APPENDIX 5.1
VISUAL ASSESSMENT

VOLUME III
APPENDICES TO
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

RFI Response July 2025

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APEM Group

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VISUAL ASSESSMENT

Cloonanny Wind Farm

Co. Longford.

Prepared by Macro Works Ltd on behalf of McCutheon Halley

RFI Revision July 2025

This LVIA should be read in conjunction with Chapter 5: Landscape and Visual Impact Assessment and the LVIA Photomontages produced by Macro Works Ltd

Registered Landscape Architect

macroworks APEM Group

1. VISUAL ASSESSMENT

1.1 MAGNITUDE OF VISUAL IMPACTS AT REPRESENTATIVE VIEWPOINT LOCATIONS

The assessment of visual impacts at each of the selected viewpoints is aided by spatially accurate wireframe images and photomontages that have been produced in accordance with Scottish Natural Heritage (SNH) Visual representation of wind farms: Best Practice Guidelines (version 2.2 - 2017). The presented images for each viewpoint include;

1. Existing View (Contextual 90° included angle)
2. Wireframe view - proposed and cumulative turbines (Contextual 90° included angle)
3. Wireframe view (53.5° included angle)
4. Montage View (53.5° included angle

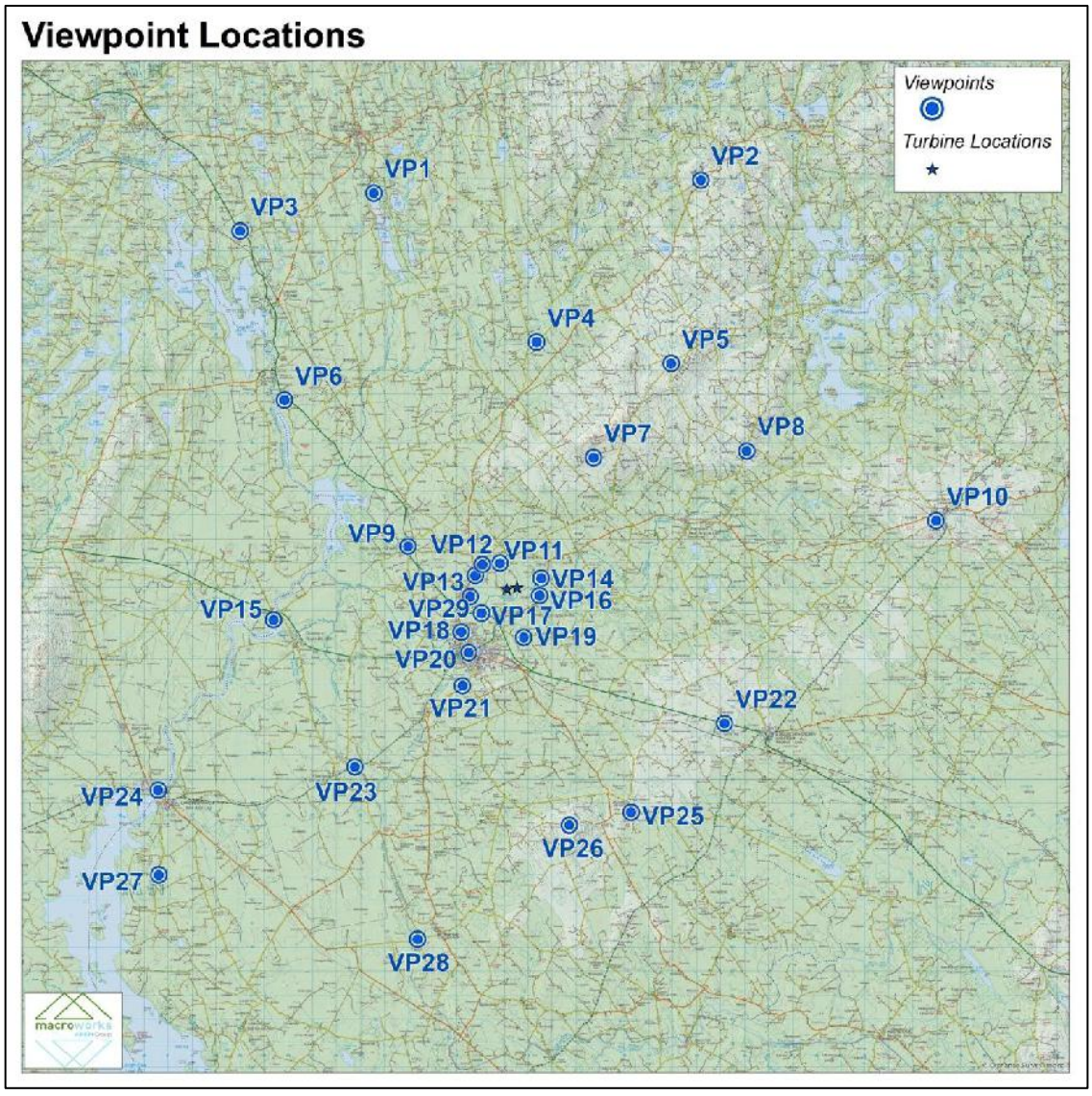


Figure 1: Viewpoint Map

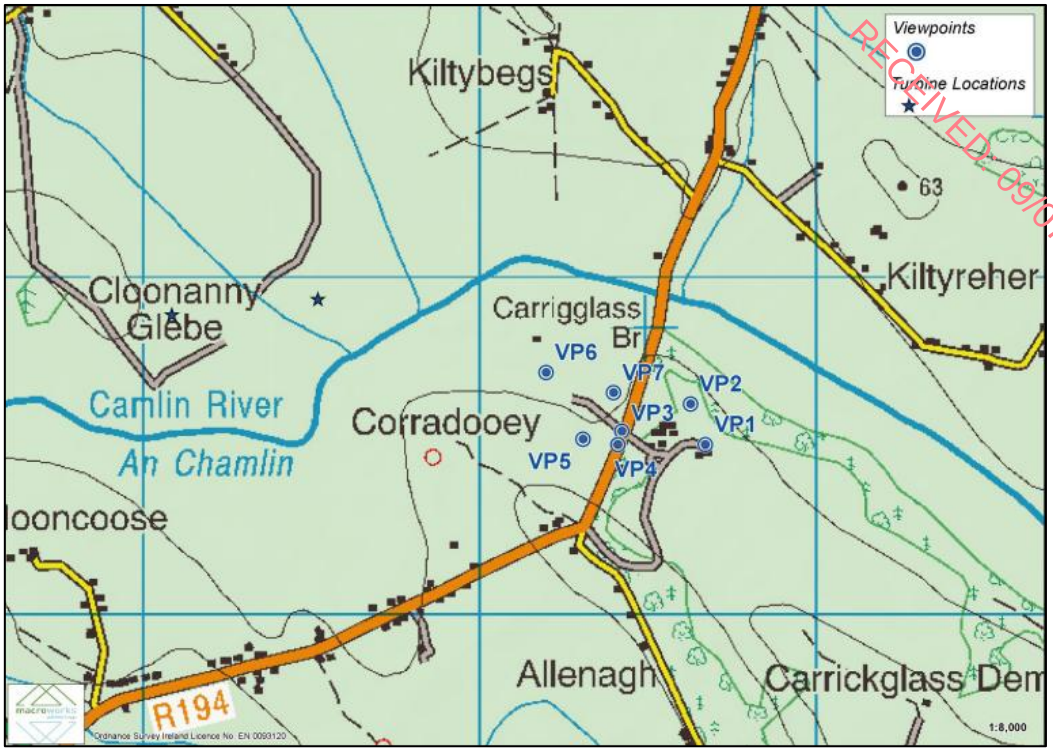


Figure 2: RFI Viewpoint Map

Table 1: Magnitude of Visual Impacts at Representative Viewpoint Locations

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
VP1	**Rinn Lough** This is a pleasant view over the length of Rinn lough from the northern end of the lough. The vegetated shores of the lough frame the view into the distance, screening much of the wider landscape. This viewpoint represents the higher amenity setting of the lough, the recreational users, the nearby scenic designation and local community.	High	The proposed turbines are partially visible, rising above the distant rolling terrain at a distance of more than 17km. There is a small section of intervening landform visible between the end of the lough and the proposed development which serves to separate the two. One turbine features full rotor visibility while the other is partially screened by vegetation. The proposed development is aligned off-centre to the main line of the lough, reducing its influence on the viewer setting and surrounding amenity. Due to the distance and limited visual presence, the magnitude of impact is deemed **Low-negligible.**	**Slight / Negative / Long-term**
VP2	**R198 at Legga** This is a partially contained view afforded from a section of the R198 regional road in the townland of Legga, representing the scenic designation along the regional road, and surrounding residences. The view is oriented south, across a small pastoral field contained in rough grazing. Several low rolling hills rise in the distance and contain the view's background, while the view is framed to the south over fields and hedgerows.	Medium	The proposed development will not be visible from here; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP3	**N4 viewpoint at Fearnaght** This is a broad panoramic vista to the south afforded from the crest of a hill to the east	Medium	The proposed turbines will be viewed as small background features at the considerable viewing distance of over 18km. Additionally, the proposed development is not viewed with the	**Slight-imperceptible / Negative / Long-term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	of Lough Bofin and Boderg, which is the key aspect of visual amenity in this instance. A series of dwellings line the eastern side of a short section of local access road that runs parallel to the N4 at this location and also enjoy this view. To the right hand side of the road marshy farmland and tree-lined hedgerows descend towards and partially screen the Lough in the middle distance. The Lough presents as a complex pattern of bays cloaked in riparian woodland, extending into the distance in a southwest direction.		primary source of amenity, but is set away to the southeast, along the road corridor between the clutter of streetlights and signs lining the road corridor. Due to the distance and limited visual presence, the magnitude of impact is deemed **Low-negligible**.	
VP4	**R198 at Drumlish** This viewpoint is located along the R198 to the south of Drumlish, representing the local community as well as the small centre of population as they travel along this section of regional road. The view is framed by roadside vegetation, contained in the midground by gentle rolling landform.	**Medium-Low**	The wireframe view indicates visibility of one blade tip over the distant rolling landform, however this is entirely screened by vegetation across the intervening agricultural landscape. Therefore, the magnitude of impact is deemed **Negligible**.	**Imperceptible / Neutral / Long-term**
VP5	**L1035 at Drumderg** This viewpoint is representative of the cluster of scenic routes within the rolling upland areas to the north of the study area. It is a typical rural, rolling landscape setting with anthropogenic influence in the form of the transmission mast atop Cairn Hill (outside of the depicted view) and the small cluster of agricultural buildings in the distance. The wider landscape is partially	**Medium**	Both turbines will be visible from here; partially screened by vegetation across the slope of Cairn Hill. The nacelle and full blade sets of both turbines will be visible, rising above the intervening landform with a low degree of contrast against the sky. It will be a small but distinctive new feature of the view and, due to being located off-centre to the longer distance views, is therefore deemed to have a sub-dominant visual presence in the context of this long distance, partially screened view. Therefore, the magnitude of visual impact is deemed **Low**.	**Slight / Negative / Long-term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	screened by Cairn Hill and wooded hedgerows, although views are allowed to open farmland in the distance.			
VP6	**R371 at Osprey Park** Located at the junction of the R371 and the access to the Shannon-side settlement of Osprey Park, this view is contained by layers of wooded hedgerows. The foreground is relatively open across the road corridor, contained in the middle distance by vegetation.	**Medium-Low**	The proposed development will not be visible from here, screened by vegetation typical of this area; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP7	**L1031 at Corn Hill** This is an elevated view from the southern face of Corn Hill north of Longford. The local road bordered by occasional mature trees and roadside scrub, descends away from the viewer in the foreground. Dense scrubby hedgerows quickly mask the view of the intervening pastoral fields on the lower slopes of the hill with only occasional glimpses of grassland. As the view opens up over the terrain, the dense mature intervening vegetation becomes stacked in perspective and cloaks the landscape all the way to the flat horizon.	**Medium**	In aesthetic terms the turbines are well spaced and clearly legible – with the exception of localised trees in the foreground. There is a simplicity to the way in which the turbines rise from the dark plinth of the ground plane at the horizon. This is also an anthropogenic rural landscape context within which the wind farm is not an incongruous feature. While the development will add a modern, more intensive land use to the view, it is clearly separated from the viewer and set within a modified landscape. Thus, it is not considered that the scheme will measurably detract from visual amenity at this location. For the reasons outlined above the magnitude of visual impact is deemed to be **Low**.	**Slight / Negative / Long term**
VP8	**L1051 at Gelsagh** This is a broad view located in the rolling hills to the northeast of the site, which host a number of designated views. Corn Hill and	**Medium**	The proposed turbines are located in the far middle ground of the view to the lefthand side of the Corn Hill, but peripheral to the main amenity and road alignment. The tower, nacelle and full blade sets of both turbines will be clearly visible, rising above	**Slight / Negative / Long Term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	the distant silhouette of Slieve Bawn can be seen to the west, while the south extends over undulating farmland sloping away from the viewer to form an even band of stacked hedgerows, concealing much of the surrounding pasture. There are pockets of built form visible in the foreground and across the wider landscape.		the surrounding farmland with a low degree of contrast against the sky, except the lower sections which appear more clearly against the darker backdrop of the ground plane. It will be a small but distinctive new feature of the view and is likely to be readily noticeable and is therefore deemed to have a sub-dominant visual presence in the context of this vast vista. On balance, of the above reasons, the magnitude of visual impact is deemed to be **Low**.	
VP9	**N4 at Newtown Forbes** This view is located within the built centre of Newtown Forbes, slightly north of Castleforbes Demesne. Aligned down a local road which diverges off the N4, the angle of view will be experienced primarily by local residences, but glimpsed by those looking east travelling along the N4. The foreground is built up and enclosed as can be expected for a population centre.	**Medium**	The full blades sets of T1 and the partial blades of T2 emerge above and beyond the fore-to-middle ground context. In perspective, the turbines will rise to a lesser height than the nearer lighting poles, lattice mast, trees and residences, but they are likely to be more noticeable due to their movement and more distinctive form. The movement of the turbine blades have the potential to draw the attention of viewers, due to the alignment with the road corridor as well as moving parts, but within the context of a relatively complex street scene. Thus, the visual presence of the turbines and considerable foreground screening is in the order of co-dominant to sub-dominant. The turbine blade sets may give rise to a degree of visual clutter in conjunction with lighting and utility poles, roofs and treetops. Additionally, there is a degree of visual ambiguity associated with potential distance / contextual confusion as a result of the screened lower sections of the turbines. On balance of the reasons outlined above, the magnitude of visual presence is deemed to be **Medium-low.**	**Moderate-slight / Negative / Long term**
VP10	**Granard Motte and Bailey** This is a panoramic view from the top of a moat located adjacent to Saint Mary's Church on the edge of the settlement of	**High**	The proposed development is a distinct, but small scale feature at this distance of nearly 18km and in the context of the vast view it is deemed to have a sub-dominant visual presence. There is some visual clutter through the stacking of the two turbines,	**Moderate-slight / Negative / Long term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	Granard. Lower portions of the historic moat site are identifiable in the foreground, along with communications infrastructure inside a fenced-off compound. Undulating farmland gently slopes away from the viewpoint, with the Kiernan Milling site a notable modern built feature in the midground. A sweeping view over the surrounding low-lying rural landscape is afforded to the east, south and west. Cartrongarrow Hill is identifiable to the southwest, Corn Hill to the west.		resulting in a the blades of each rotating over one another, however this is generally mitigated by distance. The broad, flat landscape in the view is capable of absorbing and integrating the proposed turbines into the view without becoming crowded or cluttered; on the contrary, the development is aligned with Keirnan Milling and as such keeps the more industrial land uses contained to a small section of the view, clearly separated by distance. Behind these, at a distance of nearly 40km, Sliabh Bawn wind farm has the potential to be visible along the horizon on clear days. Thus, it will have only a minor reduction to the visual amenity of this scene. Overall, the magnitude of visual impact is deemed to be **Low**.	
VP11	**L50461 at Derryharrow** This is a local community view, located to the north of the site at the periphery of Melview along one of the minor populated local roads. There is a well populated local road to the north-west viewpoint, while the viewpoint itself is located on a sparsely populated lane featuring some of the closest residences to the proposed development. The view itself looks past one such residence over fields in the foreground, lined with well treed hedgerows that limit views of the wider landscape. There are scattered residences visible in the distance, however these are highly enclosed by vegetation. Located on a slight rise, the landform gently slopes away from the viewer, divided by the previously described vegetation.	**Medium-Low**	Both proposed turbines compound visible here, prominently visible and rise above the near vegetation at a notable scale at a distance of 0.9km. They will generally have a dominant visual presence, reducing to co-dominant depending on the degree of roadside screening along the local road carriageway. The turbines are separated from the viewer and from the contrasting residential land uses by the mid-ground hedgerow and fall in the landform. The turbines do not appear over-scaled in the rolling context of the wider landscape, which successional layers of hedgerows can be seen. On balance of the above reasons, the combined magnitude of visual impact of all aspects of the proposed development is deemed **High-medium**.	**Moderate / Negative / Long-term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
VP12	**L1018 at Melview** The viewpoint is located along one of the most populated local roads at Melview. There is a line of residences located along the north-western side of the road (180 degrees to the depicted view), with two medium sized fields in the foreground, lined with well treed hedgerows that limit views of the wider landscape. There are scattered residences visible to the south, in the midground, on the far side of the nearest fields. This view is typical of the wider surrounds, with pasture under pressure from residential development, indeed, there is a development to north of the viewpoint, fragmenting the patch of pasture contained within between the two forementioned local roads wider extents of Melview. While there is some degree of agricultural character retained by the larger farm buildings (not within the depicted view), the wider landscape features little visible built form, highly screened by scattered blocks of forestry visible between broadleaf hedgerow and woodland.	**Medium-Low**	This view is representative of this section of local road, where varied screening is expected. As can be seen in the wireframe view, the of the proposed turbines will be visible here at a considerable scale from this distance of just over 1.5km. While the substation and BESS is likely to be fully screened due to the low lying nature and dense screening, the turbines will be viewed over the vegetated surroundings and filtered between roadside trees. Where visible, the proposed turbines will have a dominant to co-dominant visual presence in this view, mitigated by the contextual separation, through being located on the far side of the field, road, and beyond the visible residences. Aesthetically, the proposed turbines present here in a clear and comprehensible manner with little notable negative aesthetic effects. They are well spaced, with only a small degree of shrinking through the additional distance to T2. The proposed turbines appear slightly stunted as vegetation partially screen their towers. This causes the lower sweep of the blades to appear to brush the surrounding vegetation due to the slight slope, and vegetation across the foreground. The minor degree of resulting visual irritation is mitigated by the small number of turbines. The proposed development will generate an increase in the intensity land use development across the view, however, as above, the turbines are clearly separated from the viewer by the open foreground and legible land use transition. Therefore, the magnitude of visual impact is deemed **Medium**.	**Moderate / Negative / Long-term**
VP13	**R198 at west of site**	**Medium-Low**	The proposed development is clearly visible over the midground hedgerow, located 1.6km from the viewer and R198 corridor.	**Moderate-slight / Negative / Long-term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	This view is located south of the junction of the L1018 and R198, between Melview and Clonbalt Wood. The primary viewers are residents of Melview and surrounds travelling to and from Longford. The viewpoint is also representative of road users along the R198 who may experience glimpses to the east as they travel along the road corridor. In summer vegetation this is a relatively enclosed road corridor, with a low hedgerow lined by trees screening much of the surrounding landscape.		The proposed turbines are considered to have a sub-dominant visual presence. As discussed, viewing opportunities at this location will be fleeting. Aesthetically, the proposed turbines present here in a clear and comprehensible manner. They are well spaced, with a minor scale difference through the additional distance T1, which serves to highlight the space between them. The main source of negative visual impacts are the lower sweep of the blades which appear to brush the surrounding vegetation. The proposed development will generate an increase in the scale and intensity of built development across the view, however, as above, the turbines are clearly separated from the viewer by the open foreground. Therefore, on balance of the reasons outlined above, the magnitude of visual impact is deemed **Medium-low**.	
VP14	**Lane at Kiltybegs** This viewpoint is located along a rural lane that primarily services the cluster of farmyards and associated buildings which diverge in a radial manner from the end of the lane. Additionally, typical of the surrounds, there are some smaller, standalone residences being constructed closer to the R194. The viewpoint is located adjacent to one such residence, with an eastward view truncated by tree-lined hedgerows. The view opens to the southeast where the landform slopes down towards the Camlin River corridor.	**Medium-Low**	The proposed turbines are viewed here at a distance of c. 1.0km and will be a prominent feature of this westward view, more so where not screened in the foreground. While the proposed turbines are clearly located within the immediate landscape context, they do not appear over-scaled or with any sense of overbearing. The primary source of visual conflict is the perceived proximity to the residences in the viewer context. This is partially mitigated by the vegetation visible between the viewpoint and T1, while T2 is locally obscured but still identifiable based on the visible extents of the blades and tower. Aesthetically, the proposed turbines are locally obscured, they rotate well above the midground landform and vegetation – with the exception of an established tree in the foreground. Although this is restricted to the viewpoint location rather than the wider lane, this is a fair representation of views which can	**Moderate / Negative / Long term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
			be experienced in the surroundings through roadside and midground screening. The mitigating factor is the distance and perspective given by the separation and consequent height of the turbines to one another, which serves to take some pressure off the transition between two different scale land uses. Overall, the turbines will generate a notable increase in the intensity of land use within the view, therefore the magnitude of visual impact is deemed **High-medium**.	
VP15	**Termonbarry Lock** This is a pleasant view, located on the banks of the Shannon at Termonbarry. The foreground is occupied by the Shannon itself, with the buoys and weir/lock the only built form across the middle of the view. The opposite shore is lined by vegetation before the landform rises slightly to reveal pasture and scattered residences. There are strong recreation, natural amenity and heritage values associated with the viewpoint and wider surrounds.	**High-Medium**	The proposed development will not be visible from here, screened by vegetation and landform; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP16	**R194 at Carrickglass Demesne - Requested View** This view was included to represent the historic setting and gates of Carrickglass Demesne along the R194. The road corridor is often enclosed by established vegetation typical of a demesne landscape, however this viewpoint was selected where large trees are set back from the road, scattered across pasture and around the historic walled garden (NIAH 13400913) and	**Medium**	The partial blade sets of both turbines are visible, although the lower section of both are screened by the established vegetation across the view. This same vegetation limits views to the wider landscape, resulting in some minor confusion as to the setting of the proposed development within the wider landscape. However, the same screening forms a visual barrier between the modern development and the historic features. In this context the proposed development is deemed to have a co-dominant to dominant visual presence. It should also be noted that the proposed development is viewed at right angles to the	**Moderate / Negative / Long term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	workers cottage (NIAH 13400911). The condition of the structure and surrounds imply this is not a highly frequented site or tourism feature, but rather a setting which adds elements of historic amenity to the wider context and local identity. The same can be said of the Manor Gates (NIAH 13401417) and Gate Lodge (NIAH 13401416) which are located on the opposite side of the road, 180 degrees to the depicted view.		road corridor and therefore outside of the drivers primary field of view. Aesthetically, the proposed turbines present here in a clear and comprehensible manner. They are well spaced, with a minor scale difference through the additional distance T1, which serves to highlight the space between them. The main source of negative visual impacts are the lower sweep of the blades which appear to brush the surrounding vegetation. The proposed development will generate an increase in the scale and intensity of built development across the view, however, as above, the turbines are clearly separated from the viewer by the open foreground. Therefore, the magnitude of visual impact is deemed **Medium**.	
VP17	**N4 at Camlin River, Longford** Located along the N4, this is a fairly typical view from a main corridor across the midlands. The foreground and primary viewer experience is contained to the road corridor and hard shoulder, lined with screening vegetation. Beyond this, through the gap in vegetation over the Camlin River, the gently rolling terrain can be seen cloaked in a mix of pasture, with Corn Hill visible in the distance.	**Medium-Low**	Both turbines are visible at a moderate scale and proximity, rotating above the rolling river corridor and vegetation where they are viewed in silhouette against the sky. The proposed turbines are viewed here at a distance of c. 1.5km and will be a prominent feature where glimpsed by road users. The substation and BESS compound is screened by the conifer plantation in the middle ground. Whilst the proposed turbines will be a prominent feature of this view, they do not appear over-scaled or with any sense of overbearing. The staggered perspective between the two turbines highlights the generous spacing between them.. Importantly from this location, dense built form typical of a population centre is generally contained to the southwest of the N4, while the north features some scattered residences, it is generally defined by larger agricultural and forestry land uses. As such, the turbines join larger scale land uses across the periphery of a population	**Moderate / Negative / Long term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
			centre, where they are considered to have a co-dominant to dominant visual presence. Aesthetically, the proposed turbines are viewed in a clear and comprehensible manner, where they rotate well above the surrounding landscape. The proposed turbines present with even spacing characteristics with some sense of perspective in this relatively uncomplicated rural vista. Overall, whilst the turbines will generate a notable increase in the intensity of land use, they will not appear out of place in this larger land use context. On balance of the reasons outlined above, the magnitude of visual impact is deemed **High-medium**.	
VP18	**R198 at Abbeycarton, Longford – Requested View** This view is located within Longford, in the Architectural Conservation Area to the northwest of the town and was requested by the project archaeologist/heritage consultant. The view is enclosed by the established park-like surrounds and large houses. In the foreground the heritage and amenity values are compromised by roadworks, however these are a temporary feature and are accounted for as such in the assessment.	**Medium**	The proposed development will not be visible from here, screened by vegetation and built form; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP19	**L1071 at Corrabaun, Longford** Located across the rolling rural context of the east of Longford, occupied by lifestyle properties, the foreground features roadside hedgerows, partially screening the	**Medium-Low**	Both turbines are visible above the hub, although the lower section of both are screened by the established vegetation and built form across the view. This same vegetation limits to the wider landscape, resulting in some ambiguity as to the setting of the proposed development within the wider landscape. With	**Moderate-slight / Negative / Long term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	residential properties across the midground. There is some depth of view allowed to the north, however the ground plane and any sense of perspective is screened by the roadside hedgerow.		this considered, the proposed development is deemed to have a co-dominant visual presence, slightly mitigated by the set back from the viewer and road corridor. It should also be noted that the proposed development is viewed at right angles to the road corridor and therefore outside of the driver field of view, as such, the primary viewers are the local residents or those travelling at slower speeds. Aesthetically, the proposed turbines are viewed through a partially developed foreground, between residences. It is not an ideal scenario to have only partial views of blade sets rotating along the near-vegetated horizon, as this can generate a notable sense of visual ambiguity as to the actual location of the proposed turbines. In this instance, this sense of ambiguity is partially mitigated by the sense of distance and scale provided by the larger trees in the midground. In addition, the partially visible turbine blade sets will increase the intensity of development in the local landscape and generate some negative aesthetic effects. Therefore, on balance of the reasons outlined above, and in consideration of the more than 2km distance to the viewer, the magnitude of visual impact is deemed **Medium-low**.	
VP20	**St Mel's Cathedral, Longford - Requested View** This view was requested by the project archaeologist/heritage consultant. Located on the steps of St Mel's Cathedral, looking towards St Mel's College, the view is slightly elevated but contained by built form and established trees of the college.	**Medium**	Although the wireframe view indicates potential visibility, this is screened by the established trees surrounding the view. Where filtered or partial views are allowed, the visual impact will be mitigated by distance and the separation of the viewer setting and the proposed development. The main façade and plaza at St Mels faces south away from the wind farm where it will not be a consideration of the setting or views of/from St Mels. Therefore, the magnitude of visual impact is **Negligible**.	**Imperceptible / Neutral / Long Term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
VP21	**L1127 at Aghafad, Longford** This is an elevated, highly developed view looking across Longford from the south, representing the nearby scenic designation. While the foreground is occupied by the road corridor and GAA parking, the rolling landform allows clear views to Corn Hill and St Mel's Cathedral. The horizontal extent of the view is limited by roadside vegetation and the slope of the landform behind the viewer (180 degrees to the depicted view), while the foreground is somewhat cluttered with power and phone lines.	**Medium**	The proposed development can be viewed beyond and to the right of the main centre of Longford and St Mel's Cathedral, framing Corn Hill in the distance. The distance and visible intervening landscape serves to separate the turbines from the viewer context and perceptually place the turbines within the rural hinterland of Longford.. The proximity to the settlement is not a negative association as the generation of energy is related to the consumption of it within population centres. At a distance of 4.4 km (T1), the proposed development is deemed to have a sub-dominant visual presence. Aesthetically, the turbines are well spaced and the clear visibility of T1 adds clarity to the scale and location of T2, which is partially screened by intervening built form. Therefore, the magnitude of impact is deemed **Medium-Low.**	**Moderate-slight / Negative / Long term**
VP22	**N4 at Edgeworthstown** Located on the N4 at the outskirts of Edgeworthstown, this view is slightly elevated over surrounding landform to the north and west. Tree-lined hedgerows line the surrounding pasture, screening much of the surrounding landform and layering over the horizon.	**Medium-Low**	The proposed development will not be visible from here, screened by vegetation and landform; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP23	**N63 at Royal Canal** This view to the northeast from the N63 is afforded from a low rise in terrain along the Royal Canal embankment. The Canal Corridor itself is more enclosed, with a moderate to high degree of canal-side	**Medium**	While the proposed development is indicated to be visible in the wireframe view, the vegetation across the rolling surrounds provide additional screening. Although the canal bridge to the southwest of the viewer is slightly elevated relative to this viewpoint, it is fully obscured by canal side vegetation, as is the canal itself. The vegetation obscures potential visibility to such	**Imperceptible / Neutral / Long Term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	vegetative screening affording only glimpses of the farmed fields just beyond. In this instance there is a slight incline within the fields to the midground of the view, which contains longer distance visibility. The tree-lined hedgerow and residence across the ridgeline further screen the wider surrounds.		a degree that it is not discernible; therefore, the magnitude of visual impact is **Negligible**.	
VP24	**Harbour Lane, Ballyleague** This is an pleasant, open view in the context of Ballyleague & Lanesborough looking north-eastwards along the Shannon from harbour, slightly north of the main street bridge (N63). River-side moorings and a marina occupy the north-western bank of the river, whilst a less formal area of riparian vegetation occupies the other bank. Beyond a dense stand of trees in the fore-to-middle ground rises the significant profile of the Lanesborough power station – itself a locally iconic feature.	**Medium**	The proposed development will not be visible from here, screened by vegetation and landform; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP25	**St Patrick's Church, Ardagh Village** This is a pleasant village scene from the centre of Ardagh Village. There are glimpses to the surrounding landscape, which a generous overlay of heritage character in the cottages, demesne walls and church grounds. There is a strong sense of care with the manicured gardens and lawns, which	**High-Medium**	The proposed development will not be visible from here, screened by vegetation and built form; therefore, the magnitude of visual impact is **Negligible**.	**Imperceptible / Neutral / Long Term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	add to the heritage and amenity values of the view.			
VP26	**L5209 at Lisduff** This is a broad, elevated view from the Longford Designated View on Cartrongarrow Hill. The sloping ground in the foreground reveals long-distance views over a farmed and settled lowland landscape in the middle ground and into the distance. A low ridge and Corn Hill rises gently on the distant skyline.	**Medium**	The proposed turbines are located in the far middle ground of the view to the lefthand side of the Corn Hill. The tower, nacelle and full blade sets will be clearly visible, rising above the surrounding farmland and forestry. It will be a small but distinctive feature of the view and is likely to be noticed but not hold the viewers' attention and is deemed to have a sub-dominant visual presence in the context of this vast vista. The proposed turbines will be a new built feature within the view, but of a now familiar form in the wider rural context. The turbines will present unambiguously in this broad elevated view, and will become a minor visual node within the panorama of the lowland plane in which they stand. On balance, of the above reasons, the magnitude of visual impact is deemed to be **Low.**	**Slight / Negative / Long Term**
VP27	**L1167 at Carrowroe** This is a slightly elevated vista from a local road east of Lough Ree. In the foreground, the view extends over a series of fields contained in rough grazing and improved grassland that are defined by scrubby tree-lined hedgerows. A series of more mature broadleaf treelines merge together in perspective to create a dense band of vegetation across the eastern extents of the view. More open visibility is afforded to the northeast across lower field boundaries and the silhouette of Corn Hill can be seen in the far distance.	**Medium**	The proposed development will be partially visible over the intervening vegetation at a distance of 18km. The turbines are offset from Corn Hill, the one feature of the otherwise level horizon. Due to the distance and intervening vegetation, the proposed development is deemed to have a sub-dominant to minimal visual presence in the context of this vast vista. The turbines will present as a minor and distant built feature within the context of a broad and productive lowland setting where they do not appear out of place. On balance, of the above reasons, the magnitude of visual impact is deemed to be **Low-negligible.**	**Slight-imperceptible / Negative / Long Term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
VP28	**L1136 at Mosstown Harbour** This is a slightly elevated view along a short section of the Royal Canal at Mosstown Harbour, west of Keenagh. A small amenity area with picnic tables and a car park is contained in the lower foreground. The canal veers to the northwest at a distance of approximately 90m to the north where the viewing corridor is then truncated by canal-side vegetation.	Medium	The proposed development will not be visible from here, screened by vegetation and landform; therefore, the magnitude of visual impact is **Negligible** by default.	**Imperceptible / Neutral / Long Term**
VP29	**Clonbalt Wood** This is a contained, typical view from within the Clonbalt Wood residential area, to the north of Longford and the N4, accessed off the R198. The foreground is open across the public roadways, while the midground is partially occupied by a utility/rubbish area. The background and extent of view is shortened by two-story residences and the surrounding vegetation. The view is representative of the local residents.	Medium-Low	The proposed development will not be visible from here, screened by vegetation and built form; therefore, the magnitude of visual impact is Negligible.	**Imperceptible / Neutral / Long Term**
RFI 1	This view from the front of Carrickglass House. The view across a foreground grassed area is strongly contained by a mature woodland tree belt in the near distance. Long and low stone buildings are partially visible through the trees.	Medium	The proposed turbines are substantially screened from view by intervening trees. Only one of the turbines is partially revealed through the winter branches of one of those trees, whereas the other is fully screened by a tree that has come into leaf in this inter-season view. In winter both turbines might be marginally more visible and in full summer, not visible at all. They will not serve as a material	**Slight-imperceptible/ Neutral-Negative/ Long-term**

VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
			draw from the visual amenity experienced from the front of this stately home with the magnitude of visual impact judged to be Low-negligible.	
RFI 2	This view is from the grassed area to the front (northwest) of Carrickglass Hous. Again it is strongly contained by a band of woodland trees running across the fore-to-middle ground.	**Medium**	The proposed turbines will not be visible due to dense intervening vegetation. The visual impact magnitude is Negligible by default.	**Imperceptible/ Neutral / Long-term**
RFI 3	This view is from the R194 road that runs between the north-western and south-eastern sides of Carrickglass Demesne and is very similar in nature and context to VP16 from the original LVIA.	**Medium**	The nearest of the turbines is slightly more screened by intervening vegetation than with VP16 and therefore the magnitude of impact is reduced to Medium.	**Moderate-slight/ Negative/ Long-term**
RFI 4	This view is from slightly further to the southwest along the R194 than viewpoints RFI 3 above and VP16 from the original assessment and has the same visual characteristics	**Medium**	This is almost identical in context to VP16 and thus, the magnitude of impact is the same – Medium.	**Moderate / Negative/ Long-term**
RFI 5	This view from further inside the demesne and closer to the proposed turbines than VP16, RFI 3 and RFI 4 has a higher degree of intervening screening than all of them due to the relative proximity to the treeline that obscures the view of the proposed turbines.	**Medium**	Only the partial blade set of one of the turbines is revealed between foreground trees and the magnitude of impact is deemed to be Medium-low.	**Moderate-slight/ Negative/ Long-term**
RFI 6	This view is from the middle of the circular enclosure that is a key feature of the north-western portion of Carrickglass Demesne. The enclosure is formed by a circular stone	**Medium**	This view is closer to the proposed turbines than all of the other viewpoints assessed in relation to Carrickglass Demesne and although the turbines would be prominent in scale, they are substantially screened beyond a tall, mature treeline and conifer plantation. There may be some ambiguity associated	**Moderate-slight/ Negative/ Long-term**

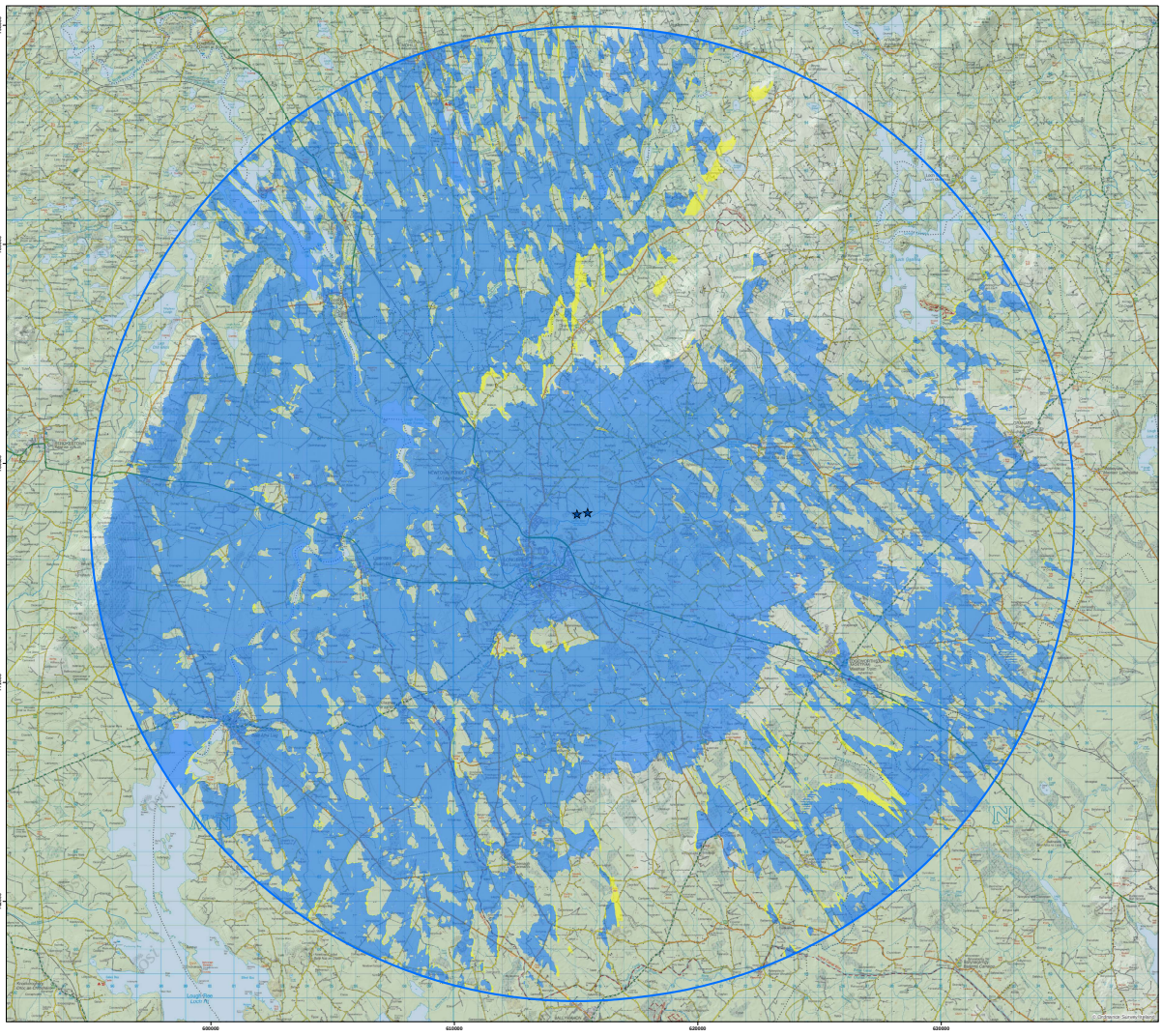
VP NO.	EXISTING VIEW	VP SENSITIVITY	VISUAL IMPACT MAGNITUDE	SIGNIFICANCE / QUALITY / DURATION OF IMPACT
	wall of around 3m in height that is backed by mature woodland trees just beyond.		with turbines blades rotating amongst the intervening trees but this is balanced by the considerable screening they provide. The magnitude of visual impact is deemed to be Medium-low.	
RFI7	This view is on a similar alignment to RFI 6 but outside of the circular enclosure and further away from the proposed development.	**Medium**	There are two intervening treelines that will substantially screen the proposed turbines. There may be some ambiguity associated with turbines blades rotating amongst the intervening trees but this is balanced by the considerable screening they provide. The magnitude of visual impact is deemed to be Low.	**Slight/ Negative/ Long-term**

APPENDIX 5.2
ZONE OF THEORETICAL VISIBILITY MAPS

VOLUME III
APPENDICES TO
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

RFI Response July 2025

ZTV (Zone of Theoretical Visibility) indicating the areas that have a potential view of the proposed turbines at Cloonanny Wind Farm (Tip Height 200m)



Proposed Turbines

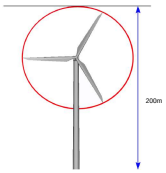
★

No. Turbines Visible

1

2

20km Extent



This ZTV map is based on the potential to see any part of the proposed turbine/s from the tip to base in a theoretical bare-ground scenario i.e. without accounting for screening by vegetation and/or buildings.

Observer Height assumed: 1.7m to eye-level height
Tip Height: 200m

Scale: 1:75,000 if printed @ A1 size

APPENDIX 6.1
Traffic and Transport Assessment

VOLUME III
APPENDICES TO
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

RFI Response July 2025

Stephen Reid Consulting
Traffic and Transportation

Proposed Windfarm at Cloonanny Glebe, Co Longford

Traffic and Transportation Assessment

Client: Natural Forces Renewable Energy 2 Limited

DECEMBER 2024

Rev	Date	Purpose of Issue	Checked	Approved
-	18.09.2024	Initial Draft	SR	
1	26.09.2024	Final Draft for Review	SR	
2	24.11.2024	Revised Final Draft	SR	SR
3	03.12.2024	Final Issue for Planning	SR	SR

Prepared by:

Stephen Reid Consulting Traffic and Transportation Limited
info@stephenreidconsulting.com
www.stephenreidconsulting.com

Contents

Appendices

1 INTRODUCTION

1.1 BACKGROUND

Stephen Reid Consulting Traffic and Transportation (SRC) has been retained by Natural Forces Renewable Energy 2 Limited (Natural Forces) to provide traffic consulting engineering services in relation to this project which relates to a planning application and associated EIAR, for the following:

A 10-year permission is being sought by the applicant for the development of a 14MW wind farm in the townland of Cloonanny Glebe, Co. Longford. The proposed development will have an operational lifespan of 35-years from the date of commissioning.

The wind farm location in the context of the surrounding area and road network in Co Longford is indicated in Figure 1.1.

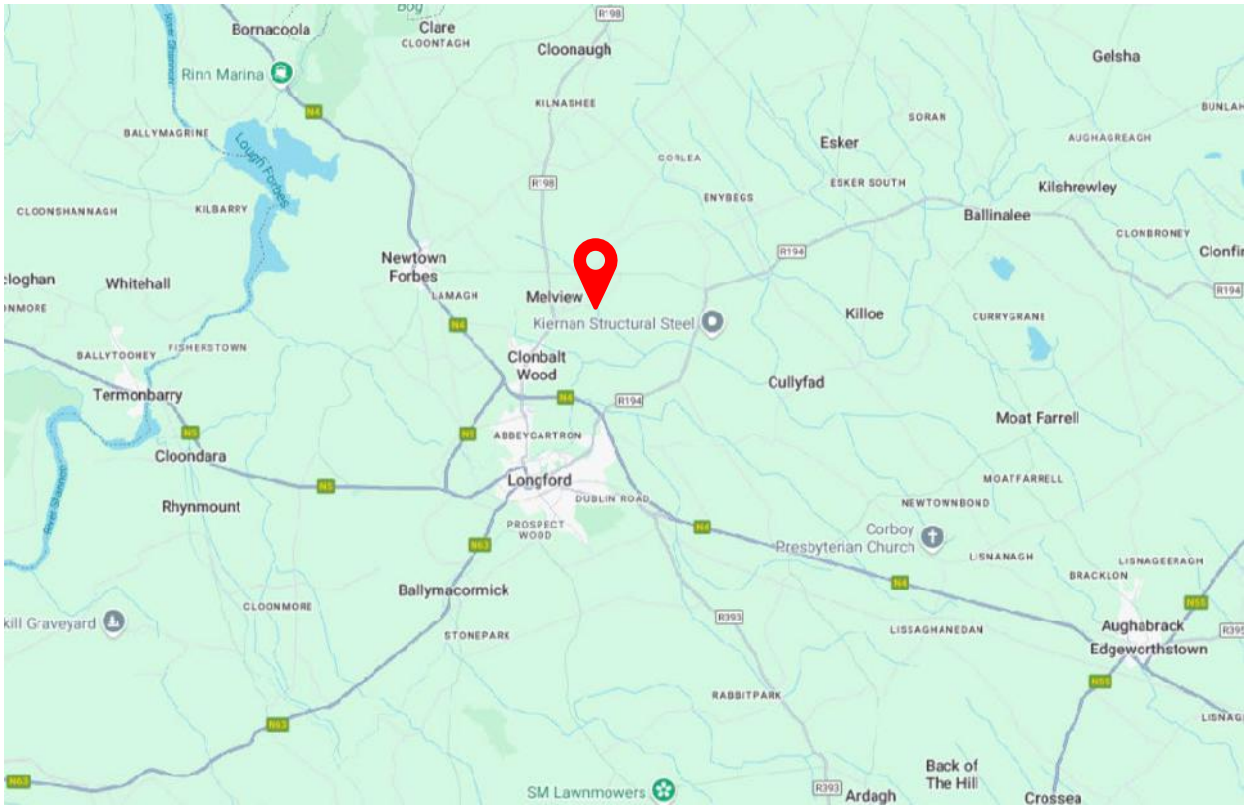


Figure 1.1: Wind Farm site, Cloonanny Glebe, Co Longford (source: google maps)

Chapter 16 of the County Development Plan 2021-2027 (Longford County Council) identifies under '16.2.5 Other Assessments' *"For certain developments due to the site location and or the type of development additional other assessments may be required as part of planning proposals"*. The list of assessments that may be required include Traffic & Transport Assessment (TTA)

The TII Guidelines for TTAs (PE-PDV-02045) provide a suggested format and headings for a TTA, noting that some elements may be less relevant depending on the proposals and receiving environment, set out as follows:

- *Non-Technical Summary*
- *Existing Conditions – Current traffic, critical links and junctions, committed transport proposals in area, other surrounding proposed development.*
- *Proposed Development – Size and use.*
- *Person Trip Generation – identifying the total person trips by all modes by peak and variation over days of week.*
- *Traffic Forecasting – methodology used, reason for the determination of growth rates applied.*
- *Modal Split – allocating the person trips to the modes of travel using an evidence based approach*
- *Trip Distribution – Catchment area, transfer trips, pass-by trips, combined trips.*
- *Trip Assignment – Turning movements at site entrance and at critical junctions in area.*
- *Assessment – Analytical assessment of the impact of the development proposals on the transport network should be presented.*
- *Road Impact – Analysis of junction capacity, including queue lengths and reserve capacity at base year, year of opening, year of opening plus 5 years and year of opening plus 15 years. Alternative designs for critical junctions should be detailed where necessary.*
- *Cumulative Impacts - Analysis of all committed developments in the area. Road Safety – Historical data, effect of development. Road Safety Impact Assessment (RSIA) and Road safety audit will be required for any proposed changes to the road layout in some circumstances.*
- *Environmental Impact – Including measures to mitigate impact.*
- *Internal Layout – Circulation, pedestrian routes, visibility and road width, traffic management and speed control measures.*
- *Parking – Numbers, special needs percentage, layout, and service areas.*
- *Public Transport – Provision, access from site.*
- *Pedestrians / Cyclists – Accessing the site, routes through the site and cycle parking. Accessibility and Integration – Access to local area, community severance.*
- *Access for People with Disabilities – Any specific provisions.*
- *Mitigation – Range of solutions to reducing transport impact of the proposal."*

In the case of this development proposal, the assessment will focus on the impact of the traffic generated by the construction of the Wind Farm (materials deliveries, construction worker travel to/from the sites and impacts on the haulage/delivery route road network including temporary measures such as easing bends and temporary haul roads to address geometry constraints for abnormal/long load deliveries such as turbine blades and tower sections).

It should be noted that the actual delivery of these outsize/abnormal loads will be under controlled conditions with escort vehicles and temporary traffic management/temporary closure of sections of roads on the delivery access route to mitigate risk to construction staff, delivery drivers and other road users. These will be infrequent activities during the overall construction programme, with movements by road occurring in lower traffic periods of the day to minimise impact and disruption to public road traffic and the general amenity of the area.

When construction and commissioning works are completed, the day-to-day level of vehicular traffic generated on the road network by the two proposed wind energy generators (the turbines) and the substation will be negligible, relating only to occasional maintenance/periodic inspections, with staff accessing the site by van. The location and safety of the access to the completed site has also been considered for post-construction 'operational' stage.

2 NON-TECHNICAL SUMMARY

Application

The application is for a ten-year permission for development on lands measuring 17.28ha located at the L5046 and L50462 in the townlands of Cloonanny Glebe, Corragarrow, Derryharrow and Gortteenorna, Co. Longford.

The proposed development will consist of the following:

i. Demolition of a single-storey derelict shed structure (c. 93 sqm GFA) to facilitate the turbine haul route

ii. Construction of two E175 EP5 wind energy converters, each with an electrical rating of 7MW, an overall ground-to-blade tip height of 199.9 metres, a rotor blade diameter of 175 metres, hub height of 112.4 metres, associated foundations and hard-standing areas;

iii. Construction of an 800m permanent internal site access road which will run from the L50462 to the wind energy converter hardstanding areas including a 9.1m clear span bridge crossing a local stream;

iv. Construction of 1 No. meteorological mast with a height of 32 metres, associated foundation and hardstanding area;

v. Construction of 1 No. 20kV Substation Compound comprising 2 No. Modular Buildings each measuring 13.5 sqm in area and 3.5m in height, a Battery Energy Storage System (BESS) comprising 3 storage modules on reinforced concrete plinths, with a height of 2.8 metres and associated electrical works, foundation and hardstanding area;

vi. Temporary alterations to the L5046 and L50462 public roads and temporary access roads to facilitate the turbine component haul route, including temporary widening of sections of the L5046 and L50462.

vii. Installation of underground collector circuit and communications cabling in underground cable trenches, from the proposed wind energy converter to the proposed on-site substation;

viii. All associated and ancillary site development, excavation, construction, and reinstatement works, including the provision of a temporary construction compound, site drainage, spoil management, fencing, lighting, hedge and tree trimming and cutting and operational maintenance;

ix. This application is seeking a 35- year operational life from the date of commissioning of the entire wind farm.

Current Vehicle Access

Cloonanny Glebe is a rural townland and is located approximately 3km to the northeast of Longford town centre. The key roads are identified in Figure 2.1 and described below.

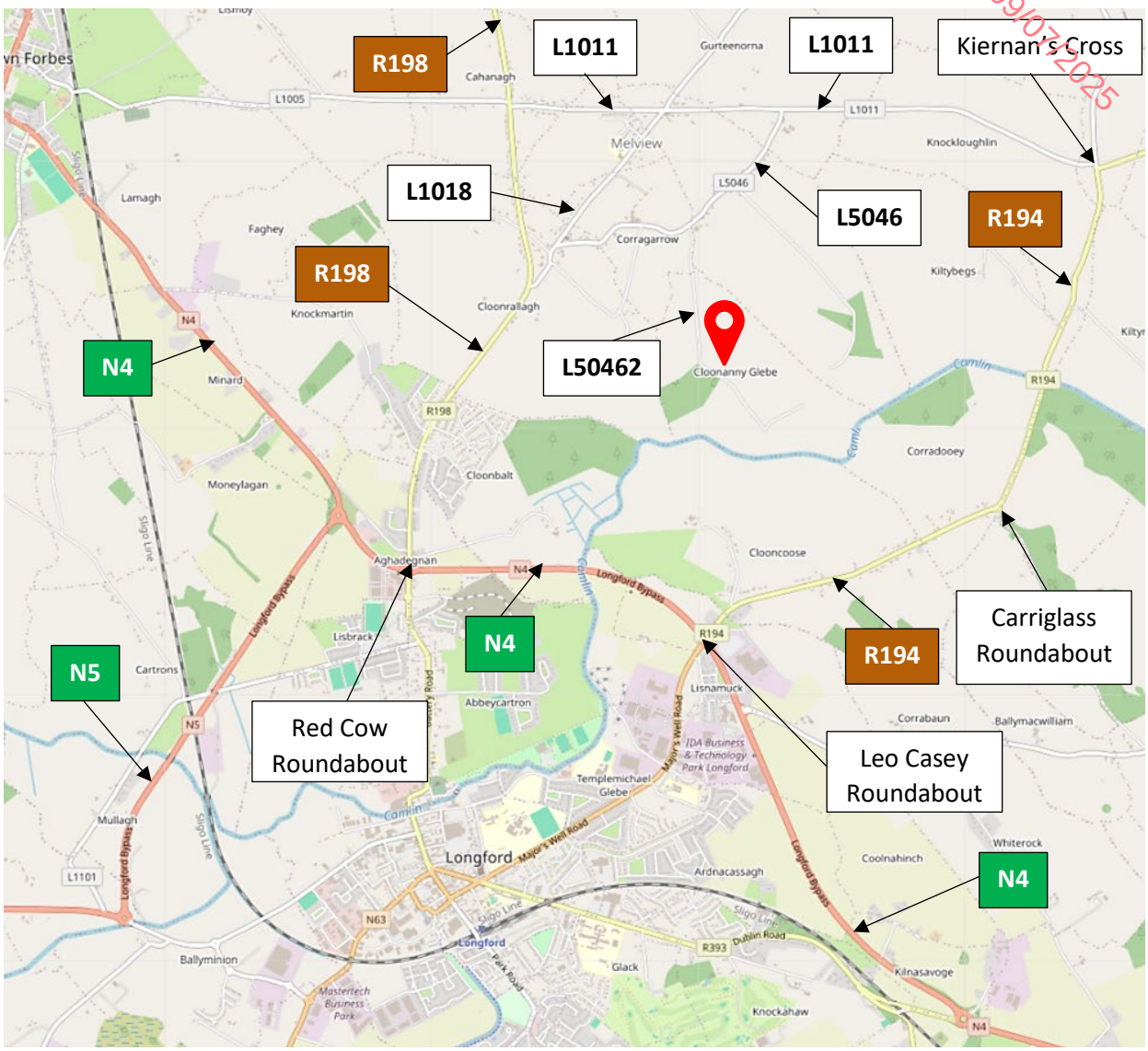


Figure 2.1: Site Location at Cloonanny Glebe and Surrounding Road Network, Co Longford (source: Openrouteservice.org, 2024)

The site area is accessed via the L50462, which is a narrow laneway extending southwards for just over 1km from the L5046 local road. There are no dwellings or farm buildings noted along the L50462 and it is only used for infrequent agricultural vehicle access to several field gates (there is grass growing along the centre of the road between the wheel track zones and it is not suitable for frequent two-way vehicular traffic, with passing opportunities limited to localised widening at field gate accesses.

The L5046 connects with the L1011 to the north east of the L50462 junction, and also connects with the L1018 to the south west of the L50462 junction. The typical cross-section of the L5046 road ranges between 4m and 5m with some areas of localised widening at agricultural yards or dwelling frontages. The section of the L5046 road to the southwest of the L50462 junction could be described a 'sinuous'

with a series of bends in the alignment, while the section of the L5046 to the northeast of the junction and the L1011 is generally straighter with only minor bends in the alignment.

The northern end of the L5046 intersects with the L1011, which traverses the area in a generally east-west orientation, linking the R198 at its western end and the R194 at its eastern end, via the skewed cross roads with the L1018 at Melview. The R194 junction (Kiernan's Cross) is located 1.75km to the east of L5046 junction.

The R194 regional road extends northeastward from the N4 and Longford town to Ballinalee, and continues in a generally eastwards heading, intersecting with the N55 at Granard before continuing onto Co Cavan. The N4 is approximately 3.7km by road from Kiernan's Cross.

To the west of the Cloonanny Glebe/Melview area, the L1018 connects to the R198, southwest of the L5046 junction. The R198 extends northwards from Longford Town to Drumlish and then northeastwards into Co Cavan at Arvagh.

Current Use

The application site comprises agricultural lands. The surrounding area is generally rural with individual or small clusters of dwellings and agricultural buildings along the L5046, L1011, R198 and R194.

There are larger residential estates located adjacent to either side of the R194 at Clonbalt, to the north of the N4 junction, with dedicated right turn storage lanes at the grouped access junctions.

Melview National School is located to the south west of the L1011/LL1018 junction.

Existing Traffic Volumes

Automatic Traffic Counters (ATCs) were installed on the R198, L1011 (east of the R198), L1011 (west of the R194), and the R194, from Friday 26th April 2024 to provide 7 continuous days of flow and speed data for the road (a virtual week).

These counts determined the existing network weekday morning and evening peak hours occur at 08.00-09.00 and 17.00-18.00.

The baseline 2024 average daily traffic volumes and HGV content on each of the road links from this data is as follows.

- R198 (north of N4) = 7,417 vehicles (ADT) with 3.56% HGV
- L1011 (east of R198) = 885 vehicles (ADT), with 3.45% HGV
- L1011 (west of R194 Kiernan's Cross – (Haul delivery Node 205-206) = 1,386 vehicles (ADT), with 4.44% HGV
- R194 (south west of Carrickglass roundabout - Haul delivery Node 202-203) = 4,994 vehicles (ADT) with 3.22% HGV

In addition to the ATC data collected at the four sites, the TII traffic counter website was also reviewed as there is a Permanent Traffic Counter site on the east section of the N4 Longford Bypass (site ID: TMU N04 110.0 W), which relates to Haul delivery Node 201-202. This identified an ADT of 13,788 vehicles, with 9.80% HGV.

Proposed Development Access

There are a number of locations where there will be temporary works to facilitate the large item deliveries (turbine blades and tower sections), which typically result in a stone area to the side of an existing public road where there are bends in the horizontal alignment or a turn from one section of the road network onto another, to allow for the swept path envelope of the long delivery vehicle. A section of the L50462 will also be temporarily widened from 3m to 5m to accommodate two-way traffic.

These sections will be reinstated and returned to current use (typically farming land and hedgerow/field boundary) following completion of the delivery stage of the wind generator equipment).

The project also includes construction of an 800m permanent internal site access road which will run from the L50462 to the wind energy converter hardstanding areas including a 9.1m clear span bridge crossing a local stream.

Proposed Traffic Volumes

The 'Do Something' traffic volumes will relate primarily to the construction Phases of the windfarm development, being a mix of construction staff commuting to/from the site and materials deliveries. Following completion of the construction there will be a reduced level of staff on site for commissioning and then during the operational life of the windfarm it is expected there will be a negligible level of traffic activity (limited to occasional maintenance access by vans or cars).

Therefore, the focus is on the construction period (estimated to be from 2026-2028) with a peak of daily activity during 2027 (across months 12-16).

Development Impact

The proposed construction would not be expected to result in any significant detrimental impacts on traffic link flow or Level of Service (LOS) capacity or impacts on operational capacity of the key road network on a day to day basis during the construction period, with the infrequent, scheduled abnormal load delivery operations typically undertaken out-of-hours under escort with An Garda Siochana temporary control/closure of roads while the turbine components are transported on sections of the public road network.

Other Planned/Committed Developments

A detailed review of planning applications in the project area and surrounding County area has been undertaken to determine possible cumulative impacts on the road network during construction.

It is noted from that review that there are no current permitted projects which are likely to have a material impact on the traffic volumes on the proposed delivery haul route via the R194, L1011 and L5046, with only domestic dwelling related permissions within 1.5km of the wind farm site.

There is a grant of permission for continuance of a quarry at Killoe, 4.5km to the northwest of the Cloonanny site, but it is considered that this would maintain the existing operations at that location and would therefore be no change to the 2024 baseline traffic flows in the receiving road network.

There is a proposed N4 Upgrade scheme 'Mullingar to Longford (Roosky)' which has an emerging preferred route corridor to the south of the wind farm site, and it is noted that the underground grid connection route proposed all pass across the 300m route corridor zone.

Depending on the progress and timeframe for implementing the wind farm and road upgrade projects, a detailed assessment will be undertaken prior to commencing works to ensure the selected grid connection route can be implemented without impacting on the delivery of the N4 upgrade project.

Measures to Improve Sustainability

Where excavated material can be reused within the construction site areas this would be stored and reused to reduce volume of material brought to landfill elsewhere.

It is noted that the number of construction staff will peak at approximately 25 persons at the main windfarm and substation worksite, and having regard to the rural location of the worksite, opportunities for work commuting travel by modes other than private car or van are limited, although it is expected that construction site staff based in the local area (either resident or living there temporarily) will tend to carpool/share journeys where practical to do this.

3 SITE LOCATION & EXISTING CONDITIONS

3.1 GENERAL

The proposed windfarm site at Cloonanny Glebe and the surrounding lands to the north east of Longford town are illustrated in Figure 3.1. The site has an area of approximately 16.69 hectares (ha) and comprises a number of private land parcels

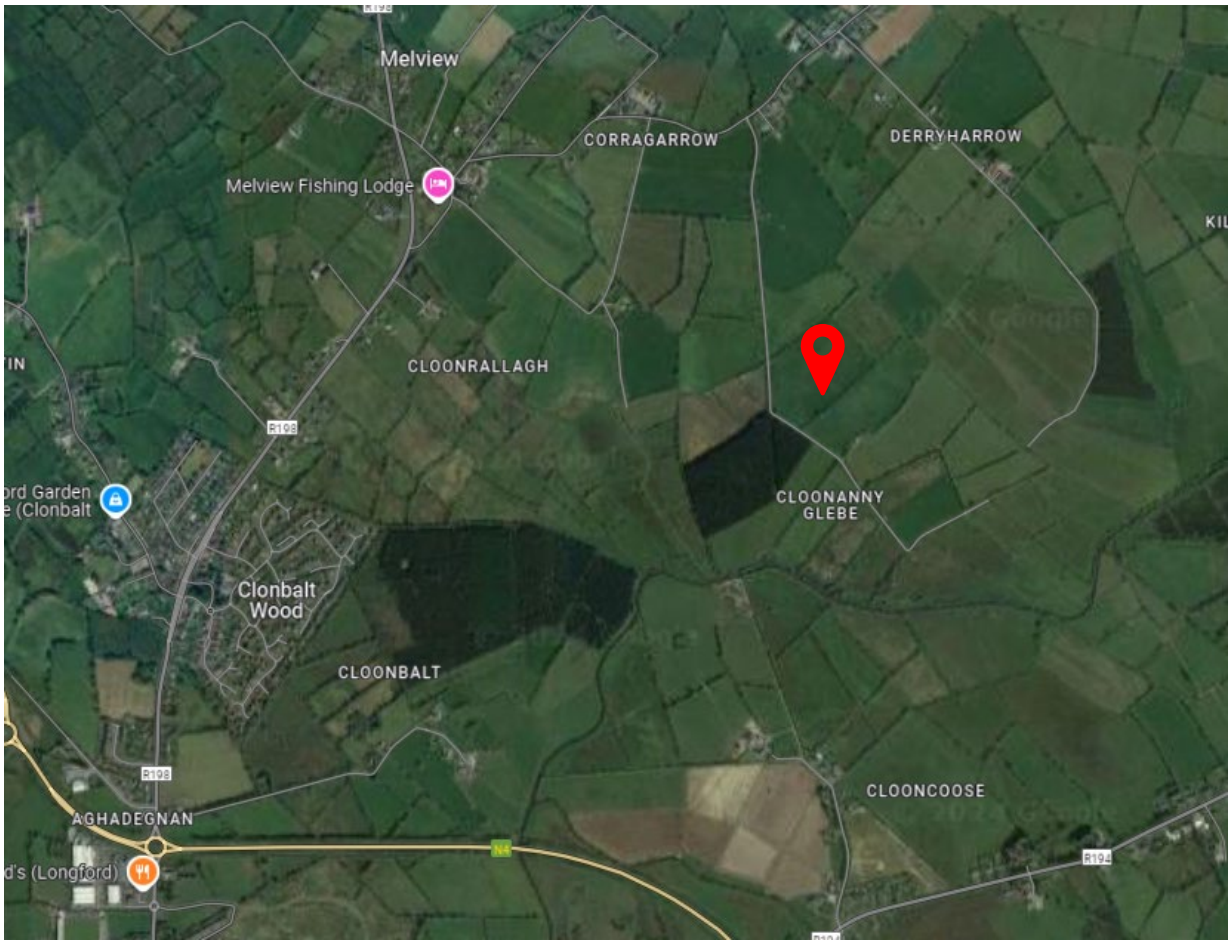


Figure 3.1: Existing Cloonanny Glebe Lands and Surrounding Uses, Co Longford (source: google.ie/maps)

3.2 RECEIVING ENVIRONMENT – EXISTING LAND USE, ROAD NETWORK AND ACCESSIBILITY

Existing Land Use

Cloonanny Glebe is a rural townland and is located approximately 3km to the northeast of Longford town centre.

The application site comprises agricultural lands. The surrounding area is generally rural with individual or small clusters of dwellings and agricultural buildings along the L5046, L1011, R198 and R194.

There are larger residential estates located adjacent to either side of the R194 at Clonbalt, to the north of the N4 junction, with dedicated right turn storage lanes at the grouped access junctions.

Melview National School is located to the south west of the L1011/LL1018 junction.

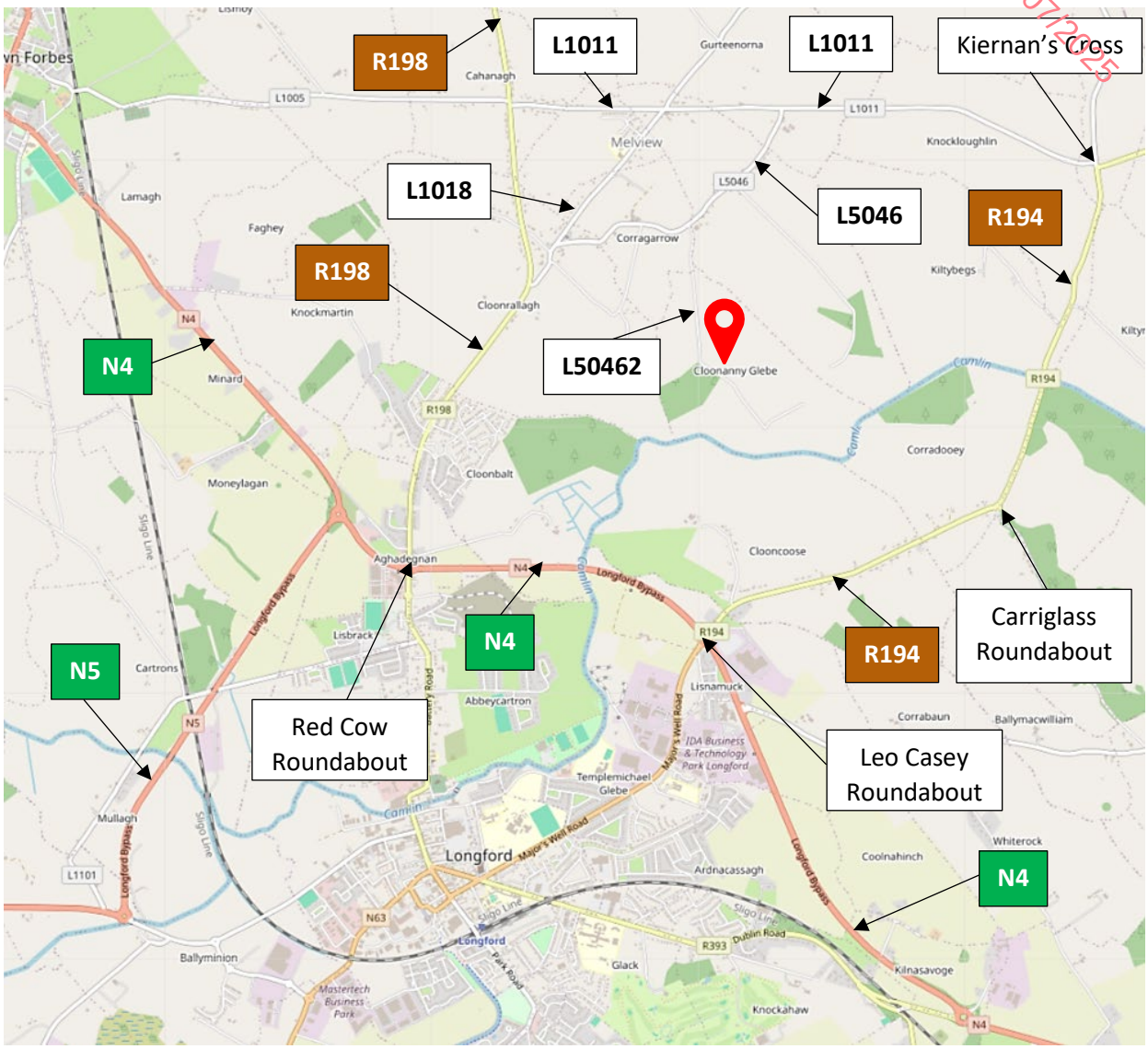


Figure 3.2: Site Location in context of Existing Road Network (source: Openrouteservice.org, 2024)

Road Network and Existing Access

L50462:

The site area is accessed via the L50462, which is a narrow laneway extending southwards for just over 1km from the L5046 local road. There are no dwellings or farm buildings noted along the L50462 and it is only used for infrequent agricultural vehicle access to several field gates (there is grass growing along the centre of the road between the wheel track zones and it is not suitable for frequent two-way vehicular traffic, with passing opportunities limited to localised widening at field gate accesses.

L5046:

The L5046 connects with the L1011 to the north east of the L50462 junction, approximately 830m measured by road, and also connects with the L1018 to the south west of the L50462 junction, approximately 775m measured by road.

The typical cross-section of the L5046 road ranges between 4m and 5m with some areas of localised widening at agricultural yards or dwelling frontages. The section of the road to the southwest of the L50462 junction could be described a 'sinuous' with a series of bends in the alignment, while the section between the junction and the L1011 is generally straighter with only minor bends in the alignment.

L1011:

The northern end of the L5046 intersects with the L1011, which traverses the area in a generally east-west orientation, linking the R198 at its western end and the R194 at its eastern end, via the skewed cross roads with the L1018 at Melview. The R194 junction (Kiernan's Cross) is located 1.75km to the east of L5046 junction (distance measured by road).

R194:

The R194 regional road extends northeastward from the Leo Casey Roundabout, connecting Longford town and the N4 Longford Bypass to Ballinalee, and then continues in a generally eastwards heading, intersecting with the N55 at Granard before continuing onto Co Cavan. The Leo Casey Roundabout is approximately 3.7km by road from Kiernan's Cross.

The fourth arm of this 60m outer diameter roundabout connects to Longford town centre via the N63 (the Majors Well/Ballinalee Road), entering the town centre area at St Mel's Cathedral.

Approximately 1.75km from the N4 junction there is a four arm roundabout on the R194 at Carrickglass (one arm is the access to the former Carrig Glas Golf Resort). This is a compact roundabout with a 27.5m outer diameter and a central roundabout with a concrete apron for longer HGV overrun.

L1018:

To the west of the Cloonanny Glebe/Melview area, the L1018 connects to the R198, 250m from the L5046 junction.

R198:

The R198 extends northwards from Longford Town to Drumlish and then northeastwards into Co Cavan at Arvagh. Approaching the L1018 from the south, the R198 has a right turn storage lane (ghost island hatching).

The R198 intersects with the N4 Longford Bypass at the 'Red Cow' Roundabout, 1.7km to the south of the L1018 junction.

N4 Longford Bypass:

The N4 Bypass continues northwestwards from this 60m outer diameter roundabout to the Charlotte Brooke Roundabout, where the N5 section of the Longford Bypass terminates, with the N4 continuing northwestwards to Sligo., via Newton Forbes and Carrick on Shannon. The N5 extends westerly via Co Roscommon to Castlebar in Co Mayo.

The N4 is typically a two-lane wide single carriageway with hard shoulders (total cross section width of 13m-14m), while the R198 is a two lane single carriageway with narrower sections of hard shoulder/edge of carriageway markings (typical cross-section width of 6.5m-7m). The L1011 is a two-lane single carriageway with a typical cross-section width of 5.75m-6.5m).

Current Traffic Speeds/Speed Limits:

The R194 is currently subject to a 50 km/h speed limit from the N4 roundabout for a distance of approximately 330m, before increasing to a 60 km/h limit, which extends to a point approximately 100m to the northeast of the Carrickglass roundabout, and then to a 80km/h speed limit from there. It is noted from speed survey data collected in April 2024 on the 60km/h section to the southwest of the Carrickglass roundabout that the 85th percentile speed of traffic on the R198 is 79.6 km/h (in excess of the current 60 km/h limit on that section of the road).

The R198 is currently subject to a 50 km/h speed limit from the N4 roundabout for a distance of approximately 1km, before increasing to a 60 km/h limit, which extends to a point approximately 100m to the southwest of the L1018 junction, and then to a 80km/h speed limit from there. It is noted from speed survey data collected in April 2024 on the 60km/h section to the southwest of the 60/80 speed limit change that the 85th percentile speed of traffic on the R198 is 80.6 km/h (in excess of the current 60 km/h limit on that section of the road).

The April 2024 speed survey data for the L1011 (node 205-206), to the west of the R194 junction identified an 85th percentile speed of the is 88.5km/h, which is above the posted speed limit of 80km/h, although it is noted this route will have to be reduced to a default rural L-road speed limit of 60km/h as part of the speed limit review which LCC are to have in place by end of 2024.

As the Cloonanny Glebe site is in a rural area there are no footpaths or street lighting provisions along the local roads. There are some sections of footpath and streetlighting on the R194 (near the N4 junction) and the R198 has footpath provision from the N4 to the 60/80 speed limit change and streetlighting to the L1018 junction.

3.3 Existing Traffic Volumes

Automatic Traffic Counters (ATCs) were installed on the R198, the L1011 (east of the R198) and L1011 (west of the R194), and the R194, from Friday 26th April 2024 to provide 7 continuous days of flow and speed data for the road (a virtual week).

The counter locations are illustrated in Figure 3.2.

The full data outputs are at Appendix 1 of this TTA.

Figure 3.2: April 2024 Traffic Counter Locations (source: google.ie/maps)

These counts determined the existing network weekday peak hours occur at 08.00-09.00 and 17.00-18.00 (which is to be expected as these coincide with commuter traffic to/from Longford town).

The average daily traffic (ADT) two-way total volumes and HGV content on each of the road links are as follows:

- (1) R198 (north of N4) = 7,417 vehicles (ADT) with 3.56% HGV
- (2) L1011 (east of R198) = 885 vehicles (ADT), with 3.45% HGV
- (3) L1011 (west of R194 Kiernan's Cross – (Haul delivery Node 205-206) = 1,386 vehicles (ADT), with 4.44% HGV
- (4) R194 (south west of Carrickglass roundabout - Haul delivery Node 202-203) = 4,994 vehicles (ADT) with 3.22% HGV

In addition to the ATC data collected at the four sites, the TII traffic counter website was also reviewed as there is a Permanent Traffic Counter site on the east section of the N4 Longford Bypass (site ID: TMU N04 110.0 W), which relates to Haul delivery Node 201-202.

This identified an ADT of 13,788 vehicles, with 9.80% HGV for the same 7-day period commencing 26th April 2024.

A review of the same site in September 2024 (after the summer schools break) confirmed a similar average daily traffic volume, and therefore the April/May 2024 data collected at the 4 ATC sites is considered to be robust and appropriate as a baseline set of data for this TTA.

4 PROPOSED DEVELOPMENT

4.1 GENERAL

The application is for a ten-year permission for development on lands measuring 17.28ha located at the L5046 and L50462 in the townlands of Cloonanny Glebe, Corragarrow, Derryharrow and Gortecahorna, Co. Longford.

The proposed development will consist of the following:

i. Demolition of a single-storey derelict shed structure (c. 93 sqm GFA) to facilitate the turbine haul route

ii. Construction of two E175 EP5 wind energy converters, each with an electrical rating of 7MW, an overall ground-to-blade tip height of 199.9 metres, a rotor blade diameter of 175 metres, hub height of 112.4 metres, associated foundations and hard-standing areas;

iii. Construction of an 800m permanent internal site access road which will run from the L50462 to the wind energy converter hardstanding areas including a 9.1m clear span bridge crossing a local stream;

iv. Construction of 1 No. meteorological mast with a height of 32 metres, associated foundation and hardstanding area;

v. Construction of 1 No. 20kV Substation Compound comprising 2 No. Modular Buildings each measuring 13.5 sqm in area and 3.5m in height, a Battery Energy Storage System (BESS) comprising 3 storage modules on reinforced concrete plinths, with a height of 2.8 metres and associated electrical works, foundation and hardstanding area;

vi. Temporary alterations to the L5046 and L50462 public roads and temporary access roads to facilitate the turbine component haul route, including temporary widening of sections of the L5046 and L50462.

vii. Installation of underground collector circuit and communications cabling in underground cable trenches, from the proposed wind energy converter to the proposed on-site substation;

viii. All associated and ancillary site development, excavation, construction, and reinstatement works, including the provision of a temporary construction compound, site drainage, spoil management, fencing, lighting, hedge and tree trimming and cutting and operational maintenance;

ix. This application is seeking a 35- year operational life from the date of commissioning of the entire wind farm.

4.2 CONSTRUCTION PROGRAMME

The Mable Construction and Environmental Plan (CEMP) provides a detailed breakdown of the construction activities and duration.

At the time of preparing this report, it is expected construction of the development will take approximately 24 months from starting on-site to final commissioning of the Wind Turbines.

All vegetation clearance that is required for the construction works will be undertaken outside of the bird breeding season, which runs from the 1st of March to the 31st of August. To comply with this requirement a section of the initial Civil Engineering Works may be carried out as advance enabling works in the months from September to February. Table 4-1 below details the works in a number of key phases.

Phase	Activity	Estimated Duration
1	Detailed Design Stage – For Construction - Detailed Civil, Structural and Electrical Design Works - Planning Compliance Works - Environmental Compliance Works - Pre-Construction Surveys	6 months
2	Civil Engineering Enabling Works - Setting out site boundaries - Tree and hedge cutting - Site entrance works to create access - Temporary Construction Compound - Advance drainage works and silt control measures	2 months
3	Civil Engineering Main Site Works - Upgrade and Widening of Public Road in Vicinity of Site - Access Road Construction - Crane Hardstand Construction - Drainage Works - Initial Reinstatement Works (Pre-Turbine Delivery) - Final Reinstatement Works (Post-Turbine Delivery)	10 months (Pre-Turbine Delivery) 2 months (Post-Turbine Delivery)
4	Structural Engineering Works - Wind Turbine Foundation Construction - Met Mast Foundation Construction - Substation Construction - BESS Construction	5 months
5	Turbine Circuit Connector Ducting and Cabling	2 months
6	Turbine Delivery Route Works	2 months
7	Turbine Delivery, Erection and Commissioning	6 months
8	Site Electrical Works - Employer (IPP) Electrical Installations & Commissioning - ESB Networks Electrical Installations & Commissioning	4 months
9	Grid Connection Works - Ducting Works - Cable Installation Works - Final Connection Works in ESB Substation	5 months
10	Wind Farm Final Commissioning	1 month
Total Duration on Site (Some Phases will be carried out in parallel)		**24 months**

Table 4.1: Phasing and Construction Programme for Wind Farm (source: Mable Engineering)

As noted above some of these construction phases will run in parallel. This is illustrated by the Gantt Chart reproduced from the Mable CEMP.

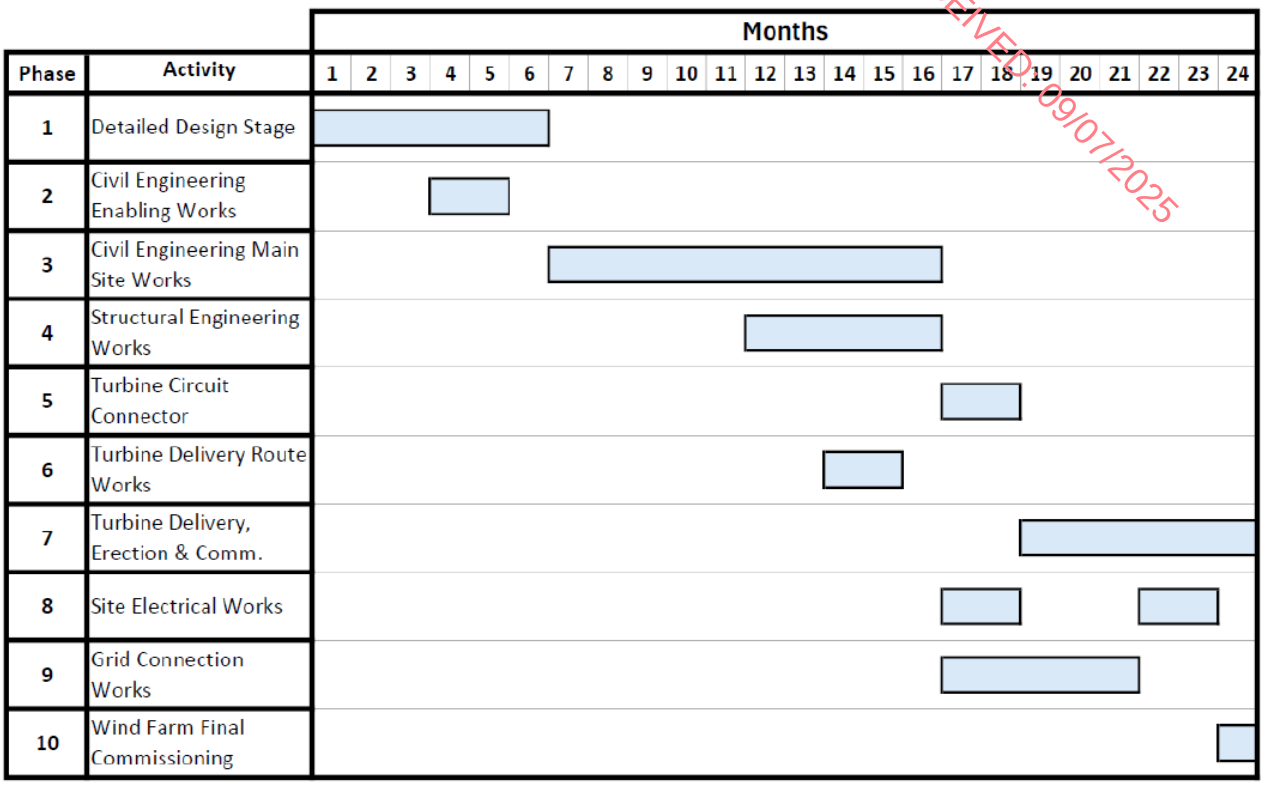


Figure 4.1: Gantt Chart showing Construction Phasing for Wind Farm (source: Mable Engineering)

The hours of construction activity will be limited to avoid unsociable hours, where possible. Construction operations shall generally be restricted to between 07:00hrs and 19:00hrs on weekdays and between 07:00hrs and 14:00hrs on Saturdays.

However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e., concrete pours or to accommodate delivery of large turbine components along public routes), it may be necessary on occasion to work outside of these hours. Any such out of hours work will be agreed in advance with LCC and there will be advance warning published through the LCC website, local media/social media and with VMS on the affected routes.

Based on information from similar previous projects, it is anticipated that approximately 25 persons will be directly employed during peak construction activities on the wind farm site with 5 persons directly employed during the grid connection works.

Therefore, the day-to-day construction staff traffic generated by the main windfarm site during the two year build period will not be significant.

4.3 DEVELOPMENT ACCESS

Vehicle Access

There are a number of locations where there will be temporary works to existing roads or lands adjacent to existing roads to facilitate the large item deliveries (turbine blades and tower sections), which typically result in clearing and levelling, with a stone buildup of an area to the side of an existing public road where there are bends in the horizontal alignment or a turn from one section of the road network onto another, to allow for the swept path envelope of the long delivery vehicle.

The following Mable figure is reproduced below to illustrate the haul delivery route for the turbine equipment components and the main volumes of other construction materials (i.e. concrete, steel, stone).

Mable has provided an assessment of the swept path and the temporary land take along this route to facilitate delivery of the long loads (these are illustrated in the Mable Series 200 plans).

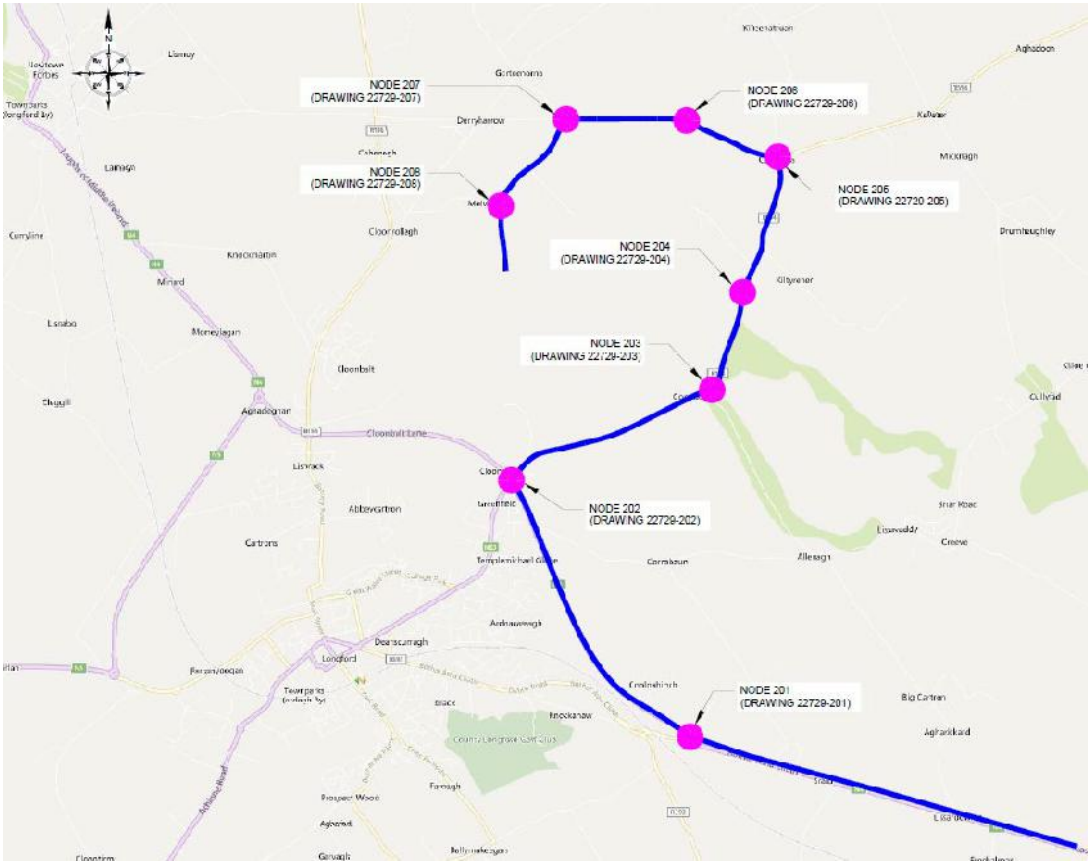


Figure 4.1 Haul Delivery Route (source: Mable Engineering)

The components for the Wind Turbines will be delivered by cargo ships to Belview (Port of Waterford) located just outside Waterford City in Co Kilkenny.

The components for each Wind Turbine will be delivered in separate loads, some of which are abnormal in terms of their width and length. The components will be transported from Belview to the site along the motorway, national, regional and local road network.

A Turbine Delivery Route Assessment has been prepared for the project and forms part of the PTMP.

At construction stage a transportation plan will be prepared by the Wind Turbine component delivery company. Permits for moving the abnormal loads on the public roads to the Wind Farm site will be obtained from An Garda Síochána and the applicable local authorities on the selected haulage route.

The selected haulage route from Belview to the Cloonanny site is 280km, and is summarised as follows:

•Starting at Belview Port;

•N29 (via Slieverue Roundabout and Luffany Roundabout) to the N25 Waterford City Bypass;

•N25 to N9;

•N9 National Road to M9 Motorway;

•M9 Motorway and Merge onto M7 Motorway;

•Continue on M7 Motorway to N7 National Road;

•N7 National Road and merge onto northbound M50 Motorway at Junction 9;

•At M50 junction 7 exit onto N4 National Road;

•N4 National Road to M4 Motorway;

•M4 Motorway to N4 National Road;

•Exit N4 National Road onto R194 Regional Road (at Leo Casey Roundabout);

•Turn left at Kiernans cross junction onto the L1011;

•Turn left onto L5046;

•Turn left onto L50462;

The swept path assessment carried out by Mable has informed both the delivery route from the N4 and the temporary land take.

These sections will be reinstated and returned to current use (typically farming land and hedgerow/field boundary) following completion of the delivery stage of the wind generator equipment).

The temporary areas will be barriered off so that they cannot be accessed by general traffic or other road users and the barriers will be repositioned suitably by the TTM and escort vehicle staff at times when the areas are required to accommodate the swept path envelopes of long/abnormal load vehicles delivering to the windfarm site and staging areas.

There are 2 No. proposed permanent site entrances off the L50462; one leading to the Substation and Meteorological Mast (on the western side of the laneway), and one leading to Wind Turbines T1 and T2 (located to the south east side of the road.

There are 2 No. proposed temporary site entrances; one off the local road L5046 and one off the L50462. Both site entrances are for the proposed abnormal load temporary access road located to the west of the L5046/ L50462 junction. The L50462 entrance will also serve as the entrance to the Temporary Construction Compound. Both temporary site entrances will be removed, and the areas reinstated on completion of the Wind Turbine deliveries. These entrances are shown on the Mable planning drawings.

On the L50462 the existing width of 3m is to be increased to 5m by installing a 2m wide stoned area with a Clause 804 capping finish, along the west side of the road, to accommodate two-way vehicle access, with passing bay areas located

The project also includes construction of an 800m permanent internal site access road which will run from the L50462 to the wind energy converter hardstanding areas including a 9.1m clear span bridge crossing a local stream.

The temporary arrangement of the access roads and hard standing/compound areas along the L50462 to the south of the L5046 during the construction phase can be seen on Mable Series 100 drawings, while the permanent arrangement including the 800m long 5m internal roadway servicing the two energy converter sites is on Mable Series 120 drawings.

By providing a relocated vehicle access route during construction, the existing section of the L50462 to the south of the L5046 can be retained as a non-traffic route to accommodate walkers and cyclists, separating them from vehicular traffic movements, particularly HGV construction traffic.

The hedge/boundary treatment at the access from the L50462 to the internal access road will accommodate exit visibility sightlines for vehicle traffic exiting from the site to the L50462 in the operational period after completion of the construction works.

5 TRAFFIC GENERATION OF PROPOSAL

5.1 TRIP GENERATION METHODOLOGY

As noted in section 4, the peak of construction activity will result in 25 construction staff on the wind farm and associated site accessed off the L50462, and therefore the day-to-day traffic generated by commuting staff will be low. As staff will generally start between 07.00 and 08.00 each working day, and finish between 18.00 and 19.00 each working day, they will be travelling on the local road network prior to the AM peak hour and after the PM peak hour, at times when background flows are typically much lower than the peak hour volumes.

Staff arriving to work will park in the compound at the wind farm site and will not park on the public roads in the area of the wind farm site or at temporary works areas. Staff working at temporary works areas will travel from the main compound to these sites using a contractor vehicle (i.e. a van or small flatbed truck) which will be parked within the temporary works area so that it does not impact on road users on the public road.

As part of construction of the proposed development, a significant amount of stone and aggregate fill material will be required. This will be used to construct Wind Turbine Foundation Formations, Substation Compound, Access Roads, Hardstands and Construction Compounds. Table 4-2 of the Mable CEMP contains estimates of the stone fill material requirements at the various main infrastructure locations, which will total 10,260 cubic metres.

Stone and aggregate fill will be delivered to site via ridged and articulated tipper lorries. The peak period for stone and aggregate fill deliveries will be during internal access road construction. During this period there will be up to 5 deliveries to site per hour for a period of approximately 1 week. Outside this period there will be up to 10 deliveries of stone and aggregates to site per day.

Infrastructure	Material Requirements (m^3)
Access Roads	6500
Substation Compound	55
Temporary Construction Compound	315
Turbine Hardstand	1590
Turbine Foundations	1200
Cable Trench	600
Total	**10260**

Extract of Table 4-2 from Mable CEMP with estimated volumes of stone required

Table 4-3 of the Mable CEMP noted that there will be an estimated 15,298 cubic metres of topsoil and 13,136 cubic metres of subsoil excavated at the site to create the formation levels, based on site investigation data on the suitability and bearing capacity of the substrata.

The strategy is for all excavated material generated during construction to be retained on site and, where appropriate, incorporated into the works. Upon completion of the construction works, all remaining excavated material will be integrated into the final landscaping, blending seamlessly with the existing terrain to avoid leaving any mounds of spoil around the site.

The quantity of turbine components required for the Cloonanny project are set out in Table 4-5 of the Mable CEMP (see extract below):

Turbine Component	Number Per Turbine	Number of Turbines	Total Number	Weight (ton)	Dimensions (m)
Generator Half Section: 12h	1	2	2	71	10.38 x 4.99 x 2.6
Generator Half Section: 6h	1	2	2	71	10.38 x 4.99 x 2.3
Main Bearing Unit	1	2	2	30	4 x 3.66 x 2.86
Nacelle	1	2	2	76.8	14.25 x 4.99 x 3.44
Rotor Hub	1	2	2	51.6	4.9 x 4.55 x 3.95
Rotor Blade	3	2	6	31.8	87.53 x 4.09 x3.88
Tower Section 1	1	2	2	70.4	32 x 4.9 x 5.05
Tower Section 2	1	2	2	78.3	28.75 x 4.9 x 5.05
Tower Section 3	1	2	2	76.9	21.07 x 4.91 x 5.06
Tower Section 4	1	2	2	77.5	15.35 x 4.92 x 5.07
Tower Section 5	1	2	2	89.4	10.11 x 4.95 x 5.10

Extract of Table 4-5 from Mable CEMP with turbine component requirements for this project

A typical turbine foundation will require 110 tonnes of steel reinforcement and 650 cubic m of concrete, although the final design could result in a piled solution.

The 32m Meteorological Mast will require 15 tonnes of reinforcing steel while the substation/BESS foundation will require 6 tonnes of reinforcing steel.

5.2 Other/Committed Development Traffic Generation

From a review of planning applications in the project area and surrounding County area, including similar types of development which would have a temporary impact on the road network during construction, it was noted that there are a number of domestic dwelling related planning permissions within approximately 1.5km of the site (LCC Reg Ref. 2413, 22177, 21331, 21117 and 19240) but none of these are considered to have a material impact on the traffic volumes on the proposed delivery haul route via the R194, L1011 and L5046.

There is a grant of permission for continuance of a quarry 4.5km at Killoe to the northwest of the Cloonanny site (LCC Reg. Ref. 2017), but it is considered that this would maintain the existing operations at that location and would therefore be no change to the 2024 baseline traffic flows in the receiving road network.

As the traffic impacts of the Cloonanny windfarm development are all related to the construction phase with negligible levels of post-construction and commissioning operational traffic predicted, longer term or 'design year' traffic impacts will be tending towards nil for this project and therefore cumulative traffic impacts are not relevant after the completion of the construction activities.

5.3 Future N4 Mullingar to Longford (Roosky) Upgrade Project

Westmeath County Council, working in partnership with Longford County Council and in association with Transport Infrastructure Ireland, are in the process of developing a new N4 road scheme along a section of the N4 between Mullingar and Longford (Roosky). The scheme is currently at the emerging preferred route corridor stage with a 300m wide corridor within which the road and associated infrastructure would be constructed.

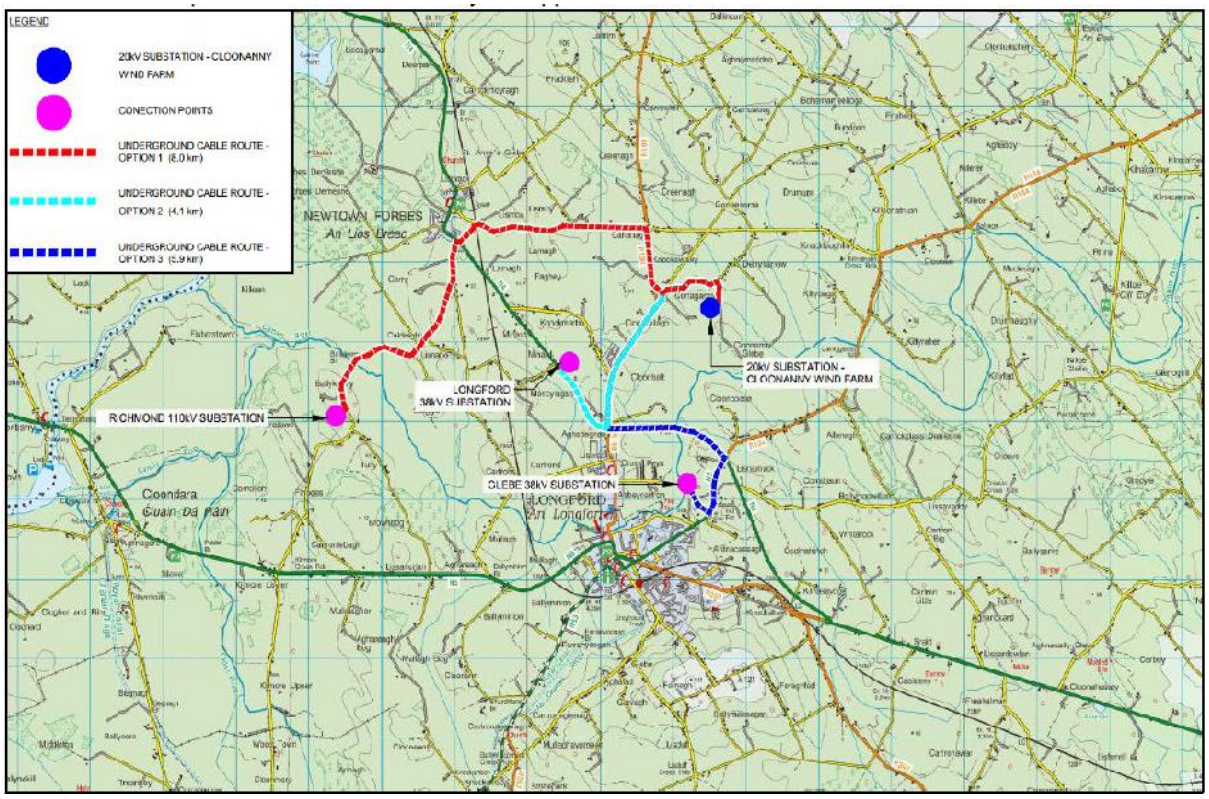
The proposed development within the red line boundary does not interfere with the route corridor.

The proposed underground gird connection (UGC) currently has three proposed route options, each of which will pass through (under) the N4 route corridor.

- Option 1 - Connection to Existing Richmond 110kV Substation.
- Option 2 - Connection to Existing Longford 38kV Substation.
- Option 3 - Connection to Existing Glebe 38kV Substation.

A detailed description for each option is contained in the Mable CEMP and depending on the option selected the UGC will consist of approximately 5.9km or 8km of underground cable consisting of 1 No. 125mm diameter uPVC cable duct installed in an excavated trench, approximately 0.95m deep and 0.325m wide, with variations on this design to adapt to bridge crossings, service crossings and watercourse crossings, etc. The cable duct will accommodate 1 No. power cable.

The CEMP contains an overview of the grid connection route Options as follows:



Extract from Mable CEMP with UGC Route Options from Wind Farm to ESB Substations

Each of the three Route options have been discussed between Mable Consulting Engineers and LCC Roads Department Engineers as part of the pre-planning consultation in August 2024, and final considerations on the capacity/upgrades of existing substations with factor into the final route selected.

The UGC works will be designed to take this into account, i.e. using directional drilling if the new alignment is in place prior to the UGC, or with appropriate depth and protection measures if the UGC is in place before the new road construction.
LCC noted concerns with the extent of road that would be impacted by the construction of an underground route to the more westerly Richmond substation (the 8km route), and possible conflicting demands for capacity and access to substations from other renewable energy generation projects.

Mable agreed to discuss with the Developer and review the options for connecting to alternative Substations, as well as co-ordinating of any future Grid works with the other Renewable Energy projects being planned in the area.

Prior to the commencement of the grid connection works, the developer will liaise with TII to ensure that the grid route does not create issues regarding the construction of the new road. Further detail on the grid connection crossing of the new road alignment will be confirmed at construction stage.

6 IMPACT OF PROPOSED DEVELOPMENT

6.1 FUTURE YEAR NETWORK TRAFFIC

To assess the impact of the development, allowing for the planning assessment and determination process to run through much of 2025, it is expected that construction would commence in early 2026 and be completed by early 2028.

To calculate the future year traffic, the existing background traffic from the 2024 traffic counts has been factored up, using the growth factors in the TII PAG Unit 5.3 document 'Travel Demand Projections' (PE-PAG-02017-3, October 2021).

The rates of background traffic increase are selected from Table 6.2 of the TII document, which sets out link-based growth rates for each County (excluding the Metropolitan areas of the cities), in periods from 2016-2030, 2030-2040, and 2040 onwards.

The annual County Longford 'Central Growth Rates' for the assessment years are as follows:

- 2016-2030 1.0134 (LV = light vehicles) 1.0313 (HV = heavy vehicles)

With consideration of the proposed construction programme, assuming a start date in early 2026 and completion in early 2028, it is noted that the peak period of traffic construction delivery and staff on site would occur in months 12-16 (i.e. in 2027) and therefore the resultant 'Do Nothing. and 'Do Something' ADT flows for 2027, are presented in the following section, with the 2024 baseline flows factored as follows to derive 2027 'Do Nothing' flows:

- Compound traffic growth factors for 2024-2027 LV = +4.07% HV = +9.69%

The breakdown of these factored flows in terms of LV, HV and total vehicles is set out in Table 6.1 and also illustrated in Diagrams 1 and 2, at Appendix 2 of this report.

					1.0407	*1.0969*	*TII Factors*	
	2024 Baseline				**2027 'Do Nothing'**			
	ADT	*HV%*	*LV*	*HV*	*LV*	*HV*	***ADT***	*HV%*
N4 Longford Bypass (east of R194)	**13,788**	9.80%	12,437	1,351	12,943	1,482	**14,425**	10.27%
R194 between N4 and L1011	**4,994**	3.22%	4,833	161	5,030	176	**5,206**	3.39%
L1011 west of R194	**1,386**	4.40%	1,325	61	1,379	67	**1,446**	4.63%
L1011 east of R198/west of L1018	**885**	3.45%	854	31	889	33	**923**	3.63%
R198 north of N4	**7,417**	3.56%	7,153	264	7,444	290	**7,734**	3.75%

Table 6.1: 2024 Baseline Daily Traffic and Factored 2027 Daily Traffic 'Do Nothing' Two-Way Link Flows

6.2 CONSTRUCTION ACTIVITY AND 'POST DEVELOPMENT' TRAFFIC FLOWS

The TII Guidelines for Transport Assessments state that the thresholds for junction analysis in Transport Assessments are as follows:

- "Traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway."

- "Traffic to and from the development exceeds 5% of the existing two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations".

As noted in the previous section, the development traffic is primarily related to the construction period.

On occasional/infrequent days when there are turbine component deliveries and TTM/temporary closures on the final few km of the delivery route, or on days of foundation/turbine base concrete pours, when there would have to be a regular supply of ready-mixed concrete to the work site to maintain a continuous pour over a number of hours, there would be a short-term higher impact but this would not be typical across a period of days, weeks or months during the contract and therefore would not represent an average daily traffic scenario.

The general construction activities during the peak phase of civils work in 2027 will generate a daily volume of activity as follows:

- 20 car and van arrivals and 20 car and van departures (staff travel, based on 25 staff, arriving by car or van with a vehicle occupancy rate of 1.25)
- 15 truck arrivals and 15 truck departures, in a mix of articulated tripper trucks and articulated flatbed trucks.

For the purpose of this assessment, it is assumed that all HGV deliveries will use the R194, L1011 and L5046 to access the site, while construction staff are expected to arrive and depart using both the R194 and R198 routes, primarily to/from the N4 roundabouts and Longford town (so these are split equally between both routes).

The resultant daily (ADT) link flows and percentage increase in daily (ADT) link flows due to the typical daily construction activity during the peak Phase in 2027 is set out in Table 6.2 below.

	2027 'Do Nothing'			**2027 'Do Something – Construction Stage'**			
	LV	*HV*	***ADT***	*LV*	*HV*	***ADT***	*%increase*
N4 Longford Bypass (east of R194)	12,943	1,482	**14,425**	12,963	1,512	**14,475**	+0.35%
R194 between N4 and L1011	5,030	176	**5,206**	5,050	206	**5,256**	+0.93%
L1011 west of R194	1,379	67	**1,446**	1,399	97	**1,496**	+3.46%
L1011 east of R198/west of L1018	889	33	**923**	889	33	**923**	0%
R198 north of N4	7,444	290	**7,734**	7,464	290	**7,754**	+0.26%

Table 6.2: 2027 Daily Traffic
'Do Nothing' and 'Do Something – Construction Stage' Two-Way Link Flows

6.3 Discussion of Impacts

The previous section has demonstrated that typical construction activities at the Cloonanny Glebe wind farm site will not result in any significant detrimental impacts on traffic link flow or Level of Service (LOS) capacity or impacts on operational capacity of the R194 or the L1011, being 0.93% and 3.46% of the weekday daily flow (24hr total) on each link respectively. There will be a 0.35% increase on the N4 to the

east of the R194/Leo Casey Roundabout (which assumes all deliveries arrive and depart on this route), and a 0.26% increase on the R198 between the N4 and the L1018 (construction staff commuting trips).

As stated above these are worst-case scenario figures related to a 0% backloading operation in terms of soils excavation/stone delivery (assumes excavated/stripped soils are stockpiled on site and reused on site during the restoration and landscaping works).

While the highest percentage impact will occur on the L1011 (between Kiernans Cross and the L5046) and on the L5046 to the north of L50462 access junction, it should be recognised that this is against a very low baseline flow for a two-way local rural road.

From the foregoing, it is clear that the proposed development will not have any significant traffic impacts on the road network during the weekday peak periods or in terms of daily traffic flow, being below the 5% lower trigger threshold set out in the TII TTA Guidelines for detailed capacity assessment, and the volume of off-peak movements are also at a level which will not result in operational issues for the road network or impact on road user safety.

Appendices

Site Locations

	Job number: TRA/24/048	Job Date: Week Commencing Friday 26th April 2024	Drawing No: TRA/24/048-01	traffinomics.ie
	Client: Stephen Reid Consulting		Author: SPW	

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SUMMARY** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01

LOCATION: R198 Drumlish Road - (Google Maps Ref: 53°45'12.1"N 7°47'41.5"W)

SPEED SURVEY SUMMARY:

NORTHBOUND	85% Speed = 80.19 km/h, 95% Speed = 88.47 km/h, Median = 68.22 km/h	Maximum = 139.6 km/h, Minimum = 8.6 km/h, Mean = 69.1 km/h
SOUTHBOUND	85% Speed = 81.00 km/h, 95% Speed = 89.46 km/h, Median = 68.67 km/h	Maximum = 147.9 km/h, Minimum = 12.7 km/h, Mean = 69.3 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	No. Vehicles	7 day Mean
NORTHBOUND	**07-19**	3375	2840	2028	3074	3081	3126	3161	20685	2955
SOUTHBOUND	**07-19**	3531	2948	2170	3152	3212	3258	3275	21546	3078
NORTHBOUND	**00-00**	4338	3567	2639	3760	3840	3926	4059	26129	3733
SOUTHBOUND	**00-00**	4242	3534	2652	3708	3832	3883	3939	25790	3684

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0900	1400	1700
Average Vehicles per Peak Hour	211	289	403

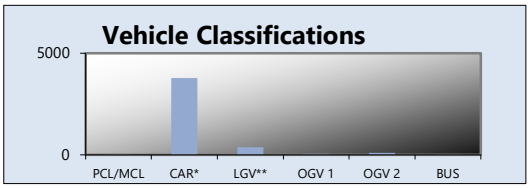
TRAFFINOMICS LIMITED

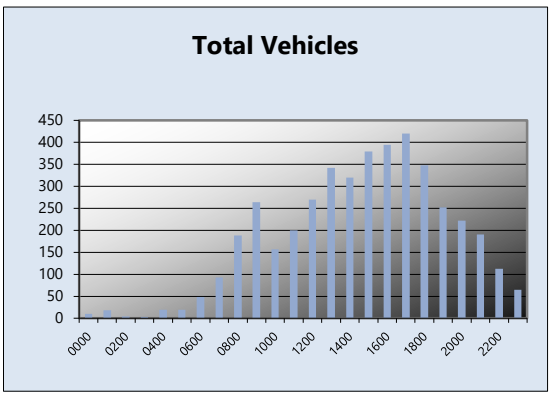
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	9	1	0	0	0	10	10
0100	0	17	1	0	0	0	18	18
0200	0	4	0	0	0	0	4	4
0300	0	3	0	0	0	0	3	3
0400	0	16	1	0	2	0	19	22
0500	0	16	2	0	1	0	19	20
0600	0	44	3	1	0	0	48	49
0700	1	62	19	6	4	1	93	101
0800	2	157	15	6	6	2	188	199
0900	0	224	33	1	4	2	264	272
1000	0	125	22	2	7	1	157	168
1100	0	162	23	6	9	0	200	215
1200	1	226	29	4	8	2	270	284
1300	0	302	30	1	6	3	342	353
1400	0	280	28	1	7	4	320	334
1500	0	315	44	5	12	3	379	400
1600	1	348	30	6	8	1	394	408
1700	0	368	36	5	11	0	420	437
1800	2	318	21	1	5	1	348	354
1900	0	233	12	2	5	0	252	260
2000	1	206	15	0	0	0	222	221
2100	0	185	6	0	0	0	191	191
2200	0	100	9	0	3	0	112	116
2300	0	59	6	0	0	0	65	65
07-19	7	2887	330	44	87	20	3375	3525
06-22	8	3555	366	47	92	20	4088	4245
06-00	8	3714	381	47	95	20	4265	4426
00-00	8	3779	386	47	98	20	4338	4503

Peaks	Time	Vehicles	PCU's
AM	0900	264	271.7
IP	1300	342	353.3
PM	1700	420	436.8





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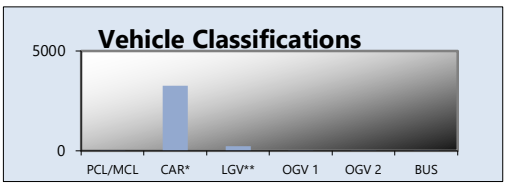
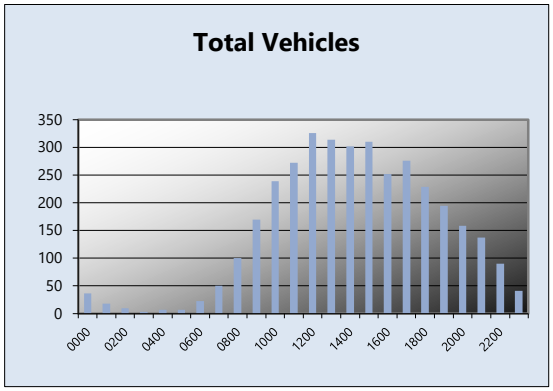
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	33	4	0	0	0	37	37
0100	0	17	1	0	0	0	18	18
0200	0	10	0	0	0	0	10	10
0300	0	3	0	0	0	0	3	3
0400	0	5	1	0	1	0	7	8
0500	0	5	2	0	0	0	7	7
0600	0	22	1	0	0	0	23	23
0700	0	39	7	1	1	2	50	54
0800	1	84	15	0	0	0	100	99
0900	0	155	10	1	4	0	170	176
1000	0	205	24	3	6	1	239	249
1100	1	241	25	0	5	0	272	278
1200	1	292	28	3	2	0	326	329
1300	1	293	16	1	2	1	314	317
1400	0	279	20	1	1	1	302	305
1500	1	290	9	5	4	1	310	318
1600	0	238	13	0	1	0	252	253
1700	2	251	21	1	1	0	276	276
1800	0	218	8	1	1	1	229	232
1900	0	183	12	0	0	0	195	195
2000	0	152	5	0	2	0	159	162
2100	0	131	5	1	0	0	137	138
2200	0	89	1	0	0	0	90	90
2300	0	36	5	0	0	0	41	41
07-19	7	2585	196	17	28	7	2840	2886
06-22	7	3073	219	18	30	7	3354	3403
06-00	7	3198	225	18	30	7	3485	3534
00-00	7	3271	233	18	31	7	3567	3618

Peaks	Time	Vehicles	PCU's
AM	0900	170	175.7
IP	1200	326	329.3
PM	1700	276	276.2





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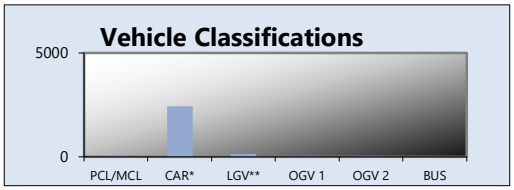
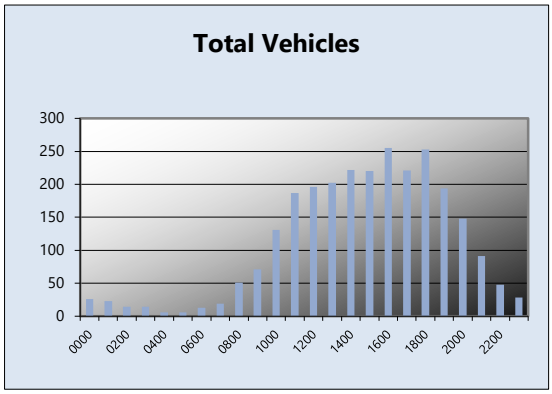
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	20	6	0	0	0	26	26
0100	0	20	3	0	0	0	23	23
0200	0	12	2	0	0	0	14	14
0300	0	13	1	0	0	0	14	14
0400	0	5	1	0	0	0	6	6
0500	0	3	3	0	0	0	6	6
0600	0	13	0	0	0	0	13	13
0700	0	17	1	0	1	0	19	20
0800	2	44	4	0	1	0	51	51
0900	0	68	3	0	0	0	71	71
1000	0	120	10	0	1	0	131	132
1100	9	168	8	0	2	0	187	182
1200	3	181	10	0	2	0	196	196
1300	5	191	4	2	0	0	202	199
1400	3	210	8	1	0	0	222	220
1500	0	208	9	1	2	0	220	223
1600	3	241	8	1	2	0	255	256
1700	0	204	16	0	1	0	221	222
1800	0	234	14	3	2	0	253	257
1900	1	181	10	1	1	0	194	195
2000	0	140	7	1	0	0	148	149
2100	0	86	4	1	0	0	91	92
2200	0	43	5	0	0	0	48	48
2300	0	23	5	0	0	0	28	28
07-19	25	1886	95	8	14	0	2028	2030
06-22	26	2306	116	11	15	0	2474	2478
06-00	26	2372	126	11	15	0	2550	2554
00-00	26	2445	142	11	15	0	2639	2643

Peaks	Time	Vehicles	PCU's
AM	0900	71	71
IP	1400	222	220.1
PM	1600	255	257.1





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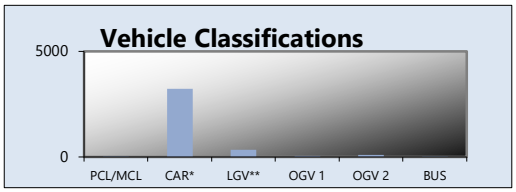
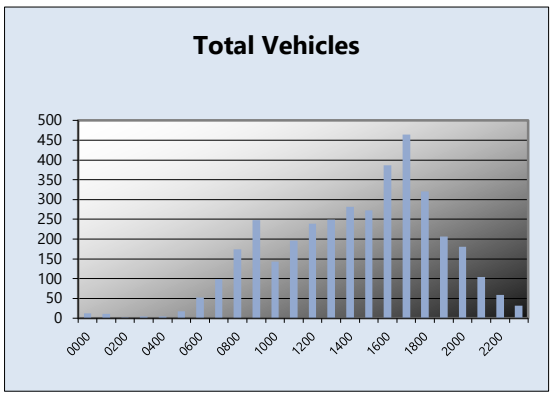
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	11	0	0	1	0	12	13
0100	0	11	0	0	0	0	11	11
0200	0	2	0	0	0	0	2	2
0300	0	3	2	0	0	0	5	5
0400	0	3	1	0	1	0	5	6
0500	0	17	0	0	0	0	17	17
0600	0	42	9	0	1	0	52	53
0700	1	70	19	4	4	1	99	106
0800	0	154	10	1	6	3	174	185
0900	0	204	28	3	10	3	248	266
1000	0	120	14	1	7	1	143	154
1100	0	153	29	1	11	2	196	213
1200	5	194	24	3	13	0	239	253
1300	0	215	20	4	8	2	249	263
1400	3	228	34	6	8	3	282	296
1500	0	231	20	6	13	2	272	294
1600	1	331	35	8	10	2	387	405
1700	0	419	37	2	4	2	464	472
1800	0	291	28	0	1	1	321	323
1900	3	182	12	1	8	0	206	215
2000	1	174	5	0	1	0	181	182
2100	0	94	9	0	1	0	104	105
2200	0	54	4	0	1	0	59	60
2300	0	31	1	0	0	0	32	32
07-19	10	2610	298	39	95	22	3074	3231
06-22	14	3102	333	40	106	22	3617	3786
06-00	14	3187	338	40	107	22	3708	3878
00-00	14	3234	341	40	109	22	3760	3933

Peaks	Time	Vehicles	PCU's
AM	0900	248	265.5
IP	1400	282	296
PM	1700	464	472.2





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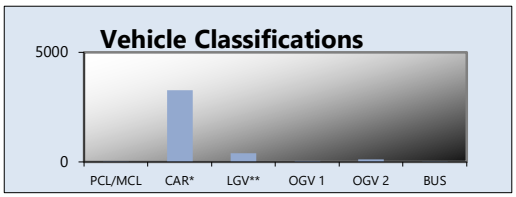
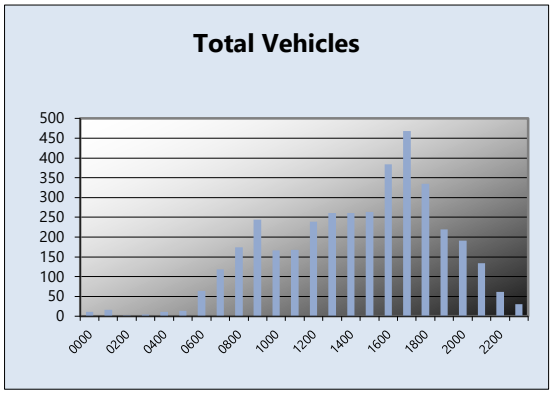
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	10	1	0	0	0	11	11
0100	0	16	0	0	0	0	16	16
0200	0	1	1	0	0	0	2	2
0300	0	4	1	0	0	0	5	5
0400	0	9	2	0	0	0	11	11
0500	0	13	0	0	1	0	14	15
0600	0	55	6	1	2	0	64	67
0700	0	89	18	4	7	1	119	131
0800	0	136	23	2	10	3	174	191
0900	0	203	29	4	7	1	244	256
1000	0	130	25	4	6	1	166	177
1100	0	141	14	3	7	2	167	180
1200	0	196	30	4	8	1	239	252
1300	0	233	16	2	9	1	261	275
1400	1	219	30	2	6	3	261	272
1500	0	219	25	2	15	3	264	288
1600	0	332	34	6	9	3	384	402
1700	1	398	60	3	5	1	468	476
1800	2	291	27	3	11	0	334	348
1900	0	202	14	0	3	1	220	225
2000	1	174	13	0	3	0	191	194
2100	0	123	10	0	1	0	134	135
2200	0	56	5	0	0	0	61	61
2300	1	26	3	0	0	0	30	29
07-19	4	2587	331	39	100	20	3081	3247
06-22	5	3141	374	40	109	21	3690	3869
06-00	6	3223	382	40	109	21	3781	3959
00-00	6	3276	387	40	110	21	3840	4019

Peaks	Time	Vehicles	PCU's
AM	0900	244	256.1
IP	1300	261	274.7
PM	1700	468	476.2





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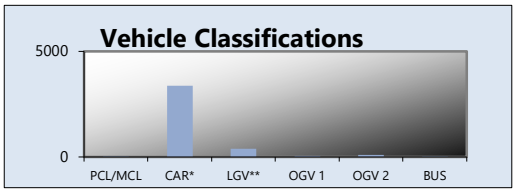
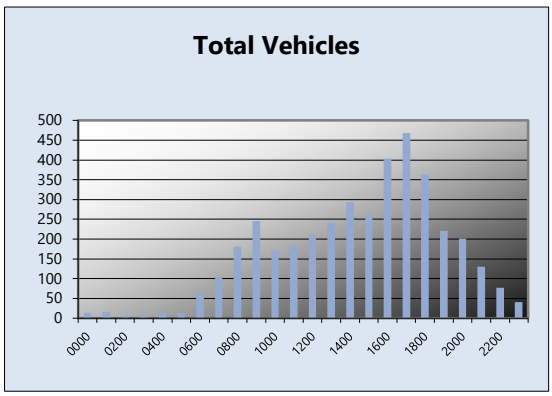
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	13	0	0	0	0	13	13
0100	0	16	0	0	0	0	16	16
0200	0	4	0	0	0	0	4	4
0300	0	6	1	0	1	0	8	9
0400	0	11	2	0	0	0	13	13
0500	0	9	1	2	0	0	12	13
0600	0	51	7	2	4	0	64	70
0700	0	76	14	4	7	3	104	118
0800	0	154	17	3	2	4	180	188
0900	0	205	30	2	6	2	245	256
1000	0	145	17	4	3	2	171	179
1100	0	151	26	3	3	0	183	188
1200	0	183	17	3	6	2	211	222
1300	0	205	29	0	7	1	242	252
1400	0	255	24	3	10	1	293	309
1500	0	209	36	7	9	2	263	280
1600	0	349	36	1	16	1	403	425
1700	0	409	47	3	8	1	468	481
1800	1	323	31	4	3	1	363	369
1900	1	197	19	0	2	2	221	225
2000	3	183	12	0	3	0	201	203
2100	0	124	4	0	2	0	130	133
2200	1	68	7	0	1	0	77	78
2300	0	38	2	0	0	1	41	42
07-19	1	2664	324	37	80	20	3126	3268
06-22	5	3219	366	39	91	22	3742	3898
06-00	6	3325	375	39	92	23	3860	4017
00-00	6	3384	379	41	93	23	3926	4086

Peaks	Time	Vehicles	PCU's
AM	0900	245	255.8
IP	1400	293	308.5
PM	1700	468	480.9





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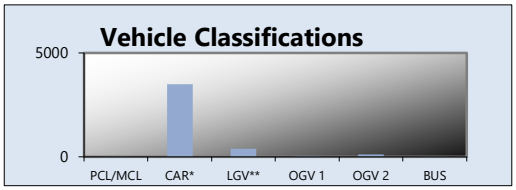
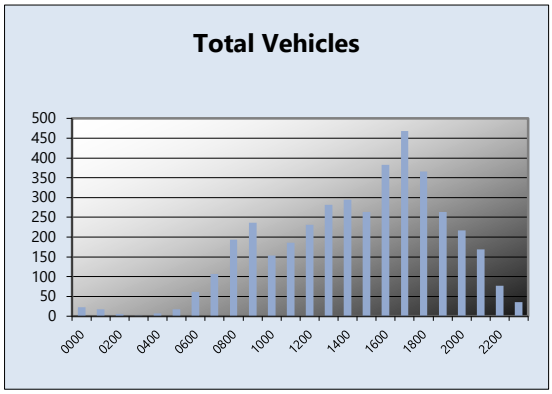
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	20	2	1	0	0	23	24
0100	0	18	0	0	0	0	18	18
0200	0	6	0	0	0	0	6	6
0300	0	1	0	0	0	0	1	1
0400	0	6	1	0	0	0	7	7
0500	0	16	1	1	0	0	18	19
0600	0	52	6	0	4	0	62	67
0700	1	83	15	3	5	0	107	114
0800	0	158	23	2	8	2	193	206
0900	0	207	17	4	5	3	236	248
1000	0	119	24	2	7	1	153	164
1100	0	150	27	5	4	0	186	194
1200	0	192	28	2	9	0	231	244
1300	0	234	35	3	8	1	281	294
1400	0	245	32	5	8	4	294	311
1500	0	225	24	5	8	2	264	279
1600	1	318	43	4	15	1	382	404
1700	0	407	44	6	9	2	468	485
1800	0	325	30	2	8	1	366	378
1900	1	238	16	1	8	0	264	274
2000	4	199	11	1	2	0	217	217
2100	0	157	9	0	3	0	169	173
2200	1	74	2	0	0	0	77	76
2300	0	31	5	0	0	0	36	36
07-19	2	2663	342	43	94	17	3161	3320
06-22	7	3309	384	45	111	17	3873	4051
06-00	8	3414	391	45	111	17	3986	4163
00-00	8	3481	395	47	111	17	4059	4237

Peaks	Time	Vehicles	PCU's
AM	0900	236	247.5
IP	1400	294	310.9
PM	1700	468	484.7





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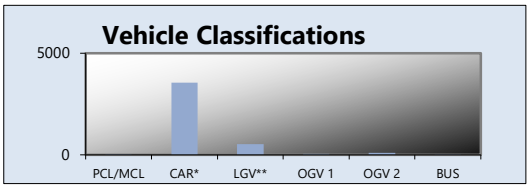
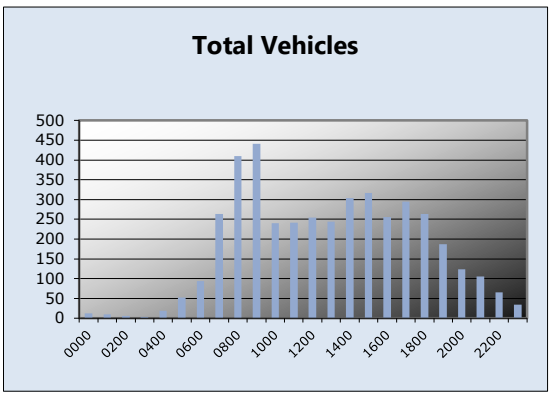
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	11	0	0	1	0	12	13
0100	0	8	2	0	0	0	10	10
0200	0	5	1	0	0	0	6	6
0300	0	3	0	0	0	0	3	3
0400	0	12	2	1	4	0	19	25
0500	0	43	6	1	3	0	53	57
0600	0	68	17	3	6	0	94	103
0700	0	201	38	9	14	2	264	289
0800	1	351	43	4	7	4	410	424
0900	0	386	41	2	10	2	441	457
1000	1	190	38	4	5	2	240	250
1100	0	193	34	4	7	4	242	257
1200	0	210	34	3	6	2	255	266
1300	2	199	32	5	5	1	244	252
1400	2	235	49	1	11	5	303	321
1500	1	267	39	2	4	4	317	326
1600	1	216	32	1	5	1	256	263
1700	0	255	33	3	3	1	295	301
1800	0	232	29	2	1	0	264	266
1900	0	166	18	0	2	1	187	191
2000	0	114	9	0	0	0	123	123
2100	1	90	13	0	1	0	105	106
2200	0	58	6	0	1	0	65	66
2300	0	30	4	0	0	0	34	34
07-19	8	2935	442	40	78	28	3531	3674
06-22	9	3373	499	43	87	29	4040	4196
06-00	9	3461	509	43	88	29	4139	4297
00-00	9	3543	520	45	96	29	4242	4411

Peaks	Time	Vehicles	PCU's
AM	0900	441	457
IP	1400	303	321.2
PM	1700	295	301.4



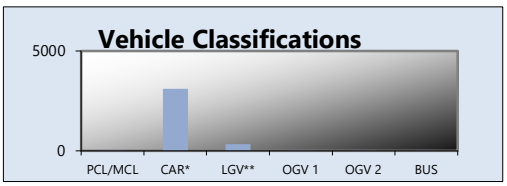


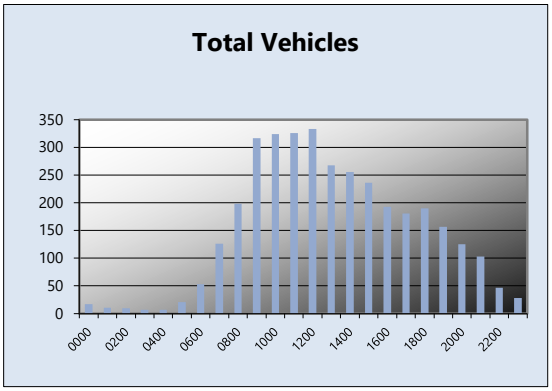
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	14	3	0	0	0	17	17
0100	0	9	2	0	0	0	11	11
0200	0	10	0	0	0	0	10	10
0300	0	6	1	0	0	0	7	7
0400	0	6	0	0	1	0	7	8
0500	0	17	2	0	2	0	21	24
0600	0	42	9	0	2	0	53	56
0700	0	107	15	1	2	1	126	130
0800	2	171	23	1	1	0	198	198
0900	1	274	35	1	4	2	317	324
1000	0	285	33	2	4	0	324	330
1100	0	286	33	1	5	1	326	334
1200	1	282	40	1	8	1	333	344
1300	1	234	25	3	4	1	268	275
1400	1	225	28	2	0	0	256	256
1500	0	219	16	0	0	1	236	237
1600	0	179	11	1	1	1	193	196
1700	0	163	15	1	1	1	181	184
1800	0	171	17	0	1	1	190	192
1900	2	136	16	3	0	0	157	157
2000	0	115	9	0	1	0	125	126
2100	0	99	4	0	0	0	103	103
2200	0	42	5	0	0	0	47	47
2300	0	23	5	0	0	0	28	28
07-19	6	2596	291	14	31	10	2948	3001
06-22	8	2988	329	17	34	10	3386	3442
06-00	8	3053	339	17	34	10	3461	3517
00-00	8	3115	347	17	37	10	3534	3594

Peaks	Time	Vehicles	PCU's
AM	0900	317	323.9
IP	1200	333	344.1
PM	1600	193	195.8





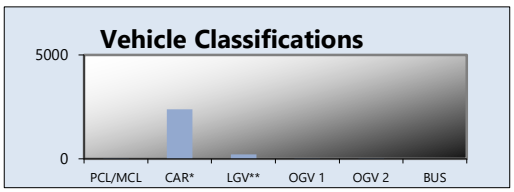
TRAFFINOMICS LIMITED

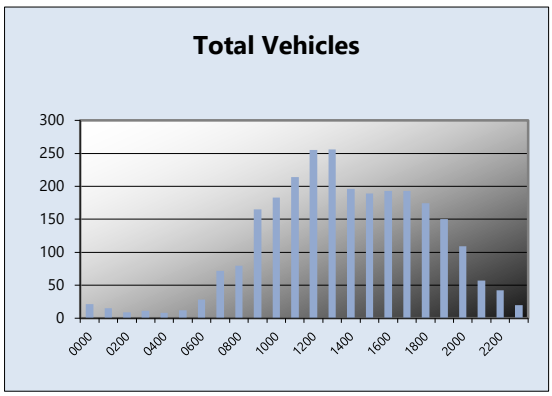
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	17	4	0	0	0	21	21
0100	0	11	4	0	0	0	15	15
0200	0	9	0	0	0	0	9	9
0300	0	10	1	0	0	0	11	11
0400	0	6	2	0	0	0	8	8
0500	0	10	2	0	0	0	12	12
0600	0	25	2	0	1	0	28	29
0700	0	65	4	1	2	0	72	75
0800	0	75	5	0	0	0	80	80
0900	2	149	10	1	3	0	165	168
1000	5	161	16	1	0	0	183	180
1100	3	189	20	1	1	0	214	213
1200	2	231	22	0	0	0	255	253
1300	1	237	16	1	1	0	256	257
1400	0	179	14	1	2	0	196	199
1500	0	175	13	0	1	0	189	190
1600	0	167	23	1	2	0	193	196
1700	0	178	14	0	1	0	193	194
1800	0	158	13	2	1	0	174	176
1900	0	138	12	0	0	0	150	150
2000	0	99	10	0	0	0	109	109
2100	0	52	5	0	0	0	57	57
2200	0	35	6	1	0	0	42	43
2300	0	15	5	0	0	0	20	20
07-19	13	1964	170	9	14	0	2170	2182
06-22	13	2278	199	9	15	0	2514	2528
06-00	13	2328	210	10	15	0	2576	2590
00-00	13	2391	223	10	15	0	2652	2666

Peaks	Time	Vehicles	PCU's
AM	0900	165	167.8
IP	1300	256	257
PM	1600	193	196.1





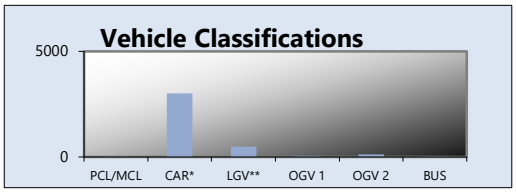
TRAFFINOMICS LIMITED

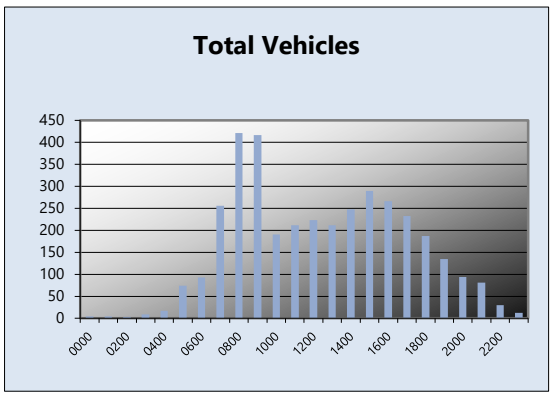
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	4	0	0	0	0	4	4
0100	0	4	0	0	0	0	4	4
0200	0	2	1	0	0	0	3	3
0300	0	4	2	0	3	0	9	13
0400	0	11	2	0	4	0	17	22
0500	0	55	10	1	8	0	74	85
0600	2	69	19	0	3	0	93	95
0700	2	207	30	9	6	2	256	269
0800	0	354	53	1	10	3	421	438
0900	1	361	42	2	8	2	416	429
1000	0	154	25	2	9	1	191	205
1100	1	158	35	4	11	3	212	231
1200	1	170	32	5	13	2	223	244
1300	1	164	33	4	8	1	211	224
1400	2	189	40	4	11	2	248	265
1500	0	233	42	4	6	4	289	303
1600	4	205	44	2	7	4	266	277
1700	0	205	20	3	2	2	232	238
1800	1	159	24	0	2	1	187	190
1900	0	116	17	0	2	0	135	138
2000	2	82	10	0	0	0	94	92
2100	0	77	4	0	0	0	81	81
2200	0	26	2	1	1	0	30	32
2300	0	10	2	0	0	0	12	12
07-19	13	2559	420	40	93	27	3152	3310
06-22	17	2903	470	40	98	27	3555	3716
06-00	17	2939	474	41	99	27	3597	3760
00-00	17	3019	489	42	114	27	3708	3891

Peaks	Time	Vehicles	PCU's
AM	0800	421	437.5
IP	1400	248	264.7
PM	1600	266	276.9

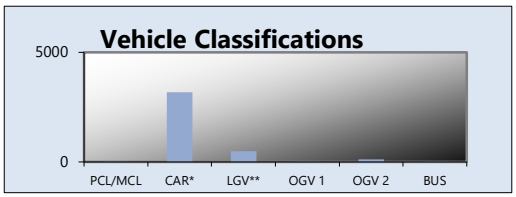


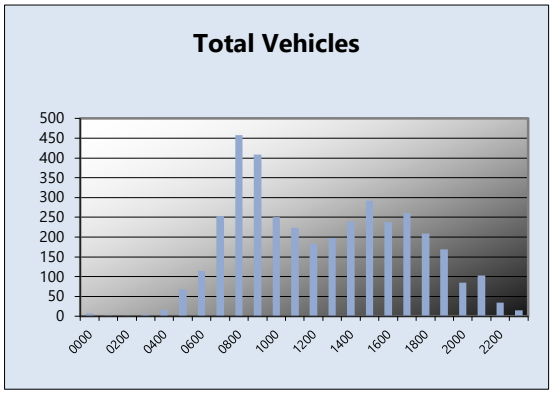


SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	6	1	0	0	0	7	7
0100	0	1	1	0	0	0	2	2
0200	0	1	0	0	0	0	1	1
0300	0	4	0	0	0	1	5	6
0400	0	9	3	0	4	0	16	21
0500	0	57	7	1	3	0	68	72
0600	0	93	16	2	4	0	115	121
0700	0	184	45	10	13	1	253	276
0800	0	396	46	3	9	4	458	475
0900	0	338	53	2	13	3	409	430
1000	0	197	40	2	11	1	251	267
1100	0	172	37	1	12	1	223	240
1200	0	143	30	2	6	2	183	194
1300	0	166	21	3	7	0	197	208
1400	1	189	34	2	10	3	239	255
1500	0	246	35	1	5	5	292	304
1600	0	197	29	3	8	0	237	249
1700	0	226	31	0	3	1	261	266
1800	0	185	23	0	1	0	209	210
1900	0	153	15	0	1	0	169	170
2000	0	79	6	0	0	0	85	85
2100	0	93	8	1	1	0	103	105
2200	1	28	4	1	0	0	34	34
2300	0	14	1	0	0	0	15	15
07-19	1	2639	424	29	98	21	3212	3374
06-22	1	3057	469	32	104	21	3684	3855
06-00	2	3099	474	33	104	21	3733	3904
00-00	2	3177	486	34	111	22	3832	4014

Peaks	Time	Vehicles	PCU's
AM	0800	458	475.2
IP	1400	239	255.2
PM	1700	261	265.9





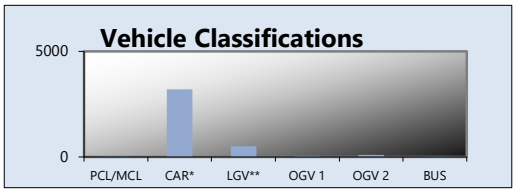
TRAFFINOMICS LIMITED

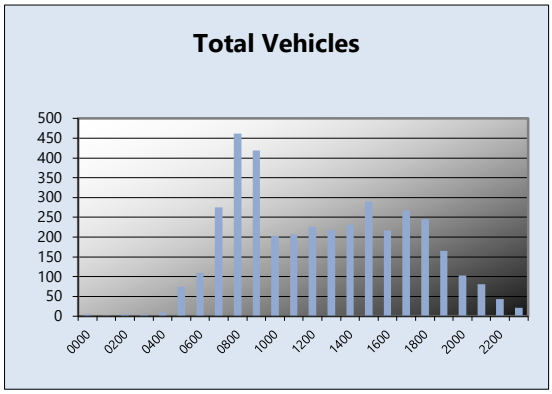
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	4	1	0	0	0	5	5
0100	0	2	0	0	0	0	2	2
0200	0	3	1	0	0	0	4	4
0300	0	3	1	0	1	0	5	6
0400	0	6	2	1	1	0	10	12
0500	0	57	7	0	10	0	74	87
0600	0	83	18	3	5	1	110	119
0700	0	210	48	11	4	2	275	288
0800	0	379	66	2	12	2	461	480
0900	1	353	51	3	11	0	419	434
1000	0	165	29	2	4	3	203	212
1100	1	163	32	0	8	3	207	220
1200	0	177	40	3	6	0	226	235
1300	0	174	29	5	9	1	218	233
1400	0	191	27	2	10	1	231	246
1500	0	244	33	2	6	4	289	302
1600	1	168	32	5	9	2	217	232
1700	0	229	31	1	4	2	267	275
1800	1	215	25	1	1	2	245	248
1900	0	152	12	0	0	1	165	166
2000	1	89	13	0	0	0	103	102
2100	0	72	9	0	0	0	81	81
2200	0	37	6	1	0	0	44	45
2300	0	17	4	1	0	0	22	23
07-19	4	2668	443	37	84	22	3258	3405
06-22	5	3064	495	40	89	24	3717	3873
06-00	5	3118	505	42	89	24	3783	3940
00-00	5	3193	517	43	101	24	3883	4056

Peaks	Time	Vehicles	PCU's
AM	0800	461	479.6
IP	1400	231	246
PM	1700	267	274.7



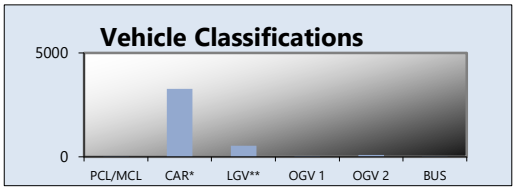


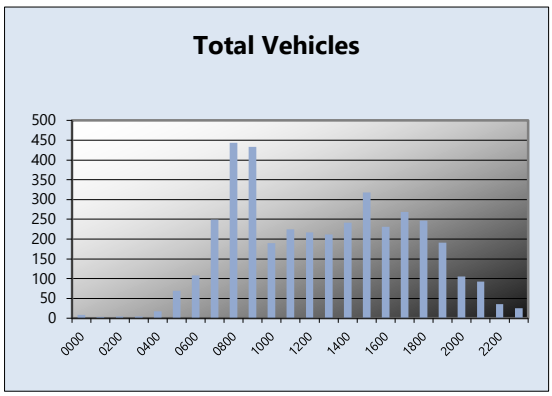
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	5	1	1	0	1	8	10
0100	0	3	0	0	0	0	3	3
0200	0	5	0	0	0	0	5	5
0300	0	3	0	1	1	0	5	7
0400	0	13	2	0	2	0	17	20
0500	0	56	8	0	5	0	69	76
0600	0	83	16	0	9	0	108	120
0700	0	201	32	9	4	3	249	262
0800	0	373	59	3	7	2	444	457
0900	0	374	50	3	5	1	433	442
1000	0	149	28	3	8	2	190	204
1100	0	180	35	2	5	2	224	234
1200	0	181	28	2	6	0	217	226
1300	0	169	36	3	4	0	212	219
1400	0	181	45	4	9	2	241	257
1500	1	260	41	6	7	3	318	332
1600	1	191	33	1	4	1	231	237
1700	0	227	31	4	6	1	269	280
1800	2	222	22	0	1	0	247	247
1900	0	170	19	0	1	1	191	193
2000	0	88	15	1	1	1	106	109
2100	0	78	14	0	0	0	92	92
2200	0	29	6	0	0	0	35	35
2300	0	22	3	0	0	0	25	25
07-19	4	2708	440	40	66	17	3275	3395
06-22	4	3127	504	41	77	19	3772	3908
06-00	4	3178	513	41	77	19	3832	3968
00-00	4	3263	524	43	85	20	3939	4088

Peaks	Time	Vehicles	PCU's
AM	0800	444	456.6
IP	1400	241	256.7
PM	1700	269	279.8





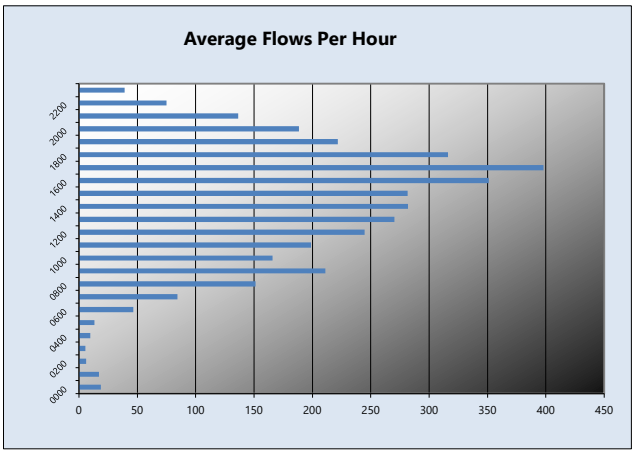
TRAFFINOMICS LIMITED

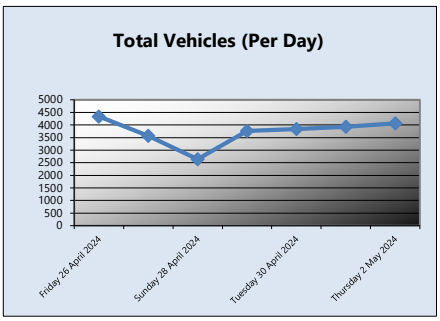
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 01** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **NORTHBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	10	37	26	12	11	13	23	19
0100	18	18	23	11	16	16	18	17
0200	4	10	14	2	2	4	6	6
0300	3	3	14	5	5	8	1	6
0400	19	7	6	5	11	13	7	10
0500	19	7	6	17	14	12	18	13
0600	48	23	13	52	64	64	62	47
0700	93	50	19	99	119	104	107	84
0800	188	100	51	174	174	180	193	151
0900	264	170	71	248	244	245	236	211
1000	157	239	131	143	166	171	153	166
1100	200	272	187	196	167	183	186	199
1200	270	326	196	239	239	211	231	245
1300	342	314	202	249	261	242	281	270
1400	320	302	222	282	261	293	294	282
1500	379	310	220	272	264	263	264	282
1600	394	252	255	387	384	403	382	351
1700	420	276	221	464	468	468	468	398
1800	348	229	253	321	334	363	366	316
1900	252	195	194	206	220	221	264	222
2000	222	159	148	181	191	201	217	188
2100	191	137	91	104	134	130	169	137
2200	112	90	48	59	61	77	77	75
2300	65	41	28	32	30	41	36	39
07-19	3375	2840	2028	3074	3081	3126	3161	2955
06-22	4088	3354	2474	3617	3690	3742	3873	3548
06-00	4265	3485	2550	3708	3781	3860	3986	3662
00-00	4338	3567	2639	3760	3840	3926	4059	3733

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 01**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**NORTHBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0900	0900	0900	0900	0900	0900	0900	0900
Vehicles	264	170	71	248	244	245	236	211
IP								
Time	1300	1200	1400	1400	1300	1400	1400	1400
Vehicles	342	326	222	282	261	293	294	289
PM								
Time	1700	1700	1600	1700	1700	1700	1700	1700
Vehicles	420	276	255	464	468	468	468	403

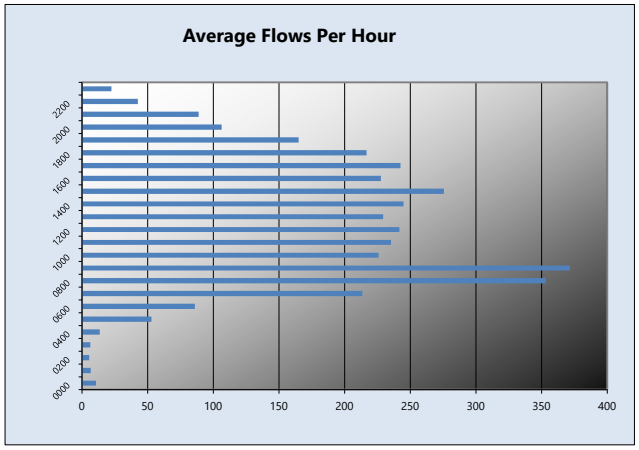
TRAFFINOMICS LIMITED

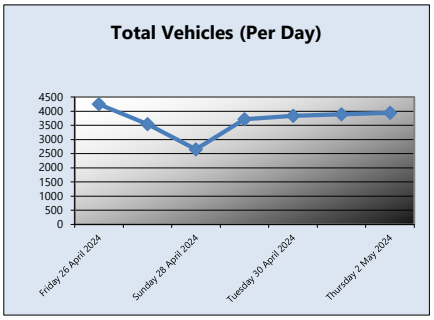
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 01** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **SOUTHBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	12	17	21	4	7	5	8	11
0100	10	11	15	4	2	2	3	7
0200	6	10	9	3	1	4	5	5
0300	3	7	11	9	5	5	5	6
0400	19	7	8	17	16	10	17	13
0500	53	21	12	74	68	74	69	53
0600	94	53	28	93	115	110	108	86
0700	264	126	72	256	253	275	249	214
0800	410	198	80	421	458	461	444	353
0900	441	317	165	416	409	419	433	371
1000	240	324	183	191	251	203	190	226
1100	242	326	214	212	223	207	224	235
1200	255	333	255	223	183	226	217	242
1300	244	268	256	211	197	218	212	229
1400	303	256	196	248	239	231	241	245
1500	317	236	189	289	292	289	318	276
1600	256	193	193	266	237	217	231	228
1700	295	181	193	232	261	267	269	243
1800	264	190	174	187	209	245	247	217
1900	187	157	150	135	169	165	191	165
2000	123	125	109	94	85	103	106	106
2100	105	103	57	81	103	81	92	89
2200	65	47	42	30	34	44	35	42
2300	34	28	20	12	15	22	25	22
07-19	3531	2948	2170	3152	3212	3258	3275	3078
06-22	4040	3386	2514	3555	3684	3717	3772	3524
06-00	4139	3461	2576	3597	3733	3783	3832	3589
00-00	4242	3534	2652	3708	3832	3883	3939	3684

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 01**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**SOUTHBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0900	0900	0900	0800	0800	0800	0800	0800
Vehicles	441	317	441	421	458	461	444	426
IP								
Time	1400	1200	1300	1400	1400	1400	1400	1400
Vehicles	303	333	256	248	239	231	241	264
PM								
Time	1700	1600	1600	1600	1700	1700	1700	1700
Vehicles	295	193	193	266	261	267	269	249

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
NORTHBOUND

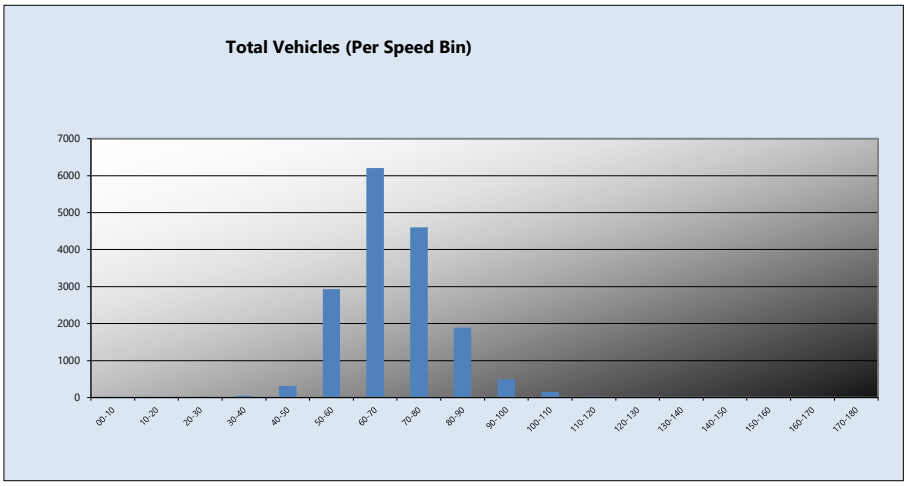
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 16704
Maximum = 139.6 km/h, Minimum = 8.6 km/h, Mean = 69.1 km/h
85% Speed = 80.19 km/h, 95% Speed = 88.47 km/h, Median = 68.22 km/h
20 km/h Pace = 57 - 77, Number in Pace = 11195 (67.02%)
Variance = 125.11, Standard Deviation = 11.19 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	1	0.0
10-20	10	0.1
20-30	18	0.1
30-40	47	0.3
40-50	310	1.9
50-60	2935	17.6
60-70	6210	37.2
70-80	4603	27.6
80-90	1887	11.3
90-100	490	2.9
100-110	155	0.9
110-120	30	0.2
120-130	5	0.0
130-140	3	0.0
140-150	0	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 01
SOUTHBOUND

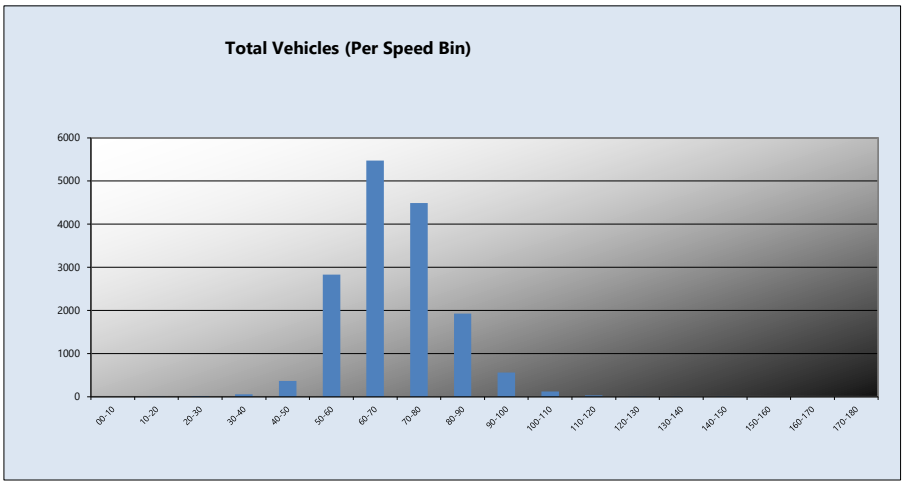
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 15924
Maximum = 147.9 km/h, Minimum = 12.7 km/h, Mean = 69.3 km/h
85% Speed = 81.00 km/h, 95% Speed = 89.46 km/h, Median = 68.67 km/h
20 km/h Pace = 58 - 78, Number in Pace = 10255 (64.40%)
Variance = 135.55, Standard Deviation = 11.64 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	7	0.0
20-30	21	0.1
30-40	58	0.4
40-50	371	2.3
50-60	2835	17.8
60-70	5473	34.4
70-80	4495	28.2
80-90	1932	12.1
90-100	566	3.6
100-110	121	0.8
110-120	33	0.2
120-130	9	0.1
130-140	2	0.0
140-150	1	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



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CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars

LGV** Light Goods Vehicles with the exception of LGV based on cars

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SUMMARY** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02

LOCATION: L1011 East of Cahanagh - (Google Maps Ref: 53°45'51.5"N 7°47'12.7"W)

SPEED SURVEY SUMMARY:

EASTBOUND	85% Speed = 90.36 km/h, 95% Speed = 98.27 km/h, Median = 76.95 km/h	Maximum = 159.7 km/h, Minimum = 11.4 km/h, Mean = 76.8 km/h
WESTBOUND	85% Speed = 94.38 km/h, 95% Speed = 103.32 km/h, Median = 79.74 km/h	Maximum = 170.2 km/h, Minimum = 10.5 km/h, Mean = 80.0 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	No. Vehicles	7 day Mean
EASTBOUND	**07-19**	401	252	248	329	358	366	379	2333	333
WESTBOUND	**07-19**	451	297	269	374	394	401	410	2596	371
EASTBOUND	**00-00**	485	333	318	412	440	450	508	2946	421
WESTBOUND	**00-00**	552	380	347	452	486	508	526	3251	464

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0800	1400	1700
Average Vehicles per Peak Hour	36	34	37

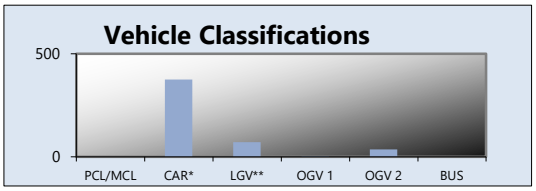
TRAFFINOMICS LIMITED

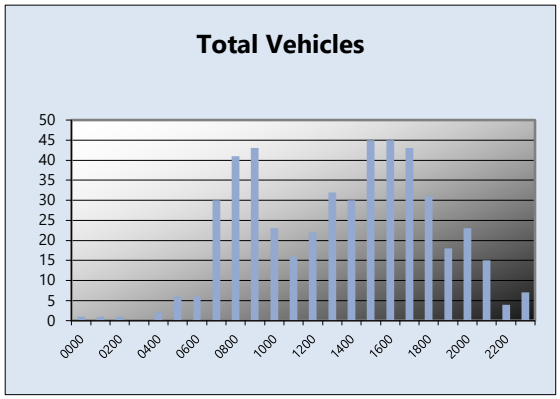
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	1	0	0	0	0	1	1
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	2	0	2	5
0500	0	4	1	0	1	0	6	7
0600	0	5	1	0	0	0	6	6
0700	0	24	4	0	2	0	30	33
0800	0	30	5	1	5	0	41	48
0900	0	36	6	0	1	0	43	44
1000	0	19	2	0	2	0	23	26
1100	0	9	3	1	3	0	16	20
1200	0	12	6	1	3	0	22	26
1300	0	26	5	0	1	0	32	33
1400	0	24	4	0	2	0	30	33
1500	0	30	11	0	4	0	45	50
1600	0	33	9	1	2	0	45	48
1700	0	32	9	0	2	0	43	46
1800	0	30	0	0	1	0	31	32
1900	0	13	3	0	2	0	18	21
2000	0	20	2	0	1	0	23	24
2100	0	15	0	0	0	0	15	15
2200	0	3	0	0	1	0	4	5
2300	0	6	1	0	0	0	7	7
07-19	0	305	64	4	28	0	401	439
06-22	0	358	70	4	31	0	463	505
06-00	0	367	71	4	32	0	474	518
00-00	0	374	72	4	35	0	485	533

Peaks	Time	Vehicles	PCU's
AM	0900	43	48
IP	1300	32	33.3
PM	1600	45	48.1





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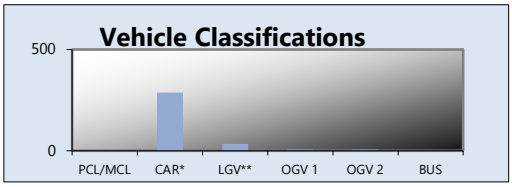
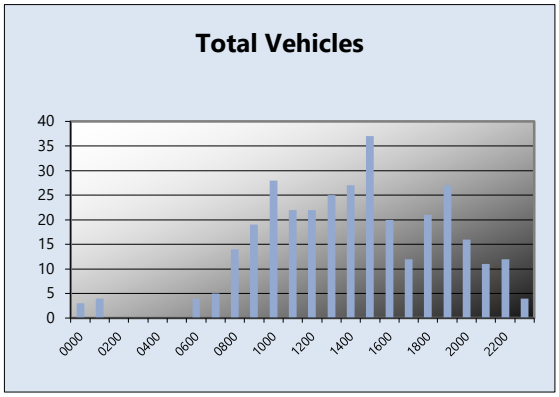
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	1	0	0	0	3	3
0100	0	4	0	0	0	0	4	4
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0
0600	0	3	1	0	0	0	4	4
0700	0	5	0	0	0	0	5	5
0800	0	9	3	1	1	0	14	16
0900	0	14	4	0	1	0	19	20
1000	0	25	2	0	1	0	28	29
1100	0	20	1	0	1	0	22	23
1200	0	20	2	0	0	0	22	22
1300	1	20	4	0	0	0	25	24
1400	0	21	6	0	0	0	27	27
1500	0	32	5	0	0	0	37	37
1600	0	19	0	0	1	0	20	21
1700	0	11	0	1	0	0	12	13
1800	0	16	3	1	1	0	21	23
1900	1	25	0	1	0	0	27	27
2000	0	14	1	1	0	0	16	17
2100	0	10	1	0	0	0	11	11
2200	0	12	0	0	0	0	12	12
2300	0	4	0	0	0	0	4	4
07-19	1	212	30	3	6	0	252	261
06-22	2	264	33	5	6	0	310	319
06-00	2	280	33	5	6	0	326	335
00-00	2	286	34	5	6	0	333	342

Peaks	Time	Vehicles	PCU's
AM	0900	19	20.3
IP	1400	27	27
PM	1800	21	22.8





Traffinomics Limited for
Stephen Reid Consulting

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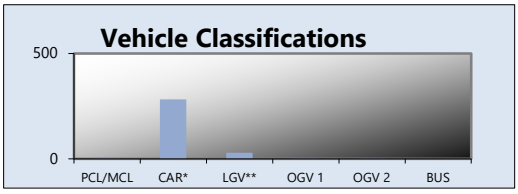
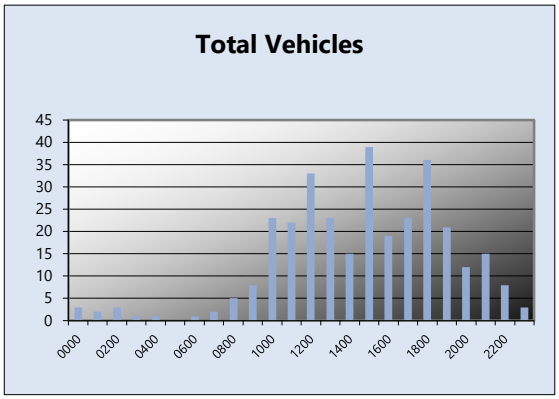
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	2	0	0	0	0	2	2
0200	0	3	0	0	0	0	3	3
0300	0	1	0	0	0	0	1	1
0400	0	0	1	0	0	0	1	1
0500	0	0	0	0	0	0	0	0
0600	0	1	0	0	0	0	1	1
0700	0	2	0	0	0	0	2	2
0800	0	3	2	0	0	0	5	5
0900	0	8	0	0	0	0	8	8
1000	0	17	4	0	2	0	23	26
1100	0	18	4	0	0	0	22	22
1200	1	30	2	0	0	0	33	32
1300	2	19	2	0	0	0	23	21
1400	0	15	0	0	0	0	15	15
1500	0	36	3	0	0	0	39	39
1600	0	17	2	0	0	0	19	19
1700	0	23	0	0	0	0	23	23
1800	0	31	4	1	0	0	36	37
1900	0	20	0	1	0	0	21	22
2000	0	10	1	1	0	0	12	13
2100	0	12	2	0	1	0	15	16
2200	0	8	0	0	0	0	8	8
2300	0	2	1	0	0	0	3	3
07-19	3	219	23	1	2	0	248	249
06-22	3	262	26	3	3	0	297	300
06-00	3	272	27	3	3	0	308	311
00-00	3	281	28	3	3	0	318	321

Peaks	Time	Vehicles	PCU's
AM	0900	8	8
IP	1200	33	32.2
PM	1800	36	36.5





Traffinomics Limited for
Stephen Reid Consulting

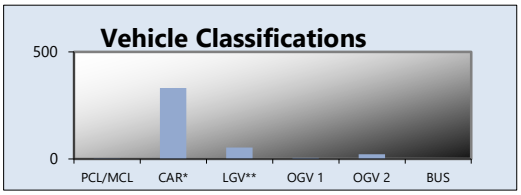
TRAFFINOMICS LIMITED

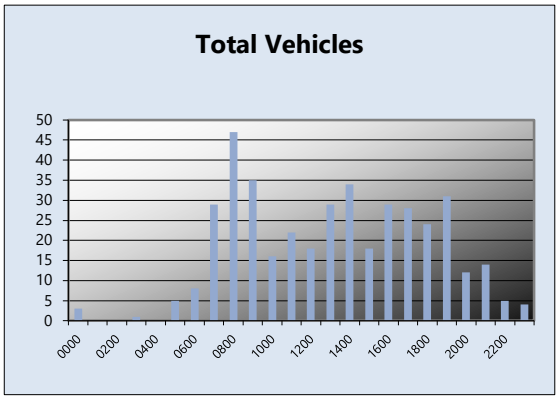
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	0	3	1	0	1	0	5	6
0600	0	6	0	0	2	0	8	11
0700	0	24	5	0	0	0	29	29
0800	0	31	7	2	7	0	47	57
0900	0	28	5	1	1	0	35	37
1000	0	11	4	0	1	0	16	17
1100	0	17	4	0	1	0	22	23
1200	0	13	5	0	0	0	18	18
1300	0	22	5	0	2	0	29	32
1400	1	28	3	0	2	0	34	36
1500	0	13	3	0	2	0	18	21
1600	0	26	2	1	0	0	29	30
1700	0	25	2	0	1	0	28	29
1800	0	20	4	0	0	0	24	24
1900	0	28	1	0	2	0	31	34
2000	0	9	2	0	1	0	12	13
2100	0	14	0	0	0	0	14	14
2200	0	5	0	0	0	0	5	5
2300	0	4	0	0	0	0	4	4
07-19	1	258	49	4	17	0	329	352
06-22	1	315	52	4	22	0	394	424
06-00	1	324	52	4	22	0	403	433
00-00	1	331	53	4	23	0	412	443

Peaks	Time	Vehicles	PCU's
AM	0800	47	57.1
IP	1400	34	35.8
PM	1600	29	29.5





Traffinomics Limited for
Stephen Reid Consulting

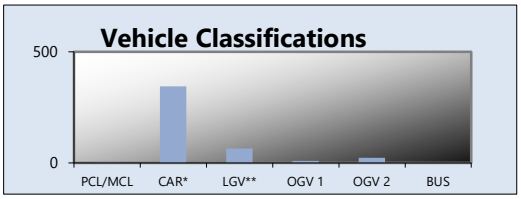
TRAFFINOMICS LIMITED

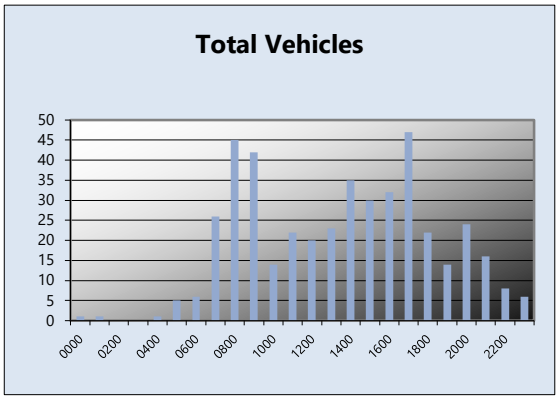
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	1	0	0	0	1	1
0100	0	0	1	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	1	0	1	2
0500	0	2	2	0	1	0	5	6
0600	0	6	0	0	0	0	6	6
0700	0	22	3	0	1	0	26	27
0800	0	30	7	0	8	0	45	55
0900	0	39	3	0	0	0	42	42
1000	0	10	2	1	1	0	14	16
1100	0	17	3	0	2	0	22	25
1200	0	17	2	0	1	0	20	21
1300	0	17	4	1	1	0	23	25
1400	1	26	5	2	1	0	35	37
1500	0	18	9	0	3	0	30	34
1600	0	23	8	0	1	0	32	33
1700	0	39	7	1	0	0	47	48
1800	0	19	1	2	0	0	22	23
1900	0	11	2	0	1	0	14	15
2000	0	20	3	0	1	0	24	25
2100	0	15	1	0	0	0	16	16
2200	0	8	0	0	0	0	8	8
2300	0	5	0	1	0	0	6	7
07-19	1	277	54	7	19	0	358	385
06-22	1	329	60	7	21	0	418	448
06-00	1	342	60	8	21	0	432	463
00-00	1	344	64	8	23	0	440	473

Peaks	Time	Vehicles	PCU's
AM	0800	45	55.4
IP	1400	35	36.5
PM	1700	47	47.5





Traffinomics Limited for
Stephen Reid Consulting

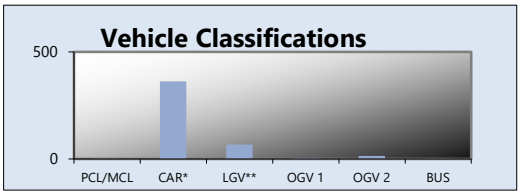
TRAFFINOMICS LIMITED

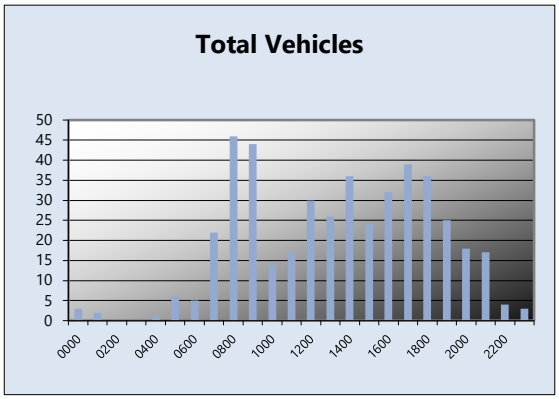
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	2	0	0	0	0	2	2
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	1	0	1	2
0500	0	5	0	1	0	0	6	7
0600	0	4	0	0	1	0	5	6
0700	0	15	6	1	0	0	22	23
0800	0	36	8	0	2	0	46	49
0900	0	37	5	1	1	0	44	46
1000	0	11	2	0	1	0	14	15
1100	0	10	6	0	1	0	17	18
1200	0	25	5	0	0	0	30	30
1300	0	23	2	0	1	0	26	27
1400	0	29	6	0	1	0	36	37
1500	0	15	8	0	1	0	24	25
1600	2	24	4	0	1	1	32	33
1700	0	32	4	1	2	0	39	42
1800	0	32	4	0	0	0	36	36
1900	0	21	3	0	1	0	25	26
2000	0	16	2	0	0	0	18	18
2100	0	15	2	0	0	0	17	17
2200	0	4	0	0	0	0	4	4
2300	0	3	0	0	0	0	3	3
07-19	2	289	60	3	11	1	366	381
06-22	2	345	67	3	13	1	431	449
06-00	2	352	67	3	13	1	438	456
00-00	2	362	67	4	14	1	450	470

Peaks	Time	Vehicles	PCU's
AM	0800	46	48.6
IP	1400	36	37.3
PM	1700	39	42.1





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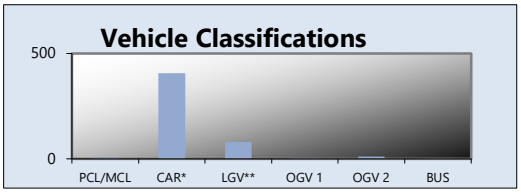
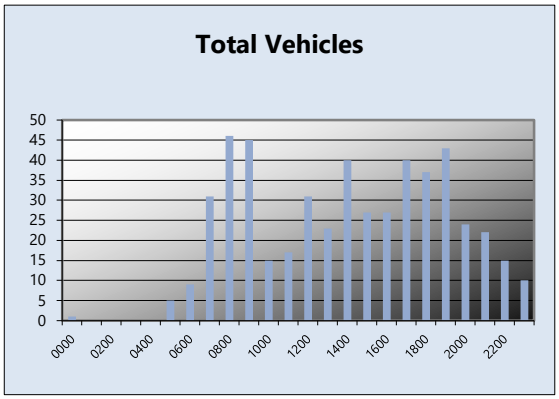
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	4	1	0	0	0	5	5
0600	0	7	1	0	1	0	9	10
0700	0	24	6	0	1	0	31	32
0800	0	33	9	0	4	0	46	51
0900	0	38	7	0	0	0	45	45
1000	1	9	5	0	0	0	15	14
1100	0	10	7	0	0	0	17	17
1200	1	21	8	1	0	0	31	31
1300	0	21	2	0	0	0	23	23
1400	1	31	8	0	0	0	40	39
1500	0	22	4	0	1	0	27	28
1600	0	20	4	0	3	0	27	31
1700	1	30	8	1	0	0	40	40
1800	1	31	4	1	0	0	37	37
1900	1	37	5	0	0	0	43	42
2000	0	23	0	0	1	0	24	25
2100	0	22	0	0	0	0	22	22
2200	0	14	1	0	0	0	15	15
2300	0	9	0	0	0	1	10	11
07-19	5	290	72	3	9	0	379	388
06-22	6	379	78	3	11	0	477	488
06-00	6	402	79	3	11	1	502	514
00-00	6	407	80	3	11	1	508	520

Peaks	Time	Vehicles	PCU's
AM	0800	46	51.2
IP	1400	40	39.2
PM	1700	40	39.7





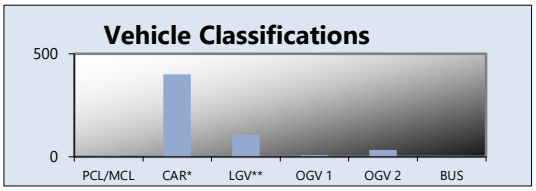
TRAFFINOMICS LIMITED

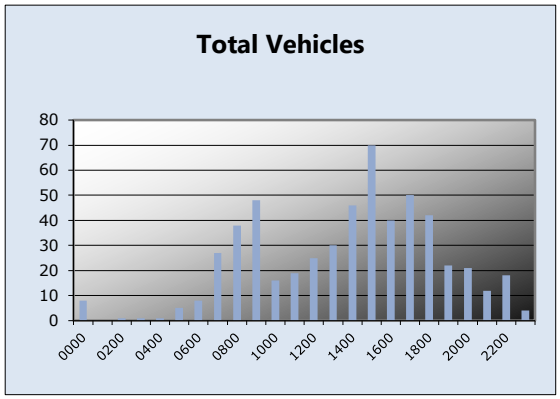
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	2	5	1	0	0	0	8	6
0100	0	0	0	0	0	0	0	0
0200	0	0	0	1	0	0	1	2
0300	0	1	0	0	0	0	1	1
0400	0	1	0	0	0	0	1	1
0500	0	3	0	0	2	0	5	8
0600	0	6	1	0	1	0	8	9
0700	0	17	9	0	1	0	27	28
0800	0	29	7	0	2	0	38	41
0900	0	35	8	0	4	1	48	54
1000	0	14	1	0	1	0	16	17
1100	0	8	7	1	3	0	19	23
1200	0	17	4	2	2	0	25	29
1300	1	23	3	1	2	0	30	32
1400	0	30	11	0	5	0	46	53
1500	0	49	12	2	7	0	70	80
1600	0	33	6	0	1	0	40	41
1700	0	39	9	1	1	0	50	52
1800	0	32	10	0	0	0	42	42
1900	0	16	6	0	0	0	22	22
2000	0	16	5	0	0	0	21	21
2100	0	9	2	0	1	0	12	13
2200	0	15	3	0	0	0	18	18
2300	0	3	1	0	0	0	4	4
07-19	1	326	87	7	29	1	451	492
06-22	1	373	101	7	31	1	514	558
06-00	1	391	105	7	31	1	536	580
00-00	3	401	106	8	33	1	552	598

Peaks	Time	Vehicles	PCU's
AM	0900	48	54.2
IP	1400	46	52.5
PM	1700	50	51.8





Traffinomics Limited for
Stephen Reid Consulting

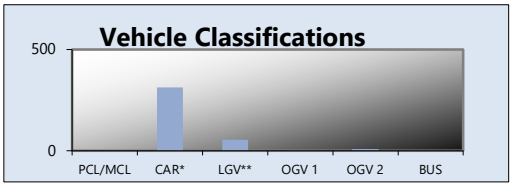
TRAFFINOMICS LIMITED

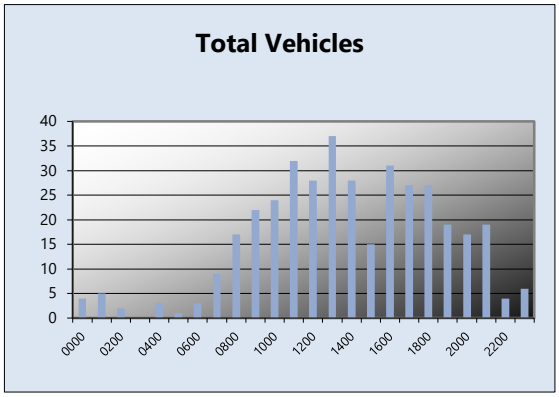
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	1	0	0	0	4	4
0100	0	5	0	0	0	0	5	5
0200	0	2	0	0	0	0	2	2
0300	0	0	0	0	0	0	0	0
0400	0	3	0	0	0	0	3	3
0500	0	1	0	0	0	0	1	1
0600	0	3	0	0	0	0	3	3
0700	0	6	2	0	1	0	9	10
0800	0	12	3	0	2	0	17	20
0900	0	19	3	0	0	0	22	22
1000	0	18	5	0	1	0	24	25
1100	0	25	6	1	0	0	32	33
1200	0	25	3	0	0	0	28	28
1300	0	30	6	0	1	0	37	38
1400	0	22	5	0	1	0	28	29
1500	0	10	4	0	1	0	15	16
1600	0	24	6	1	0	0	31	32
1700	0	25	1	0	1	0	27	28
1800	0	25	1	0	1	0	27	28
1900	0	14	5	0	0	0	19	19
2000	0	15	2	0	0	0	17	17
2100	0	18	1	0	0	0	19	19
2200	0	4	0	0	0	0	4	4
2300	0	5	1	0	0	0	6	6
07-19	0	241	45	2	9	0	297	310
06-22	0	291	53	2	9	0	355	368
06-00	0	300	54	2	9	0	365	378
00-00	0	314	55	2	9	0	380	393

Peaks	Time	Vehicles	PCU's
AM	0900	22	22
IP	1300	37	38.3
PM	1600	31	31.5





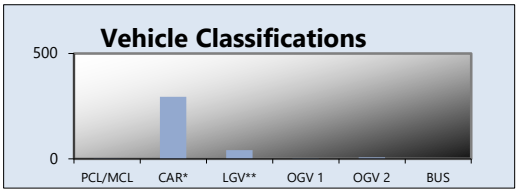
TRAFFINOMICS LIMITED

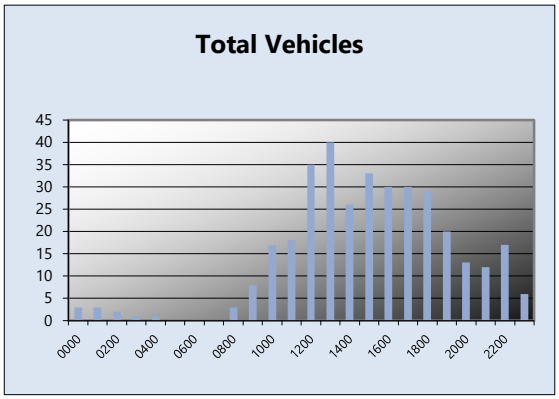
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	1	2	0	0	0	3	3
0200	0	2	0	0	0	0	2	2
0300	0	1	0	0	0	0	1	1
0400	0	1	0	0	0	0	1	1
0500	0	0	0	0	0	0	0	0
0600	0	0	0	0	0	0	0	0
0700	0	0	0	0	0	0	0	0
0800	0	3	0	0	0	0	3	3
0900	1	6	1	0	0	0	8	7
1000	1	14	2	0	0	0	17	16
1100	0	16	2	0	0	0	18	18
1200	0	29	6	0	0	0	35	35
1300	1	35	3	1	0	0	40	40
1400	0	23	3	0	0	0	26	26
1500	0	32	1	0	0	0	33	33
1600	0	21	8	0	1	0	30	31
1700	0	26	3	0	1	0	30	31
1800	0	26	2	0	1	0	29	30
1900	0	14	3	1	2	0	20	23
2000	0	11	2	0	0	0	13	13
2100	0	11	1	0	0	0	12	12
2200	0	15	2	0	0	0	17	17
2300	0	4	1	0	1	0	6	7
07-19	3	231	31	1	3	0	269	271
06-22	3	267	37	2	5	0	314	319
06-00	3	286	40	2	6	0	337	343
00-00	3	294	42	2	6	0	347	353

Peaks	Time	Vehicles	PCU's
AM	0900	8	7.2
IP	1300	40	39.7
PM	1600	30	31.3





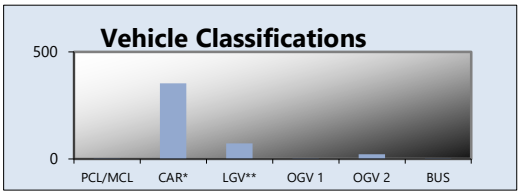
TRAFFINOMICS LIMITED

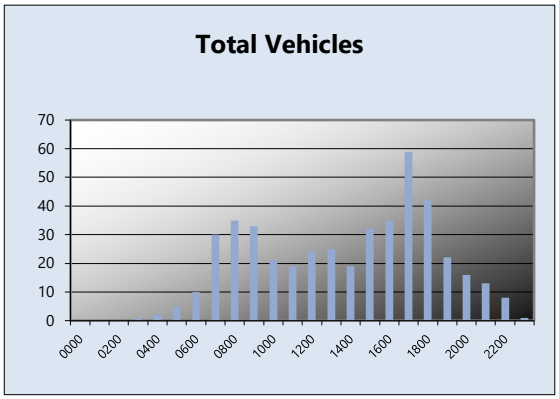
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	0	1	0	0	0	1	1
0400	0	2	0	0	0	0	2	2
0500	0	2	1	0	2	0	5	8
0600	0	7	2	0	1	0	10	11
0700	0	21	6	1	2	0	30	33
0800	0	30	4	0	1	0	35	36
0900	0	26	5	0	2	0	33	36
1000	0	13	6	0	2	0	21	24
1100	0	14	3	0	1	1	19	21
1200	0	16	6	1	0	1	24	26
1300	0	23	2	0	0	0	25	25
1400	0	11	7	0	1	0	19	20
1500	0	24	6	0	2	0	32	35
1600	0	29	5	0	1	0	35	36
1700	0	47	9	0	3	0	59	63
1800	1	37	3	0	1	0	42	43
1900	0	18	2	0	2	0	22	25
2000	0	12	4	0	0	0	16	16
2100	0	12	1	0	0	0	13	13
2200	0	8	0	0	0	0	8	8
2300	0	0	0	0	1	0	1	2
07-19	1	291	62	2	16	2	374	397
06-22	1	340	71	2	19	2	435	462
06-00	1	348	71	2	20	2	444	472
00-00	1	352	73	2	22	2	452	483

Peaks	Time	Vehicles	PCU's
AM	0800	35	36.3
IP	1300	25	25.5
PM	1700	59	62.9





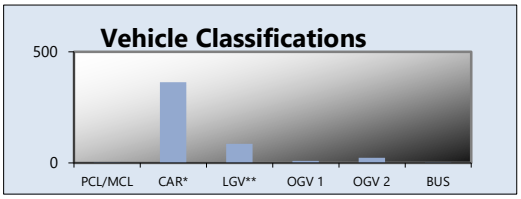
Traffinomics Limited for
Stephen Reid Consulting

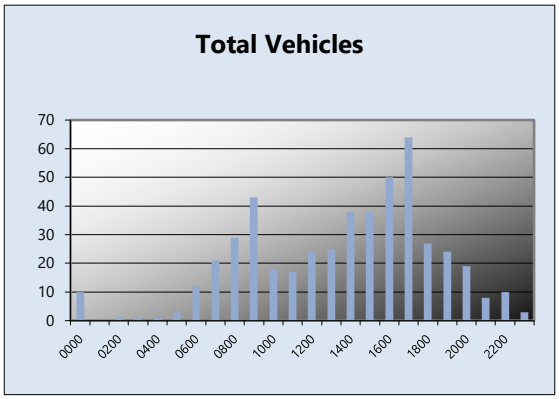
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	1	7	2	0	0	0	10	9
0100	0	0	0	0	0	0	0	0
0200	0	1	0	0	0	0	1	1
0300	0	1	0	0	0	0	1	1
0400	0	1	0	0	0	0	1	1
0500	0	2	1	0	0	0	3	3
0600	0	10	1	0	1	0	12	13
0700	0	13	5	2	1	0	21	23
0800	0	24	3	0	2	0	29	32
0900	0	36	4	1	2	0	43	46
1000	0	13	3	1	1	0	18	20
1100	1	10	5	0	1	0	17	18
1200	0	18	3	0	2	1	24	28
1300	0	17	6	1	1	0	25	27
1400	0	24	13	0	1	0	38	39
1500	0	29	6	0	3	0	38	42
1600	0	34	10	2	4	0	50	56
1700	0	49	13	1	1	0	64	66
1800	0	20	4	1	2	0	27	30
1900	0	20	3	0	1	0	24	25
2000	0	19	0	0	0	0	19	19
2100	0	5	3	0	0	0	8	8
2200	0	10	0	0	0	0	10	10
2300	0	1	1	0	1	0	3	4
07-19	1	287	75	9	21	1	394	426
06-22	1	341	82	9	23	1	457	492
06-00	1	352	83	9	24	1	470	506
00-00	2	364	86	9	24	1	486	521

Peaks	Time	Vehicles	PCU's
AM	0900	43	46.1
IP	1400	38	39.3
PM	1700	64	65.8





Traffinomics Limited for
Stephen Reid Consulting

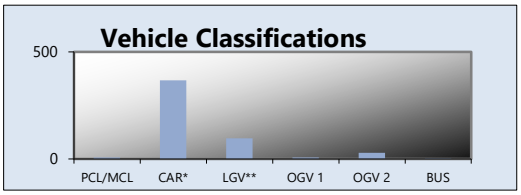
TRAFFINOMICS LIMITED

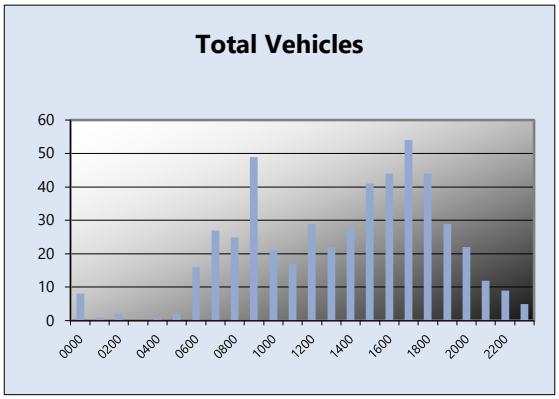
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	1	5	2	0	0	0	8	7
0100	0	1	0	0	0	0	1	1
0200	0	1	1	0	0	0	2	2
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	0	0	1	1
0500	0	1	1	0	0	0	2	2
0600	0	10	4	0	2	0	16	19
0700	0	20	7	0	0	0	27	27
0800	0	18	5	0	2	0	25	28
0900	0	37	9	1	2	0	49	52
1000	1	15	3	0	2	0	21	23
1100	0	10	6	0	1	0	17	18
1200	0	22	6	1	0	0	29	30
1300	1	14	4	0	3	0	22	25
1400	0	20	5	0	3	0	28	32
1500	0	29	7	2	2	1	41	46
1600	1	28	10	3	1	1	44	47
1700	1	38	10	0	5	0	54	60
1800	2	35	6	0	1	0	44	44
1900	0	21	6	0	2	0	29	32
2000	0	20	1	0	1	0	22	23
2100	0	10	2	0	0	0	12	12
2200	0	8	1	0	0	0	9	9
2300	0	3	1	0	1	0	5	6
07-19	6	286	78	7	22	2	401	430
06-22	6	347	91	7	27	2	480	516
06-00	6	358	93	7	28	2	494	531
00-00	7	367	97	7	28	2	508	544

Peaks	Time	Vehicles	PCU's
AM	0900	49	52.1
IP	1200	29	31.9
PM	1700	54	59.7





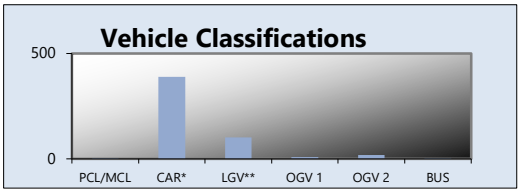
Traffinomics Limited for
Stephen Reid Consulting

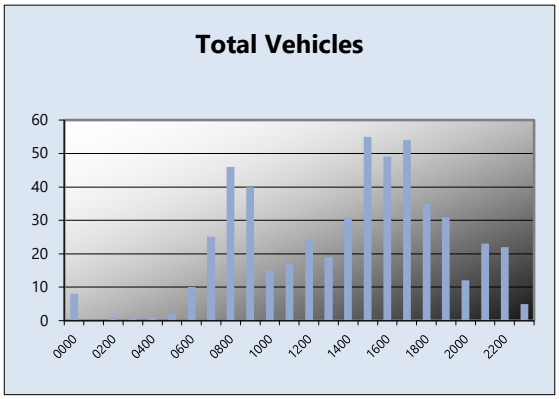
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	1	5	1	1	0	0	8	8
0100	0	0	0	0	0	0	0	0
0200	0	0	1	0	0	0	1	1
0300	0	0	1	0	0	0	1	1
0400	0	1	0	0	0	0	1	1
0500	0	2	0	0	0	0	2	2
0600	0	7	2	0	1	0	10	11
0700	0	19	5	1	0	0	25	26
0800	0	33	10	0	2	1	46	50
0900	0	30	5	3	2	0	40	44
1000	0	9	5	0	0	1	15	16
1100	0	10	7	0	0	0	17	17
1200	0	18	5	1	0	0	24	25
1300	0	12	7	0	0	0	19	19
1400	1	26	4	0	0	0	31	30
1500	0	44	7	1	3	0	55	59
1600	0	31	12	0	5	1	49	57
1700	0	38	11	1	3	1	54	59
1800	1	32	2	0	0	0	35	34
1900	0	24	5	0	2	0	31	34
2000	1	10	1	0	0	0	12	11
2100	0	20	3	0	0	0	23	23
2200	0	15	6	1	0	0	22	23
2300	0	3	1	0	1	0	5	6
07-19	2	302	80	7	15	4	410	435
06-22	3	363	91	7	18	4	486	515
06-00	3	381	98	8	19	4	513	543
00-00	4	389	101	9	19	4	526	556

Peaks	Time	Vehicles	PCU's
AM	0800	46	49.6
IP	1400	31	30.2
PM	1700	54	59.4





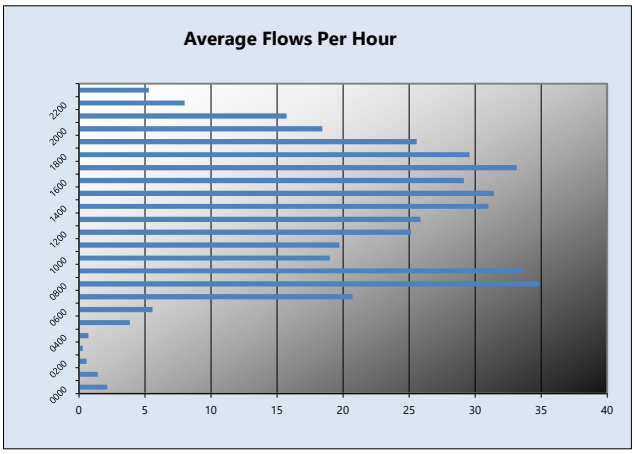
TRAFFINOMICS LIMITED

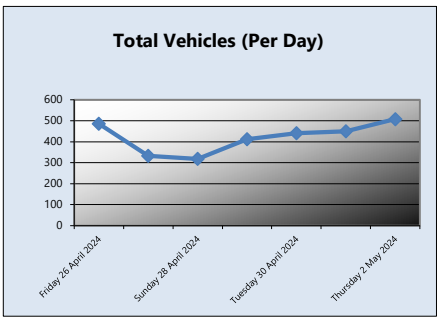
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 02** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **EASTBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	1	3	3	3	1	3	1	2
0100	1	4	2	0	1	2	0	1
0200	1	0	3	0	0	0	0	1
0300	0	0	1	1	0	0	0	0
0400	2	0	1	0	1	1	0	1
0500	6	0	0	5	5	6	5	4
0600	6	4	1	8	6	5	9	6
0700	30	5	2	29	26	22	31	21
0800	41	14	5	47	45	46	46	35
0900	43	19	8	35	42	44	45	34
1000	23	28	23	16	14	14	15	19
1100	16	22	22	22	22	17	17	20
1200	22	22	33	18	20	30	31	25
1300	32	25	23	29	23	26	23	26
1400	30	27	15	34	35	36	40	31
1500	45	37	39	18	30	24	27	31
1600	45	20	19	29	32	32	27	29
1700	43	12	23	28	47	39	40	33
1800	31	21	36	24	22	36	37	30
1900	18	27	21	31	14	25	43	26
2000	23	16	12	12	24	18	24	18
2100	15	11	15	14	16	17	22	16
2200	4	12	8	5	8	4	15	8
2300	7	4	3	4	6	3	10	5
07-19	401	252	248	329	358	366	379	333
06-22	463	310	297	394	418	431	477	399
06-00	474	326	308	403	432	438	502	412
00-00	485	333	318	412	440	450	508	421

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 02**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**EASTBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0900	0900	0900	0800	0800	0800	0800	0800
Vehicles	43	19	8	47	45	46	46	36
IP								
Time	1300	1400	1200	1400	1400	1400	1400	1400
Vehicles	32	27	33	34	35	36	40	34
PM								
Time	1600	1800	1800	1600	1700	1700	1700	1700
Vehicles	45	21	36	29	47	39	40	37

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 02** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **WESTBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	8	4	3	0	10	8	8	6
0100	0	5	3	0	0	1	0	1
0200	1	2	2	0	1	2	1	1
0300	1	0	1	1	1	0	1	1
0400	1	3	1	2	1	1	1	1
0500	5	1	0	5	3	2	2	3
0600	8	3	0	10	12	16	10	8
0700	27	9	0	30	21	27	25	20
0800	38	17	3	35	29	25	46	28
0900	48	22	8	33	43	49	40	35
1000	16	24	17	21	18	21	15	19
1100	19	32	18	19	17	17	17	20
1200	25	28	35	24	24	29	24	27
1300	30	37	40	25	25	22	19	28
1400	46	28	26	19	38	28	31	31
1500	70	15	33	32	38	41	55	41
1600	40	31	30	35	50	44	49	40
1700	50	27	30	59	64	54	54	48
1800	42	27	29	42	27	44	35	35
1900	22	19	20	22	24	29	31	24
2000	21	17	13	16	19	22	12	17
2100	12	19	12	13	8	12	23	14
2200	18	4	17	8	10	9	22	13
2300	4	6	6	1	3	5	5	4
07-19	451	297	269	374	394	401	410	371
06-22	514	355	314	435	457	480	486	434
06-00	536	365	337	444	470	494	513	451
00-00	552	380	347	452	486	508	526	464

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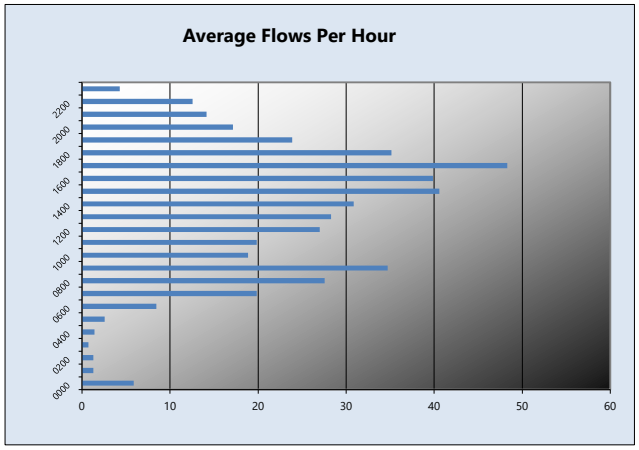
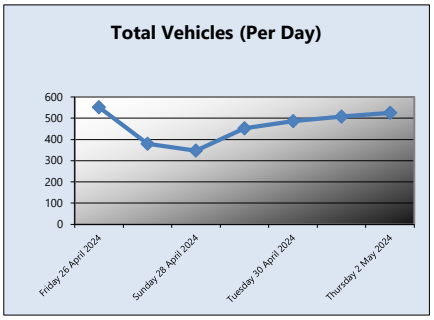
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 02**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**WESTBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0900	0900	0900	0800	0900	0900	0800	0900
Vehicles	48	22	48	35	43	49	46	42
IP								
Time	1400	1300	1300	1300	1400	1200	1400	1400
Vehicles	46	37	40	25	38	29	31	35
PM								
Time	1700	1600	1600	1700	1700	1700	1700	1700
Vehicles	50	31	30	59	64	54	54	49

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
EASTBOUND

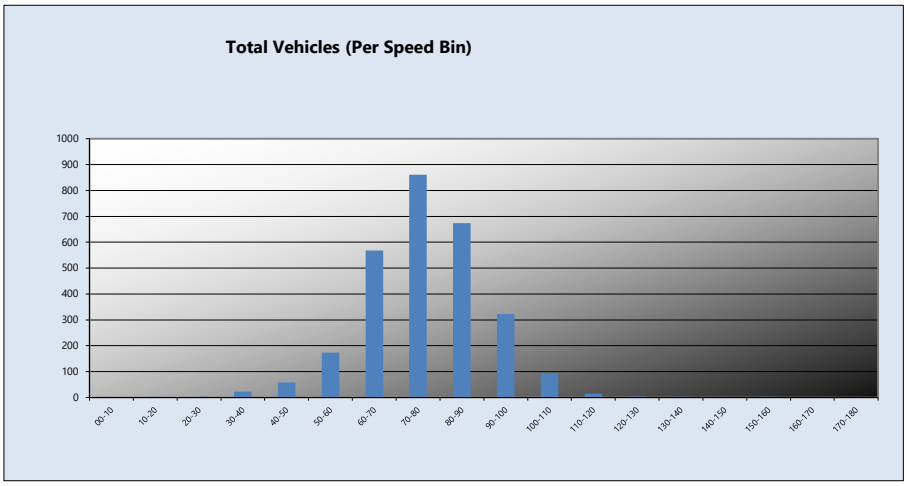
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 2801
Maximum = 159.7 km/h, Minimum = 11.4 km/h, Mean = 76.8 km/h
85% Speed = 90.36 km/h, 95% Speed = 98.27 km/h, Median = 76.95 km/h
20 km/h Pace = 68 - 88, Number in Pace = 1603 (57.23%)
Variance = 190.85, Standard Deviation = 13.81 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	2	0.1
20-30	2	0.1
30-40	23	0.8
40-50	58	2.1
50-60	174	6.2
60-70	568	20.3
70-80	861	30.7
80-90	674	24.1
90-100	322	11.5
100-110	93	3.3
110-120	15	0.5
120-130	4	0.1
130-140	2	0.1
140-150	1	0.0
150-160	2	0.1
160-170	0	0.0
170-180	0	0.0



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CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 02
WESTBOUND

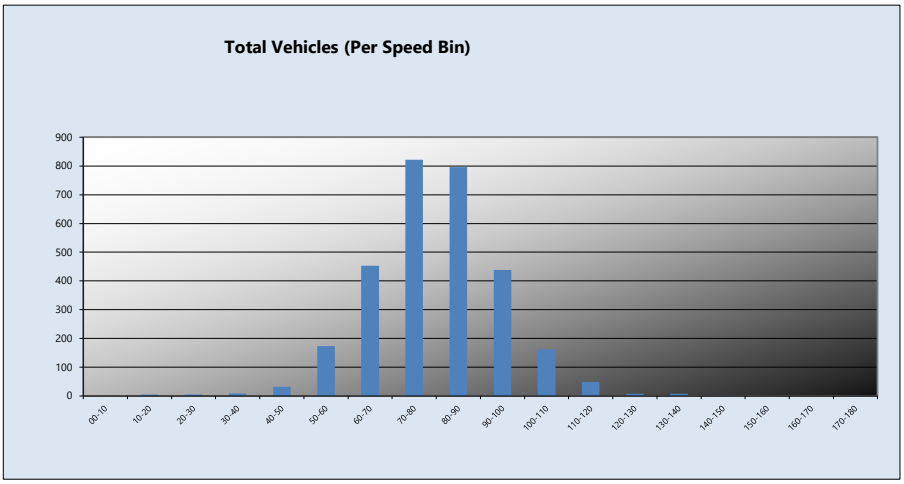
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 2961
Maximum = 170.2 km/h, Minimum = 10.5 km/h, Mean = 80.0 km/h
85% Speed = 94.38 km/h, 95% Speed = 103.32 km/h, Median = 79.74 km/h
20 km/h Pace = 70 - 90, Number in Pace = 1625 (54.88%)
Variance = 213.38, Standard Deviation = 14.61 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	5	0.2
20-30	5	0.2
30-40	9	0.3
40-50	32	1.1
50-60	173	5.8
60-70	453	15.3
70-80	821	27.7
80-90	796	26.9
90-100	438	14.8
100-110	163	5.5
110-120	49	1.7
120-130	8	0.3
130-140	7	0.2
140-150	1	0.0
150-160	0	0.0
160-170	0	0.0
170-180	1	0.0



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CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars

LGV** Light Goods Vehicles with the exception of LGV based on cars

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SUMMARY** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03

LOCATION: L1011 West of Kiernan's Cross - (Google Maps Ref: 53°45'47.4"N 7°45'11.5"W)

SPEED SURVEY SUMMARY:

EASTBOUND	85% Speed = 88.74 km/h, 95% Speed = 96.95 km/h, Median = 77.09 km/h	Maximum = 149.6 km/h, Minimum = 6.6 km/h, Mean = 76.6 km/h
WESTBOUND	85% Speed = 88.29 km/h, 95% Speed = 96.57 km/h, Median = 75.87 km/h	Maximum = 149.0 km/h, Minimum = 6.2 km/h, Mean = 75.4 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	No. Vehicles	7 day Mean
EASTBOUND	**07-19**	684	437	405	549	577	545	583	3780	540
WESTBOUND	**07-19**	715	501	406	562	573	583	619	3959	566
EASTBOUND	**00-00**	821	574	522	685	728	694	768	4792	685
WESTBOUND	**00-00**	858	618	513	676	723	746	774	4908	701

PEAK FLOW SUMMARY:

Peak	AM	IP	PM
Most Frequent Peak Hour	0800	1400	1700
Average Vehicles per Peak Hour	53	50	68

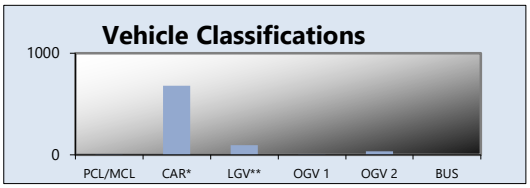
TRAFFINOMICS LIMITED

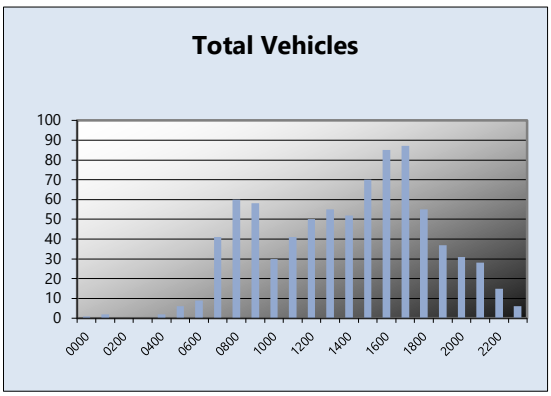
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	1	0	0	0	0	1	1
0100	0	2	0	0	0	0	2	2
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	1	0	1	0	2	3
0500	0	3	0	0	3	0	6	10
0600	1	7	1	0	0	0	9	8
0700	0	32	6	1	2	0	41	44
0800	0	48	6	1	5	0	60	67
0900	0	48	8	0	2	0	58	61
1000	0	24	4	0	2	0	30	33
1100	0	33	5	0	3	0	41	45
1200	0	36	11	0	3	0	50	54
1300	0	46	8	1	0	0	55	56
1400	0	43	6	1	2	0	52	55
1500	0	55	11	0	4	0	70	75
1600	0	74	8	0	3	0	85	89
1700	0	74	11	0	2	0	87	90
1800	0	51	3	0	1	0	55	56
1900	0	32	2	1	2	0	37	40
2000	1	27	2	0	1	0	31	32
2100	0	27	1	0	0	0	28	28
2200	0	12	2	0	1	0	15	16
2300	0	5	1	0	0	0	6	6
07-19	0	564	87	4	29	0	684	724
06-22	2	657	93	5	32	0	789	832
06-00	2	674	96	5	33	0	810	854
00-00	2	680	97	5	37	0	821	870

Peaks	Time	Vehicles	PCU's
AM	0800	60	67
IP	1300	55	55.5
PM	1700	87	89.6





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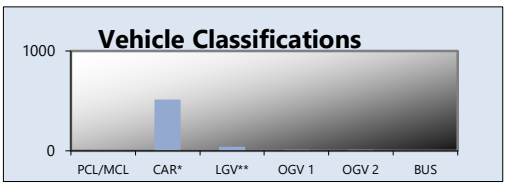
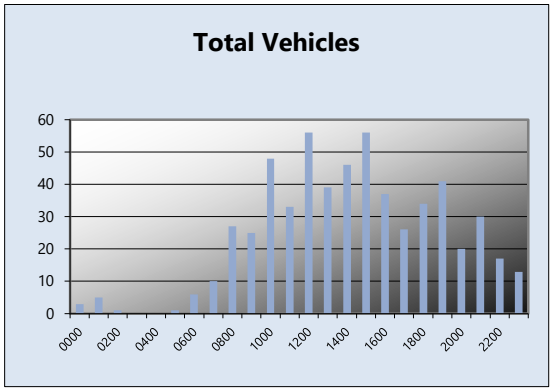
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	5	0	0	0	0	5	5
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	1	0	0	0	0	1	1
0600	0	5	1	0	0	0	6	6
0700	0	9	0	1	0	0	10	11
0800	0	22	4	0	1	0	27	28
0900	0	21	3	0	1	0	25	26
1000	0	41	3	2	2	0	48	52
1100	1	28	2	1	1	0	33	34
1200	2	50	3	1	0	0	56	55
1300	0	37	2	0	0	0	39	39
1400	0	38	8	0	0	0	46	46
1500	0	47	6	2	1	0	56	58
1600	0	35	1	0	1	0	37	38
1700	0	25	1	0	0	0	26	26
1800	0	30	3	0	1	0	34	35
1900	1	37	2	1	0	0	41	41
2000	0	19	0	1	0	0	20	21
2100	0	27	3	0	0	0	30	30
2200	0	17	0	0	0	0	17	17
2300	0	13	0	0	0	0	13	13
07-19	3	383	36	7	8	0	437	449
06-22	4	471	42	9	8	0	534	546
06-00	4	501	42	9	8	0	564	576
00-00	4	511	42	9	8	0	574	586

Peaks	Time	Vehicles	PCU's
AM	0800	27	28.3
IP	1200	56	54.9
PM	1600	37	38.3





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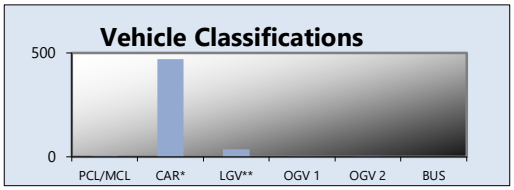
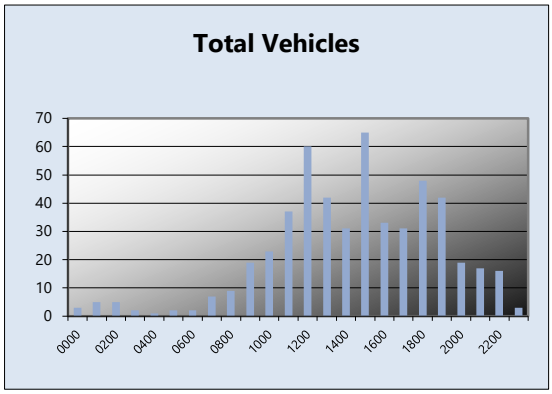
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	5	0	0	0	0	5	5
0200	0	5	0	0	0	0	5	5
0300	0	2	0	0	0	0	2	2
0400	0	0	1	0	0	0	1	1
0500	0	0	2	0	0	0	2	2
0600	0	2	0	0	0	0	2	2
0700	0	6	1	0	0	0	7	7
0800	2	4	3	0	0	0	9	7
0900	1	18	0	0	0	0	19	18
1000	0	16	5	0	2	0	23	26
1100	1	34	2	0	0	0	37	36
1200	1	56	2	0	1	0	60	61
1300	0	38	4	0	0	0	42	42
1400	0	31	0	0	0	0	31	31
1500	0	62	3	0	0	0	65	65
1600	2	28	3	0	0	0	33	31
1700	0	30	0	0	1	0	31	32
1800	1	40	5	2	0	0	48	48
1900	1	40	1	0	0	0	42	41
2000	0	17	2	0	0	0	19	19
2100	0	17	0	0	0	0	17	17
2200	0	14	2	0	0	0	16	16
2300	0	3	0	0	0	0	3	3
07-19	8	363	28	2	4	0	405	405
06-22	9	439	31	2	4	0	485	484
06-00	9	456	33	2	4	0	504	503
00-00	9	471	36	2	4	0	522	521

Peaks	Time	Vehicles	PCU's
AM	0900	19	18.2
IP	1200	60	60.5
PM	1800	48	48.2





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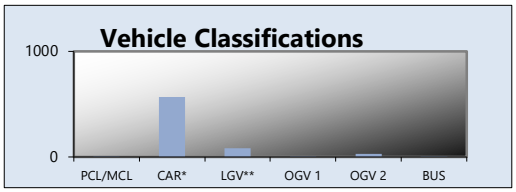
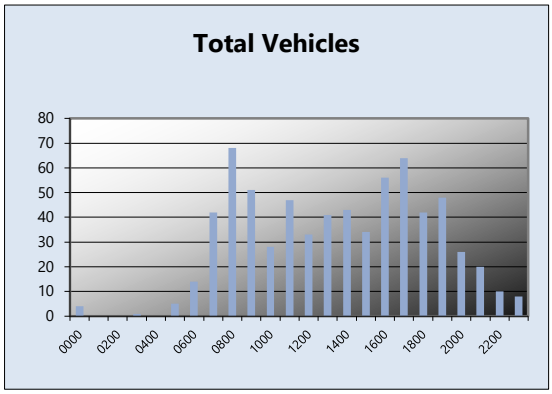
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	4	0	0	0	0	4	4
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	1	0	0	0	0	1	1
0400	0	0	0	0	0	0	0	0
0500	0	2	1	0	2	0	5	8
0600	0	8	4	0	2	0	14	17
0700	0	32	10	0	0	0	42	42
0800	0	52	7	1	7	1	68	79
0900	0	36	12	0	3	0	51	55
1000	0	23	3	0	2	0	28	31
1100	0	38	8	0	1	0	47	48
1200	0	27	5	1	0	0	33	34
1300	0	34	4	1	2	0	41	44
1400	1	37	4	0	1	0	43	44
1500	0	25	5	1	3	0	34	38
1600	0	52	4	0	0	0	56	56
1700	0	57	5	0	2	0	64	67
1800	0	38	4	0	0	0	42	42
1900	1	44	3	0	0	0	48	47
2000	0	23	1	1	1	0	26	28
2100	0	19	0	0	1	0	20	21
2200	0	9	1	0	0	0	10	10
2300	0	8	0	0	0	0	8	8
07-19	1	451	71	4	21	1	549	579
06-22	2	545	79	5	25	1	657	691
06-00	2	562	80	5	25	1	675	709
00-00	2	569	81	5	27	1	685	722

Peaks	Time	Vehicles	PCU's
AM	0800	68	78.6
IP	1400	43	44.1
PM	1700	64	66.6





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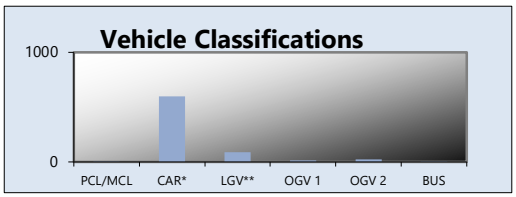
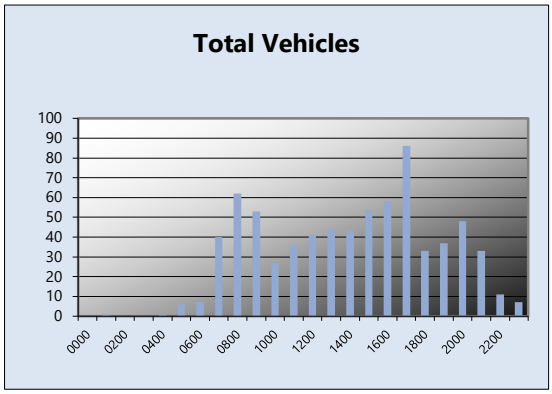
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	0	0	0	0	0	0	0
0100	0	1	0	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	1	0	1	2
0500	0	4	1	0	1	0	6	7
0600	0	6	1	0	0	0	7	7
0700	0	30	7	2	1	0	40	42
0800	0	43	8	1	9	1	62	75
0900	0	48	5	0	0	0	53	53
1000	0	21	4	1	1	0	27	29
1100	0	30	3	0	2	1	36	40
1200	0	35	4	1	1	0	41	43
1300	0	37	4	2	1	0	44	46
1400	1	33	7	2	0	0	43	43
1500	0	42	9	0	3	0	54	58
1600	1	45	10	1	1	0	58	59
1700	0	74	10	1	1	0	86	88
1800	0	29	3	1	0	0	33	34
1900	0	32	4	0	1	0	37	38
2000	0	43	4	0	1	0	48	49
2100	0	28	4	0	1	0	33	34
2200	0	10	1	0	0	0	11	11
2300	0	6	0	1	0	0	7	8
07-19	2	467	74	12	20	2	577	609
06-22	2	576	87	12	23	2	702	738
06-00	2	592	88	13	23	2	720	757
00-00	2	597	89	13	25	2	728	767

Peaks	Time	Vehicles	PCU's
AM	0800	62	75.2
IP	1300	44	46.3
PM	1700	86	87.8





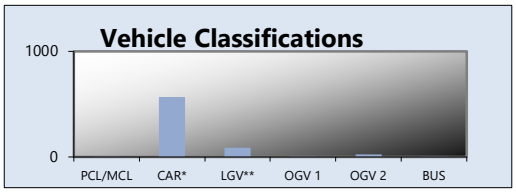
TRAFFINOMICS LIMITED

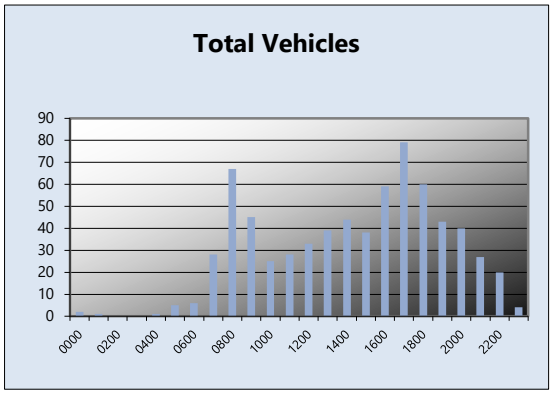
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	0	0	0	0	2	2
0100	0	1	0	0	0	0	1	1
0200	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	1	0	1	2
0500	0	2	0	0	3	0	5	9
0600	0	5	0	0	1	0	6	7
0700	0	24	4	0	0	0	28	28
0800	0	52	9	3	3	0	67	72
0900	0	37	6	0	2	0	45	48
1000	0	19	4	1	1	0	25	27
1100	0	19	8	0	1	0	28	29
1200	0	26	7	0	0	0	33	33
1300	0	31	5	1	2	0	39	42
1400	0	38	5	0	1	0	44	45
1500	0	27	10	0	1	0	38	39
1600	1	44	9	1	3	1	59	64
1700	0	68	9	0	2	0	79	82
1800	1	53	6	0	0	0	60	59
1900	0	38	3	1	1	0	43	45
2000	2	36	2	0	0	0	40	38
2100	1	24	1	0	1	0	27	28
2200	1	18	1	0	0	0	20	19
2300	0	4	0	0	0	0	4	4
07-19	2	438	82	6	16	1	545	568
06-22	5	541	88	7	19	1	661	686
06-00	6	563	89	7	19	1	685	709
00-00	6	568	89	7	23	1	694	724

Peaks	Time	Vehicles	PCU's
AM	0800	67	72.4
IP	1400	44	45.3
PM	1700	79	81.6

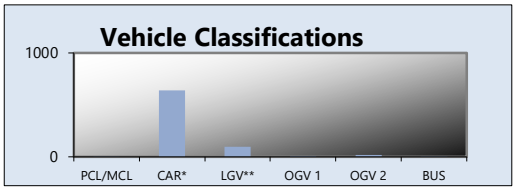


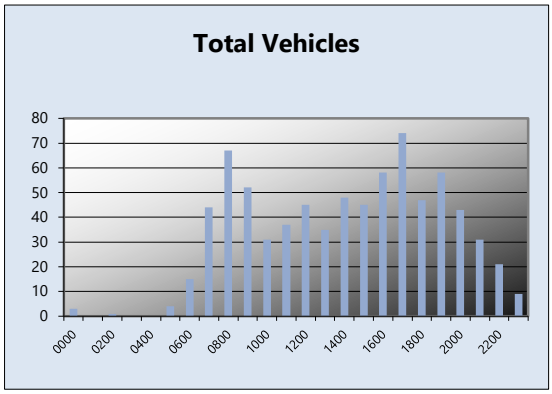


SITE 03
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	3	0	0	0	0	3	3
0100	0	0	0	0	0	0	0	0
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0
0500	0	2	0	0	2	0	4	7
0600	0	10	4	0	1	0	15	16
0700	0	29	11	1	3	0	44	48
0800	0	54	6	3	4	0	67	74
0900	0	48	4	0	0	0	52	52
1000	0	23	7	0	1	0	31	32
1100	0	30	7	0	0	0	37	37
1200	1	32	11	1	0	0	45	45
1300	0	30	3	1	1	0	35	37
1400	1	40	7	0	0	0	48	47
1500	0	38	6	0	1	0	45	46
1600	0	50	4	0	3	1	58	63
1700	2	61	10	1	0	0	74	73
1800	0	40	7	0	0	0	47	47
1900	0	52	4	0	2	0	58	61
2000	1	41	1	0	0	0	43	42
2100	0	28	2	0	1	0	31	32
2200	0	20	1	0	0	0	21	21
2300	0	8	0	0	0	1	9	10
07-19	4	475	83	7	13	1	583	601
06-22	5	606	94	7	17	1	730	753
06-00	5	634	95	7	17	2	760	784
00-00	5	640	95	7	19	2	768	794

Peaks	Time	Vehicles	PCU's
AM	0800	67	73.7
IP	1400	48	47.2
PM	1700	74	72.9





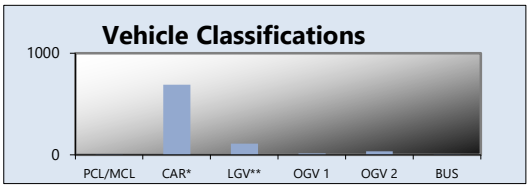
TRAFFINOMICS LIMITED

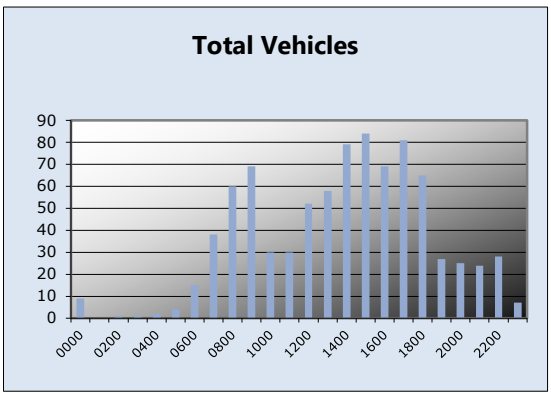
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	2	6	1	0	0	0	9	7
0100	0	0	0	0	0	0	0	0
0200	0	0	0	1	0	0	1	2
0300	0	1	0	0	0	0	1	1
0400	0	2	0	0	0	0	2	2
0500	0	2	0	0	2	0	4	7
0600	0	14	1	0	0	0	15	15
0700	0	28	9	0	1	0	38	39
0800	0	50	7	0	3	0	60	64
0900	0	54	9	1	4	1	69	76
1000	0	24	5	0	1	0	30	31
1100	0	18	9	0	3	0	30	34
1200	0	40	7	3	2	0	52	56
1300	1	47	6	1	3	0	58	62
1400	0	60	13	2	4	0	79	85
1500	0	59	12	4	9	0	84	98
1600	0	56	10	0	3	0	69	73
1700	0	75	6	0	0	0	81	81
1800	0	53	10	2	0	0	65	66
1900	0	24	3	0	0	0	27	27
2000	0	22	3	0	0	0	25	25
2100	1	22	0	0	1	0	24	25
2200	0	27	1	0	0	0	28	28
2300	0	7	0	0	0	0	7	7
07-19	1	564	103	13	33	1	715	765
06-22	2	646	110	13	34	1	806	856
06-00	2	680	111	13	34	1	841	891
00-00	4	691	112	14	36	1	858	910

Peaks	Time	Vehicles	PCU's
AM	0900	69	75.7
IP	1400	79	85.2
PM	1700	81	81





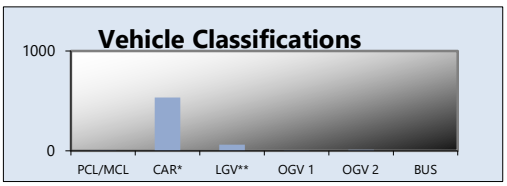
TRAFFINOMICS LIMITED

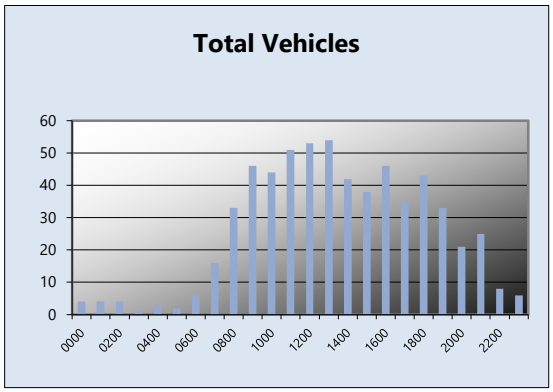
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	4	0	0	0	0	4	4
0100	0	4	0	0	0	0	4	4
0200	0	4	0	0	0	0	4	4
0300	0	1	0	0	0	0	1	1
0400	0	3	0	0	0	0	3	3
0500	0	2	0	0	0	0	2	2
0600	0	6	0	0	0	0	6	6
0700	0	13	2	0	1	0	16	17
0800	0	27	3	1	2	0	33	36
0900	1	43	2	0	0	0	46	45
1000	0	37	6	0	1	0	44	45
1100	0	44	6	1	0	0	51	52
1200	0	46	6	0	1	0	53	54
1300	3	42	7	1	1	0	54	53
1400	0	35	6	0	1	0	42	43
1500	0	30	7	0	1	0	38	39
1600	0	40	4	2	0	0	46	47
1700	0	29	3	2	1	0	35	37
1800	0	40	2	0	1	0	43	44
1900	1	29	3	0	0	0	33	32
2000	0	19	2	0	0	0	21	21
2100	0	25	0	0	0	0	25	25
2200	0	7	1	0	0	0	8	8
2300	0	5	1	0	0	0	6	6
07-19	4	426	54	7	10	0	501	514
06-22	5	505	59	7	10	0	586	599
06-00	5	517	61	7	10	0	600	613
00-00	5	535	61	7	10	0	618	631

Peaks	Time	Vehicles	PCU's
AM	0900	46	45.2
IP	1300	54	54.3
PM	1600	46	47





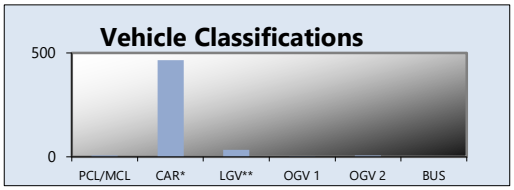
TRAFFINOMICS LIMITED

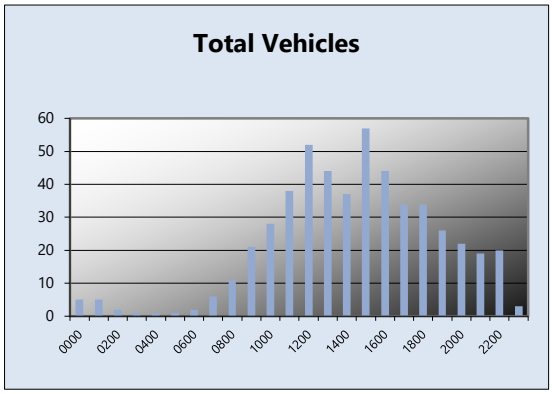
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	5	0	0	0	0	5	5
0100	0	4	1	0	0	0	5	5
0200	0	2	0	0	0	0	2	2
0300	0	1	0	0	0	0	1	1
0400	0	1	0	0	0	0	1	1
0500	0	0	1	0	0	0	1	1
0600	0	2	0	0	0	0	2	2
0700	0	6	0	0	0	0	6	6
0800	0	11	0	0	0	0	11	11
0900	1	19	1	0	0	0	21	20
1000	3	25	0	0	0	0	28	26
1100	0	37	1	0	0	0	38	38
1200	0	48	4	0	0	0	52	52
1300	1	41	1	1	0	0	44	44
1400	0	36	1	0	0	0	37	37
1500	0	54	2	0	1	0	57	58
1600	0	37	6	0	1	0	44	45
1700	0	30	3	0	1	0	34	35
1800	0	30	3	0	1	0	34	35
1900	1	21	1	1	2	0	26	28
2000	1	18	3	0	0	0	22	21
2100	0	18	1	0	0	0	19	19
2200	0	16	4	0	0	0	20	20
2300	0	2	0	0	1	0	3	4
07-19	5	374	22	1	4	0	406	408
06-22	7	433	27	2	6	0	475	478
06-00	7	451	31	2	7	0	498	503
00-00	7	464	33	2	7	0	513	518

Peaks	Time	Vehicles	PCU's
AM	0900	21	20.2
IP	1200	52	52
PM	1600	44	45.3





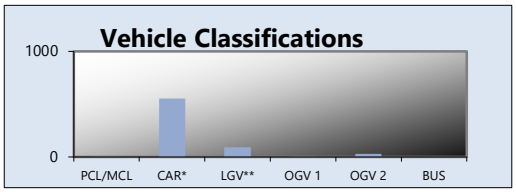
TRAFFINOMICS LIMITED

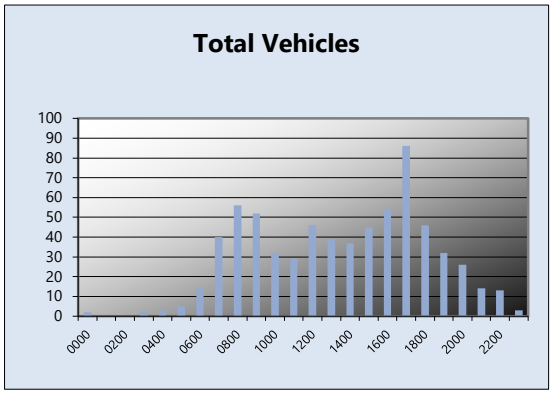
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	2	0	0	0	0	2	2
0100	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0
0300	0	1	1	0	0	0	2	2
0400	0	3	0	0	0	0	3	3
0500	0	1	1	0	3	0	5	9
0600	0	10	3	0	1	0	14	15
0700	0	30	8	0	2	0	40	43
0800	0	48	5	0	3	0	56	60
0900	0	43	5	0	4	0	52	57
1000	0	24	6	1	1	0	32	34
1100	0	23	3	1	2	0	29	32
1200	0	37	9	0	0	0	46	46
1300	0	33	4	0	2	0	39	42
1400	0	28	8	0	1	0	37	38
1500	0	33	10	1	1	0	45	47
1600	1	40	11	0	2	0	54	56
1700	0	74	11	0	1	0	86	87
1800	0	41	2	1	2	0	46	49
1900	0	28	2	1	1	0	32	34
2000	0	25	1	0	0	0	26	26
2100	0	13	1	0	0	0	14	14
2200	0	13	0	0	0	0	13	13
2300	0	2	0	0	1	0	3	4
07-19	1	454	82	4	21	0	562	591
06-22	1	530	89	5	23	0	648	680
06-00	1	545	89	5	24	0	664	697
00-00	1	552	91	5	27	0	676	713

Peaks	Time	Vehicles	PCU's
AM	0800	56	59.9
IP	1200	46	46
PM	1700	86	87.3





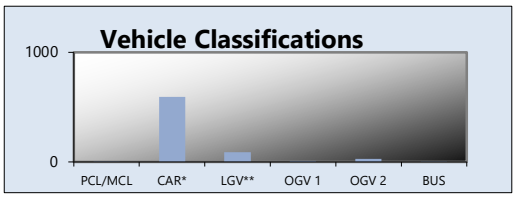
TRAFFINOMICS LIMITED

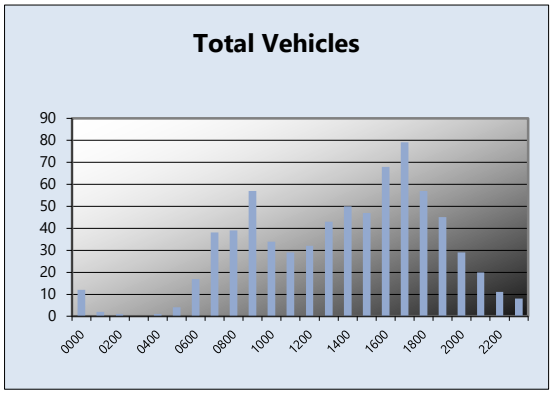
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	1	9	2	0	0	0	12	11
0100	0	2	0	0	0	0	2	2
0200	0	1	0	0	0	0	1	1
0300	0	0	0	0	0	0	0	0
0400	0	1	0	0	0	0	1	1
0500	0	2	1	1	0	0	4	5
0600	0	13	3	0	1	0	17	18
0700	0	29	7	1	1	0	38	40
0800	0	37	1	0	1	0	39	40
0900	0	50	3	1	3	0	57	61
1000	0	27	6	0	1	0	34	35
1100	0	20	8	0	1	0	29	30
1200	0	27	2	0	2	1	32	36
1300	0	33	7	1	2	0	43	46
1400	0	40	9	0	1	0	50	51
1500	0	34	9	1	3	0	47	51
1600	0	51	11	2	4	0	68	74
1700	0	65	10	0	4	0	79	84
1800	0	48	4	1	4	0	57	63
1900	0	43	2	0	0	0	45	45
2000	0	26	2	0	1	0	29	30
2100	0	19	1	0	0	0	20	20
2200	0	10	1	0	0	0	11	11
2300	0	6	1	0	1	0	8	9
07-19	0	461	77	7	27	1	573	613
06-22	0	562	85	7	29	1	684	726
06-00	0	578	87	7	30	1	703	747
00-00	1	593	90	8	30	1	723	766

Peaks	Time	Vehicles	PCU's
AM	0900	57	61.4
IP	1400	50	51.3
PM	1700	79	84.2





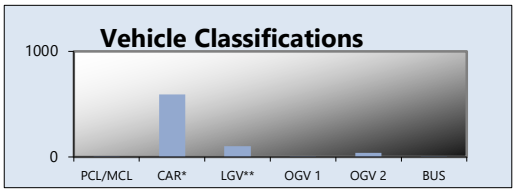
TRAFFINOMICS LIMITED

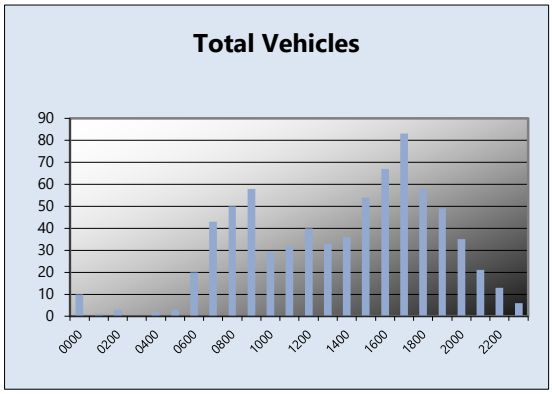
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	1	8	1	0	0	0	10	9
0100	0	1	0	0	0	0	1	1
0200	0	2	1	0	0	0	3	3
0300	0	0	0	0	0	0	0	0
0400	0	2	0	0	0	0	2	2
0500	0	0	1	0	2	0	3	6
0600	0	12	5	1	2	0	20	23
0700	0	33	10	0	0	0	43	43
0800	0	39	6	0	5	0	50	57
0900	0	48	6	1	3	0	58	62
1000	0	21	6	0	2	0	29	32
1100	0	24	6	1	1	0	32	34
1200	0	31	8	0	1	0	40	41
1300	1	25	5	0	2	0	33	35
1400	0	28	6	0	2	0	36	39
1500	0	41	7	1	4	1	54	61
1600	0	49	13	3	2	0	67	71
1700	2	65	9	0	7	0	83	91
1800	1	51	6	0	0	0	58	57
1900	1	43	2	0	3	0	49	52
2000	0	34	1	0	0	0	35	35
2100	0	19	2	0	0	0	21	21
2200	0	11	2	0	0	0	13	13
2300	0	5	0	0	1	0	6	7
07-19	4	455	88	6	29	1	583	622
06-22	5	563	98	7	34	1	708	753
06-00	5	579	100	7	35	1	727	773
00-00	6	592	103	7	37	1	746	794

Peaks	Time	Vehicles	PCU's
AM	0900	58	62.4
IP	1200	40	41.3
PM	1700	83	90.5





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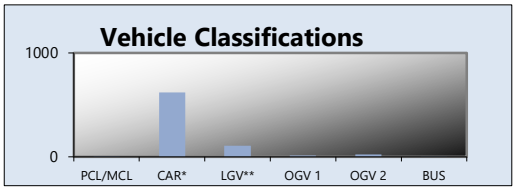
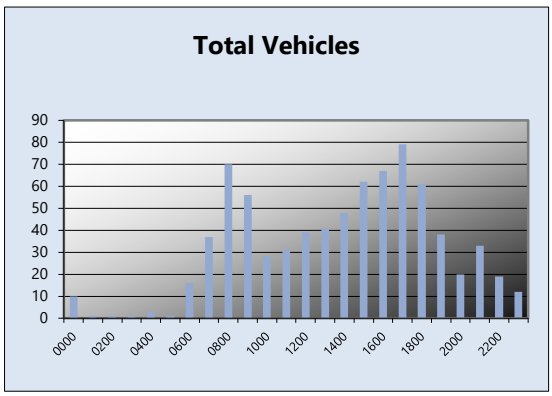
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	1	8	1	0	0	0	10	9
0100	0	1	0	0	0	0	1	1
0200	0	0	1	0	0	0	1	1
0300	0	0	1	0	0	0	1	1
0400	0	3	0	0	0	0	3	3
0500	0	1	0	0	0	0	1	1
0600	0	13	2	0	1	0	16	17
0700	0	30	7	0	0	0	37	37
0800	0	52	13	2	2	1	70	75
0900	0	45	8	1	2	0	56	59
1000	0	23	4	0	0	1	28	29
1100	0	23	8	0	0	0	31	31
1200	0	30	7	1	1	0	39	41
1300	0	32	9	0	0	0	41	41
1400	0	38	8	1	0	1	48	50
1500	0	50	7	1	4	0	62	68
1600	1	46	11	1	7	1	67	77
1700	0	61	10	4	3	1	79	86
1800	0	55	4	1	1	0	61	63
1900	0	35	2	0	1	0	38	39
2000	0	17	3	0	0	0	20	20
2100	0	31	1	0	1	0	33	34
2200	0	18	1	0	0	0	19	19
2300	0	10	1	0	1	0	12	13
07-19	1	485	96	12	20	5	619	655
06-22	1	581	104	12	23	5	726	766
06-00	1	609	106	12	24	5	757	798
00-00	2	622	109	12	24	5	774	815

Peaks	Time	Vehicles	PCU's
AM	0800	70	74.6
IP	1400	48	49.5
PM	1700	79	85.9





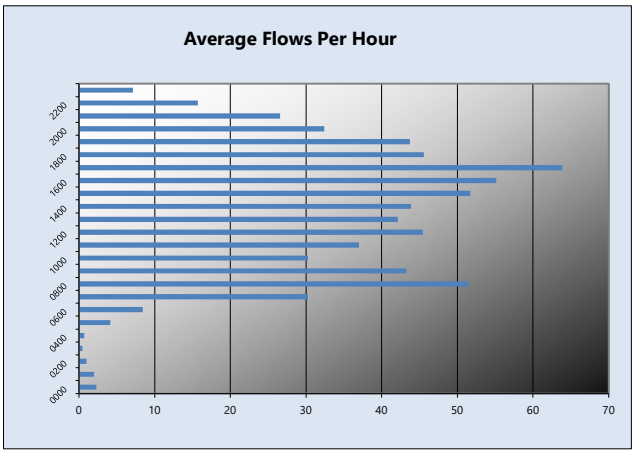
TRAFFINOMICS LIMITED

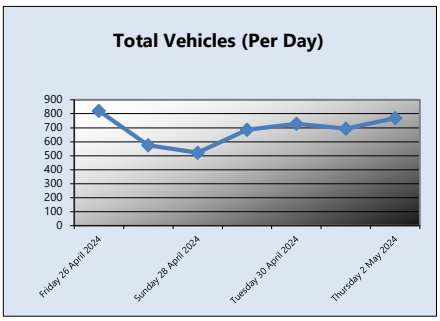
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 03** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **EASTBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	1	3	3	4	0	2	3	2
0100	2	5	5	0	1	1	0	2
0200	0	1	5	0	0	0	1	1
0300	0	0	2	1	0	0	0	0
0400	2	0	1	0	1	1	0	1
0500	6	1	2	5	6	5	4	4
0600	9	6	2	14	7	6	15	8
0700	41	10	7	42	40	28	44	30
0800	60	27	9	68	62	67	67	51
0900	58	25	19	51	53	45	52	43
1000	30	48	23	28	27	25	31	30
1100	41	33	37	47	36	28	37	37
1200	50	56	60	33	41	33	45	45
1300	55	39	42	41	44	39	35	42
1400	52	46	31	43	43	44	48	44
1500	70	56	65	34	54	38	45	52
1600	85	37	33	56	58	59	58	55
1700	87	26	31	64	86	79	74	64
1800	55	34	48	42	33	60	47	46
1900	37	41	42	48	37	43	58	44
2000	31	20	19	26	48	40	43	32
2100	28	30	17	20	33	27	31	27
2200	15	17	16	10	11	20	21	16
2300	6	13	3	8	7	4	9	7
07-19	684	437	405	549	577	545	583	540
06-22	789	534	485	657	702	661	730	651
06-00	810	564	504	675	720	685	760	674
00-00	821	574	522	685	728	694	768	685

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 03**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**EASTBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0800	0800	0900	0800	0800	0800	0800	0800
Vehicles	60	27	19	68	62	67	67	53
IP								
Time	1300	1200	1200	1400	1300	1400	1400	1400
Vehicles	55	56	60	43	44	44	48	50
PM								
Time	1700	1600	1800	1700	1700	1700	1700	1700
Vehicles	87	37	48	64	86	79	74	68

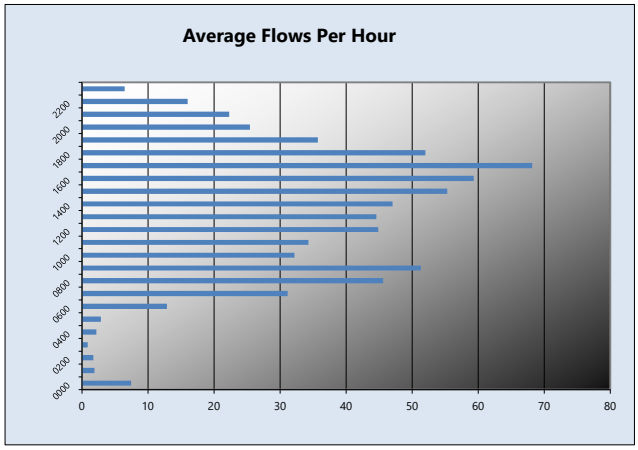
TRAFFINOMICS LIMITED

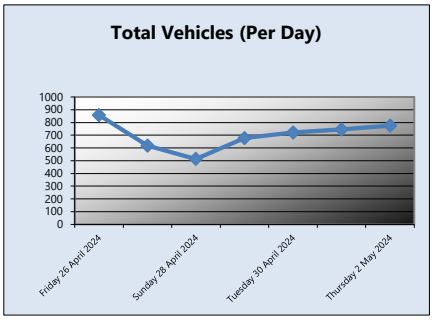
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 03** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **WESTBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	9	4	5	2	12	10	10	7
0100	0	4	5	0	2	1	1	2
0200	1	4	2	0	1	3	1	2
0300	1	1	1	2	0	0	1	1
0400	2	3	1	3	1	2	3	2
0500	4	2	1	5	4	3	1	3
0600	15	6	2	14	17	20	16	13
0700	38	16	6	40	38	43	37	31
0800	60	33	11	56	39	50	70	46
0900	69	46	21	52	57	58	56	51
1000	30	44	28	32	34	29	28	32
1100	30	51	38	29	29	32	31	34
1200	52	53	52	46	32	40	39	45
1300	58	54	44	39	43	33	41	45
1400	79	42	37	37	50	36	48	47
1500	84	38	57	45	47	54	62	55
1600	69	46	44	54	68	67	67	59
1700	81	35	34	86	79	83	79	68
1800	65	43	34	46	57	58	61	52
1900	27	33	26	32	45	49	38	36
2000	25	21	22	26	29	35	20	25
2100	24	25	19	14	20	21	33	22
2200	28	8	20	13	11	13	19	16
2300	7	6	3	3	8	6	12	6
07-19	715	501	406	562	573	583	619	566
06-22	806	586	475	648	684	708	726	662
06-00	841	600	498	664	703	727	757	684
00-00	858	618	513	676	723	746	774	701

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 03**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**WESTBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0900	0900	0900	0800	0900	0900	0800	0900
Vehicles	69	46	69	56	57	58	70	61
IP								
Time	1400	1300	1200	1200	1400	1200	1400	1400
Vehicles	79	54	52	46	50	40	48	53
PM								
Time	1700	1600	1600	1700	1700	1700	1700	1700
Vehicles	81	46	44	86	79	83	79	71

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
EASTBOUND

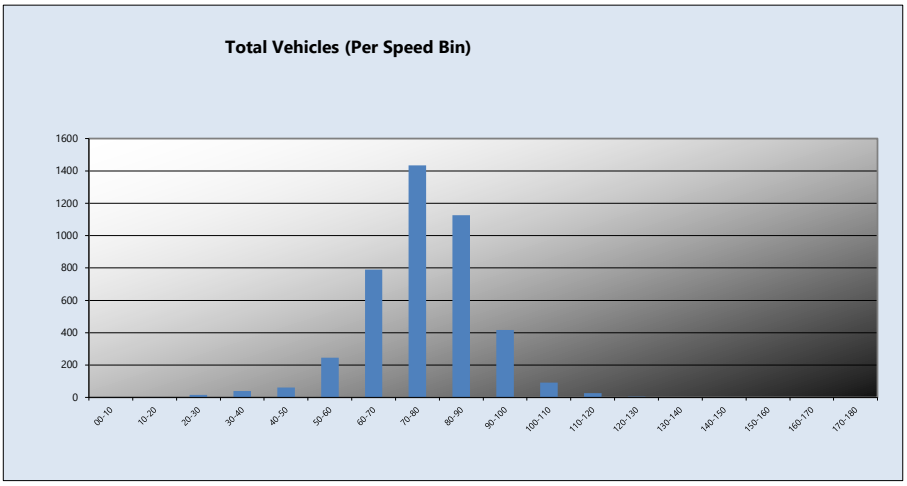
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 4254
Maximum = 149.6 km/h, Minimum = 6.6 km/h, Mean = 76.6 km/h
85% Speed = 88.74 km/h, 95% Speed = 96.95 km/h, Median = 77.09 km/h
20 km/h Pace = 68 - 88, Number in Pace = 2595 (61.00%)
Variance = 170.76, Standard Deviation = 13.07 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	1	0.0
10-20	2	0.0
20-30	15	0.4
30-40	39	0.9
40-50	60	1.4
50-60	246	5.8
60-70	790	18.6
70-80	1435	33.7
80-90	1126	26.5
90-100	416	9.8
100-110	92	2.2
110-120	27	0.6
120-130	4	0.1
130-140	0	0.0
140-150	1	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



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CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 03
WESTBOUND

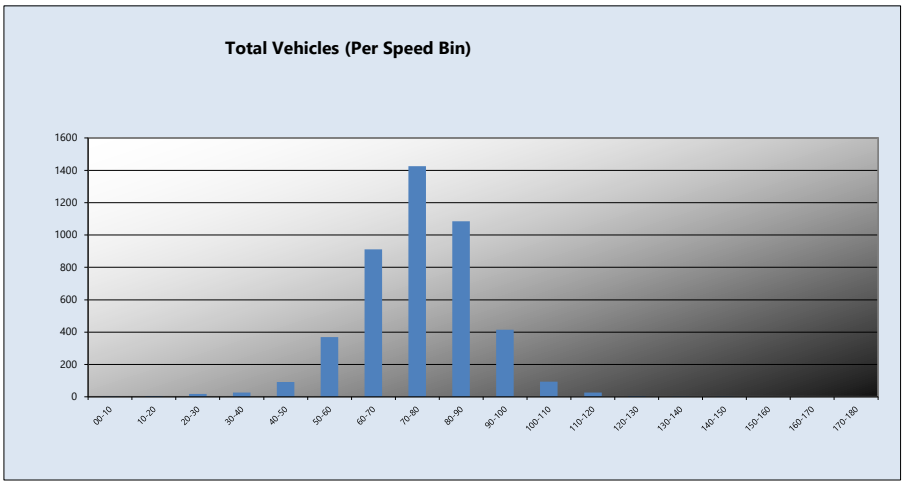
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 4476
Maximum = 149.0 km/h, Minimum = 6.2 km/h, Mean = 75.4 km/h
85% Speed = 88.29 km/h, 95% Speed = 96.57 km/h, Median = 75.87 km/h
20 km/h Pace = 66 - 86, Number in Pace = 2592 (57.91%)
Variance = 183.74, Standard Deviation = 13.55 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	1	0.0
10-20	5	0.1
20-30	17	0.4
30-40	27	0.6
40-50	92	2.1
50-60	368	8.2
60-70	912	20.4
70-80	1426	31.9
80-90	1084	24.2
90-100	415	9.3
100-110	93	2.1
110-120	27	0.6
120-130	5	0.1
130-140	2	0.0
140-150	2	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



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CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars

LGV** Light Goods Vehicles with the exception of LGV based on cars

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SUMMARY** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04

LOCATION: R198 West of Carriglass Roundabout - (Google Maps Ref: 53°44'39.5"N 7°45'22.0"W)

SPEED SURVEY SUMMARY:

EASTBOUND	85% Speed = 84.06 km/h, 95% Speed = 91.71 km/h, Median = 72.99 km/h	Maximum = 130.3 km/h, Minimum = 11.4 km/h, Mean = 73.1 km/h
WESTBOUND	85% Speed = 75.24 km/h, 95% Speed = 80.64 km/h, Median = 66.60 km/h	Maximum = 124.5 km/h, Minimum = 16.5 km/h, Mean = 66.6 km/h

VOLUMETRIC VEHICLE COUNTS:

Direction	Time	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	No. Vehicles	7 day Mean
EASTBOUND	**07-19**	2277	1709	1533	2092	2077	2038	2215	13941	1992
WESTBOUND	**07-19**	2332	1800	1608	2202	2169	2187	2313	14611	2087
EASTBOUND	**00-00**	2891	2158	1994	2563	2497	2591	2755	17449	2493
WESTBOUND	**00-00**	2904	2192	1916	2613	2550	2596	2741	17512	2502

PEAK FLOW SUMMARY:

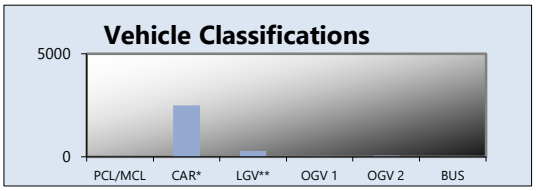
Peak	AM	IP	PM
Most Frequent Peak Hour	0800	1400	1700
Average Vehicles per Peak Hour	120	201	267

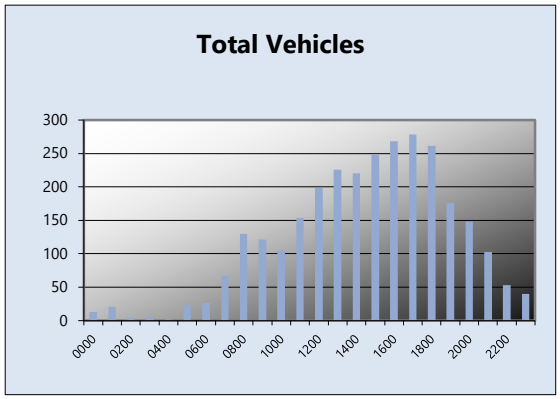
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	10	1	0	2	0	13	16
0100	1	18	0	1	1	0	21	22
0200	0	2	2	0	0	0	4	4
0300	0	3	0	0	1	0	4	5
0400	0	1	1	0	0	0	2	2
0500	0	17	6	0	0	0	23	23
0600	0	23	3	0	1	0	27	28
0700	0	54	7	2	4	0	67	73
0800	0	105	17	4	3	1	130	137
0900	0	92	20	1	7	1	121	132
1000	0	84	18	1	2	0	105	108
1100	1	125	21	1	5	1	154	161
1200	1	166	22	2	8	0	199	210
1300	0	198	22	2	3	1	226	232
1400	1	181	25	5	7	1	220	232
1500	0	215	20	2	11	0	248	263
1600	2	239	24	1	2	0	268	270
1700	0	242	31	2	3	0	278	283
1800	1	243	15	1	1	0	261	262
1900	0	162	13	0	1	0	176	177
2000	2	134	8	1	2	1	148	151
2100	0	98	3	1	1	0	103	105
2200	0	48	5	0	0	0	53	53
2300	0	33	6	1	0	0	40	41
07-19	6	1944	242	24	56	5	2277	2362
06-22	8	2361	269	26	61	6	2731	2823
06-00	8	2442	280	27	61	6	2824	2916
00-00	9	2493	290	28	65	6	2891	2988

Peaks	Time	Vehicles	PCU's
AM	0800	130	136.9
IP	1300	226	231.9
PM	1700	278	282.9





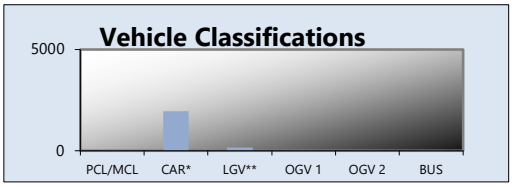
Traffinomics Limited for
Stephen Reid Consulting

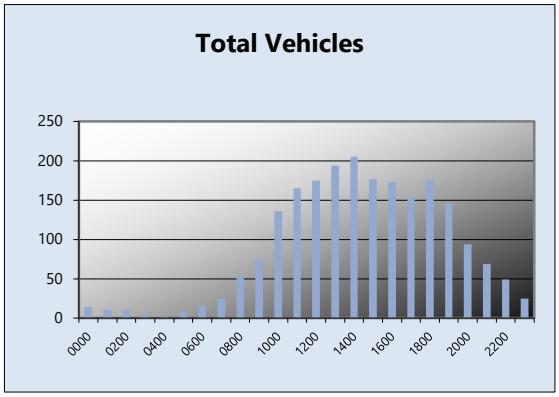
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	13	0	0	0	1	14	15
0100	1	8	1	0	0	0	10	9
0200	0	11	0	0	0	0	11	11
0300	0	3	1	0	1	0	5	6
0400	0	2	0	0	0	0	2	2
0500	0	7	1	0	0	0	8	8
0600	0	15	1	0	0	0	16	16
0700	0	19	6	0	0	0	25	25
0800	0	46	7	1	0	0	54	55
0900	0	66	8	1	0	0	75	76
1000	0	122	13	0	1	0	136	137
1100	1	152	9	1	2	0	165	167
1200	1	155	17	1	1	0	175	176
1300	1	176	17	0	0	0	194	193
1400	1	186	16	0	2	0	205	207
1500	1	158	17	0	1	0	177	178
1600	1	158	10	2	2	0	173	176
1700	1	140	13	0	0	0	154	153
1800	1	164	9	1	1	0	176	177
1900	1	140	5	0	0	0	146	145
2000	0	85	8	1	0	0	94	95
2100	0	63	4	1	1	0	69	71
2200	0	47	2	0	0	0	49	49
2300	0	22	2	1	0	0	25	26
07-19	8	1542	142	7	10	0	1709	1719
06-22	9	1845	160	9	11	0	2034	2046
06-00	9	1914	164	10	11	0	2108	2120
00-00	10	1958	167	10	12	1	2158	2172

Peaks	Time	Vehicles	PCU's
AM	0900	75	75.5
IP	1400	205	206.8
PM	1800	176	177



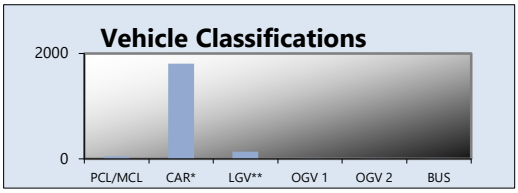


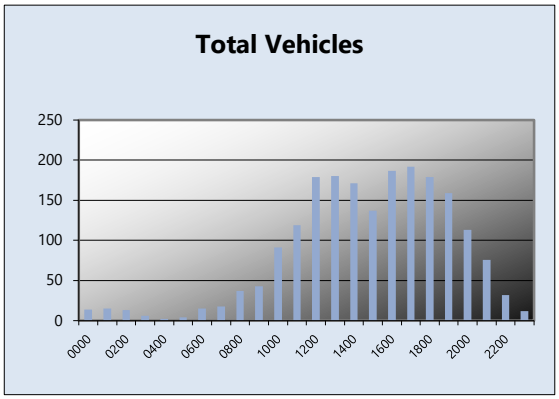
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	13	1	0	0	0	14	14
0100	0	12	3	0	0	0	15	15
0200	0	11	1	0	1	0	13	14
0300	0	6	0	0	0	0	6	6
0400	0	2	0	0	0	0	2	2
0500	0	4	0	0	0	0	4	4
0600	0	14	1	0	0	0	15	15
0700	0	11	6	0	1	0	18	19
0800	0	31	4	0	1	1	37	39
0900	2	33	6	0	2	0	43	44
1000	2	79	7	0	3	0	91	93
1100	4	104	10	1	0	0	119	116
1200	5	163	11	0	0	0	179	175
1300	27	142	9	0	2	0	180	161
1400	4	156	10	1	0	0	171	168
1500	1	129	7	0	0	0	137	136
1600	0	178	9	0	0	0	187	187
1700	0	178	14	0	0	0	192	192
1800	0	166	13	0	0	0	179	179
1900	0	149	10	0	0	0	159	159
2000	0	107	6	0	0	0	113	113
2100	0	74	2	0	0	0	76	76
2200	0	29	3	0	0	0	32	32
2300	0	11	1	0	0	0	12	12
07-19	45	1370	106	2	9	1	1533	1511
06-22	45	1714	125	2	9	1	1896	1874
06-00	45	1754	129	2	9	1	1940	1918
00-00	45	1802	134	2	10	1	1994	1973

Peaks	Time	Vehicles	PCU's
AM	0900	43	44
IP	1300	180	175
PM	1700	192	192





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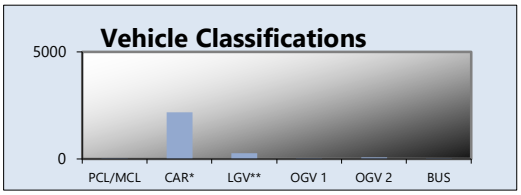
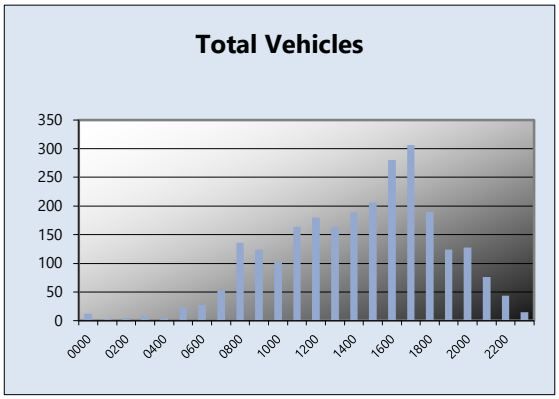
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Monday 29 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	11	0	0	0	1	12	13
0100	0	2	0	0	1	0	3	4
0200	0	4	1	0	0	0	5	5
0300	0	5	2	0	1	0	8	9
0400	0	3	2	0	0	0	5	5
0500	0	22	2	0	0	0	24	24
0600	0	22	5	0	0	0	27	27
0700	0	45	3	3	2	0	53	57
0800	0	103	22	4	7	0	136	147
0900	0	101	10	3	10	0	124	139
1000	0	78	18	0	5	0	101	108
1100	0	132	21	1	8	2	164	177
1200	0	153	20	1	6	0	180	188
1300	0	141	19	0	3	0	163	167
1400	1	158	20	4	6	0	189	198
1500	1	170	26	4	5	0	206	214
1600	1	241	32	3	3	0	280	285
1700	0	277	23	1	5	0	306	313
1800	0	169	15	4	2	0	190	195
1900	0	113	9	1	1	0	124	126
2000	1	114	12	0	1	0	128	129
2100	0	70	6	0	0	0	76	76
2200	0	42	2	0	0	0	44	44
2300	0	13	0	0	2	0	15	18
07-19	3	1768	229	28	62	2	2092	2186
06-22	4	2087	261	29	64	2	2447	2544
06-00	4	2142	263	29	66	2	2506	2605
00-00	4	2189	270	29	68	3	2563	2666

Peaks	Time	Vehicles	PCU's
AM	0800	136	147.1
IP	1400	189	198
PM	1700	306	313





Traffinomics Limited for
Stephen Reid Consulting

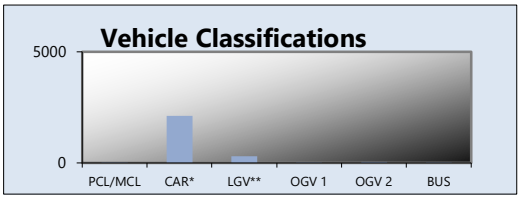
TRAFFINOMICS LIMITED

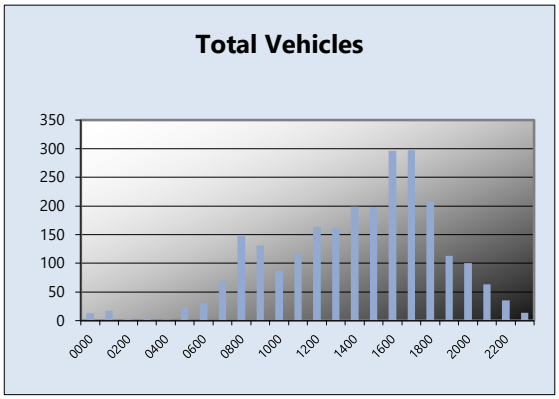
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	11	1	0	1	0	13	14
0100	1	14	0	0	2	0	17	19
0200	0	3	1	0	0	0	4	4
0300	0	3	0	0	1	0	4	5
0400	0	2	0	0	0	0	2	2
0500	0	19	5	0	0	0	24	24
0600	0	26	3	0	2	0	31	34
0700	0	54	13	2	1	0	70	72
0800	0	113	27	2	5	0	147	155
0900	0	104	19	4	3	1	131	138
1000	0	60	21	0	6	0	87	95
1100	0	92	18	2	6	0	118	127
1200	0	142	14	1	5	2	164	173
1300	0	142	15	2	3	0	162	167
1400	0	166	28	1	3	1	199	204
1500	0	157	32	0	8	1	198	209
1600	1	254	34	4	2	1	296	301
1700	1	266	28	1	1	0	297	298
1800	1	188	18	1	0	0	208	208
1900	0	99	12	0	2	0	113	116
2000	0	96	3	1	0	0	100	101
2100	0	60	3	0	0	0	63	63
2200	0	32	1	0	2	0	35	38
2300	0	14	0	0	0	0	14	14
07-19	3	1738	267	20	43	6	2077	2147
06-22	3	2019	288	21	47	6	2384	2459
06-00	3	2065	289	21	49	6	2433	2511
00-00	4	2117	296	21	53	6	2497	2579

Peaks	Time	Vehicles	PCU's
AM	0800	147	154.5
IP	1400	199	204.4
PM	1700	297	300.8





Traffinomics Limited for
Stephen Reid Consulting

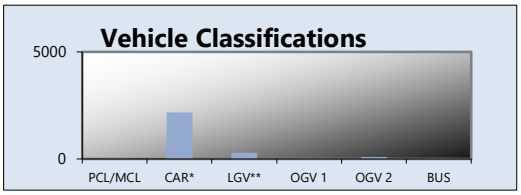
TRAFFINOMICS LIMITED

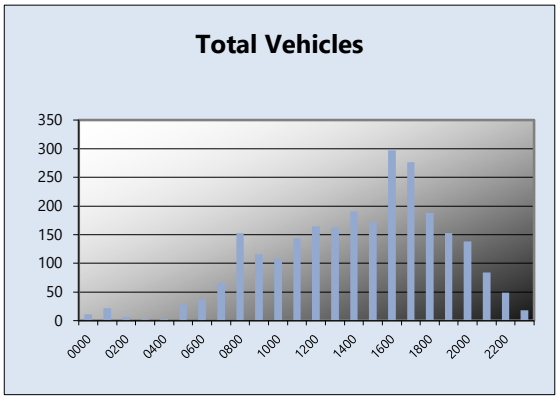
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Wednesday 1 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	8	1	0	2	0	11	14
0100	1	18	0	1	2	0	22	24
0200	0	5	1	0	0	0	6	6
0300	0	2	0	0	1	0	3	4
0400	0	2	1	0	0	0	3	3
0500	0	23	5	0	1	0	29	30
0600	0	25	6	1	5	0	37	44
0700	0	52	9	3	2	0	66	70
0800	0	111	28	5	9	0	153	167
0900	0	85	20	1	9	1	116	129
1000	0	84	15	2	6	1	108	118
1100	1	109	22	3	9	0	144	156
1200	1	144	12	1	5	1	164	171
1300	1	143	14	2	3	0	163	167
1400	0	154	28	1	8	0	191	202
1500	1	144	18	2	5	2	172	181
1600	0	246	38	5	8	0	297	310
1700	1	235	30	2	7	1	276	286
1800	0	168	16	1	3	0	188	192
1900	0	141	8	1	3	0	153	157
2000	1	126	10	1	0	0	138	138
2100	1	77	6	0	0	0	84	83
2200	0	46	3	0	0	0	49	49
2300	0	16	1	0	1	0	18	19
07-19	5	1675	250	28	74	6	2038	2150
06-22	7	2044	280	31	82	6	2450	2573
06-00	7	2106	284	31	83	6	2517	2641
00-00	8	2164	292	32	89	6	2591	2722

Peaks	Time	Vehicles	PCU's
AM	0800	153	167.2
IP	1400	191	201.9
PM	1600	297	309.9





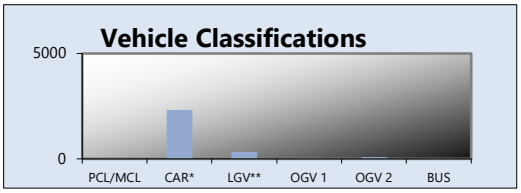
Traffinomics Limited for
Stephen Reid Consulting

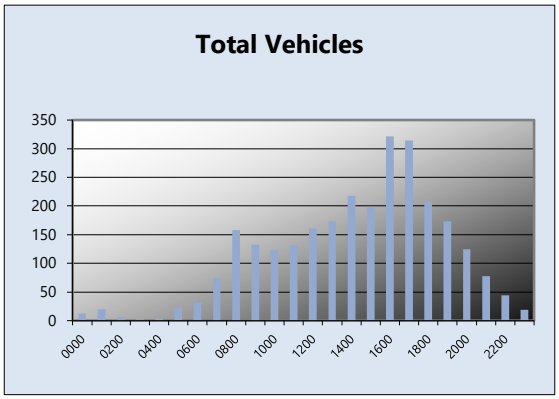
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	11	2	0	0	0	13	13
0100	2	16	0	1	1	0	20	20
0200	0	5	1	0	0	0	6	6
0300	0	2	1	0	0	0	3	3
0400	0	4	0	0	0	0	4	4
0500	0	20	3	0	0	0	23	23
0600	0	22	6	1	3	0	32	36
0700	0	56	10	3	5	0	74	82
0800	1	124	27	1	5	0	158	164
0900	0	101	22	1	8	1	133	145
1000	0	97	15	3	9	0	124	137
1100	0	103	17	2	9	0	131	144
1200	0	134	18	3	6	0	161	170
1300	0	148	16	2	6	1	173	183
1400	0	179	28	3	8	0	218	230
1500	0	160	27	2	10	0	199	213
1600	0	271	41	4	5	0	321	330
1700	0	279	31	0	3	1	314	319
1800	1	186	18	3	1	0	209	211
1900	0	159	11	1	2	0	173	176
2000	0	110	15	0	0	0	125	125
2100	0	69	7	0	2	0	78	81
2200	0	39	4	0	0	1	44	45
2300	0	15	4	0	0	0	19	19
07-19	2	1838	270	27	75	3	2215	2327
06-22	2	2198	309	29	82	3	2623	2746
06-00	2	2252	317	29	82	4	2686	2810
00-00	4	2310	324	30	83	4	2755	2879

Peaks	Time	Vehicles	PCU's
AM	0800	158	164.2
IP	1400	218	229.9
PM	1600	321	329.5



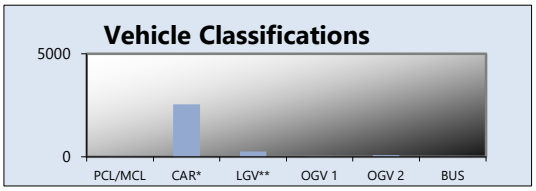


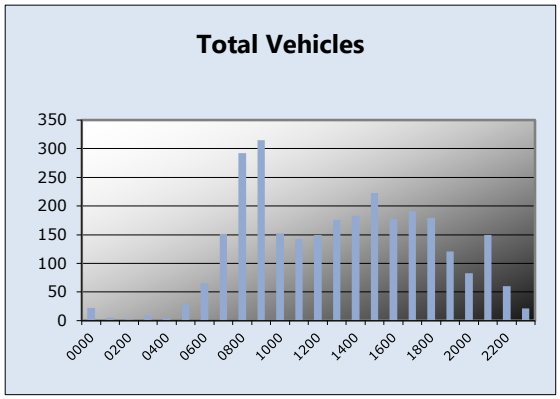
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	21	1	0	0	0	22	22
0100	0	5	0	0	0	0	5	5
0200	0	2	0	0	0	0	2	2
0300	0	8	1	0	0	0	9	9
0400	0	1	1	0	2	0	4	7
0500	0	24	4	0	1	0	29	30
0600	2	55	5	0	4	0	66	70
0700	0	121	21	1	8	0	151	162
0800	0	258	23	4	6	1	292	303
0900	0	285	22	2	6	0	315	324
1000	0	126	19	2	5	0	152	160
1100	1	118	16	1	6	0	142	150
1200	0	117	21	2	10	0	150	164
1300	0	151	15	3	6	1	176	186
1400	1	158	17	2	4	1	183	189
1500	1	195	18	2	6	1	223	232
1600	0	158	15	0	4	1	178	184
1700	0	170	17	3	1	0	191	194
1800	0	159	17	2	1	0	179	181
1900	4	107	8	1	1	0	121	120
2000	0	82	1	0	0	0	83	83
2100	0	144	5	1	0	0	150	151
2200	0	54	5	1	0	0	60	61
2300	0	19	2	0	0	0	21	21
07-19	3	2016	221	24	63	5	2332	2429
06-22	9	2404	240	26	68	5	2752	2851
06-00	9	2477	247	27	68	5	2833	2933
00-00	9	2538	254	27	71	5	2904	3008

Peaks	Time	Vehicles	PCU's
AM	0900	315	323.8
IP	1400	183	189.4
PM	1700	191	193.8





Traffinomics Limited for
Stephen Reid Consulting

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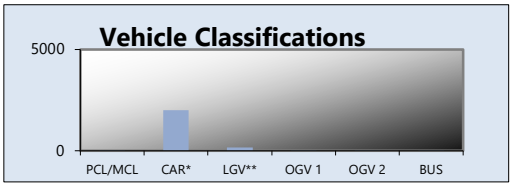
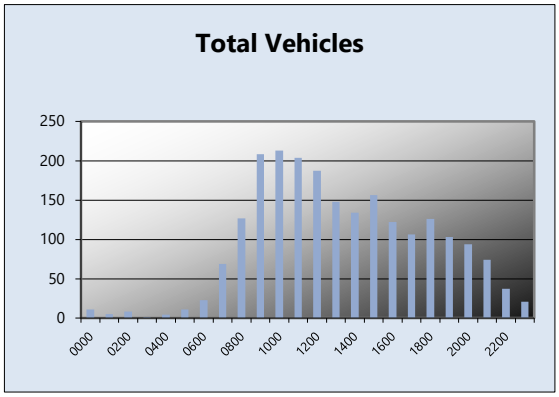
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Saturday 27 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	9	2	0	0	0	11	11
0100	0	5	0	0	0	0	5	5
0200	0	7	1	0	0	0	8	8
0300	0	1	0	0	0	0	1	1
0400	0	1	3	0	0	0	4	4
0500	0	10	1	0	0	0	11	11
0600	0	22	1	0	0	0	23	23
0700	0	59	8	1	1	0	69	71
0800	1	115	9	1	1	0	127	128
0900	1	195	9	1	1	1	208	210
1000	5	189	17	2	0	0	213	210
1100	1	186	13	0	4	0	204	208
1200	2	170	12	2	1	0	187	188
1300	0	133	15	0	0	0	148	148
1400	1	121	10	2	0	0	134	134
1500	0	146	9	1	0	0	156	157
1600	2	111	9	0	0	0	122	120
1700	0	96	9	1	0	0	106	107
1800	0	114	11	1	0	0	126	127
1900	1	97	4	1	0	0	103	103
2000	0	89	4	1	0	0	94	95
2100	0	67	6	1	0	0	74	75
2200	0	34	3	0	0	0	37	37
2300	0	18	2	1	0	0	21	22
07-19	13	1635	131	12	8	1	1800	1807
06-22	14	1910	146	15	8	1	2094	2102
06-00	14	1962	151	16	8	1	2152	2160
00-00	14	1995	158	16	8	1	2192	2200

Peaks	Time	Vehicles	PCU's
AM	0900	208	210
IP	1200	187	187.7
PM	1800	126	126.5



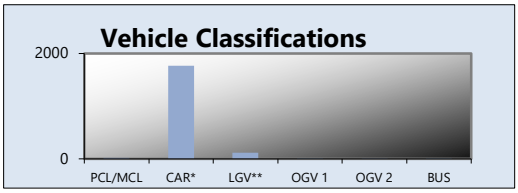


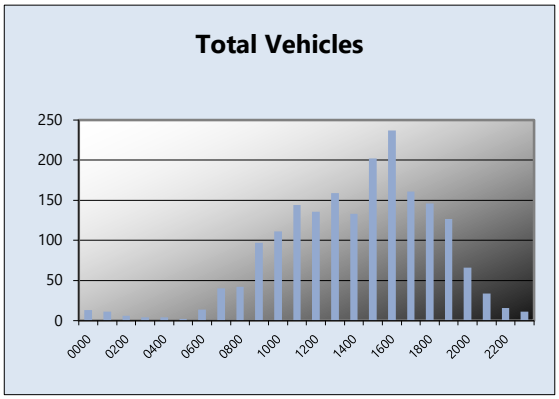
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Sunday 28 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	12	1	0	0	0	13	13
0100	0	10	1	0	0	0	11	11
0200	0	3	3	0	0	0	6	6
0300	0	4	0	0	0	0	4	4
0400	0	3	1	0	0	0	4	4
0500	0	2	0	0	0	0	2	2
0600	0	14	0	0	0	0	14	14
0700	0	36	2	0	1	1	40	42
0800	0	36	3	1	2	0	42	45
0900	1	87	9	0	0	0	97	96
1000	5	97	9	0	0	0	111	107
1100	3	134	7	0	0	0	144	142
1200	2	125	8	1	0	0	136	135
1300	2	149	7	0	1	0	159	159
1400	1	123	8	0	1	0	133	134
1500	0	194	8	0	0	0	202	202
1600	0	219	16	0	2	0	237	240
1700	2	153	5	0	1	0	161	161
1800	0	132	13	1	0	0	146	147
1900	1	117	8	0	1	0	127	128
2000	0	61	3	1	1	0	66	68
2100	0	31	3	0	0	0	34	34
2200	0	15	1	0	0	0	16	16
2300	0	9	1	0	1	0	11	12
07-19	16	1485	95	3	8	1	1608	1608
06-22	17	1708	109	4	10	1	1849	1851
06-00	17	1732	111	4	11	1	1876	1880
00-00	17	1766	117	4	11	1	1916	1920

Peaks	Time	Vehicles	PCU's
AM	0900	97	96.2
IP	1300	159	158.7
PM	1600	237	239.6



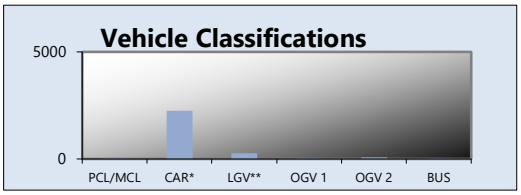


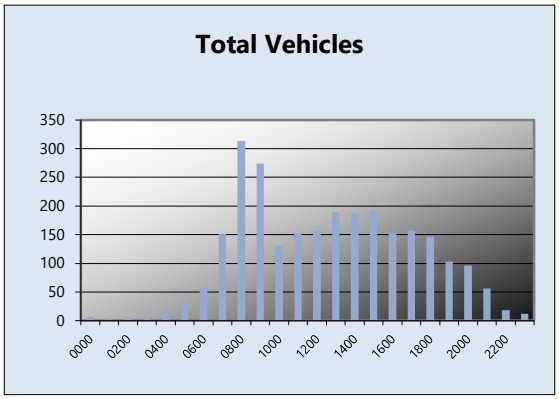
Traffinomics Limited for
Stephen Reid Consulting

SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	7	0	0	0	0	7	7
0100	0	4	0	0	0	0	4	4
0200	0	4	0	0	2	1	7	11
0300	0	5	0	0	0	0	5	5
0400	1	8	5	0	0	0	14	13
0500	2	23	5	0	3	0	33	35
0600	0	50	5	0	1	0	56	57
0700	0	126	19	2	4	0	151	157
0800	0	273	27	9	4	1	314	325
0900	0	235	25	3	10	1	274	290
1000	0	113	8	2	7	0	130	140
1100	0	126	18	0	8	1	153	164
1200	0	131	18	1	6	0	156	164
1300	0	160	19	1	9	0	189	201
1400	0	160	21	1	3	1	186	191
1500	1	169	16	2	4	0	192	197
1600	1	131	16	3	2	0	153	156
1700	0	136	19	1	1	0	157	159
1800	0	127	18	0	2	0	147	150
1900	1	86	15	0	1	0	103	104
2000	0	90	6	0	0	0	96	96
2100	0	49	6	1	0	0	56	57
2200	0	16	0	0	2	0	18	21
2300	0	11	1	0	0	0	12	12
07-19	2	1887	224	25	60	4	2202	2295
06-22	3	2162	256	26	62	4	2513	2608
06-00	3	2189	257	26	64	4	2543	2641
00-00	6	2240	267	26	69	5	2613	2716

Peaks	Time	Vehicles	PCU's
AM	0800	314	324.7
IP	1300	189	201.2
PM	1700	157	158.8





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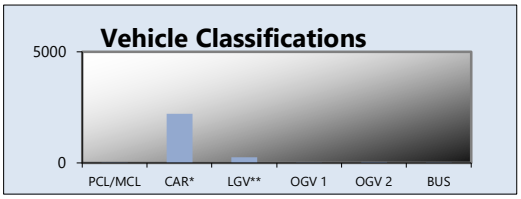
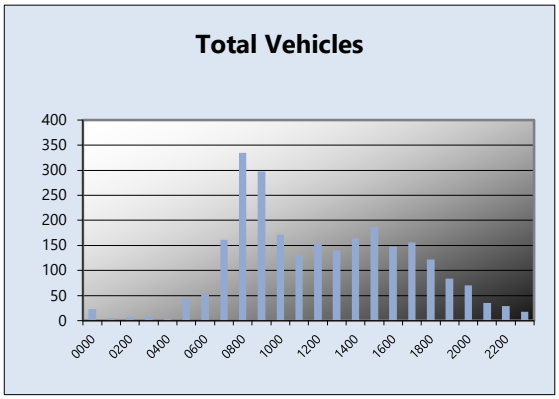
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Tuesday 30 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	22	1	0	0	0	23	23
0100	0	3	2	0	0	0	5	5
0200	0	6	1	0	0	0	7	7
0300	0	6	0	0	1	0	7	8
0400	0	3	1	0	0	0	4	4
0500	0	38	5	1	1	0	45	47
0600	1	42	7	1	3	0	54	58
0700	0	137	18	2	4	0	161	167
0800	0	294	32	4	4	1	335	343
0900	1	260	32	1	3	0	297	301
1000	0	151	12	1	7	1	172	183
1100	0	110	13	3	5	0	131	139
1200	0	138	9	0	8	0	155	165
1300	0	122	12	1	6	0	141	149
1400	1	145	13	3	2	0	164	167
1500	0	167	13	3	2	2	187	193
1600	1	118	24	3	2	0	148	151
1700	0	133	16	3	3	1	156	162
1800	0	110	11	0	1	0	122	123
1900	0	72	10	1	1	0	84	86
2000	0	62	7	0	1	0	70	71
2100	0	31	3	0	1	0	35	36
2200	0	27	2	0	0	0	29	29
2300	0	17	0	0	1	0	18	19
07-19	3	1885	205	24	47	5	2169	2245
06-22	4	2092	232	26	53	5	2412	2496
06-00	4	2136	234	26	54	5	2459	2544
00-00	4	2214	244	27	56	5	2550	2638

Peaks	Time	Vehicles	PCU's
AM	0800	335	343.2
IP	1400	164	167.3
PM	1700	156	162.4





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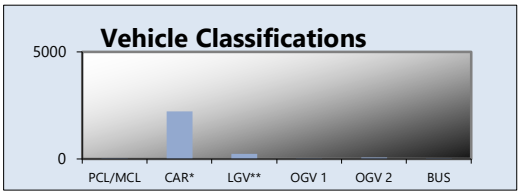
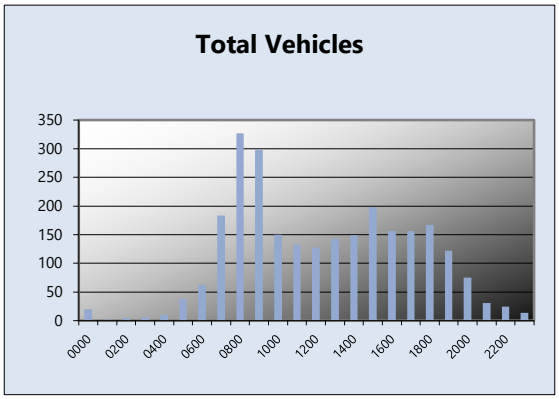
SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	20	0	0	0	0	20	20
0100	0	2	0	0	0	0	2	2
0200	0	4	1	0	0	0	5	5
0300	0	5	0	0	1	0	6	7
0400	1	6	2	0	1	0	10	11
0500	0	35	2	0	1	0	38	39
0600	0	51	9	0	2	0	62	65
0700	0	150	22	2	9	0	183	196
0800	0	293	23	3	5	3	327	338
0900	0	260	23	3	12	0	298	315
1000	0	125	14	2	9	0	150	163
1100	0	111	13	1	6	2	133	143
1200	0	108	11	3	5	0	127	135
1300	0	119	18	2	3	1	143	149
1400	1	123	15	4	6	0	149	158
1500	0	170	18	3	7	0	198	209
1600	1	116	26	4	8	1	156	169
1700	0	135	18	1	2	0	156	159
1800	0	150	13	1	3	0	167	171
1900	1	115	3	1	1	1	122	124
2000	1	67	6	1	0	0	75	75
2100	0	28	2	1	0	0	31	32
2200	0	24	0	0	0	0	24	24
2300	0	13	1	0	0	0	14	14
07-19	2	1860	214	29	75	7	2187	2304
06-22	4	2121	234	32	78	8	2477	2599
06-00	4	2158	235	32	78	8	2515	2637
00-00	5	2230	240	32	81	8	2596	2721

Peaks	Time	Vehicles	PCU's
AM	0800	327	338
IP	1400	149	158
PM	1800	167	171.4





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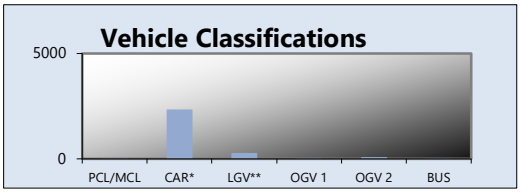
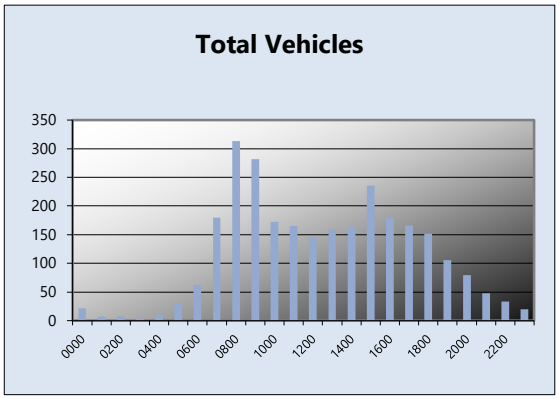
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **Thursday 2 May 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
WESTBOUND

TIME	PCL/MCL	CAR*	LGV**	OGV 1	OGV 2	BUS	TOTAL	PCU
0000	0	22	0	0	0	0	22	22
0100	0	7	0	0	0	0	7	7
0200	0	6	1	0	0	0	7	7
0300	0	4	0	0	0	0	4	4
0400	0	8	3	0	0	0	11	11
0500	0	24	5	0	0	0	29	29
0600	3	42	10	0	7	0	62	69
0700	0	143	25	1	10	1	180	195
0800	0	275	22	6	9	1	313	329
0900	0	252	25	0	4	1	282	288
1000	0	147	14	2	9	0	172	185
1100	0	132	21	2	10	0	165	179
1200	1	114	22	3	5	0	145	152
1300	1	138	14	2	4	0	159	164
1400	0	135	19	1	9	0	164	176
1500	0	195	29	3	9	0	236	249
1600	1	150	24	2	2	0	179	182
1700	0	144	17	3	2	0	166	170
1800	0	139	12	0	1	0	152	153
1900	0	95	11	0	0	0	106	106
2000	2	68	4	1	3	1	79	83
2100	0	47	1	0	0	0	48	48
2200	0	33	0	0	0	0	33	33
2300	0	17	3	0	0	0	20	20
07-19	3	1964	244	25	74	3	2313	2422
06-22	8	2216	270	26	84	4	2608	2728
06-00	8	2266	273	26	84	4	2661	2781
00-00	8	2337	282	26	84	4	2741	2861

Peaks	Time	Vehicles	PCU's
AM	0800	313	328.7
IP	1400	164	176.2
PM	1600	179	181.8





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CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 04** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **EASTBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	13	14	14	12	13	11	13	13
0100	21	10	15	3	17	22	20	15
0200	4	11	13	5	4	6	6	7
0300	4	5	6	8	4	3	3	5
0400	2	2	2	5	2	3	4	3
0500	23	8	4	24	24	29	23	19
0600	27	16	15	27	31	37	32	26
0700	67	25	18	53	70	66	74	53
0800	130	54	37	136	147	153	158	116
0900	121	75	43	124	131	116	133	106
1000	105	136	91	101	87	108	124	107
1100	154	165	119	164	118	144	131	142
1200	199	175	179	180	164	164	161	175
1300	226	194	180	163	162	163	173	180
1400	220	205	171	189	199	191	218	199
1500	248	177	137	206	198	172	199	191
1600	268	173	187	280	296	297	321	260
1700	278	154	192	306	297	276	314	260
1800	261	176	179	190	208	188	209	202
1900	176	146	159	124	113	153	173	149
2000	148	94	113	128	100	138	125	121
2100	103	69	76	76	63	84	78	78
2200	53	49	32	44	35	49	44	44
2300	40	25	12	15	14	18	19	20
07-19	2277	1709	1533	2092	2077	2038	2215	1992
06-22	2731	2034	1896	2447	2384	2450	2623	2366
06-00	2824	2108	1940	2506	2433	2517	2686	2431
00-00	2891	2158	1994	2563	2497	2591	2755	2493

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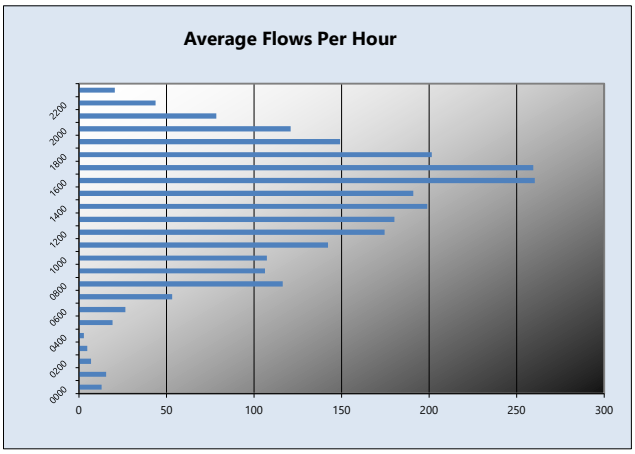
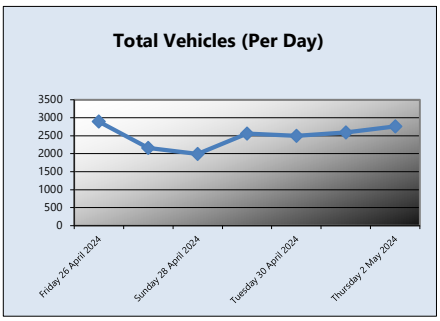
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 04**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**EASTBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0800	0900	0900	0800	0800	0800	0800	0800
Vehicles	130	75	43	136	147	153	158	120
IP								
Time	1300	1400	1300	1400	1400	1400	1400	1400
Vehicles	226	205	180	189	199	191	218	201
PM								
Time	1700	1800	1700	1700	1700	1600	1600	1700
Vehicles	278	176	192	306	297	297	321	267

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CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **SITE 04** **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **WESTBOUND** **TRA/24/048**

TIME PERIOD	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Average
0000	22	11	13	7	23	20	22	17
0100	5	5	11	4	5	2	7	6
0200	2	8	6	7	7	5	7	6
0300	9	1	4	5	7	6	4	5
0400	4	4	4	14	4	10	11	7
0500	29	11	2	33	45	38	29	27
0600	66	23	14	56	54	62	62	48
0700	151	69	40	151	161	183	180	134
0800	292	127	42	314	335	327	313	250
0900	315	208	97	274	297	298	282	253
1000	152	213	111	130	172	150	172	157
1100	142	204	144	153	131	133	165	153
1200	150	187	136	156	155	127	145	151
1300	176	148	159	189	141	143	159	159
1400	183	134	133	186	164	149	164	159
1500	223	156	202	192	187	198	236	199
1600	178	122	237	153	148	156	179	168
1700	191	106	161	157	156	156	166	156
1800	179	126	146	147	122	167	152	148
1900	121	103	127	103	84	122	106	109
2000	83	94	66	96	70	75	79	80
2100	150	74	34	56	35	31	48	61
2200	60	37	16	18	29	24	33	31
2300	21	21	11	12	18	14	20	17
07-19	2332	1800	1608	2202	2169	2187	2313	2087
06-22	2752	2094	1849	2513	2412	2477	2608	2386
06-00	2833	2152	1876	2543	2459	2515	2661	2434
00-00	2904	2192	1916	2613	2550	2596	2741	2502

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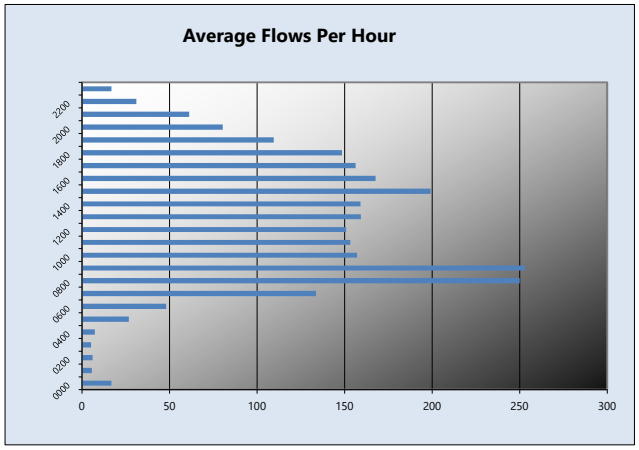
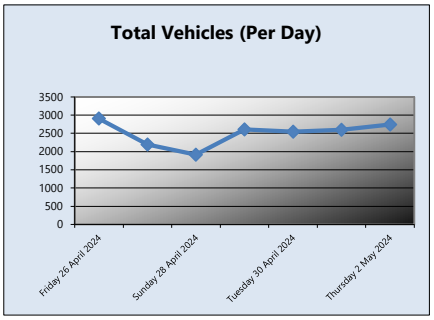
CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS	**SITE 04**	**WEEK COMMENCING:**	**Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS	**WESTBOUND**		**TRA/24/048**





Peak Time & Volumetric Count Data

	Friday 26 April 2024	Saturday 27 April 2024	Sunday 28 April 2024	Monday 29 April 2024	Tuesday 30 April 2024	Wednesday 1 May 2024	Thursday 2 May 2024	Mode/ Average
AM								
Time	0900	0900	0900	0800	0800	0800	0800	0800
Vehicles	315	208	315	314	335	327	313	304
IP								
Time	1400	1200	1300	1300	1400	1400	1400	1400
Vehicles	183	187	159	189	164	149	164	171
PM								
Time	1700	1800	1600	1700	1700	1800	1600	1700
Vehicles	191	126	237	157	156	167	179	173

TRAFFINOMICS LIMITED

CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
EASTBOUND

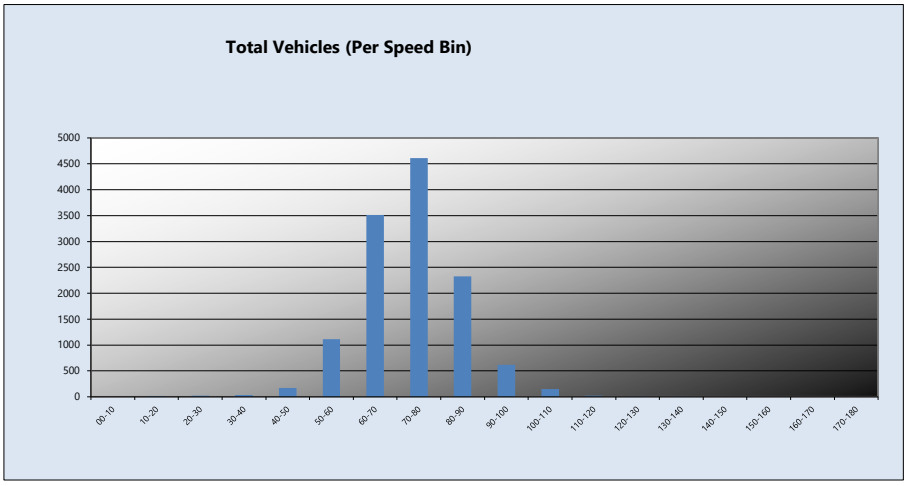
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 12593
Maximum = 130.3 km/h, Minimum = 11.4 km/h, Mean = 73.1 km/h
85% Speed = 84.06 km/h, 95% Speed = 91.71 km/h, Median = 72.99 km/h
20 km/h Pace = 62 - 82, Number in Pace = 8264 (65.62%)
Variance = 127.38, Standard Deviation = 11.29 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	12	0.1
20-30	18	0.1
30-40	32	0.3
40-50	171	1.4
50-60	1113	8.8
60-70	3514	27.9
70-80	4612	36.6
80-90	2323	18.4
90-100	618	4.9
100-110	151	1.2
110-120	22	0.2
120-130	6	0.0
130-140	1	0.0
140-150	0	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



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CLOONANNY WINDFARM TRAFFIC COUNT/SPEED SURVEYS **WEEK COMMENCING:** **Friday 26 April 2024**
AUTOMATIC TRAFFIC COUNTS **TRA/24/048**

SITE 04
WESTBOUND

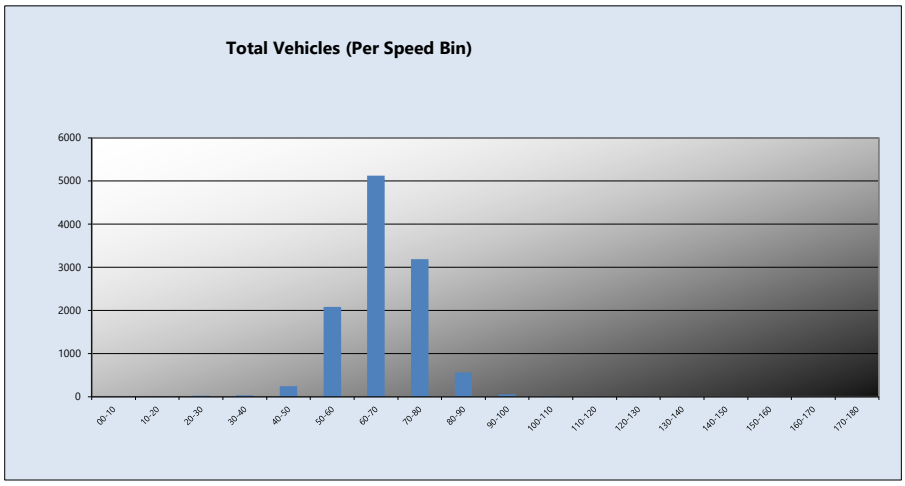
Profile:

Filter time: 00:00 26th April 2024 => 23:59 2nd May 2024
Speed range: 0 - 200 km/h.
Separation: Greater than 4.00 seconds. - (Headway)
Units: Metric (meter, kilometer, m/s, km/h, kg, tonne)

Vehicles = 11353
Maximum = 124.5 km/h, Minimum = 16.5 km/h, Mean = 66.6 km/h
85% Speed = 75.24 km/h, 95% Speed = 80.64 km/h, Median = 66.60 km/h
20 km/h Pace = 57 - 77, Number in Pace = 8734 (76.93%)
Variance = 80.03, Standard Deviation = 8.95 km/h

Speed Bins:

Speed	Bin	
KPH	No.	%
00-10	0	0.0
10-20	1	0.0
20-30	26	0.2
30-40	36	0.3
40-50	244	2.1
50-60	2085	18.4
60-70	5125	45.1
70-80	3193	28.1
80-90	562	5.0
90-100	60	0.5
100-110	17	0.1
110-120	3	0.0
120-130	1	0.0
130-140	0	0.0
140-150	0	0.0
150-160	0	0.0
160-170	0	0.0
170-180	0	0.0



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CLASSIFICATION SCHEMES:

Scheme F Classification Scheme (Non-metric)

Scheme F is an attempt to implement the FWHA's visual classification scheme as an axle-based classification scheme. This is one of several interpretations.

Vehicle Class	Class	Vehicle Type	No. of Axles	Axle spacing in feet				
				Axle 1 to 2	Axle 2 to 3	Axle 3 to 4	Axle 4 to 5	Axle 5 to 6
PCL/MCL	1	motorcycle	2	<6.0				
CAR*	2	passenger car	2	6.0 - 10.0				
		car + 1 axle trailer	3	<10.0	10.0 - 18.0			
		car + 2 axle trailer	4	<10.0		<3.5		
LGV**	3	pickup	2	10.0 - 15.0				
		pickup + 1 axle trailer	3	10.0 - 15.0	10.0 - 18.0			
		pickup + 2 axle trailer	4	10.0 -15.0		<3.5		
		pickup + 3 axle trailer	5	9.9 - 15.0			<3.5	
BUS	4	bus	2	>20.0				
		bus	3	>19.0				
OGV 1	5	single unit truck - dual rear axle	2	14.9 - 20.0			<3.5	
	6	3 axle truck	3		<18.0			
OGV 2	7	4 axle truck	4					
	8	2S1	3		>18.0			
		2S2	4		>5.0	>3.5		
		3S1	4		<5.0	>10.0		
	9	3S2	5		<6.1		3.5 - 8.0	
		5 axle combination	5					
	10	6 axle combination	6			3.5 - 5.0		
		3S3	6					
	11	2S1-2	5		>6.0			
	12	3S1-2	6					>10.0
	13	truck	7 or more					

Car* Cars and LGV based cars

LGV** Light Goods Vehicles with the exception of LGV based on cars

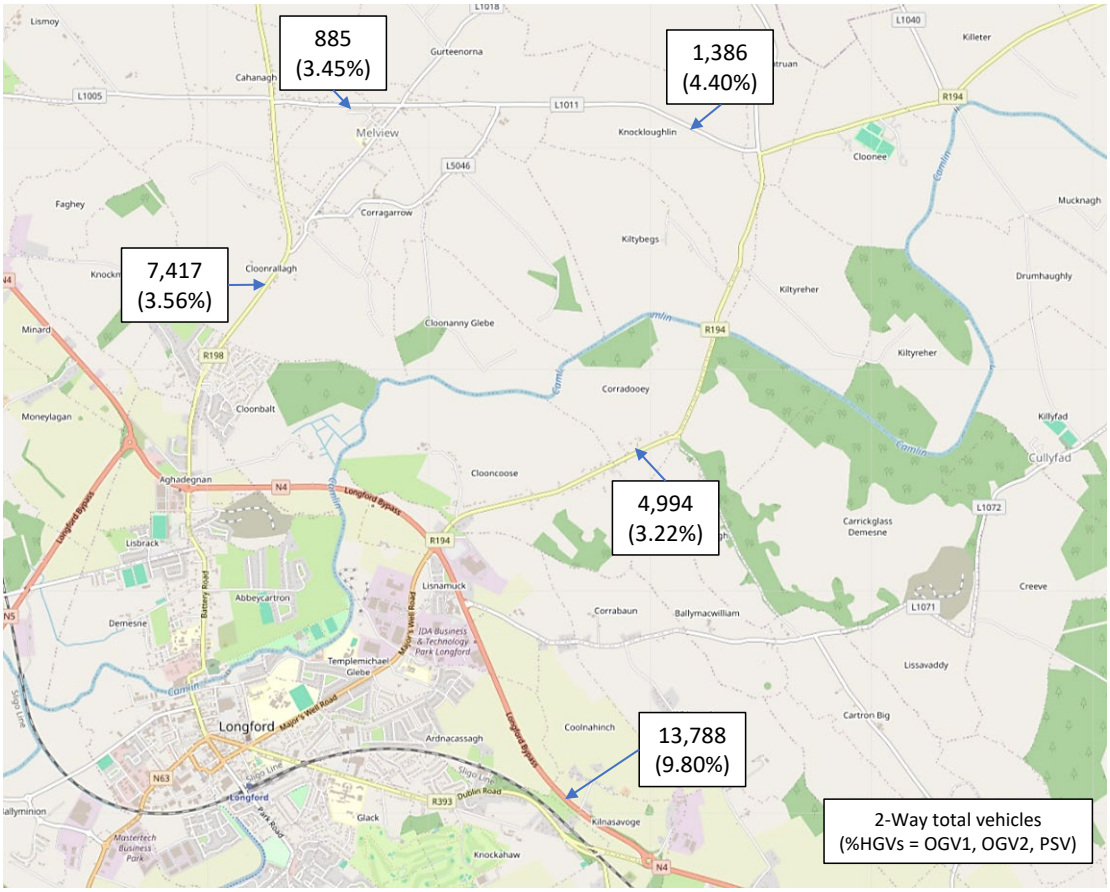


Diagram 1: 2024 Average Daily Traffic

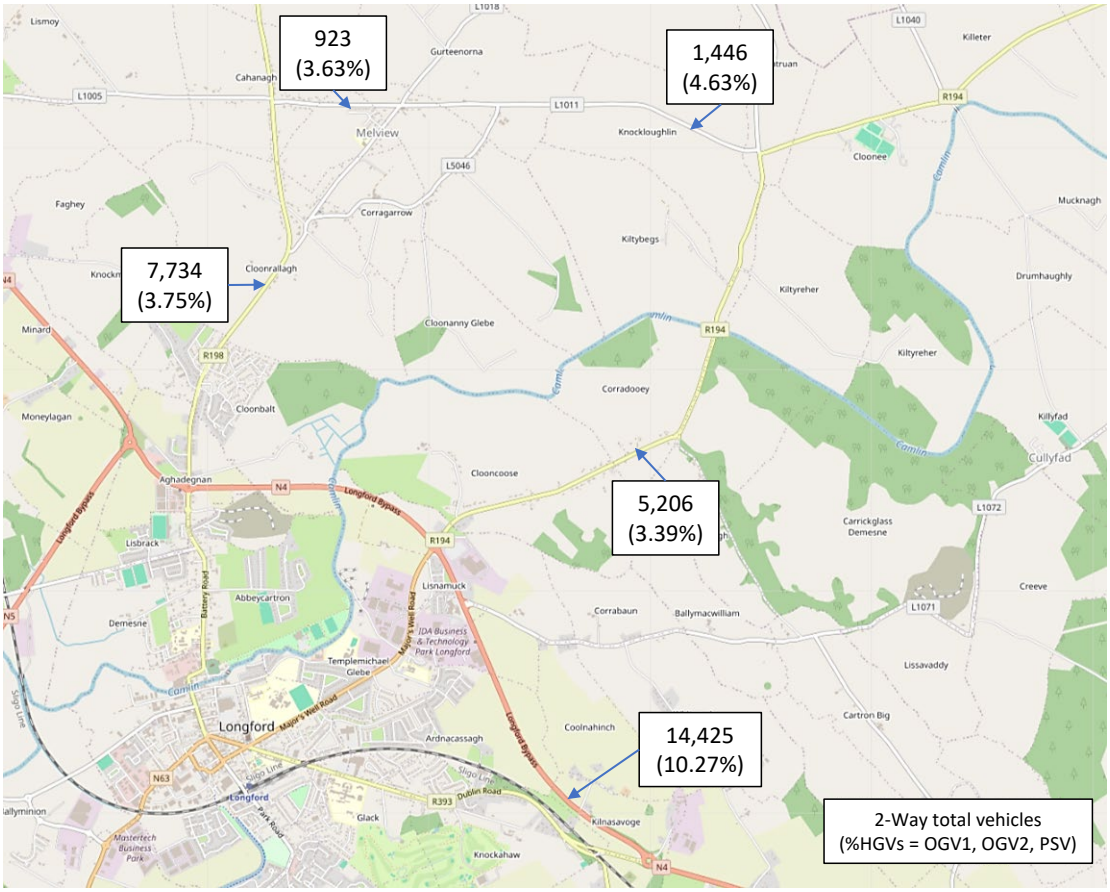


Diagram 2: 2027 Forecast Average Daily Traffic 'Do Nothing' (From Diagram 1 x TII LV and HV growth factors)

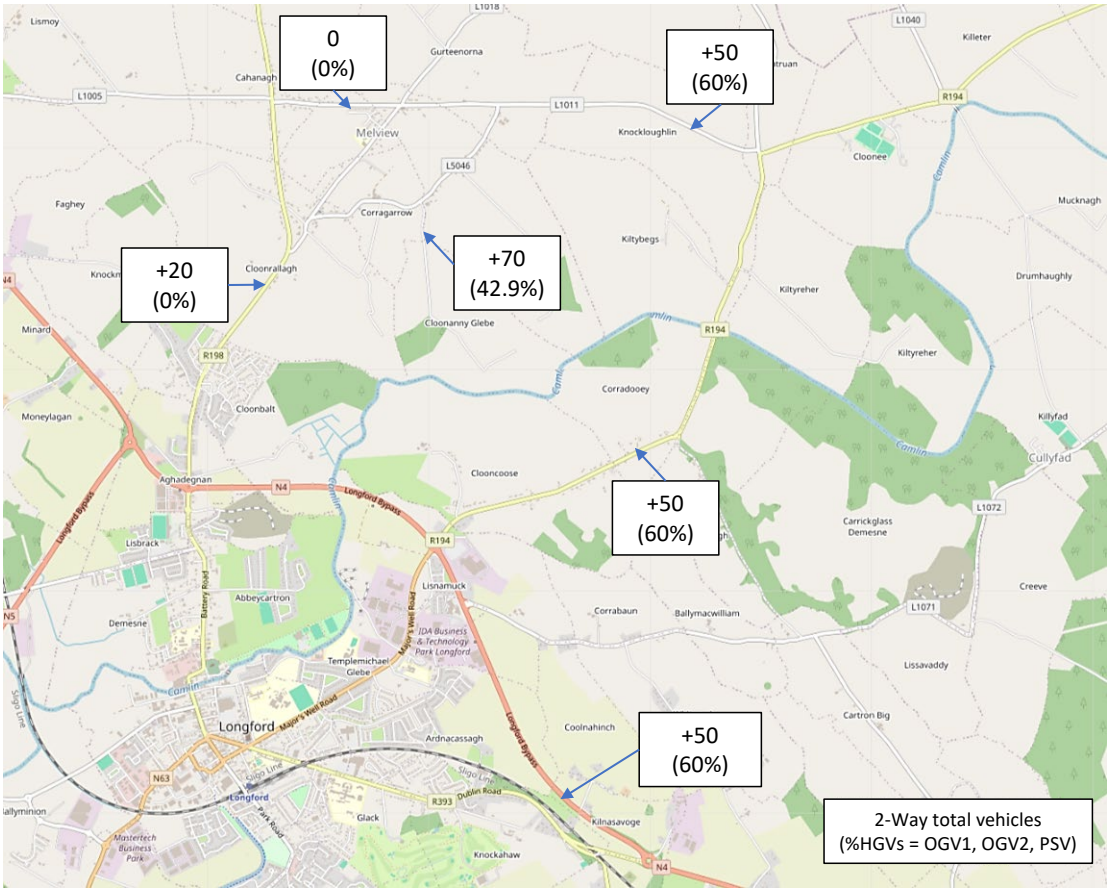


Diagram 3: 2027 Forecast Average Daily Construction Traffic –Peak Activity Phase

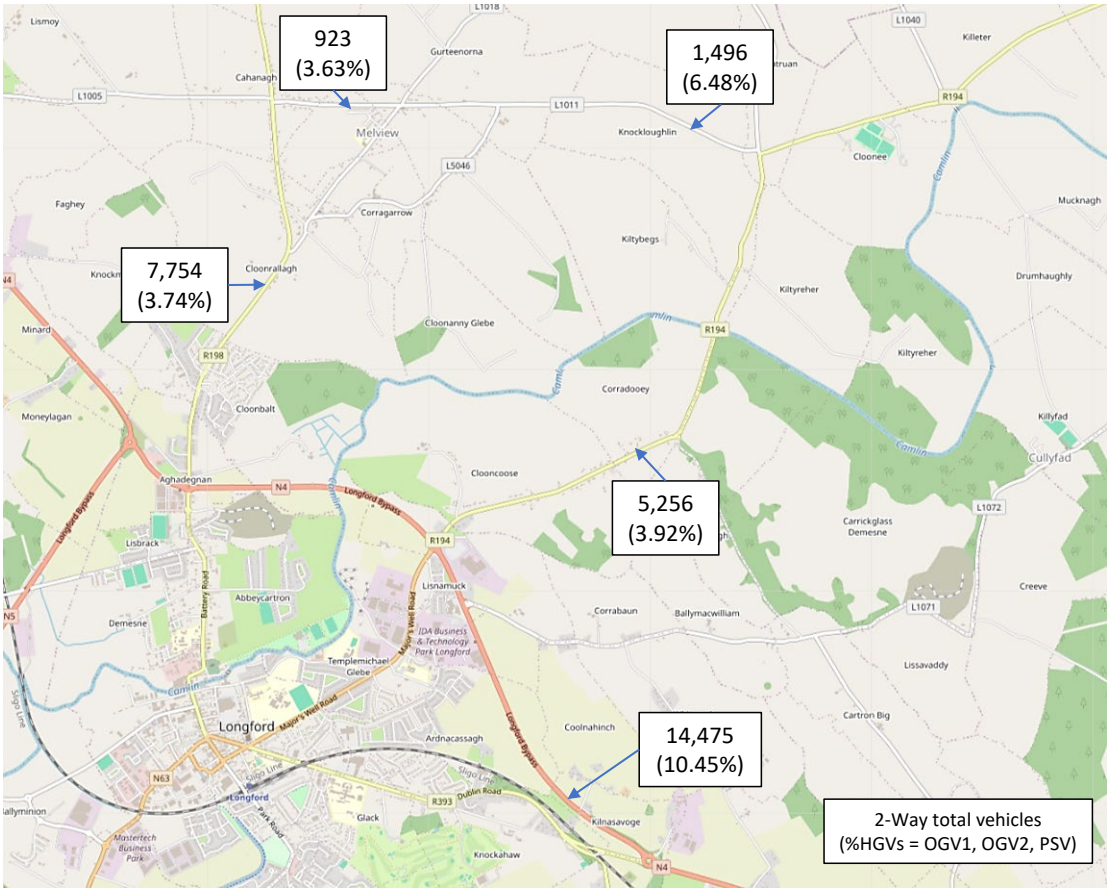


Diagram 4: 2027 Forecast Average Daily Traffic 'Do Something' – Peak Activity Phase (From Diagram 2 + Diagram 3)

APPENDIX 7.1
CLOONANNY WIND FARM EMI IMPACT ASSESSMENT REPORT

VOLUME III
APPENDICES TO ENVIRONMENTAL IMPACT ASSESSMENT REPORT

RFI Response July 2025

Report

Cloonanny Wind Farm
EMI Impact Assessment
Report

Document Number:

Author: DMG/PT

Approved for Release: Rev 4.0 KH **Date:** 12/04/24

Document Filename: *Cloonanny Wind Farm EMI Impact Assessment.*

Executive Summary

Ai Bridges was commissioned to evaluate the possible impacts that the proposed wind farm at Cloonanny, Co Longford could have on existing telecommunications operator networks. The scope of work included field and desktop surveys to determine telecommunications network infrastructure that could be impacted by the proposed development. Consultations with telecom operators were also undertaken to assist in identifying network infrastructure that could be impacted by the proposed wind farm.

Telecommunications mast-sites with network infrastructure that could potentially be impacted by the development were identified and a field survey of each of these sites was carried out. During the field surveys, radio antennas with bearings in the direction of the wind farm were recorded. The findings of the field surveys are provided in Appendix B of this report.

During the consultation process, nineteen telecom operators were contacted. At the time of writing this report, thirteen of these operators have responded to the consultation request. The responses received from each of the telecom operators can be found in Section 3 of this report.

Using the information obtained during the field survey assessments and consultation process a desktop impact analysis was carried out and all of the telecommunication operator networks were analysed using radio planning \ modelling software. Results from the impact analysis indicate that there are twelve radio links that cross over/near the proposed development. The twelve radio links (listed below) have been modelled in 3D and the possible impact due to the proposed turbine layout has been assessed.

The results of the network analysis indicate that none of the twelve radio links would be impacted by the proposed turbine layout.

Operator	Radio Link Description	Impact of Proposed Turbine Layout
2RN	Cairn Hill to Maghera	No Impact
2RN	Cairn Hill to Coolderry	No Impact
Enet	Cairn Hill to Abbott Longford.	No impact.
Enet	Cairn Hill to Bluebac Longford.	No impact.
Enet	Cairn Hill to Longford Co Co.	No impact.
Imagine Broadband	Cairn Hill to Longford Town Shopping Centre.	No impact.
Three Ireland	Templemichael to Cairn Hill.	No impact.
Vodafone	Corlea to Brian Fallon Hardware	No impact.
Vodafone	Cairn Hill to Longford Garda	No impact
Vodafone	Cairn Hill to Longford ESB	No impact.
Vodafone	Cairn Hill to Cablecomm.	No impact.
Eir	Cairn Hill to Cablecomm.	No impact.

Table 1. Impacts of proposed Turbine Layouts on existing Radio Links

Sections

Appendix

Section 1 - Wind Farm Site Information

1. Introduction

In this section a brief summary of the wind farm site is provided. Details regarding the site's geographic location and the proposed wind turbine dimensions are presented.

1.1 Wind Farm Site Information

The proposed wind farm development is located approximately 2.5 km northeast of Longford Town. The co-ordinates of the turbines assessed in this report are provided in Appendix A. The dimensions of the turbines assessed in this report are provided in Table 2 below.

Wind Farm	Number of Turbines	Turbine Hub Height	Turbine Rotor Diameter	Turbine Tip Height
Cloonanny	2	112 m	175 m	200 m

Table 2. Wind Farm Turbine Details

The location of the proposed wind farm development is shown below in Figure 1.

Figure 1. Location of proposed wind farm.

Section 2 - Methodology

2. Introduction

In this section a brief summary of the Telecommunication Impact Study Methodology is provided.

2.1 Methodology

There are four primary stages in preparing and compiling a communication impact study:

- Telecom Operator Consultations
- Field Surveys
- Desktop Survey Network Modelling and Analysis
- Report Generation

A summary of each of these stages is provided below:

Telecom Operator Consultations

Consultations are commenced with telecom operators who are requested to raise any concerns they have regarding the impact of the proposed wind farm on their networks. The consultation process is used to assist in identifying telecoms infrastructure that could be impacted by the proposed wind farm development.

Field Surveys

Field surveys are undertaken and the co-ordinates of communication masts are recorded. During the field surveys of the communication sites, approximations of antenna size, bearing and height are made for the antennas installed on each of the masts surveyed.

Desktop Survey and Analysis

A desktop survey is carried out to plot the wind turbines in a radio planning tool. The radio planning tool uses GIS and terrain mapping databases to enable accurate modelling. A selection of mast-site coordinates is then obtained and inputs from various operators \ service providers are converted from Irish National Grid (Easting and Northing in meters) to degrees minutes seconds format and then imported into the radio planning tool.

This provides a means of graphically showing telecommunications sites in the vicinity relative to the proposed wind farm site at Cloonanny. Figure 2 below shows the proposed wind farm site boundary plotted in the radio planning tool.

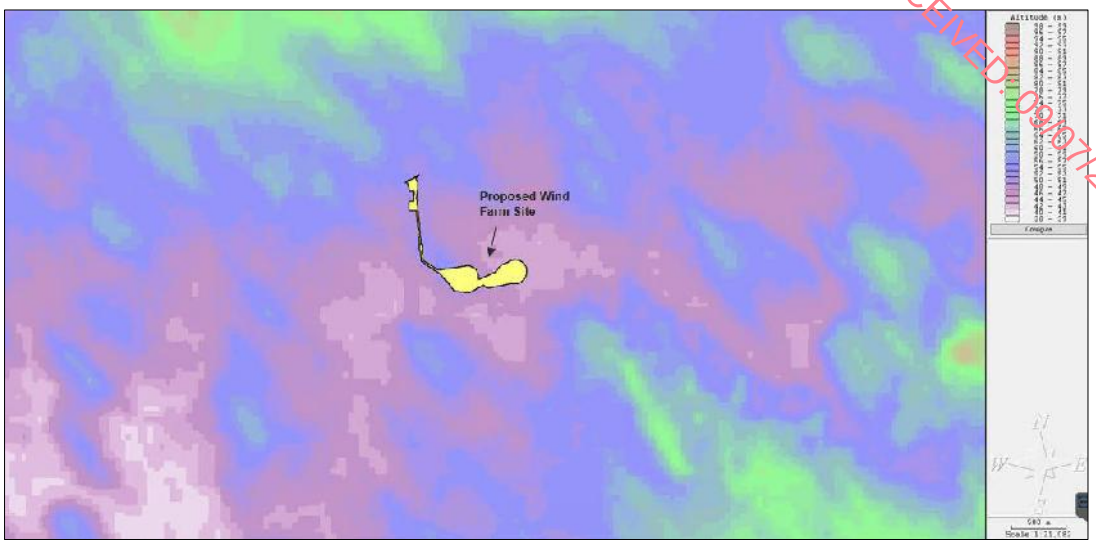


Figure 2. Wind Farm Boundary plotted in Radio Planning Software

The findings from the consultations and field surveys are collated and the communications networks requiring further analysis are identified. Network modeling is used to assess the impact of the turbines on the communications networks.

The results from the network modeling are used to determine if mitigation measures are required. Figure 3 below shows an example of a microwave radio link that crosses over/near the wind farm boundary modelled in radio planning software.

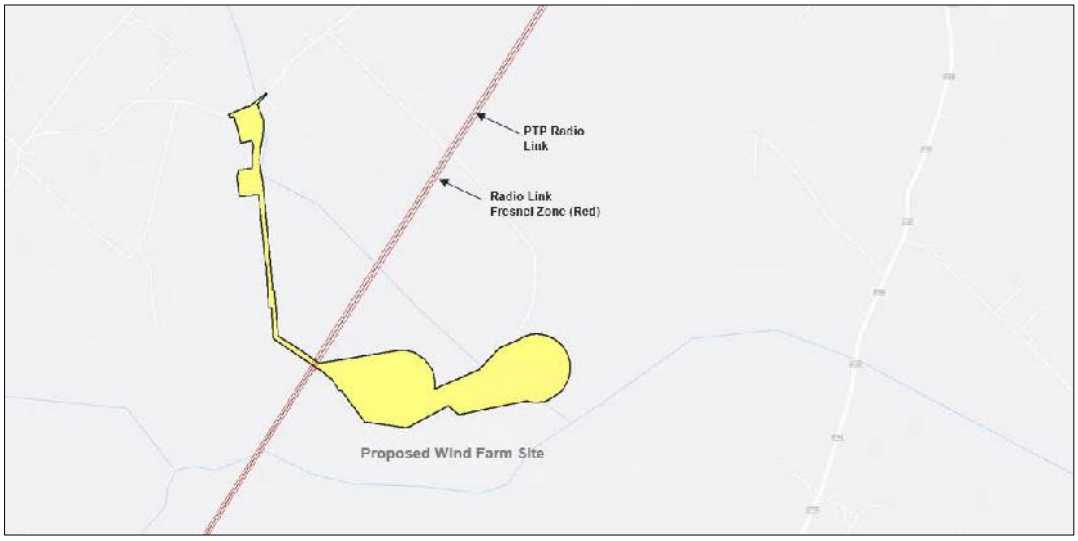


Figure 3. Example of microwave radio link crossing over/near the proposed wind farm boundary modelled in radio planning software.

Report Generation

The final stage of the communications impact study process is to collate the data and present the findings & analysis into a report for submission.

Section 3 - Telecom Operator Consultations

3. Introduction

In this section the consultation process undertaken with telecom operators is described. The response received from each operator is also provided.

3.1 Telecom Operator Consultations

Consultations beginning in June 2023 were undertaken with telecom network operators to assist in identifying telecommunication infrastructure that could be impacted by the proposed wind farm.

The operators were requested to raise any concerns they may have regarding impacts to their networks due to the proposed wind farm development. Table 3 lists the telecom operators contacted and the issues raised by the operators. The responses received from each of the Telecom Operators are provided in Sections 3.1.1 to 3.1.19.

ID	Operator	Response Received (Yes/No)	Issues raised by Operator \ Observations.
1	2RN	Yes	2RN have raised a concern regarding one UHF radio link and one PTP microwave radio link.
2	Airwave	Yes	No issues.
3	An Garda Síochána	No	No response. (No response expected.)
4	Coimisiún na Meán	Yes	No issues.
5	BT Ireland	Yes	No issues.
6	CIE/Irish Rail	No	No response. (No response expected.)
7	Dept. of Defence	No	No response. (DoD is a statutory consultee and have previously stated that they will only respond to the Planning Authority under an RFI at Planning Application Stage.)
8	Eir	Yes	Eir have raised a concern regarding one Licensed PTP microwave radio link.
9	Enet	Yes	Enet have raised a concern regarding three Licensed PTP microwave radio links.
10	ESB Networks	No	No response. (Reminder sent Week 28 2023)
11	Imagine Broadband	Yes	Imagine Broadband have raised a concern regarding one Licensed PTP microwave radio link.
12	Air Navigation Ireland (formerly of the IAA)	Yes	No issues.
13	Uisce Éireann	Yes	No issues.
14	Longford Co Co	No	No response. (No response expected.)
15	Tetra Ireland (TI)	Yes	No issues.
16	Three Ireland	Yes	Three Ireland have raised a concern regarding one Licensed PTP microwave radio link.
17	Viatel	Yes	No issues.
18	Virgin Media	No	No response. (Reminder sent Week 28 2023)
19	Vodafone Ireland	Yes	Vodafone have raised a concern regarding four Licensed PTP microwave radio link.

Table 3. Telecom Operators Consulted

3.1.1 2RN Response to Consultations

2RN provided the following email response to consultations:

> *"We have two links passing over the area outlined in your email below.*
> *Due to the risk of interference to broadcast services in the area we would also ask that a protocol be signed between 2rn and the developer should the site go ahead."*

Link Name / ID	Band MHz\GHz	Link Length	Site A					Site B				
			Lat	Long	Easting	Northing	Ant Height	Lat	Long	Easting	Northing	Ant Height
CHL_MGH DTT	658MHz	115km	53.807227	-7.715351			406m AMSL	52.968795	-8.718379			414m AMSL
CHL_COD	6GHz	60.6	53.807227	-7.715351			288m AMSL	53.320410	-8.125628			111m AMSL

3.1.2 Airwave Response to Consultations

Airwave provided the following email response to consultations:

> *"Airwave have no infrastructure in this area."*

3.1.3 An Garda Síochána Response to Consultations

To date no response has been received.

3.1.4 Coimisiún na Meán Response to Consultations

The BAI provided the following email response to consultations:

> *"Coimisiún na Meán does not perform an in-depth analysis of the effect of wind turbines on FM networks. However, we are not aware of any issues from existing windfarms into existing FM networks. Also, the proposed windfarms are not located close to any existing or planned FM transmission sites."*

3.1.5 BT Ireland Response to Consultations

BT provided the following email response to consultations:

> *"The planned development will have no impact on the BT Ireland microwave network."*

3.1.6 CIE/Irish Rail Response to Consultations

To date no response has been received.

3.1.7 Department of Defence Response to Consultations

To date no response has been received.

3.1.8 Eir Response to Consultations

Eir provided the following email response to consultations:

> *"With this area, we have one link present if you can maintain a buffer area back from the link:"*

#	Band	A-end			Height		B-end			Height
Link1	11Ghz	LD_4270	53°48'26.07"N	7°42'55.63"W	25	<--->	LD_4335	53°43'43.99"N	7°48'0.72"W	9

3.1.9 Enet Response to Consultations

Enet provided the following email response to consultations:

"We have the below links passing through this area:"

Link Name / ID	Band MHz\GHz	Link Length	Site A					Site B				
			Lat	Long	Easting	Northing	Ant Height	Lat	Long	Easting	Northing	Ant Height
RTE Cairn Hill – Abbott Laboratories Longford	15GHz	8.66km	53.807213	-7.715414			15m	53.737389	-7.773167			10m
RTE Cairn Hill – Bluebac Consuting Longford	23GHz	9.04km	53.807213	-7.715414			15m	53.735972	-7.780861			8m
RTE Cairn Hill – Enet Longford Colo	18GHz	10.2km	53.807213	-7.715414			15m	53.729556	-7.798583			10m

3.1.10 ESB Networks Response to Consultations

To date no response has been received.

3.1.11 Imagine Broadband Response to Consultations

Imagine Broadband provided the following email response to consultations:

"At present Imagine have one microwave link traversing this location. We require a 50m set back from our centre path. This may be reduced if proposed wind turbines are not located inside fresnel zone clearances.

I have forwarded your mail to our RF planning team. They will reply if needed."

	LD001 RTE Cairn Hill	LD004 PVT Longford Town Centre
Latitude	53 48 25.96 N	53 43 49.05 N
Longitude	007 42 55.92 W	007 48 10.11 W
Decimal Lat	53.807212	53.73029167
Decimal Long	7.715534	7.80280833
Elevation (m)	268.53	70.87
Antenna height (m)	39.00	23.70
Frequency (MHz)	18000.00	
Path length (km)	10.26	

3.1.12 Air Navigation Ireland Response to Consultations

Air Navigation Ireland provided the following email response to consultations:

> *"No issue for Navaids."*

3.1.13 Uisce Éireann Response to Consultations

Uisce Éireann provided the following email response to consultations:

> *"I can confirm that there are no Uisce Éireann radio links traversing the proposed Wind Farm development"*

3.1.14 Longford County Council Response to Consultations

To date no response has been received.

3.1.15 Tetra Ireland (TI) Response to Consultations

Tetra Ireland provided the following email response to consultations:

> *"We anticipate no impact from the development as proposed. Can you ensure that the development is also reviewed by eir."*

3.1.16 Three Ireland Response to Consultations

Three Ireland provided the following email response to consultations:

> *"We have one link that passes through this area. This is a vital link for us in the region. Please see details below."*

Link Name / ID	Band MHz\GHz	Link Length	Site A					Site B				
			Lat	Long	Easting	Northing	Ant Height	Lat	Long	Easting	Northing	Ant Height
16062	18	9276	53.73249	-7.77759	214,731	275,877	23	53.80724	-7.71544	218,799	284,212	63

3.1.17 Viatel Response to Consultations

Viatel provided the following email response to consultations:

"No impact, thank you."

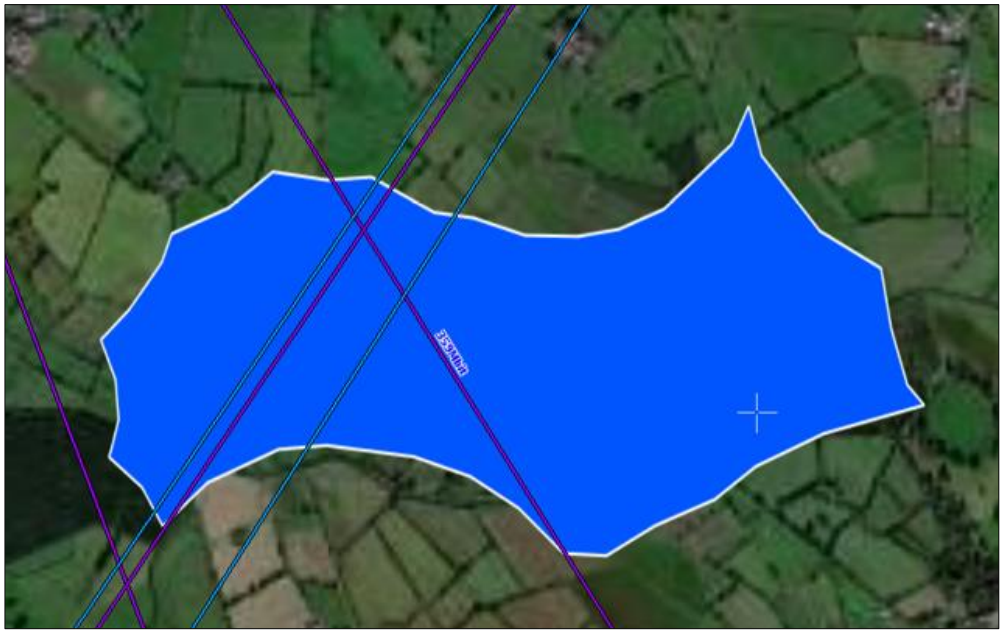
3.1.18 Virgin Media Response to Consultations

To date no response has been received.

3.1.19 Vodafone Ireland Response to Consultations

Vodafone provided the following email response to consultations:

"Please find all links that may be effected by Cloonanny Wind Farm Development, Co Longford with reference to the KML file."



LD010-LD055	**LD010**	22m	212517 Easting	281766 Northing	**LD055**	10m	217337 Easting	274095 Northing	**Freq Band**	26
LDCNH-LD554_GCN	**LDCNH**	30m	218797 Easting	284211 Northing	**LD554_GCN**	15m	213155 Easting	275864 Northing	**Freq Band**	18
LDCNH-LD050	**LDCNH**	28m	218797 Easting	284211 Northing	**LD050**	26m	212892 Easting	275374 Northing	**Freq Band**	26
LDCNH-LD056	**LDCNH**	20m	218797 Easting	284211 Northing	**LD056**	12m	213241 Easting	275472 Northing	**Freq Band**	18

Section 4 - Field Surveys

4. Introduction

To assess the accuracy of the network information (radio link co-ordinates, antenna heights etc.) provided by the telecom operators, field surveys of the telecom-mast sites in the vicinity of the proposed wind farm were carried out. During the field surveys, radio antennas with bearings in the direction of the wind farm were recorded.

The telecom mast-sites surveyed for this study (labelled Mast-Site A to Mast-Site M) are shown relative to the proposed wind farm site in Figure 4 below. The findings from the field surveys of the mast-sites are presented in Appendix B of this report.

Figure 4. Telecom Mast-Sites Surveyed.

Section 5 - Desktop Survey Analysis

5. Introduction

Based on the findings of the consultation process, there are six Telecom Operators with networks in the vicinity of the proposed development that require a detailed technical analysis:

- 2RN Network
- Enet Network
- Imagine Broadband Network
- Three Ireland Network
- Vodafone Network
- Eir Network

Sections 5.1 to 5.6 below outlines the desktop survey analysis findings* for the Telecom Operator Networks listed above.

5.1 2RN Network Analysis

The 2RN network in the vicinity of the proposed wind farm consists of one DTT Off-air radio link and one PTP microwave radio link. The radio links are listed in Table 4 below and a Plan View of the 2RN network is shown in Figure 5.

Link No.	Operator	Link Description
1	2RN	UHF DTT off-air radio link from Cairn Hill to Maghera
2	2RN	PTP microwave radio link from Cairn Hill to Coolderry

Table 4. 2RN Radio Links requiring Analysis

Figure 5. 2RN Radio Network – Plan View

** The Desktop Survey Analysis findings are subject to accuracy of the information (GPS co-ordinates, turbine dimensions, etc.) provided to Ai Bridges.*

To assess the potential impact of the proposed turbine layout, the 2RN radio network has been modelled in 3D and the Clearance Distances between the Fresnel Zone(s) of the radio link(s) and the blade-tip of the nearest turbines have been calculated. The results of this 3D network analysis are presented in Sections 5.1.1 that follows.

5.1.1 2RN 3D Network Analysis (2-Turbine Layout)

The findings of the 3D analysis indicate that there is a clearance distance 50.6m between the blade-tip of T02 and the Fresnel Zone of the of the radio link between Cairn Hill and Coolderry. As the turbines will not obstruct the radio paths of the links there will be no impact on the 2RN radio network due to the proposed wind farm development.

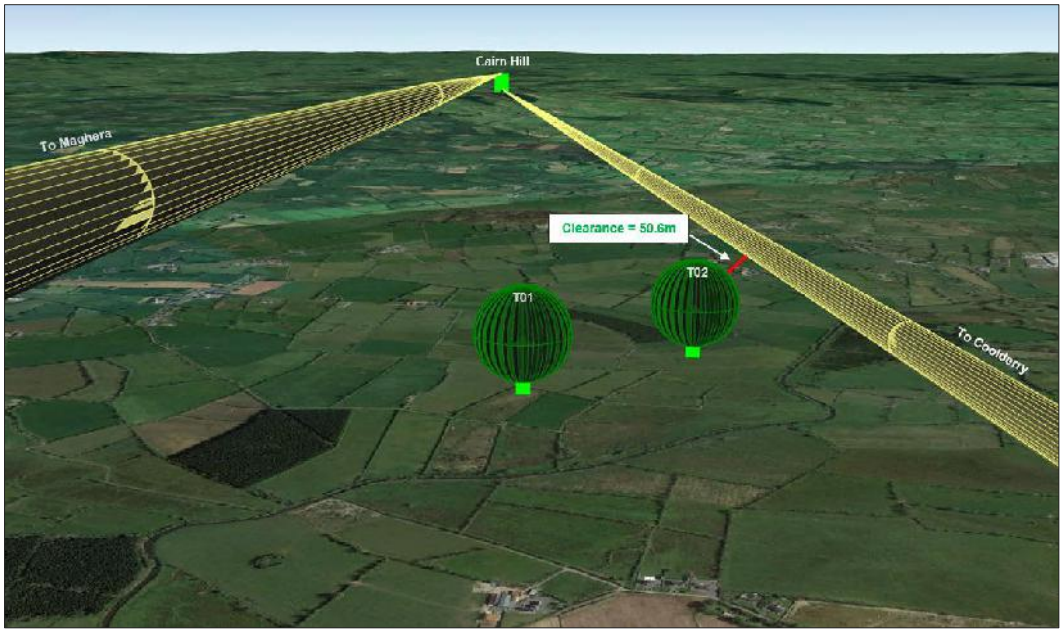


Figure 6. 3D View of 2RN Radio Network

Table 5 below provides a summary of the radio link interference analysis findings for the proposed turbine layout.

Link No.	Description	Impact due to proposed Turbine Layout (Clearance distance to nearest turbine)
1	Cairn Hill to Maghera	No impact. (Clearance to T01 > 100 m)
2	Cairn Hill to Coolderry	No impact. (Clearance to T02 = 50.6 m)

Table 5. Network Analysis Summary – 2RN

5.2 Enet Network Analysis

The Enet network in the vicinity of the proposed wind farm consists of three Point-to-Point (PTP) microwave radio links. The radio links are listed in Table 6 below and a Plan View of the Enet network is shown in Figure 9.

Link No.	Operator	Link Description
1	Enet	PTP microwave radio link from Cairn Hill to Abbott Longford.
2	Enet	PTP microwave radio link from Cairn Hill to Bluebac Longford.
3	Enet	PTP microwave radio link from Cairn Hill to Longford Co Co.

Table 6. Enet Radio Links requiring Analysis

Figure 7. Enet Radio Network – Plan View

To assess the potential impact of the proposed turbine layout, the Enet radio network has been modelled in 3D and the Clearance Distances between the Fresnel Zone(s) of the radio link(s) and the blade-tip of the nearest turbines have been calculated. The results of this 3D network analysis are presented in Section 5.2.1 that follows.

5.2.1 Enet 3D Network Analysis (2-Turbine Layout)

The findings of the 3D analysis indicate that there is a clearance distance 16.2 m between the blade-tip of T02 and the Fresnel Zone of the of the radio link between Cairn Hill and Bluebac. As the turbines will not obstruct the radio paths of any of the three links there will be no impact on the Enet radio network due to the proposed wind farm development.

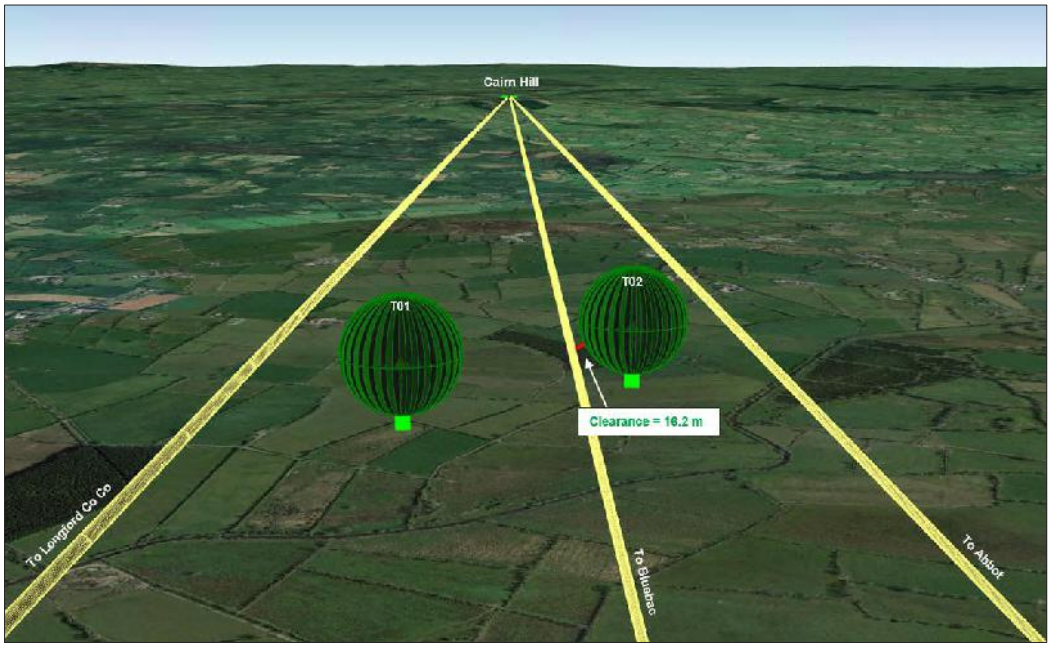


Figure 8. 3D View of Enet Radio Network

Table 7 below provides a summary of the radio link interference analysis findings for the proposed turbine layout.

Link No.	Description	Impact due to proposed Turbine Layout (Clearance distance to nearest turbine)
1	Cairn Hill to Abbott	No impact. (Clearance to T02 > 50 m)
2	Cairn Hill to Bluebac	No impact. (Clearance to T02 = 16.2 m)
3	Cairn Hill to Longford Co Co	No impact. (Clearance to T01 > 50 m)

Table 7. Network Analysis Summary – Enet

5.3 Imagine Broadband Network Analysis

The Imagine Broadband network in the vicinity of the proposed wind farm consists of one Point-to-Point (PTP) microwave radio link. The radio link is listed below in Table 8 and a Plan View of the Three Ireland network is shown in Figure 9.

Link ID	Operator	Link Description
1	Imagine Broadband	PTP microwave radio link from Cairn Hill to Longford Town Shopping Centre.

Table 8. Imagine Broadband Radio Links requiring Analysis

Figure 9. Imagine Broadband Radio Network – Plan View

To assess the potential impact of the proposed turbine layout, the Imagine Broadband radio network has been modelled in 3D and the Clearance Distance between the Fresnel Zone of the radio link and the blade-tip of the nearest turbine has been calculated. The results of this 3D network analysis are presented in Section 5.3.1 that follows.

5.3.1 Imagine Broadband 3D Network Analysis (2-Turbine Layout)

The findings of the 3D analysis indicate that there is a clearance distance over 100 m between the blade-tip of T01 and the Fresnel Zone of the of the radio link between Cairn Hill and Longford Shopping Centre. As the turbines will not obstruct the radio path of the link there will be no impact on the Imagine Broadband radio network due to the proposed wind farm development.

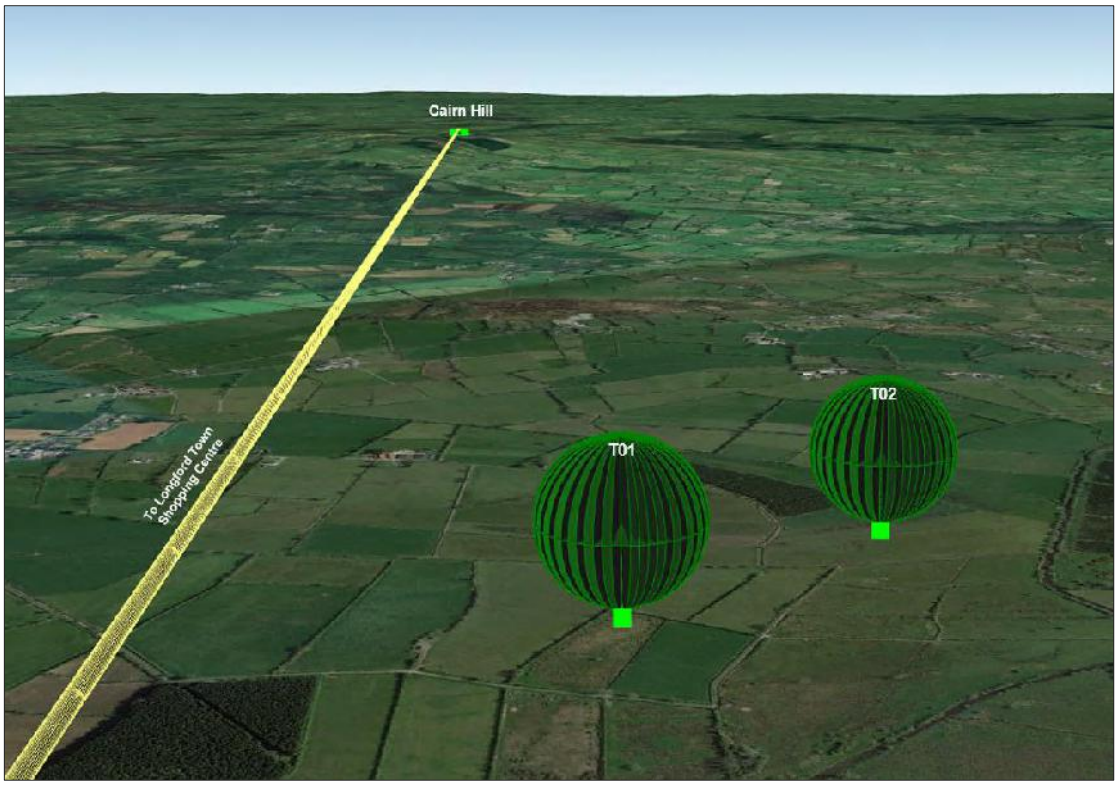


Figure 10. 3D View of Imagine Broadband Radio Network

Table 9 below provides a summary of the radio link interference analysis findings for the proposed turbine layout.

Link No.	Description	Impact due to proposed Turbine Layout (Clearance distance to nearest turbine)
1	Cairn Hill to Longford Town Shopping Centre.	No impact (Clearance > 100 m)

Table 9. Network Analysis Summary – Imagine Broadband

5.4 Three Ireland Network Analysis

The Three Ireland network in the vicinity of the proposed wind farm consists of one Point-to-Point (PTP) microwave radio link. The radio link is listed below in Table 10 and a Plan View of the Three Ireland network is shown in Figure 17.

Link ID	Operator	Link Description
1	Three Ireland	PTP microwave radio link from Templemichael Business Park to Cairn Hill.

Table 10. Three Ireland Radio Links requiring Analysis

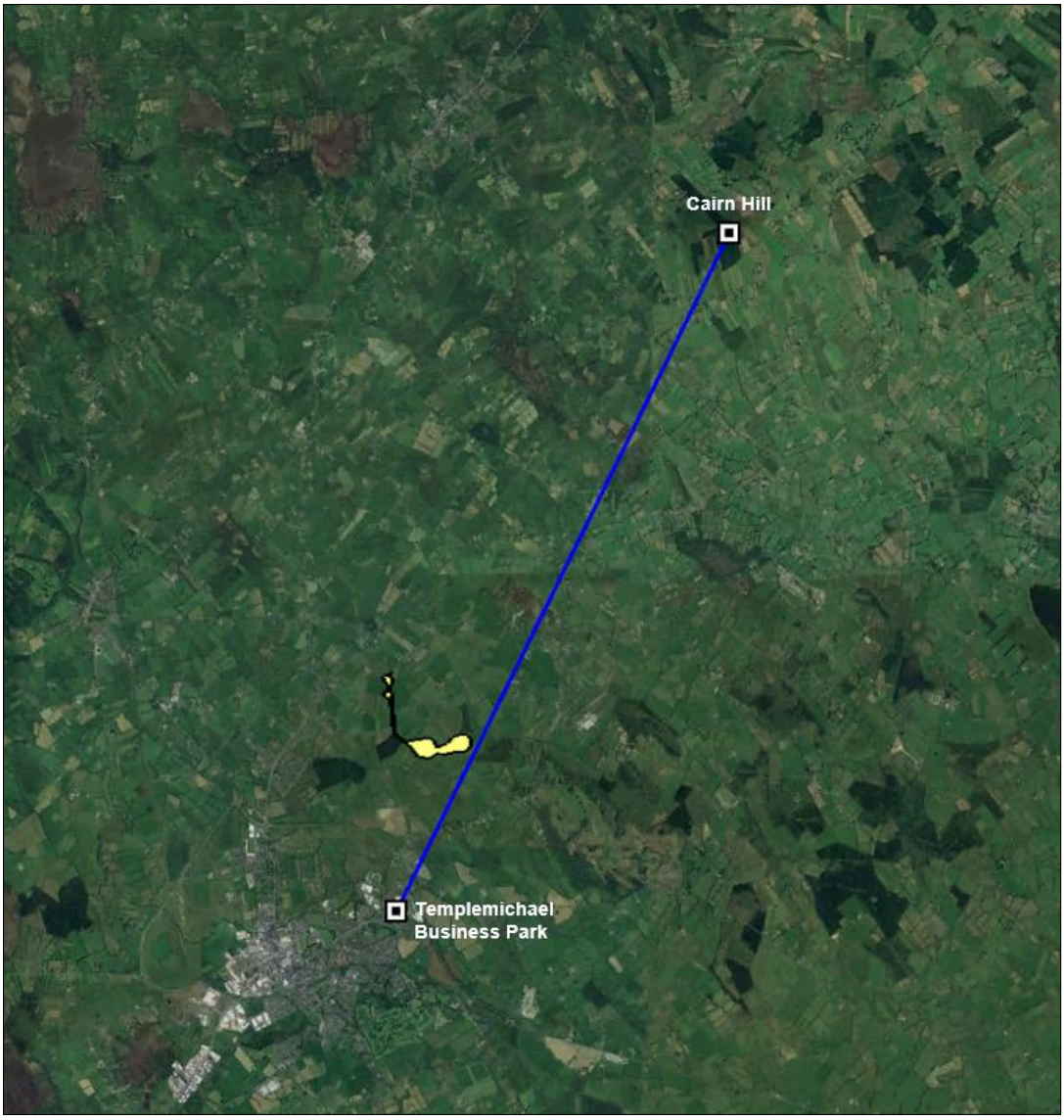


Figure 11. Three Ireland Radio Network – Plan View

To assess the potential impact of the proposed turbine layout, the Three Ireland radio network has been modelled in 3D and the Clearance Distance between the Fresnel Zone of the radio link and the blade-tip of the nearest turbine has been calculated. The results of this 3D network analysis are presented in Section 5.4.1 that follows.

.

5.4.1 Three Ireland 3D Network Analysis (2-Turbine Layout)

The findings of the 3D analysis indicate that there is a clearance distance over 50 m between the blade-tip of T02 and the Fresnel Zone of the of the radio link between Cairn Hill and Templemichael Business Park. As the turbines will not obstruct the radio path of the link there will be no impact on the Three Ireland radio network due to the proposed wind farm development.

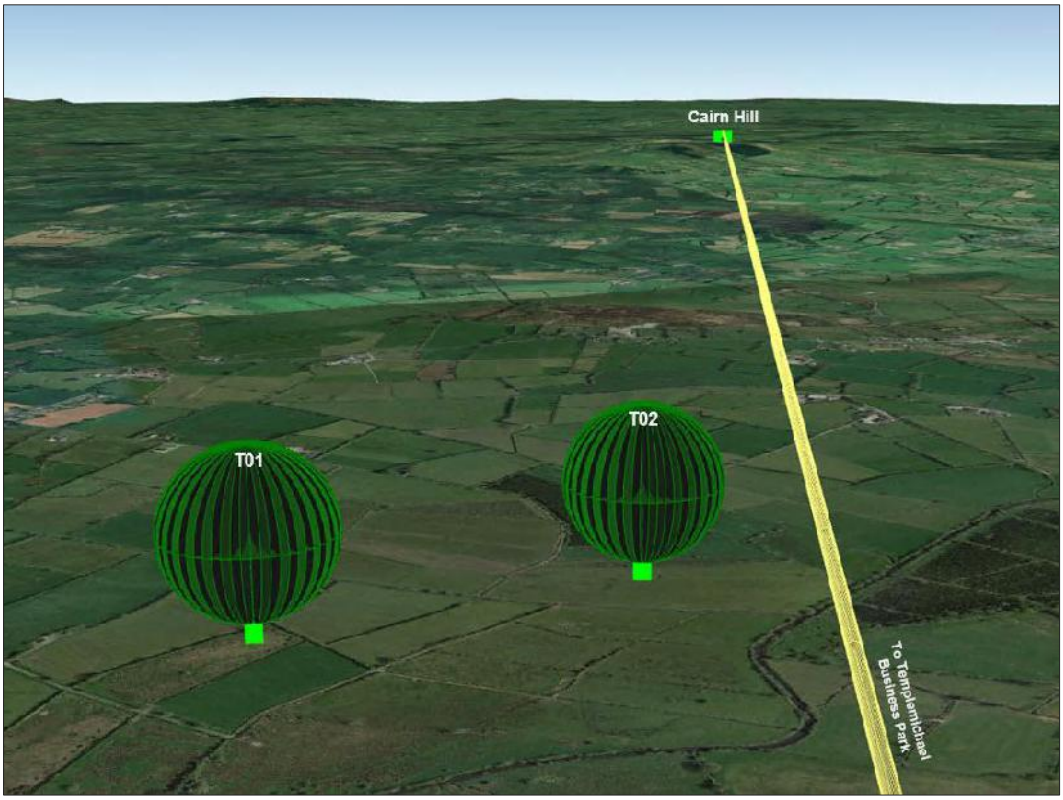


Figure 12. 3D View of Three Ireland Radio Network - 2-Turbine Layout

Table 11 below provides a summary of the radio link interference analysis findings for the proposed turbine layout.

Link No.	Description	Impact due to proposed Turbine Layout (Clearance distance to nearest turbine)
1	Templemichael Business Park to Cairn Hill	No impact. (Clearance > 50 m)

Table 11. Network Analysis Summary – Three Ireland

5.5 Vodafone Ireland Network Analysis

The Vodafone network in the vicinity of the proposed wind farm consists of one Point-to-Point (PTP) microwave radio link. The radio link is listed below in Table 12 and a Plan View of the Vodafone network is shown in Figure 21.

Link ID	Operator	Link Description
1	Vodafone	PTP microwave radio link from Corlea to Brian Fallon Hardware.
2	Vodafone	PTP microwave radio link from Cairn Hill to Longford Garda Station.
3	Vodafone	PTP microwave radio link from Cairn Hill to Longford ESB.
4	Vodafone	PTP microwave radio link from Cairn Hill to Cablecomm.

Table 12. Vodafone Radio Links requiring Analysis

Figure 13. Vodafone Radio Network – Plan View

To assess the potential impact of the proposed turbine layout, the Vodafone radio network has been modelled in 3D and the Clearance Distances between the Fresnel Zone(s) of the radio link(s) and the blade-tip of the nearest turbines have been calculated. The results of this 3D network analysis are presented in Section 5.5.1 that follows.

5.5.1 Vodafone 3D Network Analysis (2-Turbine Layout)

The findings of the 3D analysis indicate that there is a clearance distance 32.5 m between the blade-tip of T01 and the Fresnel Zone of the of the radio link between Corlea to Brian Fallon Hardware. As the turbines will not obstruct the radio paths of any of the four links there will be no impact on the Vodafone radio network due to the proposed wind farm development.

Figure 14. 3D View of Vodafone Radio Network

Table 13 below provides a summary of the radio link interference analysis findings for the proposed turbine layout.

Link No.	Description	Impact due to proposed Turbine Layout (Clearance distance to nearest turbine)
1	Corlea to Brian Fallon Hardware	No impact. (Clearance to T01 = 32.5 m)
2	Cairn Hill to Longford Garda Station.	No impact (Clearance to T01 > 50 m)
3	Cairn Hill to Longford ESB.	No impact (Clearance to T01 > 50 m)
4	Cairn Hill to Cablecomm.	No impact (Clearance to T01 > 50 m)

Table 13. Network Analysis Summary – Vodafone

5.6 Eir Network Analysis

The Eir network in the vicinity of the proposed wind farm consists of one Point-to-Point (PTP) microwave radio link. The radio link is listed below in Table 14 and a Plan View of the Eiree Ireland network is shown in Figure 16.

Link ID	Operator	Link Description
1	Eir	PTP microwave radio link from Cairn Hill to Cablecomm.

Table 14. Eir Radio Links requiring Analysis

Figure 15. Eir Radio Network – Plan View

To assess the potential impact of the each of the proposed turbine layouts, the Eir radio network has been modelled in 3D and the Clearance Distance between the Fresnel Zone of the radio link and the blade-tip of the nearest turbine has been calculated. The results of this 3D network analysis are presented in Section 5.6.1 that follows.

5.6.1 Eir 3D Network Analysis (2-Turbine Layout)

The findings of the 3D analysis indicate that there is a clearance distance over 5 0 m between the blade-tip of T01 and the Fresnel Zone of the of the radio link between Cairn Hill and Cablecomm. As the turbines will not obstruct the radio path of the link there will be no impact on the Eir radio network due to the proposed wind farm development.

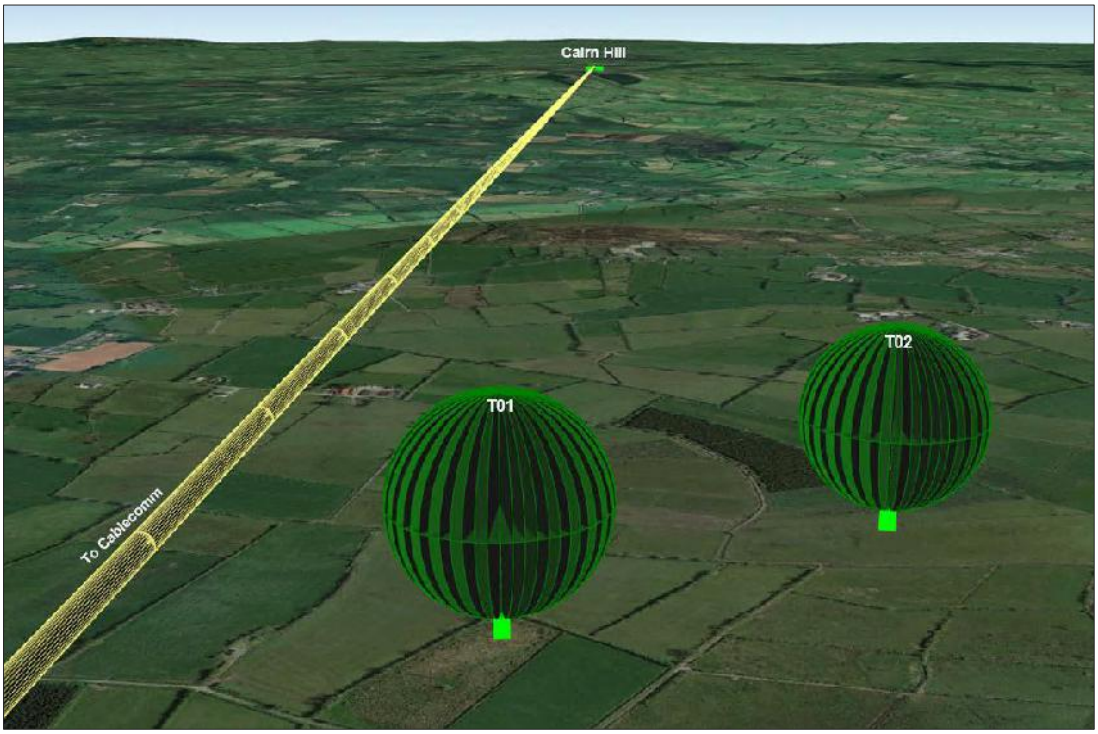


Figure 16. 3D View of Eir Radio Network

Table 15 below provides a summary of the radio link interference analysis findings for the proposed turbine layout.

Link No.	Description	Impact due to proposed Turbine Layout (Clearance distance to nearest turbine)
1	Cairn Hill to Cablecomm.	No impact (Clearance to T01 > 50m)

Table 15. Network Analysis Summary – Eir

Section 6 - Conclusions

6. Conclusions

From the findings made in this report the following conclusions have been made:

- Results from the telecom operator consultations and desktop survey analysis indicate that there are twelve radio links that cross over/near the proposed wind farm site.
- 3D network analysis indicates that the proposed turbine layout would not impact any of the twelve radio links that cross over the proposed development site.

Operator	Radio Link Description	Impact of Turbine Layout
2RN	Cairn Hill to Maghera	No Impact Clearance to nearest Turbine > 100 m
2RN	Cairn Hill to Coolderry	No Impact Clearance to nearest Turbine (T02) = 50.6 m
Enet	Cairn Hill to Abbott Longford.	No Impact Clearance to nearest Turbine > 50 m
Enet	Cairn Hill to Bluebac Longford.	No Impact Clearance to nearest Turbine (T02) = 16.2 m
Enet	Cairn Hill to Longford Co Co.	No Impact Clearance to nearest Turbine > 50 m
Imagine Broadband	Cairn Hill to Longford Town Shopping Centre.	No Impact Clearance to nearest Turbine > 50 m
Three Ireland	Templemichael to Cairn Hill.	No Impact Clearance to nearest Turbine > 50 m
Vodafone	Corlea to Brian Fallon Hardware	No Impact Clearance to nearest Turbine (T01) = 32.5 m
Vodafone	Cairn Hill to Longford Garda	No Impact Clearance to nearest Turbine > 50 m
Vodafone	Cairn Hill to Longford ESB	No Impact Clearance to nearest Turbine > 50 m
Vodafone	Cairn Hill to Cablecomm.	No Impact Clearance to nearest Turbine > 50 m
Eir	Cairn Hill to Cablecomm.	No Impact Clearance to nearest Turbine > 50 m

Table 16. Network Analysis Summary

- A 3D view of the turbine layout relative to the twelve radio links that pass over the proposed development site is shown below in Figure 17.

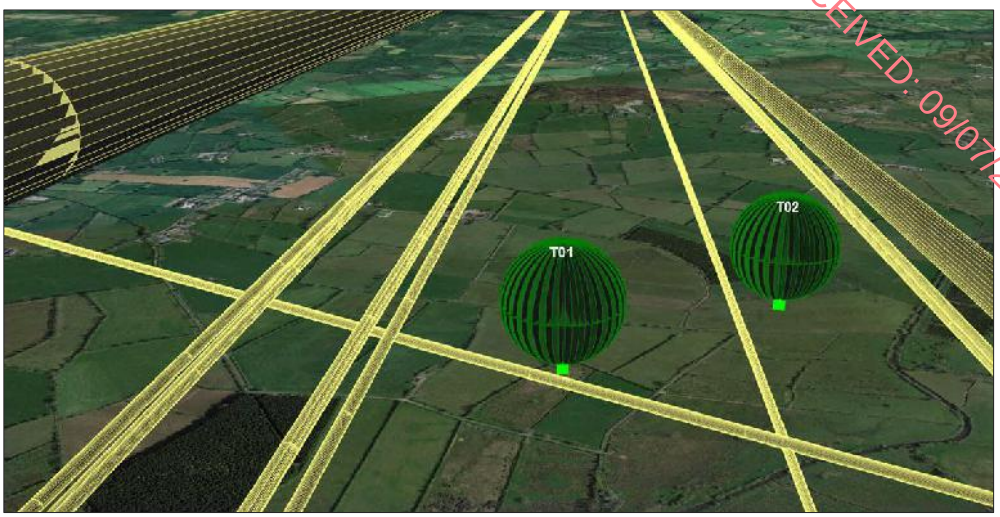


Figure 17. 3D View of radio links relative to proposed turbine layout.

APPENDIX A – Wind Farm Turbine Coordinates

Appendix A – Wind Farm Turbine Co-ordinates

The development is in the pre-planning stage and the Final Turbine Layout is yet to be finalized. The turbine layout considered in this Telecommunications Impact Study is provided below.

Turbine ID	Co-ordinates (ITM)	
	Easting	Northing
T01	615,037	777,901
T02	615,470	777,954

Tabel A1. Wind Farm Layout - Turbine Co-ordinates

APPENDIX B – Field Survey Findings

Appendix B – Field Survey Findings

The telecom mast-sites surveyed for this Telecoms Impact Study are shown relative to the proposed wind farm site in Figure 18 below.

Figure 18. Telecom Mast-Sites shown relative to proposed wind farm.

The findings from the field surveys of each of the mast-sites are presented below.

Mast-Site A (Cairn Hill)

Telecommunications Mast-Site A is located at Cairn Hill, County Longford, and is approximately 7 km northeast of the proposed wind farm. A photo of the mast-structure at this location is shown below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 17.

Figure 19. Mast-Site A

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast A	2RN, Enet, Imagine Broadband, Three Ireland, Vodafone

Table 17. Field Survey Summary – Mast-Site A

Mast-Site B (Corlea)

Telecommunications Mast-Site B is located in the townland of Corlea and is approximately 4 km northwest of the proposed wind farm. A photo of the mast at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 18.

Figure 20. Mast-Site B

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast B	Vodafone

Table 18. Field Survey Summary – Mast-Site B

Mast-Site C (Brian Fallon Hardware)

Telecommunications Mast-Site C is located at the Brian Fallon Hardware Store, outside of Longford Town and is approximately 4 km southeast of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 19.

Figure 21. Mast-Site C

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast C	Vodafone

Table 19. Field Survey Summary – Mast-Site C

Mast-Site D (Abbotts, Longford)

Telecommunications Mast-Site D is located at the Abbott Laboratories facility in Longford Town and is approximately 1 km south of the proposed wind farm.

Access into the Abbott grounds was not possible on the day of survey; however a street-side view of the facility is shown below in the Figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 20.

Figure 22. Mast-Site D

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast D	Enet

Table 20. Field Survey Summary – Mast-Site D

Mast-Site E (Bluebac, Longford)

Telecommunications Mast-Site E is located at Bluebac Consulting in Longford Town and is approximately 1 km south of the proposed wind farm site. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 21.

Figure 23. Mast-Site E

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast E	Enet

Table 21. Field Survey Summary – Mast-Site E

Mast-Site F (Templemichael Business Park)

Telecommunications Mast-Site F is located in Templemichael Business Park, Co Longford and is approximately 2 km south of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 22.

Figure 24. Mast-Site F

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast F	Three Ireland

Table 22. Field Survey Summary – Mast-Site F

Mast-Site G (Longford Garda Station)

Telecommunications Mast-Site G is located at the rear of Longford Town Garda Station and is approximately 2 km southwest of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 23.

Figure 25. Mast-Site G

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast G	Enet

Table 23. Field Survey Summary – Mast-Site G

Mast-Site H (Longford Town Shopping Centre)

Telecommunications Mast-Site H is located at the on the roof of Longford Town Shopping Centre and is approximately 2 km southwest of the proposed wind farm. Access to the roof of the Shopping Centre was not possible on the day of survey; however a street-side view of the site is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 24.

Figure 26. Mast-Site H

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast H	Imagine Broadband

Table 24. Field Survey Summary – Mast-Site H

Mast-Site I (Longford County Council)

Telecommunications Mast-Site I is located at the Longford County Council Offices in Longford Town and is approximately 2 km southwest of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 23.

Figure 27. Mast I

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast I	Enet

Table 25. Field Survey Summary – Mast I

Mast-Site J (Crossan Cables)

Telecommunications Mast-Site J is located at Cablecomm in Longford Town and is approximately 2 km southwest of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 26.

Figure 28. Mast J

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast J	Eir, Vodafone

Table 26. Field Survey Summary – Mast J

Mast-Site K (Longford ESB)

Telecommunications Mast-Site K is located within the grounds of ESB Longford and is approximately 2.5 km southwest of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 27.

Figure 29. Mast K

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast K	Vodafone

Table 27. Field Survey Summary – Mast K

Mast-Site L (Coolderry)

Telecommunications Mast-Site L is located in townland of Gortnashavoge (in the parish of Coolderry), Co Roscommon and is approximately 53 km southwest of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 28.

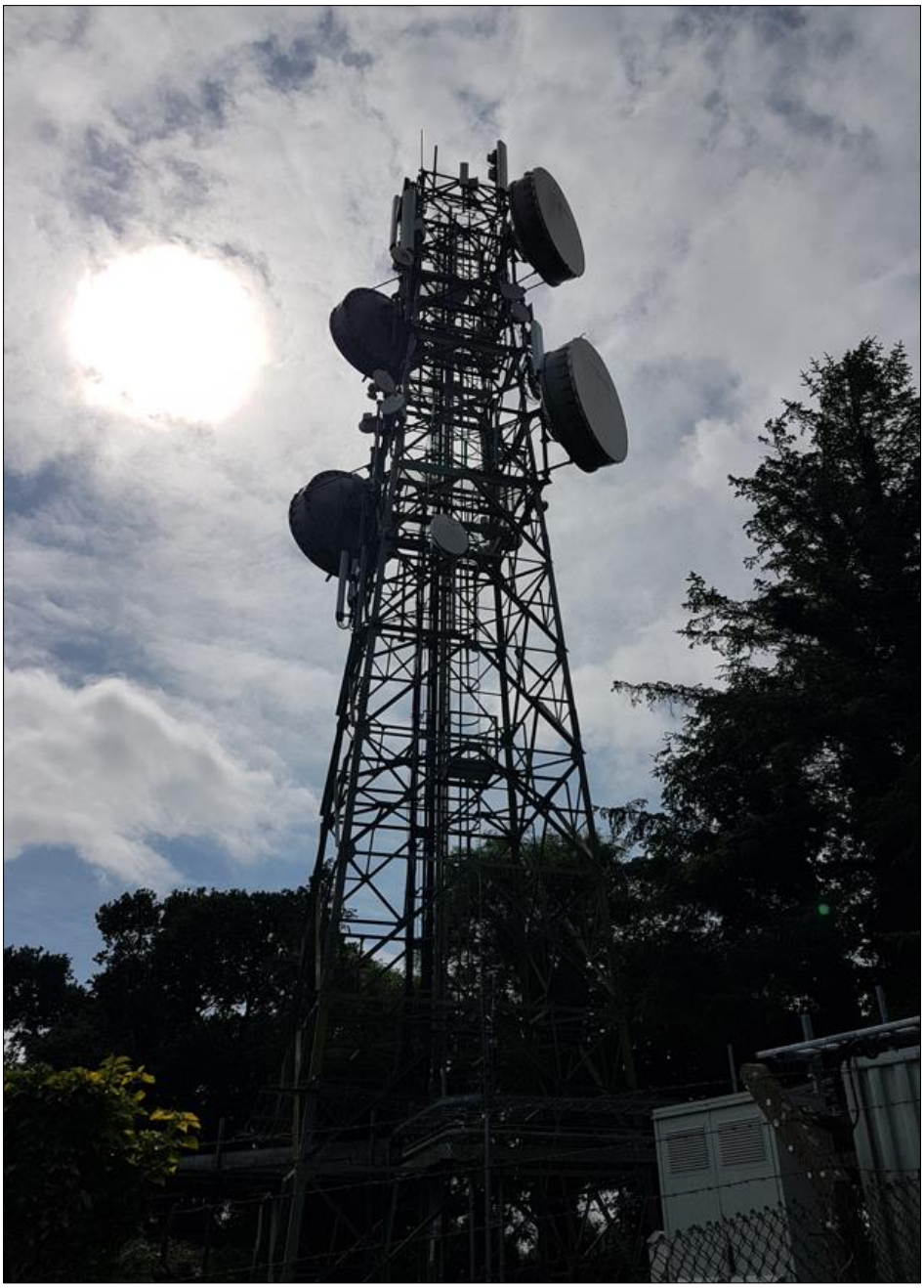


Figure 30. Mast L

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast L	2RN

Table 28. Field Survey Summary – Mast L

Mast-Site M (Maghera)

Telecommunications Mast-Site M is located on Maghera Mountain, Co Clare and is approximately 107 km southwest of the proposed wind farm. A photo of the mast-structure at this location is shown in the figure below. The Telecom Operators who have radio links operating from this mast-site in the direction of the wind farm are listed in Table 29.

Figure 31. Mast M

Mast ID	Telecom operators with radio links in direction of proposed wind farm
Mast M	2RN

Table 29. Field Survey Summary – Mast M

APPENDIX 7.2
CLOONANNY WIND FARM
AVIATION REVIEW STATEMENT

VOLUME III
APPENDICES TO
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

RFI Response July 2025

Report

Cloonanny Wind Farm

Aviation Review Statement

Document Number:	002/CY/1024			
Author:	PT\DMG			
Approved for Release:	Rev 3.0	KH	**Date:**	01/11/2024

Document Filename: *Cloonanny Wind Farm - Aviation Review Statement*

Executive Summary

Ai Bridges Ltd have been commissioned to review the possible impacts of the proposed wind farm on aviation systems in the vicinity of the proposed wind farm development at Cloonanny. As part of the review, the following subjects were considered:

- Annex 14 - Obstacle Limitation Surfaces (OLS)
- Annex 15 – Aerodrome Surfaces
- Building Restricted Areas (BRA)
- Minimum Sector Altitudes (MSA)
- Instrument Flight Procedures
- Permitted Wind Farms in vicinity of Proposed Wind Farm
- Communications, Navigation and Radar Surveillance Systems Safeguarding
- Flight Inspection and Calibration
- Aeronautical Obstacle Warning Light Scheme
- Irish Air Corps / Department of Defence Safeguarding
- Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)

Annex 14 - Obstacles Limitation Surfaces (OLS)

A review shows that the proposed wind farm would be located outside the Outer Horizontal Surface of the Ireland West Runway Obstacle Limitation Surfaces (OLS), as defined in ICAO (International Civil Aviation Organization) Annex 14.

As the proposed wind farm is situated outside the Outer Horizontal Surface and there is no penetration of the take-off or approach surfaces, it is unlikely that there will be any impacts to the OLS surfaces for Ireland West Airport.

Annex 15 - Aerodrome Surfaces

Following a review of “Terrain and Obstacle Requirements” as defined in ICAO Annex 15, turbines at the proposed development would need to be registered if they are more than 100 meters above terrain. The distance from the centre point (ARP – Airport Reference Point) of Ireland West Airport to the boundary of Area 1 of the Annex 15 Aerodrome Surface is 45km. This area encloses the TMA area i.e. Total Maneuvering Area and this is used for circling and maneuvering by aircraft. Should the proposed wind farm be permitted, the turbines would be outside 45km of Ireland West Airport’s ARP and would not cause an impact on the Annex 15 Aerodrome Surface. However, the proposed turbines would be required to be included in the IAA Electronic Air Navigation Obstacle Dataset.

Building Restricted Areas (BRA)

A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with the potential for causing unacceptable interference to navigation facilities. A review shows that the proposed wind farm is over 60 km from the Ireland West BRA. At this distance there will be no impacts to the BRA due to wind turbines at Cloonanny.

Minimum Sector Altitudes (MSA)

The Minimum Sector Altitudes (MSA) is the lowest altitude which may be used that will provide a minimum obstacle clearance of 1000ft above all obstacles within a sector of 25 nautical miles (46km) from the VOR/DME at Ireland West Airport. As the proposed wind farm is located outside the MSA Sectors for Ireland West Airport, there should be no impact on the published MSA altitudes.

Instrument Flight Procedures

There are 16 published Instrument Flight Procedures for flights to/from Ireland West Airport. Due to the distance of the proposed wind farm from the airport, and as there are existing obstacles nearer to the airport than the proposed development, there should be no impacts to these flight procedures.

Communications and Navigation Systems

As the proposed wind farm is approximately 70 km from the Localizer and transmitting antennas at Ireland West Airport, it is very unlikely that wind turbines at the proposed development will have any impact on these ATS communications and radio navigational aids.

Radar Surveillance Sensors

For Radar Surveillance Systems, EUROCONTROL Guidelines require a 16 km safe distance from the surveillance radar system (SSR), for a "*Zone 4 - No Assessment*" condition. It has been highlighted in the analysis that turbines located at the proposed farm would be located at a minimum distance of 100 km from the radar stations at Dooncarton, Shannon, Woodcock Hill and Dublin Airport and in Assessment Zone 4 of the EUROCONTROL Guidelines. As turbines at the proposed development would be located in Assessment Zone 4, a detailed impact assessment on Radar Surveillance Systems will not be required by the IAA.

Flight Inspection and Calibration

Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an IAA approved

Flight Inspection Service Provider. The checks are carried out during annual inspections consisting of radial and orbital test flights around Ireland West Airport for calibration of instrument landing systems. It is unlikely that the Flight Inspection Procedures will be impacted as the proposed wind farm is sufficiently far from the airport runways and the flight inspection procedures should already account for the existing obstacles (e.g. terrain and existing wind farms).

Aeronautical Obstacle Warning Light Scheme

In the event of a grant of planning consent the IAA are likely to request lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed development would be considered as an en-route obstacle.

Irish Air Corps / Department of Defence (DoD) Safeguarding

The Irish Air Corps position on wind farms / tall structures are outlined in the paper which was published in 2014: “Air Corps Wind Farm/ Tall Structures Position Paper”. In the position paper the Irish Air Corps outlines restricted areas where they would object to the installation of wind turbines /tall structures. The areas defined by the Air Corps have been mapped and analysis shows that the proposed wind farm site is located within a critical low-level flying route (i.e. within 3 NM of the N4).

Although the proposed wind farm site at Cloonanny is located within 3 NM of the N4 National Primary Road, it should be noted that low-level flights along the N4 are likely to avoid the proposed development site, as flight plans in this area would be required to take into consideration the proximity of the Telecoms mast site at Cairn Hill. This telecoms mast site would be considered a significant aviation obstacle and would offer shielding to the proposed development at Cloonanny. It should also be noted that in 2023 Longford County Council permitted a wind turbine at Lissanore, with is located within 3NM of the N4 (and c.14 km from Cloonanny).

The proposed turbines at Cloonanny should have no impacts on IAC low-level flights, as flight along the N4 should stay on the southern side of the N4 to avoid Cairn Hill and the permitted turbine at Lissanore (when constructed).

Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)

The standard concerns that are being raised in recent consultations with the Irish Air Corps also highlight the potential for obstacles that could impact the operations of the Garda Air Support Unit (GASU) and the Emergency Aeromedical Service (EAS). An assessment of GASU and EAS operations indicates that they are unlikely to be impacted by the proposed wind farm development.

Sections

Appendices

Abbreviations

AGL	Above Ground Level
AMSL	Above Mean Sea Level
ARP	Airport Reference Point
BRA	Building Restricted Area
DME	Distance Measuring Equipment
DoD	Department of Defence
EAS	Emergency Aeromedical Service
GASU	Garda Air Support Unit
GP	Glide Path
HLS	Helicopter Landing Site
IAC	Irish Air Corps
ICAO	International Civil Aviation Organization
IFP	Instrument Flight Procedure
ILS	Instrument Landing System
OLS	Obstacle Limitation Surface
PSR	Primary Surveillance Radar
RWY	Runway
SID	Standard Instrument Departure Route
STAR	Standard Arrival Route
SSR	Secondary Surveillance Radar
NATS	National Air Traffic Services (UK)
NM	Nautical Miles
VOR	VHF Omni-directional Range Station

1. Introduction

This section provides a brief summary of the proposed wind farm development at Cloonanny and of the nearest significant aviation installation at Ireland West Airport.

1.1 Wind Farm Site Information

The proposed wind farm development is located in County Longford approximately 70 km southeast of Ireland West Airport. Figure 1 shows the proposed wind farm site with respect to Ireland West Airport and the IAA radar stations at Dooncarton, Shannon, Woodcock Hill and Dublin Airport.

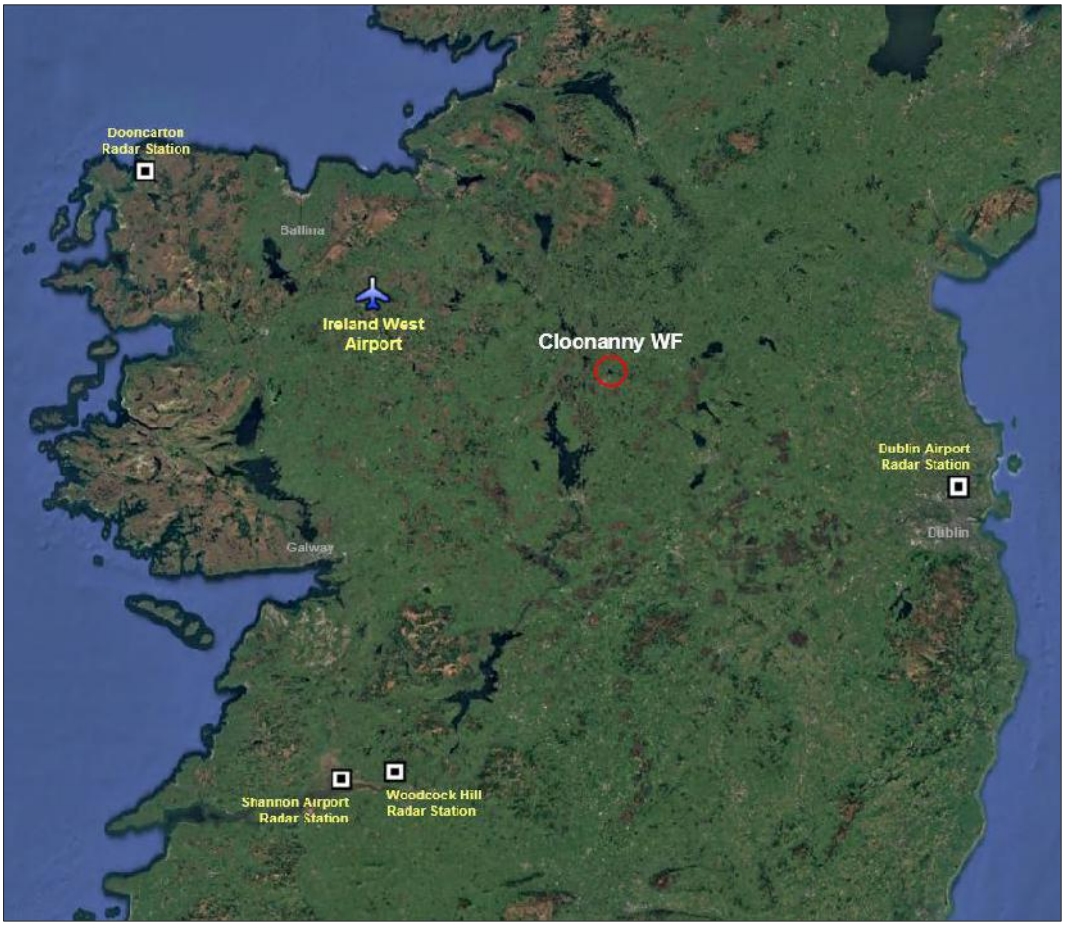


Figure 1. Location of proposed wind farm at Cloonanny

1.2 Ireland West Airport

Table 2 below shows the co-ordinates of Ireland West Airport and the distance from the Airport reference Point (ARP) to the proposed wind farm site. Ireland West Airport operates in Class C controlled airspace with Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) Flight rules.

Location	Installation	Description	Airport Ref. Point ARP	ARP Distance to Proposed Wind Farm
Ireland West Airport, Charlestown, Co Mayo	International Airport	Single Asphalt Runway Airspace: Class C	53 54 37 N 08 49 06 W (Mid-point of Runway 08/26).	70.2 km

Table 1. Ireland West Airport Details

The aeronautical navigation aids at the aerodrome include DVOR/DME, NDB, ILS LOC and ILS GP.

Figure 2. Ireland West International Airport

2. Aviation Review

In this section a review of the following a review of the following Aviation topics is provided.

- Annex 14 - Obstacle Limitation Surfaces (OLS)
- Annex 15 – Aerodrome Surfaces
- Building Restricted Areas (BRA)
- Minimum Sector Altitudes (MSA)
- Instrument Flight Procedures
- Permitted Wind Farms in vicinity of proposed Wind Farm
- Communications, Navigation and Radar Surveillance Systems Safeguarding
- Flight Inspection and Calibration
- Aeronautical Obstacle Warning Light Scheme
- Irish Air Corps / DoD Safeguarding
- Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)

2.1 Annex 14 Obstacle Limitation Surfaces (OLS)

A review of the Annex 14 Obstacles Limitation Surfaces (OLS) was first was carried out by first plotting the proposed wind farm location and the airport obstacle surfaces. The obstacle limitation surfaces for Ireland West Airport are plotted based on the following:

- Annex 14 to the Convention on International Civil Aviation Aerodromes Volume I - Aerodrome Design and Operations Seventh Edition July 2016"
- Certification Specifications and Guidance Material for Aerodromes Design CS-ADR-DSN Issue 4, 8th of December 2017

Figure 3 below shows the OLS in relation to the proposed Cloonanny wind farm. The distance from the ARP at Ireland West Airport (i.e the runway centre-point), to the nearest point of the proposed wind farm is 70 km. The analysis of the OLS plots indicates that turbines at the proposed wind farm would not penetrate the Outer Horizontal Surface which extends to 15km from the Airport Reference Point (ARP) or runway centre-point.

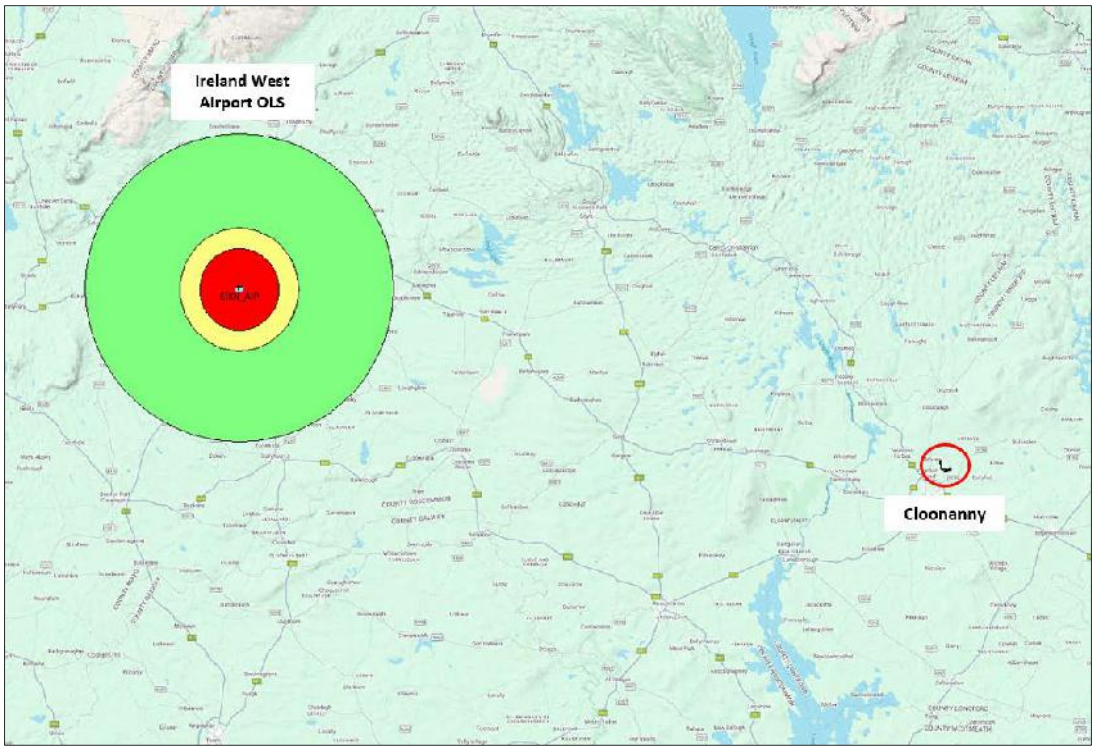


Figure 3. Cloonanny Wind Farm in relation to Ireland West Airport OLS.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Annex 14 Obstacle Limitation Surfaces	No action.	None

Table 2. Aviation Impact Review - Annex 14 Obstacle Limitation Surfaces

2.2 Annex 15 Aerodrome Surfaces

Turbines at the proposed wind farm would not penetrate the ICAO Annex 15 Aerodrome Surface as shown in Figure 4. The “Terrain and Obstacle Requirements Area” is defined in ICAO Annex 15 as an area of up to 45km from the Aerodrome ARP. (An illustration of ICAO Annex 15 Area 1 and Area 2 Surface is provided in Appendix A).

As the nearest turbine at the proposed wind farm would be more than 45km from the ARP at Ireland West Airport, there will be no penetration of the Annex 15 surface for the Ireland West Aerodrome. All obstacles, if they are more than 100 meters above terrain for a distance of up to 45km from the ARP, need to be registered in the IAA Air Navigation Obstacle Data Set. This area is known as the TMA area i.e. Terminal Maneuvering Area and is used for en-route circling and maneuvering and is shown in Figure 4.

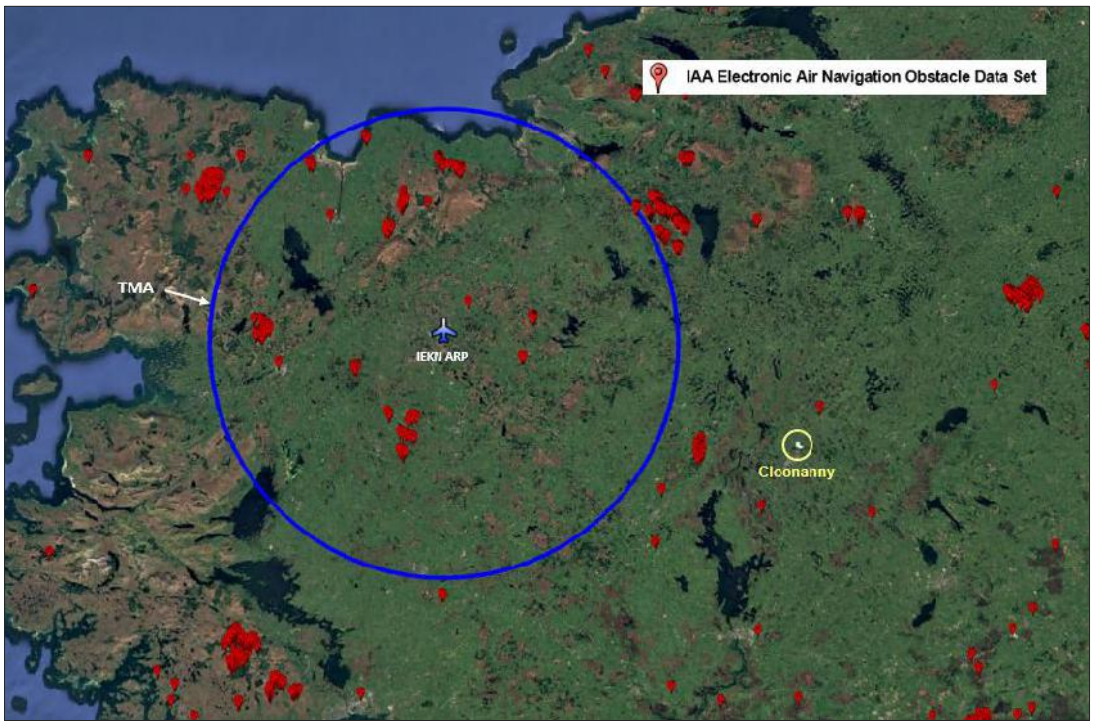


Figure 4. Annex 15 Aerodrome Surface and IAA Electronic Air Navigation Obstacle Data Set

It should also be noted that there are other existing tall structures (obstacles) nearer to the airport, e.g. the operational wind farms at Sliabh Bawn, Largan Hill, Roosky, Ballykinava, Cloontoa, Magheramore, Cuillilea, and Lenanavea.

These existing obstacles would shield any potential impacts from the proposed wind farm at Cloonanny. The IAA Electronic Air Navigation Obstacle Data Set permitted obstacles are shown relative to the proposed wind farm in Figure 5.

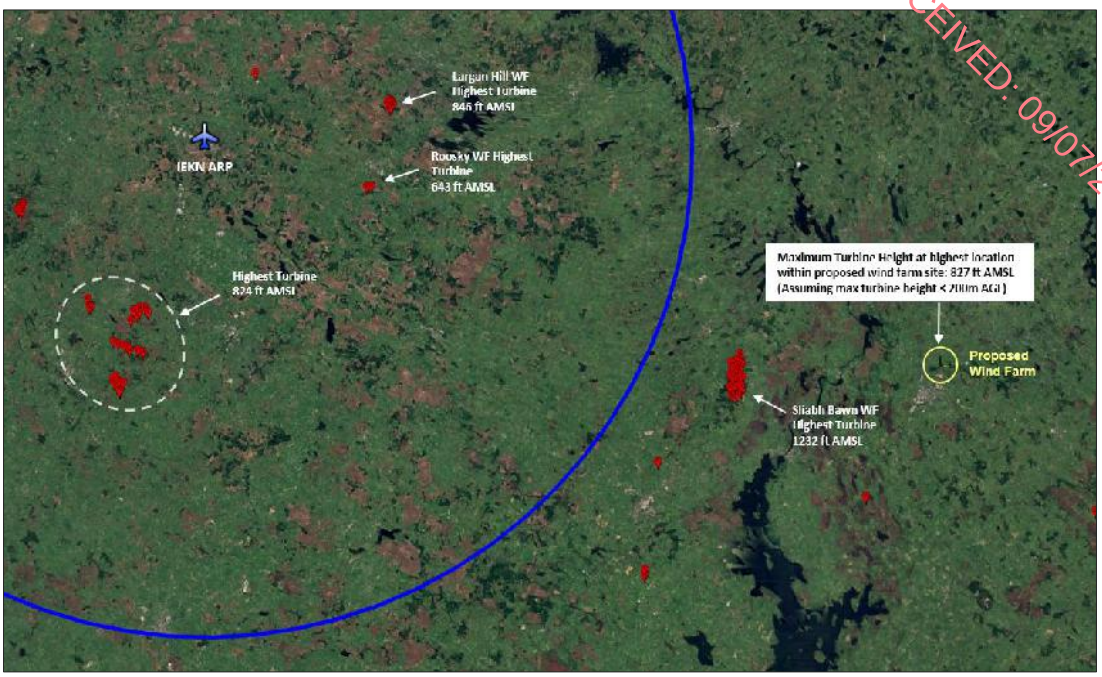


Figure 5. Permitted Obstacles in vicinity of Cloonanny Wind Farm

Although there are other obstacles closer to the airport than the proposed wind farm, all new obstacles must be considered and assessed to see if they cause a “hazard to air navigation” and all Terrain Obstacle Data (including man-made obstacles) have to be considered by the relevant Aviation Authorities.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Annex 15 Aerodrome Surfaces	The proposed wind turbines would be required to be included in the IAA Obstacle Data Set.	None

Table 3. Aviation Impact Review - Annex 15 Aerodrome Surfaces

2.3 Building Restricted Areas (BRA)

A Building Restricted Area is the airspace surrounding an aviation facility that needs to be clear from physical intrusions. The purpose of the safeguarded areas is to identify developments with the potential for causing unacceptable interference to navigation facilities.

The navigation facilities to be considered at Ireland West Airport are the ILS Localisers, Glidepaths and DMEs that provide guidance for aircraft landing on runways 08 and 26. The minimum safeguarded areas for these facilities are defined by the International Civil Aviation Organisation (ICAO) in the document ICAO EUR DOC 015, Section 7. The BRA parameters as specified by the ICAO are provided in Appendix B of this report.

Figure 6 below illustrates that the proposed wind farm at Cloonanny is over 60 km from the Ireland West BRA (safeguarded area for Runway 26). At this distance turbines at the proposed wind farm will have no impact on the navigation facilities associated with the Building Restricted Area for Ireland West Airport.

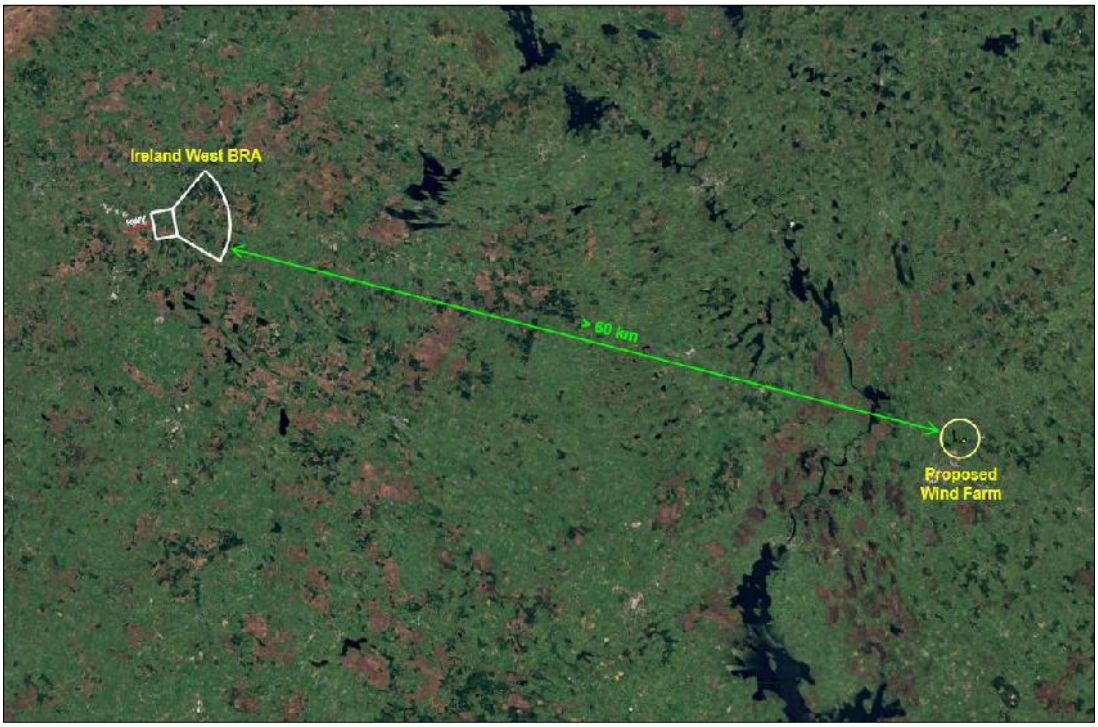


Figure 6. Proposed Wind Farm relative to Ireland West Airport BRA (RWY 26)

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Building Restricted Areas	No action.	None

Table 4. Aviation Impact Review - Building Restricted Areas

2.4 Minimum Sector Altitudes

A review of the Minimum Sector Altitudes (MSA) shows that turbines at the proposed wind farm would not be inside 25 nautical miles of the VOR/DME at Ireland West Airport. The MSA provides a minimum obstacle clearance of 1000 ft above the highest obstacle within specified sectors.

The proposed wind farm is located outside the MSA Sectors for Ireland West Airport as shown in Figure 7. Therefore, there will be no impact on the published MSA altitude figures.

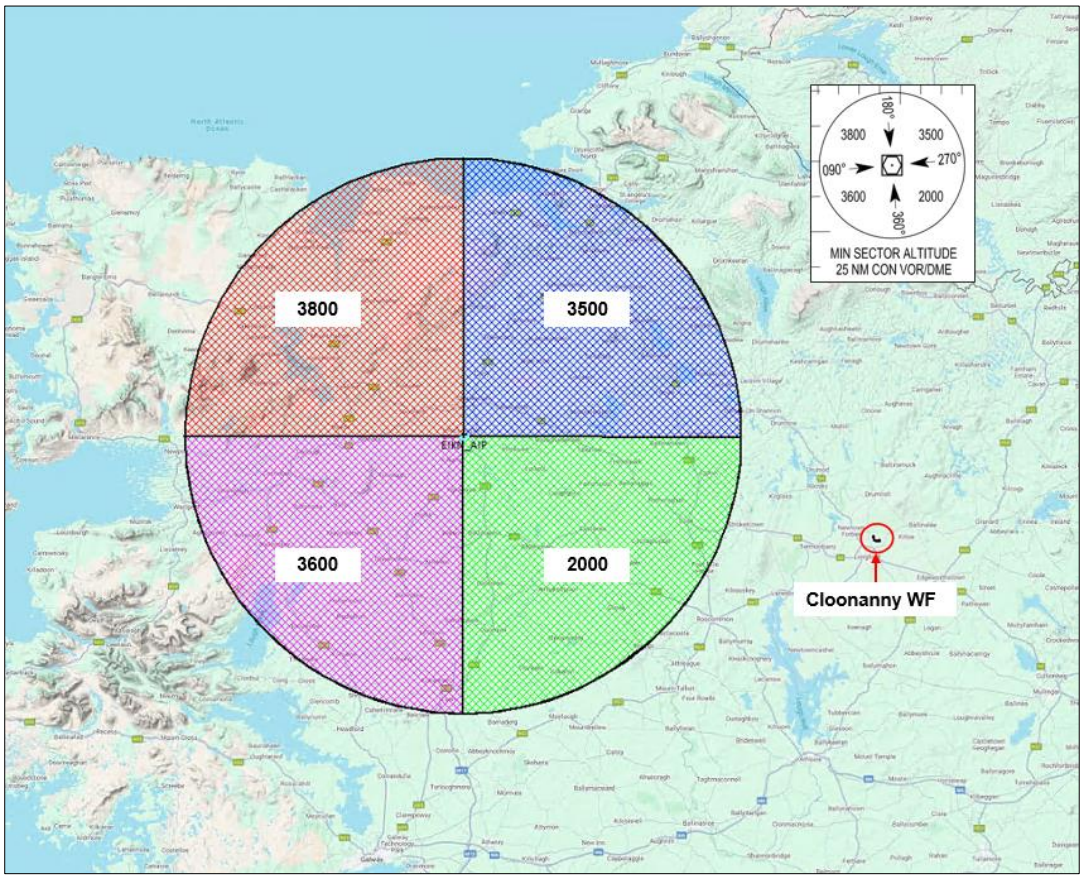


Figure 7. Ireland West Airport (EIKN) Minimum Sector Altitudes

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Minimum Sector Altitudes	No action	None

Table 5. Aviation Impact Review - Minimum Sector Altitudes

2.5 Instrument Flight Procedures

There are 16 published Instrument and Visual Flight Procedures for arrivals to and departures from Ireland West Airport. Due to the distance of the proposed wind farm from the Airport and as there are existing obstacles (e.g. telecom masts and existing wind farms)) it is unlikely that there will be any impacts on the Instrument Flight Procedures for flights to/from Ireland West Airport. Table 6 below lists the Instrument Flight Procedures for Ireland West Airport.

Aerodrome	Aerodrome Procedure	Chart ID	Impacts
Ireland West	Precision Approach Terrain Chart RWY 26– ICAO	EIKN AD 2.24-3	No Impacts.
Ireland West	RNAV Standard Departure Chart Instrument (SID) RWY 26 - ICAO	EIKN AD 2.24-4.1	No Impacts.
Ireland West	RNAV Standard Departure Instrument (SID) Chart RWY 08 - ICAO	EIKN AD 2.24-5.1	No Impacts.
Ireland West	RNAV Standard Arrival Chart Instrument (STAR) RWY 26 - ICAO	EIKN AD 2.24-6.1	No Impacts.
Ireland West	RNAV Standard Arrival Chart Instrument (STAR) RWY 08- ICAO	EIKN AD 2.24-7.1	No Impacts.
Ireland West	Instrument Approach Chart RNP RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-8	No Impacts.
Ireland West	Instrument Approach Chart ILS A CAT 1and CAT 11 or LOC RWY 26 (ACFT CAT A, B, C, D) – ICAO	EIKN AD 2.24-9.1	No Impacts.
Ireland West	Instrument Approach Chart ILS B CAT 1 and 11 RWY 26 (ACFT CAT A, B, C, D) – ICAO	EIKN AD 2.24-10.1	No Impacts.
Ireland West	Instrument Approach Chart VOR RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-11.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-12.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 26 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-13.1	No Impacts.
Ireland West	Instrument Approach Chart RNP RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-14	No Impacts.
Ireland West	Instrument Approach Chart VOR RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-15.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-16.1	No Impacts.
Ireland West	Instrument Approach Chart NDB RWY 08 (ACFT CAT A, B, C, D) - ICAO	EIKN AD 2.24-17.1	No Impacts.
Ireland West	Visual Approach Chart – ICAO	EIKN AD 2.24-19	No Impacts.

Table 6. Instrument and Visual Flight Procedures – Ireland West Airport

A detailed instrument flight procedure analysis is outside of the scope of this report; however, from the desktop assessment conducted it is envisaged that adjustments to the MSA figures will not be required by the Air Navigation Service Provider (ANSP) and it is unlikely that they will require a detailed assessment on the possible impact of the proposed wind farm on flight procedures.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Instrument Flight Procedures	No action	None

Table 7. Aviation Impact Review - Instrument Flight Procedures

2.6 Permitted Wind Farms in vicinity of Proposed Wind Farm

The Planning References for the permitted wind farms in the vicinity of the proposed wind farm are shown below in Table 8. None of these wind farms required a Full Assessment of Instrument Flight Procedures.

Wind Farm	Planning Reference	Description
Lissanore	https://www.eplanning.ie/LongfordCC/AppFileRefDetails/2360010/0	Permitted Wind Farm
Sliabh Bawn	https://www.eplanning.ie/roscommoncc/	Operational Wind Farm
Largan Hill	https://www.eplanning.ie/roscommoncc/	Operational Wind Farm
Roosky	https://www.eplanning.ie/roscommoncc/	Operational Wind Farm
Ballykinava	https://www.eplanning.ie/mayocc/	Operational Wind Farm
Cloontoa,	https://www.eplanning.ie/mayocc/	Operational Wind Farm
Magheramore	https://www.eplanning.ie/mayocc/	Operational Wind Farm
Lenanavea	https://www.eplanning.ie/mayocc/	Operational Wind Farm

Table 8. Permitted Wind Farms in vicinity of Proposed Wind Farm

2.7 Communication and Navigation Systems

The AIP document EIKN AD 2-18/19 provides the information for communication and navigation facilities for Ireland West Airport. The table below shows the channel frequencies for the ATS communications Facilities and the Radio Navigation and Landing Aids for the airport.

Aerodrome	ATS communications Facilities Channel Frequency	Radio Navigation and Landing Aids Channel Frequency	Approximate Distance to Localizer and Transmitting antennas	Impacts of wind fam
Ireland West	118MHz –131MHz	110KHz – 330MHz	70 km	No impacts

Table 9. Impacts on Communications and Navigation Systems

As the proposed wind farm is approximately 70 km from the Localizers and transmitting antennas, it is very unlikely that turbines at the proposed wind farm will have any impact on these ATS communications and radio navigational aids. Typically, interference to VHF communications systems will only occur when obstacles are in close proximity to the VHF transmitter e.g. less than 500m

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Communication and Navigation Systems	No action	None

Table 10. Aviation Impact Review - Communication and Navigation Systems

2.8 Radar Surveillance Sensors

The tables below show the Irish Aviation Authority Assessment Zone arrangement for the two types of aviation radar surveillance systems; Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR).

Zone	Description	Assessment Requirements
Zone 1	0 - 500m	Safeguarding
Zone 2	500m - 15km and in radar line of sight	Detailed Assessment
Zone 3	Further than 15km and in radar line of sight	Simple Assessment
Zone 4	Not in radar line of sight	No Assessment

Table 11. PSR Zone Arrangements

Zone	Description	Assessment Requirements
Zone 1	0 - 500m	Safeguarding
Zone 2	500m - 16km but within maximum instrumented range and in radar line of sight	Detailed Assessment
Zone 4	Further than 16km or not in radar line of sight	No Assessment

Table 12. SSR Zone Arrangements

The EUROCONTROL Guidelines require a 16 km safe distance for a “Zone 4 - No Assessment” condition and detailed assessments are required for any proposed wind within 16km of a secondary surveillance radar.

It should be noted that in the UK, NATS (Air Traffic Control) safeguards SSR to a distance of 10km. The guidelines used by NATS (*CAP 764: Chapter 2: Impact of wind turbines on aviation*) state that:

> *“Wind turbine effects on SSR are traditionally less than those on PSRs but can be caused due to the physical blanking and diffracting effects of the turbine towers, depending on the size of the turbines and the wind farm. These effects are typically only a consideration when the turbines are located very close to the SSR i.e. less than 10 km.”*

To determine which Assessment Zones are applicable to the proposed wind farm a desktop assessment was carried out. The nearest radar surveillance sites to the proposed wind farm development are at Dooncarton, Shannon, Woodcock Hill and Dublin Airport. Thes radar sites are shown relative to the proposed wind farm in Figure 8 below.

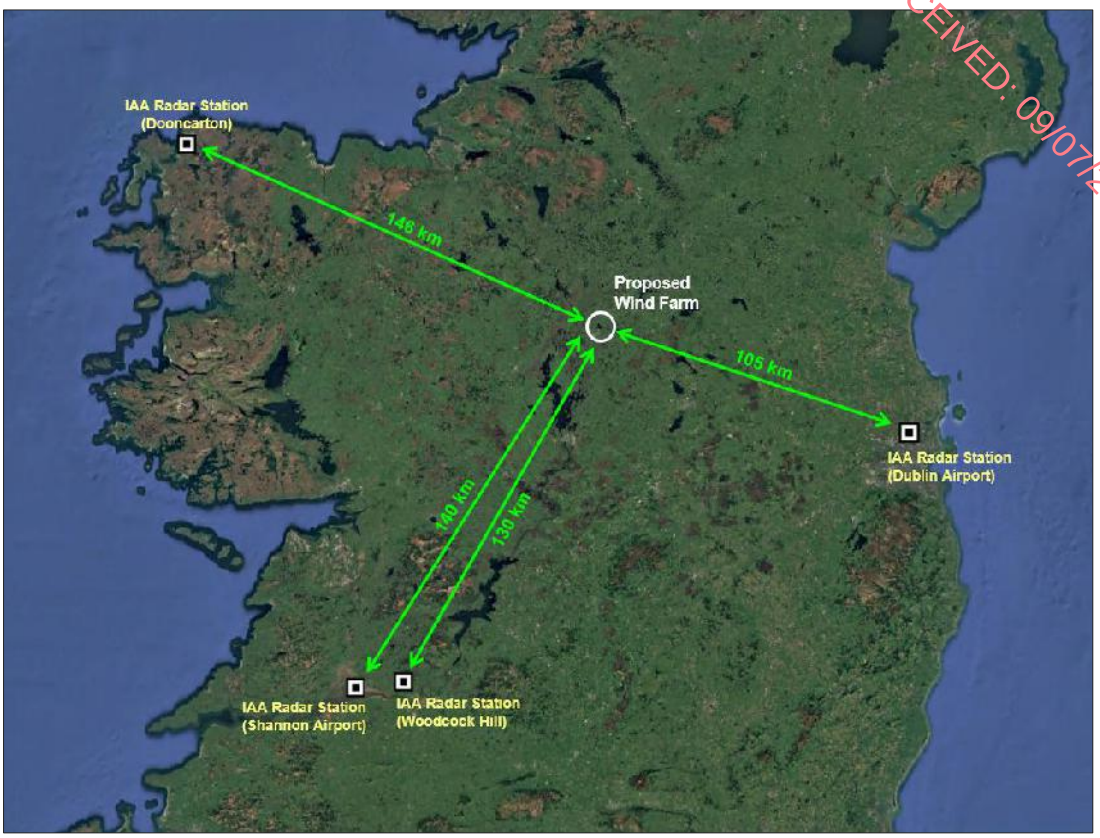


Figure 8. Radar Surveillance Sites relative to Cloonanny Wind Farm.

A review of each radar station is provided in Sections 2.8.1 to 2.8.4 that follow. The findings of the review indicate that the proposed wind farm is sufficiently far from the radar stations that there would be no impacts, and a detailed radar assessment would not be required by the IAA.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Radar Surveillance Sensors	No action	None

Table 13. Aviation Impact Review - Radar Surveillance Sensors

2.8.1 Dooncarton Radar Assessment

The radar surveillance site at Dooncarton consists of a SSR system located in the six-story circular reinforced concrete communications tower shown in Figure 9. The SSR antennas are housed in the dome-shaped structure at the top of the tower.

Figure 9. Dooncarton Radar Station

Table 14 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar LOS Assessment (EuroControl Guidelines)	Radar LOS Assessment (NATS Guidelines – UK)
Cloonanny	146 km	Detailed Assessment Not Required	Detailed Assessment Not Required

Table 14. EuroControl / UK Safeguarding Guidelines – Dooncarton Radar Station

As the table above shows, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the SSR radar station at Dooncarton.

2.8.2 Shannon Airport Radar Assessment

The radar surveillance site at Shannon Airport consists of a PSR and an SSR. The PSR and the SSR antennas are co-located on the same structure at Shannon Airport (Figure 10).

Figure 10. Shannon Airport Radar Station

Table 15 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar LOS Assessment (EuroControl Guidelines)	Radar LOS Assessment (NATS Guidelines – UK)
Cloonanny	105 km	Detailed Assessment Not Required	Detailed Assessment Not Required

Table 15. EuroControl / UK Safeguarding Guidelines – Shannon Airport Radar Station

As the table above shows, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the PSR/SSR radar station at Shannon Airport.

2.8.3 Woodcock Hill Radar Assessment

The radar surveillance site at Woodcock Hill consists of a SSR system housed in the dome-shaped structure shown in Figure 11.

Figure 11. Woodcock Hill Radar Station

Table 16 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar LOS Assessment (EuroControl Guidelines)	Radar LOS Assessment (NATS Guidelines – UK)
Cloonanny	130 km	Detailed Assessment Not Required	Detailed Assessment Not Required

Table 16. EuroControl / UK Safeguarding Guidelines – Woodcock Hill Radar Station

As the table above shows, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the SSR radar station at Woodcock Hill.

2.8.4 Dublin Airport Radar Assessment

The radar surveillance site at Dublin Airport consists of two PSR/SSR (MSSR) radar stations as shown below in Figure 12 and Figure 13.

Figure 12. Dublin Airport MSSR Radar Station #1

Figure 13. Dublin Airport MSSR Radar Station #2

Table 17 below shows the (EuroControl & NATS) assessment zone applicable to the nearest point where a turbine could potentially be located. The applicable assessment zone has been based on distance from the Radar Station and whether a radar line-of-sight condition exists.

Wind Farm ID	Distance to PSR/SSR Radar Station	Radar LOS Assessment (EuroControl Guidelines)	Radar LOS Assessment (NATS Guidelines – UK)
Cloonanny	140 km	Detailed Assessment Not Required	Detailed Assessment Not Required

Table 17. EuroControl / UK Safeguarding Guidelines – Dublin Airport Radar (Station #1 and #2)

As the table above shows, the proposed wind farm is within Assessment Zone 4 as specified by the EUROCONTROL guidelines, which would indicate that a detailed technical assessment would not be required for the impact on the PSR/SSR at Dublin Airport.

2.9 Flight Inspection and Calibration

Flight checks are conducted annually to ensure that flight procedures and associated navigational aids are safe and accurate. These flight checks are carried out by an IAA approved Flight Inspection Service Provider. The checks are carried out during annual inspections consisting of radial and orbital test flights around Ireland West Airport for calibration of instrument landing systems.

It is unlikely that the Flight Inspection Procedures will be impacted as the proposed wind farm is sufficiently far from the airport runways and the flight inspection procedures should already account for the existing obstacles (e.g. terrain and existing wind farms).

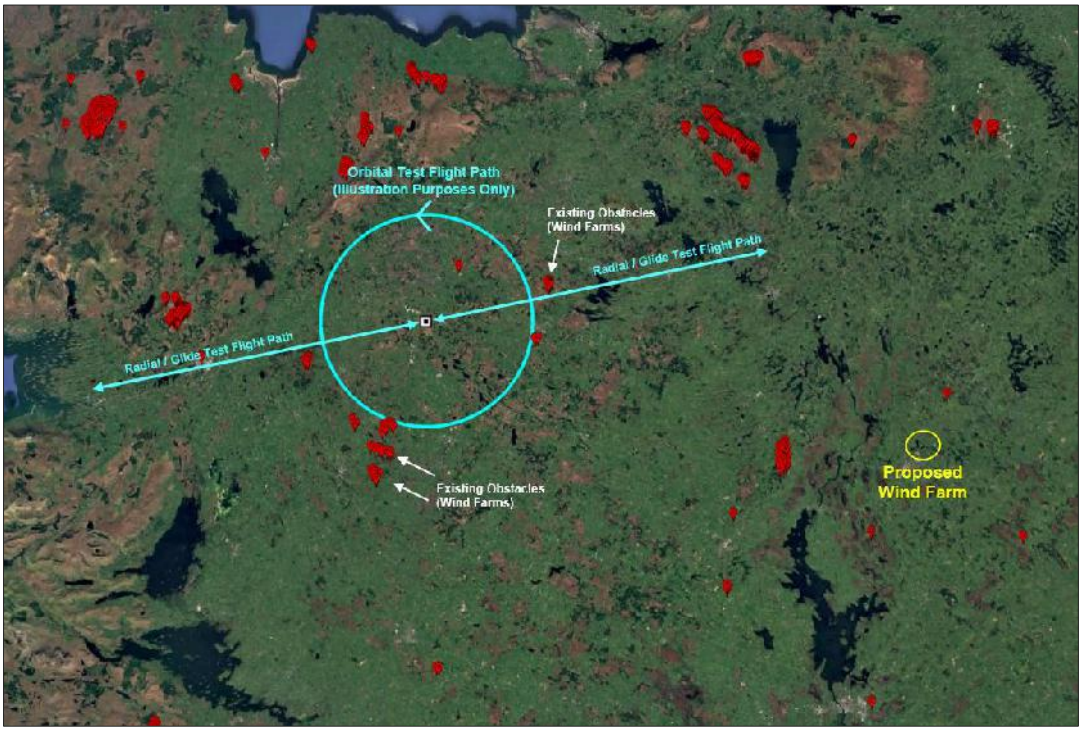


Figure 14. Flight Inspection and Calibration Test Procedures should account for existing obstacles (e.g. terrain and existing wind farms)

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Flight Inspection and Calibration	No action	None

Table 18. Aviation Impact Review - Flight Inspection and Calibration

2.10 Aeronautical Obstacle Warning Light Scheme

In the event of a grant of planning consent the IAA-ANSP would require the lighting of the proposed wind turbines in the interest of aviation safe-guarding as the proposed development may be considered as an en-route obstacle. The developers of the proposed turbines would intend to implement an aeronautical obstacle warning light.

It is recommended that lighting requirements should be in accordance with Chapter Q – Visual Aids for denoting Obstacles; CS ADR.DSN.Q.851 and GM.ADR.DSN.Q.851 (Pages 729/730) of the EASA Easy Access Rules for Aerodromes (Reg (EU) No. 139/2014) where it states that

> *"Applicability: When considered as an obstacle a wind turbine should be marked and/or lighted."*

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Aeronautical Obstacle Warning Light Scheme	It is likely that the IAA would request that the wind farm, if permitted, would be fitted with Aeronautical Obstacle Warning Lights in accordance with industry standards. Subject to further consultation with the IAA.	None

Table 19. Aviation Impact Review - Aeronautical Obstacle Warning Light Scheme

2.11 Irish Air Corps / DoD Safeguarding

The Irish Air Corps (IAC) Position Paper "*Air Corps Wind Farm/ Tall Structures Position Paper*" published on 08th August 2014, states that the Air Corps are likely to oppose to the erection of wind farms / tall structures within 3 NM of their low-level flying routes (See Figure 15).

c. The following routes are identified as critical low level routes in support of Air Corps operational requirements and the Air Corps is opposed to the erection of wind farms or tall structures within 3NM of the route centerline which could affect Air Corps' ability to access regional areas.

(a) N/M1
(b) N/M2
(c) N/M3
(d) N/M4
(e) N/M6
(f) N/M7
(g) N/M8
(h) N/M9
(i) N/M11
(j) N25
(k) N17 between Sligo and Knock
(l) N15/N13 between Sligo and Letterkenny
(m) N14 from Lifford to Letterkenny and R245 and R247 from Letterkenny to Fanad Head.

Applications or proposals for structures in these areas of a height greater than 45m above ground level at the site of the object must be referred to Irish Air Corps for assessment of potential impact on flight operations.

Figure 15. Irish Air Corps - Critical Low-Level Route (N4)

The nearest of the Air Corps restricted areas to the proposed wind farm is the low-level flight route around the N4. The proposed development is located within the restricted area (3NM) around the N4, as shown in Figure 16 below. As the wind farm would be in a restricted area, the Irish Air Corps may raise concerns in relation to the proposed development.

Although the proposed wind farm at Cloonanny is situated in an IAC restricted area (i.e. within 3 NM of the N4, it should be noted that there are many precedents of wind farms that are located within IAC restricted areas.

Some examples of operational wind farms that are located in IAC restricted areas are provided below in Sections 2.11.1 and 2.11.2.

2.11.1 Lissanore Wind Farm

In 2023, Longford County Council gave permission for a wind turbine at Lissanore, Co. Longford. The turbine at Lissanore is located within 3 NM of the N4 as shown below in Figure 16 and is and is c.14km from Cloonanny.

Low level flights are unlikely to occur north of the N4 (in the vicinity of Cloonanny), as pilots would be required to avoid the permitted Lissanore turbine. Pilots would also be required to avoid the high terrain and telecoms mast-site at Cairn Hill (which has a published altitude of 1361 ft AMSL).

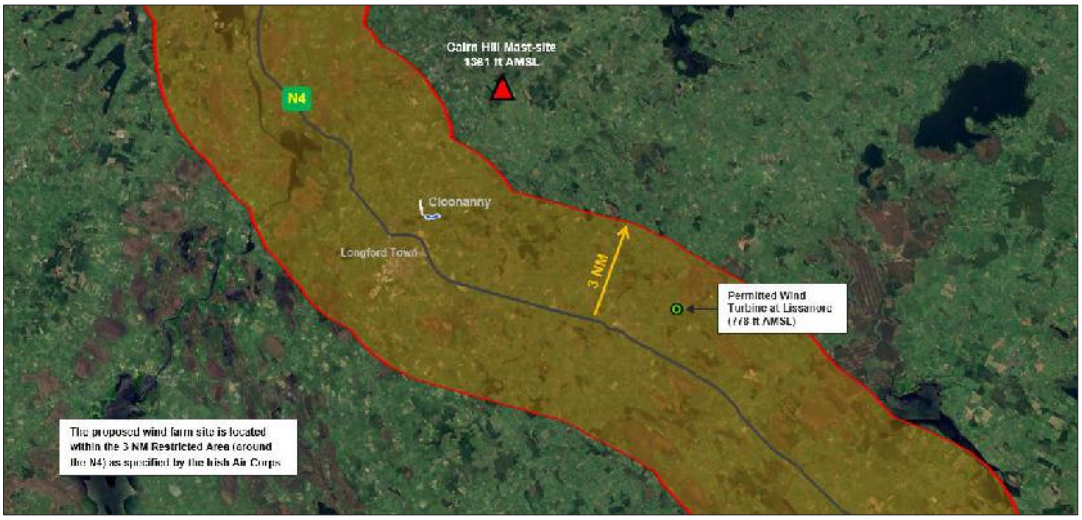


Figure 16. Irish Air Corps - Critical Low-Level Route (N4)

2.11.2 Operational Wind Farms within 3NM of M7/M8

Additional examples of existing wind farms that are located within IAC restricted areas include: Monaincha and Jaroma (within 3 NM of M7), and Lisheen II, Lisdowney and Kill Hill (within 3 NM of M8).

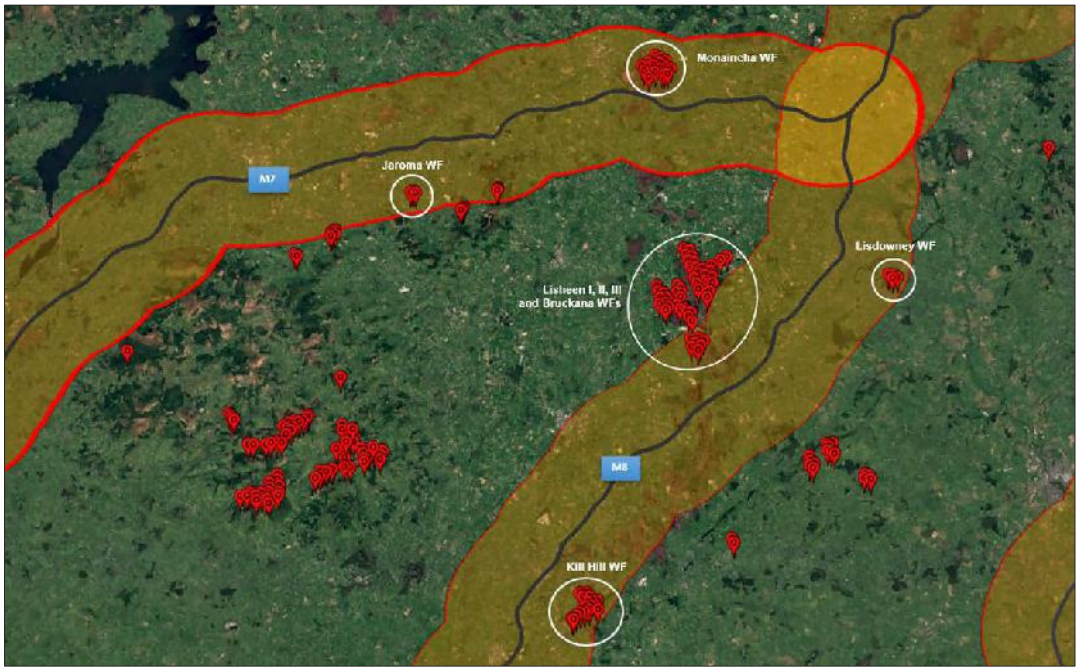


Figure 17. Existing Wind Farms located within 3NM of IAC Low Level Routes

2.11.3 Desktop Analysis of Navigational Flight Aids:

- The proposed wind farm site is not located in a direct flight path from Baldonnel to any of the regional airports (e.g. Shannon, Ireland West, Kerry, Cork, Sligo, Donegal, Waterford) and IAC low-level flights are unlikely to pass directly over the proposed wind farm site.
- IAC low-level flights along the N4 motorway are unlikely to pass over the proposed wind farm site at Cloonanny, as pilots would be required to avoid the high terrain and Telecoms Mast-site at Cairn Hill (which has a published altitude of 1361 ft AMSL). It should also be noted that when the permitted turbine at Lissanore is constructed, pilots would be required to take a flight route south of the N4.
- Cairn Hill is a prominent regional mast site for the state broadcaster (RTE/2RN) and national cellular mobile radio network and this site would be an existing aviation obstacle that would offer shielding to the proposed development at Cloonanny. All pilot flight plans would have to consider Cairn Hill as an existing and significant aviation obstacle. Pilots would likely keep south of the N4 and should the proposed development be approved, the resulting turbines could serve as a navigational aid as part of VFR rules for flying.
- In good weather conditions, a wind farm at Cloonanny could potentially be used as a visual landmark to aid Visual Flight Rules (VFR) navigation. The addition of wind turbines at Cloonanny could make it easier for pilots to identify their flight position along the N4.
- All modern aircraft are equipped with a range of Global Navigation Satellite Systems (GNSS), e.g. GPS, GLNASS, Galileo, etc. These GNSS systems provide pilots with accurate navigation information including data to avoid obstacles during VFR operations. Should the proposed wind farm be permitted, the turbine location would be submitted to the IAA and aviation charts and GNSS databases would be updated accordingly.
- An aviation obstacle warning light scheme would provide a further marker in addition to the light warning scheme already in existence on the 2RN broadcast transmission tower at Cairn Hill. A pilot could safely maneuver a flight to the south of the N4 without being impacted by a wind farm at the proposed location.
- As previously described, low-level flights along the N4 motorway are unlikely to pass over the proposed wind farm site at Cloonanny. A more likely low-level flight route is illustrated in Figure 18 which would avoid the high terrain and Telecoms Mast-site at Cairn Hill and the permitted turbine at Lissanore.

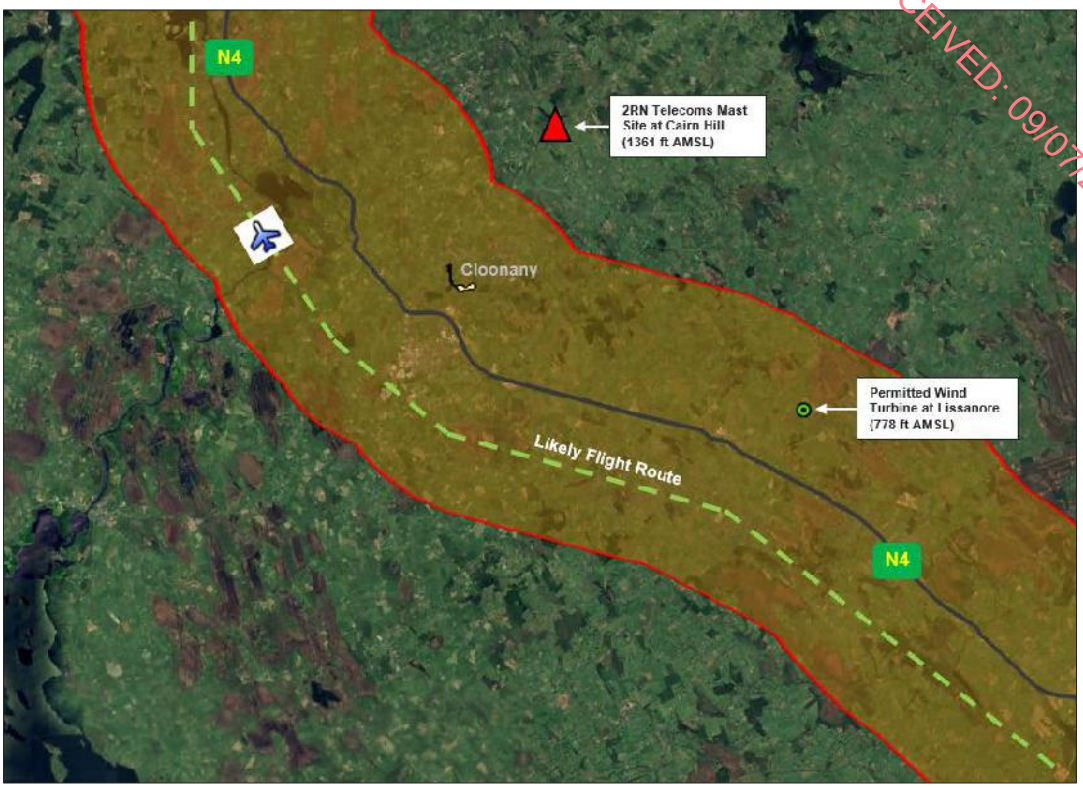


Figure 18. IAC Low-Level flights are likely to avoid flying north of the N4 near Cloonanny (to remain clear of the major aviation obstacle at Cairn Hill)

For the reasons outlined above any impacts on Air Corps operations in the area are expected to be negligible, subject to a further detailed technical assessment.

Aviation Impact Review	Mitigation Measure Action	Residual Impact
Irish Air Corps / DoD Safeguarding	Mitigation measures are unlikely to be required, as IAC low-level flights are unlikely to fly over the Cloonanny area given the proximity of the existing aviation obstacle (i.e. the 2RN telecoms mast) at Cairn Hill and the permitted turbine at Lissanore. The 2RN telecoms mast site would be considered a significant aviation obstacle and would offer shielding to the proposed development at Cloonanny.	None

Table 20. Aviation Impact Review - Irish Air Corps / DoD Safeguarding

2.12 Garda Air Support Unit (GASU) and Emergency Aeromedical Service (EAS)

The standard concerns that are being raised in recent consultations with the Air Corps also highlight the potential for obstacles that could impact the operations of the Garda Air Support Unit (GASU) and the Emergency Aeromedical Service (EAS). The excerpt below is taken from a response received from the IAC in relation to a third-party wind farm project:

> "*Having consulted with the subject matter experts in the Irish Air Corps, the Department of Defence wishes to make the following observations:*
>
> - *The Department of Defence cannot support, based on military advises, the erection of wind farms or other tall structures within 3 NM of roads identified as critical low level routes in support of operational requirements. The erection of obstacles within low-level helicopter routes could affect the Irish Air Corps ability to access regional areas and to fulfil its role.*
> - *If this proposed development was to go to the planning stage, the Department of Defence would be obligated to raise the following concerns and advise the planning authorities that the proposed windfarm*
>
> *a) lies wholly within 3 nautical miles of the [Motorway/National Road] which is identified as a critical low level route used by state aircraft on operational taskings. A windfarm or any other tall structures within a low-level route will be an obstacle to state aircraft not operating within the civil rules of the air;*
>
> *b) The [Motorway/National Road] low level route requires protection from obstacles for low level state aircraft on operational tasking's such as:*
>
> *(i) The Garda Air Support Unit (GASU)*
> *(ii) The Emergency Aeromedical Service (EAS)"*

An assessment of the possible impacts of the proposed wind farm on the Garda Air Support Unit and the Emergency Aeromedical Service operations is provided in Sections 2.12.1 and 2.12.2 that follow.

2.12.1 The Garda Air Support Unit (GASU)

The Garda Air Support Unit is based at Casement Aerodrome, Baldonnel and is typically deployed to incidents in the following cases:

- Immediate threat to life
- Incidents of a criminal, terrorist or other nationally important nature
- Immediate threat of serious public disorder
- Tasks leading to the prevention or detection of crime
- Evidence gathering
- Intelligence gathering
- Photographic tasks
- Traffic Management/Monitoring

The unit consists of one fixed-wing aircraft (a Pilatus Britten-Norman BN 2T-4S Defender 4000) and two helicopters (Eurocopter EC 135 T2).

Figure 19. GASU - Pilatus Britten-Norman BN 2T-4S Defender 4000

Figure 20. GASU - Eurocopter EC135 T2

As there is no airport in the Cloonanny / Longford region it is unlikely that a fixed-wing aircraft would be used in a low-level flight capacity over the region. In the unlikely event that that a fixed-wing aircraft is flying in the Cloonanny area, it should be noted that all modern aircraft are equipped with a range of Global Navigation Satellite Systems (GNSS), e.g. GPS, GLNASS, Galileo, etc. These GNSS systems provide pilots with accurate navigation information including data to avoid obstacles during VFR operations. Should the proposed wind farm at Cloonanny

be permitted the turbine locations would be submitted to the IAA and aviation charts and GNSS databases would be updated accordingly.

GASU helicopters would also be fitted with GNSS systems which would clearly identify any potential objects in the operational area (e.g. wind turbines). Also, in good weather conditions, a wind farm at Cloonanny could potentially be used as a visual landmark to aid Visual Flight Rules (VFR) navigation which would actually make it easier for pilots to identify their flight position.

If a helicopter is required to land in the area north of Longford Town, the pilot would seek a Helicopter Landing Site (HLS) that is clear of wires, loose objects and is relatively clear of obstacles. The chosen HLS should have good road access to link up with the local ambulance. A good example of a HLS would be a local football field. It would be highly unlikely that the Cloonanny site location would ever be considered as a HLS due to its terrain and road access. The GAA football field at Pearse Park (as marked in Figure 21) would be a much more suitable HLS for any such emergency landings in Longford Town.

Figure 21. Longford Town – Possible HLS

GASU Aircraft	Impact of proposed wind farm - Opinion
Fixed-wing Airplane (Pilatus Britten-Norman BN 2T-4S Defender 4000)	Low – Fixed-wing aircraft are unlikely to be deployed in low level activity in the subject area. In addition, the aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts.
Helicopter (Eurocopter EC135 T2)	Low – The aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts. Should an emergency landing be required in the subject area, the GAA pitch at Pearse Park is likely to be used as a HLS.

Table 21. Impact of proposed wind farm on GASU Operations

2.12.2 The Emergency Aeromedical Service (EAS)

The air ambulance service in Ireland is known as the Emergency Aeromedical Service (EAS). The EAS crew (which include National Ambulance Service (NAS) paramedics) deal with time-critical emergency callouts to major emergencies such as road collisions and urgent medical events. The EAS currently operate two air ambulance helicopters operating from two bases:

- Custume Barracks, Athlone, Co Westmeath.
- Rathcoole Aerodrome, Rathcoole, Mallow, Co Cork.

The two helicopter borne emergency air ambulances consist of an Air Corps operated aircraft based at Custume Barracks in Athlone, and an aircraft located at Rathcoole Aerodrome in North County Cork. The nearest EAS base to the proposed wind farm at Cloonanny is the base in Athlone. The flight times from the EAS base at Athlone are sown in Figure 22.

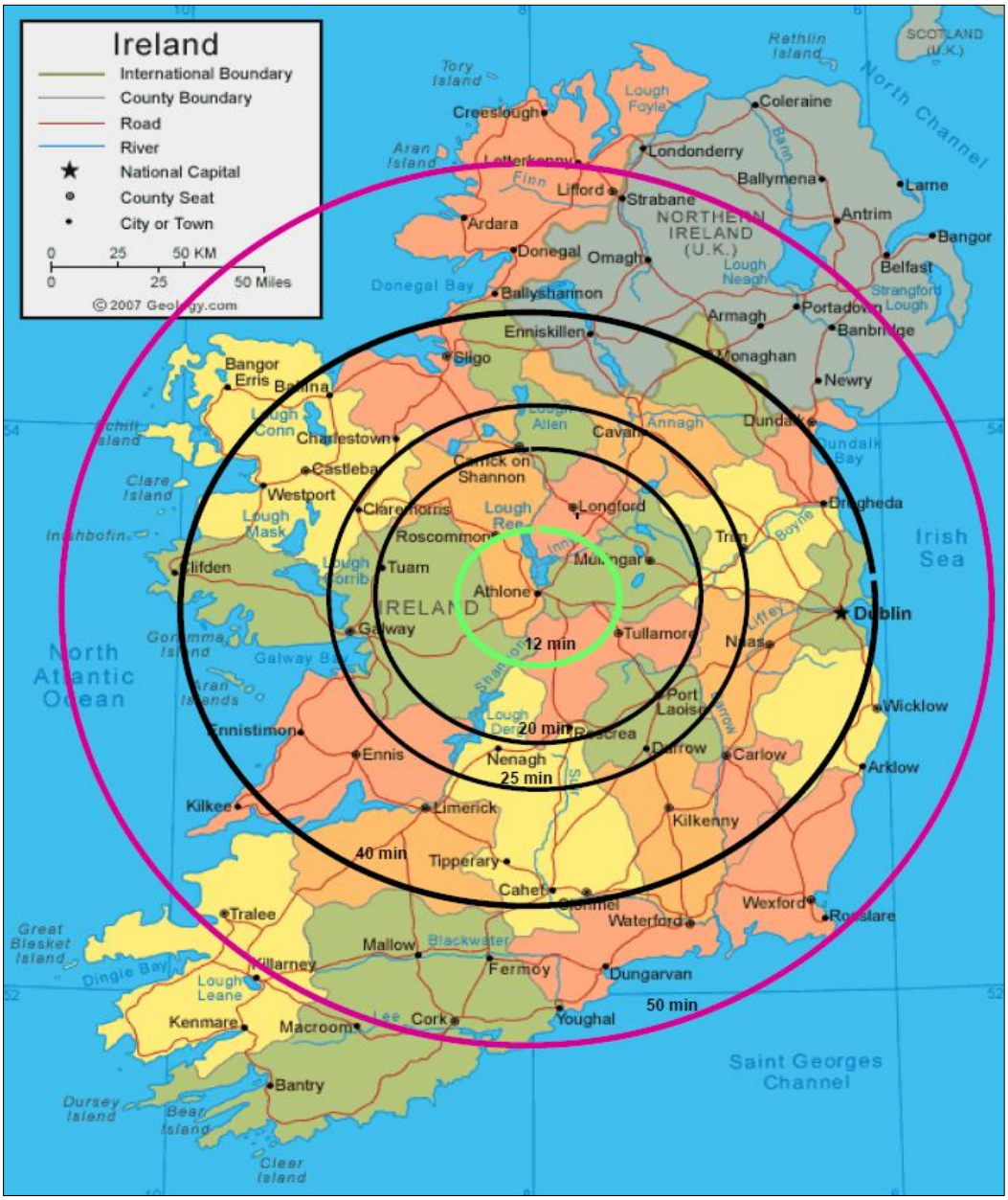


Figure 22. EAS – Flying Times from Athlone

The proposed wind farm is located north of Longford Town, therefore it would have no impact on flights from Athlone to Longford Town.

For any call-outs to areas north of Longford (e.g. Co. Cavan), the helicopter pilot would be aware of the existing 2RN mast Cairn Hill and would be required to fly above it (or avoid the area completely). The height of the 2RN mast is 1361 ft AMSL well above the maximum elevation of any of the proposed turbines at Cloonanny.

In addition, should the proposed wind farm at Cloonanny be permitted the turbine locations would be submitted to the IAA and aviation charts and GNSS databases would be updated accordingly. EAS helicopters would also be fitted with GNSS systems which would clearly identify any potential objects in the operational area (e.g. wind turbines). For these reasons, turbines at the proposed wind farm should have no impact on EAS flights from Athlone to areas north of Longford Town.

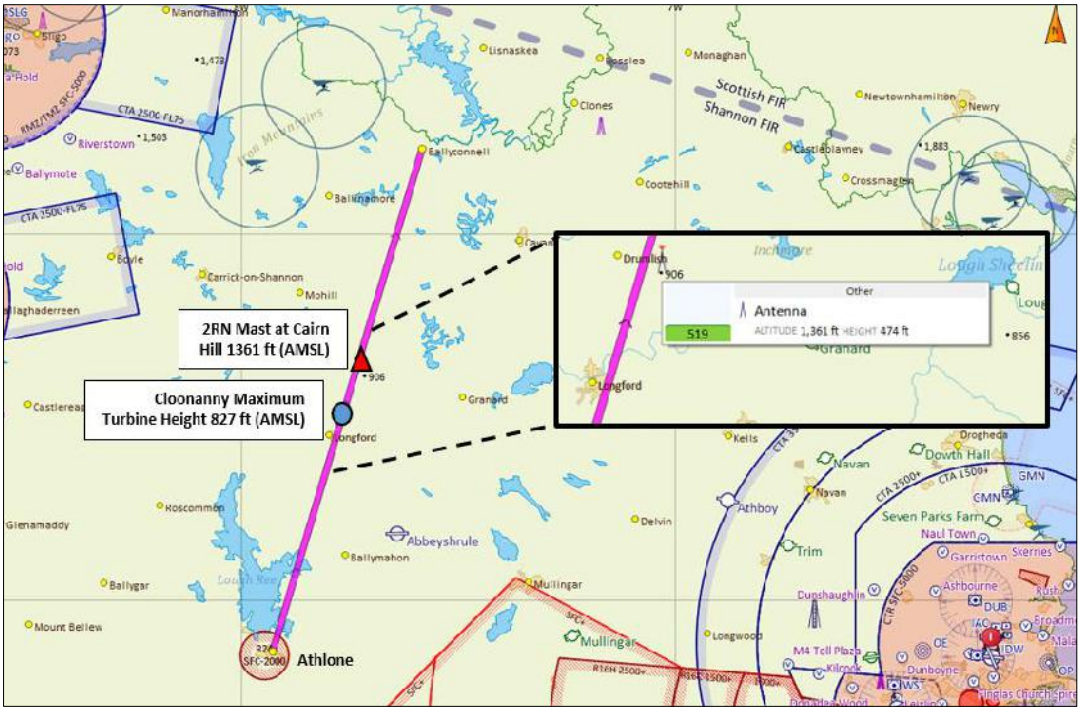


Figure 23. Sample Flight route over Cloonanny from EAS base (Athlone) towards Co Cavan

EAS Aircraft	Impact of proposed wind farm – Opinion
Helicopter (Eurocopter EC135)	Low – The aircraft would be equipped with modern communications systems and navigational equipment. Should the wind farm be permitted, the turbines would be fitted with aeronautical lighting and would be clearly marked in aviation charts. EAS flights from Athlone to areas north of Longford (e.g. Co Cavan) would be required to fly above the 2RN mast at Cairn Hill which considerably higher than any of the turbines for the proposed wind farm Should an emergency landing be required in the subject area, the GAA pitch at Pearse Park is likely to be used as a HLS.

Table 22. Impact of proposed wind farm on EAS Operations

3. Summary

A summary of the aviation review for the proposed wind farm at Cloonanny is provided in Table 23 below.

Item	Impact	Summary
Annex 14 - Obstacle Limitation Surfaces (OLS)	None	The proposed turbines are located outside the OLS Surfaces for Ireland West Airport.
Annex 15 - Aerodrome Surfaces	Observ.	Turbines at the proposed wind farm would not penetrate the ICAO Annex 15 Aerodrome Surface for Ireland West Airport. All obstacles, if more than 100 meters above terrain for a distance of 45km from center point of Ireland West Airport, need to be registered in the IAA Air Navigation Obstacle Data Set. The IAA may request that the turbines be included in the IAA Aeronautical Electronic Obstacle Data Sets. It should be noted that other existing tall structures nearer to Ireland West Airport (e.g. existing turbines at Sliabh Bawn, Roosky, Largan Hill etc.) are also located within the ICAO Annex 15 Aerodrome Surface and are already listed in the IAA Aeronautical Electronic Obstacle Data Sets.
Building Restricted Areas	None	A review shows that Cloonanny is over 60 km from the BRA for Ireland West Airport. At this distance there would be no impacts due to the proposed wind farm.
Minimum Sector Altitudes (MSA)	None	A review of the Minimum Sector Altitudes (MSA) shows that the proposed wind farm is outside 25 nautical miles from the VOR/DME at Ireland West Airport. Therefore the MSA of the relevant sector will not be affected and there will be no impact on the published MSA altitude figures.
Instrument Flight Procedures	None	A review shows that the instrument flight procedures for RWY 08 and RWY 26 standard instrument departures are unlikely to be impacted for precision aircraft.
Communication and Navigation Systems	None	As the proposed wind farm is over 50km from the Localizer and transmitting antenna at Ireland West Airport, it is very unlikely that the proposed development will have any impact on these ATS communications and radio navigational aids.
Radar Surveillance Systems	None	The proposed wind turbines would be located in Assessment Zone 4 (EuroControl guidelines) for SSR and PSR instruments and a detailed Impact Assessment will not be required
Flight Inspection and Calibration	None	The annual Flight Inspection Procedures will not be impacted by the proposed wind farm as the proposed site is sufficiently far from the ARP at Ireland West Airport that there would be no impacts. In addition, the Flight Inspection Procedures should already account for existing obstacles.
Aeronautical Obstacle Warning Light Scheme	None	It is possible that the IAA may request that the wind farm, if permitted, would be fitted with Aeronautical Obstacle Warning Lights in accordance with industry standards. Subject to further consultation with the IAA.
Irish Air Corps / DoD Safeguarding	Observ.	The proposed wind farm is located within an IAC low-level flight restricted area around the N4. However, mitigation measures are unlikely to be required, as IAC low-level flights are unlikely to fly over the Cloonanny area, given the proximity of the existing significant aviation obstacle at Cairn Hill (i.e. the 2RN broadcast transmitter mast) and the permitted wind turbine at Lissanore). All pilots would be required to be aware of existing aviation obstacles and would likely fly south of the N4 to stay clear of the telecoms mast-site at Cairn Hill.
Garda Air Support Unit and Emergency Aeromedical Service	None	An assessment of GASU and EAS operations indicate that they are unlikely to be impacted by the proposed wind farm development.

Table 23. Cloonanny Wind Farm – Aviation Review Summary

APPENDIX A - ICAO Annex 15 Area 1 and Area 2 Surfaces.

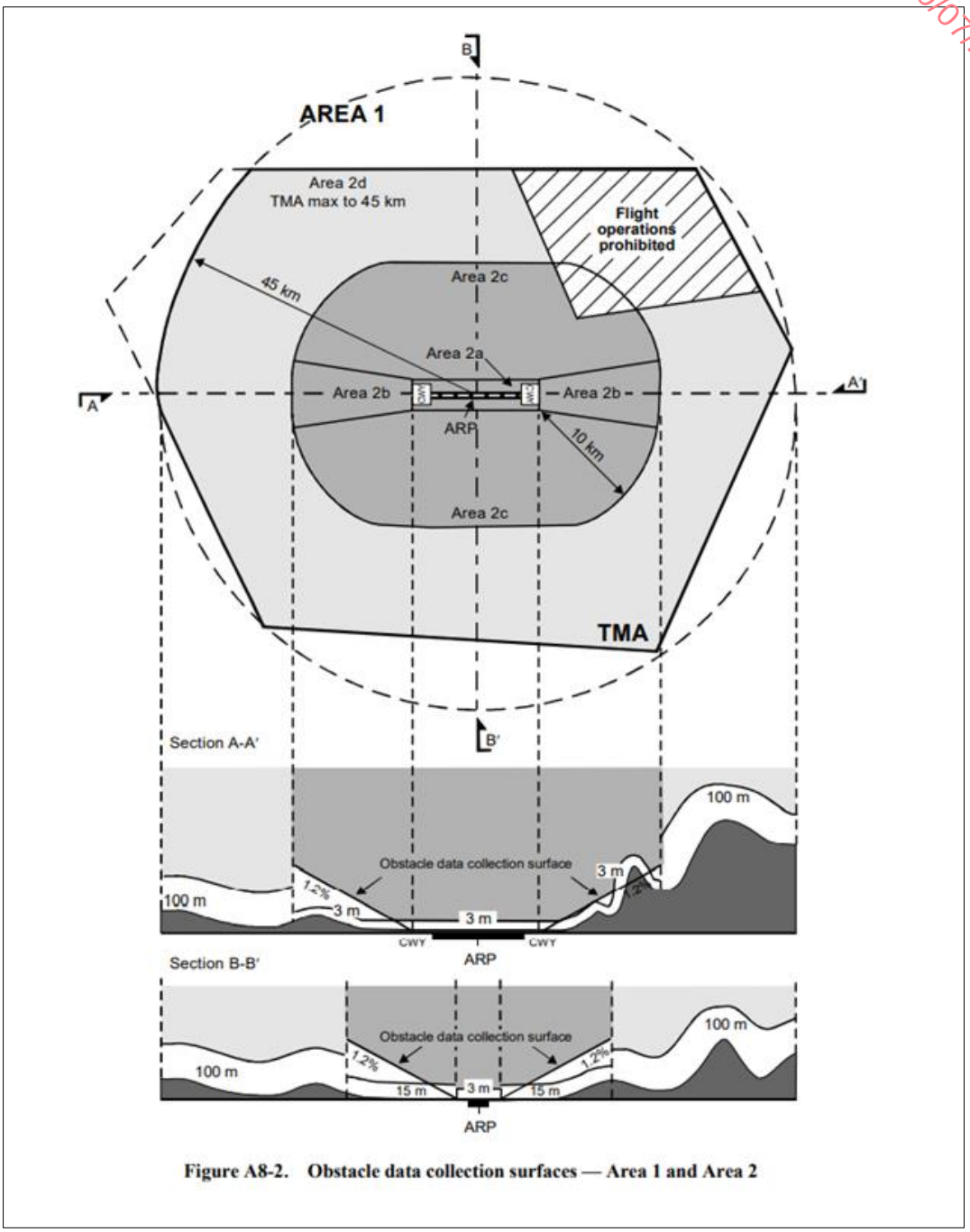


Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

Figure A1 - ICAO Annex 15 Area 1 and Area 2 Surfaces.

APPENDIX B - ICAO Building Restricted Areas.

Figure B1 below shows an example BRA shape for directional facilities. Table B1 provides harmonized guidance figures for the directional navigational facilities in accordance with Figure B1.

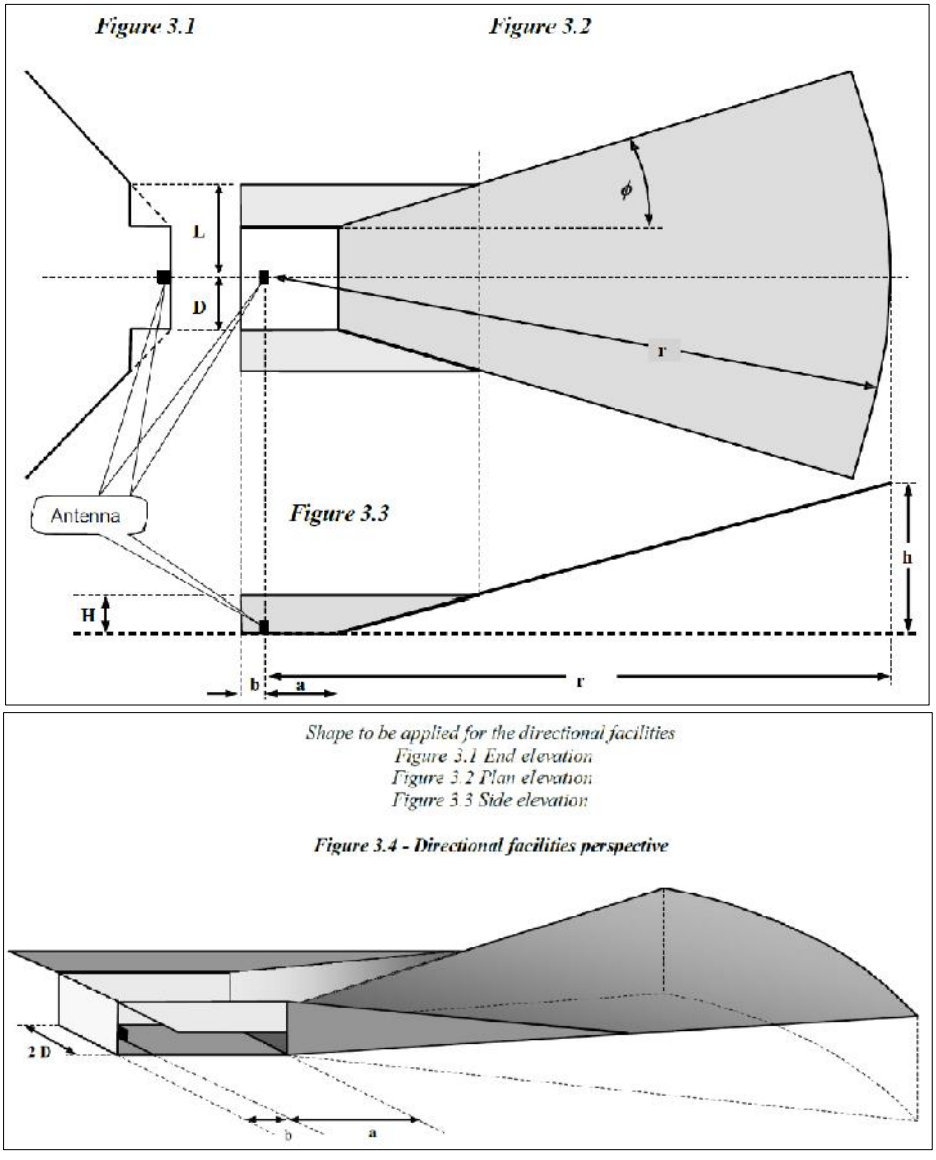


Figure B1 - Example BRA shape for directional facilities (ICAO EUR DOC 015 Figures 3.1-3.4)

*Type of **navigation** facilities*	*A (m)*	*b (m)*	*h(m)*	*r (m)*	*D (m)*	*H (m)*	*L (m)*	*ϕ (°)*
ILS LLZ (medium aperture single frequency)	Distance to threshold	500	70	a−6000	500	10	2300	30
ILS LLZ (medium aperture dual frequency)	Distance to threshold	500	70	a−6000	500	20	1500	20
ILS GP M–Type (dual frequency)	800	50	70	6000	250	5	325	10
MLS AZ	Distance to threshold	20	70	a−6000	600	20	1500	40
MLS EL	300	20	70	6000	200	20	1500	40
DME (directional antennas)	Distance to threshold	20	70	a−6000	600	20	1500	40

Table B1 - Harmonized guidance figures for the directional navigational facilities (ICAO EUR DOC 015 Table 2)