrances have been carefully designed to ensure compliance with the requirements of Table 15.5 of the Monaghan County Development Plan 2019-2025. The proposed site entrances provide splays of 50m in each direction in accordance with the classification of the LT62013.

HGV Movements

The estimated timescale for the completion of the construction phase is approximately 15-18 months, which allows approximately 15 months for civil construction and electrical installation and approximately 3 months for commissioning of the substation.

It is estimated that during civil construction, approximately 1,772 no. loads will be delivered to site. Assuming a 15 month civil works construction phase, this equates to approximately 118 no. loads per month or an average of 6 no. loads or HGV movements per day excluding Sundays and public holidays. The majority of civil construction material, such as aggregates, concrete and building materials will be delivered to site using standard rigid trucks, HGVs and ready-mix trucks.

Following the completion of construction works, it is estimated that approximately 25 no. loads will be needed to remove all temporary equipment, plant and machinery and materials used on site e.g. equipment and machinery, fencing, cabins, storage containers etc. **Table 13.5** details the estimated amount of deliveries to/from the proposed development site.

Material	Quantity	No. of Loads
Rock/Stone Aggregates to be imported	10,770m^3	1,267

Electrical Equipment & Cabling	-	110
Miscellaneous Building Materials (control building materials, concrete, fencing, tools etc)	-	355
End Masts	2	15
Removal of all temporary on-site equipment and materials	-	25
Total	-	1,772

Table 13.5: Estimated Construction Materials and No. of Deliveries

The expected number of HGV deliveries is based on best estimates of trips generated by similar proposed developments, previous experience of such developments and based on the design of the project. Subject to planning permission being granted, these figures will be subject to refinement following the detailed design process, detailed pre-construction site investigations and consultation with the appointed contractor.

Based on the above estimated vehicular movements, the predicted effect on the road network as a result of the increase in HGV movements associated with the proposed development is slight, negative, direct, high probability but short term. This assessment has been reached in consideration of the temporary duration of the proposed construction phase and the modest estimated daily increase in HGV movements of 6 no. movements on average.

Construction Personnel

The number of staff employed at the proposed development site will vary according to the phase of works, peaking at up to approximately 50 no. at any one time. It is expected that the majority of workers will arrive on site in LGVs and crew vehicles. Vehicle sharing, subject to compliance with all relevant public health advice, will be actively encouraged to reduce vehicular movements. It is expected that c. 15 no. staff vehicles will visit the site on a daily basis during the peak construction period.

Parking for staff will be provided on-site either within the proposed substation footprint, once established, or within the temporary construction compound at the Drumlins Park Wind Farm. No parking will be allowed for construction workers on the public road network. The additional vehicular movements associated with staff travelling to site are not assessed as likely to result in significant effects on transport and access. Effects are assessed to be imperceptible/slight, negative, short-term and of high probability.

Overall Classification of Effects

The above sections have assessed the effects of the proposed development on transport and access which may arise as a result of the construction phase. Overall, the effects are not assessed to be significant and are concluded to be a slight, negative effect of short-term duration and high probability.

13.1.4.2 Operational Phase

During the operational phase, the proposed development will generally be unmanned. Operational monitoring activities will be carried out, remotely, on an ongoing basis. However, regular visits to the site will be undertaken for routine inspections and maintenance. Under normal circumstances, the operation of the proposed development will require 1-2 no. visits to the site per week by

maintenance personnel. Parking will be available within the proposed substation and maintenance staff will be instructed not to park on any public road. In the case of a major fault; e.g. change-out of electrical apparatus; larger machinery may require access to the site.

Overall, the volume of traffic predicted to be generated during the operational phase is very low. Therefore, the effect of traffic associated with the operation of the proposed development on the existing public road network will be imperceptible as a result of the type of traffic and the low volumes generated.

13.1.4.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, decommissioning phase effects will not occur.

13.1.5 Cumulative Effects

Cumulative effects are assessed as only likely to occur during the construction phase of the proposed development. Cumulative effects are unlikely to occur during the operational phase due to the absence of significant traffic generation as outlined in **Section 13.1.4.2**.

Other developments which have been included within the cumulative assessment are listed at **Chapter 1**. The majority of developments listed, for example one-off rural dwellings and agricultural developments (including poultry units), do not generate significant volumes of traffic during either the construction or operational phases such that would have the likelihood to result in cumulative effects.

13.1.5.1 Drumlins Park Wind Farm

It should be noted that the likely cumulative transport and access effects of a 110kV electricity substation, of similar design to that now proposed, with the Drumlins Park Wind Farm have previously been fully assessed in the **Volume III** EIAR (prepared for the Drumlins Park Wind Farm) and were found not to be significant. However, due to minor alterations to the precise design of the proposed development versus that previously assessed; the likelihood of significant cumulative effects has been fully assessed in this chapter.

The proposed development will be commissioned as a single construction phase with the Drumlins Park Wind Farm. It is likely, therefore, that cumulative transport and access effects will arise particularly in relation to increased traffic volumes on the surrounding road network. Upgrade works to the public road network associated with the Drumlins Park Wind Farm, as permitted by the Planning Authority, will be substantially completed prior to the delivery of materials for the proposed development to ensure that the local road network is capable of accommodating the increased traffic volumes and avoid, insofar as possible, additional traffic disruption.

As part of the cumulative assessment, the existing road network has been re-evaluated to determine whether there has been any change to the condition or structural integrity of the road network since the completion of the previous assessments. The appraisal of the road network comprised a driven windshield survey and a subsequent comparison with the results of previous assessments and it is concluded that there have been no significant changes to the existing road network, or its condition, in the intervening period which would conflict with the

conclusions of those assessments or the findings of the Planning Authority.

The traffic volumes predicted to be generated during the construction of the proposed development are set out at **Section 13.1.4.1**. As provided at **Table 13.5** (**Chapter 13, Volume III**), it is predicted that 6,537 no. HGV deliveries will be required to facilitate the construction of the Drumlins Park Wind. This number of deliveries included deliveries related to the construction of the substation building and electrical equipment (5 no.), 410 no. deliveries associated with grid connection materials and predicted that c. 1,050 no. loads of aggregate material would be required to construct the proposed development. However, following the further detailed design of the proposed development, it is now predicted that 1,772 no. loads/deliveries will be required to construct the proposed development and, therefore, the cumulative number of deliveries required to construct the permitted Drumlins Park Wind Farm and proposed development is 6,844 no.

The increase in traffic volumes, i.e. 307 no., represents a negligible (4%) increase in total movements and will largely be imperceptible in the context of the overall construction phase.

Therefore, given the conclusions of **Chapter 13** (**Volume III**) with regards to cumulative effects and the negligible increase in predicted traffic movements resulting from the proposed development, it is assessed that there is no likelihood of significant cumulative construction phase transport and access effects.

13.1.5.2 Other Developments

In relation to other wind farm developments, the nearest such project is the operational Bindoo Wind Farm, Co. Cavan located c. 12km to the southeast of the proposed wind farm. Additional wind farm developments located within 20km of the proposed development include Mountain Lodge Wind Farm, Edrans Wind Farm, Carrickallen Wind Farm (all located in Co. Cavan) and the Mullananalt Wind Farm in Co. Monaghan. Each of these developments are operational which, in addition to the separation distances involved, will not give rise to any likelihood of significant cumulative effects.

Planning permission has been granted for a number of poultry units[7] on lands adjacent to the main Drumlins Park Wind Farm site entrance (off the R189) which will be utilised as part of the proposed development. Planning permission has also been granted for a poultry unit development[8] west of the proposed development site. Should the respective developments be constructed concurrently, it is likely that construction phase cumulative effects are likely to arise; however, given that all developments are served by the R189 which already accommodates substantial volumes of HGV traffic, it is assessed that there is no likelihood for significant cumulative effects to arise. The cumulative effect, if it were to occur, is predicted to be moderate, negative, direct and short-term. There is also the likelihood of cumulative effects during the operational phase of the respective developments; however, given that none of the developments will generate substantial volumes of traffic during this phase, the effect is assessed to be slight and negative.

It is noted that a number of developments have been proposed and permitted at Scotshouse Quarries which has been identified as a candidate quarry for the sourcing of construction materials and aggregates. Having reviewed the nature of

[7] Monaghan County Council Planning Register Reference 18/160

[8] Monaghan County Council Planning Register Reference 20/215

the various developments at the quarry, it is assessed that there is no likelihood for significant transport or access effects to arise and the likelihood of cumulative effect is assessed to be slight, negative, direct and short-term.

13.1.5.3 Transboundary Effects

The proposed development has not been assessed as likely to result in any transboundary effects. No elements of the proposed construction material haul routes are located within Northern Ireland and, therefore, significant effects, both individually and cumulatively, on transport and access are not anticipated as likely.

13.1.6 Mitigation & Monitoring Measures

13.1.6.1 Mitigation

The likely effects of the proposed development have been identified as being slight to moderate and temporary in nature associated with short-term construction activities. Likely effects during the operational phase have been assessed as being imperceptible and hence mitigation measures are not deemed to be necessary.

As the proposed development is likely to be constructed concurrently with the permitted Drumlins Park Wind Farm, all mitigation measures relevant to that particular development will be implemented, as applicable, in respect of the proposed development. The implementation of these measures will ensure that the road network and local residents, businesses and landowners do not experience any likely significant effects.

Additionally, those measures/practices which form part of the proposed construction methodology and are considered inherent to the project design (e.g. pre-construction road condition surveys or post-construction reinstatement methods) are not repeated here as they are not proposed to off-set any effects which are likely to occur as a result of the construction and operation of the proposed development.

With regards to the proposed development, while significant effects are not assessed as likely to occur, even in the absence of mitigation; a suite of specific measures are available which will further reduce any likely effects during the construction phase. The following mitigation measures will be implemented:-

- Traffic movements will be limited to 07:00 - 19:00 Monday to Friday and 07:00 – 13:00 on Saturdays with no movements on Sundays or public holidays. It may be occasionally necessary to undertake works outside of these hours to avail of favourable weather conditions or in the event of an emergency. Where construction activities are necessary outside of the normal working hours, local residents and the Planning Authority will receive prior notification;
- Traffic movements associated with the proposed development will be carefully scheduled to minimise, insofar as possible, cumulative vehicular movements during times of peak traffic movements at the Drumlins Park Wind Farm (i.e. during turbine foundation concrete pours);
- Wheel washing equipment (e.g. dry ramp system) will be used, as necessary, to prevent any debris being transferred from site to the adjacent public roads. All drivers will be required to ensure that their vehicle is free from dirt and stones prior to departure from the construction site. Where conditions exist for dust to become friable, techniques such as damping down of the affected areas will be employed and vehicles/loads will be covered to reduce dust emissions;

- A Traffic Management Plan shall be agreed as part of the Construction Environmental Management Plan (CEMP) with the Planning Authority prior to the commencement of development;
- Adequate signage shall be provided providing access, safety and warning information;
- Warning signage and access control barriers will be erected to ensure that the general public cannot gain access to the works area. During upgrade works to the LT62013, pedestrians will be escorted through the works areas, if necessary, by construction personnel and only when it is safe to do so;
- During the proposed upgrade works to the LT62013, a local diversion will be put in place to ensure that traffic flows are maintained. Given the low volumes of traffic which typically utilise the LT62013, it is possible that, with the agreement of the Planning Authority and/or Municipal District Office, the LT62013 will be closed to through-traffic for the duration of the construction phase due to the increased volume of construction traffic present and the relatively narrow carriageway. Local diversions are available and may be implemented with the agreement of the Planning Authority and/or Municipal District Office. Local access, for landowners along the LT62013, will be maintained throughout. Traffic restrictions shall be kept to minimum duration and extent;
- All reasonable steps shall be taken to ensure that national and regional routes are used to transport all materials to/from the site, in so far as is possible;
- The LT62013, between the proposed development site and the Drumlins Park Wind Farm, will be regularly inspected to ensure that the structural integrity of the road is not adversely affected due to HGV movements. Should a deterioration in the road condition be identified, remedial measures, in agreement with the local authority, will be implemented;
- The proposed site entrances will be reinstated in a manner which ensures that the requisite visibility splays and road safety are maintained;
- A designated contact point and coordinator will be put in place to manage all access arrangement and to interface with the public and the Local Authority; and
- The site shall be closed to the public during the construction phase.

13.1.6.2 Monitoring

The LT62013 will be regularly monitored during construction to identify any damage which may have been caused by construction traffic. Where any damage has been caused by traffic associated with the proposed development, it shall be repaired by the appointed contractor as soon as practicable.

13.1.7 Residual Effects

13.1.7.1 Construction Phase

There are no significant residual effects, positive or negative, assessed as likely to occur during the construction phase. Mitigation measures have been proposed to offset any likely effects and any residual effects are assessed to be slight, negative and short-term.

13.1.7.2 Operational Phase

There will be no residual effects during the operational phase as only occasional LGVs are envisaged to visit the site during operation for routine maintenance.

13.1.7.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, residual decommissioning phase effects will not occur.

13.1.8 Summary

This section has assessed the likelihood of significant effects arising on transport and access as a result of the proposed development. The proposed development has generally been assessed as being likely to result in effects of a negative, slight/moderate, direct, short-term, and high probability. After mitigation, the likely residual effects have been assessed as imperceptible/slight, negative and short-term in nature.

Cumulative effects, with the permitted Drumlins Park Wind Farm and other developments in the vicinity, are not assessed as likely to be significant.

Overall, this assessment has identified no likelihood of significant effects on transport and access which could arise as a result of the construction, operation or decommissioning of the proposed development either individually or in combination with other existing, permitted or proposed developments. A suite of mitigation measures have also been proposed which will serve to further mitigate and prevent any likely transport and access effects.

13.2 Aviation

13.2.1 Introduction

This section assesses the likelihood of effects on aviation arising as a result of the construction, operation or decommissioning of the proposed development. The proposed development is not, due to the absence of particularly tall structures, a type of development which is likely to give rise to effects on or interactions with aviation. However, given that the proposed development forms part of the overall Drumlins Park Wind Farm, which comprises 8 no. permitted wind turbines, it has been considered appropriate to re-evaluate the likelihood of significant aviation effects arising as a result of the project as a whole.

The requirement for an assessment of the likely effects on aviation is set in the *Wind Energy Development Guidelines for Planning Authorities 2006* (DoEHLG, 2006) which state:-

> *"The siting of wind turbines may have implications for the operations of communications, navigation and surveillance systems used for Air Traffic Control for the separation and safety of aircraft. Wind turbine siting may also have implications for the flight paths of aircraft."*

13.2.1.1 Statement of Authority

This section has been prepared by members of the GES Environment & Planning Team. GES has substantial experience having prepared Material Asset (Telecommunications) chapters for multiple EIAR developments.

13.2.2 Methodology

The assessment involved consultation with various stakeholders including the Irish Aviation Authority (IAA) and Department of Defence. In addition, publications issued by the IAA and the Department were reviewed to determine if the proposed development site, in combination with the permitted Drumlins Park Wind Farm site, was assessed as being of significance or if significant effects, additional to those assessed at **Chapter 12** (**Volume III**), were likely.

This assessment has also had regard to the *Draft Air Corps Wind Farm/Tall Structures Position Paper* (August 2014) (**Annex 13.2**) which sets out the Air Corps position as to the appropriate siting and management of wind farms and tall structures. This assessment includes a detailed review of this position paper and a spatial comparison of the proposed development site with identified 'Danger Areas', 'Restricted Areas' and 'Low Level Flying Areas'.

13.2.2.1 Consultation

Consultation was undertaken with the IAA and Department of Defence to establish if any effects on aviation resulting from the proposed development were likely. A consultation letter was issued to both in February 2020 (see **Chapter 1**) which included a Scoping Report, a general description of the proposed development and site location drawings.

A response was received from the IAA, see **Annex 1.5** (**Volume II**), who confirmed that it had no comment to make in relation to the proposed development. The IAA also referred to previous observations made in respect of the Drumlins Park Wind Farm.

13.2.3 Description of Existing Environment

There are no major airports in the vicinity of the proposed development and the site is therefore assessed as being unconstrained. The proposed development are located c. 100km northwest of Dublin Airport and c. 85km south west of Belfast International Airport.

According to the IAA, there are no aerodromes or airstrips in the immediate vicinity of the proposed development or indeed within counties Monaghan or Cavan. The nearest aerodrome in the Republic of Ireland is at Athboy in County Meath at an approximate distance of 60km while the Abbeyshrule Aerodrome in Longford is located c. 68km distant. In Northern Ireland, St. Angelo Airport (Enniskillen) is located c. 42km northwest of the proposed development site. St. Angelo Airport does not accommodate commercial flights and is largely used for private flights or pilot training.

The proposed development site is not located within any 'Danger', 'Restricted' or 'Military Operating' area as identified at Annex A, B or C of the *Air Corps Wind Farm/Tall Structures Position Paper*. Similarly, the subject site is not located within 3 no. nautical miles of any critical low level route identified at para. 2(2)(c) and illustrated at Annex D of the Paper.

Air traffic control radar is of two types. Primary Surveillance Radar (PSR) equipment sends out pulses of electromagnetic energy which will reflect off objects in their path. The radar's receiver antenna detects the returning 'echoes' and these are displayed on the radar screen. The time taken for the pulse to travel out to the target and back gives an indication of the range of the object from the radar.

Secondary Surveillance Radar (SSR) is the second type of radar equipment used for air traffic control. Like primary radar, SSR relies on an antenna rotating continuously through 360°. However the radar does not transmit raw pulses of energy; it transmits an interrogation signal. The signal is received at the SSR antenna, decoded, and the height and location of nearby aircraft are presented on the radar screen. This enables controllers to positively identify radar returns on their screens and (after verbal confirmation from the pilot) to confirm the aircraft's height.

Rotating wind turbine blades within radar range can impart a Doppler shift to any radar energy reflecting off the blades. The radar's processor could detect this as a non-static target and therefore display the turbines as objects on the radar screen.

13.2.4 Description of Likely Effects

13.2.4.1 Construction Phase

Due to the low altitude of activity during the construction phase, it is assessed that there will be no likely effect on aviation.

13.2.4.2 Operational Phase

Due to the generally low altitude of the proposed development (tallest structure of 18m [telecommunications pole]), it is considered that there will be no operation phase effects on aviation.

The proposed development site is not located within any low flying areas, restricted areas, danger areas or low level routes identified within the *Air Corps Wind Farm/Tall Structures Position Paper*.

It is concluded, therefore, that the operation of the proposed development and the

permitted Drumlins Park Wind Farm will not result in any likely significant effect on the Air Corps or other aviation activities.

13.2.4.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, decommissioning phase effects will not occur.

13.2.5 Cumulative & Transboundary Effects

Due to the absence of other tall structures in the wider vicinity of the proposed development site and Drumlins Park Wind farm site and given that the nearest wind farm development is in excess of 10km from the subject site, it is assessed that there is no likelihood for the proposed development to have any significant effects on aviation, individually or in combination with other existing, permitted or proposed developments.

Similarly, due to the absence of any likely effects on aviation in Northern Ireland, it is assessed that there is no likelihood for significant transboundary effects resulting from the proposed development, either individually or in combination with other developments.

13.2.6 Mitigation & Monitoring Measures

13.2.6.1 Construction Phase

Due to the absence of tall structures and likely aviation effects, there are no specific mitigation measures during the construction phase.

13.2.6.2 Operational Phase

Due to the absence of tall structures and likely aviation effects, there are no specific mitigation measures during the operational phase.

As is best practice, and as required by Condition 13 of the Final Grant of Permission of Monaghan County Council Planning Register Reference 19/486 (Drumlins Park Wind Farm), a scheme of aeronautical obstacle warning lights for the permitted wind turbines will be agreed with the IAA prior to the commencement of development. The 'as constructed' turbine coordinates, ground and tip height elevations will be provided to the IAA following installation of the wind turbines.

13.2.6.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, no decommissioning phase mitigation measures are required.

13.2.7 Residual Effects

No likely significant residual effects during the construction, operational or decommissioning phases are assessed as likely to occur.

13.2.8 Summary

This assessment concludes that the proposed development is unlikely to result in any significant effect on aviation. The proposed development does not comprise particularly tall structures which could pose a risk to military or civilian aviation operations. Accordingly, with the installation of appropriate aviation warning lighting at the permitted Drumlins Park Wind Farm, significant effects on aviation are unlikely

to occur as a result of the project as a whole, either individually or in combination with other existing, permitted or proposed developments.

13.3 Telecommunications

13.3.1 Introduction

This section considers the likely effects of the proposed development upon a range of communications infrastructure, including telecommunication networks, broadcast radio and television and fixed infrastructure such as telecommunication masts. In theory, given the nature of the proposed development and the absence of tall structures, interference or adverse effects are unlikely.

However, given that he proposed development forms part of the overall Drumlins Park Wind Farm, which comprises 8 no. permitted wind turbines, it has been considered appropriate to re-evaluate the likelihood of significant telecommunication effects arising as a result of the project as a whole.

13.3.1.1 Statement of Authority

This section has been prepared by members of the GES Environment & Planning Team. GES has substantial experience having prepared Material Asset (Telecommunications) chapters for multiple EIAR developments.

13.3.2 Methodology

The methodology employed in assessing the likelihood for significant effects on telecommunication networks consisted of desk based research and consultation with various telecommunication companies and relevant authorities. Desk based research was undertaken to identify:-

- Locations of known telecommunications facilities;
- Known telecommunication fixed links; and
- Known television broadcast and re-broadcast facilities.

During the EIAR scoping process (see **Chapter 1**), the following telecommunication companies, bodies and authorities were consulted with;-

- Airspeed Telecom;
- An Garda Síochana;
- Arden Broadband;
- Broadcasting Authority of Ireland;
- BT Communications Ireland;
- Commission for Communications Regulation;
- Eir Mobile;
- Imagine Group;
- Mosaic Net;
- National Ambulance Service;
- Netshare Ireland;
- Open Eir;
- Ripplecom;
- 2rn (RTE Transmission Network Ireland);
- Tetra Ireland Communications Ltd;
- Three (3) Ireland;
- Towercom;
- Virgin Media Ireland;
- Vodafone Ireland Ltd; and
- Office of Communications (Ofcom; Northern Ireland).

The responses received; from the Broadcasting Authority of Ireland, BT

Communications Ireland, Eir Mobile, Openeir, 2rn (RTE Transmission Network Ireland), Virgin Media Ireland, Vodafone Ireland Limited, and Ofcom; can be viewed at **Annex 1.5**. The responses received confirm that there will be no significant effect on the telecommunications network in the area of the proposed development.

13.3.3 Description of Existing Environment

The consultations undertaken illustrate that the proposed development site is not a significant location for telecommunication links. While there are telecommunication masts located within the wider environs of the subject site[9]; on the basis of the consultations undertaken, there are no telecommunication links which are likely to be affected by the proposed development.

13.3.4 Description of Likely Effects

Due to the low altitude of the proposed development and the absence of likely effects identified in the consultation responses, the following assessment focuses on the project as a whole, including the permitted Drumlins Park Wind Farm.

13.3.4.1 Construction Phase

No significant effects are assessed as likely to occur during the construction phase.

13.3.4.2 Operational Phase

Interference of wind turbines with electromagnetic transmissions

The operation of wind turbines can affect electromagnetic transmissions in two ways: by blocking or deflecting line of sight radio or microwave links or by 'scattering' transmission signals.

Microwave UHF (Ultra High Frequency) and VHF (Very High Frequency) television signals

These are generally quite narrow signals that travel in a straight line. Wind turbines (or any structure) can disturb microwave signals if they obstruct the line of sight between the transmitter and the television aerial of a nearby residence.

The blades of the permitted turbines can block some signals, or they could act as an unwanted relay transmitter, causing TVs in local residences to receive a 'ghost' signal. Wind turbines may cause a reception shadow when they stand between a TV transmitter and dwellings with TV aerials pointing through the wind turbines towards the transmitter. Television viewers in such locations will have their signal scattered, causing loss of detail, loss of colour or a buzz from their television. Generally, careful choice of turbine siting can mitigate any likely significant effects, as the separation distance required to avoid problems is generally a matter of a few hundred meters. However signal boosting measures installed post wind farm completion can also be effective.

Scattering of signal mainly affects domestic TV and radio reception, and the general public may be concerned that a wind farm will interfere with these services. Experience has shown that, when this occurs, it is of a predictable nature and can generally be alleviated by the installation or modification of a local repeater station or cable connection, or by using a more directional kind of aerial.

[9] http://siteviewer.comreg.ie/#explore

Analogue and Digital Television Signals

The UK Ofcom document *Tall structures and their impact on broadcast and other wireless services*[10] in order to provide an overview for developers and planning authorities on how tall structures such as wind turbines may affect reception of wireless services.

There are two problems that can occur due to interference from tall structures: (1) signal blocking, and (2) reflection. Signal blocking can occur when a tall structure is situated between the transmitter and receiver. This causes a shadow behind the structure that can reduce signal levels. The severity of the reduced signal can vary depending on a number of factors such as the height of the structure.

Signal reflection can occur when wireless signals are reflected from the sides of structures. In the case of wind turbines, because the blades are rotating, the reflections can fluctuate and be quite complex. Reflections from turbines can also vary depending on the speed at which the blades are rotating and the angles of the blades. According to Ofcom, digital television signals are much better at coping with signal reflections, and pictures do not experience ghosting.

As analogue television has been phased out in Ireland, problems with ghosting and signal reflection due to interference from turbines will be reduced. Since the digital switchover, the power of transmitters emitting the digital signal has been increased to deal with the demand. This higher output is likely to overcome any signal interference and is not likely to effect the reception received on televisions. Overall, the likelihood of adverse signal effects is much less significant with digital television than with analogue television.

Mobile Phone Signals

Despite the presence of a number of telecommunication (mobile phone) masts in the wider area, the consultation process for both the proposed development and permitted Drumlins Park Wind Farm (see **Chapter 1**, **Volume III**) has not identified the likelihood of significant interference and no service provider has expressed concerns and, therefore, significant effects on mobile phone signals are not assessed as likely.

13.3.4.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, decommissioning phase effects will not occur.

13.3.5 Cumulative & Transboundary Effects

Due to the absence of other tall structures in the vicinity of the proposed development site which may affect telecommunication links, it is assessed that there is no likelihood for the proposed development to have any significant effects on telecommunications, in combination with other existing, permitted or proposed developments. Service providers and agencies in Northern Ireland have also been consulted with and it is assessed that there is no likelihood of any significant transboundary effects as a result of the proposed development.

[10] OFCOM: Tall structures and their impact on broadcast and other wireless services, August 2009, http://licensing.ofcom.org.uk/binaries/spectrum/fixed-terrestrial-links/wind-farms/tall_structures.pdf

13.3.6 Mitigation & Monitoring Measures

13.3.6.1 Construction Phase

As no significant effects are assessed as likely to occur during the construction phase, no specific mitigation measures are proposed.

13.3.6.2 Operational Phase

Extensive consultation with telecommunications providers has confirmed that significant adverse effects on existing telecommunication signals are unlikely to occur as a result of the operation of the proposed development.

While the overall project (proposed development plus permitted Drumlins Park Wind Farm) is assessed as unlikely to interfere with any microwave links, all operators will be kept informed of any changes to the precise positioning of infrastructure to ensure that compliance with telecommunication constraints is maintained.

In accordance with Condition No. 9 of Monaghan County Council Planning Register Reference 19/486; if, despite precautions, telecommunication interference in any form is identified and is attributed to the project, appropriate remedial measures will immediately be undertaken. A range of technical measures are available to mitigate any instances of interference including signal amplifiers, active deflectors and relay transmitters, repeater stations, booster units, realignment of domestic aerials, installation of higher quality aerials and the installation of suppression equipment. Remedial works will be promptly undertaken to ensure uninterrupted telecommunication, broadcasting and mobile phone service provision.

13.3.6.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, no decommissioning phase mitigation measures are required.

13.3.7 Residual Effects

No likely significant residual effects are assessed as likely to occur.

13.3.8 Summary

It can be concluded that, on the basis of a desktop assessment and extensive consultation with stakeholders, the proposed development will not result in likely significant effects on the telecommunications network.

The implementation of mitigation measures, with regards the Drumlins Park Wind Farm, will ensure that any likely significant effects on terrestrial television signals are appropriately managed and mitigated. Therefore, it is assessed that significant effects on telecommunications are unlikely to occur from the project as a whole, either individually or in combination with other existing, permitted or proposed developments.

13.4 Resources & Utility Infrastructure

13.4.1 'Introduction

This section provides details of the likelihood of significant effects or interactions with existing renewable and non-renewable resources and existing utility infrastructure. Within the wider environs of the proposed development site there is evidence of the extraction and use of resources; particularly in relation to quarrying activities, existing wind energy developments, including a number of micro-generation sites (including in Northern Ireland), and mining activities in the Clontibret and Carrickmacross areas.

There is also the presence of utility infrastructure, with overhead electricity lines connecting to the majority of dwellings, medium and high voltage electricity lines traversing the landscape and telecommunication lines located adjacent to the majority of local roads.

13.4.1.1 Statement of Authority

This section has been prepared by members of the GES Environment & Planning Team. GES has substantial experience having prepared Material Asset (Resource & Utility Infrastructure) chapters for multiple EIAR developments.

13.4.2 Description of Existing Environment

13.4.2.1 Renewable Resources

There are 2 no. existing wind farm developments located within County Monaghan. These developments are the Mullananalt Wind Farm comprising 5 no. wind turbines and the Old Mill Wind Farm comprising 6 no. wind turbines. The developments are located c. 18km and c. 20km respectively east of the proposed development. The Mountain Waters Wind Farm and Coolberrin Wind Farm, both of which are permitted but not yet constructed, are located c. 23km north of the proposed development site.

In County Cavan, the Bindoo/Mountain Lodge/Carrickallen/Edrans Wind Farm complex is located c. 12km to the south. In addition to the above, a number of single turbine developments are located in the wider area including the Castlecool Wind Turbine and a number of micro-generation sites in counties Monaghan, Cavan and Fermanagh.

13.4.2.2 Non-Renewable Resources

There are a number of extant quarrying and mining activities within County Monaghan. There are no quarries located within the proposed development site or in its immediate vicinity. The nearest quarry is located c. 5km southwest of the proposed site at Scotshouse. As there are no borrow pits proposed as part of the proposed development, aggregates for the construction phase will be imported from authorised quarries in the vicinity. Further details on the importation of such materials are provided at **Section 13.1**.

13.4.2.3 Utilities Infrastructure

The existing electricity network in south County Monaghan comprises 38kV and 110kV electricity transmission lines. The network, however, is weaker in more northern and western areas of the county. **Figure 13.3**, below (reproduced at **Annex 13.3**), illustrates the existing electricity transmission network in the wider region of the proposed development site.

Eirgrid is the TSO responsible for both the planning and operation of Ireland's high voltage national grid (≥110kV) while ESB Networks are responsible for the development of medium and low voltage lines (≤38kV). **Figure 13.3** Indicates alignment of the Lisdrum-Shankill 110kV overhead electricity line to which the proposed development will be connected.

In addition, there is an extensive telecommunications network in the wider environs of the proposed development site.

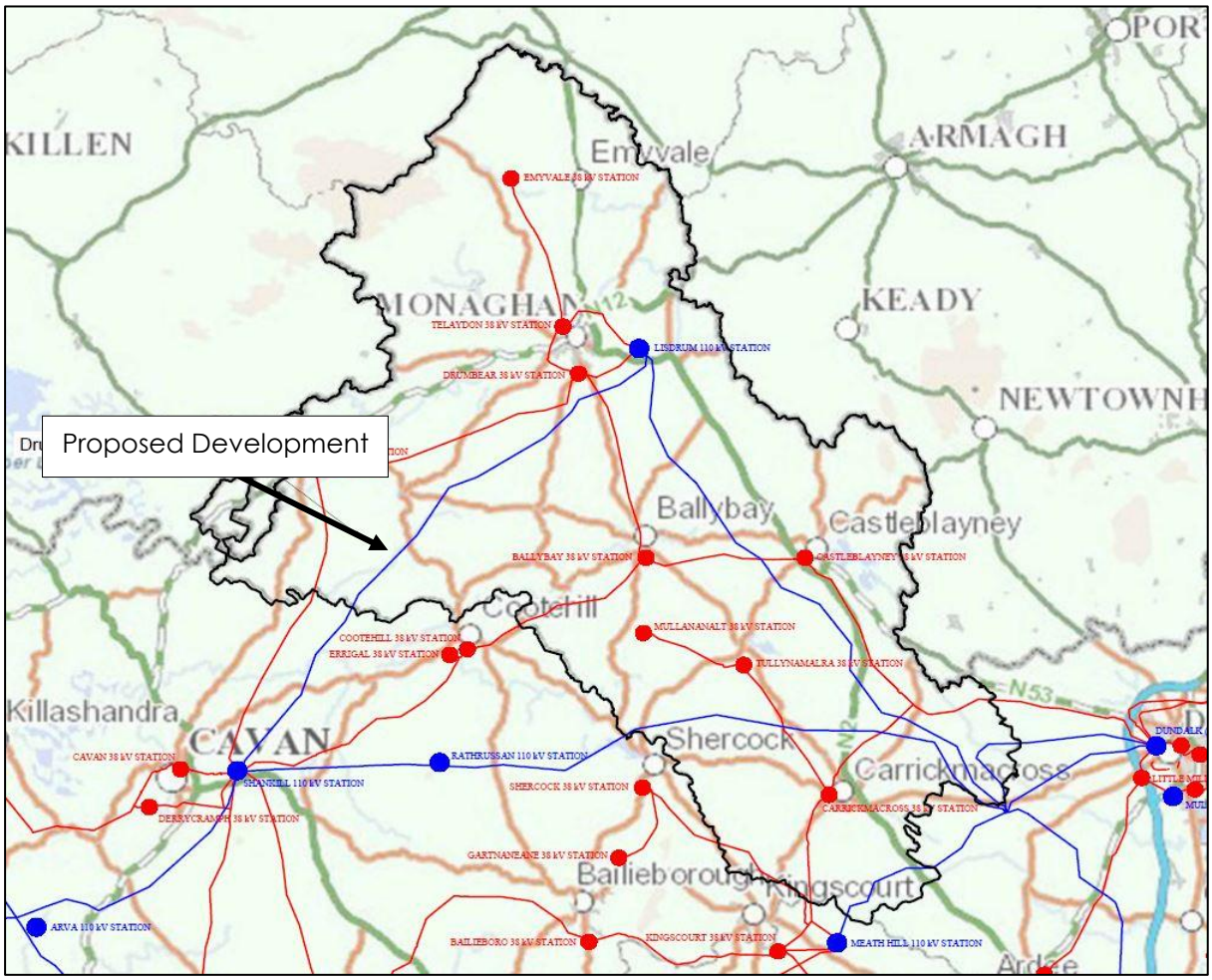

Figure 13.3: Electricity network in County Monaghan and surrounding counties

Note: 38kV network indicated in red; 110kV network indicated in blue

13.4.3 Description of Likely Effects

13.4.3.1 Construction Phase

The construction phase of the proposed development is not likely to have any significant effects on existing renewable resources, non-renewable resources, or utilities infrastructure. The construction phase will not inhibit the export of renewable energy generated from other sources nor will it impact upon existing utility services. While there is a possibility of interaction with utility services (e.g. accidental collision with overhead wires during the construction phase), this can be mitigated through good construction practices.

During the process of connecting the proposed development to the national grid, some minor, temporary disruption to electricity supply, at a local level, may occur.

However, during this process, Eirgrid will balance the loading on the network to ensure that no significant disruption occurs and significant effects do not arise.

The construction phase will result in the extraction of non-renewable resources in the form of aggregates for the construction of access tracks, substation footing and concrete for substation construction. However, aggregates will only be sourced from quarries with have full planning permission and have been subject to EIA; and, therefore, the effects of this extraction have already been fully assessed. As a result, it is assessed that significant effects on the environment are unlikely to occur as a result of the proposed development, either individually or in combination with other existing, permitted or proposed developments.

13.4.3.2 Operational Phase

The operational phase of the proposed development will not result in any likely effect on existing utility infrastructure or renewable or non non-renewable resources. The connection of the proposed development to the national grid will strengthen the electricity network infrastructure in the wider region through the construction of a 110kV substation which will serve the national network.

It may be necessary to occasionally import aggregates to the site during operations to maintain access for service vehicles; however, materials will again be sourced from authorised quarries with full planning permission and no likely significant effects will occur.

The proposed development will have no likely operational phase effects on existing renewable resources. It is assessed that the proposed development will, by facilitating the export of electricity generated by the Drumlins Park Wind Farm to the national electricity network, result in a likely overall positive effect in terms of carbon reduction and climate change (see **Chapter 8**). It is assessed, therefore, that adverse effects on the environment are unlikely to occur in respect of resources and utility infrastructure during the operational phase as a result of the proposed development, either individually or in combination with other existing, permitted or proposed developments.

13.4.3.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, decommissioning phase effects will not occur.

13.4.4 Cumulative & Transboundary Effects

The proposed development is not assessed as likely to result in any cumulative effects on resources or utility infrastructure, either individually or in combination with other existing, permitted or proposed developments. Similarly, it is assessed that there is no likelihood of transboundary effects arising as a result of the proposed development.

13.4.5 Mitigation & Monitoring Measures

13.4.5.1 Construction Phase

No specific mitigation measures are proposed or required during the construction phase.

13.4.5.2 Operational Phase

No specific mitigation measures are proposed or required during the operational

phase.

13.4.5.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, no decommissioning phase mitigation measures are required.

13.4.6 Residual Effects

No likely significant residual effects are assessed as likely to occur.

13.4.7 Summary

This assessment concludes that the proposed development is unlikely to result in any significant adverse effect on renewable and non-renewable resources or on utilities infrastructure. The operation of the proposed development will bring about a benefit in terms exporting electricity generated from a renewable source to the national grid and a strengthening of national electricity grid infrastructure in the wider region of the proposed development site. This assessment similarly concludes that the proposed development is unlikely to result in any significant adverse cumulative effects in combination with existing, permitted or proposed developments.