An Bord Pleanála

Inspector's Report ABP-309770-21.

Development	Development of up to 15 no. wind turbines with a tip height of up to 175m and laying of approximately 26km of underground electricity cabling to facilitate the connection to the national grid, and all associated site development works.
Location	Townlands of Camagh, Carlanstown, Coole, Clonrobert, Clonsura, Doon, Monktown, Mullagh, Newcastle and other townlands, Co. Westmeath.
Planning Authority	Westmeath County Council
Applicant	Coole Wind Farm Limited
Type of Application	Application under the provisions of Section 37E of the Planning and Development Act 2000, as amended

Prescribed Bodies	Department of Housing, Local Government and Heritage Irish Aviation Authority Geological Survey of Ireland Transport Infrastructure Ireland
Observers	As listed in Appendix 1
Dates of Site Inspection	13 April 2022, 22 August 2023 and 10 September 2023
Inspector	Mairead Kenny

Contents

1.0 **Overview**

1.1.1. The Board has previously issued a decision on an application for permission for 13 no. turbines at a broadly similar site under ABP-300686 -18 on foot of a first party appeal. I refer to this development as CWF1. The decision on CWF1 is the subject of ongoing judicial review proceedings.

1.1.2. The proposed turbines under CWF1 provided for a height of up to 175 m tip height and the layout of CWF1 is very similar to that proposed under the current application. The significant variations are:

- An additional 2 no. turbines T14 and T15.
- The 26km grid connection route to serve Coole Wind Farm (CWF). Under CWF1 the grid connection was subject of separate consent processes.
- Increased power output - CWF1 proposed maximum export capacity of 49.4 MW.
- Blade length increase – CWF1 blade length not to exceed 70m under condition of decision under CWF1 – proposed CWF blade length is 74.5m minimum to 77.5m maximum as clarified under FI submitted

1.1.3. In the report below the proposed development is described as CWF. The site of the turbines and access road, the relief road, the substation and the borrow pit are all at the wind farm site (WFS). The WFS site is predominantly located within cut over bog but also contains agricultural and forestry lands.

1.1.4. The grid connection route (GCR) mainly comprises lands adjacent public roads.

1.1.5. Due to the extent of the site and the different issues arising it is useful to distinguish the two areas in this way. Thus where there is discussion relating to the WFS it is intended to relate to part of the application site only where the turbines and access roads and the substation are proposed (excluding the grid connection route, the link road and junction improvements).

1.1.6. The WFS is mainly set within former commercial peatlands. These are described by the applicant as the 'Optioned Lands' and are subject of a future management agreement. A map submitted with the FI shows their extent.

1.1.7. In this report the term overall lands; this is intended to mean <u>all</u> lands within the blue line which includes the WFS, the Optioned Lands, the GCR, the road junctions

improvements and link road and the agricultural / forestry lands where T15 and the borrow pit are to be located.

2.0 Site Context

2.1. The subject site is located in the north-west of County Westmeath close to the border with county Longford, which is marked by the River Inny to the west and close to the county boundary with Cavan (approximately 5km to the north) and county Meath (approximately 6km to the east).

2.2. The stated area of the overall lands outlined in blue is 498 ha. Within that larger area is the subject site which is outlined in red and which comprises the footprint of the proposed development and is of stated area of 26.4 ha.

2.3. The rural area in which the site is located comprises a generally flat landscape with extensive areas of industrial peatland, agricultural use and some small pockets of commercial forestry. To the east is a local landmark the Hill of Mael (Hill of Moat on OS Discovery Sheet) / Rock of Curry, which has a high point at 241mOD. The urban settlement structure in the area includes Coole, Finnea, Multyfarnham, Castlepollard, Mullingar and Granard.

2.4. The site of the proposed Coole Wind Farm (CWF) has two main components:

- Wind Farm Site (WFS). This is the main body of the wind farm site where the turbines and roads, a relief road and other infrastructure including the borrow pit and construction compound and substation are to be located. This is a low-lying plot which is formed from three peat basins and some afforested and some agricultural lands. It is proximate to the River Inny and River Glore. The WFS is positioned between the R394 and the R396 and is traversed by a local road L5755.

- Grid Connection Route (GCR). The 26km grid connection is described as the grid connection route GCR. The GCR is south of the WFS. The grid connection would travel largely in a southerly direction. Initially it would pass from a proposed substation which is part of the CWF project, along the regional road and into Coole village and then it would follow a local road which passes to the west of Lough Derravaragh, then east of Lough Owel and into Irishtown substation in Mullingar which is to the west of the town. The

GCR includes locations where there is a requirement for ancillary works including some road widening and a new access road.

2.5. The WFS is mainly to the east of the River Inny, which defines the western side of the overall lands. The River Inny passes in a southerly direction, under the R396 and crossing the GCS before entering Lough Derravarragh. The River Glore intersects the northern section of the WFS and enters the River Inny. Lough Bane, a pNHA is immediately northwest of the WFS. The elevation of the windfarm site WFS is largely between 60mOD and 70mOD.

2.6. The proposed GCR mainly traverses along local, regional, and national roads and along its 26 km length passes close to the western edge of Lough Derravarragh and adjacent to the River Inny at the eastern side of Lough Owel and the River Glore. The elevation along the grid connection route ranges between 60 and 120 m OD.

2.7. In the next section under the heading of development layout and in other sections of this report I provide further detail of the characteristics and context of the site and environs as relevant to the main components of the proposed development and potential for significant environmental effects.

3.0 Proposed Development

3.1. Overview

3.1.1. The proposed development is as described in the application documentation and drawings as revised by the further information (FI) received on 1 November 2022.

3.1.2. The proposed development comprises:

- 15 no. wind turbines with tip height of 175 m and all associated foundations and hardstanding areas.
- The FI drawing received by the Board on 1 November 2022 included a drawing ‘Wind Turbine Range Elevations and Plan’ (blade length 74.5m minimum to 77.5m maximum and hub height from top of foundations from 97.5m minimum to 100.5m maximum) which clarified dimensions.
- The further information reiterates that the maximum ground to blade tip height is 175 m and that the exact make and model of the turbine will be dictated by a competitive tender process.

- Electrical substation including control building, electrical plant, equipment, welfare facilities and wastewater holding tank.
- Temporary construction compound.
- New site access roads, upgrade of existing roads and hardstanding areas.
- Borrow pit.
- Underground electrical and communications cabling connecting the turbines to the proposed substation.
- 26 km of underground electrical cabling to facilitate connection to the national grid from the proposed substation to the existing 110kV Irishtown substation in Mullingar.
- Upgrade works to the existing 110 kV Mullingar substation comprising construction of an additional dedicated bay for connection of the cable. The further information revisions include minor changes to the works at Irishtown / Mullingar substation.
- Construction of a link road between R395 and R396 to facilitate turbine delivery. This is at the western outskirts of Coole village.
- Junction improvement works to facilitate turbine delivery at the N4 junction, a location to the south-east of railway line level crossing of L1927, the L1927 and L5828 junction and the L5828 and R395 junction.
- Site drainage works as specified in a set of drawings which show details including attenuation ponds, swales and other drainage features of the on-site system which will connect to the existing peat drainage system which is in place associated with the peat harvesting activities.
- Forestry felling.
- Signage.
- All associated site development works.

3.1.3. The exact power rating of the turbines will be designed to match the wind regime on site. A rated output of 6 MW is assumed resulting in an installed capacity of 90 MW.

3.1.4. The applicant notes that the turbine foundation diameter may vary and that the ground level represents the top of the turbine foundation.

3.1.5. The further information submitted also shows a map entitled ‘Peatland Option Lands’ Drawing No. 200445g-59FI.

3.1.6. Drawings of options for laying the cable at the Shrubbywood bridge crossing and Clonava bridge crossing along the grid connection route are provided.

3.1.7. A 10-year permission is sought and a 30-year operational life from the date of commissioning of the wind farm.

3.2. Development layout and detailed design

3.2.1. The layout is stated to have been designed to minimise potential environmental effects and maximise the energy yield of the wind resource. The selected layout follows the previous proposal CWF1 with the addition of two more turbines on lands to the east. The layout is shown on Figure 4-1a and Figure 4-1b of the EIAR and is described below, working from north to south.

3.2.2. T1, T2, T3 and T4 are to be located in the northernmost of the three areas of cutover peat, north of the River Glore and south of Lough Bane. Some details follow:

- T1, T2, T3 and T4 would all be located in cutover bog.
- T1 is to be located north of an existing drainage channel (D1). Access to T1 would require an extension of an existing track and crossing of D1 by a clear span bridge.
- T2 is also adjacent to D1 and is 570m east of T1 (all measurements in this section of this report should be considered as relating to between the centre point of the turbines). Access to be by way of an existing track which is to be extended. Turbine foundation and hardstanding to be c 30m from D1.
- 550m due south of T2 is T3. T3 is close to and north of the River Glore and is to be accessed by way of the existing track which is within the 50m separation defined in the EIAR for the protection of watercourses and which is to be extended. A proposed clear span bridge over the River Glore would serve to connect to the road network in the centre of the site (serving T5, T6 and T7).
- T4 is close to the eastern end of D1 and would be accessed by way of an extension to an existing track and is located in cutover bog.

3.2.3. T5, T6, T7, T8 and T9 would be on or adjacent to the central peat basin and between the River Glore and the L5755. Some details follow:

- T9 is to the south and also in cutover bog and is close to the L5755. The proposed road connection from the local road serves the turbines in the centre of the site by way of a connection to some existing tracks which will be upgraded and where required new road sections are proposed.
- T5 is to be located in an area of coniferous forestry. The hardstanding area would be within the 50m buffer defined at the River Glore.
- T6 and T8 are in cutover bog to the west of T5.
- T7 is relatively close to the junction of D1 and the River Inny but well outside the defined 50m buffer zone.

3.2.4. T10, T11, T12 and T13 are all in the southernmost of the three peat basins and between the L5755 and the R396. The turbines would be served by mainly new access track which would run between the existing public road and serve the proposed site substation which is to be positioned close to the regional road close to T11 and T12.

3.2.5. T14 is to the east of the peat basin and in an afforested area and would be independently served by a new access road parallel to a tributary of the River Glore.

3.2.6. T15 is in agricultural lands at an isolated location to the east of the overall site and north of the River Glore which will be crossed by the proposed access road between the L5755 and the turbine. The junction of these roads is one of the highest points of the site at c. 85m. To the south is the proposed access road to the borrow pit.

3.2.7. The existing site levels where the turbines are to be located are generally between 60 m OD and 66 m OD. The site of the proposed borrow pit is at 85m to 115m OD.

3.2.8. The applicant states that for the purposes of the EIAR various types and sizes of wind turbines have been assessed to ensure worst case scenario has been considered. The submitted further information presents an assessment for two different turbine models and re-visits the visual, shadow flicker and noise impacts. The specific parameters of the selected turbines will be assessed for compliance with the criteria in the EIAR, the prevailing guidance and any conditions.

3.2.9. As described in Table 4-1 the top of the foundation level will be between 62 m and 69 m. The turbine foundations are as described in section 4.3.2. The size of the reinforced concrete foundations will be dictated by the turbine manufacturer. The typical horizontal and vertical extent of the turbine foundation is shown. After the foundation level of each turbine has been formed using piling methods or on competent strata, the bottom of the turbine tower is levelled and reinforcing steel built up around and through the anchor cage. A demountable formwork is put in place for pouring of concrete and is backfilled with granular fill to a finished level.

3.2.10. Hardstanding areas of levelled and compacted hardcore are required around each turbine base to facilitate access, turbine assembly and turbine direction. The sizes, arrangement and positioning of hardstanding areas are dictated by turbine suppliers. The hardstanding is intended to accommodate a crane and for offloading and storage of turbine components. Appendix 4 – 1 shows indicative sizes but the extent of required areas may be optimised on site depending on topography, position of site access and other details.

3.2.11. At either side of the hardstanding areas, unbound, levelled assembly areas will be required for offloading of turbine components until they are ready to be lifted into position by cranes and to assist the main crane during turbine assembly.

3.2.12. In the further information response, the applicant notes that in areas of deeper peat there will be a requirement for some form of temporary works, either to stabilise excavations or to provide temporary working platforms in order to construct the turbines and hardstands.

3.2.13. The site roads are as described in section 4.3.6. Following assessment of the extent and condition of existing ground an assessment was undertaken of the type of upgrade works for new roads requirements relevant to the project. Further details on the specification of road types are set out in the Peat and Spoil Management Plan in Appendix 4-2 of the EIAR. The proposed development includes:

- upgrade of existing forest track entrance off the R396 for use as site entrance during construction and operation
- construction of new access roads on the WFS and upgrade of some sections of existing on-site roads

- construction of a total of approximately 11.14 km of new access road including the link road and borrow pit access road
- upgrade approximately 3.13 km of existing access track
- new access roads will mainly be constructed using a floating roads technique with excavation of new roads where ground conditions permit
- roadways will be of 5m running width approximately with wider sections at corners and junctions
- the planned construction of a 1.2 km link road between the R395 and R396 is for turbine delivery and construction vehicles avoiding Coole village
- access to the borrow pit will be from the L5755 by way of a new section of road measuring 0.2 km in length.

3.2.14. As described in section 4.3.7.1 the road construction preliminary design has taken account of key factors described in Appendix 4 – 2 as follows:

- buildability considerations
- maximising use of existing infrastructure
- minimising excavations
- serviceability requirements for construction and wind turbine delivery and maintenance vehicles
- minimising disruption to peat hydrology.

3.2.15. The actual construction technique at a particular section of road will be determined based on prevailing ground conditions. Floating access roads are deemed to be an appropriate construction technique given the flat topography and deep nature of peat on site. The general construction methodology for floating access roads is summarised in section 4.3.7.1 of the EIAR and a section of the new floating road is shown in figure 4–4. The typical makeup of the new floated access road is 1 m of selected granular fill with 2 no. layers of geogrid and possibly a geotextile separator. The design may also include features at either side of the access road to reduce the likelihood of potential bearing failures.

3.2.16. In terms of the construction of access roads careful laying/tipping/spreading of the stone is emphasised. Movement monitoring posts will be installed in areas where the

peat depth is greater than 4 m. The general methodology for road construction is presented in appendix 4–2.

3.2.17. For upgrading of existing floated access tracks (type B) guidelines are set out.

3.2.18. Where possible internal cabling will be placed within the internal road corridor subject to ESB / Eirgrid requirements.

3.2.19. A third road construction type is as set out in section 4.3.7.3 and relates to excavated road construction methodology for new access roads and various locations involving excavation of peat and spoil and the founding of the access road on a competent strata below the peat. This will be as per figure 4 – 8. Road construction will be in short (50m) lengths with use of monitoring posts where peat depth is over 2m.

3.2.20. One main temporary construction compound will be used for temporary storage of all construction materials and turbines. It is located close to an existing site entrance at the regional road. A single temporary construction compound is considered to result in less disturbance to the site and reduced visual impact from the development. The compound will be screened from the regional road by trees and vegetation.

3.2.21. The borrow pit is to be located on agricultural grassland 700 m south-east of the nearest proposed turbine location (T14). It will be accessed from the L5755 Local Rd by way of a new 200 m access road to be constructed on agricultural grassland and to be located less than 0.1 km west of the access road to T15. This will be the source of the majority of all rock and hardcore material required during construction of the proposed development. The stated area of the borrow pit is 6.21 ha.

3.2.22. Trial pits were previously undertaken at the site of the proposed borrow pit and ground conditions comprise sandy gravelly clay topsoil underlain by glacial till with bedrock of strong intact limestone at 1.5 m below ground level. No peat was recorded at the site of the proposed borrow pit.

3.2.23. On completion the borrow pit site will be re-profiled and reinstated as shown on figure 4 – 9. Blasting has been omitted. Rock excavation and rock breaking is considered to be feasible as the extraction method.

3.2.24. The volumes of granular fill (sand and stone) required have been estimated. The required granular fill will be sourced from the proposed borrow pit. If necessary higher quality surfacing granular fill and sand will be sourced from local quarries.

3.2.25. Section 4.3.10 refers to the Peat and Spoil Management Plan. Minimal peat excavation is likely to be required. Excluding T5 and T15 all turbines, associated crane hardstands and the substation building are likely to require a piled foundation due to the depth of peat and the soft lacustrine deposits present. The substation platform and construction compounds platform are likely to be constructed using floating techniques. The proposed construction method for all proposed access roads is a floating technique. Where floating techniques are used there will not be excavation of peat / spoil - subject to confirmation at detailed design stage.

3.2.26. The proposed on-site electricity substation will be located within an area of forestry. The substation compound will be 140 m x 70 m footprint and the layout and elevations are as shown on figure 4 – 12 and figure 4 – 13.

3.2.27. The wind farm control building within the substation compound will measure 25 m x 15 m and be 7.8 m in height and have a small office and staff welfare facilities.

3.2.28. Within the substation compound also will be an IPP (independent power producer) building and control rooms measuring 20 m x 5.8 m and approximately 5.5 m in height. The IPP building will contain a small office space and staff welfare facilities.

3.2.29. There will be 2 staff members on site at any one time. A rainwater harvesting tank will be installed. Potable water will be supplied at the control building. Wastewater will be managed by way of a sealed storage tank and wastewater will be tankered off site once a month. The tank will be fitted with an automated alarm system.

3.2.30. Site underground cabling comprising electricity and fibre-optic cables running from the turbines to the substation compound on site will be housed in cable ducts 1.2 m below ground surface along the sides of roadways.

3.2.31. The grid connection route (GCR) is described in detail in section 4.3.13. It will connect the proposed development to the national grid at Mullingar 110kV substation. The route measures 26 km from the proposed wind farm site to the substation near Mullingar. Apart from a 700 m section of underground cabling which crosses private lands it will be within the public road corridor. The selected route passes from the existing substation at Irishtown to the north of Mullingar town, follows the local public road for a few kilometres before briefly joining the N4 and reverting back to a county road, passes through Multyfarnham village and to the west of Lough Derravarragh in a northerly direction, across an existing bridge at the River Inny at Shrubbywood , travelling in a north-easterly direction for a few

kilometres and then taking a northerly route into the village of Coole before travelling in a westerly and then northerly direction along regional roads to join the substation site.

3.2.32. The design and construction of the grid connection cable trench is described in detail in section 4.8.7 of the EIAR. The typical construction methodology for ducting work in peat and non-peatland is separately described. The crossing of existing underground services will provide for a 300mm clearance where achievable. The location of joint bays which will be required every 500m approximately will be selected to take advantage of wide sections of road and to avoid peat.

3.2.33. A total of 16 water crossings (7 no. river/stream crossings and 9 no. Culverts) are required as shown on figure 4 – 26. Adjacent water crossing number 16 there is a requirement also for crossing of an Irish Rail line. This will be undertaken under licence agreement between the developer and CIE. The methodology for water crossings is described and directional drilling is one of the possible methods identified.

3.2.34. Ground investigations along the grid connection route included a peat stability assessment of sections of the public road underlain by peat. The purpose of the assessment was to establish the ground conditions in 3 priority sections of road which were identified by the local authority at the time. The assessment undertaken in 2017 has been supplemented by additional more detailed investigations. The 2017 AGEC report is presented in appendix 4 – 4. The length of the route subject of this detailed assessment is approximately 8 km.

3.3. Applicant's Response to Further Information Request

3.3.1. The Board issued a request for further information. The issues raised included:

- Clarity with respect to the plans and particulars.
- Assessment of any options for turbines which might be considered.
- Matters relevant to the NIS including a request to respond to the DHLGH submission.
- Consideration of in combination effects with ongoing peat harvesting and any future rehabilitation plans.

- Information relating to aquatic and bird surveys.
- Interactions with peat harvesting.
- Control over the drainage in place at the peatlands.
- Justification for the location of T12 in deep peat and question regarding depth and peat stability.
- Public access.
- Response to observers.

3.3.2. As noted above the turbine design has been clarified, the drawings have been refined and further assessments undertaken. In this respect the additional photomontages and the assessment of noise and shadow flicker which are subject of separate submissions are noteworthy.

3.3.3. The FI response addresses the observations submitted. The main submission is the document prepared by MKO which is entitled Response to Further Information Request.

3.3.4. The appendices submitted as part of the FI are :

- Appendix 1 – FI Drawings Pack which shows the three turbine ranges and minor modifications to foundations.
- Appendix 2 – HES response to hydrology/hydrogeology including the connectivity to habitats and water quality mitigation.
- Appendix 3 – updated figures.
- Appendix 4 – Revised Natura Impact Statement and Screening Report.
- Appendix 5 – Bird Surveys March 2021 – March 2022.
- Appendix 6 and 7 – LVIA and photomontages.
- Appendix 8 – Archaeology – Tobar report.
- Appendix 9 – HV Cable – Ionic Report.
- Appendix 10 – AWN Technical note on noise.
- Appendix 11 – Shadow Flicker.

- Appendix 12 – MWP on soils and geology including updated peat probing results.
- Appendix 13 – Updated figure 6-7 – mammal survey and habitat significance.

4.0 Westmeath County Council

The Chief Executive's Report describes the proposed development, the site location and surroundings. Relevant policy and guidance documents are identified as well as landscape designations and listed views and European sites or other designated sites in the vicinity of the site. The report contains an overview of the EIAR and summarises the main mitigation measures and conclusions under the various environmental topics. The Chief Executive's assessment and recommendation are set out below following a summary of departmental reports.

4.1. Departmental reports

Transportation Section Report

This report addresses of the implications for the safety of road users. It includes comments of a detailed nature regarding the method for placing of ducts and electricity cables across the Shrubbywood Bridge and Clonava Bridge and the placing of duct crossings over and under culverts on the public road.

District Engineer's Report

Relevant conditions related to roads address junction sightlines, junction improvements at N4 and L-1927-0 including traffic safety audit, pre and post condition surveys of roads and bridges, implementation under licence of any necessary road improvement works resulting from the post construction survey.

Conditions relevant to the cable route and to temporary reinstatement works.

Details with respect to a traffic management plan.

The applicant shall submit for written approval fully detailed construction drawings for the Shrubbywood bridge and Clonava bridge.

Details of proposed works at each of the water crossings including culverts to be subject of written approval.

Conditions relating to surface water include design to mimic existing greenfield run-off and a restricted discharge rate. All surface water from hardstanding areas for vehicle refuelling and other activities shall pass through adequately sized petrol/oil bypass interceptors. Requirements relating to interceptors and hardstanding areas.

It is stated that the construction of the development may lead to long-term damage to the road network. The developer shall be required to contribute to the cost of repair. A cash bond of €451,746 be paid prior to commencement of development.

Other matters include the requirements for drainage at the entrance to the development, disposal of waste from wastewater storage tank, and general requirements which include matters relating to liaison with local authorities and groups and the agreement of a construction management plan.

Water and Environmental Services Report

The report endorses the conclusion in the NIS that the proposed development will not adversely affect the integrity of the Natura 2000 sites assessed.

There is no objection to the proposed development subject to conditions relating to approval of updated CEMP and agreement prior to commencement on a range of specific measures, including measures relating to surface water temporary settling ponds and the concentration of suspended solids in surface water run-off for discharge to watercourses, compliance with BS 5228 – 1:2009 and requirements relating to construction noise and operational phase noise.

Recommendations for operational phase noise is that the noise generated by the wind turbines shall not give rise to noise levels off site, at noise sensitive locations, which exceed the specified sound pressure limits (LA90, 10 minutes) namely:

- 40dB for quiet daytime environments of less than 30dB,
- 45dB for daytime environments greater than 30dB, or a maximum increase of 5dB(A) background noise (whichever is higher)
- 43dB for night-time periods, or a maximum increase of 5dB(A) background noise (whichever is higher).

Senior Assistant Chief Fire Officer Report

The Fire Officer has no objection subject to the provision of adequate access and facilities provided for the development in the event of an accident on the site.

National Roads Design Office Report

The grid connection has potential to act as a constraint/increase costs associated with the N4 Mullingar to Longford Scheme, currently at Phase 2 Option Selection.

4.2. Assessment and Recommendation

It is noted that on the date of completion of this report (21 May 2021) no observations or submissions have been received from the Board.

Having regard to national policy, the RSES and CDP policy CPO 10.146, the principle of the development is acceptable. The proposed development is considered generally in compliance with the Wind Energy Guidelines 2006 (and the draft guidance) in terms of siting and landscape suitability for large wind farms on peatland.

The Westmeath County Development Plan 2021 – 2027 came into effect on 3 May 2021. There followed a draft Ministerial Directive to delete objective CPO 10.143. CPO 10.143 is taken not to have come into effect.

Should shadow flicker exist it can be adequately mitigated as outlined in the EIAR.

The justification for the noise parameters used in the EIAR are considered reasonable. Mitigation measures identified which include control and regulation of the operation of turbine units in certain atmospheric and meteorological conditions are considered adequately robust to protect residential amenities.

With respect to visual amenity and as per the WEGs and the CDP (section 10.23.2) there is a need to balance the preservation and enhancement of nature conservation and habitat protection against the need to develop key strategic infrastructure. The proposal would have a visual impact from roads and residential properties. In view of the long-established commercial peat extraction operations, the landscape presents as a highly moderated working landscape that is relatively robust. Visual character of the wider landscape has changed and will further change and would not result in visual intrusion as to warrant an unsupportive recommendation. To protect residential amenity compliance with mitigation measures is a requirement.

With respect to the grid connection and haul route these matters are assessed in some of the individual technical reports.

If property values are not to be adversely affected it would be necessary to ensure that the WEG standards are achieved and that noise and shadow flicker levels are controlled. Evidence of impact of wind farms on property values in an Irish context would be useful.

With respect to the principal dimensions of the proposed wind turbines it is considered that the Board shall consider the ratio of rotor diameters of turbines to heights. When the rotor diameters exceeds by a significant margin the hub height the entire structure can become excessively dominant and chunky in views. There would be a hub height of 97.5 m and a potential ratio of rotor diameter to hub height would in the order of 1.6:1 - considerably more than 1:1 which gives rise to the typical tall, slender and proportional appearance.

It is recommended that the Board consider an alternative 'broader' community gain in terms of amenity improvements such as amenity pathways and links to public roadways which would be available to walkers, trail runners, cyclists and other recreational uses and be associated with a new public park.

The contribution under section 48 should apply subject to any applicable indexation.

With respect to a special development contributions the preference of the councillors is for a specific condition requiring pre-surveying of roads, proposals for rendering the routes fit for purpose, ongoing monitoring and repair during the project, post construction survey and remedial works.

Subject to relevant environmental determinations for which the Board is the competent authority it is considered that subject to condition none of the issues outlined in this report would be so significant as to justify refusal of permission. The proposed development would be in accordance with relevant policy and guidance and if permitted will make a positive contribution to Ireland's national strategic policy on renewable energy, have an acceptable landscape impact and would not seriously injure the residential visual amenities of the area or adversely affect the archaeological or natural heritage and would be acceptable in terms of traffic safety and convenience.

The recommended conditions include the following:

- timescale for completion, operation and decommissioning,
- turbines not to be replaced without consent,

- CEMP
- noise levels during construction and operation including monitoring
- archaeological recording, reporting and any further mitigation arising
- navigation lighting
- mitigation measures in the EIAR to be applied
- bird monitoring and kill record (subject to NPWS report)
- surface water monitoring and management
- contributions and bond
- community benefit scheme
- wind farm amenity provision consisting of walkway/cycleway and linkage
- no signage/delivery
- the redesign of grid connection bridge crossings
- pavement strength analysis and culvert/bridge bearing capacity analysis report for haulage routes
- pre-and post-construction works
- the requirements of the internal departments as per section 16 of this report.

4.3. **Members of WMCC**

The comments made included reference to the policy subject to the draft Ministerial Direction and queries relating to its status. It was submitted that the adopted policy should apply until a formal Ministerial Direction is issued and full process concluded.

Concerns were expressed relating to rights of way, the impact on farmers payments, noise in the context of WHO guidelines and shadow flicker, the extent to which a cost benefit analysis was carried out in association with the proposal and whether the proposal is solely profit driven as opposed to producing the most energy at the lowest cost in areas where it is needed, impact on the wider area and on bogs and issues relating to the grid connection and potential for impacts on people's homes.

The suggestion was made that payback to the residents include subsidised energy.

It was considered that the plans for site restoration need further consideration.

The Chief Executive's recommendation was queried given the previous decision of WMCC to refuse permission.

An elected representative stated that a successful application will set a precedent.

The members did not resolve to attach any recommendations to the report.

5.0 Prescribed Bodies

5.1. Irish Aviation Authority

Recommended planning conditions relate to lighting and consultation.

5.2. Geological Survey Ireland

There will be no impact on CGSs. GSI should be advised of any amendment.

5.3. Transport Infrastructure Ireland

The main points of the observation are as follows:

- A grant of permission is premature pending determination of the layout for the N4 Mullingar to Longford Scheme.
- The GCR is within the constraints study area for the Scheme. The implications for the planning, design and delivery of the scheme are not considered in the EIAR. The constraint represented by the cable routing and joint bays could compromise the delivery of the NDP objectives and is contrary to the provisions of the DoECLG 2012 and may increase costs.
- TII has identified a number of significant implications for management and maintenance of the existing road, including additional costs. A number of operational issues are required to be resolved prior to any decision.
- Conditions and requirements are set out relating to the TDR.

The TII submissions relating to the further information response includes:

- Matters raised relating to the future scheme, the haul route, national road structures and others remain relevant to the Authority's position.

- A licence may be required for any cabling or trenching proposals. All works to be subject to agreement of TII and costs borne by the developer.
- The initial SID application outlined a preferable alternative cabling routing proposal, Option B. Option A represents a significant conflict with the official policy relating to the NPF and NDP investment objectives for the N4 Mullingar to Longford scheme.

5.4. Department of Housing, Local Government and Heritage

This submission relating to nature conservation includes:

- Comments with respect to the adequacy of survey data including with respect to night-time surveys, view shed analysis and the aquatic surveys.
- The approach in the screening for AA is not recommended.
- The limitation of the SNH guidance is noted and should be addressed.
- Detailed scientific evidence should be provided to demonstrate the site is not on a migration route.
- An assessment is required to determine if mitigation used by peat harvesting operation and proposed mitigation will be effective in avoiding or reducing impacts to European sites.
- Any hydrogeological connectivity to nearby bogs needs to be described.
- Mitigation for the decommissioning phase and rehabilitation is inadequate.
- The rehabilitation plan should be assessed in conjunction with the EIAR. The peat harvesting activities have not been sufficiently addressed.
- The peat stability report identifies turbines that are in areas which have a higher construction risk. T1, T3 and T4 are close to the River Glore and Inny. Peat instability is a potential high risk.
- Carbon benefit analysis should take into account the whole development site.
- Comments relating to badger, otter and bats.
- Comments relating to buzzard, lapwing and the collision risk.

- Insufficient data with regard to a number of species including Meadow pipet and Skylark. Golden plover impacts need to take into account the large and rapid decline in the species.
- Collision risk for Peregrine is a significant impact on the local population.
- Under the Biodiversity Action Plan there is a key objective of no net contribution to biodiversity loss and this needs to be assessed.
- The Department highlights the exclusion of SCI species Greenland White fronted goose in the AA mitigation and is concerned about the impacts on SCI species due to the proximity of SPA sites and lack of nocturnal surveys.
- All mitigation measures outlined should be specific and clear for each identified impact on each QI and SCI. The construction phase drainage management measures should all be identified.
- Lough Derravarragh is hydrologically connected to the proposed development site within the foraging and commuting range of Whooper Swan. Further assessment is recommended in terms of the movement of species and associated flight paths.

6.0 Observations and Further Observations

Following receipt of the initial round of observations a request for further information issued. The further information received was circulated to observers who were invited to respond and 13 no. further observations were received.

The issues raised in the observations and further observations are presented below in grouped format under topic theme.

6.1. Principle

6.1.1. The issues raised include:

- The development is being used to export electricity to the UK where this type of industrial wind turbine development is not wanted.
- This low-lying landscape is suitable for solar energy, which is the way forward in this area in terms of provision of renewables.

- The area is not suited to large industrial wind turbines.
- The length of the cable shows that necessary infrastructure is unavailable.
- The NPF in 2018 stated that the qualities of natural and cultural heritage, including peatlands, should be conserved and enhanced and recommended that a full restoration should be promoted over rehabilitation only.
- The proposal to construct a wind farm on the subject site is completely opposed to the policy of rewetting, restoring and revegetation denuded peatlands and therefore the wind farm project as a whole should not be permitted.

6.2. **Precedent, Legal and Related**

6.2.1. The issues raised include:

- Granting permission for the 26 km grid connection will have the inevitable effect of wind farm creep throughout the upper Inny basin on lands mainly in the care of Bord na Mona. The cumulative effect is not addressed properly.
- There is no SEA for onshore wind energy, which is contrary to EU case law. Case number C – 24/19 is relevant. Permission cannot be granted.
- With average monthly wind speed of 3.8 m/s the site is inefficient. The area has the lowest wind speeds in the country and is not suitable for wind energy.
- The application is invalid by reason of project splitting. It fails to include the cables or an assessment of the cumulative effects of the entire project.
- Regulations SI 9/21 require written permission from all landowners. No consent has been obtained along parts of the route of the connecting cables.
- Article 23 of the Regulations is not adhered to.
- Public participation requirements are not met.
- The proposed development has been artificially increased in order to make it a strategic infrastructure case and bypass Westmeath County Council. The proposed wind farm does not meet the criteria as output would not be 50MW.
- The felling of trees is taking place even though planning permission is being challenged through the courts and this activity is not valid.

- The 2006 WEGs are inadequate. Use of the 2019 Draft WEGs would render the EIA for this project invalid.
- The Board has no jurisdiction to consider an application for permission for the construction of a wind farm which would be intimately connected with the continuing unauthorised development of peat extraction and ancillary works having regard to the decision of the High Court in Cleary Compost and Shredding Ltd v An Bord Pleanála [2017] IEHC 458.
- A 30-year time span is excessive.
- There are only eight site notices on the entire 26 km length of the grid connection which has many junctions along the route – some people living on the grid connection route would not be aware of the future disruption.

6.2.2. The further information responses reiterate and confirm many of the above points. In addition there is reference to the following:

- Observers state that the submission of DHLGH of April 2021 was not available to them.
- The actual size, make and model of the 15 turbines is no clearer under the FI.
- A recent referral by the Irish Supreme Court to the European Court of Justice under C-727/22 on the matter of SEA of government plans for energy is relevant. No decision should be made until the result of that case is known. In the absence of SEA the EIA in this application is invalid. The equivalent of the Irish WEGs resulted in a determination by the CJEU under C – 24/19 that the Belgian equivalent is a plan or program requiring an SEA and that consents on foot of those guidelines were invalid.
- The Board was forced to concede cases at Gougane Barra and North Kildare due to the ruling under C – 24/19.
- The tip height has been raised by 3.5m under the FI response.

6.3. **Planning history**

6.3.1. The issues raised include:

- The commercial peat harvesting on the site is illegal and has been stopped by the High Court as it does not have planning permission.
- The proposed development would have greater impact on all aspects of the environment than the 13-turbine proposal. The turbines are materially different in terms of width (155m diameter proposed compared with 140m diameter) and output and footprint and environmental impact.
- It is claimed that the increased blade size alone will increase output of the 13 turbines to 66 MW and in another statement that the two new turbines will bring the output to 90 MW. So, turbines 14 and 15 must be 12.5 MW each.
- None of the commercial companies extracting and removing peat from the lands which comprise a major portion of the planning application site have been granted substitute consent and it follows logically that their activities remain unauthorised and are tainted by a serious illegality. It is also clear that by making applications for substitute content these companies have clearly indicated their intention to continue removing peat.

6.4. **Alternatives**

6.4.1. The issues raised include:

- Inadequate consideration of other renewable energy types.
- Small-scale local community owned or cooperatively owned wind energy schemes should be supported and encouraged.
- Construction of the wind farm will eliminate any possibility of bog rehabilitation which would be a condition of the terms of an EPA licence.

6.4.2. The further observations state:

- The FI response does not address the issue of the suitability of offshore sites and their advantages and the area's poor wind conditions.

6.5. **Development plan and related**

6.5.1. The issues raised include:

- A grant of permission would be premature pending the preparation and agreement of a management plan for the industrial peatlands in the county.
- Under the 2014 – 2020 development plan all areas of the county are designated low wind energy / no wind energy, which was changed under the 2021-2027 development plan from to medium wind energy.
- Requirement in the existing and forthcoming 2021 development plans for a setback distance of 10 times the height of the nacelle from nearest residences is not adhered to. Proposal is a contravention of development plan.
- The reliance on guidance developed primarily in the UK for Scottish onshore wind farms is inappropriate as the landscape character is very different. Reliance on the Westmeath guidance would have been relevant.
- The proposed development will adversely impact designated landscapes and views and will detract from the setting of protected structures and archaeological monuments which is contrary to the development plan.
- The extension of the wind farm development onto agricultural land contravenes the development plan.
- CPO 10.143 provides for different separation distances between wind turbines and residential dwellings which are not adhered to.
- Development plan objectives include protecting the context of the rich cultural heritage of the county, preservation in situ of all archaeological remains and sites of importance including their setting and context and zones of archaeological potential. These objectives will be contravened.
- The proposed development is in conflict with the appropriate management of conserved peatlands area policy PTL2.
- The development is not a sustainable land-use in line with policy PTL4. The development would damage a key carbon sink and is contrary to PTL6.
- The distance between turbines and houses does not conform to the revised draft guidelines for wind energy of 2019.

6.5.2. The further observations do not provide significant comment on this topic.

6.6. **Climate and related**

6.6.1. The issues raised include:

- The value of peatlands for carbon capture and the benefits of rewetting and restoration are outlined. For peatlands to act as long-term sinks for atmospheric carbon dioxide a persistently high-water table is necessary. A drop in water table can lead to significant releases of some greenhouse gases. Because of the large emissions of CO_2 from degraded peatlands in Ireland rewetting and restoring them is one of the most cost-effective ways of avoiding anthropogenic greenhouse gas emissions. Draining them leads to a vast increase in the amount of carbon dioxide released to the atmosphere from the peatland.
- Damaged peatlands are a persistent source of carbon dioxide as noted in the EPA STRIDE report.
- The carbon figures need to be explained. There is no information relating to how the applicants arrive at the figure of carbon loss for manufacturing, constructing and decommissioning the turbines and they should be quantified. As the make and model has not been selected it is not possible to quantify the carbon loss calculations.
- Has there been an assessment of the carbon cost of building the turbines against the amount of energy that could be created by the turbines? The figure of carbon loss for manufacturing, constructing and decommissioning of the turbines cannot be verified as the applicant has not specified the exact wind turbines to be used.

6.7. **Residential amenity, health and related**

6.7.1. The issues raised include:

- Operational noise and shadow flicker and EMF will adversely impact residential amenity and health.
- Blasting will impact the quality of life, education and overall well-being of individuals in the vicinity which includes individuals with autism. The noise and

dust from traffic and construction and quarrying will significantly negatively affect the life experience of these people.

- A retired observer states that there will be no respite from the construction impacts. This is also relevant to people who work from home.
- Due to the passing of local schools and private houses by trucks and cranes and other vehicles the safety of local children will be put at serious risk.
- A high volume of traffic related air pollution and noise will result.
- The Finnish government study released in June 2020 presented results of a project investigating infra-sound and its effects on humans and one third of residents attributed symptoms to windfarms.
- The spraying of roads with water to dampen down dust will have little effect on roads like the L5755.
- There will be an adverse effect on property value.
- During cable laying residents will not be able to leave home.
- Our house (number 14) will have one wind turbine 702 m from it and three turbines under 1 km distance. This will impact on the occupiers including 4 children whose health and well-being and safety will be at risk at home and during the school day in Scoil Mhuire Coole.
- The applicant should confirm that there will be no adverse health effects from the magnetic fields associated with the cabling along the route at inhabited properties and villages or to state otherwise in detail if that is not the case.
- People with special needs particularly autism syndrome would be very susceptible to shadow flicker effects. A dwelling of the Muiriosa Foundation it is very close to the proposed development and they will have to move house to avoid increased suffering of the people they care for.
- Due to traffic levels residents will be unable to take exercise.
- There is a shortage of housing in the area. Nobody will renovate a property which is located in the middle of commercial wind farm.
- The proposed borrow pit will pollute private wells.
- The run-off from the borrow pit will affect our percolation system.

6.7.2. The further information response includes the following:

- The removal of mature hedge close to houses would cause great disturbance and is illogical in view of the arrangements to access the borrow pit and service development.
- The scale of the turbines combined with noise and shadow flicker will have a seriously detrimental impact on the lives of residents.

6.8. **Noise**

6.8.1. The issues raised include:

- The Board should not consider granting permission without an assurance from the applicant that low frequency noise has been considered and that this important component of wind turbine noise would not have an adverse effect on human health.
- Physiological measurements indicate that nights with low frequency band amplitude modulation impacted sleep the most. In particular amplitude modulation and the presence of beating were important constituents of the wind turbine noise contributing to sleep disruption. A paper is quoted in this respect which was written by authors of the University of Gothenburg, Chalmers University of technology and Lund University in Sweden. This is described as peer-reviewed research undertaken.
- A recent paper by the Centre for Public health QUB is quoted where it states that all the available evidence indicates that an important minority of local inhabitants is severely impacted by noise emitted by wind farm site close to their homes. It is stated that the precautionary principle needs to apply with reference to public health.
- Turbines of this height emit a lot of noise which will adversely impact my property and enjoyment of it.
- It is necessary that the particular make of model of turbine to be installed is specified and is a condition of any grant of permission.
- Noise and dust and HGV traffic from the borrow pit will impact our physical and mental health.

- Noise impacts during construction will have adverse effects on the primary school and disadvantage the children's education.
- The failure to take into account derelict houses ignores the fact that there has been a large increase in the number of these which are being renovated.

6.8.2. The further information response includes the following:

- The scale of the turbines combined with noise and shadow flicker will have a seriously detrimental impact on the lives of residents.

6.9. **Shadow flicker**

6.9.1. The issues raised include:

- There is inadequate separation between turbines and houses and breaches of guidance.
- Possibly 33 out of 55 properties may exceed the guidance. Only two of these are participating properties.
- Our house is approximately 679 m from a turbine. The adverse effects of light flicker are of concern. This distracting and disorientating daily event experienced both morning and evening causes serious disruption and irritation to people.
- Objection to the nature of the proposed mitigation measures which could include closure of curtains in summer evenings.

6.9.2. The further information responses do not provide further significant comment.

6.10. **Cable and substation**

6.10.1. The issues raised include:

- There is a lack of clarity about the electricity substation and its purpose is unclear. There is a lack of clarity regarding the likely beneficiaries of the proposed grid connection. The applicant will have an interest in sharing the cost of connection.

- The construction team will need to be aware of the location of ducts for cables and demonstrate a methodology to find these installations and avoid damage and prevent occurrence of electrical accidents.
- There are other services in the road verges including broadband and water which will need to be taken into consideration.
- The proximity to houses will result in adverse health effects and water quality (including use for animals) will be made unsuitable.

6.10.2. The further information responses do not provide further significant comment.

6.11. **Roads and traffic**

6.11.1. The issues raised include:

- The roads which are to be used are unsuitable due to inadequate width of the L5755 and L1826 in particular. The construction of each turbine foundation will require an equivalent of 70 concrete lorries per turbine and a total of 1050 concrete lorries entering the wind farm site.
- The entrance to the borrow pit is unsuitably positioned on a bend.
- The road between Boherquill and Lisnagappagh and others are of insufficient width and poor structural condition.
- The decision not to use local road L57671 was to facilitate Westland Horticulture Ltd rather than as a result of consultation with residents. The route would not be adequate to serve Westland and the proposed wind farm.
- There will be adverse effects related to school traffic.
- There is no time limit on the road closures which are proposed and there will be considerable impact on local residents and business, including agriculture.

6.11.2. The further information responses do not provide further significant comment.

6.12. **Soils and geology**

6.12.1. The main issues raised include:

- Due to the bog surface there will be a need for huge foundations which renders the development at least environmentally neutral or worse.

- There is a lack of clarity relating to the volume and storage of topsoil.
- As there will be use of local quarries it is queried why there is a need to use the borrow pit at all.
- The suggestion by the applicant to set up a joint company with the illegal peat harvesting companies to continue this harvesting is surely not legal.

6.12.2. The response to FI includes the following:

- There has been an absence of independent survey of the effect of peat harvesting on watercourses in terms of pollution.
- As described on revised NIS section 5.4.1.3.11 the amount of peat to be excavated will result in excess water which will be vastly greater than present. The 100,000 m³ of peat will be approximately the same as filling Aviva Stadium to 12 m and it is queried where this will be put.
- The EU are encouraging rewetting and rehabilitation of peatlands, not further peat harvesting.

6.13. **Hydrology and Hydrogeology**

6.13.1. The issues raised include:

- While it is stated in the revised NIS 5.4.1.1 under the heading of mitigation by design that all major infrastructure will be over 50 m from any main watercourse identified on the EPA watercourse mapper and 10 m from any large drainage channels, turbine 1, the crane pad and hardstanding area is built over a watercourse, turbine 5 sweeps over the River Glore and the foundation area is only 40 m from the river (and in the absence of exact measurements for the foundations it could be closer) and turbine 15 is also built over a watercourse. It is queried how these water courses will be dealt with as the design does not mitigate pollution in these cases.
- Due to its scale and proximity to water bodies CWF will neither protect nor improve water quality as required under the Water Framework Directive.
- Lough Bane is only 10 m from the access roads and 50 m from the nearest turbine and this and other ecologically sensitive habitats will be affected.

- As indicated on habitat map 6.4 there is no buffer zone between the peat harvesting area and the Inny River and there will be reduced water quality including by the poor functioning of the silt traps.
- There would be cumulative effects potentially reducing water quality due to the continuing peat harvesting which will coexist with the proposed wind farm.
- There is potential for water saturated peat to become almost liquid when disturbed. Although the site is relatively flat it has been extensively disturbed by peat extraction and removal and is proximate to the river Inny and streams draining the site which increase the risk of an incident involving major pollution. The potential for heavy rainfall is more likely as a consequence of climate change.
- The mitigation measures used by peat harvesting operations to prevent water contamination have been very poor to date – silt ponds rise to the same level as rivers and streams crossing the site, silt traps are lower than the high-water level so silt spills over the top and because of these issues there has been a large amount of peat sediment that has been taken down stream into Lough Derravarragh.

6.13.2. The further observations reference the absence of remedial mitigation measures in the event of adverse water quality effects.

6.14. **Tourism and related**

6.14.1. The issues raised include:

- The proposed extension of the Westmeath Way through the area which will highlight features of interest will not happen if the wind farm is built.
- The long-established forest recreation area at Mullaghmeen was recently selected by the Irish Times as the hike of choice for the county. This is an isolated area of forest comprising the largest beech plantation in Ireland and a major tourist attraction. The intrusion associated with the 175 m high turbines cannot be reconciled with strategies to develop tourism.
- Mayne Bog Bronze Age wooden road and roadway is an amazing 4– 6 m wide wooden roadway that is 3000 years old and one of the best in Europe.

Funding is being sought for its interpretation and publication. The proposed development will be clearly visible. Tourists will take their business elsewhere.

- There is a cluster of heritage products in North Westmeath including Fore, Tullynally, Mayne Bog and also mythology. These assets are supportive of Failte Ireland's Ancient East strategy and branding. It is incorrect to state that 'there are no key identified tourist attractions close '. The area is heavily used for walking, cycling and fishing and other activities.
- Tullynally now has a sizeable tourist business and the castle and gardens are open to the public throughout the summer months. The tourism development strategy for Tullynally involves linked tourism offerings with other nearby attractions and the proposed industrial wind farm would sit within these attractions.

6.14.2. In the further observations no substantive comment is offered relating to tourism.

6.15. **Landscape and visual impact**

6.15.1. The issues raised include:

- This low-lying area is not suitable for wind energy. Turbines will have to be very large in order to get sufficient wind. The proposed development would set an undesirable precedent.
- The structures would be totally out of scale and no mitigation is possible. The turbines will be 10 m higher than the local landmark the Hill of Mael. There are no large-scale industrial buildings or structures of any size in the area. The development will be visible beyond the 20 km radius assessed.
- The area is designated for significant tourism related investment and has a lot of potential in this regard. Castlepollard is a designated base from where visitors will explore the many sights of north Westmeath. The landscape assets will be undermined by the siting of the industrial scale windfarm.
- The layout has not considered the landscape character.
- The assessment is that there is screening of the proposed turbines by trees and bushes from roads between 1km and 3km from the site. No similar analysis has been done for residential houses.

- The turbine blades are not correctly depicted. The photomontages portray the blades at 10 o'clock and 2 o'clock which is the best-case scenario.
- The photomontages are misleading as discussed for the relevant views.
- The images do show that the turbines will completely dominate the landscape and result in an industrialising effect out of keeping with the area. The industrial scale light white-grey turbine machines will completely dominate the predominantly green and brown rural landscape.
- The Hill of Mael was not included in the photomontages.
- The photomontages/wireframe images are based on the narrower blade width turbines plan to be used for the earlier application.

6.15.2. In response to the FI submitted including the photomontage booklet the following comments are made:

- The images are deliberately designed to minimise and obscure the visual impact using software package techniques. An independent professional landscape company should have been brought in to assess the images.
- The turbine envelope range which is described shows a 6 m difference in rotor diameter which is a significant increase. How can permission be granted for three different turbine configurations with this much variation of width.
- The significance ratings of visual effects in the EIAR are ludicrous. These include the visual effect on the landscape of 15 no. 175 m high industrial turbines as slight, imperceptible or moderate.
- None of the photomontages produced show the visual effects on the residential homes closest to the turbines including our own home. This is despite the fact that 158 plates and 22 different viewpoints are presented.
- The width of the turbines has increased by over 11% from 140 m to 155 m. This is not shown on the comparison between the green and blue wireframe images.
- The images are inaccurate and misrepresent the impact of the proposed development. A further critique is provided of photomontages.

6.16. **Architectural, Archaeological and Cultural Heritage**

6.16.1. The main points made in observations and further observations include:

- CPO 14.7 is to ensure that any development adjacent to an archaeological monument or site shall not be detrimental to the character of the archaeological site, or at setting and shall be sited in a manner which minimises the impact on the monument and its setting. Development likely to detract from the setting of such a monument will not be permitted.

- The grossly oversized wind farm will be deeply damaging to the historic and natural environment on visual grounds and that it will unnecessarily disrupt the ancient archaeological landscape and run contrary to the development plan.

- The statement in the EIAR that there are no RMPs within the proposed development site is relevant only as the site is so tightly drawn.

- Observers disagree with the conclusion of Tobar regarding the Hill of Uisneach 28 km away which was placed on Ireland's tentative list for UNESCO World Heritage status in July 2022. The FI response did not reference that it is now part of a tentative list composed of five major archaeological sites.

- The effect on the setting of Mayne Bog Bronze Age wooden road is deemed slight – this amazing roadway has potential to be a significant visitor attraction. It is earlier than the celebrated Corlea Bog trackway by 1000 years. It is 3 km from the nearest turbine and the visual impact cannot simply be described as Slight.

- The same conclusion is drawn in relation to the crannog cluster on Lough Derravaragh, which is the oldest in Ireland dating to 850 BC.

- There are many monuments in the immediate area which are scheduled for addition in the RMP and waiting to be entered in the RMP including a 15th century castle in Newcastle, under 1 km from the proposed borrow pit and 844 m from T13.

- There is an upstanding church and font at Mayne and likely remains of an early Christian ecclesiastical enclosure. There may be an earlier graveyard enclosure which may well be covered by the current public road.

- Photomontage 21 from the cairn at Mullaghmeen 5.3 km from the turbines shows them clearly visible against the landscape and skyline and completely out of place and altering the character of the landscape from rural to industrial. On the Hill of Mullaghmeen is a cairn which is to be included in the next RMP and is described as having panoramic views in all directions and a good view of Lough Sheelin 3.8km to the north.

- Loughcrew is 15.9 km east of the proposed industrial wind farm. The turbines are rendered in dark grey yet are still barely visible in the photomontage and would be more so in real life as it would stand tall and taller than the local landmarks. CWF is visible from the 276 m high hills.

- The applicant classified the sensitivity of the turbine on Loughcrew (and Fore Abbey, also a national monument) as 'High' and inextricably states that the impact will be 'Slight'. I disagree with this subjective view as an archaeologist.

- Photomontage 18 is from Granard Motte and national monument and the turbines stand clear and clean against the surrounding landscape and higher than the hills in the background. The applied colour is a cynical attempt to reduce the visual impact in the photomontage.

- Demolition of the bridge near T15 should not be allowed.

6.17. **Appropriate Assessment, Biodiversity and Ornithology**

6.17.1. The issues raised include:

- In 7.2.1 of the NIS there is a very brief mention of existing peat extraction activity but no further examination of possible cumulative effects is provided.
- Lough Derravarragh should be afforded the highest position in ranking of habitats.
- Lough Kinale and Darragh Lough are at risk. This nature reserve is important for birds who will be killed by the rotating blades.

- Since commercial peat harvesting has ceased there has been an increase in presence of larks, lapwings, cuckoos and ducks which would again disappear in the presence of a wind farm.
- There has been inadequate impact on Lough Bane pNHA on NHAs and European sites in close proximity to the proposed development.
- The area behind turbine 1 has several acres of untouched and untrained bog land and areas rich in sphagnum moss hillocks and developing bog land which will be damaged.
- Concrete is alkaline and leaches into the soil while the bog is acidic – will the fundamental structure of the bog be altered?
- Pine marten and pygmy shrew are plentiful in the area and if there were no recorded sightings as stated that competence of the surveys undertaken is questioned. The red squirrel population is increasing in the area and effort should be made to ensure available habitats. The operational phase and its effect on non-volent mammals in the vicinity needs to be considered in studies indicate that greater weight should be given to this.
- Marsh fritillary have been identified as being present in N36, N37, N45 and N36 which are within the footprint of the site.
- The replanting proposed as a result of the loss of trees will take place in County Roscommon. The removal of 16.53 ha of forestry to make the site suitable for the wind turbines is a red flag issue for any application. The immediate environment for wildlife will be affected by this deforestation.
- Any work upstream of this bog that may upset the Inny River and its relationship with the bog would have a negative effect on the hydrogeology of Garriskil and Scragh Bogs.

6.17.2. The further information responses include the following:

- The FI submission did not properly deal with the SAC Lough Kinale and Darragh Lough. Any objective assessment can only conclude that the wind farm proposed will seriously interfere with nesting areas and flight paths. Hen Harriers have been seen at Darragh Lough.

- There has been no independent survey on the amount of pollution present in the waterways caused by peat harvesting.
- Regarding the response to the request for more detailed information relating to water quality monitoring the FI response simply shows a table of parameters that will be monitored with testing of water on the River Inny and River Glore. There is no further information relating to remedial action.
- In 2021 there was a flock of approximately 120 Whooper Swans feeding in a field close to Lough Derravaragh (where they fly to at night).
- Regarding 2.2.2.2.6 and the issue of nocturnal birds the survey should have been taken between dawn and dusk. An observer states that spotted barn owls would be visible only after dusk and the fact that they were not recorded in any of the surveys may be due to the limited nocturnal surveys and undermines the methodology and results of the nocturnal surveys.
- Regarding the impact on Whopper swans short descending flights which are referenced by the applicant may increase the likelihood of impact with the turbine. The band model used by MKO should be updated.
- Regarding golden plover the predicted collision risk equates to half of the estimated county population of this Annex I listed species. The Department highlighted policy CPO 12.6 of the 2021 development plan. The development should not be permitted given the potential impact on this Annex 1 species.

6.18. **Telecommunications and related**

6.18.1. The issues raised include:

- Potential adverse effect on our Internet service. Adverse impacts on the Internet connection will mean that people cannot work from home.
- Turbines 2, 6, 9 and 13 are in the path of the buffer zone for Three Ireland which provides the best mobile phone connection in the area.
- The Three Ireland communications mast in Coole village has been ignored and is not shown on the map of masts in the region.

6.19. **Equestrian and Agriculture**

6.19.1. The issues raised include:

- One observer who breeds thoroughbred horses describes them as a high-value asset and part of my way of life. The animals will be highly affected by the wind farm.
- The laying of the cable under the road that passes by my property would interfere with collection of milk which has to take place on a daily basis. A junction box planned will interfere with my watermains on which I am totally reliant is located. My livelihood is at stake. I have not been consulted by anybody in relation to the difficulties that would arise.
- Electrical cables can impact the molecular charge of water molecules changing water irons from diamagnetic to paramagnetic polarity. Consumption of such water by animals can lead to lower yields and poor absorption of nutrients, which would negatively impact the animals and my business.

6.19.2. In the further information response it is stated:

- The effects of EMF on water, humans and animals still has not been addressed.

6.20. **Consultation and related**

6.20.1. The issues raised include:

- Inadequate consultation involving only a confidential letter to houses within 1.7 km of the turbine.
- The development will impact an area extending over north Westmeath, Longford, Cavan and Meath.
- The last community open night was for the previous scheme.
- It is undemocratic to override the local council by bogusly claiming that this application is for a strategic infrastructure development.
- Objection to payment of €50.

7.0 Applicant Response

7.1.1. The further observations were circulated to the applicant's for response.

7.1.2. The applicant's response was received by the Board on 5 May 2023. It is described and addressed in the assessment section of this report. The response mainly addresses the following topics:

- Issues related to the N4 upgrade
- Water quality and crossings
- Noise and shadow flicker curtailment measures
- Geotechnical (further response of MWP)
- Archaeology (further response of Tobar).

8.0 Planning history

8.1. The Site

The planning history of most relevance to the WFS is summarised below.

ABP-300686 (Reg. ref. 17/6292) – I describe this proposal as Coole Wind Farm 1 (CWF1) - the Board decided to grant permission on 26 March 2019 for a 13-turbine wind energy development, associated cabling and an on-site substation at lands included in the current site. Under s146A the Board granted an amendment to the order related to condition 9 (noise). There are ongoing JR proceedings. Permission had been refused by WMCC due to policy on separation distances.

ABP-313716 by Westland Horticulture Limited relates to an extension of time to apply for substitute consent for peat harvesting until 16 December 2022. The relevant lands are in Coole, Mayne, Ballinealoe and Clonsura and in two plots. The northern plot is adjacent to and to the north of proposed turbines T1, T2, T3 and T4 and associated internal roads. The southern plot includes part of a link road between R395 and R396 which will facilitate turbine delivery. There is a subsequent live case for an application for an extension of time – ABP-315338 which was lodged on 1 December 2022 and which remains undecided.

The original leave to apply for substitute consent relevant to the above lands was granted to Westland Horticultural Ltd on 1 May 2020 under ABP-305835. There were a number of other cases in the intervening period.

ABP-310547 – On foot of a referral by WMCC to the Board relating to whether harvesting of peat at Doon at lands (adjacent T6 and T7) is or is not development or is or is not exempted development, the Board concluded on 20 January 2022 that the industrial extraction of peat is development being works and a material change of use and that it is not exempted development because of the location, nature and scale of the works which require EIA and AA. The stated name of the owner/occupier is Omard Mushrooms Ltd / Cavan Peat Limited / Clover Products Limited.

RL2969 and RL 2975 - in summary the Board decided that the drainage of the bogs, peat extraction, accesses from public roads, peat handling activities and other associated activities are development and were exempted development until 20 September 2017 after which it is development and is not exempted development. the reason was related to requirement for EIA and AA. The area subject of RL2969 related to the lands which are proposed to accommodate T1, T2, T3, T4. The area subject of RL2975 includes part of the lands which would accommodate a link road.

RL2815 relating to whether extraction of peat and associated works at Lickny, Newcastle, Doon and Carlanstown was dismissed on the basis of inadequate information to enable the Board to make a decision.

0914-01 refers to an application to the EPA for an IPC licence for peat harvesting – this was on hold at the time of the decision of the Board on CWF1 (26 March 2019). On 18 December 2020 the EPA notified the applicant that it refused to consider the application due to the requirement for substitute consent.

8.2. Grid connection application to Westmeath County Council

Under reg. ref. 20/6121 in May 2020 Statkraft applied to Westmeath County Council for planning permission for a grid connection and for expansion of the on-site substation and for upgrade works to the existing Mullingar substation. The application was ultimately withdrawn. The Board had confirmed under ABP – 304794 that the subject development would not constitute strategic infrastructure. A legal challenge was made in the High Court to the decision of WMCC to accept the application as valid.

A further information request was issued by the planning authority in July 2020. A copy of the further information is provided as Appendix 2 – 1 (EIAR/Vol 3a) and table 2 – 1 (EIAR/Vol 1a) presents a summary list of the further information request items and where these are addressed in the EIAR accompanying the current application. The request for further information mainly comprised a request to respond to concerns of Department of Culture, Heritage and the Gaeltacht submission.

8.3. **Other relevant planning history:**

The following relate to cases in the vicinity of the cable route:

- Reg ref 18/60634 - a 10-year permission for the construction of an energy storage facility including an electrical substation building, battery modules, transformer/invertors station modules and ancillary infrastructure 200 m west of the grid connection route. Granted by ABP in July 2019.
- Reg ref 88/313 an application to retain peat moss processing plant and buildings at Doon, Castlepollard. Granted permission on 10 February 1989.
- Reg ref 16/6001 - 28 number of houses – granted permission in January 2017.
- Various applications for community facilities including education and recreation facilities adjacent to or within the general proximity of the proposed grid connection.

8.4. **Other wind farm developments**

In section 2.5.4 (EIAR/Vol1a) there is a description of the relevant planning history of windfarm applications within 20 km. I have provided some updates as relevant :

- There are extensive peatlands to the west of CWF to which observers refer in terms of cumulative impacts. From the Board's records I note that the planning history relevant to these lands relates to substitute consent for peat harvesting. No consent has been given for wind energy developments.
- **Dryderstown Wind Turbine**- a single wind turbine of hub height of 64 m located 21 km south-east the WFS. Permission granted in 2012/2013.

- **Crowinstown Wind Farm** – 3 no. Turbines permitted by WMCC at the site 25 km south-west of the nearest proposed wind turbine.
- **Ballivor Wind Farm** - to be located within the Ballivor Bog Group located 25 km south-west of the nearest proposed Coole wind turbine. This application was lodged on 05/04/23 under ABP-316212-23 and is for 26 wind turbines and associated works at the Ballivor Bog Group in County Meath and County Westmeath, approximately 27km southeast of CWF.
- **Bracklyn Wind Farm** - approximately 11 turbines proposed – described as being at an early design and consultation stage – 24.9 km south-west of the nearest proposed wind turbine. This application (for 9 turbines received consent from the Board under ABP-311565-21) in July 2022.
- **Ballyjamesduff Wind Turbine** - a single turbine permitted by County Council and located approximately 16.4 km north-east of the nearest proposed wind turbine.

9.0 Legislative and Policy Context – Key Provisions

9.1. European Policy and Legislation

9.1.1. **Regulation (EU) 2021/1119** establishing the framework for achieving climate neutrality came into force in July 2021. Known as the **European Climate Law** it sets a legally binding target of net zero greenhouse gas emissions by 2050 and obliges member states to meet those targets.

9.1.2. The **Fit for 55** package is a set of proposals to revise and update EU legislation and put in place initiatives which are in line with the agreed climate goals. This will include boosting the share of renewable energy by 2030 and will involve a revision of the **Renewable Energy Directive** resulting in an increased target of 40% of all energy being used in the EU to come from renewable sources by 2030 (an increase from the current target of 32% by 2030).

9.1.3. **European Green Deal** was a key communication of the Commission in December 2019 which set out a new strategy for growth which decoupled economic growth from resource use and aimed to transform the Union into a fair, prosperous, efficient and competitive economy with no net emissions of greenhouse gases in 2050.

9.2. **National Policy and Legislation – Climate and Energy**

The Climate Action and Low Carbon Development (Amendment) Act 2021 – the Climate Act

9.2.1. This requires the government to pursue and achieve the transition to a climate resilient and climate neutral economy by the end of 2050. It establishes an interim target of 51% reduction in GHG emissions by 2030 (relative to 2018).

9.2.2. The Act provides a framework for plans and strategies to reach these targets through annual climate action plans, five-year strategies and carbon budgets, sectoral emission ceilings and a national adaptation framework.

National Energy Security Framework

9.2.3. This was published in April 2022. It sets out the government's response to Ireland's energy security needs in the context of the Ukraine war. It identifies potential measures under the planning system to support the timely delivery of renewables.

Climate Action Plan 2023

9.2.4. Published in December 2022 this outlines the actions required to 2035 and beyond. It implements the carbon budgets and sectoral emission ceilings and sets a roadmap for halving emissions by 2030 and reaching net zero by no later than 2050.

9.2.5. To meet the challenges posed by the climate crisis and achieve further emissions reductions a major step up is required which will involve transformative societal change and a suite of actions. A key provision is the further increase in the deployment of renewable energy with the target of increasing the proportion of renewable electricity to 80% by 2030. This will include a target of 9GW from onshore wind energy by 2030.

9.2.6. With respect to the matter of just transition and carbon storage the **Climate Action Plan 2023** builds on **Climate Action Plan 2021** which included better management of peatlands as part of the measures to reduce GHG emissions. The latter in turn took up the themes set out in the **National Peatlands Strategy, 2015**.

Annex to CAP 2023 sets out measures relating to the rehabilitation of peat which includes measures specifically and solely related to lands under the control of Bord na Mona and then has separate objectives relating to lands in other ownership, lands which comprise European sites and to wetland restoration projects.

9.3. National, Regional and Local Policy – Spatial Planning

National Planning Framework - Project Ireland 2040.

9.3.1. National Strategic Outcome 8 relates to transition to a low carbon and climate resilient society, to be achieved by new energy systems and transmission grids amongst other measures. Rural areas have a strong role to play in securing a sustainable renewable energy supply in the context of national population growth.

9.3.2. National Policy Objective 54 is to reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate mitigation.

9.3.3. National Policy Objective 55 is to promote renewable energy use and generation at appropriate locations within the built and natural environment to meet national objectives towards achieving a low carbon economy by 2050.

9.3.4. It is noted that some of Ireland's cutaway bogs are suitable to facilitate the generation of energy, most notably wind and biomass. The NPF references a medium to longer term strategic national land-use plan for peatlands in state ownership will be prepared building on the National Peatlands Strategy.

National Development Plan 2018 – 2027.

9.3.5. The National Development Plan identifies the transition to a low carbon and resilient society as a national strategic outcome.

National Peatlands Strategy, 2015

9.3.6. This was published by Department of Arts, Heritage and the Gaeltacht. It describes the role of natural undrained peatlands as carbon stores and references work of the EPA in respect of peat restoration. The principles and actions include continued use of peatlands for a range of purposes including peat extraction and amenity. Regarding cutaway bogs principal P 21 references consideration to be given to how best these locations can contribute to a low carbon economy through their use as sites for renewable energy.

National Peatlands Strategy 2021 – 2025

9.3.7. This is a mid-term review and implementation plan. The vision is to provide a long-term framework within which peatlands can be managed responsibly in order to optimise their social, environmental and economic contribution to the well-being of this and future generations. A possible national park is referenced.

People, place and policy – growing tourism to 2025

9.3.8. This strategy was published in 2015 by the Department for Transport, Tourism and Sport. It emphasises the protection of key tourism assets, the importance of heritage and environment to tourism and the protection and promotion of cultural heritage and proposes a major programme of investment of looped walks.

Regional Spatial and Economic Strategy for Eastern and Midland Regional Assembly (RSES) 2019-2031

9.3.9. The transition to a low carbon climate resilient and environmentally sustainable region is supported. In order to meet national targets there is a need for a better natural resources element in the energy sector and to diversify from fossil fuels. This will include onshore and offshore energy investment. Grid infrastructure reinforcement and strengthening is a key concern. The key regional policy objectives are:

9.3.10. RPO 7.36 – to ensure that local policy reflects and adheres to the principles and planning guidance relating to wind energy development and other relevant guidance related to sustainable energy provisions.

9.3.11. RPO 10.20 – to support and facilitate development of enhanced electricity and gas supplies and associated networks to serve existing and future needs of the region and facilitate new transmission infrastructure projects as needed to facilitate linkages of renewable energy proposals to the grid.

9.3.12. RPO 10.22 – to support reinforcement and strengthening of the transmission and distribution network to facilitate plant growth and transmission/distribution of renewable energy focused generation to support population increases.

9.3.13. RPO 7.10 – to support the consideration of designating a National Park for the peatlands area in the Midlands.

Westmeath County Development Plan 2021-2027

9.3.14. At a high level there is support for renewable energy initiatives in chapter 5 and particularly objective CPO 5.59. Chapter 9 addresses issues relating to challenges with the rural economy and the need to promote farm diversification and new employment opportunities which will include renewable energy.

9.3.15. Policies relating to extractive industry and developments includes CPO 9.62, CPO 9.65 and CPO 9.66 which set out general objectives relating to not significantly impacting on environmental and cultural heritage resources.

9.3.16. Objectives relating to renewable energy are set out in Chapter 10.

9.3.17. Section 10. 23.2 refers specifically to industrial scale wind farms; the Council will favourably look on the development of industrial scale wind farms and the harnessing of wind energy in a manner that is consistent with proper planning and sustainable development of the county.

9.3.18. Under this section are policies CPO 10.132 which was renamed as CPO 10.143 and which had its background in P-WIN6 of the previous development plan. CPO 10.143 refers to separation distances between houses and turbines. A Ministerial Directive is discussed below.

9.3.19. CPO 10.147 is to ensure that proposals for energy development demonstrate that human health has been considered including in relation to noise, shadow flicker, and also ground conditions, water quality, collision risk to birds and bats.

9.3.20. With regard to energy developments potential for visual disturbance should be mitigated by applying setback distances to comply with ministerial guidance.

9.3.21. In line with the RSES which refers to the after use of peatlands and their potential contribution to renewable energy production CPO 10.146 is to strictly direct large-scale wind farms onto cutover cutaway peatlands in the county subject to environmental, landscape, habitats and wildlife protection.

9.3.22. CPO 11.6 is to support collaboration between stakeholder in approaches to peatland management for a just transition and incorporate relevant policies and strategies.

9.3.23. Chapter 11 sets out various policies relating to climate action and the transition to a low carbon and climate resilient county with increased emphasis on reduced energy demand and GHG emissions.

9.3.24. Chapter 10 which refers to natural heritage and green infrastructure acknowledges the importance of peatland ecosystems and their value for biodiversity, regulation of climate and as a carbon sink as well as being a major natural, archaeological and non-renewable resource with important historic traditions and skills. Relevant policy includes the protection of designated peatland areas and landscapes including any ancient walkways through bogs (CPO 12.64).

9.3.25. CPO 12.70 is to consider designating peatlands at Coolnagun, Corlanna, Lower Coole, Mayne, Ballinealoe and Clonsura as archaeological heritage areas where ancient trackways may have been constructed. Section 12.17 describes the archaeological track / togher at Mayne Bog.

9.3.26. CPO 12.71 refers to the preparation of a management plan for use of industrial peatlands which recognises the role of peatlands in carbon sequestrations.

9.3.27. CPO 12.72 refers to supporting the designation of a national park for the peatlands area in the Midlands in conjunction with adjoining local authorities.

9.3.28. CPO 10.149 is to support the preparation of a management plan for the industrial peatlands to focus on recreation, renewable energy, hydrology and ecology.

9.3.29. The map which is on the website of Westmeath County Council relating to wind energy capacity shows that the area is designated as 'low' capacity.

9.3.30. Fore Abbey is a designated Special Heritage Area in relation to which the Fore Special Heritage Management Study was adopted in 2010 and looped walks have been developed as indicated on map 74 volume 2. The heritage asset is described as one of the main tourist attractions promoted in the county under Ireland's Ancient East brand. Policy objectives include to ensure that proposals that would detrimentally impact on the setting and interpretation of the archaeological monuments or historic landscape or buildings of architectural value. CPO 14.16 – CPO 14.21 refer.

9.3.31. The Hill of Uisneach is described as one of the most sacred and historic sites in Ireland renowned as an ancient meeting place in the centre of the country and containing 35 archaeological monuments dating from the Neolithic through to the mediaeval period. Section 13.15 of the plan describes the Uisneach Landscape Character Assessment and High Amenity Area. Policies relating to the promotion, development protection and management refer under CPO 14.22 – CPO 14.25.

9.3.32. Map 62 shows the designated High Amenity Areas. In the immediate vicinity of the site is Lough Derravarragh HAA and further afield the designated areas include Lough Sheelin to the north of the WFS, Lough Lene to the east and further afield are Lough Owel and the Hill of Uisneach.

9.3.33. Map 67 shows Protected Views and attributes a reference number, direction and significance. Appendix 5 of the plan refers. CPO 13.81 is to protect and sustain the established appearance and character of these views.

Ministerial Direction

9.3.34. The details of the draft directive are presented below.

9.3.35. On 29th April 2021, the Minister notified Westmeath County Council of its intention to issue a direction to the adopted Westmeath County Development Plan 2021 – 2027. Under this Draft Direction, the Planning Authority was to take the following steps

9.3.36. Delete Objective CPO10.143 in its entirety from Section 10.23.2.

9.3.37. Take such steps to identify the wind energy production which Westmeath can contribute to delivering its share of overall government targets over the plan period. Such steps shall be accompanied by revisions to the wind energy capacity map and landscape character assessment and co-ordination with the objectives of neighbouring counties.

9.3.38. On 28 September 2022 the Minister issued a statement of reasons with regard to the Final Direction. The Direction to deleted objective CPO 10.143 was confirmed. The OPR recommendation relating to assessment of overall potential wind energy resource and the review of the wind energy capacity map was not accepted for the reasons relating to forthcoming national policy changes.

Longford County Development Plan

9.3.39. It is an objective to preserve the views and prospects listed in Table 14.2 and 14.3 as detailed in Appendix 9: Landscape Character with accompanying maps and to protect these views from development which would interfere unduly with the character and visual amenity of the landscape.

9.3.40. Table 14.2 sets out the protected views which are ‘full’ and Table 14.3 addresses the ‘interrupted’ views. Close to Granard town and within 5km of CWF are two protected views identified in Table 14.2 (F.S 15 and F.S. 16). At a distance of 8.5km from CWF and near the town of Granard is another view F.S. 14. At a distance of 10 km or more are other protected views notably around the Gowna lakes.

9.3.41. The protected views are described as attractive views from hilltops and upland areas, along river valleys and the boglands. The scenic views are of an amenity and tourism value and contribute to our quality of life.

Meath County Development Plan 2021 - 2027

9.3.42. HER Objective 56 seeks to preserve the views and prospects listed in Appendix 10 of Volume 2 and on Map 8.6 to protect these views from inappropriate development which would interfere unduly with the character and visual amenity of the landscape.

9.3.43. The only protected view which is within 10 km of CWF is View 01 which is in a north-westerly direction towards Lough Sheelin and would not be impacted by the proposed development. There are no other designated views within 10km of the site of CWF.

9.3.44. At a further distance is view 06 from Sliabh na Calliagh / Loughcrew – a panorama. Loughcrew passage graves are on the Record of Protected Structures.

Cavan County Development Plan 2022 – 2028

9.3.45. Lough Sheelin which is under 5km from CWF is located partly in the county of Cavan and partly in Meath. Lough Sheelin is a designated Major Lake but is not a designated high landscape area. The same designation applies to Lough Gowna. Both have associated lakeside amenity areas.

9.3.46. Scenic routes and viewpoints are mapped in Appendix 16 and all are a considerable distance from the site of CWF.

9.4. National Guidance – Key Documents

Wind Energy Development Guidelines (WEGs) - Guidelines for Planning Authorities 2006

9.4.1. The Guidelines advise that a reasonable balance must be achieved between meeting national policy on renewable energy and the proper planning and sustainable development of an area. Particular landscapes of very high sensitivity may not be appropriate for wind energy development.

9.4.2. In low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of the $LA_{90,\ 10min}$ of the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A). Separate noise limits should apply for daytime and for night-time. A fixed limit of 43dB(A) will protect sleep inside properties during the night.

9.4.3. Appendix 4 of the WEGs sets out criteria relating to the development of peatland sites, which may lead to impacts on natural heritage – this excludes areas of milled peatlands in the midlands.

Draft Wind Energy Development Guidelines, 2019

9.4.4. The Draft Guidelines propose several key amendments to the original document in relation to noise, visual amenity, shadow flicker and community engagement. The application of more stringent noise limits in line with WHO noise standards together with a more robust noise monitoring system and reporting system is proposed.

9.4.5. The mandatory minimum 500m setback from houses is retained but augmented by a setback of 4 x turbine height from sensitive receptors.

9.4.6. Under these guidelines a Relative Rated Noise Limit (RRNL) in the range of 35 –43 dB(A)shall apply, while not exceeding the background noise level by more than 5dB(A) with an upper limit of 43 dB(A).

9.4.7. The RRNL may be increased by agreement with benefitting residents but the absolute limit of 43dB(A) may not be increased.

9.4.8. The RRNL includes a rating for tonal and amplitude modulation components. The inclusion of a rating for special audible characteristics provides a more conservative approach than the WHO Guidelines.

9.4.9. Regarding the siting of wind energy developments in peatlands there is reference to positive and also potentially negative consequences in terms of carbon, to health and safety and archaeology.

Spatial Planning and National Roads - Guidelines for Planning Authorities 2012

9.4.10. These section 28 guidelines were published by the Department of Environment, Community and Local Government in January 2012. They set out the planning policy considerations relating to development affecting national roads. Key policy provisions to be incorporated in development plans include:

- Protect the identified preferred route corridors for future national road schemes.
- Require developers to avoid, remedy or mitigate adverse effects on national roads and provide mechanisms requiring making of reasonable contributions towards costs of any required mitigation.

- Identify any land required for future national road projects and include objectives that retain required lands free from development - section 2.9 which refers specifically to protection of alignments for future national road projects.
- Planning authorities should engage with applicants to ensure negative impacts from existing or planned national roads are mitigated through appropriate design of buildings, landscaping and site layout.

Development Management Guidelines for Planning Authorities – published by the Minister for the Environment, Heritage and Local Government in June 2007

9.4.11. Section 7.16.1 addresses the topic of premature development and the relevant text includes the following:

> Premature development in this context also includes development which would be premature pending the determination by the planning authority or the road authority of a road layout for the area.
>
> However, development which is premature because of a commitment in a development plan to prepare a strategy, Local Area Plan or framework plan not yet completed should only be used as a reason for refusal if there is a realistic prospect of the strategy or plan being completed within a specific stated time frame.

National Landscape Strategy for Ireland, 2015-2025

9.4.12. This document seeks to integrate landscape into our approach to sustainable development, carry out an evidence-based identification and description of landscape character, provide for an integrated policy framework to protect and manage the landscape and to avoid conflicting policy objectives. It does not contain prescriptive measures such as designation of scenic areas or protected views.

The Planning System and Flood Risk Management, 2009

9.4.13. These Guidelines seeks to avoid inappropriate development in areas at risk of flooding and avoid new developments increasing flood risk elsewhere and they advocate a sequential approach to risk assessment and a justification test.

Other Guidance - The Regulatory Framework Applying to Peat Extraction – A Guidance Document

9.4.14. This was commissioned by the Department of the Environment, Climate and Communications and the National Parks and Wildlife Service to provide interested parties with information regarding the regulatory framework applying to peat extraction at the time of publication in January 2022. It is not statutory guidance. However, it contains useful information relating to the regulatory context. Appendix 2 addresses substitute consent provisions.

9.5. Natural Heritage Designations

Natural Heritage Areas and proposed NHAs in the general vicinity of the WFS are Lough Bane pNHA, Hill of Mael and the Rock of Curry pNHA

Along the GCR are Lough Derravarragh NHA, Garriskil Bog pNHA, Ballynafid Lake and Fen pNHA, Scragh Bog pNHA and Lough Owel pNHA.

European sites are identified in the Appropriate Assessment Section of this report.

10.0 Planning Assessment

10.1. I consider that the key planning issues are those which are relevant to the principle of the development and legal and procedural matters and that they can be addressed under the following headings:

- Principle and policy
- Matters relevant to the overall lands, specifically the peatlands – including whether the proposed IMG and key aspects of the EIA and AA are robust and whether the application is premature.
- Matters relevant to the grid connection route – including potential for impact on a national road scheme, the purpose of the grid connection.
- Other matters.

10.2. Principle and policy

10.2.1. There is an abundance of high-level support for the proposed development in national policy provisions including the NPF and climate and energy policy related documents which are listed above. There is recognition of the need to urgently move towards a low carbon and climate resilient society with a sustainable renewable

energy supply and associated grid infrastructure provision. The onshore wind energy sector is to continue to play a critical role with a recent and ambitious increase in the target to 9GW by 2030. At a national level the 2006 Wind Energy Development Guidelines (2006 WEGs) and 2019 Draft Guidelines (2019 Draft WEGs) both emphasise the need to meet national objectives for renewable energy in a manner which is compatible with the proper planning and sustainable development of the area. In effect, this requirement is implemented by ensuring that the projects under consideration do not give rise to adverse impacts on soils and geology, landscapes and visual amenity, cultural heritage, material assets, human beings and biodiversity. Subject to the Board concluding that the procedures relevant under EIA and AA can be satisfactorily concluded in a positive manner and excluding significant adverse effects, the proposed development can be deemed to meet this requirement. To avoid undue repetition I rely on my assessment of these topics under EIA and AA below and on my conclusions therein.

10.2.2. A key national policy support for wind energy developments is found in National Strategic Outcome 8 of the NPF. Cutaway bogs are deemed to be suitable locations to facilitate generation of energy notably wind and biomass. Notwithstanding that the site would not be described as comprising cutaway bogs insofar as there are significant peatland reserves remaining, I am satisfied that the proposed development complies generally with the NPF.

10.2.3. In principle the support for renewable energy development which is evident at national policy level is echoed in regional and county level policy. I note the discussion under the 2006 WEGs and the 2019 Draft WEGs which does not identify any reason not to develop peatlands for wind energy. The only caveats set down under the guidelines are requirements for assessments including of climate impacts, archaeology and peat stability which are discussed under EIA.

10.2.4. The regional policy context supports the transition to a low carbon climate resilient and environmentally sustainable region and the meeting of national targets in the energy sector and the provision or strengthening of necessary grid infrastructure.

10.2.5. Observers claim that the national guidelines are inadequate. It is stated that the 2006 WEGs are out of date and relate to a different scale of project and are therefore inadequate and that the use of the 2019 Draft WEGs would be inappropriate as they were never adopted. I consider that the key points in this respect are:

- The WEGs remain national policy and the Board has to take them into account.
- Regarding the 2019 Draft WEGs, some legal judgements have referenced the need to have regard to the draft national guidance.

10.2.6. I am satisfied that the impasse regarding national guidance does not militate against the making of a decision in this case. I would emphasise that the guidance is not prescriptive or binding and is only one part of the package of information to be taken into account by the Board. I have considered both in my assessment of this case.

10.2.7. Observers have expressed concern relating to the reliance on UK guidance which it is stated was developed for a very different landscape character in Scotland. Some of the UK guidance relevant to the technical aspects of preparation of landscape and visual impact assessment is more sophisticated than that which has been adopted in Ireland to date and is routinely referenced in EIARs which are prepared for the purposes of assessment of developments in the Irish planning system. The EIAR in this case has had regard to the development plan policies relating to areas of high amenity, protected views and cultural heritage monuments and the effect on their settings. I do not consider that the Board should have any reservations relating to the adopted guidance for the purposes of this application.

10.2.8. Since the consideration by the Board of ABP-300686 the proposal which I refer to as Coole Wind Farm 1 (CWF1) the Westmeath County Development Plan 2021-2027 has been adopted. This plan retains its overarching support for the development of renewables and sets out a range of policies relating to the protection of environmental and other resources. Some key development plan measures are subject of discussion in observations submitted and are now considered.

10.2.9. Observers state that policy CPO 10.132 under the then current draft development plan 2021 – 2027 is an important matter to which the Board must have regard. The policy provision (re-named as CPO 10.143 under the adopted plan) required a 2km separation between wind energy turbines and residential dwellinghouses. The Chief Executive report clarifies that the Westmeath County Development Plan 2021 – 2027 which came into effect on 3 May 2021 was subject of a draft Ministerial Directive to delete objective CPO 10.143. The Chief Executive states that the policy is taken not to have come into effect for the purposes of this assessment. I have examined the various documents including the Ministerial Directive of September 2022. I am

satisfied that the objective CPO 10.132 and its predecessor CPO 10.143 have no legal status and are not relevant to the consideration of this application.

10.2.10. As is clear from the development plan map 'Wind Energy Capacity' the location in which CWF would be sited is designated as of low capacity, in common with the vast majority of Westmeath county. I note the observers reference that the map was changed to designate lands as 'medium capacity'. I have set out earlier some details of the Ministerial Direction above. My conclusion based on the information available is that while CPO 10.143 was removed no change appears to have been made to the relevant capacity maps. The report of the Chief Executive of WMCC dated 21 May 2021 refers to the omission of CPO 10.143 but does not identify any change in the wind capacity map. It appears that the designation of the area as being of low capacity for wind energy developments has been made in the context of wind energy potential combined with the landscape character. If the Board accepts my conclusions regarding landscape and visual impacts, I also consider that it should be concluded that there is no policy objection to the siting of this development in an area deemed to be of low capacity and that the plan is not materially contravened.

10.2.11. Regarding the policy context relevant to the separation distance between houses and turbines I note that the development plan states that the Council will have regard to the Wind Energy Development Guidelines for Planning Authorities, or any update made thereto. I consider that the separation distance which is set out in the 2019 Draft WEGs should be considered by the Board in determining this case. The applicant confirms that the design adheres to the relevant provision of 4 times tip height set-back distance, (700m setback) with the exception of some benefiting households. I note that this matter is addressed in some of the letters of consent which include acknowledgements of and consents to turbines located 635 m and 678 m from those houses. However, other observers oppose the proposed development on this basis stating (for example) that the distance of 679 m between their house and T 15 does not conform to the 2019 Draft WEGs; that objection does not appear to come from a benefiting person. Having regard to the fact that the guidance is only guidance and in particular to the mitigation measures presented relating to curtailment for noise and shadow flicker, as discussed under the EIA section, I do not consider that it would be reasonable to conclude that the proposed development materially contravenes the development plan or that it would be appropriate to omit

any turbine. Regarding potential visual impacts which based on the 2019 Draft WEGs will be mitigated by the 700 m separation, I am unconvinced that a shortfall in the region of 30 m would be noticeable to residents. I therefore conclude that the layout provides adequate separation from dwellinghouses when the totality of the information including mitigation is considered. In conclusion, I disagree with the assertions that the proposed development would materially contravene national guidance or the development plan.

10.2.12. Observers reference the inclusion of turbines on lands which are not peatlands noting that development plan policy CPO 10.145 is to strictly direct large-scale wind farms onto cutover cutaway peatlands. In the context that the majority of the turbines and associated road access are to be situated on peatlands, I do not consider that the proposed development constitutes a material contravention of the development plan. In this regard I note also that the body of the text in section 10.23.2 which sets the context for CPO 10.145 is less prescriptive and states that 'the preferred locations for large scale energy production, in the form of windfarms' is such peatlands.

10.2.13. Other related issues raised by observers include that the proposed development is in conflict with the appropriate management of conserved peatlands and there is reference to development plan policies including from the 2014-2020 development plan. I have outlined above the primary relevant policies relating to peatland management in terms of the WMCDP 2021-2027 and the RSES. In principle I do not consider that there is any inherent conflict between the large-scale wind farm and the sustainable management/restoration of peatlands subject to appropriate design. I reject the observers' statements that in principle the proposed development is not compatible with the development plan policies and RSES policies. In this respect I note that the objectives reference management plans and multi-faceted uses including for recreation and use as wind energy sites.

10.2.14. I note the reference by observers to the 2015 strategy published by the Department for Transport, Tourism and Sport entitled 'People, place and policy – growing tourism to 2025' which may be considered part of national policy to which the Board would have regard. It emphasises the protection of key tourism assets, the importance of heritage and environment to tourism and the protection and promotion of cultural heritage and proposes a major programme of investment of looped walks. The development plan policies also include a range of objectives relating to the

protection of the setting of cultural heritage monuments and views from walking routes and is further considered under EIA. Under EIA I assess the detailed points relating to the visual impact on the various environmental resources. I do not consider that the proposed development would contravene the development plan policies related to cultural heritage and natural amenity resources.

10.2.15. The majority of observers are broadly supportive of renewable energy, acknowledging that the delivery of wind energy developments, at appropriate locations, is crucial to Irelands efforts to reduce the effects of climate change. The proposed development supports the migration from non-renewable to renewable energy and decarbonisation of the electricity sector resulting in a reduction in greenhouse gases. I am satisfied that it will be of economic benefit to the State. I disagree with the views expressed by one observer who states that the benefits will be to other countries.

10.2.16. Regarding climate and related matters and noting the comments of observations. I am satisfied that the effects will be overwhelmingly positive and I reference the more detailed discussion of this topic under EIA. The calculation that the expected CO_2 losses will be offset by the proposed development after 21 months of operation is noteworthy. I accept the general thrust of the discussion as presented in the EIAR and other submissions by the applicant.

10.2.17. I conclude that in principle the proposed development is an appropriate type of development in this area, which would not materially contravene the development plan.

10.3. The Overall Lands

This section follows these headings:

- Overview
- Questions arising
- The Interactions Management Group
- Consideration of surface water and birds in the EIAR and NIS
- Historic peat harvesting
- Further discussion on legal issues

- Conclusions.

Overview

10.3.1. In this section I refer to matters relevant to the overall lands within which the proposed development site is located. Of particular interest within the area outlined in blue on the application drawings is the former peatlands, which is also described as the Optioned Lands and shown on a map presented with the FI response. The area is to be managed in future by an Interactions Management Group (IMG). In my opinion issues of concern arise in relation to the IMG and the future land use and some of these matters go to the heart of key assumptions relevant to EIA and AA.

10.3.2. Excluding the grid connection, T15 and the borrow pit the proposed development is to be sited primarily within three basins / plots of cutaway peatland. The peatlands have a historic use for peat harvesting at a commercial scale. During my site inspections I saw no evidence of any recent peat harvesting but the landscape character of the area and its ecology are defined by the past activities. At locations within the commercial peatlands there is evidence of naturally occurring habitat regeneration. The overall lands are drained by features installed for the purposes of harvesting and these remain in place. The CWF drainage design is described in detail in the application drawings. It will discharge to the existing network which serves the commercial peatlands.

Questions arising

10.3.3. It is appropriate to point out that the IMG proposal was described in the EIAR for the CWF1 case (ABP-300686), was referenced in the Inspector's report and appears to have been accepted by the Board when it decided to grant permission. In view of the passage of time and having regard to matters relevant in particular to site drainage and to biodiversity and AA I propose to re-visit this issue. I do so for the reason that in my opinion key aspects of the applicant's case including in relation to the surface water drainage and the impacts on birds are undermined by uncertainties relating to the future use of the Optioned Lands and the proposed IMG, which I consider is not shown to be properly constituted. In the remainder of this section I explain this position. I also address some of the relevant comments of observers.

10.3.4. The questions to be addressed may be summarised as follows:

- Whether the IMG is a robust mechanism.

- Can the Board rely on the information in the EIAR and NIS relating to surface water drainage and impacts on birds.
- What questions follow from the historic peat harvesting including whether the application is premature.
- Relevance of Clery Composting and other legal cases.

The Interactions Management Group (IMG)

10.3.5. The applicant's case relies heavily on the IMG which I now examine. The applicant's position is as follows. CWF has been designed to coexist and operate independently of land-use practices of commercial peat harvesting and forestry to minimise impacts. The EIAR sets out measures which provide for the construction and operation of the proposed wind energy development including mitigation measures as necessary. As summarised in the further information (FI) response the overarching proposal comprises an 'Interactions Management Group' (IMG) made up of Coole Wind Farm Ltd. and all relevant landowners and tenants in relation to peat harvesting activities. The IMG will be set up regardless of whether or not peat harvesting is taking place and all parties within this group will collaborate to ensure that any peat harvesting activities, proposed repurposing of the site or rehabilitation will be considered and carried out appropriately in conjunction with the wind farm. Should the peat cutting operations permanently cease, any rehabilitation or repurposing of the site will be the subject of ecological assessment, Screening for Appropriate Assessment or full Appropriate Assessment and any such assessment would take account of the potential cumulative effects of any permitted or proposed wind farm. The applicant states that is likely that the ecological impacts of any rehabilitation would be of a lower significance than those associated with the ongoing peat cutting.

10.3.6. With respect to legal consent the applicant's FI response refers to 'Land Option Agreement' incorporating agreed form leases with all relevant landowners and tenants to include contractual rights over lands outside of the Planning Application Boundary (which for the avoidance of doubt extends to include all of the Optioned Lands as shown on Drawing 200445g-59 FI at Appendix 1) and to include an obligation on the landowners to not allow drainage issues interfere with the wind farm. Accordingly, the applicant states that there are sufficient legal remedies available to Coole Wind Farm Ltd. to require maintenance of any associated

drainage system affecting the proposed Project. As set out in Chapter 1, Section 1.4.1 the Interactions Management Group will allow a co-ordinated approach between Coole Wind Farm Ltd and the peat companies in the management of site activities and to allow for the environmental management of all activities associated with the proposed wind farm including site drainage, ecology, archaeology, geology etc.

10.3.7. On the face of it the applicant has provided a reasonable level of information relating to procedures and to legal consents insofar as a general proposal is outlined for the IMG and the relevant lands are identified on a map presented with the FI response. However, apart from outlining the general concept and the identification of the area of land, the IMG proposal is devoid of detail. In my opinion it is not a mechanism which can be relied upon for the reasons set out below.

1. There is no evidence that any agreements have been signed and no information is provided relating to the parties involved and their agreement in principle to the IMG. The submitted letters of consent presented by the applicant are for the purposes of making the application only and contain no reference to the IMG and no other documents from owners or leasers have been provided.
2. The concept assumes that there will be a commonality of purpose between the owners. In the absence of any evidence that the parties have agreed a plan for the future use of the lands, it seems to me that the only basis for assuming that the IMG will work is the statements given by the applicant. The applicant's initial submission was that the peat harvesting would continue but it was subsequently acknowledged that the future with respect to this activity is uncertain. In the context where the applicant is unable to confirm the future land use, I find it requires a large leap of faith to accept that the parties will have a unified purpose.
3. I note that there is strong evidence of intention to apply for substitute consent at some lands and not at others. The provisions of the forthcoming section 40, Planning and Development, Maritime and Valuation (Amendment) Act 2022, once commenced will do away with the need to secure leave to apply for substitute consent. It cannot be concluded that interested parties will not have proposals for bog restoration at parts of the commercial peatlands. Equally, lands may be abandoned. These scenarios have implications for the drainage of CWF which sits within the existing peatland drainage system and for the ecological baseline.

4. The likely outcome of any future application for substitute consent and associated licensing can only be subject of speculation at this time.
5. There is no evidence of involvement of the planning authority or prescribed bodies in the IMG and no mention of any reporting mechanisms or monitoring. Such issues could be addressed by planning condition if the proposal was deemed to be otherwise acceptable.

10.3.8. For the reasons outlined above, and given the lack of supporting documentation, I consider that it is very difficult to accept the concept of the IMG as a unifying and coherent mechanism to enable the future regulation of land use in a manner compatible with the wind farm as described in this application.

Consideration of surface water and birds in the EIAR and NIS

10.3.9. The future land use and drainage of the Optioned Lands is inextricably connected to the surface water drainage proposals for CWF and the ecological baseline for EIA and AA. Following from the above and given the commitments under EIA and AA I consider that it is a key issue that the Board is satisfied that the development can be implemented as described. Particular matters arise in relation to site drainage and ecology which are described in further detail in the EIA and the AA sections of this report and are raised in the report of Dr Flynn, the Board's ecologist. As a prelude to evaluating the basis for the EIA and AA commitments it is necessary to set out further aspects of the planning history.

10.3.10. The proposed site drainage arrangements relevant to CWF are described in detail in the application documentation. The CWF site drainage is designed to integrate with the previously established drainage system. The Board's FI request queried the issue of control over the existing drainage and requested the applicant clarify that the proposed drainage plan can be effectively implemented regardless of whether or not peat harvesting is taking place and the associated drainage system is being maintained. The applicant's response reverted to the description of the Interactions Management Group (IMG) in section 1.4.1 of the EIAR and presented a map of Options Land (Drawing 200445G – 59FI). The obligation on landowners would be to not allow drainage issues to interfere with the wind farm and on that basis the applicant states that there are sufficient legal remedies to require maintenance of any associated drainage system. It is stated that the wind farm developer will have sufficient control.

10.3.11. In the previous section I have expressed serious reservations relating to the proposed IMG and I do not consider that it can be relied upon as the mechanism to ensure that the site drainage proposals outlined by the applicant are robust. I do not consider that it has been demonstrated that the retention of the existing drainage regime will be compatible with the aims of the owners and tenants of the land. Nor is it self-evident that the retention of the peatlands surface water infrastructure will receive the necessary consent including in the context of any substitute consent applications or EPA licencing. In this respect I refer to the Board's previous determinations with respect to the status of the peat harvesting and the specific reference in one of the referral cases that the surface water infrastructure is development which is not exempted development. The continuance or cessation of peat harvesting and the future land use will determine the future of the drainage infrastructure and will affect the availability of a system to which CWF will discharge.

10.3.12. In view of the above, I am of the option that the baseline environment is uncertain. There is no clarity regarding future peat harvesting and I am not satisfied that the IMG concept (as it is only a concept at this time) is sufficient basis for management of the Optioned Lands.

10.3.13. I now draw attention to the fact that the EIAR and NIS rely on the position outlined by the applicant that the 'worst case scenario' comprises continuance of peat harvesting activities. It is clear from publicly available information relating to the Water Framework Directive that peat harvesting has contributed to water quality deterioration and on that basis, there is some merit to the applicant's case that the continuation of peat harvesting is likely to be the worst case in terms of surface water impacts. However, I do not consider that this statement stands up to examination regarding the potential for impacts on birds. I accept the implication in Dr Flynn's report , which is appended, that there is potential that the area could become an ecological hotspot for birds in the event of natural (unaided) regeneration or planned rehabilitation, which scenario has not been considered by the applicant. As such the possibility of bird collisions would be increased. Furthermore, the applicant's risk assessment for bird collisions relies on the continuance of peat harvesting. There is no certainty regarding the future outcome of any substitute consent application and no basis for assuming that peat harvesting can continue. Therefore, it is my opinion that the information which is relied upon in the NIS and EIAR cannot be supported.

In relation in particular to ornithology and site drainage my conclusion is that the Board cannot rely on some of the key aspects of the applicant's analysis.

10.3.14. Related to the concerns expressed by Dr Flynn in her report, a number of observers reference the topic of bog re-wetting and the applicant has not responded to these comments in the FI response. The FI response deals with initial site restoration and decommissioning but does not engage with either of two scenarios now described. First, there may be a requirement emanating for the commercial peatlands through planning or licencing procedures to restore the peatlands which would involve significant alternation to the drainage system on which CWF relies. Second, the possibility of ongoing natural rehabilitation if no activity is undertaken has not been addressed. Instead the applicant relies on the ongoing peat harvesting / other scenarios without sufficiently engaging with the potential unauthorised status of the peat harvesting and associated site drainage. To the extent that the applicant's FI statements are less clear on the future peat harvesting, which is the case, there is no corresponding change in terms of the description of the baseline environment or the assessment of environmental effects.

10.3.15. In conclusion, I do not accept the case made by the applicant with respect to surface water and ornithological matters relevant to proposed development having regard to the uncertainties relating to future use of lands including the site drainage and also the assumptions with respect to bird collisions.

Historic peat harvesting

10.3.16. In support of the above and as a prelude to consideration of other wider legal issues, the following sections provide some further detail on the background to the peat harvesting at the overall lands and address whether the application might be considered to be premature.

10.3.17. The proposed development site is within a larger area some of which have been determined to be subject of unauthorised peat harvesting. The peat harvesting activities have been subject of a number of referral cases. At key locations within the overall lands the Board has decided that the activities which took place is development and is not exempted development. This includes key plots relevant to the CWF site including part of the link road and the lands adjacent T1, T2, T3 and T4. In relation to the specific plot of land where T6 and T7 are to be located, the Board referenced the site drainage infrastructure as comprising development

which is not exempted development. There are 4 no. Bord na Mona bogs (see map page 22 of FI submission) to the west which are licenced under a single EPA licence. There is no substitute consent or EPA licence pertaining to the Optioned Lands at this time.

10.3.18. At a fundamental level it might be questioned whether the CWF site is free of legal impediments to the making of this application, pending resolution of the planning issues pertaining to the previous activity and whether in principle prior to resolving the status of the development which was not exempted development, this application should be considered to be premature. The former point relating in effect to the validity of the application is a purely legal one. As part of the FI request, the applicant was invited to comment on the most recent referral decision as it relates to the validity of the application for CWF. The question would equally apply to all lands within the application site which were the subject of similar referral decisions. With the benefit of having further considered the issues in this case this question could perhaps have been more usefully directed at the planning history relevant to the overall lands and to aspects of the proposed development rather than the validity of this strategic infrastructure application. However the applicant was also invited to respond to observations and the issues raised in the observations lodged which included wide ranging comments in relation to the legalities surrounding the making of this application in the context of the peat harvesting activities. The applicant's response was simply that the decision relates to a section 5 query and not to a valid planning application.

10.3.19. With respect to CWF1, it is relevant to note that WMCC did not invalidate or refuse permission under the previous planning application for reasons related to unauthorised development, nor did the Board's Inspector raise any concerns relating to the legal context. Furthermore, there is no evidence from the pre-application consultation records of discussions with respect to this matter. I note that there are ongoing legal proceedings relating to CWF1 which may involve consideration / determinations relevant to the wider legal context.

10.3.20. If the Board decides to grant permission it could be deemed to constitute an extension to an unauthorised development. Again this is a purely legal argument which does not go to the heart of the environmental impacts addressed above under the heading 'Consideration of surface water and birds in the EIAR and NIS'.

10.3.21. In my opinion these legal questions and their merits do not need to be resolved in considering this application as there are other fundamental matters which have led me to conclude that permission should not be permitted by reason of uncertainty relating to EIA and AA. I rely on the EIA and AA section to further support that argument and refer also to Dr Flynn's conclusions which I support.

10.3.22. My assessment in this case is fixed on the environmental effects and whether the applicant's submissions can be relied upon. In this respect the question of prematurity does arise as it is relevant to the EIA and AA in terms of the ecology and drainage of the peatlands. The focus herein, which is supported by discussion in the EIA and AA sections of this report is whether the applicant has provided an adequate description of baseline conditions and demonstrated sufficient legal control to undertake the proposed development as described.

Further discussion on legal issues

10.3.23. For closure on this matter, and to respond to issues raised by observers, I now address the case of Clery Compost and Shredding Ltd v An Bord Pleanála 2017 IEHC 4578. Observers reference this case and the judgement of 10 July 2017. The Clery case was also considered in the recent judgement in relation to the northern peat basin Clonsura Bog and activities by Westland Horticulture Limited, Cavan Peat Limited and Coole Windfarms Limited 2023 IEHC 3 (delivered 21 December 2022). NWTAG, the applicant in IEHC 3, raised issues relating to ongoing works at part of the site of CWF and is an observer in this SI case. The IEHC 3 judgement states that the Clery decision does not prevent 'any development on a site where unauthorised development has taken place. It seems to me that any such development would require consideration on its own facts' (paragraph 64). The matter of interest included the applicability of the Clery Compost case to drainage works and site investigation works; the case made by NWTAG was that new drains which were being excavated at Clonsura by Westland were for the purposes of rendering the lands stable and suitable for the implementation of the wind farm permission, which it was claimed was part of an agreement to engraft the wind farm development onto the unauthorised peat activity. The court accepted that the works were normal ongoing winterisation measures. It was also noted in the judgement that under the terms of another case which is reported in paragraph 6 Westland would continue to carry out winterisation measures pending the application for substitute consent. The Court did agree with NWTAG that it had been established that

'unauthorised development is taking place' on Clonsura Bog in the form of Westland's winterisation measures but ruled out that this was taking place pursuant to an agreement to enable development of the wind farm.

10.3.24. In my opinion the IEHC 3 judgement should not be interpreted as supporting an outright prohibition on the 'engrafting' of 'any' development to the bog drainage infrastructure. The key word however is 'any'. In the Clonsura case the subject works (discrete site investigations works) would not have had significant long-term implications for the site drainage and the need for the site drainage infrastructure to be retained in situ. In the case of the current SI application the drainage of CWF is inextricably linked with the drainage installed during peat harvesting activities and a grant permission for CWF would require that this drainage is maintained and installed.

10.3.25. In my opinion the facts in the Clery judgement are relevant to the situation currently before the Board. In the Clery case the Board had decided that it was inappropriate to grant permission to extend an existing composting facility which does not benefit from exemptions, does not have the benefit of planning permission, is development which requires EIA and AA and the Board decided that unless and until its planning status is regularised it would be inappropriate to further consider the application and the relevant appeal was therefore dismissed. The applicant Clery Composting failed in its application for review in the High Court and the judgement in paragraph 130 stated that the Board could not lawfully ignore its previous recent determinations and grant permission as to do so would permit an impossible graft upon a facility which it had previously determined required planning permission and environmental assessment.

Conclusions

10.3.26. I summarise my conclusions as follows:

- The drainage system in the Optioned Lands has not to date been authorised by planning consent or EPA licence. Some or all of the three peat basins are likely to be subject of future applications for substitute consent, the outcome of which is unknown and cannot be assessed.
- The basis for the design of the site drainage is that existing drainage infrastructure will remain in place and peat harvesting will continue. For the reasons set out above I conclude that this cannot be relied upon.

- The basis for the predictions of bird collisions is undermined as it assumes continuance of peat harvesting. I do not accept that this is the worst-case scenario for the purpose of assessment of impacts on birds.
- The proposed IMG and associated Optioned Lands arrangements are not demonstrated to be sufficient for the Board to be satisfied that the proposed development will be capable of being implemented as described in the EIAR and NIS. There is no documented evidence of agreement with respect to future activities on the part of the parties in the IMG. Notwithstanding any arrangements which might be agreed between the IMG and the developer, continuance of peat harvesting is subject to future planning and licencing requirements.
- I accept that in principle the development of a wind energy project in conjunction with bog restoration could be undertaken in a manner which did not result in adverse ecological effects.
- I do not accept the premise that the Board grant permission for the wind farm in the circumstance where the status of the site drainage, the land uses and future management at the Optioned Lands is to be resolved at a later time under separate processes. In my opinion that sequence of applications together with the information provided in this application does not provide a reasonable basis for the Board to assess the proposed CWF.

10.3.27. My overarching conclusion therefore is that the development is premature pending completion of any future consent processes and clarity with respect to the future use of the Optioned Lands and the IMG. In the absence of these matters being resolved, and taking into account the full suite of documents presented by the applicant, it is my opinion that the Board is not in a position to favourably complete its appropriate assessment in this case and cannot draw firm conclusions with respect to some matters in the undertaking of EIA. These issues are discussed further below under the headings of EIA and AA.

10.3.28. I therefore conclude that there is no alternative but to refuse permission for the proposed development.

10.4. The grid connection route

10.4.1. I consider that the significant issues arising relating to this aspect of the proposed development are as follows:

- The potential for impact on national roads notably on a planned road scheme.
- The purpose of the grid connection and project splitting.
- Other impacts.

Impact on National Roads

10.4.2. The TII submission highlights concerns relating to a future road scheme which TII considers will be adversely impacted by the grid connection route (GCR). The proposed development also raises wider matters relevant to roads and transport, which are issues which overlap considerably with other environmental topics , which matters are considered under the EIA section.

10.4.3. The N4 is part of the EU TEN-T network. That fact alone recognizes its strategic importance which is also highlighted in national, regional and local plans. TII states that the EIAR does not appear to consider the implications for the planning, design and delivery of the future road scheme arising from the proposed GCR, which is within the constraints study for a future road scheme which is an objective of the NDP. It is the position of TII that the selected option for the GCR is at variance with official policy and is premature pending determination of the road layout for the area.

10.4.4. Regarding the section 28 guidance published by DoECLG in 2012 to which TII refers, it sets out requirements for development plan provisions, particularly the identification of lands which may be subject of a future scheme and their protection. At national level there is policy support in principle for national road connectivity in NPF NSO2 relating to enhanced regional accessibility. The objectives of the WCDP 2021-2027 include to support and provide for improvements to the national road network including preserving corridors for proposed routes free from development so as not to compromise future road schemes (CPO 10.46). This specific upgrade has policy support as the development plan seeks to implement the realignment and upgrade from Mullingar to Longford county boundary (part of the NDP N4 Mullingar to Longford) under provisions CPO 10.50 and Table 10.1. Regarding the schemes which are being progressed in accordance with the NDP objectives, which includes the relevant section of the N4, the development plan objective is to pprotect the

study area, route corridor options and thereafter the preferred route corridor from development that could prejudice their future delivery.

10.4.5. I will refer to the issue of prematurity in the first instance. I note the meaning of prematurity as established under section 7.16.1 of the Development Management Guidelines for Planning Authorities as quoted earlier. In relation to roads layouts in particular I consider that the Ministerial Guidance allows for a wide scope in the decision-making relating to development being premature pending the determination by the planning authority or the road authority of a road layout for the area. It is reasonable to conclude that within the existing legislative and policy framework the protection of future road layouts is given a high importance.

10.4.6. However, as to whether or not the development would be considered to be premature, I note the relevance of the stage of development in the project is an important factor in this conclusion. The applicant states that in the absence of any preferred route an outright refusal on these grounds is unwarranted. The most recent update on the TII project website is that the second non-statutory public consultation was held in February 2021 and announcement of an Emerging Preferred Route Corridor would be announced in late 2021. In the interim the scheme remains on the active list of projects published by TII in March 2023 with a construction timeframe of post 2026 and subject to preliminary business case approval.

10.4.7. In effect therefore my conclusion is that the current position with respect to the development of this road scheme is not greatly dissimilar to that prevailing when CWF1 was considered by the Board. While the GCR was not part of the proposed CWF1 development the identified route assessed for the purposes of EIA was the same as that currently before the Board and the Board did not refuse permission based on prematurity (or indeed specific adverse impact on the existing road) and the Board's Inspector did not raise any particular concerns. The Inspector's report regarding CWF1 states that the 'Roads Design Office of the Planning Authority and TII have also advised that the grid connection route may ultimately be realigned as part of the proposed N4 road scheme, a project which the applicant notes has been suspended at this point…'. It is appropriate also to note that TII is raising more detailed concerns in this case than under CWF 1. In the report of the Chief Executive of WMCC in relation to the current application the NRDO stated that the grid connection has potential to act as a constraint/increase costs associated with the N4 Mullingar to Longford Scheme. The final report does not make any recommendation

on this matter other than in relation to the detail of the route at bridge crossings, which can be addressed by conditions.

10.4.8. A relevant question to be determined by the Board is whether there is reasonable basis for concluding that the proposed GCR will unduly restrict route options / feasibility for the national road upgrade and thereby constitute a significant conflict with the official policy.

10.4.9. The proposed GCR cabling within the road reservation area is 3.4 kilometers in length and contains 4 joint bays and is within the constraints study area for the N4 Mullingar to Longford scheme.

10.4.10. TII states it has identified a number of significant implications in the management and maintenance of the strategic national road network resulting from the laying of high-voltage electricity cables in the national road reservation including impediments to future online upgrades because of the implications to road authority/TII having to incur additional costs of moving underground cables. This statement references a number of other implications, which are separately considered below in relation to the existing road.

10.4.11. TII states that in the context of existing environmental designations in the area the route corridor options are significantly constrained, and the additional constraint posed by the cable routing and joint bay construction has the potential to compromise the delivery and increase costs. The selected option A fails to address important policy considerations, it is stated. On that basis, and in the context of an alternative option for the GCR, the proposed development is deemed to be premature and also to be contrary to prevailing policy. TII states that the applicant previously outlined an alternative option which would have significantly less interactions for the management, maintenance, and improvement of the strategic national road network.

10.4.12. I agree with the comment by TII that the EIAR (as submitted with the application) does not engage in a meaningful way with the planned upgrade of the N4 Mullingar to Longford scheme. However, the applicant's FI includes Appendix 9 – the report of Ionic - which reports on the technical and programming issues which would be associated with the presence of the underground utilities in the context of an online upgrade. These challenges are described as being of common nature and CWF would be available to engage with TII as required. The response acknowledges

also that the need for an intermediate temporary relocation of cables to facilitate construction sequencing cannot be ruled out. The description of this scenario outlines in brief how the presence of the live HV cable could be managed and the road widening undertaken.

10.4.13. My conclusion in relation to the future planning of the N4 upgrade, which may include online widening in the vicinity of the GCR, is that the applicant's case overall is reasonable. On the one hand I consider that it cannot be reasonably argued that there is no likelihood of additional costs to the future road scheme associated with the GCR if the selected scheme involves online widening. However, in my opinion the Ionic report adequately addresses the interactions between the two schemes. Having regard to the type of development involved I agree with the submission of the applicant that its location within the constraints area would not be a reasonable basis for refusal of permission for a major renewable energy development. There is no onus on the Board to undertake a detailed assessment of the overall merits of the alternative option notwithstanding that it appears preferable from the point of view of roads infrastructure. Having considered the policy context and, in particular, the more specific development plan statements I am not convinced that the GCR would be described as a development that could prejudice the future delivery of the road scheme. I reference again that the development plan objective is to protect the study area, route corridor options and thereafter the preferred route corridor from development that could prejudice future delivery of the scheme. I do not consider that it is reasonable to interpret this as including underground cabling.

10.4.14. I conclude that the proposed development does not contravene the relevant policy provisions and that the proposed development is not premature pending a road layout for the area.

Other matters relevant to the GCR

10.4.15. Issues have been raised relating to landowner consent. Observers along the route have provided details of folio numbers of plots at either side of the public road along the GCR and state that as the ownership is to the centre of the road the cabling cannot be legally installed. The observers state that the High Court has ruled in North-East Pylon Pressure Group v An Bord Pleanála that consent of all landowners is required and furthermore that no state agency can enter private land for the purposes of working for a private company. The subject development

involving the laying of the grid is entirely within the public road and to my knowledge no private owner consent would thereby be required. In the event of any requirements to diverge from that route legal consent would be required and would be a matter for separate proceedings.

10.4.16. The observers have raised issues relating to future connections and the longer-term function of the grid connection including with respect to other energy developments which might be located in the area. I do not consider that any such future use is a topic for consideration under this application. The proposed HV cable and other associated infrastructure including the works at Mullingar substation and the new substation at the CFW site will provide a necessary connection to serve the proposed wind energy development.

10.4.17. Observers allege that the application involves project splitting as it fails to include the cables or an assessment of the cumulative effects of the entire project. There are references to the entire Inny basin and the Bord na Mona lands as shown on a map provided (Kevin O Neill observation - page 25) and to the previous larger proposal known as Greenwire. The proposed development includes the 26 km grid connection as part of the application for development of the wind farm. In my opinion a complete project is described and is subject to EIA in its entirety. Regarding development which may in future utilise the grid connection such proposals would be subject to future assessment at the time of application including with respect to EIA. The Board cannot undertake hypothetical assessments of unknown developments and various legal judgements have established this point. I reject the observers' suggestion that the proposed development constitutes project splitting.

10.4.18. As discussed in the EIA section of this report I do not consider that the proposed development would adversely impact on the amenities of the area specifically the residential amenities. I consider that there is no likelihood that the proposed development would result in significant adverse impacts related to human health including EMF, operational noise or construction phase disturbance or undue amenity impacts which would so affect local residents as to warrant a refusal of permission or alterations to the GCR and other infrastructure.

10.4.19. In conclusion in relation to the significant planning issues arising which are relevant to the GCR I consider that the route selected is acceptable in terms of the proper planning and sustainable development of the area.

10.5. **Other matters.**

10.5.1. In response to the Derryadd judgement the applicant in the FI response has refined the description of the development and provided clarity relating to particular aspects of the proposed development notably turbine make and model and dimensions. Regarding the observers' claims that the further information submission does not make clear the actual size, make and model of the turbines I dispute this statement on the basis that:

- The actual size of the proposed 15 no. turbines is given as a maximum ground to blade tip height of 175 m, a blade length in the range of 74.5 m minimum to 77.5 m maximum and a hub height in the range of 97.5 m minimum to 100.5 m maximum. I agree with the applicant that the variation in the order of 3m is quite limited.
- Turbine models are presented.
- I note the assessment of the variations for the EIAR topics uses the most relevant parameter. I address this further under the EIA section of this report.
- The position of the turbines on the site and the OD level is given. The required hardstanding areas are presented. There is ample detail of the proposed road works and turbine foundations.
- The grid connection detail includes the location of joint bays and crossings.
- I note that observers state that the tip height has been raised by 3.5 m but this is in fact an error as the relevant text from the FI submission which is quoted by observers is a reference to the wording of a planning condition in a different application.
- I am satisfied that all aspects of the development are described in detail.

10.5.2. In conclusion I agree with the submission by the applicant's agent that the judgement in Derryadd does allow for a degree of flexibility and I consider that the ranges proposed in this case are reasonable and do not raise any material planning issues.

10.5.3. Regarding the ongoing legal proceedings relating to the Board's decision relating to CWF1 these are reported in detail in the submission of NWTAG in particular. The observers reference the applicant's description of the previous proposal as 'permitted' and object to the use of that term. I consider that the Board and all

parties have considerable understanding of the processes and the status of any decisions. I refer to the previous application and decision for 13 turbines as CWF1 but equally I do not consider that the description of the previous application as 'permitted' would be misunderstood. It is accepted that any decision may fall following judicial review. It is also a fact that the proposed 13 turbine development which bears considerable similarity to CWF was deemed by the Board to be in accordance with the proper planning and sustainable development of the area. It would not be reasonable or appropriate to omit reference to the Board's acceptance of the development in principle when reporting on this case. Observers make the point that there are a number of possibilities which may be in place at the time of determination of the CWF application. These circumstances include that which prevails at the time of writing, namely that no judgement has been delivered.

10.5.4. Observers reference the recent case Ian Collins v An Bord Pleanála which related to substitute consent and a grid connection cable. The Board conceded this case. In the absence of a written judgement, I am not clear what legal issues are raised.

10.5.5. Third parties have made objections to the making of payments in connection with observations, which is relevant in general and also in relation to EIA. The Board has no option but to comply with the relevant legislative provisions.

10.5.6. An observer reports failure to obtain information from the Board and questions whether the Board failed to make available to the public information. I see no evidence of any deficiency with respect to the publication of notices and the availability of information. I cannot comment on the specific matter raised by one party other than to state that the information appears to have been obtained.

10.5.7. Observers have questioned the strategic infrastructure status under the Act and in particular they present detailed arguments to support their claim that the 50 MW capacity will not be met. The information presented by the applicant is described as being lacking in the definition of the turbine power rating other than giving a value of 6 MW as an assumption. A decision based on whether or not it is SIDS needs to be founded on rigorous data and information rather than assumptions it is stated. There is discussion on the wind energy capacity factors relevant to the area and it is stated that the information provided by the applicant is lacking including by reason of the omission of information relating to the projected percentage of realistic time when there is usable wind speed. One observer states that the output if permitted would be

at 31.5 MW, considerably less than the claimed 90 MW and nowhere close to the 50 MW required for SID status. In response to the general thrust of these comments I note that the applicant's RFI presents data from other wind energy developments and their output and that the proposed development is in line with these projects. The decision relating to the SID which includes the taking into account of the stated output is not reversible and stands. The decision was made in the context that the stated output happens to be greatly in excess of the 50MW threshold. I do not consider that the claims made are relevant to the consideration of this application.

10.5.8. The observers' submissions include a number of high-level legal points which would be relevant to the entirety of the wind farm sector. These include a statement that in the absence of SEA for the WEGs and having regard to the CJEU legal case C-24/19 and the recent referral by the Irish Supreme Court to the European Court of Justice under C-727/22, permission cannot be granted for the proposed development. In support observers state that judicial reviews relating to two other wind energy permissions were conceded on this point (Gougane Barra and North Kildare cases). Having regard to the judgement in the North Kildare case [2022 IEHC 699] it is clear that the grounds for conceding by the Board related solely to Article 22 and Article 23, which I have addressed above. The grounds for conceding in the Gougane Barra case do not appear relevant to the issues in this case. Therefore apart from the cited CJEU case C-24/19 which relates to a different legislative and administrative context and, in the absence of a judgement on the referral under C-727/22, I do not consider that is support for the observers' claim on these points that permission cannot be granted.

10.5.9. The activity of felling of trees which is stated to be ongoing may be under different consents and constitute an activity which is entirely separate to any planned wind energy development.

10.5.10. I am satisfied that the description of the location of the development complies with the legal requirements. I note the comments in relation to the townland of Multyfarnham for instance. I consider that the site address is accurate as, while the grid connection does go through the town which is a major settlement in the area, the actual townland lies to the east of the town and is not directly impacted.

10.5.11. Regarding the nature and extent of the development as described in the public notices and planning documentation I note the significant further information

submitted including the identification of a range for the turbines and a revision of relevant assessments for EIA. Observers reference particular aspects of the development which they consider have not been adequately described including with respect to the detailed design of foundations and the location of existing infrastructure along the grid connection route as well as details of the proposed turbines such as make and model, which are stated to remain unclear. I am satisfied that the nature and extent of the information provided is sufficient for the purposes of assessing the planning and environmental implications of the proposed development including appropriate assessment except where otherwise stated in this report. I do not consider it to be a legal requirement that the level of detail which is referenced by observers needs to be provided. The applicant has provided sufficient details for the board to assess the effects of the proposed development and to comply with the legislative provisions including the Derryadd judgement.

10.5.12. The requirements of IAA are noted and can be addressed by condition.

10.5.13. I note the recommendation made in the report of the chief executive of WMCC that the Board consider an alternative 'broader' community gain in terms of amenity improvements such as the development is amenity pathways and links to public roadways which would be available to walkers, trail runners, cyclists and other recreational uses. These initiatives would complement development plan policy CPO 12.83 and be in accordance with the Strategy for the Future Development of National and Regional Greenways. The requested further information addressed the issue of access to the site and integration with planned and existing recreational routes. The response reiterated section 5.9.5.2 of the EIAR which I consider is slightly vague but does state that if the Westmeath Way is pursued 'there are no problems foreseen with its integration with the wind farm'. The FI notes the contents of policy objective CPO 6.61 and CPO 8.7 in respect of this walking route and commits to working with the Council should these objectives progress. In the event of grant permission the Board may wish to consider whether to address this matter by condition and having regard to the applicant statements and the development plan policies I consider that such a condition would be reasonable and appropriate. However I also consider that the community gain proposals set out in the EIAR are separate measures which would also benefit the community and should be retained and should also be implemented and be addressed by condition.

10.5.14. Regarding the related comments of observers which reference objectives for management plans for the peatlands in the Midlands , which would include recreation and other measures, the policy context at national regional and local level results are supportive of wind energy development which would be compatible with other uses of the peatlands. Setting aside my specific comments relating to habitat management and appropriate assessment and my overall recommendation in this application, I do not consider that a grant permission would militate against future uses of the peatlands, particularly uses for recreational purposes.

10.5.15. The report of the CE of WMCC states that it is appropriate in this case to levy a requirement for a financial contribution under section 48 subject to any applicable indexation provisions. This matter should be addressed by condition.

10.5.16. With respect to special development contribution the preference of the elected representatives is for a specific condition requiring pre-surveying of affected roads, proposals for rendering the route fit for purpose, ongoing monitoring and repair during the project, post construction survey and remedial works. I consider that this is a reasonable requirement insofar as it relates to the construction phase and immediately thereafter and that a condition along this line might be appropriate. However in order for a special contribution to be attached there would need to be further information relating to the specific works and the costs involved. That information has not been provided by the local authority but could be requested.

10.5.17. The Council's district engineer has recommended a requirement for a cash bond relating to road/junctions used during construction. While this may seem to be an onerous requirement in the context of the recommendation above for a special development contribution, I consider that a condition of this nature would give flexibility to the local authority. In the absence of sufficient information to attach a condition relating to a special development contribution a cash bond would be a reasonable alternative to ensure that there are procedures in place for appropriate payments.

10.6. **Conclusion**

10.6.1. My overall conclusion of relevance in relation to the planning assessment follows.

10.6.2. In my opinion, and along the lines of the reasoning given by the Board in the Clery Compost case, a grant permission would not be in accordance with the proper

planning and development of this area. I consider that the proposed development would be reliant on the peatlands drainage infrastructure which is unauthorised and which may be subject to a future application for substitute consent. It is appropriate in my opinion that outstanding issues should be completed and particularly that the status of the site drainage infrastructure in the area on which CWF relies should be regularised, the parameters for drainage in the overall area should be agreed and the future of peat harvesting or other activities be clarified.

10.6.3. I consider that the applicant has not provided sufficient information to demonstrate that the IMG can be relied upon as it has yet to be established, is unclear in terms of its actual membership and there is no evidence of legally binding commitments by the parties likely to be involved. Furthermore regarding the IMG given the status of the peatlands in the area it is not clear that the owner/occupiers of the different plots will be able to agree a unified vision for the future management of these lands and retention of drainage infrastructure in a manner compatible with the proposed wind farm or that consent will be obtained to implement any plan agreed by the IMG.

10.6.4. The situation is further compounded by the lack of clarity regarding future peat harvesting and the reliance by the applicant on future peat harvesting as part of its assumptions for bird collisions which is highly relevant to appropriate assessment.

10.6.5. I recommend that permission be refused based on the reasons set out above.

11.0 Environmental Impact Assessment

11.1. Introduction

11.1.1. The application submissions include an Environmental Impact Assessment Report entitled *Environmental Impact Assessment Report – Coole Wind Farm, Co. Westmeath.*

11.1.2. This section of the report comprises an assessment of the likely significant effects of the proposed development. It addresses compliance with legislation, describes and assesses the likely significant direct and indirect effects of the development against the factors set out under Article 3(1) of the EIA Directive 2014/52/EU. It considers cumulative effects and interactions and the vulnerability of the proposed development to major accidents and disasters.

11.2. **Legislation**

11.2.1. Under European Union Directive 2014/52/EU, amending Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment, Member States are required to ensure that a competent authority carries out an appraisal of the environmental impacts of certain types of projects, as listed in the Directive, prior to granting of development consent.

11.2.2. The EIA Directive was transposed into Irish law under the Planning and Development Regulations 2001 to 2018. Part 1 of Schedule 5 of the 2001 Regulations, includes a list of projects for which mandatory EIA is required. Part 2 of Schedule 5 presents a list of projects where EIA is also required where certain thresholds are exceeded.

11.2.3. The proposed development is a project under the EIA Directive as amended by Directive 2014/52 and falls within the scope of Class 3 (j) of Part 2 of the Fifth Schedule of the Planning and Development Regulations 2001, as amended:

> *Energy Industry*
>
> *(j) 'Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output of greater than 5 megawatts'.*

11.2.4. The proposed development with a total of 15 no. turbines and an estimated installed capacity of 90 MW exceeds the relevant threshold and is therefore subject to mandatory EIA. I note the comments of observers in relation to the capacity of the proposed wind energy development, which state that the capacity set out will not be met. In terms of the requirement for EIA the capacity is greatly in excess of the mandatory threshold set in legislation. I am satisfied that the proposed development requires EIA based on the number of turbines and the total output.

11.2.5. The legislation relevant for the purpose of considering whether the information contained in the EIAR is adequate is A94 of the Planning and Development Regulations 2001, as amended, and the provisions of A5 of the EIA Directive 2014.

11.2.6. The EIAR is in five sections as follows:

- Volume 1 comprises the non-technical summary.
- Volume 1a is the Main Report Chapters 1 to 8.

- Volume 1b is the Main Report Chapters 9 to 16.
- Volume 2 is the Photomontage Booklet.
- Volume 3a comprises Appendices 2-1 to 6-4.
- Volume 3b comprises Appendices 7-1 to 14-3.

11.2.7. Following examination of these documents I consider that the EIAR identifies, describes and assesses the direct and indirect significant effects of the project on the following environmental factors:

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape

and considers the interaction between factors referred to in points (a) to (d).

11.2.8. In accordance with article 5 and Annex IV, the EIAR provides a description of the project comprising information on the site, design, size, characteristics and other relevant features. This aspect of the development has been refined in response to request for further information and I am satisfied that the description of the nature and extent of the proposed development complies with legislative provisions and is sufficient to enable the environmental topics to be assessed in terms of EIA. I accept the conclusion presented by the applicant that the manner in which the environmental topics have been assessed in the context of the range of the dimensions of the turbines is appropriate.

11.2.9. The EIAR also provides a description of the likely significant effects of the project on the environment and a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.

11.2.10. The EIAR provides a description of the evidence used to identify and assess the significant effects on the environment and the guidance which has been taken into account in its preparation. In general I consider that the EIAR provides an adequate description of baseline information used to identify and assess the significant effects on the environment. As addressed in detail in the soils and

geology section below (and relevant also to hydrology and biodiversity) there is uncertainty with respect to the future of peat harvesting and control over the surface water drainage and this has consequences for the Board's assessment under the EIA Directive.

11.2.11. In other areas the submitted detail of information in relation to the nature of the proposed works and the manner in which the development will be constructed and operated provides a good basis for understanding and for assessment of likely significant impacts. Any difficulties which were encountered in compiling the required information are identified.

11.2.12. I am satisfied that the EIAR has been prepared by competent experts. The project team members are listed in section 1.8.2. Save for the referenced matters relevant to soils and geology, hydrology and biodiversity I consider that the EIAR as supplemented by the further submissions is compliant with legislative requirements, is comprehensive and up to date.

11.2.13. Observers have set out a range of legislative arguments with respect to environmental impact procedures in the absence of SEA for the WEGs. As these overlap with planning legislative requirements I have addressed the issue earlier.

11.2.14. The proposed development is as described in the application documentation as revised by the submissions presented in response to the further information. Section 3.0 of this report describes the proposed development in detail.

11.3. **Other relevant projects**

11.3.1. I have examined the applicant's documents and the online records relating to permitted projects within the zone of influence of the proposed development. On that basis my comments on relevant plans and projects for the purposes of consideration of cumulative impacts are:

- In the absence of live permissions for other wind energy or other significant development proposals in the vicinity of CWF or the GCR I do not consider that there is potential for cumulative effects as a result of the wind energy policies set out in the development plans of Westmeath, Cavan, Meath or Longford. Any such wind energy developments which could be particularly relevant and which might arise in the future would take into account in

combination effects associated with CWF if permitted. My comments in this respect respond to the observers' reference to the River Inny basin and the Greenwire proposal. There are no live applications for wind energy developments of significance in this area the time of writing. The relevant development plans have all been subject to SEA.

- There remains only 1 no. permitted wind turbine within 20km of CWF, which is the existing Ballyjamesduff wind energy development of 1 turbine of overall height not exceeding 152 m.
- Permitted wind energy developments in the wider area which are relevant particularly for the purposes of LVIA. The Ballivor proposal which is referenced in the EIAR is within Meath and Westmeath. It is approximately 25 km south-west of CWF and if permitted prior to making a decision in this case could be relevant for the assessment of in combination effects but at the time of writing it is with the Board for consideration under ABP – 316212. The adjacent Bracklyn wind energy development was granted permission in July 2022 under ABP-311565 and comprises 9 turbines and associated development.
- I have considered whether the application for leave to apply for substitute consent is relevant to the consideration of in combination effects and have concluded that in view of the nature of the application which is procedural only and which does not draw conclusions in relation to environmental effects, there are difficulties with considering in-combination effects. This matter is further addressed below.

11.4. **Alternatives**

EIAR

11.4.1. Consideration of reasonable alternatives is addressed in Chapter 3 of the EIAR. This chapter assesses alternative locations, technologies, turbine numbers and model, designs, grid connections, transport routes and site access and considers alternative mitigation measures as well as 'do nothing' alternatives.

11.4.2. The EIAR assesses the potential for peat extraction works on the site to continue as a worst-case scenario and should extraction cease a site rehabilitation plan will be

required. Various other options are described. Alternatives were discounted as there would be a loss of an opportunity to contribute to the national and EU targets for the reduction in greenhouse gas emissions, the loss of an opportunity to generate local employment and investment and to reverse the trends of population and rural deprivation. In the consideration of alternatives, the option of leaving the site as intended to be developed under permission ABP-300686 (CWF1) is referenced as one of the 'do nothing alternatives', the other 'do nothing' being not implementing the previous permission.

11.4.3. A comparison of the potential environmental effects of the permitted 13 turbine project compared against the proposed 15 turbine renewable energy project is presented in table 3 –1. (EIAR/Vol1a).

11.4.4. With respect to alternative locations the strategic site selection process which was undertaken is described. The low wind capacity of this part of the country is commented upon by observers and is also acknowledged in the EIAR. The applicant's submissions state that this is nevertheless a good wind resource. The applicant notes that the development plan policy favours cutover cutaway peatlands in the county as the preferred location for large-scale energy production subject to nature conservation and habitat protection requirements being fully addressed.

11.4.5. The range of other criteria which are deemed to be necessary for the site selection are listed including suitability under the development plan, access to the national grid and road network, being located outside of areas designated for the protection of ecological species and habitats, being of sufficient area, low population density, landscape and visual amenity issues and avoidance of direct impacts on cultural heritage.

11.4.6. In terms of alternative renewable energy technologies which would be suitable for the site an assessment is presented of the alternative of solar energy which for the same electrical output would require a 530-ha site. Table 3 – 2 presents a comparison of environmental effects of the solar development.

11.4.7. With respect to the consideration of alternative turbine numbers and the turbine model the potential power output from each turbine is to be in the range of 5MW to 6MW, a total output in the region of 90 MW. The applicant states that similar output could be achieved if a larger number of smaller turbines was used but this was not considered efficient in terms of the wind resource, the land to be occupied and the

amount of supporting infrastructure and increased potential for environmental impacts. The turbine model to be installed will be subject of a competitive tendering process. The tip height will be up to 175 m and turbine options within this size envelope have been assessed in terms of their worst-case visual assessment and noise impact. The potential environmental effects of installing a larger number of smaller wind turbines are presented in table 3-3 of the EIAR and subject of comment in the further information response.

11.4.8. The layout of the proposed development is stated to have been revised and refined throughout the preparation of the EIAR and informed by collaboration between specialists involved and comments of the statutory and non-statutory organisations.

11.4.9. The design is stated to consider the 2006 WEGs and proposed changes under the new guidelines. The constraints map for the site incorporated a minimum of 700 m buffer from residential dwellings, except in the case of two dwellings which are at 638 m and 679 m from T15 both of which are involved in the proposed development the 200 m plus buffer from European sites, 50 m minimum from water courses and archaeological sites.

11.4.10. The turbine layout takes account of the permitted layout, size constraints, distances to be maintained between turbines and from houses and roads. The proposed development went through 4 no. iterations, which are detailed and described. Following identification of the location of the proposed turbines the internal road network connection between the turbines was designed. An alternative option to the current road layout design was to propose additional roads to allow for more direct access to each turbine location but was considered to cause potential interference with peat harvesting and potential additional impacts and an unnecessary requirement for importing of materials. An alternative option to the road layout around T 15 was discounted for archaeological reasons and the proposed road layout was redesigned to maintain the recommended 30 m buffer from a raised bank. In response to local concerns, it was agreed not to use certain local roads for access purposes. These are shown on figure 4 – 19 in the EIAR. Observers state that this choice was made to facilitate peat harvesting rather than local residents.

11.4.11. A single temporary construction compound as proposed is considered to result in less disturbance to the site and reduced visual impact from the

development. The compound will be screened from the regional road by trees and vegetation.

11.4.12. Material for construction of access roads and turbine bases will be mainly obtained from the borrow pit located 700 m to the south-east of T14. The location, and plan area of the proposed borrow pit remains unchanged from the permitted wind farm. The size of the borrow pit will be increased by the depth rather than surface expansion. Table 3 – 5 compares the environmental effects of the use of an on-site borrow pit compared with sourcing the material off site.

11.4.13. Underground cabling was considered by the applicant to be preferable to overhead lines. The underground cables will follow the route of the wind farm access roads thereby minimising the amount of ground disturbance required.

11.4.14. The proposed substation is within an area of forestry which is stated to visually screen it from the surrounding area and an alternative location within the site was deemed to be more visible and to increase the footprint of the development on the cutover peat. The proposed on-site substation is situated at the same approximate location of the previously permitted substation with a reorientation and expansion of the footprint area.

11.4.15. With respect to alternative grid locations the connection offer is to the existing 110 kV substation at Mullingar. Connection to that substation by way of underground cable was identified and assessed in the permitted 13 turbine project as part of the initial route selection process to the existing Mullingar substation and a number of options were assessed. Option A is 4.2 km shorter in length and had fewer water crossing points than option B thereby minimising the potential for additional environmental effects and it is also considered that the roadworks can easily be accommodated. An option to lay the cable parallel to the public road in private lands was considered for the first 2.5 km of the grid connection from the on-site substation but was ruled out due to the number of landowners that would need to participate.

Assessment

11.4.16. I consider that it is evident from the above that the EIAR contains a description of reasonable alternatives which is thorough, and which includes revisions made in response to observers. It is evident from the reporting of this topic in the EIAR , including the information presented above and in section 3.0 of this report that a wide range of options were considered and that environmental factors

were considered in the judgements made leading to the final design including the construction methodology and the associated infrastructure.

11.4.17. Observers have noted that the CWF1 permission is subject to judicial review and query its relevance. I consider that it is appropriate that the 13-turbine alternative, which was previously deemed to be acceptable by the Board was considered as an alternative. The comparison between CWF and CWF1 which is in the EIAR is useful. Having examined that information I consider that the main potential effects of the proposed development compared with the previously permitted scheme relate to landscape and visual impacts, noise, archaeological impacts and additional positive impacts arising due to the additional employment and revenue to the local economy and the increased output.

11.4.18. With respect to the continuance of peat harvesting, observers state that the construction of the wind farm will eliminate any possibility of rehabilitation of cutover bog which would be a condition of the terms of an EPA licence. I do not consider that the Board can or should take into account the unknown outcome relating to applications for licences (or indeed substitute consent) that may be made in the future. I do consider that the Board's assessment of the proposed development including its construction and operation in the context of possible rehabilitation of the cutover bog is impeded by the limited information provided by the applicant with respect to this alternative. I consider that there is no reason to conclude in principle that the development of a wind farm at the site would eliminate any possibility of rehabilitation of cutover bog. I have assessed this in more detail in the Planning Assessment above.

11.4.19. With respect to the continuance of peat harvesting it is appropriate that this was considered in the EIAR, but I have reservations about the likelihood of this scenario, whether it is in fact a worst-case scenario and whether the EIAR presents a robust assessment of impacts when uncertainties and other matters are taken into account. I have assessed this further under sections 11.11 and 11.12 below.

11.4.20. With respect to the observers' comments relating to consideration of other renewable energy types including solar and other renewables and offshore wind, I disagree with this point and consider that the topic has been adequately addressed in the original application documentation and reiterated in section 2.6.1.3.1 of the response to further information. I note that the 2018 EIA Guidance states that

consideration of reasonable alternatives should address those which are relevant to the project and its specific characteristics and may relate to matters such as project design, technology, size and scale.

11.4.21. The suitability of the site in principle and its efficiency for the purposes of the proposed development is questioned by observers. It is deemed by the planning authority to be an acceptable location and by the applicant to be a feasible development. Its development would contribute to the national goals for renewables. I do not consider that any further information is required on this point.

11.4.22. I conclude that the legislative requirement to provide information relating to the reasonable alternatives which were considered is met.

11.5. Consultations

11.5.1. I consider that the applicant has demonstrated compliance with legal requirements for consultation. By reason of consultation with relevant prescribed bodies, the appointment of a CLO and local engagement I consider that the nature of the consultations undertaken is sufficient. As noted in the consideration of alternatives there is evidence that the applicant has responded to some of the points raised by observers during the consultation phase and as such the consultation undertaken can be described as meaningful.

11.6. Environmental Impact Assessment Overview

11.6.1. The EIA section of this report is addressed under the following headings:

Population and Human Health

Biodiversity

Land, Soils, Geology, Hydrology and Hydrogeology

Air & Climate

Noise and Vibration

Landscape and Visual Impact

Archaeology, Architectural and Cultural Heritage

Material Assets

Interaction of the foregoing

Transboundary Effects

Major Accidents and Disasters.

11.6.2. Consideration of each topic follows the same format. It commences with a summary of the applicant's position under the heading of EIAR. I then set out a brief reference to the content of observations. I then provide a brief reference to the FI submitted by the applicant. I conclude with the applicant's response. My assessment follows under the heading Assessment – this includes a further description of the parties' submissions and evaluates the substantive issues.

11.6.3. In considering the foregoing the Board should have regard to previous comments set out in other sections of this report.

11.7. Population and Human Health

Environmental Impact Assessment Report

11.7.1. Population and Human Health is dealt with in Chapter 5. This focuses on employment and economic activity, land use, residential amenity, community facilities and services, tourism, property values, shadow flicker, noise and health and safety.

11.7.2. There are 18 no. individual houses within 1km of turbines and 3 no. are 700m or less from the turbines. The closest two houses are benefiting residents. Coole contains a primary school and church. Castlepollard is 7km to the south-east.

11.7.3. The population density is significantly lower than county levels and there is a high population in the 45-64 age category. The percentage of people in the labour force is relatively low. Farming is the key employment.

11.7.4. The area contains a multi access trail at Mullaghmeen and Mullingar is a designated cycle hub. Some of the local lakes are fishing destinations and the tourist attractions in the area includes Tullynally Castle and Fore Abbey.

11.7.5. The EIAR reports on studies undertaken regarding public attitudes to wind farms and the potential for health impacts including from noise, electromagnetic interference, and turbine safety.

11.7.6. The potential effects on population and human health include hazard to construction works and the public, which will be mitigated by standard approaches.

11.7.7. The development will result in a positive employment and investment effect including 135 jobs during 12 to 18 months of construction. Due to the nature of skills involved in the operational period there could be a long-term positive impact on local skills. Direct financial payments will include annual rates payments to the local authority and the proposed community benefit scheme. A list of projects is set out.

11.7.8. The construction phase employment is not likely to alter existing demographic characteristics. CWF will not have a significant effect on forestry and agriculture.

11.7.9. The increase in noise levels during construction could cause nuisance to sensitive receptors. The noisiest activities associated with the wind farm development are excavation and pouring of turbine bases and extraction of stone from the borrow pit. Excavation of a base can be completed in under two days and the main concrete pours are generally continuous and done within a matter of hours. There will be no blasting. There would be short-term noise impacts along the GCR.

11.7.10. A range of best practice measures will mitigate the slight short term negative impact associated with the construction of the development. These include restriction on hours of construction, adherence to standards and a CEMP.

11.7.11. Dust emissions could cause a nuisance to sensitive receptors in the immediate vicinity of the site. Mitigation measures include minimizing importation of aggregate material, keeping areas of excavation to a minimum and dust suppression measures. Along the GCR two crews will work short lengths.

11.7.12. Specific traffic related impacts could adversely affect sensitive receptors. A link road will be constructed to facilitate turbine delivery. Junction improvement works are proposed. A short section of local road which is close to the borrow pit will be used. Construction of the grid will result in local traffic restrictions. The implementation of a traffic management plan (TMP) will ensure impacts are short term and of slight significance.

11.7.13. There is a very remote possibility of injury from fragments of ice or from a damaged blade. A lightning earthing system will be installed and there will be no impact on health and safety. Operation of the wind farm in accordance with specified

mitigation measures will ensure no risks to staff and landowners. Measures will include inspection and maintenance and a health and safety plan.

11.7.14. Based on the review of international literature presented in section 5.6 it is concluded that there will be no impact on property values.

11.7.15. The proposed development has been designed to operate on the basis that peat extraction continues as a worst-case scenario. The alternative of that activity ceasing can also be accommodated. Therefore, there would be no impact on existing land.

11.7.16. Operational phase noise and assessment is based on modeling presented in Chapter 11. At 2 no. noise sensitive locations potential exceedances of adopted thresholds are predicted. If confirmed, a curtailment strategy will be implemented.

11.7.17. 33 no. properties may experience daily shadow flicker in excess of the WEGs guideline. 5 no. are derelict, and 4 no. are participants. The annual guideline limit is exceeded at 3 no. properties. Mitigation measures include turbine shut down and / or screening. For occupied residential receptors within 10 rotor diameters there is a commitment to zero shadow flicker.

11.7.18. Following consultation with the relevant broadcasters and phone operators measures to ameliorate interference have been undertaken in the layout of CWF, ensuing no interference subject to implementing buffer zones and telecom solutions.

11.7.19. The Visual Impact Assessment includes consideration of roadside screening and is presented in detail in Chapter 12. Given the separation distance of 700 m and existing screening there will be no significant impact on visual amenity at dwellings.

11.7.20. In the decommissioning phase the wind turbines may be removed. The cabling and substation will remain in place. The decommissioning plan in Appendix 4-11 will be agreed with the local authority. The impact and consequential effects will be similar to that during construction but will be materially less.

11.7.21. In terms of cumulative effects there is one existing wind turbine 16.4 kilometers from this site. The in-combination effect is a long term moderate positive impact. Peat harvesting may continue resulting in a long-term positive cumulative impact.

11.7.22. The extension of the Westmeath Way which may run adjacent the site, can be integrated with the proposed development.

11.7.23. When considered in combination with other wind energy developments there will be a long term cumulative significant positive effect on air quality and climate.

In summary the residual impacts will not be significant.

Observations, Further Information, Further Observations, Applicant Response

11.7.24. A broad range of third-party submissions are relevant to the topic of population and human health. The observations which are most relevant to human health relate to noise and air and health impacts due to the proximity to turbines including visual effects, shadow flicker and electric and magnetic fields. There are objections to traffic related disturbance and delays and to the selected routes.

11.7.25. The FI submitted provides 3 no. options for the specific turbines. Appendix 11 assesses the 3 scenarios with respect to shadow flicker. The variance in results between each of the three scenarios is minimal. With respect to visual impacts it is extremely difficult to determine any difference. AWN confirms that there is no change to the noise criteria under the 2006 WEGs. Further response is provided in relation to roads and traffic, attitudes to wind energy and electric and magnetic fields.

11.7.26. In further observations it is re-iterated that the photomontages are inaccurate and that a viewpoint from the rear garden of a nearby house should have been selected. The short-term views provided are not representative. There is an objection to the borrow pit entrance as it will disturb occupants of three houses and result in removal of good quality hedgerow. CWF will result in an increase in the number of derelict houses. The impact on water composition as a result of the high EMF was raised in an observation and no response provided.

11.7.27. The applicant's response reiterates that the EIAR is robust. The photomontages are accurate and representative in terms of scale and proportion. The selected viewpoints represent a wide range of locations and a range of distances and aspects. Shadow flicker mitigation will include turbine shut down and/or screening.

Assessment

11.7.28. Having regard to the 2018 and 2022 EPA Guidance and in the interest of avoiding undue repetition my assessment of Population and Human Health is structured as follows:

- Specific matters relevant to Population including demography, economic impacts, tourism, recreation, local landscape and visual effects and shadow flicker, land use and community infrastructure are primarily addressed in this section of this report.
- Assessment of impacts on Human Health in this section relies on the assessment of those factors under which human health effects might occur, as also addressed elsewhere in the EIAR. Of note are the environmental factors of Air (noise and dust emissions in particular) and water (groundwater).
- I provide a brief summary relating to traffic impacts.
- I address health and safety.
- Observers have raised concerns relating to electrical and magnetic fields which are considered.

11.7.29. In the Material Assets, Air and Noise sections I deal further with roads and traffic related issues in terms of the selected routes and their suitability, requirements for road closure, air and noise and other matters which have been raised by observers and are relevant considerations relating to impact on local residents and human health.

Demography, economic impacts, tourism, and recreation and community facilities

11.7.30. Having regard to the information presented in relation to the characteristics of the local population and the nature of the rural area, I agree with the conclusion presented in the EIAR that the proposed development would not have a significant effect on the demographic characteristics of the area including the nature of employment. Some observers state that the development will lead to further population decline and increased numbers of derelict houses. If the Board considers that the proposed development would be acceptable in terms of local visual impacts, noise and shadow flicker, I consider that there is no basis for concluding that there would be a population decline.

11.7.31. I accept the comments in the EIAR with respect to short term and specialized employment and upskilling in those areas of employment. In combination with other existing and planned wind energy developments in the midlands the renewable sector is likely to continue to provide quality employment and associated economic

spinoffs. I agree with the EIAR conclusion that these positive impacts would not fall into the category of significant effects.

11.7.32. With respect to peat harvesting activities being continued in combination with the operation of the wind farm, the FI acknowledges that the future of this activity is uncertain. In my opinion the claim that the operation of CWF could take place in combination with ongoing peat harvesting is not a material consideration with respect to economic activity for the purposes of this EIA.

11.7.33. The impact on tourism and tourist infrastructure is of significant concern in the third-party observations to the Board. The Department of Tourism, Culture, Arts, Gaeltacht, Sport, and Media and Failte Ireland have not submitted any relevant observation in relation to tourism and tourist infrastructure being impacted. It is the submission of the Chief Executive of WMCC that the proposed development has the potential to add to the tourism infrastructure in the county as part of the green infrastructure. The report also addresses development plan policies relating to diversification, tourism and renewable energy which will sustain employment opportunities and to the need to protect the landscape which is important for rural tourism. Observers reference the proposal of WMCC to extend the Westmeath Way through the area and state that this will not happen if the wind farm is built. Based on my conclusions below in relation to landscape and visual impact and having regard to the stated commitment of the applicant to 'work with' the local authority in relation to the progression of development plan objectives, I consider it reasonable to conclude that the use and development of green infrastructure at or in the immediate vicinity of the site would not be impeded by the development of CWF. However, the FI does not provide a clear commitment to public access to the site, which matter was specifically raised by the Board. In the event that permission is granted the Board might consider attaching a condition that public access is facilitated and that no signs be erected to the contrary, to ensure that the development of this large area of land for wind energy does not reduce the potential of this attractive area for active recreation.

11.7.34. It is also stated by observers that the long-established recreation area at Mullaghmeen (about 5km to the north), which was recently selected by the Irish Times as the hike of choice for the county and which is described as a major tourist attraction and community asset will be adversely impacted. Reference is made to individual cultural heritage monuments and to features of cultural heritage

importance such as bog roads which are considered to have tourist potential. Mayne Bog Bronze Age roadway is stated to be 4m to 6m wide, 3000 years old and one of the best in Europe. Also referenced are Fore, Tullynally which are stated to be supportive of Failte Ireland's Ancient East strategy and branding. The Hill of Mael referenced as a nearby natural feature which is used for hill walking. The area is described as being heavily used for walking, cycling and fishing and other rural activities and must be visited to be appreciated. The general theme of the observers with respect to the proposed development is that it will constitute an intrusion which cannot be reconciled with strategies to develop tourism.

11.7.35. In the landscape and visual impact assessment section of this report the likely impact on specific landscapes and features which are of tourist / recreational potential and importance are considered. My conclusion is that while there will be views of the proposed development from and / or close to some of the listed cultural heritage sites which are also visitor attractions none of these impacts would significantly detract from the setting of the monuments and thereby reduce their value as tourist assets. The recreational assets in the area, which will also be of interest to tourists are related to the pursuit of outdoor sports such as fishing and walking and these activities and are not solely dependent on the landscape character. As such I reject the argument made by observers that the introduction of large turbines would detract from use of these facilities. There is no indication from the local authority that future development of recreational / tourist infrastructure in this area would be significantly adversely affected by the presence of the proposed wind farm and indeed the wind farm development may facilitate extending the green infrastructure. I do not consider that it is reasonable to conclude that objectives relating to development of a national parks in the midlands would be undermined.

11.7.36. The community facilities in the area include schools. I do not consider that there would be any adverse impacts on community facilities by reason of noise effects apart from short term traffic related disturbance which in particular could result in increased journey time and could for a period discourage cycling to school. In my opinion these impacts would be short-term and not significant. I am satisfied that construction traffic can be managed under a TMP. Observers object to the proximity of the turbines to the school at Coole on the basis that there is a possibility of blade strike. The possibility of such effects are described in section 5.5.2 of the EIAR. I agree that they may be considered to be remote. I do not consider that there

is any reasonable likelihood of noise impacts or blade strike during operation of CWF.

11.7.37. I conclude that the proposed development would not have significant impacts on demographic characteristics, economic activities, tourism activity and the development and use of recreational and community infrastructure.

Local Landscape and Visual Effects and Shadow Flicker

11.7.38. Under the Planning Assessment section above I have referenced the development plan policies CPO 10.143 and concluded that there is no requirement for a 2 km separation between dwellinghouses and turbines. With respect to this matter, I do consider that it is reasonable to have regard to the 2019 Draft WEGs which set a setback distance for visual amenity purposes of 4 times the tip height between a wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development – in this case a separation of 700m. One observer objects to the proximity to T 15 which is stated to be 679 m from their house. The applicant would dispute this distance. My comments in relation to H14 below would be relevant in any case. In general, it is stated by observers that the visual impact on families whose houses are very close to the turbines has not been adequately assessed and it is noted that no photomontage viewpoint was taken from a rear garden. As noted in the FI response also there is a Specific Planning Policy Requirement in the 2019 Draft Guidance of 4 times the tip height and a mandatory minimum 500m.

11.7.39. The FI response does not specifically address views from individual houses noting instead the assessment from public roads. There are 3 no houses within 700m of a turbine. H14 (close to T10 and within 700m of T11) is not a benefiting house but H18 and H24 (close to T15) are occupied by individuals involved with CWF. I consider that by reason of my conclusions with respect to noise and shadow flicker impacts together with the proximity of H14 to turbines there could be significant effects, but such effects are mitigated by screening.

11.7.40. The majority of dwellinghouses are beyond the 700m zone (4 times tip height) established under the 2019 Draft WEGs including for the reason of protecting visual amenities of individual houses. Only one non-benefiting house is within that zone and I do not consider that a 30m or so breach of the 700m guideline would result in

significant adverse visual impacts. Therefore, I am satisfied that further assessment by the applicant, including further photomontages, is not required.

11.7.41. With regard to the SPPR requiring four times the turbine height as a separation from dwellinghouse, the Board should have regard to this requirement. In the event that the 2019 Draft WEGs are adopted prior to the making of a decision on this case and the Board is minded to grant permission, I would recommend that the Board consider omitting T11 in order to comply with the SPPR with respect to H 14 in particular. The Board may also consider the requirement in terms of benefiting properties depending on the wording of the adopted guidance.

11.7.42. Residents raise minor issues relating to localised removal of boundary treatment for the purposes of sight line improvements at entrances, the consequence of which would be to reduce screening at rural housing. Separately an issue is raised with respect to the access point to the borrow pit lands. I consider that the resulting landscape and visual impacts will be short term and are of minor significance as matching reinstatement can be provided. The matter is best reserved for agreement with the planning authority by condition. I consider that the access point to the borrow pit lands is acceptable and I note that WMCC has not raised any objection to it. The additional noise and traffic effects at the nearby residential houses are acknowledged but will be of short duration (up to 18 months) after which the borrow pit will be restored and the hedgerows reinstated. There will be a minor effect on the immediate locality, but no significant effects.

11.7.43. I now turn to the topic of shadow flicker. I am satisfied that the information which is presented in the EIAR is based on sophisticated modeling which can be relied upon for the prediction of impacts. I disagree with the stated position of one observer that the submitted calculations are not clear and that the Board should engage specialist independent expertise to assess this issue. This is a general statement for which there is no supporting evidence and no opposing technical submissions have been made which undermine either the methodology or conclusions of the information presented. I note the results of the modelling of the three scenarios which was presented as part of the FI concluded that the worst case was scenario 1 which was modelled for the original EIAR.

11.7.44. The concern of residents in relation to shadow flicker impacts includes health effects as it is stated for example that people with special needs particularly autism

and Asperger syndrome would be very susceptible to such effects. The presence of a specialist residential center for people affected by autism is mentioned. In terms of day-to-day effects, the comment from residents who are close to T15 (679m away) is that these effects would be distracting and disorientating and cause serious disruption and irritation.

11.7.45. In all there are 18 occupied dwellinghouses within 1km of a turbine. The closest occupied dwelling H14 (excluding benefiting residents) is located at a distance of approximately 700 metres from the T11. H18 and H24 which are located at distances of 638m and 679m fromT15 are stated to be occupied by individuals involved with the proposed development.

11.7.46. The 2006 WEGs allows daily 30-minute impacts at any dwelling house and a total annual guideline limit of 30 hours. With respect to the results of the modeling presented I note that, for the largest rotor diameter assessed, 25 houses are deemed to require mitigation based on the 2006 WEGs, excluding derelict / unoccupied houses. The majority of dwellinghouses would exceed the 30-minute per day guidance and three houses would exceed the annual guideline limit of 30 hours impact.

11.7.47. The 2019 Draft WEGs are relevant to consideration of this topic and case law has clearly indicated that the Board should have regard to those revised guidelines. The 2019 Draft WEGs emphasis on the design stage and detailed modelling and the need for careful positioning of turbines in the first instance and for shutdown where shadow flicker cannot be avoided.

11.7.48. The technical note of AWN which is presented in Appendix 11 references the 2019 Draft WEGs which sets a guideline of zero shadow flicker. The applicant's proposal for mitigation is to commit to zero shadow flicker at occupied residential receptors within 10 rotor diameters (1,550 m) of the proposed development and on that basis the applicant states that shadow flicker is eliminated as a potential issue. On the face of it this commitment appears to be a significant concession to residents insofar as the requirement exceeds the 2006 WEGs and is in keeping with the 2019 Draft WEGs. However, it is critical to reference that the means by which zero shadow flicker would be achieved may include the installation of blinds and curtains as well as screening which I assume might involve planting of trees at site boundaries. These measures would be subject to agreement of the parties involved.

Some observers object to having to close blinds in the early evening in the part of the house which is used at that time. Another resident notes that they have purposely not planted vegetation that would block their view across fields and trees.

11.7.49. The 2019 Draft WEGs emphasise eliminating impacts rather than relying on mitigation at the affected house. The recommended measures include turbine shut off. I consider that it would be appropriate if permission is granted that a condition be attached to require the turbines be shut down as the sole means of mitigation to achieve zero shadow flicker. Having regard to the detailed information on the file the nature and extent of the impact is clear in terms of the number of houses and the duration of impacts (subject to further inspection) I am satisfied that this matter can be subject of agreement between the applicant and the planning authority.

11.7.50. I conclude that the development is acceptable in terms of the visual impact at individual dwelling houses and that the proposed development would not reduce residential amenity by reason of visual effects. I would recommend the attachment that the Board attach a condition that the applicant enter into agreement with the planning authority regarding details of the reinstatement of roadside boundary treatments where they are removed. Subject to mitigation for shadow flicker by means of turbine shutdown only and the drafting of an appropriate condition, the proposed development would not breach the guidance for shadow flicker.

Land Use and Property Devaluation

11.7.51. For the purposes of EIA and the effects on land use my assessment is that subject to appropriate design the development of CWF would in principle be compatible with any viable alternative land uses and that the installation of a large wind energy development would be acceptable in terms of land uses. Regardless of whether or not CWF is constructed the same land uses could be carried out and in principle there would be no significant effect on land apart from the small area of the site.

11.7.52. Observers state that if the wind farm gets permission there will be difficulties for local residents seeking to obtain permission for houses in the area. While any individual application cannot be prejudged, I acknowledge that there could be a conflict between two such developments located close to each other. I accept that the renewable energy facility could impact the future development of an individual dwellinghouse.

11.7.53. Observers refer to devaluation of residential properties. In general and in line with my conclusions relating to local visual effects, noise and health effects I have concluded that there is no likelihood of population loss in the area. Accordingly, there is also no reasonable likelihood of widespread property devaluation.

11.7.54. Residents reference property devaluation in the context of agricultural and equestrian uses. There is mention of the effect on horses who are stated to be prone to adverse effects from wind energy development. Changes to the suitability of land for agricultural value is stated to have consequences for people's livelihoods, pensions and well-being. A member of WMCC objects to the location of a turbine on agricultural land. No concerns are raised in the report of the Chief Executive of WMCC.

11.7.55. With respect to these potential impacts, I note that impacts on equestrian and agricultural land uses are not specifically addressed in guidelines. The EPA Guidelines on information to be contained in an EIAR does reference the removal of land from agricultural use and agricultural capability; in this case these are not significant matters as there is limited direct impact on agricultural lands. There is to my knowledge no proven connection between wind energy developments and adverse impacts on animals including in relation to milk output, which is referenced in observations. I do not consider that there is any evidence submitted to support a conclusion that there would be a significant effect on agricultural activities.

11.7.56. On the specific matter of equestrian impacts, I refer the Board Appendix 5 –1 Volume 3A, the British Horse Society's Advice on Wind Turbines and Horses – Guidance for Planners and Developers. This does not raise any significant issues relating to conflicts between wind energy developments and equestrian activities. The focus of that document is on routes used when riding and it recommends three times blade tip height between a turbine and any route used by horses or a business with horses. As reported in the EIAR there are no equestrian facilities on lands associated with the proposed development and no equestrian centres or public horse trails within 1 km of the proposed development. As such the separation set out by the BHS is achieved. I do not consider that there is any evidence to point to any likelihood of significant effects on horses or associated facilities.

11.7.57. Some of the other matters relevant to the cable laying fall within the realm of impacts on material assets but are raised in the context of their effects on rural

business and population and are now addressed. I note that observers engaged in rural activities including agriculture and the group submission presented by NWTAG mentioned some details of the proposed development including for example the location of junction boxes, ESB services, water pipes and septic tanks, stating that these are not depicted on maps and that the drawings are indicative only. For this reason it is stated that the Board should refuse permission on account of lack of clarity, lack of detail and the degree of uncertainty regarding the grid connection. I consider that the EIAR presents considerable information regarding the proposed development including the detailed information provided in Chapter 4 and various drawings which show the types of works which are proposed and while not depicting the selected choice for each particular location I do not consider it reasonable to describe the application documentation as lacking clarity or detail. The FI response including Appendix 9 (Ionic report) also addresses this topic stating that the crossing of any existing ducts can be undertaken in a satisfactory manner to ensure no damage to utilities and services subject to detailed ground investigation to locate existing infrastructure and safe excavation practices including hand digging in the vicinity of existing ducting and utilities. A detailed design will be completed for the entire route and all crossings. I consider that there is sufficient flexibility provided for in the EIAR and allowable under law to enable minor adjustments to be made to the proposed development. For that reason, I do not consider that there is any likelihood of resulting adverse effects on the operation of rural businesses and residential property.

11.7.58. In order to comply with the requirements of ESB an unbound surface layer will be installed over the underground cable route including through forestry and agricultural land. As stated in the EIAR this is unavoidable. In view of the small area of land involved I do not consider that there would be significant effects on existing land uses.

11.7.59. The development involves removal of some forestry and under the terms of the licence there will be a requirement for replanting. Technical Approval has been obtained for this afforestation. The EIAR provides considerable level of detail in relation to the location and the environmental effects associated with the replanting of land. Appendix 4-6 the replanting assessment includes a Screening Report for Appropriate Assessment at the site of the proposed replanting and it is concluded that there would be no significant effects on European sites as a result of the

replanting. I consider that it may be concluded that the removal of a small area of commercial forestry would not constitute a significant direct or indirect effect.

Human Health

11.7.60. Having regard to relevant guidance on EIA including international guidance the assessment of human health focuses on the environmental factors of significance. As referenced in some of these guidance documents the guideline values set are based on scientific evidence of health effects and subject to complying with these limits human health is protected. I acknowledge that some of the observations reference broader aspects to the matter of human health impacts. National guidance is that the assessment should focus on the environmental factors of significance and that is the approach taken below. In this section I also address health and safety.

11.7.61. Concerns presented by observers include that noise and dust from traffic and construction and quarrying will significantly negatively affect the life experience of residents and make it difficult to work from home and will give rise to pollution which could have health concerns.

11.7.62. The potential for human health effects related to air emissions is limited to construction dust emissions from traffic and from the operation of the borrow pit. Construction of the proposed development including the impacts of traffic-related dust may give rise to localised soiling effects at roadside dwellinghouses. However taking into account the mitigation which largely involves best practice on site and suitable works planning, I accept that there is no likelihood of significant adverse impacts related to dust (or any other emission) and no health effects can be anticipated. In the section on Air I provide more information including with respect to vehicular traffic emissions and the operation of the borrow pit.

11.7.63. The construction phase noise is further assessed under Noise wherein it is concluded that the short-term effects would not adversely impact the local residential population or detract from the use of community facilities including schools. Subject to the proposed mitigation measures relevant to the exceedances of operational limits for the turbines, which is discussed further under Noise, it can be concluded that there is no possibility of health effects as a result of the operation of CWF.

11.7.64. I accept the EIAR conclusion that the noise (and vibration) associated with the construction, operation and decommissioning phases are not expected to have any

significant residual impact subject to the implementation of listed mitigation measures and that there would be no significant residual human health effects.

11.7.65. The construction would mean that the local roads would not be suitable for walking / taking exercise according to observers. I acknowledge that there will be some potential indirect impacts in this respect but disagree that they would be significant effects having regard to the low-level population in the area and the availability of a number of quiet routes which will be suitable for exercise.

11.7.66. Another observer states that there are health disorders are associated with living in close proximity to turbines. Illnesses such as hearing loss, nausea, sleep disorders, dizziness, general well-being and mental health and sleep deprivation are linked with living close to an industrial wind farm. For these reasons observers state that they could not function normally in professional and education pursuits with such constant disruptions. The EIAR and the FI acknowledge reports of negative health effects from residents close to wind turbines but also state the peer-reviewed research largely does not support this and that there is no published credible scientific evidence to positively link wind turbine to adverse health effects. There is a long report on this matter in Chapter 5 of the EIAR including a review of publications and independent reviews. I consider that it may be concluded that the consensus opinion from these reports and from regulatory authorities is that the type of multiple effects which are described in this observation are not normally associated with living close to a large-scale wind farm.

11.7.67. The EIAR contains a range of health and safety measures which will be relevant to workers at the construction site but also to residents in the area. This includes measures such as emergency response plans, health and safety plans, measures to prevent unauthorised access to the borrow pit and others. These plans and particulars are the basis for avoidance of adverse health effects during the construction phase. Subject to finalisation of plans and their implementation there should be no concerns relating to health and safety.

Traffic

11.7.68. Traffic related impacts on human beings particularly related to general disturbance and local issues which might arise during construction are assessed throughout this report. I refer to the potential for air emission and noise emissions and consideration of material assessed as dealt with under the relevant sections. I

rely on my evaluation in those sections as the basis for my conclusions that there will be no significant adverse effects on the local population and no human health impacts as a result of construction phase or operation phase traffic by reason of dust, vehicle emissions, noise and delays. The construction will require road closures which are discussed under Material Assets. It is inevitable that there will be short-term not significant impacts on local residents and on services in the villages for the duration of the construction.

11.7.69. Some elements of the proposed development have been incorporated in the interest of traffic safety and the convenience of local residents, notably the works at the junctions and the proposed link road which will serve CWF and avoid routing of large vehicles through Coole. I consider that the construction of the link road in particular constitutes a significant mitigation measure to mitigate potential impacts which might otherwise be associated with the construction of the access roads. Following mitigation I am satisfied that there will be no residual impacts.

Electrical and magnetic effects

11.7.70. Observers raise concern relating to the grid connection, which will run close to a high percentage of the rural houses in this area. Residents have concerns relating to health impacts associated with electric and magnetic fields. It is stated that it should be demonstrated how the forecasted values have been calculated and that the applicant should confirm that the predicted levels are within acceptable limits in terms of human health and which guidance is being applied. The report of Ionic Consulting Limited submitted as FI addresses this topic and notes that the forecasted magnetic fields arising would be far below the relevant guidelines for exposure. The forecasted range for a 110kV underground cable route is 0 to 4 microteslas (µT) which reduces with distance from the cables and which is significantly below the 1998 ICNIRP Guidelines for exposure to AC magnetic fields (100µT).

11.7.71. The grid connection will be designed and constructed in accordance with the requirements of Eirgrid. While the cable will constitute a new piece of infrastructure in this rural environment, I do not consider that there is any reason for concerns to human health and I note that this type of infrastructure commonly coexists with residential and other sensitive populations, including schools. I am unaware of any case under which the Board has refused permission or required a significant

modification to a grid connection for reasons of impacts on human health. I consider that there are no particular circumstances in this case which would warrant further investigation of this matter, or which should influence the Board in its decision. With respect to the comment that the information should be provided relating to how the predicted levels are calculated I consider that such information would not add to the understanding of the public, or the Board, and I note that it is not included in the EPA Guidelines on Information to be provided in EIARs.

11.7.72. I note that there is reference in one observation to the difficulties in the assessment of health issues arising as turbines of this height have never been constructed in Ireland before and the actual turbine has not been specified. I consider that the likelihood of health effects is best measured by any actual impacts rather than the scale of the structure. The applicant's assessment includes different scenarios, measures relevant effects, presents a robust assessment and demonstrates adherence to adopted criteria.

Conclusion

11.7.73. I conclude that there is sufficient information available for the Board to be satisfied that the proposed development would not lead to significant residual impacts on Population or Human Health. This conclusion acknowledges that there would be breaches of adopted standards for shadow flicker and operational noise but considers that these could be addressed by way of a curtailment strategy.

There will also be localised visual impacts on population at dwellinghouses where the guideline separation between dwellinghouse and turbines is not met. I am unconvinced that this would be a significant effect except in the case of one house where there are cumulative noise and shadow flicker effects. The main effects relates in my opinion to the shadow flicker and noise and not to the localised visual impacts.

11.7.74. The following are relevant with respect to population and human health effects:

- Significant adverse impacts on population and human health from noise and shadow flicker during the operation of the wind farm which will be mitigated by implementation of a curtailment strategy.

11.8. Land, Soils, Geology, Hydrology and Hydrogeology

11.8.1. The topics of Land, Soils and Geology overlap somewhat with Hydrology and Hydrogeology (Water) and accordingly the following structure is adopted:

- Land, Soils and Geology – EIAR
- Hydrology and Hydrogeology – EIAR
- Observations, Further Information, Further Observations, Applicant Response.
- Assessment of Land Soils and Geology, which addresses some impacts relevant to water.
- Assessment of Hydrology and Hydrogeology – this deals with the remaining issues.

Land, Soils and Geology – EIAR

11.8.2. The topic of Land, Soils and Geology is assessed in Chapter 8 of the EIAR. Consultation responses were received from GSI, OPW and DAFM. WMCC identified the need for detailed examination of the peat stability at sections of the grid connection. In response to the request of the planning authority targeted work was undertaken and reported on in the Grid Connection Route Peat Depth and Stability report (Appendix 4-4) and follow up information in Appendix 4-5. Other specialist reports relevant to this topic include a Wind Farm Site Peat Stability report (Jan 2021) prepared by FTCO (Appendix 8-1). Guidance relied upon includes IGI and NRA provisions relevant to the topics.

11.8.3. In terms of the existing environment the EIAR notes that the WFS comprises three peat basins to the east of the River Inny. There is no EPA licencing of peat harvesting activities relevant to these lands. Excluding lands to the south-west of T15, the WFS is on subsoils which are mapped as cut over raised peat. Cutaway peat is mapped as the topsoil for the majority of the WFS except near T15 where there is well-drained, mineral soil. There is a history of peat harvesting at each of the three basins and an associated drainage infrastructure system is in place.

11.8.4. The site investigation undertaken at the WFS included over 250 peat probes across the entire site in 2016/2017, trial pits at the site compound and borrow pit and other investigations including 13 no. rotary core boreholes (in 2020) at the turbine

locations and a geotechnical assessment of peat stability. Typical peat depths are between 0m and 7.8 m and average 3.2 m. Deep peat (12 m) at the location of T12 is described as a local anomaly.

11.8.5. The site investigation undertaken along the 26 km GCR included 80 peat probes and 13 no. Russian cores in 2019 to determine the depth of peat and the geomorphology along certain sections. Shear vane tests were undertaken at 3 no. priority locations along with a geophysical investigation report of peat and substrate depths. Within the GCR and substation the site is cut over peat with some areas of well-drained mineral soil and pockets of fen peat. Peat probing recorded depths along the GCR were 0 to 6.3 m and an average depth of 1.8 m and similar results were recorded from the cores undertaken along the GCR with thicknesses between 0.82 and 5.62 m with peat depth generally under 2.5 m, which correlated with the results of the geophysical survey.

11.8.6. The WFS peat stability assessment report includes an analysis of over 200 locations and shows that the site has an acceptable margin of safety. No low shear strengths were recorded at the WFS. Slopes are typically under 2 degrees.

11.8.7. The bedrock underlying the WFS is Lucan formation which comprises dark limestone and shale. The closest karst feature is 3 km to the east of the WFS. Along the GCR the underlying bedrock is a mixture of Lucan formation and Derravarragh Cherts. No bedrock was encountered in any of the site investigation points although locations of shallow depth to bedrock along the GCR are recorded.

11.8.8. The WFS is not within an area marked as being of very high or high aggregate potential. CWF would not be likely to prejudice future development of aggregates. Along the GCR the aggregate potential is classed as low to moderate with very small areas of ‘very high potential’.

11.8.9. There are no recorded geological heritage sites, mineral deposit sites or mining sites (current or historic) within the site. The Hill of Mael (Rock of Curry) is the closest geological heritage site which is 1 km east of the WFS and 5 km east of the GCR and will not be affected. GSI reports that there will be no impact on the integrity of the current CGSs.

11.8.10. The EIAR assessed potential impacts on land, soils and geology in the construction and operation phases including with respect to excavation of peat,

subsoil and bedrock, contamination, erosion of subsoils and peat, peat stability issues.

11.8.11. In the absence of mitigation, it is considered the potential impacts due to peat instability and failure would be direct, negative, significant, low probability impact on peat and subsoils.

11.8.12. Subject to the implementation of mitigation measures, which are described, the residual effect is considered to be negative, imperceptible, direct, short-term, low probability effect on peat and sub- soils and bedrock. This is based on the standard nature of the risk and the proven and effective mitigation measures described.

Hydrology and Hydrogeology – EIAR

11.8.13. Hydrology and Hydrogeology is considered in Chapter 9 prepared by Hydro-Environmental Services (HES). The chapter was informed by consultation with GSI, OPW and others. Baseline monitoring and site investigations is reported in section 9.2.2 and includes a preliminary Flood Risk Assessment (Appendix 9 – 1), boreholes and sets of shallow and deep piezometers which facilitated seasonal water level monitoring, field hydro-chemistry measurements at the WFS and along the GCR and surface water sampling.

11.8.14. The WFS is within both the Upper Shannon (26F)and Lower Shannon (25A) catchments. The borrow pit is in the Glore catchment. The link road is in the River Inny catchment as are junction improvement works. The GCR passes along the western edge of Lough Derravarragh and adjacent to Inny and along the eastern side of Lough Owel and the River Gaine.

11.8.15. At a more local scale the majority of the WFS is within the Inny_050 sub basin and a small section of it within the Inny_060 sub basin. The WFS is connected to Lough Derravarragh at a distance of 7.5 km downstream. The western section of the WFS drains directly to the River Inny by way of settlement ponds and channels. The River Glore crosses the northern section of the WFS and merges with the River Inny on the western boundary of the WFS. The three separate peat basins are east of the River Inny. A drain (D1) divides the northern basin into two sections and discharges directly to the River Inny. Lough Bane pNHA is 100 m north of the internal access road between T2 and T4. Within the WFS are parallel peat drains (1.5m deep) which are spaced 12 to 15 m on the bog surface for surface water run-off removal

collection and conveyance to a headland silt trap and from there to a larger boundary drain and to a settlement basin for retention and controlled discharge.

11.8.16. Input to Lough Bane is considered to be from direct rainfall and land run-off. The unnamed small dystrophic lake also appears to be an isolated feature.

11.8.17. The WFS drainage is described in more detail for each of the peat basins in terms of the existing outfalls, which are preceded by a series of settlement ponds. Drainage from the northern basin is to both the River Glore and the River Inny. The central basin has four main outfalls which are preceded by a series of settlement ponds. The southern basin has four main outfalls preceded by a series of settlement ponds and it drains to the River Inny and River Glore. Field drains are at 15 to 20 m intervals.

11.8.18. Within the GCR there are four main rivers, the River Brosna, River Gaine and the two separate river channels of the River Inny which are referred to as Inny_020 and Inny_030. This is further described in section 9.3.5.4. Surface water monitoring flow data was obtained at monitoring point locations shown in figure 9 – 6.

11.8.19. A flood risk assessment carried out by HES is presented in Appendix 9 – 1 of the EIAR. It describes proposed development and its context in terms of the hydrology and also soils and geology. Site visits were undertaken in December 2016, in February and March of 2017 and in September and October of 2020. The existing drainage regime within the peat basins will not be altered. As required the existing field drains will be re-routed around or under access tracks. A slightly different arrangement for T15 is separately described. Along the GCR there will not be a significant alteration to the existing drainage regime.

11.8.20. Approximately 28% of the overall development site is within the 1 in 100-year flood zone where the River Inny flows along the western boundary and where the River Glore flows west to east across the WFS; this is the area that includes T1, T5, T7 and T8. Mapped flood extents encroach onto land near T 15 along the River Glore and T 14 near the Monkstownstream. Local knowledge and topographical data indicates that all of the proposed wind farm -related infrastructure are in reality, likely to be within flood zone C. A Justification Test is provided for the infrastructure within the mapped areas of Flood Zone A and B.

11.8.21. The substation site may be prone to shallow surface water ponding which will be addressed by raised formation level and improve drainage.

11.8.22. Along the GCR flood events have been reported in the villages. The southern tip of Lough Owel and lands along the River Inny from Coole to Lough Derravarragh are within Zone A. An issue at Mullingar substation is related to the capacity of the attenuation pond.

11.8.23. Regarding future runoff from the WFS the net effect of drainage measures is a 16.7% reduction. There is no risk of exacerbating downstream flooding.

11.8.24. Surface water quality as relevant to the WFS catchment is reported in table 9 – 8. Typically surface water status for the WFS is moderate and 'at risk' for the WFD cycle 2013-2018. Surface water chemistry measurements are reported in table 9 – 9.

11.8.25. The hydrogeology of the WFS and GCR is described in section 9.3.8 and section 9.3.9. The Inny groundwater body predominantly underlies the WFS and is assigned a good status. Along the GCR the groundwater body Lough Owel is 'not at risk' as is the Inny GWB but the Derravaragh GWB is 'at risk'. Impacts on groundwater are considered to be negligible - surface water is the main sensitive receptor.

11.8.26. The connectivity between designated sites and habitats Garriskil Bog, Lough Owel, Lough Derravarragh and NHA Ballynafid Lake and Fen is described in section 9.3.12.2. All are close to the public roads where the GCR passes.

11.8.27. It is considered that there will be no potential to impact groundwater supplies including public, group or private wells as a result of the works at the WFS and GCR.

11.8.28. Peat water level monitoring data collection is reported in section 9.3.1.4. Deeper groundwater levels generally range between 1.2 to 3.5 mbgl while shallower phreatic water level ranges between 0.19 and 1.09 mbgl.

11.8.29. Surface water is generally the main sensitive receptor in a development of this type. The primary risk to groundwater at the WFS would be from spillages. As the majority of the WFS is in cutover bog underlain by clay deposits any contaminants which may be accidentally released are more likely to travel to nearby streams within surface water than to impact groundwater. Mitigation will ensure that surface water run-off from the WFS will be of high quality and will not impact the downstream surface water bodies. Introduced drainage works will mimic existing drainage thereby avoiding changes to flow volumes leaving the WFS by way of the existing outfalls.

11.8.30. Due to the nature of the GCR impacts on groundwater would be negligible and surface water would generally be the main sensitive receptor with spillages and leakages being the main risk. There is a section along the GCR within Derravarragh GWB which may be classed as sensitive. Due to the depth of construction works bedrock would not be encountered. Any contaminants released during construction would preferentially travel to nearby streams. The surface waters such as the River Inny and associated lakes known to have trout potential and be important for fishing are sensitive receptors. Comprehensive surface water mitigation and control outlined will ensure protection of downstream receiving waters.

11.8.31. The development interaction with the existing bog drainage network of the WFS is described as involving a design approach in which the existing drainage infrastructure will be utilised and integrated with new drainage. The proposed drainage management methods will be to keep water clean in the first instance and secondly to collect waters that might carry sediment or nutrients and route them by way of settlement ponds or stilling ponds prior to controlled diffuse release.

11.8.32. The construction phase potential impacts and the aspects of the construction and operation phases which could affect relevant to receptors as well as the mitigation measures inherent in the design of the proposed development are described. The measures to be applied include consideration of earthworks, clear felling of trees, impacts on groundwater as a result of excavation and from the borrow pit, dewatering, hydrocarbon / cement-based products release and wastewater.

11.8.33. Morphological changes to surface water are considered in section 9.4.1.8 and potential hydrological impacts on designated sites in section 9.4.1.9.

11.8.34. In the WFS hydrogeological and dewatering impacts are minimised by piling.

11.8.35. Lough Bane is up gradient and will not be impacted by water quality effects.

11.8.36. The works at the GCR are relevant for some of the designated sites. There is no pathway to Gariskil Bog SAC. Lough Owel it is lower than and 75 m distant from the public road and vegetation would act to filter surface water before discharging to the lake. Ballynafid Lake and Fen is approximately 5 m below the public road and there is a considerable amount of grass verge on shrubbery in the intervening 300 m to the lake. Scragh Bog is 320 m from the GCR and separated by agricultural lands and residential dwellings. Lough Derravarragh is 450 m from the GCR and the

intervening land uses are mixed. The Inny flows from the north-western edge of the lake and due to the distance and the nature of the works there is considered to be no surface water/ground water pathway between the GCR and the SPA/NHA.

11.8.37. As a result of the works at the WFS there could be imperceptible, temporary, low probability impact on local streams and rivers which would be very localised and very short duration. Mitigation measures will include drainage control measures, sediment control measures and measures related to spills. Significant direct or indirect impacts on European sites and NHAs will not occur as a result of the works at the GCR.

11.8.38. Impacts on groundwater levels and flows as a result of the GCR and due to temporary junction works (which are required at 11 no. listed locations) are not anticipated due to the shallow nature of the trench. Potential impacts on groundwater quality from fuels and chemicals in the construction phase are identified. There would be a requirement for directional drilling along public roads for the GCR and this is addressed in terms of the mitigation measures.

11.8.39. In general there will be mitigation by avoidance involving a constraint/buffer zone at all works locations and implementation of best practice measures.

11.8.40. Potential operational phase impacts are described in section 9.4.2. There is potential for increased in surface water run-off as a result of placement of impermeable surfaces and for increased hydraulic loading during storm events resulting in watercourse erosion. The potential increase is 0.22% in an average daily/monthly volume of run-off, which is negligible. Similar conclusions are drawn for the works along the GCR. The design is to take into account the greenfield run-off rate. With implementation of planned measures there is a negative, imperceptible, indirect, long term moderate probability of effect which is not significant.

11.8.41. Drainage at the substation site is separately considered and described in detail. Following mitigation the residual impact is not significant.

11.8.42. The drainage design for the decommissioning phase is outlined in section 9.4.3 and impacts will be similar to the construction phase impacts but of lesser degree. The decommissioning plan in Appendix 4 – 11 will be agreed and updated.

11.8.43. There are no anticipated hydrological cumulative impacts arising from the WFS and GCR and all works involving road widening are small scale and localised

and would not result in cumulative effects. Other wind farm and non-wind farm developments within the River Shannon catchment and within a 20 km radius have been considered and no potential significant adverse cumulative impacts identified.

Observations , Further Information, Further Observations, Applicant Response

11.8.44. WMCC considers that the conclusions reached in the EIAR are robust and that the proposed development would not have an adverse impact on the soils and geology of the area subject to the implementation of the outlined mitigation measures. NPWS raised a number of issues relating to soils and geology including with respect to peat stability and the proximity of the development to watercourses which connect to sites of ecological importance.

11.8.45. A broad range of third-party submissions are relevant to the topic of land, soils and geology and hydrology and hydrogeology. The observations raise issues relating to removal of peat and peat stability issues, the general suitability of the site for turbine development, the need for a borrow pit and cumulative effects on water quality due to continuance of peat harvesting. It is also stated that there is poor functioning of existing silt traps and will be adverse effects on water courses and valued ecosystems. The wind farm would eliminate possible rehabilitation of the bog, which could be rewetted. DHLGH has raised a number of relevant matters also.

11.8.46. The applicant's further information response reiterated that the basis for the EIAR is continuance of peat harvesting which is described as uncertain but is considered to be the worst-case scenario. Peat stability was further addressed including in the report of Fehily Timoney (FT) and details of the site investigation clarified including at T12. The report of HES in Appendix 2 deals with hydrological and hydrogeological issues.

11.8.47. Further comments from observers state that the peat probe should be used at all turbine locations. 4 m is a big difference and 9 m at T 12 is still very deep. All turbine sites should be revisited. There is still inadequate information relating to foundations.

11.8.48. The further submission received from the applicant reiterates that there will be no significant impacts. Further comment is provided in relation to hydrology including bridges and crossings.

Land Soils and Geology - Assessment

11.8.49. The potential impacts on land, soils and geology and water (as further assessed below under Hydrology and Hydrogeology) during the construction and operation phases may be considered under the following headings:

- likely significant impacts on land
- likely significant impacts on peat, subsoil and bedrock – excavation, contamination and erosion
- peat stability
- conclusions.

Likely significant impacts on land

11.8.50. The EIAR does not make any particular case with respect to land uses and the topic is largely covered in Population and Human Health. The land will be altered by the presence of major infrastructure being introduced on a small area. Within the wider area continued peat harvesting is envisaged. On the basis that it is assumed that both activities can be managed in a compatible way it may be reasonable to conclude that there are no significant impacts on land. However, I consider it fair comment to say that the emphasis in the applicant's documentation with respect to the use of the 'Optioned Lands' has changed since the application was lodged, with increasing acknowledgement that the future peat harvesting is uncertain. I consider that any changes in land-use in the area related to peat harvesting activities are not driven by the proposed development . However, as is considered elsewhere, they should be assessed at this time.

11.8.51. Regarding land use activities observers reference the removal of peat to facilitate CWF and object to it on the basis that other parties are precluded from such activities. I note this point but I do not draw any conclusions from it with respect to the proposed development.

11.8.52. With regard to claims that the proposed development militates against rewetting of the bog which should be pursued, I do not consider that there is anything to preclude coexistence of such users but the project before the Board does not take this approach.

11.8.53. With respect to impacts on land I consider that the proposed development does not give rise to significant impacts on land taking into account the small scale of the overall area which is to be devoted to CWF and the GCR and associated

infrastructure and having regard to the normal cycles in forestry felling and the short duration of operation of the borrow pit.

Peat, subsoil and bedrock excavation, contamination and erosion.

11.8.54. The proposed borrow pit requires permanent removal of in situ peat and subsoil and processing of bedrock during the construction phase. The requirement for tree felling may also result in minor disturbance of soils and sub- soils. As with all major construction projects there is potential for significant effects due to contamination and erosion. The potential for significant effects is discussed below.

11.8.55. The local bedrock which is to be extracted at the borrow pit is classified as being abundant in the area and the impact is described as having little or no significance. For this reason and having regard to the scale of the borrow pit (which will be deeper than that under CWF1 but have the same area) I agree that there is no likely significant impact on geology. Observers question the need for the borrow pit when some aggregates are still to be imported. I do not consider this situation is unusual as there may be a need for different types of material on any site and the applicant's response indicates that in the operation phase there would be some need for aggregates for road maintenance and the borrow pit will have closed. The majority of rock during construction is to be sourced from the borrow pit on site. I consider that the borrow pit the impact on geology would not be described as significant. All soil and subsoil will be used for reinstatement of the borrow pit.

11.8.56. In relation to the potential for adverse effects on geological heritage GSI references the absence of geological heritage features in the area. I note the Esker which is described in section 7.3.5.4 of the Inspector's report under CWF1 and the conclusions therein that there would be no direct impacts, which I accept.

11.8.57. The soil/subsoil is classified as being of 'Medium' importance as the raised bog is already degraded by peat cutting, forestry and drainage works the peat deposits are classified as of 'Low' importance. I accept the EIAR conclusion that prior to mitigation the potential impact on peat, mineral subsoil and bedrock is negative but slight.

11.8.58. The mitigation measures relevant are design/avoidance mitigation measures and are stated to include placing of turbines and infrastructure in areas with shallower peat, use of piled foundations in areas of deep peat and soft mineral soils, use of floating roads to reduce peat excavation volumes, placement/spread of peat

adjacent to the excavations for use in landscaping and subsoil reinstatement in cable trenches. Peat and mineral soil excavated along the GCR will be stored in low mounds adjacent the trench and for short durations and in the event of heavy rainfall will be covered.

11.8.59. A number of issues arise in relation to mitigation including the stated avoidance of areas of deep peat. Based on information which came to light under the FI response I am not convinced that this measure has been entirely successful, at the very least with respect to T12 – this is discussed below under the section on Peat Stability .

11.8.60. In the construction phase the assessment of quantities of peat to be removed is queried in observation. It is clear from the applicant's submission that every effort has been made to minimise peat handling including removal off the site, which would be very much in the applicant's interest. The quantities involved are not significant; the majority of the material which is to be excavated/moved is at the borrow pit site. In terms of the impacts on soils and geology as a result of excavation having regard to the size of the site, the disturbance and relocation of 97,980 m^3 of soil and subsoil is a residual slight negative permanent impact is assessed by the applicant and I consider this is a reasonable conclusion regarding the excavation of materials.

11.8.61. In the construction phase the standard risks relating to contamination of soils arise. The potential for spillages of fuels and lubricants is mitigated by measures which are described which are relevant to vehicle maintenance, refuelling and other construction phase activities and which would be protective of soils and geology. A suite of standard measures are set out to mitigate the effects of spillages should they occur. As part of the CEMP an emergency plan for the construction phase will be implemented. Subject to implementation of these measures, which I accept are proven and effective measures the residual effect is considered to be negative, imperceptible, direct, short-term, with no probability of effect on peat and sub- soils and bedrock as a result of contamination.

11.8.62. Various submissions have included comments relating to the alteration of the peat soil geochemistry which are addressed in the report of HES which is presented as an Appendix to the FI response. It is clarified that the reference in section 8.5.1.2 of the EIAR relates only to the possibility of hydrocarbon spillages and the effect such events could have on geochemistry. This matter was raised by DHLGH but

other observers also claim that the presence of concrete structures will alter soils and sub- soils negatively. I do not consider that there is any basis for this conclusion.

11.8.63. I conclude that subject to the implementation of mitigation measures the development will not give rise to significant adverse effects on soils, sub- soils and geology as a result of contamination. This conclusion would be relevant also to operation and decommissioning of the development, which matters are also adequately assessed in the EIAR.

11.8.64. A number of mitigation measures are described in the EIAR in the interest of avoiding erosion of peat and other exposed subsoils during the construction period. These include best practice measures such as avoidance of working in extremely wet periods, use of brash mats to support vehicles and replacing peat and subsoil where it is removed from the cable trench and within the wind farm site overall. A Peat and Spoil Management Plan has been presented. Subject to the implementation of these measures I accept the applicant's conclusion that there would be a negative, imperceptible, direct, short-term, low probability residual effect on peat and sub- soils and bedrock. No significant impact on soils, mineral subsoils or bedrock is anticipated as a result of the erosion of exposed subsoils and peat.

Peat instability or failure.

11.8.65. Another potentially significant impact comprises peat instability or failure and a considerable effort on behalf of the applicant deals with this matter. First and foremost I note the Peat Stability Assessment (PSA) and its conclusion that there is a low probability of peat failure at the site. The applicant's FI response on the topic is provided by Fehily Timoney and Company (FT). Relevant also is the report of Malachy Walsh and Partners (MWP) who undertook additional peat probing at the site of T12. This was submitted as part of the FI response - Appendix 12.

11.8.66. The PSA is described in section 8.3.7 of the EIAR and includes an examination of peat depth, shear strength and slope and the calculation of a 'Factor of Safety' (FoS). The assessment undertaken covered both the location of the large infrastructural elements including turbines, access roads and the substation and the TDR relief road and separately looked at the GCR with focus on a few sections of public roads located on bog ramparts, which WMCC considered were priority areas for investigation.

11.8.67. Based on relevant guidance FoS is generally taken as a minimum of 1.3 and for calculations of over that level the probability of instability is negligible/none. The baseline information compiled included shear vane testing results and information relating to slope and peat depth. The assessment presents a Factor of Safety (FoS) for load conditions 1 and 2 and for undrained and drained conditions. The undrained analysis results for the WSF are presented in table 8 – 10 and reflect the short-term construction phase until pore pressures dissipate. The results of the assessment are that a FoS of 1.30 (as required) or greater is reported for all turbine locations in the undrained analysis and all but one turbine location (T9) in the drained analysis (as per Chapter 8 of the EIAR). This means that based on the standard and accepted method of assessment there should be no concerns with respect to peat stability across the site. I accept the general point made by the applicant in this regard.

11.8.68. I now look at areas which did not meet the target of 1.3. There are two such locations. The FoS for T9 in a drained condition is 1.23 but, in the assessment, AGEC Ltd (who undertook the initial peat probing in 2016/2017) clarify that this corresponds to an area of deep peat located in a topographical depression and there would not be risked from a peat slide. The risk at T9 is thus described as relating to a safety risk during construction which will be mitigated by measures included in section 8.5.1.4. I consider that there is merit to the applicant's position with respect to T9 and that the risk assessment presented in Appendix B to the FT report notes the separation distance from watercourses of over 150 m and identifies the risk as construction related. There is no comment in Chapter 8 of the EIAR on another location south of T12 (FoS of 1.2 assessed) where part of an access road is proposed. This location is also over 150m from watercourses.

11.8.69. The GCR runs close to areas of ecological importance including Lough Derravarragh. The submitted peat stability assessment for the GCR is in Appendix 4-4. It comprises the original report including indicative stability analysis along a typical section of road embankment as well as examining typical trench details. Approximately 8 km of the GCR is along roads over bogs of varying depths (average 1.8m and deepest 6.3m). The indicative strengths of peat is described as relatively high. The required minimum FoS was achieved and it was concluded that stability of the road would not be an issue based on the various design options which are presented and which it was recommended should be finalised and reviewed prior to

construction. I am satisfied with the analysis taken with respect to the GCR and I note that WMCC has not indicated any concerns.

11.8.70. Notwithstanding the acceptability of the PSA approach it appears to me that the results presented warrant a fundamental review for the reasons now presented. In general within the wind farm site as ascertained from peat probes from 2016/2017 the peat depths range between 0 m and 7.8 m and at the locations of T1, T3, T9 , T11 and T13 peat depths of over 5 m were reported. Table 8 – 4 refers. Separately table 8 – 5 contains a summary of rotary core borehole logs at locations within the WFS from 2020. In general the results between the two assessments are reasonably comparable in terms of the peat depth presented. One anomaly is the location of T12 where peat depth of 4.9 m was reported in table 8 – 4 of the EIAR and a depth of 12.5 m was recorded based on the rotary core boreholes. In the EIAR this was described as a local anomaly as peat depth data from nearby the turbine location indicated depths of 4.5 to 5.3 m.

11.8.71. The matter was queried in the FI issued and the FI response in item 4.1 states that at T12 following additional peat probing the depth was determined to be 8.7 m (9 m maximum). A LiDAR survey was undertaken at that location and the maximum slope analysed to be 1.510 (average 0.24°) and on that basis a recalculated FoS derived and the suitability of the location is stated to be justified as per technical note of MWP report. Following examination of the FI response on this topic I accept the explanation provided in relation to the original peat depth of 12.5 m (derived from rotary core) and that the use of this technique in those conditions resulted in the over-estimating the peat depth at T12. The explanation as to how this came about takes up a considerable amount of the MWP report and I accept the assessment presented relating to the ingress of water during the drilling and the fact that the purpose of the taking of the rotary cores is to establish bedrock essentially. MWP state that the best method for establishing peat depth is probing. The derived FoS figures for T12 remain above 1.3 and as such is technically compliant.

11.8.72. The focus of the MWP FI submission is on T12. I consider that it is a persuasive report but that it’s remit is limited. I consider it unfortunate that the second MWP report does not respond further to the findings from the investigation at T 12. MPW does state in the applicant response report of May 2023 that ‘ the variations in peat depths noted between the boreholes and peat probing information

at the other turbine positions are not significant enough to alter the outcome of the peat stability assessment'.

11.8.73. Having regard to the proximity of some of the turbines to watercourses I am not entirely satisfied with the information provided. The focus of the assessment in both MWP reports is on the difference between the rotary core information and the original peat probing information. I do not see a clarification in the submitted reports which explains the difference between the two sets of peat probing as evidenced at T12. I would emphasise the extent of the difference. The original peat probing result of 4.9 m (table 8 – 4 of the EIAR), is now known to be 9 m based on the second set of peat probing tests reported in the MWP report submitted as FI. That is the significant issue in my opinion. I would like to see a further explanation and further testing across the site to ensure that the disparities recorded at T12 are not replicated.

11.8.74. In the above paragraph I call into question part of the basis for the entire peat stability assessment undertaken, which is heavily reliant on the calculation of the FoS (in which peat depth is an input) and achieving successful results following this assessment method. FT emphasise that FoS is not the only factor which is taken into account. I note the risk assessment included in the FT report Geotechnical and Peat Stability Assessment in Appendix 8-1 of the EIAR. The risk assessment also includes evidence of sub- peat water flow, surface water flow, evidence of previous slips, evidence of bog pools, mechanically cut peat, evidence of quaking/buoyant peat, type of vegetation, slope characteristics, others. In all 10 factors including the FoS results are used to assess peat stability. This is considered by FT to be a robust approach and I accept this conclusion.

11.8.75. I accept that the approach including use of quantitative and qualitative factors to determine the relative risk of peat instability is appropriate and has been undertaken and that FT has expertise in this area. I also acknowledge the range of relevant investigations undertaken at the site including geophysical survey. However, the overarching conclusion that the proposed CWF site has an acceptable margin of safety and is suitable for wind farm development requires, in my opinion, further justification having regard to the MWP peat probing results at T12.

11.8.76. I now respond to observations including DHLGH as relevant to peat stability and related comments. DHLGH notes that a number of turbines are located in areas

with higher construction risk, corresponding to areas with significant peat depths of 5 m to 8 m and that in addition T1, T3 and T4 are close to rivers and to Lough Bann NHA. The prescribed body also notes the content of page 21 of the geotechnical report on the information presented on peat depth and slope angles at T1, T2, T3, T9, T10, T12 and T13 where peat depths are between 4 m and 6.6 m and slope angles are 2° except for at T9 and T13 which are greater than 3°. It is considered that the geotechnical report should be updated in light of the information from recent landslide events in Leitrim and Donegal and that recent landslide occurred on very low slopes between 1 and 4°. It is stated that while the existing drainage within the site may reduce instability there are pathways where rapid increase in water pore pressure can cause the potential for peat instability and high risk of failure. The submission of NWTAG references the importance of peat stability to the Board's consideration and notes that although the site is relatively flat it has been extensively disturbed by peat extraction and removal, is proximate to rivers and streams draining the site and CWF poses a risk to water quality.

11.8.77. I consider that the FI response adequately deals with the main issues raised by observers. It is noted that the higher construction risk refers to the depth of peat at certain locations which will warrant the implementation of techniques to stabilise excavation or provide temporary working platforms and is essentially relevant to health and safety. The PSA is focused on situations where there would be serious adverse effects and as such in the risk assessment it is concluded for specified areas the main risk is construction related rather than environmental due to separation from watercourses for example.

11.8.78. Regarding the particular peat slippages mentioned by DHLGH the applicant's response is noted. One occurrence was primarily attributed to an intense rainfall event and the concentration of run-off from forestry and drainage into saturated relatively deep peat at that the headwater of a small stream which provided a pathway for transport of material. There were slopes of 4 to 6° across the failure area. The second slippage took place in an area of very weak peat and the peat strengths recorded at the WFS are significantly in excess. Furthermore there are no breaks in slope present on the site where a similar failure could result as a result of loading during road or other construction within the wind farm site. The low-lying nature and raised bog at CWF is a further distinguishing feature. I accept the

applicant's conclusion that the conditions at CWF differ significantly from the sites referenced by DHLGH.

11.8.79. In a further rebuttal of the concerns FT note in the FI response that the FoS is not the only matter on which the assessment relies but qualitative factors are also taken into account and are described. Having regard to my concerns outlined earlier with respect to the peat depth results which has consequences for peat stability, I share the reservations of DHLGH with respect to the proximity of turbines to watercourses.

11.8.80. In terms of the adequacy of mitigation I note that the consideration by the applicant of soils and geology and water are all subject to a range of detailed mitigation measures. With respect to the proposed mitigation measures relevant peat stability these include measures relating to the drainage system and the placement of loads, monitoring, construction statement measures and revision and amendment of the geotechnical risk register as construction progresses. The Peat and Spoil Management Plan, the SWMP and CEMP describe measures to avoid impacts on watercourses. The FT Peat and Spoil Management Plan (Appendix 4 – 2 of the EIAR) (PSMP) describes the activities that are considered to be relevant in relation to peat stability. The PSMP clearly demonstrates that the majority of peat and spoil volume arising (74,400 m^3 of the total of 97,980 m^3) is related to the borrow pit and is otherwise related to the turbines T5 and T 15. I consider that this information is satisfactory. I do not accept the concerns outlined in some observations relating to the amount of peat to be handled and the possible consequences. It is not correct to say that 100,000 m^3 of peat will need to be handled. The majority of arisings are at locations where there is no peat and consequently no concerns relating to peat stability. Where there is a requirement for placements of risings the methodology is set out in section 8.1 of the PSMP. In addition to ascribing a design for the major infrastructural elements at particular locations and further construction , the PMSP also proposes monitoring and cessation of works in the event of excessive movement. Measures to deal with what is described as the unlikely event of an onset of peat slide are presented in most detail in the PSMP. The key objective would be to prevent any watercourse being reached and implementation of on land preventative measures will be undertaken. Use of check barrages if required is described in section 12.3.

11.8.81. I consider that a lot of the issues which are raised in observations relating to peat extraction and potential consequences are overcome by avoidance in the first instance and by suitable design and appropriate construction methodology. If peat instability can be avoided and a condition attached relating to the short-term storage of overburden at the borrow pit, many of these concerns are overcome. Regarding the overburden at the borrow pit it is clear from section 4.3.8.1 of the EIAR that the material will be stockpiled within the footprint of the 6.2 ha site for the duration of operation and I consider that this is sufficient information subject to future clarification with the planning authority. I note that observers have raised a further question relating to the application CWF1 which is stated to have involved only half of the amount of topsoil clearance and that the FI response from the applicant does not appear to address this point. I am unconvinced that anything substantive arises.

11.8.82. To draw firm favourable conclusions concerning peat instability issues at CWF and along the GCR I consider that there must be complete have confidence in the assessments presented. Based on the earlier discussion relating to peat depth I am particularly concerned with respect to the potential for adverse water quality effects arising from works at CWF due to proximity to water courses and the scale of the development and site. Notwithstanding that the GCR is close to watercourses I have more confidence in peat instability being controlled due to the small-scale nature of the works, the location of the public road relative to watercourse and in view of the targeted examination of particular areas which took place.

11.8.83. Finally I refer to operation phase impacts and record my agreement with the EIAR statement that there will be very few direct impacts on soils and geology and that these will be successfully mitigated as described.

11.8.84. Regarding the potential for significant impacts during decommissioning I note the decommissioning plan presented. I accept the reference to Scottish National Heritage Guidance that it is appropriate not to limit options in this respect. The maintenance of the main structures in place as proposed under the decommissioning plan is of particular relevance to soils and geology. Subject to further agreement with the local authority regarding the detail of the plan I accept that there will be minimal impacts on soils and geology.

11.8.85. I accept the applicant's evaluation with respect to cumulative effects on soils and geology and that these would not be significant apart from my reservations

regarding the peat stability assessment, which are particularly relevant to surface water quality and to the AA section of this report.

Hydrology and Hydrogeology – Assessment

11.8.86. I address this topic under the following headings:

- Surface water
- Groundwater
- Flood risk.

Surface water

11.8.87. I consider the measures which are set out for the protection of soils and geology are also critical for the protection of surface water. I agree with the applicant's submission that surface water is the receptor of most relevance in this case having regard to the nature of the sub- soils which would be protective of groundwater.

11.8.88. To protect surface water quality in both the construction and operation phases the applicant has designed a site drainage system which is independent of (but outfalls to) the existing extensive drainage network in the Optioned Lands. CWF will outfall to the peatland surface water system at a greenfield run-off rate. The application submissions include a CEMP and other management plans and is accompanied by detailed drawings showing the location of mitigation measures to be implemented during the construction phase which will include check dams, attenuation ponds, settlement ponds, silt fences and drains. I consider that the information provided is of high quality, is sufficiently detailed and is based on the work of specialist consultants. I agree with the applicant's statement that the measures which are presented comprise proven and effective measures to mitigate risks of releases of sediment and break the pathway between potential sources and receptor including nearby watercourses. I note in addition that water quality monitoring proposals have been assessed in some detail in the EIAR which describes the suite of parameters, the relevant standard and the sampling points along rivers. Due to the overseeing of works by an ECoW and proposals with respect to response plans, together with the mitigation measures, I consider it reasonable to conclude that for the purposes of examining normal construction works and operational activities the applicant's proposals are acceptable. The proposed

drainage maintenance regime, which will continue on a quarterly basis for the operational lifetime of the wind farm gives further confidence in the proposals.

11.8.89. I have previously set out my concerns relating to the absence of clarity relating to land use within the overall lands. While the EIAR is based on continuance of peat harvesting this is uncertain. I am satisfied that the applicant has made satisfactory proposals for avoiding and mitigating adverse surface water quality effects from the construction and operation of CWF. However, there is no clarity relating to how these proposals would work in the event that the peatland drainage system to which they discharge is altered. It might be argued that this matter has no relevance as the discharge is proposed to greenfield rates and there will be more attenuation within the Optioned Lands as a result of the proposed development. There is also a counter argument that it is not shown that the surface water management methods proposed by the applicant would not be required to operate in an environment where a greenfield rate discharge could not be accommodated and would result in significant adverse effects. The applicant was asked to demonstrate sufficient control over the existing drainage and to clarify that the proposed drainage plan can be effectively implemented, regardless of whether or not peat harvesting is taking place and the associated drainage system being maintained. I refer to the FI response section 2.4.3 which I consider does not provide an adequate response to the issues raised. My opinion is that for the Board to be satisfied with the proposed CWF surface water management there is a need for evaluation of other scenarios. I do not accept the applicant's reliance on a static baseline environment or that this is a worst-case scenario in terms of potential surface water impacts. I therefore conclude that it is not possible to state with certainty that the proposed development / mitigation measures can be successfully operated. If the wind farm operator does not control the external environment including the peatland drainage (and there is no reliable information that this is the case) then there is nothing two preclude an extreme situation involving substantial modifications to the existing infrastructure. I have set out under the planning assessment section that the future of the overall peatland needs to be resolved.

11.8.90. I have earlier raised concerns relating to peat stability which obviously could result in significant adverse effects on water quality. Having regard to my conclusions relating to the information provided on peat depth, which I consider

undermine the peat stability assessment, I find it difficult to draw favourable conclusions with respect to the protection of surface water.

11.8.91. To close on this topic I briefly respond to some of the other observations made.

11.8.92. I do not agree that there should be any concerns relating to impacts on percolation areas at nearby houses as a result of the operation of the borrow pit. I do not consider that the observers have presented information to support that concern. The EIAR and FI outline relevant proposals for surface water drainage and while there is some level of uncertainty (relating to the detail of the outfall for dewatering) I do not consider that there is likely to be any significant effects as a result including with respect to the nearby dwellinghouses subject to an appropriate planning condition. Similarly given the location of T15 relative to watercourses and dwellinghouses (at least 640m) and the use of clear span crossing I do not consider that there any concerns with respect to surface water impacts on nearby dwellinghouses.

11.8.93. Various observers refer to the scale of the construction and the proximity to water bodies but the separation provided from watercourses is 50m (and 10m from drains) which together with the use of clear span crossings and avoidance of in-stream works are good measures which will minimise potential for impacts. T1 and T 15 are stated to be depicted as being on watercourses. I agree that the turbine hardstanding (especially in the case of T15) does come close to the nearby drains. T5 is also noted and described as sweeping over the River Glore and having a foundation area approximately 40 m from the river. In the event of a grant of permission I would recommend that the 50 m and 10 m buffer zones be clarified by condition.

11.8.94. Observers state that in the winter months the peatland drainage system features including the shallow drains across the site fill to the level of the watercourses and as a result any siltation flows into Lough Derravarragh. While I note the significance of this observation, I consider that the core concern relates to the topic which I have addressed on a number of occasions in other sections of this report namely the ability of the applicant to effectively managed the peatland drainage. In similar vein I note the observers reference to the poorly functioning silt traps and repeat my conclusion.

11.8.95. Leaving aside the issue of the land-use within the optioned lands in terms of potential for cumulative effects, I do not consider that any other cumulative effects arise.

11.8.96. With respect to surface water impacts my conclusion is that it is not demonstrated that significant adverse effects can be avoided taking into account the uncertainties relating to future management of the peatland drainage.

Groundwater

11.8.97. I consider that there is no potential for significant effects on groundwater resources at the WFS subject to mitigation relating to contaminants and having regard to the limited scale of the development in the context of the overall peat basins and the absence of de-watering.

11.8.98. Groundwater impacts on private wells are identified as a concern by observers. I consider that this topic is adequately addressed in the EIAR. In the area of the WFS there are no mapped public or group water scheme protection zones but it is assumed that every dwellinghouse has a well supply. Applying a conceptual model described in section 9.3.1.3.1 dwelling houses in the vicinity of the WFS are mapped. There are no private dwelling houses located down gradient of the WFS and no potential to impact groundwater supplies. The risk from contamination is deemed to be negligible. A similar assessment is undertaken for the GCR which notes no surface water abstractions within 10 km but a number of group water schemes and private abstractions are within a few hundred metres but all are up gradient. Impacts on groundwater flows and levels are not anticipated. In general I do not consider that there is any potential for water quality effects or decrease in well levels having regard to the applicant's assessment, the location of the wells up gradient of the proposed works as described in the EIAR and the mitigation measures.

11.8.99. The borrow pit is close to a number of residential properties. The FI response to observers describes that notwithstanding that the borrow pit is of shallow depth (5m) there is moderate potential to impact local groundwater levels as some extraction will take place below the water table. I accept the applicant's submission that the shallow depth of the borrow pit will ensure that such effects are very localised and I note the location of houses about 100m from the edge of the borrow pit. Resulting impacts would be of short duration being limited to the end phase of

the operation of the borrow pit (when dewatering is taking place) and will cease on closure of the pit when the construction is complete. Although the FI submission does not address mitigation , there are well established measures for dealing with such circumstances and a relevant condition could be attached.

11.8.100. HES which states it is specialist in wetlands and peatland eco-hydrology has responded in the FI Appendix 2 to the concerns of DHLGH and others relating to groundwater drawdown effects on two SAC habitats. The HES response in section 2.1.1 discounts potential effects on Gariskil Bog (60m from the GCR) as the River Inny acts as a hydraulic boundary to groundwater flow and taking into account the local drainage patterns, the shallow nature of the trench and its location above the invert level of the River Inny. Scragh Bog is 230m from the GCR and there are no hydrological pathways and no requirement for dewatering in the installation of the shallow grid connection trench. The drainage control measures in section 9.4.1.9 of the EIAR refer. I accept the conclusions presented by the applicant in relation to these and other European sites.

11.8.101. DHLGH has also commented on the potential for impacts as a result of the siting of T1, T2 and T4 close to the River Inny and Glore and proximity to Lough Bane pNHA. T2 is the closest to the pNHA. I am satisfied that the potential for adverse effects as a result of groundwater drawdown can be discounted having regard to the absence of groundwater dewatering and the location (including elevation) and nature of the proposed development. I note that this area has been targeted in the EIAR for investigation and monitoring including of groundwater levels.

11.8.102. In conclusion in relation to groundwater no significant effects are likely.

<u>Flood risk</u>

11.8.103. The assessment undertaken by HES is described earlier. I consider that it is evident that the report is based on thorough knowledge of the site gained through a number of inspections over the years and that the approach taken is robust.

11.8.104. I am satisfied that the FRA demonstrates that notwithstanding the location of elements of the proposed development within Flood Zone A based on mapping, the reality on the ground differs and the individual turbines T1, T5, T7, T8, T14 and T15 are actually likely to be within Zone C. It is reported that as the turbine bases, access roads and hardstands are above existing ground levels they are above predicted flood levels. I consider that the FRA makes a good case for the

development being outside the flood zone and that it will not impede the flow of surface water during extreme events.

11.8.105. The potential for downstream flooding is discounted in the FRA based on the additional surface water attenuation which will be put in place which will constitute an increase in the order of 20% (slightly different figures are presented in the FRA and EIAR) and I accept this overarching conclusion. Observers state that due to the scale of development including the large foundations which are proposed there will be displacement of a large volume of groundwater which could give rise to flooding. The response of HES in the FI Appendix 2 states that displacement of water caused by turbine installation will be a singular, localised occurrence, before the groundwater table recedes back to its static level, controlled by the surrounding drainage channels. HES state that over a 523-hectare area, assuming each of the 15 no. turbines require the same approximate volume of concrete/lean mix, this will displace a volume of water leading to an average initial rise just over 1 millimetre. I agree with HES that in the context of the 20cm annual range in groundwater levels across the bogs no potential impacts on downstream hydrology/hydrogeology is likely.

Conclusion

11.8.106. I conclude that the information presented in relation to peat stability cannot be relied upon in the absence of an explanation for the differences between the two sets of peat probing results at T12, where a significant difference was recorded in two different investigations using the same technique. As such there is uncertainty relating to the WFS. Notwithstanding some of the characteristics of the site which support the applicant's position that the risk of peat instability is low, and having regard to the mitigation measures including monitoring posts, these factors have to be balanced with the proximity of some turbines to watercourse. Therefore, the potential for significant adverse effects on surface water during construction cannot be ruled out.

11.8.107. Regarding surface water drainage and protection of water quality during construction and operation phases the site drainage is reliant on connection to a surface water system within the Optioned Lands. My conclusion is that it is not demonstrated that significant adverse effects can be ruled out taking into account the

uncertainties relating to future management of the peatland drainage, which matter is inextricably connected to the future land use, which is undetermined.

11.8.108. The following are relevant with respect to soils and geology and hydrology:

- Adverse impacts on soils and geology, surface water and biodiversity as a result of peat instability effects cannot be ruled out based on the information presented.
- Significant adverse impacts on surface water cannot be ruled out as it is not demonstrated that the applicant has sufficient control over the peatlands drainage system in the Optioned Lands.

11.9. **Air and Climate**

Environmental Impact Assessment Report

11.9.1. Chapter 10 deals with the topic of Air and Climate. It sets out air quality legislation under the 2011 regulations. Background reports are referenced. The potential for emissions to be generated from the site operations is acknowledged.

11.9.2. The site of the proposed development lies within zone D of the EPA designated air quality zones. Ambient air quality monitoring is carried out at Mullingar 22 km south of the WFS; lower values would be expected at the site. The German TA – Luft standard limit value is appropriate with regard to dust impacts.

11.9.3. In the construction phase exhaust emissions related to the site infrastructure including the borrow pit and the substation and from transportation of materials to the site and removal of construction waste from the site will all give rise to exhaust emissions. This is assessed as a short-term slight negative impact in terms of air quality. Mitigation measures identified include good maintenance of vehicles and plant, use of specific routes for turbine and construction material transportation and use of a local waste facility. Use of the borrow pit as a source of aggregate materials will significantly reduce transport thereby reducing emissions. Operational phase traffic will give rise to a long-term imperceptible negative impact.

11.9.4. The construction of the proposed development, including the turbines, access and link roads, cable and substation and other infrastructure and the operation of the borrow pit will give rise to dust emissions during the construction phase which is assessed as a short-term slight negative impact. Mitigation measures which are outlined which will reduce the significance of this effect include sporadic wetting of

loose stone surfaces to minimise movement of dust particles, minimising the areas of excavation, use of specified haul routes and maintenance of these routes, retaining of trees and shrubs where possible and implementation of the CEMP which includes dust suppression measures. Prior to construction there will be dust monitoring in the local area to provide a background baseline level and monitoring will take place during construction on a quarterly basis.

11.9.5. The production of renewable energy will have a long-term significant positive impact on air quality. Mitigation measures relevant to the detail of the decommissioning phase are presented in the decommissioning plan in appendix 4 – 11 and this will be agreed with the planning authority at the relevant time.

11.9.6. If the development does not proceed the opportunity to capture an additional part of the county's renewable energy resource would be lost. This would be an indirect negative impact on air quality nationally, regionally and locally.

11.9.7. With respect to Climate, the EIAR sets out details of a number of the international agreements to which Ireland is party and the requirements emanating from those agreements. EPA publications providing provisional estimates of Ireland's greenhouse gas figures for the period up to 2019 are summarised. The Climate Action Plan 2019 is addressed.

11.9.8. In terms of climate impact the carbon dioxide savings associated with the proposed development are presented in section 10.3.3. Taking into account the forestry replanting which is proposed, it is estimated that the proposed development over the 30-year lifetime will displace 2,688,629 tonnes of carbon dioxide. The carbon dioxide emissions offset by the proposed development will offset this amount in 21 months of operation.

11.9.9. On the basis of the above it is stated that the likely significant effects and associated mitigation measures relevant to climate are as follows.

11.9.10. In the event of a do-nothing scenario and the development not proceeding the opportunity to further reduce emissions of carbon dioxide, oxides of nitrogen and sulphur dioxide to the atmosphere would be lost due to continued dependence on fossil fuel derived electricity. This would be a permanent slight negative impact.

11.9.11. The construction phase will give rise to greenhouse gas emissions creating a short-term slight negative impact in terms of air quality. Mitigation measures in

relation to the greenhouse gas emissions include good maintenance of vehicles and plant, use of specified transport routes for turbines and construction material and use of the proposed borrow pit which will significantly reduce the distance travelled.

11.9.12. Regarding the operational phase, the proposed development will offset energy and associated emission of greenhouse gases from electricity generation stations dependent on fossil fuels and would thereby have a positive effect on climate. It will assist in reducing carbon dioxide emissions. This is a long-term significant positive effect. There are some potential long-term slight negative impacts during operation from the release of small amounts of carbon dioxide due to the potential alteration of the drainage of the site and removal of carbon fixing vegetation. These impacts are slight.

11.9.13. Regarding decommissioning after 30 years as described in section 4.9 chapter 4, the cable will be left in situ and will become part of the electricity transmission network. Decommissioning phase impacts are similar to that which occur during construction albeit of less impact and similar mitigation measures would be employed thereby minimising potential impacts.

11.9.14. No plans or projects have been identified that would be incompatible with the proposed replanting or give rise to significant cumulative impacts. When operational the development will have a long-term moderate positive impact on air quality and climate. During construction of CWF and other developments within 20 km there would be minor emissions but after mitigation measures are implemented there would be no cumulative negative effect on air and climate. There will be no net carbon dioxide emissions from operation. Emissions associated with operation and maintenance vehicles on site will have no measurable cumulative effect with other developments on air and climate. Potential direct, indirect and cumulative impacts of replanting lands on air and climate has been assessed and it is not considered likely to contribute to potential cumulative impacts with the proposed development.

11.9.15. It is considered that residual impacts on air related to exhaust emissions would be short-term imperceptible and negative. There would be no significant effects.

11.9.16. Following implementation of mitigation measures residual impacts of dust generation from the construction phase will have a short-term imperceptible negative impact. There would be no significant effects.

11.9.17. There will be a long-term significant positive residual impact on air quality as a result of the production of renewable energy. This is also considered to be associated with a long-term slight positive impact on human health.

11.9.18. It is considered that the residual impact on climate as a result of the construction phase is short-term imperceptible negative impact as a result of greenhouse gas emissions. There would be long-term moderate positive impacts on climate as a result of reduced greenhouse gas emissions.

Observations, Further information, Further Observations and Applicant Response

11.9.19. Observations focus on two matters relevant to Air and Climate – the effects of construction dust and vehicles emissions and the climate impacts. Climate related matters include the need to take into account manufacturing and note other preferable alternatives and the benefits from re-wetting of boglands.

11.9.20. The submitted FI response references the relevant sections of the EIAR and supports its conclusions. The carbon benefit analysis is justified in section 2.2.2.2.4. It is stated that there will be no significant cumulative air or climate effect.

11.9.21. Further observations – no significant new comment on this topic.

11.9.22. Applicant response – reiterates previous statements regarding carbon calculations.

Assessment

11.9.23. I am satisfied that the submitted evaluation of Air and Climate in the EIAR is based on use of good baseline data and an appropriate methodology.

11.9.24. The submissions of the observers in relation to Air focus on the construction phase effects and in particular the impact of dust generated along local roads due to traffic and the movement of materials and from the works at the borrow pit. The overarching concern expressed is that during the construction phase dust and other emissions will detract from the quality of life in the area and interfere with education and employment activities. I do not consider that there is any reasonable basis for agreeing with these conclusions and in this regard, I note the applicant's comments relating to the sourcing of materials, inspection and cleaning of roads, avoidance of blasting at the borrow pit, the use of regional roads for general traffic access, covering of trucks carrying materials which might give rise to dust and the very short duration of works at any local area were cable laying takes place. While the TDR

passes along a local road this activity would not generate dust and is for a very limited duration. Otherwise the use of local roads is generally avoided apart from the works associated with cable laying and use of the borrow pit. I consider it likely that the most significant dust effects would occur in the vicinity of the borrow pit and at lands adjacent the local road between that small facility in the WFS. Management of the construction phase air emissions is a key facet of the CEMP and I consider that this is an appropriate mechanism for ensuring avoidance of adverse impacts. I note that observers state that the spraying of roads with water to dampen down dust will have little effect on roads like the L5755. I see no reason why this widely used mitigation measure would not be effective and reduce the dust level to minor spoiling. I am satisfied with the measures set out which will minimise dust effects and should be sufficient to protect the amenity of residents along the regional road where the majority of general traffic access will be focused as well as at local roads including near the borrow pit. The operational effects will be very limited, being related to maintenance vehicles in the main.

11.9.25. With respect to the potential for impacts on the environment including on local residents from exhaust emissions, I accept the information presented by the applicant in the EIAR and the supporting further information. I do not consider as suggested in observations that it is necessary to have the make and model of all vehicles in order to undertake a full assessment. I consider that the selected use of regional roads for the general construction traffic and road layout serving the area will ensure that traffic related vehicle emissions will not have a significant environmental effect. Having regard to the separation distance between the WFS and residential receptors and the short duration of works at individual sections of the GCS, together with the mitigation measures which have been set out in the EIAR, it is reasonable to conclude that emissions from plant during construction of CWF is not likely to give rise to significant effects. In the operation phase as there will be minimal maintenance traffic there is no likelihood of any significant effects. Other than addressing the overarching issue of traffic management, there is no requirement for conditions on this topic.

11.9.26. In conclusion I do not consider that there will be any significant effects on Air as a result of the proposed development which will primarily result in generation of dust and vehicles emissions during construction of the proposed development and there is no potential for cumulative effects. As a result of the generation of renewable

energy and avoidance of use of fossil fuels in homes and power plants there will be indirect positive effects on air quality throughout the county.

11.9.27. Regarding climate impacts there will be positive climate effects as a result of the generation of renewable energy. Observers dispute the calculated output from the turbines, which has implications for the carbon balance and has been addressed earlier under the Planning Assessment section of this report. Observers also dispute the carbon sequestration and I now turn to this matter.

11.9.28. The focus in the observations comments is on the alternative of bog re-wetting and the significant carbon benefits arising. Observers state that there will be no chance for the bog to be fully re-wetted as a fully functioning carbon sink if commercial peat harvesting continues as proposed. Further, it is commented that the loss of carbon from unrestored industrial peatlands is significant and stated that the carbon figures need to be explained including with respect to carbon loss for manufacturing, constructing and decommissioning the turbines.

11.9.29. With respect to bog restoration / re-wetting that project is not before the Board. However bog restoration has been considered in the EIAR as an alternative. The EIAR acknowledges that carbon sequestered in peat represents a source of carbon loss and that carbon gains due to habitat improvement and site restoration are beneficial. The drainage of peat soils is accepted to lead to continual loss of soil carbon until a steady state is achieved.

11.9.30. The applicant has presented calculations for carbon loss based on two scenarios including 100% carbon loss from drained peats if it is assumed if the site is not restored after decommissioning of CWF. In the operational phase of CWF the amount of carbon loss is calculated on the basis of the annual emissions of methane and CO_2, the area of drained peat and the time until the site is restored. I am satisfied that the EIAR takes into account all relevant factors and scenarios for the operation period and that the modelling of two scenarios post operation is appropriate. The carbon calculations assume continuance of peat harvesting for the duration of the operation of the wind farm.

11.9.31. The detail of the applicant's calculations is now presented. Based on the model it is stated that the proposed development will give rise to losses of 156,138 tons of carbon dioxide. Table 10 – 10 presents the main carbon dioxide losses from the proposed development. Of this 51% of the losses are due to the turbine

manufacturer, construction and decommissioning, 34% losses due to backup, and 15% / 23,947 tons due to losses from organic matter, reduced carbon fixing potential and the felling of forestry. Based on a rated capacity of the proposed development of 90 MW and a load factor of 0.35 the calculated carbon savings from the proposed development is 89,405 tons per annum. The amount of CO_2 displaced from the largely carbon-based traditional energy mix by the proposed development over a 30-year lifetime is estimated at 2,682,150 tons of CO_2. Taking into account the forestry replanting which is proposed it is estimated that the proposed development over the 30-year lifetime will displace 2,688,629 tons of carbon dioxide. Based on the Scottish government carbon calculator 156,138 tons of carbon dioxide will be lost to the atmosphere due to changes in the peat environment and due to construction of the proposed development. This represents 5.8% of the total amount of carbon dioxide emissions offset by the proposed development. CWF will offset this amount in 21 months of operation.

11.9.32. In response to DHLGH observation, which questioned some of the assumptions, the applicant noted that the modelling undertaken relies on an assumed habitat which is the worst-case scenario and also that the consideration of the Optioned Lands has taken into account the possible scenarios of peat extraction and site restoration (drained and undrained lands) and the formulae and results are reiterated. I am satisfied that the assessment of carbon balance in the EIAR is based on a solid methodological approach and that its conclusions can be relied upon.

Conclusion

11.9.33. I conclude that the proposed development would give rise to short-term adverse effects related to dust in the construction phase, which would not be significant and would not impact human health or cause significant nuisance subject to implementation of the proposed mitigation measures. There are no significant effects on air.

11.9.34. Climate impacts associated with the proposed development in terms of the generation of renewable electricity and reduced reliance on fossil fuels would have a significant positive long-term effect when considered in combination with other projects.

11.9.35. The following is relevant with respect to air and climate:

- Cumulative positive impacts on climate due to the displacement of CO_2 from the atmosphere arising from fossil fuel energy production.

11.10. Noise and Vibration

Environmental Impact Assessment Report

11.10.1. Chapter 11 is the relevant chapter for the purposes of the assessment of noise and vibration. The noise and vibration associated with the construction, operation and decommissioning phases are not expected to have any significant impact subject to the implementation of listed mitigation measures.

11.10.2. The environs of the WFS are described as including 18 no. occupied dwellings within 1 km of the proposed turbine locations. The nearest of these (other than two dwellinghouses involved with CWF) is H14 which is about 700 m from T11. Dwellings H 18 and H 24 are distances of 638 m and 679 m from T 15 but these individuals are stated to be involved with the proposed development.

11.10.3. The selected noise monitoring locations at the WFS (A, B, C and D) are outlined on figure 11 – 2 and noise measurements and procedures are reported. Along the GCS 3 no. noise monitoring locations were used. One location 9 m from the GCR is representative of the dwellinghouses along the L1826. Noise monitoring was also undertaken at house H004.

11.10.4. The assessment of construction noise and vibration is in accordance with relevant British standards. Properties near the proposed development have daytime ambient noise levels typically between 45 to 55 dB $LA_{eq, 1hour}$. Exceedances of the threshold value of 65 dB $LA_{eq, 1hour}$ would potentially signify a significant effect. Subject to good working practice the recommended limit values are not expected to be exceeded. Noise and vibration during construction are not expected to cause significant effects.

11.10.5. Operational phase noise is based on noise modelling which is described in section 11.3 .7. and a summary of the review undertaken is presented in table 11-22 which presents for the selected NSLs the results of the modelling for daytime and night-time, and which sets out predictions for exceedances of the adopted criteria at 2 no. residential properties H013 and H014, which are subject to more detailed assessment in terms of wind speed.

11.10.6. The relevant standards in the WEGs are outlined. In order to provide a robust approach, it is proposed to adopt a lower daytime threshold of 40dB $LA_{90,10min}$. This considers the baseline noise levels measured in the area and ongoing developments in terms of Irish guidance on the issue of wind turbine noise. A level of 40dB(A) is considered appropriate in light of the EPA's NG4 which proposes a daytime noise criterion of 45dB(A) in 'areas of low background noise'. The proposed lower threshold here is 5dB more stringent than this level.

11.10.7. It is noted that an increase of 5dB(A) above background for night-time operation is not explicit within the current guidance, but it is commonly applied in noise assessments prepared and is detailed in numerous planning conditions.

11.10.8. There is no significant traffic on site roads during the operational phase and no noise or vibration impacts.

11.10.9. The noise emission levels associated with the on-site substation would not be expected to be audible from the majority of houses and will not add significantly to the overall noise levels.

Observations, Further information, Further observations and Applicant Response.

11.10.10. Observers comments relating to noise and vibration focus on noise effects on residents during construction and operation of the proposed development. Reported concerns have been submitted from residents close to existing wind turbines at other locations. The minimum 500m setback under the WEGs is deemed to be inadequate. There is a need for full assessment of the particular make and model of turbine and turbines should conform with the Machinery Directive. Noise and dust from vehicles associated with the borrow pit and the operation of the borrow pit are of concern including due to blasting and in the context of a lack of information regarding construction hours and lifetime of the activity. H18 and H24 are too close to the development. H14 are not involved with the proposed development and is approximately 700m from it. The Finnish study is not of relevance. Derelict houses should have been taken into account.

11.10.11. The submitted FI contains an assessment of the three different turbine scenarios in terms of the noise impact. It notes that in the original EIAR documentation the worst-case noise assessment which was presented related to a Nordex N149 turbine hub height of 100.5 m and a rotor diameter of 149 m. The RFI noise assessment of the two additional models of turbine (Siemens SG155 model at

97.5 m hub height and Vestas V150 model at 100m hub height) is described in an accompanying Technical Note submitted as Appendix 10. It is suggested in the AWN Technical Report that in respect of the final selection of turbine technology a compliance report including a further environmental noise assessment would be completed and issued to the local authority for review and that a condition to such effect would be welcomed by the applicant.

11.10.12. Further observations – no additional significant comments.

11.10.13. Applicant response – following curtailment the noise levels at H013 and H014 are within the noise criteria.

Assessment

11.10.14. In this section I consider the following:

- the appropriateness of the adopted standards,
- the construction noise and vibration effects
- operational noise
- other matters raised by observers.

11.10.15. Regarding the adopted standards the approach taken is explained in the EIAR.

11.10.16. In summary, the proposed operational limits are:

- 40 dB $LA_{90,10min}$ for quiet daytime environments of less than 30 dB $LA_{90,10min}$;
- 45 dB $LA_{90,10min}$ for daytime environments with background noise levels of greater than 30 dB $LA_{90,10min}$ or a maximum increase of 5 dB above background noise (whichever is higher), and
- 43 dB $LA_{90,10min}$ or a maximum increase of 5dB above background noise (whichever is higher) for night-time periods.

11.10.17. Reference is made in the EIAR to relevant British standards, to the Institute of Acoustics Good Practice Guide, WHO Noise Guidelines and the 2019 Draft WEGs. In relation to the latter document it is the opinion of the EIAR authors that this assessment does not outline the best practice approach in terms of wind turbine noise and a number of acousticians working in the field have serious concerns relating to technical errors. Mitigation to comply with any revised noise limits could

be implemented by controlling the operation of the turbines. The assessment of construction noise and vibration is in accordance with the relevant BS 5228 Codes of Practice.

11.10.18. I note that the 2006 WEG requirement for areas of low background noise is to limit noise to an absolute range of 35-40 dB(A) for daytime and that the adopted criterion is at the top of this range. The applicant references that the WEG calls for a balance between power generation and noise impacts. Finally, the adopted daytime criteria is lower than the limit under the EPA NG4 of 45 dB(A) in areas of low background noise. I have no objection to the criteria adopted and note that they were accepted also by WMCC.

11.10.19. I consider that it is clearly demonstrated that the applicant has presented a comprehensive baseline survey taking into account the relevant properties in the area. The WEGs do not set down a requirement to assess derelict houses and accordingly it is acceptable the applicant discounted these properties.

11.10.20. The noise impact assessment reports on the predictions for worst case noise assessment for each of the 198 noise sensitive locations (NSLs) which are identified.

11.10.21. I consider that a thorough assessment of construction phase noise is presented in the EIAR. Section 11.5.2.1.1 of the EIAR sets out the worst-case levels including use of plant at the WFS, the GCR, the wind farm substation and at Mullingar substation and as a result of vehicle movements to and from the site along the public road network. Indicative predicted worst case noise levels are presented for particular elements of the proposed development, described in the paragraphs below. I accept that exceedances of the threshold value of 65 dB $LA_{eq, 1hour}$ would potentially signify a significant effect.

11.10.22. During construction of the turbines and hardstanding piling operations will be required. The nearest residential receptor to this type of work is a benefiting dwellinghouse H 18 and predicted noise levels would be in the range between 33 and 47 dB $LA_{eq, 1hour}$ with a cumulative level of 51 dB $LA_{eq, 1hour}$, which is significantly below the adopted threshold of 65 dB $LA_{eq, 1hour}$.

11.10.23. At H049, which is 78 m from the proposed internal roads the predicted noise level from construction is in the order of 63 dB $LA_{eq, 1hour}$ (below the significance threshold) and this noise level will be experienced only for a few days.

11.10.24. At the junction upgrades and road widening works the nearest noise sensitive receptors are approximately 50 m from these works (H079, H084 and H096) and the predicted noise levels due to construction in total is estimated at 61 dB $LA_{eq, T}$, for up to 3 days. H004 is 1080 m to the north of the proposed on-site substation and the likely worst case potential noise level from construction activities would be 47 dB $LA_{eq, T}$, which is not significant.

11.10.25. Along the grid connection route there are potential significant noise impact values where noise sensitive locations are within 20 m of work and detailed consideration of impacts will be required and appropriate mitigation measures implemented. I agree that due to the short duration the impact would be described as not significant.

11.10.26. Regarding the impact on the schools in Coole and Multyfarnham neither is directly adjacent the roads to be used as a construction route or along the GCR although both are within a few hundred metres of roads which would be impacted by noise associated with the laying of the HV cable, including the vehicular traffic. The construction phase noise impact in the general area would be short-term, would not impact on the operation of the school as a result of noise or vibration.

11.10.27. There would be no significant noise impacts associated with the construction of the on-site substation.

11.10.28. At identified locations changes in traffic noise levels were estimated. Predicted noise levels in general would be negligible. During concrete pours (phase 1a of works) at properties along L5828 traffic noise increases in the order of 3.3 dB, on 15 days are predicted. The increase in traffic along the delivery route for stage Ib is predicted to be less than 1dB. Turbine delivery will be by escorted convoys, with one convoy per night and 27 such events over the course of the construction programme. Residents along the delivery route will be given prior notification.

11.10.29. Vibration impacts could arise in the construction phase and are assessed in the EIAR. I accept the position of the applicant that ground vibrations related to road traffic are unlikely to cause perceptible structural vibration subject to maintenance of the road surface. The main concerns expressed by residents relate to the operation of the borrow pit and the associated traffic. Contrary to statements in observations no rock blasting is proposed. Instead a mobile crusher and rock breaker will be used and this will be on site during daytime periods for an estimated three-month period.

The assumed noise levels relevant to the borrow pit at the closest noise sensitive locations will exceed the adopted 65 dB LA $_{eq, 1hour}$ at H 11 and H 12 and therefore is a significant impact and requires mitigation. Indicative measures including acoustic barriers and other measures specific to rock breaking are described in 11.5.4 of the EIAR.

11.10.30. Construction phase vibration associated with rock breaking have previously been measured at distances of 50 to 60 m by AWN and would be an order of magnitude lower than the highest recommended vibration level. It is the submission of the applicant therefore that there will be no vibration impact on sensitive locations in the area. In relation to piling which is needed for turbine foundations, vibration this is assessed as being not perceptible at the closest noise sensitive locations and would be of orders of magnitude below levels where cosmetic or structural damage would be expected. I accept the applicant's conclusions with respect to the likely significant effects and note that they will be limited to a small number of houses and related to short-term rock breaking at the borrow pit. Subject to appropriate mitigation I consider that the impact described is acceptable.

11.10.31. In conclusion with respect to the construction phase I consider that the submitted information addresses the concerns of residents relating to the traffic related noise impacts and I am satisfied that the noise and vibration associated with the borrow pit workings and the associated traffic would not materially affect residents. I conclude overall that the applicant has demonstrated that there would be no significant noise impacts as a result of the construction works or the effect of related traffic but the rock breaking at the borrow pit would result in a significant noise impact which warrants mitigation.

11.10.32. The operational noise impacts are of concern to local residents and of potentially greater significance. I am satisfied that there is no potential for significant noise effects from the limited amount of operational traffic. I would comment that I accept the EIAR assessment that the on-site substation would not be generally audible and will not add significantly to the noise from the other elements of the proposed development. The operation of the substation was assessed as having a worst case predicted level is 27.1 dB LA_{eq} at dwellinghouse H004. I do not consider that there is any potential significant vibration effects once the construction period has concluded. The remaining issue therefore concerns assessment of turbine related noise.

11.10.33. The initial EIAR assessment was based on a named turbine type and the applicant's position was that any selected model including those which had not been specifically assessed would have to comply with the adopted criteria. Observers state that the particular make and model of turbine needs to be assessed. The submitted FI addressed this matter further in response to observations by including specifying two additional turbine options and re-running the noise modelling for these turbines. The FI includes the Technical Report of AWN which assesses the different turbine types and provides details of the predicted operation phase noise at receptors and assesses compliance with adopted criteria.

11.10.34. For the vast majority of occupied dwellinghouses there is no exceedance of the adopted noise criteria in the operational phase based on the original assessment in the EIAR. This is clearly shown in the submitted tables for the 198 NSLs which were assessed. At two locations there are predicted exceedances for the turbine assessed in the EIAR. At H013 in particular conditions (wind speeds of 6 m/s for the west and north-west directions) marginal exceedance of 0.2 dB(A) to 0.5 dB(A) are predicted for daytime periods. At H014 in particular conditions (wind speeds of 6 m/s in the east wind direction) there is a marginal potential exceedance of 0.2 dB(A) for daytime periods. The operation of wind turbines in reduced modes (low noise modes) or curtailment is proposed as mitigation.

11.10.35. The AWN Technical Report assessment for Scenario 2 is that two additional residential receptors H023 and H024 show potential exceedances. Table 7 summarises the predicted noise levels for the 4 no. relevant houses and at wind speeds of 6 m/s there are potential exceedances of 1.6 dB(A), 0.9 dB(A) , 0.5 dB(A) and 0.5 dB(A) predicted for daytime periods.

11.10.36. A similar scenario is run for the third named turbine type. The locations affected are H013, H014 and H023. When wind direction is taken into account, these exceedances at H013, and H014 reduce and the exceedances at H023 are no longer present.

11.10.37. Regarding the potential exceedances of adopted noise criteria all occur during daytime and up to 4 no. houses would be affected in particular wind conditions. There are no exceedances of the adopted criteria of 43 dB(A)$_{Laeq90,10mins}$ for any of the three turbines. The main mitigation measures set out is curtailment which involves programming of the turbines to run in reduced modes of operations during

certain periods/wind conditions. The selected turbines will offer low noise modes of operation. An indicative curtailment scheme was set out in the EIAR and involved reductions of approximately 1dB at various turbines when operating at 6 m/s. The FI submission provides further details relevant to the two additional turbines. AWN recommends a compliance noise report and states that the applicant would welcome a condition to that effect. I accept that curtailment is a proven and effective mitigation measure that will ensure compliance with noise limits. On that basis I am satisfied that there would be no breach of the adopted noise criteria as experienced by residents at the identified NSLs and that there is no likelihood of significant residual effects. In the absence of proximity to other permitted wind turbines I do not consider that there is any likelihood of cumulative effects.

11.10.38. I note that the concerns of observers include amplitude modulation (AM). As described in 11.3.3.2 of the EIAR 'Normal' AM is an inherent characteristic of wind turbine noise, which has been long recognised and is discussed in guidance as 'blade swish'. However at relatively low frequencies and sometimes at large distances from a wind turbine periodic thumping noises can arise and would be termed 'Other' AM. Notwithstanding that this would be an intermittent occurrence it is appropriate that mitigation measures are put in place and the EIAR confirms that should there be occurrences a detailed investigation will be undertaken as described in 11.5.5. The applicant recommends a commissioning survey and corrective actions. I am satisfied that any significant effects could be mitigated and that sufficient commitments are presented in this respect in the EIAR and as such no nearby residents should experience adverse noise affects as a result of AM or (subject to curtailment measures) due to breaches of adopted criteria.

11.10.39. I now address other matters raised by observers.

11.10.40. It is stated that the existing 2006 WEGs are out of date and cannot be relied on by the developer. I reiterate that these continue to apply. I have also had regard to the 2019 Draft WEGs.

11.10.41. It is incorrect to state that the hours of construction for work are not specified. The construction phase mitigation measures include adherence to BS 5228-1 and management of the development including the hours of operation according to the CEMP presented in appendix 4-8. This can be reinforced by planning condition.

11.10.42. I note that the reference in 11.3.3.1 of the EIAR to a report of the Finnish government and that its relevance is disputed by observers for reason of the location of the noise testing and the scale of the turbines. It concludes that infrasound associated with wind turbines is insignificant in comparison to typical prevailing levels of infrasound and is below the threshold of hearing for humans. I have not given any particular weight to this document, a brief summary of which is reported. Instead I have relied on the available national guidance, which takes into account the relevant research and formulates policy on that basis.

11.10.43. I note that an observer references peer reviewed research papers from Sweden, QUB and the Irish Engineer's journal. One states that there is an emerging international consensus for separation distance of 2 km by reason of maintaining good health. Another references the significance of AM in sleep disturbance. Furthermore it is stated that as an important minority can be severely impacted by wind farm noise a precautionary approach is needed. The concerns outlined by the observer focus on night-time effects and low frequency and amplitude modulation. I have addressed this topic above. I accept statements by the observer that sleep disturbance is potentially harmful to health as well as giving rise to nuisance. However, I am satisfied that should any effects related to low frequency noise occur the mitigation measures set out in the application documents will ensure that there will be no adverse impacts on the local population.

11.10.44. I do not accept that there would be any adverse impact on school as a result of noise or vibration effects.

11.10.45. Relating to the specific type and the comments of observers that a CE marked turbine as required under the Machinery Directive be used. The Draft 2019 WEGs reference this approach in addition. This can be addressed by condition.

Conclusion

11.10.46. I consider that the assessment of noise and vibration is sufficient and that the issues raised by the observers have been comprehensively addressed. I consider that the noise assessment which represents a worst-case scenario is robust and identifies all of the potential impacts associated with the construction and operational stages of the development and for different turbine types and considers cumulative effects. I accept that subject to the comprehensive mitigation measures outlined in the EIAR that noise associated with the development is not likely to result in

significant residual effects on sensitive receptors and no significant vibration effects are predicted which would impact on nearby receptors. There would be a significant noise effect at a small number of houses in the operation phase as the adopted noise criteria would require mitigation.

11.10.47. The following is relevant with respect to noise and vibration:

- Significant adverse impacts on population and human health from noise during the operation of the wind farm which will be mitigated by implementation of a curtailment strategy.

11.11. **Biodiversity**

EIAR

11.11.1. Biodiversity (excluding Ornithology) is addressed in Chapter 6. A comprehensive suite of surveys is reported which dates back to 2016 and includes very recent surveys. Multidisciplinary walkover surveys were undertaken and targeted surveys for bats, otter and badger. In general the design of the proposed development is stated to have resulted in avoidance of impacts.

11.11.2. Regarding the assessment of habitats and species the approach taken is to identify the Key Ecological Receptors (KERs). This refers to both the ecological significance of the particular habitat/species and their presence within the zone of influence of the proposed development.

11.11.3. The dominant habitat type in the study area, and particularly at the location of the proposed turbines and associated roads, is cutover bog. To the east and south of the main body of the windfarm site is agricultural lands and some afforestation. T15 will be located within agricultural grassland and T5 and T14 within a coniferous plantation. The dominant habitat within the GCR comprises road carriageway and verges alongside which are a range of habitats.

11.11.4. There are 3 no. watercourse crossings proposed within the site which will be done by way of clear span bridges avoiding the need for instream works. 16 no. watercourses run in the vicinity of the public road along the GCR. There is no requirement for instream works associated with installation of the cable. Indirect impacts on watercourses will be avoided by use of best practice measures.

11.11.5. Third Schedule (EC Birds and Natural Habitats Regulations) invasive species have been surveyed and identified namely Rhododendron, Japanese Knotweed and Bohemian Knotweed and their locations along the GCR recorded. The plan is to avoid works in areas other than within the existing road and utilise other best practice measures to ensure no spread of the relevant invasive plants. Two aquatic invasive species were recorded.

11.11.6. The ecological sites identified as KERs include the European sites relevant for the purposes of AA (see AA section) and Lough Derravarragh NHA, Royal Canal pNHA, Ballynafid Lake and Fen pNHA, Lough Owel pNHA, Lough Iron pNHA, Lough Ennell pNHA all of which are of national importance and could be impacted by water pollution. Habitats include degraded raised bog which is present in scattered locations, a dystrophic lake which is assigned of national importance, the River Glore and the River Inny and bog woodland which is present in numerous locations along the fringes of the study area. The River Glore and River Inny are of local importance (higher value) due to supporting seminatural habitats and the watercourses are also potential habitat for a number of Annex II species.

11.11.7. The GCR passes along the periphery of designated sites including the Royal Canal pNHA and European sites but there will be no direct effects as all works will be within the road corridor. Mitigation measures will ensure avoidance of significant indirect effects on nationally designated sites which are identified as KERs. There would be no impact on habitats listed in Annex I of the Habitats Directive as none are present within the relevant area including along the GCR.

11.11.8. The fauna identified as KERs include otter, badger and bat species, all assigned a local importance (higher value) classification. The recorded fauna activity is described as being extremely low and associated with the periphery of the site. No active badger setts were recorded within the development footprint or within 150 m. Otter signs were observed at one location within the study area boundary and no breeding sites or holts were observed. Seven bat species were recorded but the overall level of bat activity was low and mainly focused on the vegetated fringes of the site.

11.11.9. The likely significant effects on KER habitats and species as a result of the construction phase are described in table 6 – 23 to table 6 – 29 which sets out a description of the likely effect, mitigation and any residual and cumulative effects. It

is concluded with respect to all KER habitats and species that there would be no significant residual effect and no cumulative effect.

11.11.10. Bog Woodland is one of the KERs which was assessed as being of local importance. The habitat present along the fringes of the study area does not conform to the Annex I priority habitat. The potential impacts include a direct loss of 0.32 ha of bog woodland which is assessed as a short-term slight negative impact.

11.11.11. All vegetation removal will be conducted in keeping with the provisions of the Wildlife Act and treelines removed as part of the development will be replaced. In total within the study area a linear habitat length of 5.34 km of treeline is identified and some of the treeline to be removed to facilitate the access road to T 15 for example has potential to support roosting bats. At the access road to T 15 approximately 960 m of treeline and 220 m of hedgerow will be replaced. The EIAR provides a lot of detail regarding treeline removal.

11.11.12. In accordance with industry best practice further surveys for mammals will be undertaken prior to construction.

11.11.13. With respect to the assessment of potential impacts in the operational period impacts on the river corridors and the aquatic receptors are described in table 6 – 30 which also references the design and mitigation measures described in other sections of the EIAR including the CEMP. It is concluded that no potential for significant effect arises and no cumulative effects.

11.11.14. Regarding the assessment of potential effects on bats during the operation phase table 6 – 31 refers. There is a potential long term moderate reversible impact on bat species. The approach to mitigation includes reducing the value of habitat for bat species by provision of a buffer of 50 m. Monitoring of bat activity will be undertaken for three years minimum and a corpse search undertaken. Following implementation of the mitigation and monitoring there is no potential for significant residual effects on bats. If a significant effect is identified there will be curtailment in certain conditions.

11.11.15. The decommissioning phase would result in similar impacts but of a smaller scale.

Observations, Further information, Further Observations and Applicant Response

11.11.16. Observations submitted include detailed comments from DHLGH which are reported in summary in this report and are assessed in this section and (as relevant) in the section dealing with appropriate assessment. Observers raised a range of additional issues concerning biodiversity in the locality and these are summarised and assessed below and (as relevant) in the section dealing with appropriate assessment.

11.11.17. The FI submission included updating of aquatic ecology surveys. The assessment presented in the EIAR does not change. The updated aquatic ecology surveys show macroinvertebrate surveys of water quality in line with chemical results and showed decreased water quality in lower reaches of River Inny (Q3). The majority of watercourses in the vicinity of the proposed development were of at least local importance (higher value) in terms of their aquatic ecology. Appendix 13 presents an updated figure 6 – 7 entitled mammal surveys and habitat significance.

11.11.18. Further Observations reference the applicant's failure to assess the changes which have occurred since peat harvesting has stopped and the growth of scrub and groundcover now being used as foraging grounds by Whooper swans.

11.11.19. The applicant's response does not contain substantive comment on this topic.

Assessment

11.11.20. This section is considered under the following headings:

- Overview
- Terrestrial ecology
- Aquatic ecology
- Conclusions.

Overview

11.11.21. With respect to the topic of biodiversity which is addressed in Chapter 6 I consider that a comprehensive suite of surveys is presented and that any deficiencies were addressed in the FI response including with respect to the aquatic surveys. I note that specialist surveys were used to target particular species. A large number of specialists were involved in the preparation of the relevant sections of the EIAR and (in general) I consider that the assessment undertaken is robust and that the assessment relies on a good level of knowledge of the environment. The FI

submitted responded to a number of concerns which had been raised by DHLGH. There are, however, some deficiencies in the assessment, which I reference below. I also analyse the points made by observers and I draw conclusions regarding significant effects. I reference the report of Dr Flynn, the Board's ecologist which is attached.

11.11.22. My overall comment relating to the EIAR approach and the focus on KERs is that it is suitable to capture potential impacts on ecological sites, habitats and species of biodiversity value which could be impacted by the proposed development.

11.11.23. I consider that the mitigation measures which are presented and which include certain measures to target particular species and standard practice measures are, in general, robust and sufficient. I later draw attention to matters relevant to implementation of mitigation which I consider are deficient.

Terrestrial ecology

11.11.24. In this section I evaluate the likely significant impacts on NHA sites, other habitats and species taking into account the applicant's position as described above under EIAR and addressing the comments of observers.

11.11.25. With respect to the potential for effect on nearby NHA sites, in general, I am of the opinion that this is well considered in the original Chapter 6. The Triturus report submitted as FI provides useful supplementary information particularly in relation to NHA sites near Lough Owel.

11.11.26. In terms of proximity to the main body of the site there are two habitats of national importance both of which have been subject of submissions from observers. Due to their proximity to the proposed development they warrant particular consideration. Observers reference concern relating to the potential for adverse impact on a lake which is proximate to T1. One observer states that this has not been assessed, which is not correct. The lake is described in the EIAR as a dystrophic lake surrounded by remnant raised bog which corresponds to an Annex I habitat and it is identified as a KER and duly assessed in table 6 – 25. The applicant states that this habitat is hydraulically up gradient of the proposed construction area and on the basis that there is no pathway and no direct habitat loss. The extent of existing drainage and the 100 m separation from sensitive habitats is also identified in terms of there being no anticipated indirect effects during construction. The proximity of T1 to the dystrophic lake is clearly set out on the application drawings. I

accept the submission in the EIAR that there are no likely direct or indirect effects on the habitat. To ensure avoidance of direct impacts on this habitat there should be very little flexibility in the location of T1. The engagement of an ECoW as proposed in the EIAR is useful in this respect. I would also suggest in the event that permission is granted a condition setting out a clear boundary between the edge of the works and a 50 m buffer zone to the edge of the remnant raised bog would be appropriate.

11.11.27. Lough Bane pNHA is also of particular significance as it is adjacent to the WFS and is 10m from the nearest road infrastructure and 50m from T2. Observers reference concern relating to the proximity of T2 and the amount of work required to upgrade the access roads at this location and the drainage of alkaline building materials into the acidic bog. I do not consider that there is any likely adverse impact associated with the building materials. I accept the analysis undertaken in the original EIAR chapter which screened out this site as a potential KER due to the lack of hydrological connectivity as the NHA is up gradient. This point is elaborated on in the revised AA screening report which notes the presence of perimeter boundary drains and intermediate high banks which are uncut sections of high bog and which means that there is no runoff from the peat harvesting area into Lough Bane. There is no potential for direct effects as no part of the proposed development footprint is within the pNHA and Lough Bane itself is located approximately 180 m north of the internal access road between Turbines T2 and T4. Notwithstanding the proximity to T2 I am satisfied the required works can be undertaken without significant effect on the pNHA. Again, a planning condition with respect to the location of T2 and road infrastructure would be appropriate.

11.11.28. Observers have referenced the potential for significant impacts on Lough Kinale and Derragh Lough NHA which is located 1.8km from CWF site and further from the GCR. In the EIAR the only assessment provided of this NHA is to screen it out as it is upstream of the proposed development. I accept the applicant's comment that in the absence of pathways there is no possible effect on the habitat. The waterfowl at Lough Kinale and Derragh Lough are separately considered below.

11.11.29. Regarding the issue of coniferous woodland clearance I consider that the applicant has covered this topic sufficiently in the EIAR. A slight impact as a result of removal of trees is acknowledged. I do not consider that this is a significant issue with respect to biodiversity. I note that observers reject the replacement planting as a mitigation measure. The objection relates to the fact that replanting is not taking

place in the area; this is considered to be detrimental to wildlife but there is no specific information presented regarding what species would be affected. I accept the applicant's proposal for mitigation. I am unconvinced based on the information available that the coniferous forestry has significant biodiversity (or recreational) value. As such the replanting is driven by commercial concerns and the location is not wholly relevant.

11.11.30. With respect to bog woodland removal, this habitat is present in numerous locations along the fringes of the EIA study area and the plots are confirmed not to conform to Annex I status. In general, I consider that the loss of bog woodland has been avoided by the selected layout where feasible. I accept that the loss of 0.32 ha of bog woodland (related to the access roads) would not result in a significant effect as the habitat is extensively drained.

11.11.31. There is a loss of approximately 20% of treeline habitat in the study area. I consider the combined effect of woodland and treeline removal may be considered to be a local level effect. I accept that suitable measures are presented as mitigation including replanting. I consider that it is reasonable to conclude that the residual effect would not be significant.

11.11.32. With respect to mammals, I consider that the species relevant for assessment are badger and bats. The potential for impact on badgers arises in the construction and decommissioning phases would include disturbance effects and impact on setts, if present. DHLGH requested more information with regard to the main sett location and in response to the FI the applicant noted that very few signs of the species were recorded and no setts identified and that the inclusion of badgers as a KER was on a highly precautionary basis and there is considered to be no potential for significant effects on badger even in the absence of mitigation. The FI response indicated that the recommendation regarding preconstruction survey would be adhered to having regard to the requirements of Regulation 51. I accept the submission of the applicant with respect to potential impacts on badger.

11.11.33. Regarding potential for effect on bats, the submission of DHLGH contains useful information. It acknowledges the detailed bat survey and impact assessment which identifies Common and Soprano pipistrelle and Leisler's bat at highest risk of collision and/or barotrauma and which identifies three particular turbines as having potential to cause significant impacts at a local level. Similarly, Nathusius' pipistrelle

are listed as medium risk and significant impacts at a local level could occur. Critically, DHLGH supports the recommendations presented in terms of mitigation and recommends that they be implemented in full.

11.11.34. I am satisfied that the report of November 2020 submitted as Appendix 6 – 2 of the EIAR provides the basis for robust assessment of bats. In terms of construction phase mitigation measures are suitably detailed and I do not have any reservations regarding their implementation. The potential for operation phase impacts on bats and the mitigation measures presented are of more concern. A key operational phase mitigation measure is smart curtailment at specific turbines, including a full suite of post-construction bat surveys, which could be further detailed in agreement with WMCC prior to development. DHLGH queried some of the aspects of the survey information which would be relevant to potential collision/barotrauma effects but supported the overall mitigation strategy. I am satisfied that subject to a condition regarding this key issue as well as other proposed mitigation measures the potential for impacts on foraging, commuting or roosting bats will be suitably mitigated. A negligible residual impact will result.

11.11.35. To avoid the scenario whereby impacts could occur to mobile species who take up residence within or close to works in the time between any planning approval and construction, the applicant proposes to undertake preconstruction surveys. That would allow for implementation of appropriate mitigation. Relevant target species are badger and otter. I agree with the statement in the EIAR that this is industry best practice and does not constitute a lacuna in the assessment.

11.11.36. Observers comments relating to species which are not identified as KERs include reference to Pine marten, red squirrel, pygmy shrew, hare and other species which local residents state are known to utilise lands in the vicinity of CWF. The applicant has not provided a direct response to these observations as part of the FI response but the EIAR does record some of these species. The EIAR does not provide a detailed assessment of the relevant species on the basis of relative lack of conservation importance and / or absence of likely significant impacts and this approach is acceptable. I note that a number of observations reference potential impacts on species protected by legislation. For instance Marsh fritillary butterfly, a species noted to be protected under Annex II of the Habitats Directive was recorded on the NBDC Map Viewer in 2021 – the nearest development associated with CWF is an access track and T4. The location of record of the butterfly is distant from any

proposed works and outside of the zone of influence of the proposed development. On that basis its exclusion as a KER would be reasonable. In relation to this and other protected species I am satisfied that the legislative provisions for protection could be highlighted by condition. I conclude that the assessment in the EIAR of impacts on protected species is sufficient.

11.11.37. With respect to other species which are noted to be plentiful in the area including red squirrel I have examined relevant map viewers (Article 17 and NBDC) and have not identified any obvious deficiency in the EIAR. I do not therefore consider that there is any reason to call into question the competence of the surveys undertaken and my overall conclusion is that the EIAR has identified and assessed the potential impacts on relevant species. I support the approach taken.

11.11.38. An observer references the proposed development as being likely to result in increased vulnerability to invasive species. I consider that good quality information has been presented in relation to existing species and areas to be targeted. Notwithstanding the extensive area over which the proposed development would be spread I am satisfied that the control of non-native invasive species can be achieved as described in Section 6.6.3.3 of the EIAR.

Aquatic Ecology

11.11.39. I now discuss what I consider are the main issues arising with respect to potential impacts aquatic receptors of conservation value, including otter. Observers comment that the surveys are out of date. The FI included revised surveys which provide up to date data on the aquatic ecology of watercourses within a zone of influence of the proposed development.

11.11.40. Regarding the existing condition of the watercourses it is noted that drainage and / or siltation have reduced the quality of aquatic habitats on the local watercourses including Mayne Stream, Glore River, Monktown River, Froghanstown Stream, Ballynafid Stream and the Brosna North River. Larger watercourses such as the River Inny and Glore River support the best quality aquatic habitats within the vicinity of the proposed wind farm for aquatic receptors of conservation value, such as salmonids, lamprey, otter and white-clawed crayfish.

11.11.41. Regarding the effect of the proposed development the submission of the applicant is that following implementation of the water quality mitigation measures presented in the EIAR there will be no significant impacts on aquatic species.

Subject to the applicant being in a position to implement the mitigation measures described I accept this conclusion. A number of the relevant measures are within the applicant's control; that would include the site drainage measures (meaning the system within the application red line boundary) which are designed for the construction and operation of CWF. The locations of proposed mitigation measures are shown on drawings D101 to D107 and a further suite of water quality parameters are presented as part of the water quality monitoring proposals at locations along the Glore and Inny Rivers. The network of peat and forestry drains will be integrated and enhanced. The drainage infrastructure which is to be constructed within the application site will be integrated with the existing drainage network in the peatlands. I accept that the EIAR presents suitable measures to avoid adverse water quality effects. My concern (as discussed elsewhere) relates not to the nature of the proposed mitigation measures but to the applicant's ability to implement those measures and to manage and maintain the peatlands drainage so that there is no uncertainty regarding water quality deterioration and impacts on biodiversity.

11.11.42. I will now examine the potential for significant impacts on particular habitats and species. The applicant's assessment of potential impacts on the River Glore, River Inny and aquatic receptors is presented in table 6 – 30 of Chapter 6 of the EIAR. Subject to the effective operation of the site drainage measures presented I accept the conclusion presented by the applicant that there is no potential for significant effects on the relevant habitats and aquatic species including salmonids, lamprey, coarse fish, white-clawed crayfish, European eel, aquatic invertebrates and other aquatic species. The River Inny is an important ecological corridor and of high ecological and recreational value for coarse fish and European eel. The River Glore survey sites are of value for salmonids and lamprey. The potential for effect is acknowledged by the applicant and is deemed to be fully mitigated. It is the applicant's position that there will be no significant impact on the aquatic habitat of these species in the operation phase. If the EIAR measures can be implemented in full I consider that there is reasonable basis for the applicant's conclusion.

11.11.43. With respect to potential effects during construction on Otter the species is recorded in the vicinity of CWF on the River Inny and River Glore but no evidence of holts has been identified. Leaving aside the issue of water quality deterioration referenced above the mitigation measures set out for otter including ensuring continued safe access for otters along the river corridor, the undertaking of

preconstruction mammal surveys are likely to be successful in preventing impacts. Water quality deterioration could impact otter prey but if this is avoided, I accept the applicant's submission there will be no significant residual effect on otter as a result of the proposed development taking into account the assessment of potential impact in table 6 – 27 of Chapter 6 and supplementary submissions.

11.11.44. I note that no significant habitat for salmonids, lamprey, coarse fish, white-clawed crayfish, European eel, aquatic invertebrates or other aquatic species were recorded within the footprint of the proposed development, that clear span bridges are to be used and no instream works are proposed and, as a result, potential for significant effects on the above aquatic species is restricted to indirect effects on their habitat resulting from water pollution.

11.11.45. Regarding the potential impacts on salmonids and lamprey subject to prevention of deterioration of water quality during construction no significant effects can be anticipated. I accept this conclusion.

11.11.46. I have commented on the potential impact on white-clawed crayfish under the heading of AA at section 12.0 of this report. The species has been found in abundance in a short stretch of the Brosna close to Lough Owel, which is a European site but is not otherwise present in high levels throughout the study area. There is no likelihood of significant biodiversity effects (excluding AA) due to the low levels of records of crayfish reported in surveys close to CWF and no significant habitat for the species will be impacted.

11.11.47. In conclusion with respect to aquatic ecology, it is appropriate to reiterate that a comprehensive suite of mitigation measures have been proposed by the applicant including measures to prevent water quality deterioration. I accept that these are effective and proven types of measures and I consider that they are described in sufficient detail in the application documentation. However, I have serious reservations regarding the applicant's ability to implement these measures and thereby prevent water quality deterioration. My reservations are outlined elsewhere and relate to legal and management issues. I therefore conclude that there is significant doubt over the implementation of water quality mitigation measures on which the EIAR is reliant. It follows that the conclusions presented in the EIAR that there will be no significant effects on aquatic ecology is not robust.

11.11.48. <u>Conclusion</u>

11.11.49. The following are relevant conclusions with respect to biodiversity effects:

- Potential significant effects on downstream species and habitats cannot be ruled out due to uncertainty relating to surface water management and peat instability.
- Significant operational phase effects on bats, which are mitigated by suitable measures involving smart curtailment at specific turbines and a full suite of post-construction bat surveys which require further detailed agreement.

11.12. Ornithology

EIAR

11.12.1. The consideration of likely significant effects on bird species is presented in Chapter 7. The EIAR identifies Key Ornithological Receptors. One Very High Sensitivity KORs is identified namely Greenland White-fronted goose. Medium Sensitivity KORs include Whooper swan, Golden plover, merlin, Peregrine falcon, Osprey, Red kite, wigeon, teal, Black-headed gull, lapwing, woodcock and Barn owl. KORs identified in the study area which were classified as Low Sensitivity are Long-eared owl, buzzard, sparrowhawk, kestrel and Common snipe.

11.12.2. The potential for effects on birds is described as being associated with habitat loss and disturbance, collision and cumulative effects. The assessment is that such effects would be no greater than long-term moderate negative effects based on the EPA definitions and of low effect significance based on Percival, 2003. The basis for this assessment is described in detail in a series of tables which present an impact characterisation for key species. The tables present an assessment for the construction and operation phases based on information from the surveys undertaken, consideration of the location of elements of the proposed development and the likelihood of displacement and barrier effects and collisions taking into account the results of the collision risk analysis presented in Appendix 7 – 5 of the EIAR. Tables 7 – 12 to 7 – 29 refer.

11.12.3. Separately there is consideration in section 7.8.4 of the effects associated with the GCR and the TDR and other works including the construction of the 1.2 km link road. Potential to impact breeding lapwing and Barn owl is identified as potentially resulting in short-term moderate negative effects. Barn owl breeding

could be impacted by construction disturbance and construction works will be prohibited between March and August and within a 500 m radius of a known breeding site. In addition pre-construction surveys will be undertaken. As mitigation for lapwing no construction works are permitted 1st of March to the 31st of August inclusive within a 350m radius of the lapwing breeding territories. With respect to both lapwing and barn owl confidential appendices are provided.

11.12.4. The general construction phase mitigation measures are presented in section 7.9.2.1 and include the overseeing of works by an ECoW. No mitigation was deemed necessary for the operation phase. Decommissioning measures are outlined.

11.12.5. It was concluded that based on Percival 2003 an effect significance of greater than Low was not identified for any KOR. Or in terms of the EPA criteria an effect significance of greater than Slight was not identified for any KER. An assessment of cumulative effects is undertaken. As no significant effects on receptors of international, national or county importance were identified and important migratory routes for species were not identified and no residual effects were identified with regard to habitat loss, displacement collision mortality it is concluded that there is no potentially significant cumulative habitat loss, disturbance, displacement or collision risk effects.

Observations, Further information, Further Observations and Applicant Response

11.12.6. Observations of note include the submission of DHLGH. With respect to impacts on birds the matters raised include the need to undertake a collision risk for lapwing in the breeding season. The collision risk for Peregrine Falcon is described as significant on the local breeding population.

11.12.7. Third party observers reference the breeding of cranes and the importance of the area for buzzards, owls and waterbirds. Issues relevant to AA are relevant also. Methodology and mitigation are questioned.

11.12.8. The applicant's FI submission is summarised in Dr Flynn's report. Regarding ornithology noteworthy elements of include:

- The additional 13 months of bird survey data, the justification to the approach and model used, the addition of V6. The findings of the previous bird surveys or collision risk modelling presented in the EIAR were not altered.

- The lack of nocturnal bird surveys was justified. The SNH methodology was adhered to.
- The use of out-of-date scientific information and the applied methodology including Percival and Band Model for estimating bird collisions was justified.

11.12.9. Further observations do not raise issues relating to ornithology

11.12.10. Applicant response – no comments relevant to ornithology.

Assessment

11.12.11. I now turn to what I consider are the significant matters relevant to the assessment of ornithology taking into account the applicant's submissions and responding to observations on this topic. I begin with an evaluation of matters relevant to survey and methodology and then move to briefly considering some of the individual birds which might be adversely impacted. My focus is on the species which are most likely to be adversely impacted.

11.12.12. An observer states that the research prepared in 2003 by Steve M Percival was a desktop study of available literature, is outdated and was not based on information from Ireland. Dr Flynn states that the bird species in Ireland that are vulnerable to windfarm development are covered, that it includes an impact assessment approach based on scientific data and that when combined with consideration of McGuinness et al (2015) and BOCCI the approach follows best practice in impact assessment. I accept Dr Flynn's conclusion.

11.12.13. An observer references a flock of approximately 120 Whooper Swans feeding in a field close to Lough Derravaragh and states that they fly to that area at night. The birds are shown in an attached photograph taken in January 2021. The matter of the adequacy of survey including with respect to night-time activity was identified by DHLGH and the applicant responded in detail on this matter. The applicant states that the survey approach is in line with current best practice set out by SNH and notes that recommended methods for geese and other wildfowl is surveying between dawn and dusk including the hour before sunrise, the diurnal daylight hours and the dusk period and that this was achieved as is noted in Appendix 7 – 2 of the EIAR. Dr Flynn's report assesses this point and she notes that use of radar is recommended by SNH only for the assessment of sites where there is likely to be high nocturnal activity of important species. Given the levels of bird activity recorded at the

windfarm site and the inclusion of evening surveys over a number of years she considers that the additional survey effort of conducting specific nocturnal surveys would not be standard. DHLGH did not provide a response to the further information received which was circulated to them. I accept Dr Flynn's conclusions on this matter.

11.12.14. DHLGH note that the submitted waterfowl surveys were above the requirements of the SNH guidance. I consider that matters raised in observations in relation to species which are not explicitly identified as SCI species for European sites in the vicinity are addressed under the category of wetlands and waterbirds which is relevant to those European sites. Therefore there is no need for further comment under this section regarding species such as diving duck as the assessment of wetland and waterbirds under AA refers. This is relevant also to Lough Kinale and Derragh Lough.

11.12.15. With respect to the overall adequacy of the bird surveys I note that the FI submission includes an additional 13 months of bird survey data which was incorporated into revised collision risk modelling. Dr Flynn's report justifies the assessment approach comprising collision risk modelling. In the FI request coverage of the site for bird surveys and the viewshed utilised was specifically raised in response to the comments of DHLGH on this matter. An additional vantage point was included in the most recent round of bird surveys. In my opinion the approach taken has been adequately justified. Dr Flynn accepts that the applicant has provided sufficient scientific rationale for the level of survey effort. I accept her conclusion.

11.12.16. I consider that the FI response addresses all of the significant matters raised by DHLGH and other observers. Taking into account the FI submission, including additional bird survey information and the assessment of the impacts of variations in the turbine design within the design envelope I am satisfied that the EIAR presents good quality baseline data and robustly assesses many relevant matters.

11.12.17. The remainder of this section responds to a number of specific matters relevant to the assessment of ornithological impacts including matters raised in relation to the impacts on particular species.

11.12.18. Observers state that since the cessation of peat harvesting in the area bird activity has increased and would be again reduced in the presence of a wind farm.

The point is relevant to the recommendation of DHLGH and comments of Dr Flynn that site rehabilitation should be taken into account along with consideration of the proposed development. Dr Flynn in discussing habitat rehabilitation describes the presence of a shifting baseline. She notes a lack of clarity regarding future land use / rehabilitation, which has significant implications for use of the site and for the assessment of collision risk. I discuss this further under the AA section wherein I conclude that the collision modelling undertaken is flawed. With that reservation to the fore and also the fact that there is no certainty relating to future land uses, I now respond to the observations which include significant matters for EIA.

11.12.19. Impacts on birds including the disruption of flight paths is a common theme in observations. There is no evidence from surveys to indicate that CWF is on a migratory route or regularly used commuting route for the species identified as KORs. I accept the EIA assessment approach and its conclusions with respect to this issue. I do not consider that there is any likelihood of significant effects as a result of disruption of flight paths.

11.12.20. Concerns regarding potential impacts on Greenland white fronted goose were raised by DHLGH and in other observations. The assessment in the EIAR is that it is a Very High sensitivity species and there will be Negligible Impact which corresponds to a Low effect significance. Greenland white-fronted goose was used in the EIAR as an example as it is the highest sensitivity species identified as a KOR. The significance of the potential impact is classed as a short-term slight negative effect following EPA criteria. I note the discussion under the FI with reference to Greenland white fronted goose and Whooper swan and the submission of the results of further surveys. The surveys show that the current flight activity patterns for Whooper swan are mainly associated with the River Inny corridor. Dr Flynn's report notes that Whooper swan is recorded over the windfarm site within the collision area but that the majority are to the west, generally along the River Inny corridor. On that basis I agree that with the applicant's submission is that the CWF would not act as a barrier to movement. The survey results show that there is no regularly used commuting corridor migratory route for Greenland white fronted goose who typically are observed once every two years crossing the site based on the surveys undertaken.

11.12.21. I consider that the response to DHLGH in relation to the assessment of collision risk and nocturnal flights is adequate; The applicant's assessment assumed

that Greenland white fronted goose and Whooper swan were active for 25% of the night as well as the daylight hours. I further discuss both Greenland white fronted goose and Whooper swan under AA. I conclude for that for Whooper swan associated with Lough Derravaragh SPA and Greenland white fronted goose associated with Garriskil Bog SPA the assessment undertaken by the applicant is flawed for three reasons. First, there is no assessment of land use options other than peat harvesting. Second, there is no clarity relating to the feasibility of peat harvesting continuing. Third the collision risk modelling assumes continued peat harvesting and does not consider other scenarios. This conclusion is also relevant to populations of Greenland white fronted goose and Whooper swan who are not associated with European sites.

11.12.22. Concerns regarding potential impacts on Golden plover were raised by DHLGH and in other observations. The EIAR findings showed the highest predicted annual mortality of all species recording during surveys at 34 collisions per annum which is of concern in the context of declines of over 20% in recent years in Ireland as reported by DHLGH. The most recent surveys show no observations of golden plover utilising habitats on or within 500m of CWF although earlier surveys reported regular use of the site. Dr Flynn accepts that the data supports the fact that Golden Plover recorded at and in the vicinity of the windfarm site is a largely resident population during the winter months on local areas of cut over bog and is not a population associated with Lough Iron SPA. As such this matter falls to be considered under EIA.

11.12.23. Regarding potential impacts on Golden plover my comments are:

- I accept the applicant's conclusion that significant direct habitat loss would not be predicted having regard to the confines of the WFS. Regarding disturbance, displacement and barrier effects the 800 m zone of sensitivity refers to the breeding season. Golden plover is found commuting or circulating within the site or within 500 m of CWF in winter and is not sensitive at that time. I would generally accept the applicant's conclusion presented in table 5 – 3 of the NIS that disturbance, displacement and barrier effects are unlikely.
- Regarding potential collision effects, I refer to Dr Flynn's report which sets out the basis for the applicant's approach, which she does not dispute. The NIS

revised collision risk of 10.6 collisions per annum is a reduction in the number of predicted collisions from 34 as reported in Appendix 7 – 5 of the EIAR. Dr Flynn notes, while this re-evaluation is based on robust scientific data it is not an industry standard and is not currently included in the standard avoidance rates published by SNH. She notes in addition that uncertainty relating to future use of the peatlands calls into question assumptions on the bird collision risk models.

- The basic conclusion drawn by Dr Flynn, which I support is that the predicted severity of impacts on Golden plover are reduced by the revised assessment presented in the FI. Nevertheless Golden plover remains the species with highest possible mortality from collision risk modelling at the windfarm site. Having regard to what I consider is a poor foundation for the collision risk modelling (namely the assumption that peat harvesting will continue) I consider that significant effects on the wintering Golden plover population cannot be ruled out and that this is a relevant conclusion for Biodiversity under EIA.

11.12.24. DHLGH expressed concern regarding impacts on other bird species, in particular breeding birds including peregrine, lapwing and buzzard each of which are considered below.

11.12.25. Peregrine falcon, an Annex I species was one of the target species recorded within the zone of influence during the ornithological surveys for the EIAR. All observations were of birds flying/travelling within the proposed wind farm site and some observations were at potential collision height. The EIAR reports separately on the breeding raptor surveys and while a nesting site was confirmed in April 2016 and two chicks were fledged at a location 1.2km from the site there was no evidence to confirm use of the nesting site later although the nesting territory recorded continued to be occupied including up to 2022. The species is recovering from a severe population decline and the birds recorded are likely to be associated with a population of county importance. Potential impact is assessed in table 7 – 16. Based on a low-level use of the CWF site, the availability of alternative suitable habitat the EIAR states that there is no likely significant effects related to direct habitat loss or displacement or barrier effects in the construction or operation phases and no long-term significant negative effects. The collision risk is estimated at one bird in every 8 years but under the further information submission was recalculated at one bird

every five years which is described as a long-term slight negative affect. As is the case with other species I consider that the applicant's conclusions are undermined by the lack of assessment of scenarios other than continued peat harvesting and basing the collision risk model on that assumption. I do not therefore consider that significant effects can be ruled out.

11.12.26. Lapwing is red listed under BoCCI regarding breeding and wintering populations. The species is described as a medium sensitivity KOR. Flocks of birds have been recorded on or within 500 m of the site infrequently during both winter and breeding season surveys. Breeding lapwing were recorded north-west of Lough Bane in an area of bog where no development infrastructure is proposed. As discussed in table 7 – 22 of the EIAR disturbance impacts within 350 m of breeding habitat can occur. In addition breeding lapwing were recorded adjacent the GCR in 2019 at a location where there is little similar suitable habitat. A short term moderate negative affect as a result of construction phase disturbance is predicted. I note that mitigation measures to provide a 350 m separation between construction works in the breeding season are set out and I accept the EIAR conclusions with respect to the construction phase. Regarding potential collision risks which is the matter raised by DHLGH with respect to the breeding population the applicant notes (referring to 7.6 of the EIAR and appendix 5 of the FI response document) that no breeding season flights were recorded at potential collision height during vantage point surveys in 2016, 2017, 2018, 2019 and 2021, most likely because the birds were breeding predominantly off site and therefore collision -related mortality is not likely to significantly impact the species. I have reservations relating to this conclusion because of my overall concerns relating to the collision risk modelling as discussed in relation to Golden plover and Peregrine.

11.12.27. Buzzard is protected under the Wildlife Act and was one of the target species recorded within the zone of influence of the proposed development during the ornithological surveys for the EIAR. It is classed as a low sensitivity KOR. The raw data for the species is presented in section 7.4.25 of the EIAR. In summary the species was frequently recorded foraging within the wind farm site during breeding and winter seasons. The EIAR assessment is that there are no significant effects. DHLGH recommended that the collision risk be assessed for the breeding season. In the FI the applicant notes that the collision risk is 3.7 collisions per year and 2.4 for the breeding season which is broadly in line with the information presented in the

EIAR. The critical point in my opinion in terms of the applicant's conclusions is that the favourable conservation status of this species (Green-listed BoCCI) limits the potential for ecologically significant effects to arise. I therefore accept the conclusion presented with respect to this species.

11.12.28. Residents have raised concerns regarding White-tailed eagle. The species was ruled out in the EIAR assessment as a KOR on the basis that it was recorded only once during extensive surveys, is not therefore in numbers of ecological significance and there is no breeding or roosting evidence and nothing to suggest the site is of significance. The additional bird surveys presented as part of the FI response does not identify the species. I note that there has been no concern raised by DHLGH with respect to potential impact on the White-tailed eagle. I accept the applicant's assessment.

11.12.29. The sufficiency of the data collected and impacts on passerines was raised by DHLGH which commented on the survey data describing it as insufficient with regard to meadow pipit and skylark. As noted earlier further survey data was presented with the FI and is deemed to be sufficient. The potential for impact on meadow pipit and skylark and cuckoo arises as a result of loss of habitat as noted by DHLGH. As noted in Section 7.6 of the EIAR as per SNH guidance, it is generally considered that passerine species (primarily due to their large populations) are not significantly impacted by wind farms. For this reason and having regard to the grassland habitat at T15 , which is not a rare habitat, significant effects are ruled out by the applicant. I note that Dr Flynn refers to this matter as not being addressed by the applicant in responding to FI. Equally however she does not raise significant concerns relating to the potential for impacts on these species. I consider that the applicant's assessment is sufficient and that the conclusion can be supported. I have no basis for concluding that there is any likelihood of significant effects on these species.

11.12.30. An observer references cranes nesting in the Midlands for the first time in 300 years. Dr Flynn notes that the applicant did not respond to this point in the further information submission. Cranes are not mentioned in Chapter 7 of the EIAR. In the absence of a more authoritative comment from the observer it is difficult to establish a connection with the WFS. The EIAR is based on long-term studies of birds in this area and I can only assume surveyors did not recorded the species within the zone of influence of the proposed development or such sightings would have been

referenced in Chapter 7. For these reasons I consider that there is no basis for concluding that there is any likelihood of significant effects on cranes.

11.12.31. Woodcock surveys were reported by DHLGH as being out of date. Observers have referenced the presence of Barn owl and Long-eared owls. These are reported in the EIAR and discussed in the FI. I note the applicant has not responded to DHLGH with respect to the date of the original survey (2016-2017) . However the FI submission Bird Survey Report indicates that Woodcock surveys were undertaken in areas of suitable breeding habitat during May and June 2021 and that this method allows for survey also for Barn owls and Long-eared owls. . With respect to the adequacy of surveys for the species the applicant's submission is that the surveying for breeding woodcock which took place, and which commenced one hour before sunset, and continued for one hour after sunset would be adequate for these species to be identified. I accept the methodology set out for survey of the woodcock and barn owl and long eared owl. The surveys are adequately up-to-date and the approach is acceptable having regard to the comments of Dr Flynn with respect to nocturnal survey as reported earlier.

11.12.32. Long eared owl, which is green listed in Ireland is deemed to be of local importance (higher) as it is a resident/regularly occurring population. The assessment of this KOR in table 7 – 25 of Chapter 7 of the EIAR discusses the potential for direct habitat loss, displacement and barrier effects and collision as relevant for the construction and operation phases. At most some long-term slight negative effects are identified. I consider that the assessment is robust and I accept the conclusions.

11.12.33. Barn owl is red listed during the breeding season in Ireland and was heard calling and is understood to be breeding within a farmyard at the eastern edge of the WFS 1.2 km from the closest turbine. It was assigned a county importance. It was identified as a KOR of medium sensitivity. Table 7 – 24 sets out the potential effects during construction and operation. With respect to the construction phase there is potential for long-term slight negative effect due to loss of agricultural grassland habitat and short term moderate negative effects from disturbance and due to construction works within 500 m of the building which is deemed to be a probable breeding site. Specific mitigation measures target this species including the avoidance of construction work within 500 m of the breeding site between March and

August and resurveying prior to construction. I am satisfied that there is sufficient knowledge and suitable mitigation and that no significant residual effects are likely.

11.12.34. On the general point of potential effects including as a result of habitat loss and displacement and disturbance during construction and potential collision risk in the operation period I am satisfied with the assessment undertaken (including consideration of cumulative effects) for all bird species which are identified as KORs in the EIAR. I note in addition that the EIAR in section 7.9.2.1 – section 7.9.2.3 sets out a range of measures which will benefit ornithology and I am satisfied that these measures are likely to be successful. I refer to the appointment of the ECoW who will have responsibility for the overseeing of ornithological issues as they arise and will undertake a preconstruction transact/walkover bird survey in addition.

11.12.35. With respect to potential increases in collision due to the effects of aviation lighting the applicant response to DHLGH concerns in the FI submission. It is noted that the taxonomic groups which are more likely to be attracted to lights are burrow nesting seabirds and nocturnally migrating species especially passerines. No key ornithological receptors from either of these groups was identified and no significant effects are therefore predicted. I accept this conclusion.

11.12.36. With respect to the national objective under the National Biodiversity Action Plan to achieve no net contribution to biodiversity loss arising from development projects DHLGH raised this issue in the context of potential impacts on local and migratory bird species from the operational phase of the proposed development. The applicant has responded in the FI noting that the development will not result in significant effects on biodiversity including local and migratory birds. Dr Flynn notes that this is not the same as no net loss of biodiversity. She notes that there has been a failure to engage in meaningful biodiversity net gain. I consider that had the opportunity been taken to design the wind farm in conjunction with a rehabilitation plan for some or all of the lands within the blue line, this matter might have been addressed or at least an offset made for biodiversity losses. As it is the approach taken leaves considerable uncertainty.

Conclusion

11.12.37. I conclude that the likely significant effects on ornithology are:

- Potential significant collision risks on birds including wintering Golden plover, Peregrine falcon and lapwing cannot be ruled out as the collision risk analysis

is based on the assumption that peat harvesting will continue and does not take into account other scenarios including rehabilitation.

11.13. Landscape and Visual Impacts

Environmental Impact Assessment Report

11.13.1. The Landscape and Visual Impact Assessment (LVIA) in Chapter 12 refers. The proposed development has evolved utilising mitigation by good design. The turbine layout creates a coherent cluster which together with the site location minimises the potential visibility. A study area of 20 km radius from the outer turbines was used, including lands within Meath and Longford and Cavan and the development plan policies including designated views and prospects were reviewed. 22 photomontages describe and illustrate views from representative viewpoints.

11.13.2. The WFS is in a flat in land area of cutover bog, forestry and agricultural land containing major lakes and watercourses and isolated landforms including the location of the nearby Hill of Mael / Rock of Curry and Mullaghmeen and features of cultural heritage interest some of which are at elevated sites.

11.13.3. The WFS is designated in LCA 2 the River Inny River Lowlands. A preliminary assessment of other LCAs is described in section 12.5.6.1. A detailed assessment is provided in Appendix 12 – 2 which determines the likely significant effects on landscape character and is summarised in 12.8.2. At most the significance of landscape character effect is assessed as Slight based on the EPA guidelines.

11.13.4. The theoretical visibility of CWF1 is presented in figure 12 – 6. The additional theoretical visibility of the proposed 15 turbine layout is represented in a light colour.

11.13.5. 22 no. Viewpoints were used in the preparation of photomontages. Following the SNH guidance there are a range of views shown at a range of distances and aspects and at varying elevations. 11 no. views are taken within 5 km of the WFS. The selected viewpoints include locations from or close to local settlements, viewpoints from scenic or protected areas and locations where there are extensive panoramic views. Various other selected sites include Granard Motte, the Inny River, Mullaghmeen forest and Fore Abbey.

11.13.6. Figure 12 – 8 shows designated views and prospects in the adjoining counties and also walking and other recreation trails and transport routes including roads and

railway. Figure 12-9 shows the half blade ZTV imposed on those receptors. A description is provided of the theoretical visibility of the proposed development from the scenic routes and from recreational and tourist routes. A route screening analysis is presented in figure 12 – 10 and this shows locations where there are clear and open views, intermittent or partial screening and routes where there is dense screening. The presence of roadside screening is important in the context of the relatively low elevation of the site and surrounding areas. Within 1 km of the WFS intermittent screening is the most common category

11.13.7. The cumulative baseline includes a single turbine of blade tip height of 152 m at Ballyjamesduff. This is the only existing turbine within the LVIA study area of 20 km. This turbine was not visible in any of the 90° photomontages and no cumulative visual effects were recorded in any of the photomontage viewpoints. The windfarms which are over 20 km but within 25 km of the proposed development were scoped out due to the unlikelihood of significant cumulative landscape and visual effects.

11.13.8. The viewpoint assessment was undertaken from 22 viewpoints locations. Individual assessments from these locations are presented in appendix 12 – 3 and summarised in table 12 – 14 which should be read in conjunction with the photomontage booklet in volume 2. The significance of the residual visual effect was not considered to be profound, very significant or significant at any of the 22 viewpoint locations but instead the viewpoints were assessed as resulting in a moderate (4), slight (11), not significant (2) or imperceptible (5) residual visual effects.

11.13.9. The construction phase visual effects over the 12 to 18 months of construction will involve movement of vehicles, forestry clearance, peat extraction and other works. Extraction at the borrow pit will result in short-term slight negative visual effects which would be mitigated by reinstatement. The substation will be visually screened as it is within an area of forestry.

11.13.10. The operational phase visual effects of the turbines has been assessed using the ZTV, the route screening analysis and the photomontages. Several viewpoints which indicated full theoretical visibility based on the ZTV map were found on visiting to have no visibility of the proposed turbines as a result of the screening and several of these were protected views which consequently were not included in the

photomontages. The photomontages show that potential effects range from no impact to full visibility of all 15 turbines to views where only blade tips are visible.

11.13.11. In conclusion in relation to protected views a number have been represented and a number of these show visibility of turbines but in all cases the turbines are an element of the view, do not obscure dominator detract from its main elements and the overall effect is considered slight to moderate.

11.13.12. Regarding landscape effects, the landscape effects of the turbines are minimal although limited amount of felling in the order of 16.36 ha will be carried out. The latter would be part of outgoing forestry operations and would not be regarded as significant. The landscape character of the site and the Inny River Lowlands LCA within which it lies will undergo a degree of landscape change as a result of the proposed development. While the visual effect of the turbines will be perceived the landscape character of sensitive areas such as lakes, amenity areas and designated views is not likely to undergo a change in character. The landscape elements close to the site which have value including Mullaghmeen, the Hill of Mael / Rock of Curry, Tullynally demesne, and various lakes will remain as key elements in the landscape and the turbines will provide an additional element. The turbines do not encroach upon or significantly impact on these key elements of the landscape and the overall effect on landscape character is likely to be long term, slight to moderate effect.

11.13.13. The landscape effects which have been identified relate to a development which will be located in an area of cutover peatland coniferous forestry and agricultural land and in relation to which the development plan identifies cutover peatlands as the preferred location for large-scale wind energy production. The proposed development has a small footprint and landscape effects are localised and will be more pronounced during the construction and in relation to the removal of forestry and excavation of the borrow pit. Overall, landscape effects on the wider landscape will range from long term, slight to moderate effect.

11.13.14. Cumulative visual effects were not recorded in relation to the single turbine at Ballyjamesduff which was not visible in any of the 90° photomontages and only just discernible in the 120° key image from viewpoint 18. Cumulative visual effects along with any potential peat extraction activities are imperceptible and extremely localised. Felling and replanting are ongoing. Potential impacts associated replanting are assessed in appendix 4 – 6 of this EIAR.

11.13.15. Cumulative landscape effects do not arise there are no other wind farms in close proximity and the cumulative landscape effects are localised.

Observations, Further information, Further Observations, Applicant Response

11.13.16. Observers submissions address a wide range of issues relevant to LVIA. These include concerns relating to the technical production of photomontages, selection of viewpoints, assessment of scenic views, potential for impacts on sensitive residential receptors and matters relating to the suitability of landscape character for a development of this nature and scale.

11.13.17. The further information includes a written report presented (Appendix 6) and photomontages (Appendix 7). The new photomontages respond to the clarification provided on the range of turbine envelope configurations. Irrespective of turbine model within the range outlined the significance of landscape and visual effects will not be altered. 3 no. viewpoints selected are representative of short-range views (viewpoint 07, 1.26 kilometre from CWF), medium-range views (viewpoint 21 – 5.3 km from CWF) and long-range (viewpoint 14 – 16.5 km from CWF). For these 3 selected viewpoints the 2 no. alternative turbine configurations are included in the photomontages. It is extremely difficult to determine any difference that would arise. The residual landscape and visual impacts set out in the EIAR will not be altered.

11.13.18. The further observations reiterate comments relating to the depiction of the turbines in the photomontages which is considered inaccurate and misleading.

11.13.19. The applicant's response comments briefly on the scale and proportion of turbines, the rendering of the turbines and the A1 presentation utilised.

Assessment

I consider it relevant for the purposes of this assessment to address:

- the adequacy of the applicant's documentation and the overall approach to the environmental topic of landscape and visual impacts
- the suitability of the proposed development in terms of the LCA
- the impact on protected views and scenic landscapes and recreational routes and the significance of effects.

11.13.20. There is an overlap between this section of the EIA and the consideration of indirect effects on cultural heritage assets as some of the cultural heritage assets are

also in high amenity areas or areas which are visited by tourists and members of the public. Throughout I respond to the significant points made in observations.

11.13.21. I first refer to the overall approach to the assessment of landscape and visual effects and the adequacy of the submitted documentation. I describe the policy context and also the guidance relied upon.

11.13.22. In terms of the overall approach the policy context is important. In this case there are three adjacent county development plans to be considered and these have been taken on board in the applicant's submission. While the 2021 – 2027 Westmeath County Development Plan came into effect on May 3, 2021 I note that the submitted FI response does not reference the new plan in relation to the topic of LVIA. This is unfortunate in the context of the considerable discussion in Chapter 12 alleging a lack of clarity relating to the description of protected views under the 2014 – 2020 WCDP. I have reviewed the newly adopted plan and note that it continues to identify cutover peatlands as the preferred location for large-scale wind energy production. As such the overarching strategic guidance has not changed. Furthermore, I am satisfied that the applicant's LVIA allows for assessment of all elements of the development plan, including protected views and does not contain any omissions which might be significant for the purposes of this application. This conclusion takes into account the high degree of similarity between the relevant plans in relation to the protection of views and landscapes and the consideration of the draft development plan in the selection of viewpoints presented by the applicant. Regarding the adjacent counties of Cavan, Meath and Longford the LVIA presented sufficiently assesses the designated landscapes and the significant relevant protected views.

11.13.23. I note that observers reject the EIAR conclusions relating to the characterisation of significance of effects on views and landscapes. This is relevant also to some comments made in connection with the setting of archaeological monuments and I will not repeat the point below. In interpreting the EIAR throughout the meaning of terminology relies on the EIAR guidelines published by the EPA in May 2022. I also note the applicant's FI response in Appendix 12 – 1 which addresses the matter of assessment of landscape and visual effects. I am satisfied that the EIAR conclusions are reasonable having regard to the meaning of the various terms as reported in table 3.4 of the guidelines. So, for example while observers disagree with the characterisation of effects as Slight, this term

acknowledges noticeable changes in the character of the environment but these changes do not affect the sensitivity of the landscape or view. It is also relevant to reference the significance of the predicted effect which is a combination of factors including the sensitivity or significance of the existing environment. As such in a low sensitivity landscape a moderate change may occur without there being a moderate effect.

11.13.24. I am satisfied with the overall approach adopted by the applicant in the LVIA which addresses both the construction and operation phases. Noteworthy and useful assessments include a standard ZVI, a route screening assessment and the preparation of 22 no. photomontages and wireframe images which are in accordance with relevant Landscape Institute and IEMA 2013 guidance. The availability of this guidance from another jurisdiction and its relative sophistication is such that its use in Ireland is accepted practice.

11.13.25. A significant point made by observers relating to the applicant's submission concerns the selected viewpoints and the accuracy of the photomontages which are an important part of the LVIA undertaken. With respect to the selected viewpoints I am satisfied that the locations selected a representative of near and distant views, that a suitable range of landscapes has been considered and that the relevant protected views and monuments are included. Observers reference the need to consider a zone wider than 20 km. I note that the applicant's assessment has extended beyond that zone where considered appropriate, notably in consideration of the Hill of Uisneach which is 28km from the WFS. The observers also reference a need to assess views from individual gardens proximate to the proposed development. The applicant has instead adopted to include representative viewpoints from public roads to capture local effects. I consider that this is sufficient for the purposes of assessing visual effects and I do not consider that the addition of a view from a rear garden would comprise essential information for the assessment of this application.

11.13.26. Regarding the actual photomontages a range of technical comments are made by observers including in response to the submitted FI. It is claimed that the images are inaccurate and misrepresent the impact of the proposed development. I do not propose to revisit the comments made by the parties but I would note that the main concerns expressed by observers relate to the accuracy of the turbines in the landscape including details such as the width of the blade and furthermore to the

colour depiction which is considered inaccurate and not representative. I consider that it is reasonable to conclude that the visibility of turbines will vary significantly depending on weather and light conditions as well as the observer's location. It is reasonable that the representation of the photomontages is done in a way which adjusts colour to ensure contrast and I do not consider that the tones selected underestimate the visibility. In my opinion there is no reason to dispute the accuracy of the photomontage presentations. I am satisfied that they follow the relevant guidance and note that they include 90° and 53.5° images as is standard. I accept the applicant's response that the images were not manipulated.

11.13.27. The report of the Chief Executive of WMCC references the proportions of the turbines and the ratio of diameter to height results in the turbines being dominant in appearance. Observers note increased blade dimensions compared to CWF1. I agree that this aspect of the proposed turbine design is not ideal and I consider is not noticeably different in the three models described. However, the modification of the blade length would reduce output significantly and on balance would not in my opinion be appropriate in this case. Again I revert to the low sensitivity of the landscape type and the compact layout of turbines on site and on that basis, I accept the turbine design selected. It is inaccurate to state that the selected options presented in the FI submission are higher than 175m - there is no increase in maximum tip height.

11.13.28. I now turn to consideration of the suitability of the proposed development in terms of the landscape character. The WFS is within the LCA 2 River Inny Lowlands, which unlike other nearby landscapes such as Lough Sheelin, Sliabh na Calliagh Hills (Loughcrew) or Hill of Uisneach would not be a landscape character type which would be described as of moderate or high sensitivity. The report of the Chief Executive of WMCC recognises the modified nature of the landscape, describing it as a working landscape. I accept the assessment by the applicant that the landscape sensitivity to windfarm development would be described as low and that the magnitude of change as a result of the development would reasonably be described as moderate and the significance of the landscape character effect based on the EPA terminology would be slight. Notwithstanding the scale of the turbines, which will alter a small area of land and in places will be highly visible and will modify the landscape character, my conclusion with respect to LCA 2 is that the development would not result in significant adverse landscape effects. I note the

extent of roadside screening which will reduce visibility from large areas within the LCA.

11.13.29. Regarding landscapes of high sensitivity within Westmeath and adjacent counties the relevant landscapes of high sensitivity are Hill of Uisneach and, in county Meath, Lough Sheelin and Slieve na Calliagh Hills (Loughcrew). There would be very limited visibility of the proposed development from these landscapes of high sensitivity which are distant from the site. As such the landscape effects are mitigated by distance and would be not significant.

11.13.30. I accept the EIAR assessment in relation to construction phase visual effects which would be short-term and in general highly localised slight negative visual impacts. The landscape effects of the turbines will be fully evident in the operation phase. There would be localised landscape effects but no significant landscape effects relating to the construction of the proposed development.

11.13.31. It is the operational phase visual effects which are of most concern. Overall the EIAR assesses the significance of the residual visual effect to be moderate (4), slight (11), not significant (2) or imperceptive (5) residual visual effects at the 22 viewpoints. The ZTV illustrates theoretical visibility while the route screening map together with the photomontages when considered together present a more comprehensive understanding of the visibility. I agree with the conclusion drawn that within the 20 km radius there are likely to be many areas where visibility is restricted and many areas from which there will be clear views of the proposed turbines. The EIAR quantifies visibility in the photomontages and indicates locations where only blade tips are visible and other locations where the full turbine length may be viewed.

11.13.32. Regarding the localised visual effects within 5 km of the WFS there is theoretical visibility of 12 – 15 turbines from viewpoints 2, 3, 4, 6, 7, 8. I agree that in reality there is considerable roadside screening. Notwithstanding that there will be moderate change I do not consider that there would significant visual effects. The assessment of the viewpoints by way of photomontages and wireframes within the immediate vicinity of the WFS is robust and no significant adverse visual effects result.

11.13.33. I acknowledge that within the 5 km zone some houses will have direct views to the turbines and that there will be a change to the landscape which residents may experience as an adverse visual effect. However because in almost all cases the

700m separation is achieved and, in some cases, due to the presence of screening features or house orientation, these views are mitigated and would not be considered to comprise significant adverse effects.

11.13.34. H14 requires separate consideration as it has been identified as a non-benefiting house, which may experience exceedances of noise and shadow flicker and is within 700m of T11 and close to other turbines. I am satisfied that the adverse visual effects on this property would be mitigated by distance, which is in the order of the 700m required under guidance to minimise visual impacts.

11.13.35. I now refer to the protected views and scenic landscapes and routes within 10km from the WFS and the significance of effects. In my opinion the critical concerns relate to the protected views and (as discussed in the next section) to views which impact the setting of architectural, archaeological and cultural heritage locations. Map 67 of the WMCDP 2021-2027 shows protected views and attributes a reference number, direction and significance objective CPO 13.81 is to protect and sustain the established appearance and character of these views. Regarding protected views I am satisfied that the submitted information is sufficient for the Board to make an assessment of the impact. I draw attention to the following as a representative sample of the protected views and recreational assets within 10km of the WFS:

- Protected View 25 is from Lough Derravaragh Caravan Park and piers and park along lake shore. The focus of this view is Lough Derravaragh to the north and northwest. Having regard to the screening afforded by the vegetation around the site and the identified focus of the protected view which is towards the lake in a north / northwest direction I do not consider that CWF would be considered to be unacceptable by reason of its visibility in that landscape or its contribution to landscape change.
- Protected View 27 is to the south / west in Coole village, is of bogland which is not part of the WFS. There will be no long-term landscape or visual impacts from the proposed development which could impact the area relevant in terms of the protected view as CWF is not within the viewshed. I do not accept the observers comments that there is a need for further assessment of visual effects from the village.

- Protected View 24 is a panoramic view of countryside from L-5821 which looks northwest over extensive areas of bogland and has distant views of Lough Derravarragh and is of local significance. This is approximately 10km from the WFS. As the WFS would comprise a small component in the landscape and due to the local significance of the view I do not consider that CWF would be considered to be unacceptable by reason of its visibility in that landscape or its contribution to landscape change.
- Protected View 29 is of Lough Glore and surrounding landscape from the R-195 near Mooretown Crossroads in the vicinity of Fore Abbey. Lough Glore and surrounding landscape is the focus of this view. CWF is about 10km away. From the highest point on the road, the view stretches far with the Hill of Mael, which is clearly visible on a clear day and would interfere would views to CWF. My assessment of View 22 from Fore refers. At Fore there are walking routes which are identified as scenic routes from which there will be limited visibility of two turbines based on the applicant's assessment which I accept.
- Regarding views from Mullaghmeen Forest beech woods and amenity area, I agree that the views from this afforested area will be limited and I am satisfied that CWF would not detract from the enjoyment of this recreational amenity.
- Protected View 32 is of Hill of Mael and Mullaghmeen from the R-394 Regional Road. The focus of this view is the Hill of Mael and Mullaghmeen to the northeast. The development plan attributes a local significance to this route and also acknowledges that there are stretches of the road which have no clear line of sight due to the tall vegetation at the side of bogs. I do not consider that the intermittent visual impacts would warrant a refusal of permission.
- Protected View 35 is of Lough Sheelin from Local road L-1771 near Mullaghmeen. The focus of this view is Lough Sheelin in the distance, which is to the north and away from CWF. There will be no impact on this view.
- Tullynally Castle demesne is an important tourist attraction but also would not have visibility to CWF based on the ZTV.

- WMCC requested that the River Inny bridge be included as a photomontage. CWF would be screened from views by forestry.

11.13.36. The above comprises a sample of views at different types of locations within roughly a 10km distance from the WFS which I consider is the zone within which the most significant visual impacts will arise. I note that observers reference the absence of a photomontage from the Hill of Mael. As this local landmark is not protected and is not heavily used as a recreational asset, I consider that its omission is acceptable. There will be clear views from the Hill of Mael, in keeping with the views from other locations proximate to the WFS. I do not consider that a refusal of permission would be warranted for reason of this effect notwithstanding the scale of the turbines and proximity to Hill of Mael. My overall conclusion relating to landscape and visual impacts close to the WFS is that there will be no significant adverse visual impacts. I have arrived at this conclusion following consideration of the observations, the EIAR and site inspections.

11.13.37. At a wider distance between 10 and 20 km from the WFS visibility is described in EIAR including from Lough Lene, Frewin Hill and Sliabh na Calliagh / Lough Crew and Hill of Uisneach. In particular I consider that the highest level of protection should be afforded to Sliabh na Calliagh / Lough Crew and Hill of Uisneach given their importance for visitors and cultural heritage. Protected View 36 from Hill of Uisneach is protected in all directions and is described in the development plan as being of national significance. It is approximately 28 km from the WFS. The development plan notes that the immediate terrain makes up much of the view foreground, beyond which is the surrounding working landscapes. I agree with the conclusion presented that at a distance of 28km the impact will be imperceptible. The view from Sliabh na Calliagh / Lough Crew which is also protected is at a distance and 11 turbines will be partly visible. There would be very little impact on this protected view as CWF would comprise a very small area within the views from lands adjacent the passage graves. I am satisfied that the development plan objectives to protect these and other protected views are not undermined by the proposed wind farm.

11.13.38. In the next section I give further consideration to indirect effects on cultural heritage assets have been referenced above to some extent and is now given further specific consideration.

11.13.39. In conclusion with respect to landscape and visual effects I do not consider that there are any significant adverse residual effects which would warrant a refusal of permission or significant amendment to the proposed development. I have undertaken an evaluation of the effect of the development on the protected views on landscape and the monuments, buildings, gardens and locations of heritage interest, which at times are also relevant sites for recreational and tourist uses. I am satisfied from this examination that the proposed development would not result in significant adverse effects on the landscape, on protected views or on the setting of features and places of archaeological and architectural heritage interest. This takes into account cumulative impacts and has regard to the development plan policies which I am satisfied are not contravened. I do not accept that the proposed development would by reason of landscape or visual effects or the impact on archaeology, architectural or cultural heritage undermine the promotion of local tourism including Ireland's Hidden Heartland.

11.13.40. The following are relevant with respect to the landscape and visual impacts.

- Landscape and visual impacts due to the introduction of large wind energy turbines which will have localised landscape effects and will change the existing visual context, which is mitigated by the compact layout and the topography.
- Impacts on the setting of protected landscapes and views and recreational assets which are mitigated by existing screening and by distance.

11.14. **Archaeology, Architectural and Cultural Heritage**

<u>Environmental Impact Assessment Report</u>

11.14.1. Chapter 13 of the EIAR assesses the direct and indirect impact of the proposed development on monuments or sites of archaeological/architectural/cultural significance or potential. The assessment undertaken includes extensive field surveys in 2016, 2017 and 2020 and examination of desktop records. The assessment of impacts on visual setting (indirect effects) referenced the LVIA assessment of cultural heritage assets.

11.14.2. The Hill of Uisneach which is over 25km south-west of the WFS is a nationally significant archaeological landscape. A 25 km zone from the proposed turbines is relevant based on professional judgement for assessment for World Heritage Sites.

11.14.3. National monuments generally within 15 km of the proposed turbines were assessed for impact on visual setting including Granard Motte, Loughcrew, Fore Abbey, Fore town gates, Mortimer's Castle and Wattstown barrows.

11.14.4. There are no recorded archaeological monuments within the WFS but one potential site is noted close to the access road to T15, which will not be directly impacted. All 212 RMPs within 5km are assessed. These include the Mayne Bog toghers which are over 3 km south-west of T 14 and 500 m south of the proposed link road. There are monuments from all periods including prehistoric. There is a group of crannogs at Lough Derravarragh and one at Lough Bane 319 m northeast of T2. Sites with religious ritual association including ecclesiastical enclosures, churches and graveyards are reported. Secular monuments from the mediaeval period include mottes and baileys. At Finnea is a nine-arch mediaeval bridge. Post-mediaeval recorded monuments within 5 km of the proposed turbines include designed landscape features, a bastioned fort, two windmills and three houses the nearest of which is a fortified house at Carlanstown 1.4 km from T4.

11.14.5. Architectural and cultural heritage as reported in section 13.3.1.2 deals with the 53 no. protected structures within 5 km of the nearest turbine. These include Newcastle House and a farmhouse at Carlanstown. NIAH structures within 5 km of the nearest turbines are outlined in table 13 – 4. All are of regional / local importance. The NIAH garden survey is reported and a list provided of the 11 no. gardens within 5 km of a turbine, all of which are associated with demesne houses. The association of the Children of Lir with Lough Derravaragh is reported.

11.14.6. Along the GCR the assessment undertaken focused on a 100m band. There will be no direct impacts on recorded or unrecorded archaeological monuments. Regarding the architectural and cultural heritage along the GCR the EIAR reports 20 structures listed in the RPS for the county Westmeath which are within 100 m of the GCR. Mitigation will be required where roadside features are proximate to the GCR including adjacent graveyards and gate lodges.

11.14.7. Overall, the archaeological potential of the area is high but the assessment undertaken including desktop research, field surveys, GIS-based mapping, ZTV and viewshed analysis did not reveal any new sites within the peatland areas of the proposed development. Nor are there any recorded archaeological or architectural assets in the peatland. One new potential archaeological monument was designated

74 m east of the access road to T 15. There would be no direct impacts to this potential monument.

11.14.8. Direct impacts to recorded archaeological and architectural assets as a result of the turbines, substation, associated infrastructure and borrow pit have not been identified. Where potential impacts are possible mitigation measures including reassessment surveys, pre-development archaeological testing and archaeological monitoring will be undertaken during construction.

11.14.9. Indirect effects on the setting of national monuments within 15 km and RMPs, protected structures and structures on the NIAH within 5 km were assessed and no significant indirect effects were identified.

11.14.10. The GCR will not give rise to direct impacts on recorded or unrecorded archaeological, architectural or cultural heritage resources subject to mitigation including monitoring. No significant cumulative impacts have been identified.

Observations, Further Information, Further Comments, Applicant Response

11.14.11. The observations have been submitted by and / or with the assistance of local residents who are experienced archaeologists. Observers raise a wide range of concerns and oppose aspects of the assessment. I address the significant matters below.

11.14.12. The FI response was prepared by Tobar Archaeological Services. This notes that WMCC did not raise any concerns regarding archaeology or cultural heritage. Third-party submissions are noted and a response provided.

11.14.13. The further observations do not present new information but note provisions of the newly adopted development plan.

11.14.14. In the further comments Tobar reiterate the previously stated position.

Assessment

11.14.15. In general terms I am satisfied that the submitted EIAR adequately assesses the Archaeology, Architectural and Cultural Heritage as relevant to the proposed development. I consider that a thorough description of the baseline environment is presented. While I note that a lot of the assessment of individual sites including houses and gardens relied on views from the public realm, I do not consider that this approach is unacceptable. The architectural heritage in the area comprises buildings of regional or local significance and which in general are not available to public

access in general and no particular comments have been submitted by observers with respect to view from particular landscape features or interiors. As such I am satisfied that assessment of views from the interior of houses or the immediate curtilage is not warranted.

11.14.16. In general with respect to archaeology I note that the most significant of the sites and monuments were subject of individual detailed analysis using the zone of theoretical visibility. The area was also visited on a number of dates by the two archaeologists involved. A significant amount of information is provided in relation to the impact on settings. Regarding the adopted zone of assessment (as relevant to indirect effects) I accept the submission of Tobar that there are no strict regulations in this respect and that there has to be reliance on professional judgement. I consider that the adopted zones including 25 km for world heritage, 15km for national monuments and 5 km for RMPs and protected structures are reasonable. Furthermore I note that in undertaking the assessment there is not rigid adherence to these limits and that for instance the Hill of Uisneach which is over 25 km from the nearest turbines was nevertheless assessed as was Wattstown / Frewin Hill national monuments which are 16.3 km from the nearest turbine.

11.14.17. With respect to the assessment undertaken I note that the cumulative impacts considered the wider archaeological landscape. I consider that the direct and indirect effects are well considered. The conclusions presented in the EIAR constitute the professional opinions of the two people who visited the site and undertook a detailed assessment. Some local residents who are experienced archaeologists do not agree with the conclusions drawn. That fact does not invalidate or undermine the EIAR. It is not reasonable to describe some of the conclusions as subjective given that they are the professional opinions of very experienced archaeologists. My earlier discussion with reference to EPA terminology refers.

11.14.18. Regarding the comment that the boundary of the site is tightly drawn and for this reason it is unsurprising that there are no sites and monuments reported in the EIAR, I note that the overall peatlands are considered in the maps presented and there are no known archaeological monuments within those areas.

11.14.19. Regarding the nature of the assessment which is described as overly technical and clinical I consider that the approach taken in accordance with relevant guidance and necessarily attempts to quantify but the importance of the monument

affected and the significance of the effect. I consider that this is a reasonable approach. The submitted information includes specific descriptions such as the number of turbines likely to be visible and the distance to the nearest turbine and takes into account the ground level of the site and views available to and from the relevant feature. This is very useful information and allows for consideration of the validity of the conclusions.

11.14.20. I do acknowledge that the area relevant for the assessment of this wind farm comprises a rich archaeological landscape which contains many important monuments of archaeological and architectural interest and that physical monuments together with the associations with the Children of Lir at Lough Derravarragh adds to the interest of the area. I accept that the baseline environment has a number of significant tourist attractions including Tullynally Castle, the Hill and Forest of Mulllaghmeen, the Hill of Uisneach and other archaeological sites and that other places of heritage interest including Lough Derravarragh and Mayne Bog have significant potential. With greater investment (which is planned) the economic benefits to the area will increase. I agree that the protection of the archaeology, architectural and cultural heritage has a value in its own right and also a value to the local community.

11.14.21. The remainder of this section of this report sets out my consideration of direct and indirect effects as relevant to individual monuments and structures which are a representative sample.

11.14.22. Within the general area is the Hill of Uisneach. The Hill of Uisneach together with the group of royal sites including Cashel and Tara was placed on Ireland's tentative list for UNESCO World Heritage status in 2010. In 2022 the list was reduced to 3 no. sites on the tentative list and the Royal Sites of Ireland was retained. There are two existing World Heritage Sites in Ireland. The Hill of Uisneach is arguably the most important monument in this general area.

11.14.23. I consider that there is no basis for observer's statements that the importance of the site has not been acknowledged as it is described in the EIAR as a nationally significant archaeological landscape and its inclusion on the 'tentative' list is noted. The significance of the site is clearly outlined as is the policy set out in the draft development plan which identifies core and buffer protection areas, the relevant map of which is reproduced. The EIAR states that the development plan adoption of

character area 9 Hill of Uisneach recognises the exceptional archaeological and cultural significance of this feature. It notes that views from the perimeter skyline ridge are identified as a protected panorama view.

11.14.24. The Hill of Uisneach is 28 km from the nearest turbine. If accepted as a World Heritage Site there will be an onus on the state to protect the 'outstanding universal value' of the site which is described on the UNESCO Ireland website and which I note includes reference to the importance of the sites in the early mediaeval period, in the national psyche and notes that they are placed in and retain their prominent hilltop positions with panoramic views across the surrounding cultural landscapes. There is no reference to unspoilt landscapes or to inter-visibility between monuments. The intervisibility between monuments is emphasised by observers. I accept the applicant's conclusion that the views from Frewin Hill to Loughcrew and to the Hill of Uisneach will not be impeded.

11.14.25. While I unequivocally accept the importance of the setting of the Hill of Uisneach I do not accept that its landscape setting would be undermined by the presence at a distance of 28 km of a wind farm. There is no likelihood in my opinion that the view from the Hill of Uisneach would be significantly adversely impacted by a development of this nature at that distance. I agree with the EIAR conclusion that the impact would be slight / imperceptible.

11.14.26. Observers reference the potential impact on Sliabh na Calliagh / Loughcrew, a national monument notable for its important passage graves located in county Meath. The EIAR includes a photomontage 11 from this location. I note that observers consider that the turbines will be very visible and that they will detract from the visiting experience and cultural heritage. The EIAR clarifies that the astronomical alignment will not be affected. I have also noted that intervisibility between Frewin Hill, Loughcrew and Hill of Uisneach is not interrupted. There will be visibility to CWF but the turbines would be at a significant distance. Furthermore, the protected view is to the south and not in the direction of CWF. I accept the assessment in the LVIA that given the 14 km distance of the proposed turbines from the site they will not be 'incongruous or domineering' from the national monument. Taking into account the distance and the topography this is a reasonable conclusion notwithstanding the scale of the turbines. I do not consider that there would be a significant adverse effect on this national monument.

11.14.27. Fore Abbey is 9.6km from the nearest turbines, is publicly accessible and regularly visited. The area contains the Fore Trail and Fore Town Gates. The EIAR assesses visibility of blades of turbines, which will appear as small features in the background of the view. The effects of the proposed turbines on the archaeological feature is depicted in image 22 which is described as demonstrating that a portion of the blades of four turbines will be visible from Fore Abbey and will be apparent low down on the horizon at a distance of over 9km. Furthermore it is stated that the proposed turbines will be largely screened from view by topography and vegetation and the experience of the visiting public will not be diminished as a result of the introduction of the proposed turbines at that distance and the immediate setting of the monument will not be impacted. It is acknowledged that the wider setting of Fore Abbey will be altered as a result of the introduction of the proposed turbines and therefore a slight impact is identified. Observers dispute the accuracy of the photomontages and disagreeing with the conclusion that the impact is slight. I accept the adequacy of the image presented and do not consider that a significant adverse effect will occur. Fore Town Gates are to the west and south-west of Fore Abbey the north and south town gates and comprise roadside monuments that can be visited and appreciated from the public road by the passing visitor. Similar conclusions can be drawn with respect to this national monument and that there would be no significant impacts.

11.14.28. There are a range of other important archaeological sites in the general area and some appear to be regularly visited by small numbers of people. For example Wattstown barrows complex on Frewin Hill at a distance of 16.3km is prominently sited as is Granard Motte which is almost 9km. I am satisfied that the EIAR conclusion that there would be no significant impacts on the wider setting and no change to the immediate setting of these and other monuments can be accepted.

11.14.29. Amongst the RMPs which were assessed I consider that the Mayne Bog Toghers are noteworthy in terms of the observers submissions and also because of their scale, their relative rarity and the description by a renowned archaeologist that the Mayne Bog Toghers are amongst the best in Europe. They were dated to between 1200 and 820 BC. Mayne Bog Toghers comprise a 657 m togher (minimum) made up of tightly packed 4.4m oak planks fixed in place with roundwood pegs and a structure composed mainly of brushwood and of overall length of 450 m.

11.14.30. The RMPs are approximately 2.9 km south of the proposed turbines, 3 km from the borrow pit and 500 m minimum from the link road. There is no possibility of direct effects and given the 3 km separation from the WFS together with the low-lying low visibility nature of the recorded monuments any impact on the setting would not be significant. I note the observer's comments with respect to the trackways which are 1000 years older than the celebrated Corlea trackway and the expressed opinion that the bog itself together with the archaeological monument would have potential for tourism and heritage and will be adversely affected. Having regard to my conclusion that there is no direct and no significant indirect impacts I conclude that the proposed development would not detract from any future interpretation of the site or reduce the experience of visitors.

11.14.31. Lough Derravarragh is noted as being of importance for two particular reasons namely the association with the Children of Lir and the 22 crannogs around the lake as well as other archaeological monuments. Particular reference is made to the omission of the RMP Coolure Demesne Crannog at the north end of Lough Derravarragh which observers describe as a royal crannog. The FI response of Tobar reiterates points made in the EIAR noting that the crannog (and a nearby ringfort) were beyond the adopted 5 km study area – they are 5.5 km and 5.3 km south of T14 and lack public access. While the ZTV map indicates in the case of the crannog that there would be 12 to 15 turbines theoretically visible given the distance, the change to the wider setting, which is acknowledged, is regarded as slight. I accept this conclusion. I do not consider that the proposed development would detract from the character of the immediate area of Lough Derravarragh or preclude its development in association with the Children of Lir.

11.14.32. I do not consider that there is any basis for the observer's claim that drainage of the bog to facilitate turbine 2 and its infrastructure will damage the crannog at Lough Bane. The EIAR assessment of the hydrological connectivity between the pNHA and the proposed development supports this conclusion. The archaeological assessment also notes that there is a lack of access to this monument and that it is not highly visible. I do not consider that any significant effects would arise.

11.14.33. Regarding the reference to the archaeological ridge beside T 15 and the suggestion that a full dig should have been required I am not satisfied that this is warranted or in the interest of the protection of archaeological heritage.

11.14.34. Regarding the potential for direct effects these relate to unknown archaeological remains and to buildings and bridges which are close to the CGR and road works.

11.14.35. Regarding potential direct impacts on archaeological remains which may be present within the WFS and the GCR I would highlight the potential of the peatlands, lands close to existing monuments including ringforts, of Abbeylands and also the lands adjacent roadside graveyards. The potential of these areas is highlighted in the EIAR. Large areas of preconstruction archaeological testing will also be required at the borrow pit and substation site. Another area identified comprises an unclassified Castle at Irishtown where archaeological monitoring will be required. This topic has been assessed in the EIAR and number of areas of interest identified, including the sample mentioned in this paragraph and many others along the GCR.

11.14.36. It is not correct to state that no mitigation has been proposed or that it is inappropriate. In some cases the main mitigation required would be limited to avoidance of accidental damage during the construction phase. Monitoring of ground works associated with the GCR is described in section 13.4.3.6.2 and will be subject of approval of NMS.

11.14.37. I consider that the mitigation measures set out are cognisant of the potential for discovery of unknown subsurface archaeological finds. Furthermore, the applicant has attempted to identify further monuments which may lie underneath the public road through examination of documentary sources; the potential for impacts on Mayne church, font, and graveyard and ecclesiastical enclosure is an example in this respect. Therefore, subject to monitoring of works under licence from NMS as proposed and the undertaking of any further required mitigation, the applicant's approach is in accordance with accepted methodology and best practice.

11.14.38. Finally, I turn to the potential for direct and indirect impacts on architectural heritage. There are a number of protected structures, NIAH listed buildings and gardens in the study area. In close proximity to the turbines two protected structures are noteworthy as examples of the types of impacts which will result. These are Newcastle house which is 822m from T5 and the demesne and garden at Turbotstown. The turbines are located outside of the curtilage of Newcastle House and will not impact the immediate setting but the wider setting of the house and garden will be altered as will views from the curtilage. Public appreciation of the

house is limited to the views from the public road. I accept that this will not be diminished. Having regard to the separation distance I consider that the indirect effects on Newcastle House (and castle) would not be described as significant. The demesne and garden at Turbotstown which is 2.1 km from T14 will be affected in terms of its wider setting also.

11.14.39. The EIAR assessment has examined in detail the GCR including with respect to the potential for direct impacts to protected structures. Levington House is a protected structure which is in close proximity to the GCR and which has a gate lodge and gateway which are included in the RPS. The FI response of Tobar to concerns relating to possible damage is that the structures will be within 2 to 4 m of the GCR and will not experience direct effects. I consider that the protection of the gate lodge and gateway can be achieved subject to suitable design and monitoring of works at this location. Simonstown House in Coole is also a protected structure. The FI response to observers regarding potential direct impacts is that the works will be in the public road 38 m to the north-west of the protected structure and there will be no significant effects.

11.14.40. The GCR will cross the Levington railway crossing, which is of 19th-century date and are still in active use. I consider that there is no reason why this should be impacted adversely as a result of the works. The element which is protected is the gates.

11.14.41. It is acknowledged that the bridge at Shrubbywood and others will need to be protected and I consider that this is relevant to the detail of the works including the crossing of any bridges by the cable route. I note that the applicant has already given consideration to this matter. Further detail can be agreed with WMCC. It is evident that the nineteenth century stone bridge referenced by observers will not be demolished as the crossing required is at a separation. The impact on the setting of Camagh Bridge is acknowledged in the EIAR. It is located 800 m west of T11 and is described as a relatively low visibility structure and acknowledge that the wider setting will be impacted. I do not consider that any of the bridges will be significantly adversely impacted as a result of the proposed development.

Conclusion

11.14.42. My conclusions with respect to the direct and indirect effects on archaeology, architecture and cultural heritage are set out below.

11.14.43. The protection of intangible assets including landscapes which contain inter-visible archaeological and other monuments is a relevant factor for consideration and was addressed in the EIAR. I conclude that the introduction of a large-scale wind energy development is not unacceptable in principle. I have undertaken an evaluation of the effect of the development on the landscape setting of monuments, buildings, gardens and locations of heritage interest, which at times are also relevant sites for recreational and tourist uses. I am satisfied from this examination that the proposed development would not result in significant adverse effects on the setting of features and places of archaeological and architectural heritage interest. This takes into account cumulative impacts and has regard to the development plan policies which I am satisfied are not contravened. I do not accept the arguments offered by observers who state that the proposed development would undermine the promotion of local tourism including Ireland's Hidden Heartland by reason of impact on archaeology, architectural or cultural heritage.

11.14.44. I have considered the potential for direct effects and consider that the licencing procedures will provide an appropriate mechanism for archaeological resolution of any remains discovered during works.

11.14.45. The following are relevant conclusions with respect to the archaeological, architectural and cultural heritage:

- Impacts on the setting of archaeological and architectural assets which are mitigated by existing screening and by distance.
- Potential significant direct impacts on unrecorded archaeology within the site of the proposed development, which will be mitigated by the measures described.

11.15. Material Assets

Environmental Impact Assessment Report

11.15.1. Chapter 14 deals with the topic of Material Assets under the headings of traffic and transport and telecommunications and aviation.

11.15.2. The access to the WFS from an existing entrance of the R396 will be used and upgraded. The existing access from a local road to the north will not be used.

11.15.3. The N4 will be used for both delivery of turbine components and for general construction traffic. The turbine delivery route (TDR) will be by the N4 before turning

north onto the L1927 in Joanstown, then north along the L1927, across a railway level crossing, turning east in Boherquill onto the L5828 for 2km then following the R395 for 2 km before turning left onto the link road to be built as part of the proposed development, bypassing the village of Coole. The TDR was discussed with WMCC and the L5828 was agreed to be the preferred option. A route assessment was undertaken. General traffic will use the TDR as well as other regional roads.

11.15.4. Only borrow pit -related traffic will use the L5755 (1.5 km length).

11.15.5. Existing traffic levels , the predicted growth and the estimates for construction stage traffic movements and the relevant phases of work are described. 70 staff members maximum will be employed during construction.

11.15.6. The traffic effects the construction phase are described in section 14.1.6 which also deals with operational traffic. Assessments are made for cars and HGVs for each stage of the construction and the effect on the link road flows and junctions is assessed and scenarios modelled.

11.15.7. Separately there is consideration of the GCR including methods of traffic management and an estimate of likely and significant impacts which is in appendix 14 – 1. The GCR will be installed by two teams each laying 150 m of cable per day resulting in an estimated construction of 5 ½ months. The delays/detours forecast will result in a maximum increase in journey time of five minutes. The majority of users will not experience diversions. A maximum diversion of 3.6 km will result – this is on the R396 during construction traversing a watercourse.

11.15.8. The traffic management of large deliveries will take place on approximately 27 days during which five very large loads will be delivered to the site. This will be managed by consultation with relevant authorities, notification of a delivery schedule and undertaking of alterations identified. Road closures are not anticipated but some delays may arise if deliveries are made during daytime hours.

11.15.9. The Delivery Route Selection and Assessment Report was prepared by a specialist company and further assessment was separately carried out. Critical nodes assessed are indicated on figure 14 – 2a at which locations remedial measures may be required. These locations are all described and swept path analysis diagrams provided. Sightlines at the junctions for operational traffic are also described.

11.15.10. The likely significant effects and associated mitigation during the construction phase is described in section 14.1.1. At the WFS the increased traffic on the road network will result in negative effects. All links in the study area with the exception of the N4 will operate within capacity for all days in the construction period.

11.15.11. Along the GCR there will be negative effects in terms of increased traffic volumes and delays/detours. The traffic effects from construction at the WFS and GCR may occur concurrently as in general they apply to different parts of the road network. Along the GCR there will be a temporary road closure for seven days. Along the R396 no scheduling of deliveries to the WFS will take place to avoid cumulative effects from GCR traffic.

11.15.12. In the operation phase there would be a negative long-term imperceptible effect. Decommissioning will be subject to mitigation measures similar to those during construction depending on the infrastructural elements to be removed. Regarding cumulative effects in general these are low. Traffic relating to peat activity was incorporated in the background traffic levels. The cumulative impact from tree felling would be slight. It is unlikely that the construction phase would overlap with the construction of the N4 road improvement scheme.

11.15.13. The mitigation measures which are set out include design mitigation such as selection of the most appropriate delivery route, local sourcing of gravel and stone material from the borrow pit and construction of a link road to the west of Coole village minimising impacts on the village. Mitigation measures during the construction phase include implementation of the detailed traffic management plan, appointment of a traffic management coordinator, informing WMCC of the delivery programme, informing local residents of upcoming traffic related matters including closures or deliveries. In addition a pre and post construction survey of roads will be undertaken and roads reinstated to their original condition. Trenches will be temporarily reinstated and following a roads condition survey there will be follow up to ensure reinstatement is to a satisfactory standard.

11.15.14. A slight to moderate temporary impact on existing road users is predicted for the construction period. This will be mitigated by the TMP. The slight to moderate temporary impact on local roads may affect local businesses along the GCR.

11.15.15. Telecommunications and aviation is dealt with in section 14.2. There is potential to interfere with broadcast signals. This could result in flicker effects at the

domestic level. Potential electromagnetic interference may depend on wind direction to some extent. Potential effects are generally easily dealt with by detailed micro-siting of turbines in order to avoid alignment with signal pots. Tower to tower microwave communication links and airborne and ground radar systems could also be interfered with. There is a small private airport 22.2 km south-west of the nearest turbine which is outside the range at which interference issues would be expected.

11.15.16. The prevention of electromagnetic interference is described in section 14.2.4 which references the policy in the WEGs which advises consultation with broadcasters and mobile phone operators. Relevant consultation was carried out. The potential for electromagnetic interference from wind turbines requires mitigation in the case of one provider. A proposal has been accepted (Appendix 14 – 3). There would be no residual impact on telecommunications signals.

11.15.17. The requirements of IAA are set out. The Department of Defence comments relating to the application CWF1 are noted. The applicant will agree to the requirements of the IAA. There would be no impact on aviation operations.

11.15.18. There is no cumulative effect on telecommunications or aviation.

Observations, Further Information, Further Comments, Applicant Response

11.15.19. WMCC has no objection subject to conditions. The various reports set out a number of detailed comments regarding detailed design along the cable route, junction sightlines, junction improvements at N4 and L-19270 including traffic safety audits, pre and post condition surveys of roads and bridges along the haul routes, implementation under licence of any necessary road improvement works required in the post construction condition survey. Conditions relevant to the cable route include employment of dedicated liaison engineer, costs, details with respect to repair of any damage, agreement on works including water courses and bridges and to include cross sections for each road showing the location of the trench in the road and the existing roadway and existing services. Details with respect to construction traffic management plan include requirements relating to traffic management coordinator, road closures, speed limits, diversion routes and other standard matters.

11.15.20. Observers have pointed to the nature of some of the roads to be used which are considered unsuitable and to the adverse effects on local amenities as a result of construction traffic. The interference with telecommunications signals could impact the ability to work from home.

11.15.21. The response to the local authority submission on roads infrastructure is presented in section 2.6.1.1. The Ionic FI response report provided in Appendix 9 provides further details with respect to the impact of the proposed cabling on local roads and bridges and culverts on the N4. The submission accepts the recommendation of WMCC relating to sightlines on the L5755 and on the link road / R395 and R396 and provides revised drawings to this effect. Further comments are provided in relation to property value and telecommunications.

Assessment

11.15.22. I am satisfied that the EIAR in combination with the FI response clearly set out the likely significant impacts on roads and traffic that the conclusions drawn can be relied upon. The identified levels of HGV and car traffic will in some cases result in traffic increases in the order of 40% on particular roads. It is acknowledged in the EIAR that there will be negative impacts. The report of WMCC has set out requirements which together with the mitigation measures will ensure proper traffic management in the construction phase and protection and suitable design measures at bridges and culverts including the Shrubbywood bridge and Clonava bridge.

11.15.23. To address the concerns of WMCC relating to likely long-term damage to the haul route a requirement for a cash bond of €451,746 be paid to the planning authority is recommended as a condition; I consider that this is appropriate and reasonable.

11.15.24. Taking into account the wide area over which the potential effects arise including along the haul route, within the N4 corridor and local roads accommodating the GCR together with the duration of the works I consider that there is potential for significant effects. In general there will be avoidance of the villages of Coole and Multyfarnham by large and heavy vehicles as a result of the construction of the 1.2km road and the haul route selected. Some increases in general construction traffic in these settlements is unavoidable and both villages are situated along the designated route for general construction traffic. However, the effects of heavy and general traffic will be mitigated by a range of measures including junction upgrade works, the construction of the inner relief road and the implementation of a Traffic Management Plan. Overall, I consider that there is ample evidence from the available documents that both the applicant and the planning authority have given detailed consideration to the likely impacts and necessary mitigation relating to roads

and traffic and I consider that the consultations have resulted in a very high standard of information relating to necessary measures.

11.15.25. The Coole to Multyfarnham road is referenced including in terms of its importance as a route to the local school. The main road between these two settlements passes through an area characterised by bog land on the west and to the east is Lough Derravaragh and because of the characteristics of the environment in this area it attains a particular strategic importance for local traffic. Observers suggest its closure even for short duration could result in detours of significant length (possibly much longer than the 9km referenced by one observer) depending on the point of origin and destination.

11.15.26. The congestion associated with the area to the front of the school in Coole, which promotes cycling to school is referenced and safety concerns are raised. I do not consider that this is a significant concern for two reasons. Firstly the national school is located on a minor road which is not part of the grid connection route and would not be subject to any construction. Secondly the implementation following agreement with the planning authority of a finalised traffic management plan (TMP) would constitute a robust means of addressing traffic control including safety issues. The TMP could contain measures to limit traffic related to cable laying in the vicinity of Coole including along the main street and to the north-west and south of the village so that there is a restriction on use of the local roads at the times of school opening and school closure. The Board could attach a condition to that effect.

11.15.27. Observers express wider concerns relating to the full length of the L1826 between Coole and the N4. The road is described as inadequate, lacking white lines in the middle and of insufficient width for a car and lorry to pass without pulling onto the verge. The road is stated to be of inadequate width taking into account the siting of the cable to sustain this work and at the same time stay open and is considered not to be wide enough for nine months of construction traffic. The FI response on this notes the L1826 is of variable width between 5 m and 5.5 m or in some places wider. The verges on either side which may be used for local road widening. With the use of modest sized excavators maintaining a one-way operation and maintenance of traffic flow will generally be possible. I accept the applicant's evaluation.

11.15.28. Observers concerns relating to the road closures are noted. 4 sections of road will be closed for different periods of up to 14 days (Figure 14-7 of EIAR shows

locations and durations). The closure of the L 1826 between Coole and Multyfarnham will is especially noteworthy in terms of negative effects, which the applicant acknowledges. Observers state that the detour resulting may be 9 km detours twice a day. As the applicant responds the detour length will vary. Long detours are not likely to impact a large number of people and as such it would not be described as a significant adverse impact in my opinion. I note the availability of the national, regional and local roads which are of good standard and suitable to provide access for the population residing in the environs of Multyfarnham some of whom are likely to utilise services and community facilities, including the school, in Coole. A significant detour for the duration of road closure which is reported in the EIAR will be a moderate short-term impact on human beings.

11.15.29. Local residents' concerns relating to the borrow pit access include that it is unsuitable as the L5755 is a single-track road cannot take two lorries passing each other and cannot accommodate this traffic and there are no proposals for upgrading, widening or otherwise making the road suitable. The applicant's response is that the 1.5 km section of the L5755 which will be used to transport material between the site and the borrow pit will be upgraded where required by the local authority for the construction phase. Material will be transported in standard sized tipper trucks. The access to the borrow pit is on a straight section of the L5755 between two bends in the required visibility to permit safe access and egress will be provided. I accept the applicant's submission that the road is suitable subject to any required upgrades and that appropriate sightlines are proposed.

11.15.30. Observers state that no delivery route for concrete and lean mix (equivalent of 70 concrete lorries per turbine) is planned. I do not consider that there is a lack of clarity regarding this aspect of the works as it is clearly stated in the Outline TPM that delivery of all turbine and construction materials to the site will be via the site entrance off the R396 and the L5755 for T124 and T15.

11.15.31. It is claimed that the decision not to use local road L57671 was to facilitate Westland Horticulture Ltd rather than as a result of consultation with residents. The route would not be adequate to serve Westland and the proposed wind farm. I note that the applicant's statements relating to the baseline traffic which has been included in the assessment, and the cessation of peat harvesting.

11.15.32. Some observers residing proximate to the borrow pit have raised issues relating to the sightlines at the proposed entrance, but I am satisfied that these are sufficient and that the proposed development would not adversely impact the local population by reason of traffic hazard taking into account the low levels of traffic in the area and associated with the borrow pit.

11.15.33. In conclusion with respect to local traffic effects no significant residual adverse impacts would be anticipated. This conclusion takes into account impacts on community facilities and the disruption to local residents and is also relevant to the impact on Population.

11.15.34. Regarding the specific matters raised by TII I refer to the Planning Assessment for my evaluation of the future N4 upgrade. Based on that assessment I am satisfied that there would be no significant effect on the N4 including with respect to the planning and implementation of the future upgrade.

11.15.35. TII has also noted the importance of embankment stability. Appendix A of the FI response addresses and other matters. I consider that the installation of the grid connection in the hard shoulder and verge of the N4 roadway would not be likely to result in significant consequences for the existing road structure and its maintenance. All detailed design issues and traffic management could be agreed and would be appropriate to be addressed by condition. I note that the final submission of TII repeated its position that matters impacting future maintenance of the HV cable are unaddressed. However, TII also reference license requirements which may be required for cabling or trenching proposals, the need to avoid impacts to existing infrastructure and that all works be in consultation with and subject to agreement of TII and at the cost of the applicant/developer. I note some emphasis in the TII submission (and that of WMCC) relating to additional costs which may be involved from impacts on the road and road furniture infrastructure. I consider that this matter could be addressed by a condition. TII requirements relating to use of an area adjacent the M4, consultation with operators of the national roads along the wider motorway network and the requirement to survey structures in the event of abnormal weights and other matters can also be addressed by condition.

11.15.36. Regarding the impact on the character of roads and bridges which has been noted in observations I note that WMCC raised issues relating to the method for crossing of the cables. The applicant provided some detail on this topic including

drawings and this would be suitable for resolution by agreement. Subject to an appropriate condition there would be no significant effects.

11.15.37. I am satisfied that aviation impacts can be addressed by condition. The recommendation of IAA refers.

11.15.38. Telecommunications and related impacts have been subject of consultation with all operators. Potential impacts are restricted to one operator who is stated to be satisfied with the suggested mitigation measures. Details of the relevant agreement have been submitted by the applicant. Observers state that a mast in Coole village has not been included in the EIAR. It is clear from Chapter 14 that the relevant operator was consulted and its assets fully assessed; this includes a new radio signal in relation to which the operator had previously raised concerns and which is now decommissioned. Appendix 14-2 refers. I conclude that there will be no significant effects and no residual effects on telecommunications.

11.15.39. In conclusion I do not consider that there is any likelihood of significant residual effects on Material Assets.

11.16. Interactions of the Foregoing

11.16.1. Throughout the EIAR there is consideration of interactive effects.

11.16.2. The potential for interaction between significant effects can give rise to interactive effects exacerbating the magnitude or reducing the effects. The main interactive impacts arising from the proposed development are adequately addressed in the EIAR and in particular in Chapter 15 wherein a matrix is set out which summarises the occurrence of positive common neutral or negative effects during construction and operation.

11.16.3. The EIAR points to a range of interactive effects and references the mitigation measures which are described in summary in chapter 16. On that basis it is concluded that the potential for interactive effects is reduced or removed.

11.16.4. I consider that the main interactions are Ecology (Biodiversity and Ornithology) and Water, Land, Soils and Geology and also Soils and Geology and Water.

11.17. Transboundary Effects

11.17.1. No transboundary effects arise

11.18. Major Accidents and Disasters

11.18.1. I consider that there is no potential for major accidents and disasters associated with the construction or operation of CWF. In this respect I clarify that none of the potential impacts due to peat failure would be likely to be of such significance. I consider that there is no reasonable likelihood of significant effects related to blade strike or ice strike.

11.19. Reasoned Conclusion

Having regard to the examination of environmental information contained above, and to the submission by WMCC, the prescribed bodies and third-party observers and taking into account the further information submitted and the associated responses I consider that the main direct and indirect effects of the proposed development on the environment are as follows:

- Significant adverse impacts on population and human health from noise and shadow flicker during the operation of the wind farm which will be mitigated by implementation of a curtailment strategy.
- Cumulative positive impacts on climate due to the displacement of CO_2 from the atmosphere arising from fossil fuel energy production.
- Adverse impacts on soils and geology, surface water and biodiversity as a result of peat instability effects cannot be ruled out based on the information presented.
- Significant adverse impacts on surface water cannot be ruled out as it is not demonstrated that the applicant has sufficient control over the peatlands drainage system in the Optioned Lands.
- Potential significant effects on downstream species and habitats cannot be ruled out due to uncertainty relating to surface water management and peat instability.
- Significant operational phase effects on bats, which are mitigated by suitable measures involving smart curtailment at specific turbines and a full suite of post-construction bat surveys which require further detailed agreement.

- Potential significant collision risks on birds including wintering Golden plover, Peregrine falcon and lapwing cannot be ruled out as the collision risk analysis is based on an assumption that peat harvesting will continue and does not take into account other scenarios including rehabilitation.
- Landscape and visual impacts due to the introduction of large wind energy turbines which will have localised landscape effects and will change the existing visual context, which is mitigated by the compact layout and the topography.
- Impacts on the setting of protected landscapes and views and recreational assets which are mitigated by existing screening and by distance.
- Impacts on the setting of archaeological and architectural assets which are mitigated by existing screening and by distance.
- Potential significant direct impacts on unrecorded archaeology within the site of the proposed development, which will be mitigated by the measures described.

The EIAR considered the main significant direct and indirect effects of the proposed development on the environment. It is not demonstrated that the effects on soils and geology, hydrology and ecology, which are described in the EIAR can be mitigated by the measures described having regard to uncertainties with respect to future land use and the management of the Optioned Lands and the associated drainage infrastructure.

Thus, having regard to the foregoing assessment, I am not satisfied that the proposed development would not have any unacceptable direct or indirect effects on the environment.

12.0 **Appropriate Assessment**

12.1. **Article 6(3) of the Habitats Directive**

12.1.1. The requirements of Article 6(3) as related to Appropriate Assessment of a project under part XAB, sections 177U and V of the Planning and Development Act 2000 (as amended) are considered fully in this section.

This section addresses the following:

- Compliance with Article 6(3) of the EU Habitats Directive

- The Natura Impact Statement
- Screening for Appropriate Assessment
- Appropriate Assessment of implications of the proposed development on the integrity each European site.

12.2. Compliance with Articles 6(3) of the EU Habitats Directive

12.2.1. Article 6(3) of the Habitats Directive requires that any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects shall be subject to appropriate assessment of its implications for the site in view of the site's Conservation Objectives. The competent authority must be satisfied that the proposal will not adversely affect the integrity of the European site before consent can be given.

12.3. Surveys, Methodology and Observations

12.3.1. I deal with the adequacy of the surveys undertaken and the appropriateness of the methodologies used under the Screening and Appropriate Assessment sections below. It is within those sections that I respond to the submissions made to the Board by third party observers and prescribed bodies.

12.4. Screening for Appropriate Assessment

12.4.1. Test of Likely Significant Effects

12.4.2. The proposed development is not directly connected with or necessary to the management of a European Site and therefore it needs to be determined if the development is likely to have significant effects on any European sites.

12.4.3. The first test of Article 6(3) is to establish if the proposed development could result in likely significant effects to a European site. The applicant has submitted a revised AA Screening Report as part of further information; it is presented as Appendix 1 to the NIS. The revised Screening Report together with the accompanying NIS are assessed in Dr Flynn's report.

12.4.4. Table 3-1 of the applicant's revised Screening Report sets out the designated sites within a likely zone of impact and assesses the potential for significant effects.

12.4.5. Regarding the **potential direct impacts** it is clear that no element of the proposed development is located within a European site and therefore direct impacts can be excluded. In this respect I note and accept the information provided in relation to the grid connection route comes close to European sites but which remains firmly outside of the relevant areas. I consider that the applicant's information supports this point and I refer to the table below which presents my own conclusions following examination of the applicant's information and consideration of the submissions and observations and the report of Dr Flynn.

12.4.6. As noted by Dr Flynn and described in the applicant's screening report **indirect impacts** could arise and could give rise to likely significant effects where 'source' impacts have a pathway to a European site or could affect mobile species associated with SAC or SPA sites i.e. the source pathway receptor model of impact prediction. Dr Flynn accepts, and I adopt her conclusion that the proposed development could generate the following impacts that may be significant in relation to the Conservation Objectives of a number of European sites within a zone of influence of the development:

- Potential disturbance risks to bird Species of Conservation Interest (SCI) at SPA sites located near development works during the construction phase.
- Ex-situ effects: potential collision risk with turbines and resultant mortality for SCI species within foraging range, migration routes, moving between sites (not explicitly stated in Screening but detailed in NIS).
- Potential for deterioration of water quality resulting from pollution generated during construction activities where there is hydrological connectivity with SAC/SPA sites.
- Further identification of impacts and cumulative effects are examined in the NIS including- potential spread of invasive species associated with ground disturbance activities during the construction phase, water quality management during operational phase.

12.4.7. I now refer to certain matters raised in the observations to which the applicant was invited to respond. I am satisfied that the further information presented has

adequately responded to the following items which were raised by observers and which are relevant to this Screening stage:

- I note and agree with Dr Flynn's comment to the effect that the revised NIS properly brings forward from the Screening stage the entirety of the relevant qualifying interests of European sites considered. This approach, which was pursued under the Board's request for further information allows for the entirety of any relevant European site to be fully assessed under Stage 2. This also responds to the comments of DHLGH. It provides a more solid basis for the AA and corrects what was considered to be a deficiency in the original Screening Report.
- DHLGH queried whether SPA sites over 15km from the proposed development should have been included in the Screening stage. A rationale for screening SPA sites set out in 3.1 of the revised AA Screening Report. It notes that the nearest European site outside of the 15km zone is Lough Ree SAC and SPA. These European sites are at 40km hydrological distance and buffered by the intervening water bodies of Lough Ennell and Lough Iron. I accept the rationale presented that there is no pathway for significant effect on other European sites.
- DHLGH queried the potential for impacts on Gariskil Bog SAC and Scragh Bog SAC as a result of the effects of drainage works. The report of HES which is presented as part of the FI references the 5 km separation distance from CWF but notes that the SACs are close to the GCR. Gariskil Bog SAC is 60m from the GCR . The River Inny acts as a hydraulic boundary to groundwater flow. While there is a small stream in the area it flows in the opposite direction to drainage from the bog. Furthermore it is noted that no groundwater dewatering is required to install the grid connection trench and the base of the trenches above the invert of the River Inny. With respect to Scragh Bog SAC the separation distance between the GCR is over 300 m and there is considerable grass verge/shrubbery along the roadside. In addition HES points to the shallow nature of the temporary trench along the GCR. Having regard to the absence of a pathway between the European sites Scragh Bog SAC and Gariskil Bog SAC there is no potential for significant effects.

- A query relating to Garriskil Bog SPA was amongst the matters raised by DHLGH. The applicant's revised Screening includes Lough Iron SPA and Garriskil Bog SPA and brings them forward for consideration in the revised NIS (for Greenland white-fronted goose).
- The basis for the Screening Report relied on the bird survey information available which has been significantly added to.

12.4.8. Taking into account the report of Dr Flynn, submissions of prescribed bodies and others and publicly available information and having regard in particular to the revised Screening Report and the suite of supporting documents presented I consider that there is ample information available to support my conclusions relating to European sites which can be assessed as having potential for significant effects. My screening assessment is summarised in the table below.

Table : European sites within likely zone of influence, identification of potential impacts and assessment of potential for significant effects

Site and location	**Qualifying Interest/special conservation interests**	**Potential impacts**
Lough Owel SAC (000688)	White clawed crayfish Hard oligo-mesotrophic waters with benthic vegetation of Chara spp Transition mires and quaking bogs Alkaline Fens	Due to the 12km distance from the main windfarm site (CWF) there is no potential for direct or indirect effects associated with this element of the project. There is potential for significant effects due to deterioration of water quality as the GCR runs along the boundary of the N4 where the European site lies and there is a watercourse under the N4 which provides a pathway. There are no direct impacts due to the GCR at this location as the cable will be installed fully in the road corridor.
Garriskil Bog SAC (000769)	Active raised bogs Degraded raised bogs still capable of natural regeneration	There are no direct impacts. The SAC is at least 60m from GCR and 4.5km from CWF.

	Depressions on peat substrates of the Rhynchosporion	There is no hydrological pathway between the proposed development and the SAC. No potential for significant effects.
Lough Ennell SAC (000685)	Alkaline Fen	There are no direct impacts. The SAC is 4.2km from GCR and 24 km from CWF. There is a hydrological pathway between the proposed development and the SAC which is at a hydrological distance of 8.8km. There is potential for significant effects related to deterioration of water quality due to the hydrological connection and related to construction of the grid connection.
Scragh Bog SAC (000692)	Slender green feather-moss Drepanocladus vernicosus Transition mires and quaking bogs Alkaline fens	No direct impacts. SAC is 0.3km from GCR and 14.4km from CWF. There is no hydrological pathway between the proposed development and the SAC. No potential for significant effects.
Derragh Bog SAC (002201)	Degraded raised bogs still capable of natural regeneration Bog woodland	No direct impacts. SAC is 4.9 km from GCR and 2.4 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC which is designated for terrestrial habitats. No potential for significant effects.
Moneybeg and Clareisland Bogs SAC (002340)	Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion	No direct impacts. SAC is 6.1 km from GCR and 3.1 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC which is designated for terrestrial habitats. No potential for significant effects.

Ardagullion Bog SAC (002341)	Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion	No direct impacts. SAC is 3.7 km from Boherquill junction works and 7.4 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC which is designated for terrestrial habitats. No potential for significant effects.
Wooddown Bog SAC (002205)	Degraded raised bogs still capable of natural regeneration	No direct impacts. SAC is 5.8km from GCR and 20.7km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC which is designated for terrestrial habitats. No potential for significant effects.
Lough Lene SAC (002121)	White clawed crayfish Hard oligo-mesotrophic waters with benthic vegetation of Chara sp.	No direct impacts. SAC is 7.5 km from GCR and 8.5 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC. No potential for significant effects.
White Lough, Ben Loughs and Lough Doo SAC (001818)	White clawed crayfish Hard oligo-mesotrophic waters with benthic vegetation of Chara sp.	No direct impacts. SAC is 9.2 km from GCR and 8.0 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC. No potential for significant effects.
Lough Bane and Lough Glass SAC (002120)	White clawed crayfish Hard oligo-mesotrophic waters with benthic vegetation of Chara sp.	No direct impacts. SAC is 11.4 km from GCR and 10.7 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC.

		No potential for significant effects.
River Boyne and River Blackwater SAC (002299)	River lamprey Salmon Otter Alkaline fens Alluvial forests	No direct impacts. SAC is 12.7 km from GCR and 14.4 km from CWF. There is no hydrological or other relevant pathway between the proposed development and the SAC. No potential for significant effects.
Lough Kinane and Derragh Lough SPA (004061)	Pochard Tufted duck Wetland and waterbirds	The SCI species have not been recorded in surveys between 2015 and 2022. Given the 1.8km separation from CWF and 4.4km from GCR and the intervening natural buffers between the SPA and CWF there is no potential for significant effects.
Glen Lough SPA (004045)	Whooper swan	CWF is 13.5km from the SPA. the distances between the SPA and Joanstown junction works and the GCR are 3.3km and 9.7km. There is no habitat or direct connectivity between CWF and the SPA. The proposed development is outside the core foraging range of the SCI species. The surveys between 2015 and 2022 have not identified a migration route over CWF. There is no potential for significant effects in the operational or construction phases.
Lough Sheelin SPA (004061)	Great crested glebe Pochard Tufted duck Goldeneye	The SPA is 3.9 km from CWF and 7.8km from the GCR. The 2015-2022 surveys did not record these SCI species. Given the separation distance and natural buffers displacement impacts are not anticipated. There is no potential for direct effects on wetland habitats supporting the SCI

		species. There is no potential for indirect effects due to deterioration in water quality as there is no hydrological pathway.
Lough Owel SPA (004047)	Shoveler, Coot Wetland and waterbirds	No direct effects on the SPA as the works associated with the GCR are within the road corridor. There is potential for disturbance of SCI during construction of the grid connection. As there is a hydrological pathway there is potential for deterioration of water quality and resulting effects on wetland habitat supporting SCI species which is related to construction of the grid connection.
Lough Ennell SPA (004044)	Pochard Tufted duck Coot Wetland and waterbirds	SPA is 4.5km from GCR and 24.3km from CWF. No direct impacts. No potential for significant effects related to disturbance. There is a hydrological connection between the GCR and the SPA at a hydrological distance of 9.2km with potential for deterioration of water quality at wetland habitat and for significant effects on all SCI species which is related to construction of the grid connection.
Lough Derravarragh SPA (004043)	Whooper swan Pochard Tufted duck Coot Wetland and waterbirds	CWF is within the potential core foraging range of Whooper swan and potential for collision risk. SPA is 70m from GCR and there is potential for disturbance to waterbirds during construction.

		Potential for indirect effects due to deterioration of water quality at supporting wetland habitats which is related to all operations.
Lough Iron SPA (004046)	Whooper swan Wigeon Teal Shoveler Coot Golden Plover Greenland white-fronted Goose Wetland and waterbirds	The SPA is 3km from road junction works in Joanstown and 4.3km from the GCR. There is no potential for direct effects on wetlands habitats supporting SCI species. CWF is outside the potential core foraging range of SCI species and outside the zone of sensitivity of relevant species. Nevertheless on a precautionary basis further assessment is required as there are potential pathway for effects associated with CWF . There is no potential for disturbance effects due to the road junction works. There is potential for deterioration of water quality during construction which could impact wetland habitat.
Garriskil Bog SPA (004102)	Greenland White-fronted goose	There is no evidence of recent use of the SPA by the SCI, who appear to have abandoned peatlands in favour of grasslands but there is a need for further assessment on a precautionary basis due to potential collision risk. CWF site is within the potential core foraging range of the SCI.

12.4.9. **Screening Determination**

12.4.10. Having regard to the information presented in the revised Screening Report, the submissions and observations, the nature, size, scale and location of the various elements of the proposed development and its likely direct, indirect and cumulative

effects, the source pathway receptor principle and sensitivities of the ecological receptors, I consider that the applicant has identified all European sites that could be significantly impacted. I consider that the gaps in the original Screening Report have been sufficiently addressed by the applicant to inform the NIS and the AA to be carried out by the Board.

12.4.11. The likelihood of significant effects could not be excluded for 7 European sites and therefore Appropriate Assessment is required to determine if adverse effects on site integrity can be excluded in view of the Conservation Objectives of the following:

- Lough Owel SAC (000688)
- Lough Ennell SAC (000685)
- Lough Owel SPA (004047)
- Lough Ennell SPA (004044)
- Lough Derravaragh SPA (004043)
- Lough Iron SPA (004046)
- Garriskil Bog SPA (004102)

12.4.12. Likely significant effects on other European Sites within a wider area has been excluded and I am satisfied that this conclusion is based on objective information including hydrological and hydrogeological data and analysis from the EIAR excluding potential impacts on other peatland sites. My conclusion is in line with that presented in the NIS and is supported by Dr Flynn.

12.5. Appropriate Assessment of Relevant European sites

12.5.1. The following is an assessment of the implications of the proposal on the relevant Conservation Objectives of the European sites using the available knowledge provided in the revised NIS, taking into account the report of Dr Flynn and having regard to the nature and location of the proposed development and the mitigation measures which are proposed. All aspects of the project which could result in significant effects are assessed and mitigation measures designed to avoid or reduce any adverse effects are examined and assessed for effectiveness. I have also taken into account relevant guidance including:

- DoEHLG (2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, National Parks and Wildlife Service. Dublin
- EC (2021) Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EC
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC.

12.5.2. **The Natura Impact Statement - Evaluation of NIS and Observations.**

12.5.3. This section addresses aspects of the submissions of third parties and prescribed bodies which are relevant to the adequacy of the NIS and the undertaking of Appropriate Assessment. My assessment of the submissions and the NIS is presented below in two groups – those which I consider raise issues which have been resolved by the applicant including as a result of the further information and secondly matters relevant to the NIS where I consider there are significant deficiencies.

Submissions relevant to the NIS – satisfactory response provided by applicant.

12.5.4. The following are key topics of concern which were raised by observers and in relation to which I accept the applicant's response:

1. The further information submitted which was incorporated into the NIS includes an updated aquatic survey prepared by Triturus.
2. The further information response clarifies the proposed development by presenting a turbine range and reviews the impacts associated with the turbine range to determine if the more detailed information now proposed would impact on the findings originally presented. The applicant clarifies there will be no change to the footprint of the development irrespective of which turbine is selected, constructed and operated within the turbine range. A review of the predicted impacts which was undertaken shows that there is no change to the conclusions of the NIS with respect to terrestrial and freshwater habitats and species and collision risks to birds. The revised NIS sets out the

relevant information. I consider that insofar as this matter relates to the contents of the NIS the development is fully described and assessed.

3. A significant element of the further information requested of the applicant relates to the adequacy of coverage of the site for bird surveys and the viewshed utilised in the vantage point (VP) bird survey methodology. This matter was included in the submission of DHLGH. The NIS includes an additional 13 months of bird survey data and revised collision risk modelling. The applicant's response to further information justifies the approach and model used and added VP6 for the purposes of the further surveys which were undertaken in 2020-2022. The addition of VP6 did not alter the findings of the previous bird surveys or collision risk modelling presented. I consider that this matter is clarified.

4. Regarding the matter of what species are present in the vicinity and whether there is sufficient information available to support the conclusion presented that CWF is not within an identifiable migration route the submitted updated bird survey data defends the applicant's original position on this point. Not only does the updated survey information support the conclusion that the CWF site is not on a migratory route but the applicant also relies on the conclusions of the surveys since 2015 in support. I am satisfied that the applicant's response is robust.

5. The applicant was requested to justify the lack of nocturnal surveys which had been raised by DHLGH. The applicant responded by referring to the SNH guidance requirements. The applicant notes the recommended methods for geese and other waterfowl includes surveying "between and including dawn and dusk" which includes the hour before sunrise, the diurnal daylight hours and the dusk period. As noted in Appendix 7-2 of the EIAR, by starting/finishing a six-hour winter vantage point survey the hour before/after sunrise/sunset the applicant states that this recommendation has been met. In addition, it is stated that nocturnal flights have been taken into account and included in the calculation of collision risk, notwithstanding this, the analysis did not predict significant levels of collision risk for any species. Section 7.8.2 of the EIAR presents detailed information and the FI submissions Appendix 5 includes an updated collision risk analysis. Dr Flynn discusses further aspects of the SNH guidance and concludes that given the relatively low levels of bird

activity recorded at the windfarm site and the inclusion of evening surveys over a number of years of survey, the additional survey effort of conducting specific nocturnal surveys would not be standard. As such I am satisfied that the applicant has responded appropriately and that a more detailed nocturnal surveys are not warranted.

6. Regarding the appropriate guidance to be applied, which matter has been queried in submissions I refer to Dr Flynn's comments on Percival (2003) which she notes cover the bird species in Ireland that are vulnerable to wind farm development and includes an impact assessment based on scientific data. That guidance has been applied in combination with the McGuinness et al (2015) publication and Birds of Conservation Concern in Ireland (BOCCI). I accept Dr Flynn's conclusion that the assessment follows current best practice in impact assessment for Ireland.

7. With regard to the use of the Band model for estimating bird collisions at windfarms, which was queried by observers with reference to an academic paper in the New Zealand Journal of Zoology (2015), Dr Flynn describes this paper as a short communication rather than full study. She notes that the SNH Band model is the standard method used in the UK and Ireland. It utilises vantage point data to estimate the number of birds likely to collide with turbines at a proposed wind farm. Changes in estimates of avoidance rates are routinely published and no changes have been implemented on the overall model which therefore remains the industry standard and conforms with current best practices in this aspect of analysis. I am in agreement with the assessment and conclusion presented.

12.5.5. The above points cover the main matters raised in the submissions including that of DHLGH. These points are fully resolved in my opinion.

Submissions relevant to the NIS – outstanding matters.

12.5.6. There are other aspects of the applicant's assessment as presented in the NIS which taking into account the full suite of available documents raise significant concern relating to the reliability of the NIS and the basis for the conclusions presented. These concerns include matters which have arisen during more detailed consideration of the planning issues in this case and unfortunately were not explicitly highlighted in the request to the applicant for further information. However, the

invitation to respond to observations was made and the submission of DHLGH in particular included a number of the following items. As such the matters of concern have been previously put to the applicant for response and are not new issues.

12.5.7. I consider that the aspects of the assessment undertaken which remain incomplete or unsatisfactory can be discussed under the following headings :

- Peat harvesting and management of the peatlands
- Implications for assessment of impacts on birds
- Peat stability and site drainage.

Peat harvesting and management of the peatlands.

12.5.8. The NIS describes the IMG which will be set up to regulate the future development including the interactions between the future use of the overall lands and the proposed development. The NIS does not identify any EPA licensing relevant to the overall lands including with respect to ongoing or future peat harvesting activities. There are multiple landowners involved and, in my opinion, there is no clarity that the overall lands will be managed to ensure that the parameters for operation of CWF will be met. I make that statement having regard to the terms of the proposed IMG as described and the contents of the letters of consent. Despite this the NIS continues to rely on what is described as a worst-case scenario namely that peat harvesting will continue at the site. Although the further information presented acknowledges uncertainty regarding the future of peat harvesting the NIS does not follow up the consequences of possible alternative scenarios. DHLGH considers that peat harvesting and site rehabilitation options are not sufficiently addressed in the NIS or in the EIAR in the context of interactions with the proposed development. The applicant has not adequately responded to this point in my opinion. As a result of the approach to consideration of the future use of the adjacent lands the assessment undertaken is incomplete.

12.5.9. Referencing options other than continuance of peat harvesting the applicant states that other future management of the site such as habitat restoration would in itself be subject to Appropriate Assessment at that time. That has been the applicant's position all along. However despite now acknowledging that there is uncertainty regarding future activities the NIS does not engage with the possibility of ongoing natural regeneration at the overall lands nor does it address the possibility of

managed rehabilitation. As Dr Flynn states the current ecological baseline is reflective of a highly managed and damaged peatland habitat. With intervention through active management or if left to regenerate naturally, the site will shift towards a more ecologically diverse situation. This has not been addressed in the EIAR for biodiversity or ornithology or in the NIS.

12.5.10. So, while it is stated in relation to the assessment of alternatives under EIA which is referenced in section 5.18 of Dr Flynn's report the applicant's position is that any rehabilitation plan would take account of the wind farm infrastructure. The recommendation of DHLGH is that the rehabilitation plan should be assessed in conjunction with the EIAR and NIS for the proposed development. In view of the circumstances of this case and the need for complete certainty I agree with DHLGH and I consider that the applicant's submissions in the NIS and the totality of the information are thereby deficient.

Implications for assessment of impacts on birds

12.5.11. I have concluded that there is a very real uncertainty with respect to the use of the peatlands / overall lands in terms of whether there will be peat harvesting and a failure to assess relevant scenarios despite the acknowledgement in the further information submission that there is uncertainty about this matter. The subject lands and their management is an integral element of the windfarm site and of relevance to the overall operational effects of the proposed windfarm as Dr Flynn states. While the applicant states that future rehabilitation works would be subject to its own assessment and would have to consider the windfarm as part of the cumulative assessment the main information regarding what that might comprise is from the EIAR wherein it is stated that a rehabilitation plan would be 'likely to encourage revegetation of bare peat areas, with targeted active management being used to enhance re-vegetation and the creation of small wetland areas'. Dr Flynn's report addresses this matter in more detail and points to work done by Bord Na Mona which is showing that rehabilitation of peatlands has a positive effect on biodiversity in general with some areas becoming habitat and species hotspots according to local characteristics. This conclusion is perhaps unsurprising. The existing cutover peat is not a high value habitat for most bird species. I accept the conclusion presented by Dr Flynn that the revegetation of exposed peatlands and in particular the creation of wetland habitats increases the biodiversity value of the site and can result in habitats that are of value to wintering waterbirds. I agree with the position of DHLGH that the

matter of peatland rehabilitation should be assessed as part of the current application. Without this information cumulative impacts cannot be adequately considered and that is a significant concern and a major deficiency in the NIS.

12.5.12. The second significant matter relevant to interactions between CWF and the use of the peatlands concerns the method of assessment in the NIS of bird collisions. The basic assumption of the applicant's collision risk model is that the habitat and bird activity will remain the same over time during operation of the windfarm. That is unlikely if peat harvesting does not recommence and / or a rehabilitation plan is put in place. The possibility that rehabilitation / even natural regeneration would create an ecological trap increasing collision rates has not been considered. In the context that CWF is within the foraging ranges for Whooper swan associated with Lough Derravaragh SPA and Greenland white fronted Goose associated with Garriskil Bog SPA the basis for the applicant's conclusion that there would be no adverse effects on SPA populations and therefore no adverse effects on site integrity of SPA sites within a possible zone of influence of CWF is not robust.

12.5.13. Future land use changes are particularly difficult to predict in this case but it cannot be ruled out that an option other than peat harvesting will be the dominant land use in the vicinity of CWF. The NIS needs to contain an assessment of such scenarios but does not. It may be likely that some degree of habitat improvement will occur within the lifetime of the operation windfarm particularly if a rehabilitation plan is implemented or simply in the event of discontinuance of peat harvesting resulting in natural regeneration as has already commenced in places. This undermines the assumptions of the bird collision risk model in terms of habitats remaining constant and similar levels of birds at the site.

12.5.14. Having regard to the totality of information available, I am not satisfied that the information contained in the NIS is sufficient to allow for Appropriate Assessment.

<u>Peat Stability and site drainage.</u>

12.5.15. I have discussed in the EIA section my reservations relating to the peat stability assessment and concluded that there is a lack of certainty relating to the peat survey information obtained from peat probing. In particular it is not clear that the different results obtained from two peat probing surveys at T12 is not replicated across the site. While the MWP reports note that across the site there is not the same disparity between peat depths recorded from rotary core and the original peat

probing. That does not address the issue in my opinion. As such and taking into account the proximity of works to watercourses I do not consider that the Board can be satisfied that there would not be adverse water quality effects as a result of peat instability. Such effects would need to be assessed in terms of downstream ecology and mitigation measures designed to protect the integrity of European sites. Without that information I consider that the Board is not in a position to draw favourable conclusions with respect to AA.

12.5.16. Observers have raised a number of issues relating to the site drainage. The site drainage for CWF will rely on feeding into the site drainage infrastructure which was put in place in association with peat harvesting. As discussed in the Planning Assessment section of this report the existing drainage infrastructure has been determined to be development which is not exempted development.

12.5.17. The continuance of peat harvesting and adequacy and management of site drainage are relevant to the assessment of impacts on Lough Derravarragh SPA, which is the only European site with direct hydrological links to the windfarm site via the River Inny and its tributaries.

12.6. As Dr Flynn describes in her report the Water Framework Directive status of the River Inny is impacted by hydromorphological issues caused by commercial peat harvesting and the main risk to the river in not achieving WFD targets is peat (catchments.ie). I have assessed the water quality impacts under the EIA section of this report and under the planning Assessment I have commented on the implementation of these measures. At this point I provide some conclusions based on the discussion in other sections. I have had regard in particular to the FI report of HES.

12.7. It is acknowledged in the report of HES that the potential for release of suspended solids to watercourse receptors is a key risk to water quality and the aquatic quality of the receiving watercourses and Lough Derravarragh. The assessment by HES is that the measures which are set out will mitigate the risk of releases of sediment and that the residual effect on the water environment within CWF and along the GCR would be imperceptible. Included in the further information presented are drawings D101 to D107 which show the location of the main water quality measures.

12.8. As queried by DHGLG and commented upon by Dr Flynn there is no assessment of the approach to construction and operational management of the proposed development assuming peat harvesting continues and no assessment of the capacity

of the drainage and settlement system and its ability to cope with fines in the event of concurrent peat harvesting and construction of CWF. Nor is information provided in relation to responsibility for management and maintenance of settlement ponds and the remainder of the system proposed.

12.9. Having regard to the above notably the lack of assessment of cumulative effects involving construction of CWF with simultaneous peat harvesting activity, to my reservations regarding the operation of the IMG and issues relating to consent by landowners and regulatory authorities I have to express my serious reservations relating to the site drainage proposals presented and their implementation as the means to protect water quality in the River Inny and downstream.

12.10. The existing drainage within the overall lands has been determined to be development which is not exempted development. On some of the lands there appear to be intentions to obtain substitute consent but this is not the case for all of the lands. The letters of consent submitted in relation to CWF do not contain any commitment to do any particular works or engage with the IMG and nowhere in the documents is there a definite plan of action for the IMG, let alone any evidence of it being properly constituted. There is no evidence that in the event of conflicting objectives between the parties that there is any party with overriding authority to ensure that the management of the lands accords with the commitments presented in the EIAR and NIS . For these reasons I conclude that the applicant has not demonstrated sufficient control of site drainage as necessary to undertake water quality mitigation measures. I am not therefore satisfied in principle that the mitigations presented can be relied on for the undertaking of Appropriate Assessment.

12.11. I do acknowledge the commitment by the applicant for maintenance and management of the existing drainage system as part of the operational maintenance regime of CWF involving inspections of elements of the overall system and the progress of revegetation. These include best practice measures involving inspection and regular clearing of drainage channels and settlement ponds in line with the CIRIA C697 SuDS manual. However I do not accept that it is demonstrated that the applicant will have sufficient legal control to implement these measures.

12.12. I note from the recent court case which is reported earlier in this report that winterisation work is taking place but also that this has been deemed to constitute

development which is not authorised development and its continuance in this context has to be questioned.

Conclusions with respect to the adequacy of the NIS

12.13. I highlight the following concerns with respect to the information in the NIS and taking into account the overall documentation.

12.14. Having regard to the assumption that peat harvesting will continue and the failure to analyse alternatives including site rehabilitation and / natural regeneration the assessment of in-combination effects cannot be properly undertaken.

12.15. The assumption in the bird collision risk analysis is that there will be no change to land use or bird numbers and this is unsustainable including for the reason that there is no certainty in the form of landowner agreements and consent from regulatory authorities. As CWF would be located within the core foraging areas for SCI species a robust assessment of collision risk is essential.

12.16. Notwithstanding the mitigation and monitoring commitments relevant to CWF there is uncertainty regarding the combined effects of the peatland management and windfarm site works. I do not consider that it can be concluded that the site drainage is adequate when considered in combination with possible future peat harvesting and taking into account its planning status. I do not consider that there can be reliance on the mitigation measures at CWF to ensure avoidance of deterioration of water quality affecting the River Inny and Lough Derravarragh.

12.17. There is also a lack of clarity relating to the risks of peat instability and uncertainty relating to the protection of surface water and dependent ecology including qualifying interests of European sites.

12.17.1. **Mitigation**

12.17.2. I now provide some further information on the relevant mitigation measures which I have taken into account and which are relevant to my considerations with respect to impacts on European sites and species.

12.17.3. The significant water quality mitigation measures relevant to construction of the grid connection are set out in chapter 9 of the EIAR. For the most part these are standard construction measures including drainage control measures which would be applied during excavation and construction of the GCR, sediment control

measures and mitigation measures related to spills/chemical releases. Furthermore as is relevant to the GCR the scale of the works should be taken into account in the assessment of the potential for effects. It is noted that no groundwater dewatering is required during grid construction and that trenching works are at or very near ground level with minimal ground disturbance proposed. The nature and scale of the works together with the type of mitigation which would be applied to this type of development are such that there can be confidence that they can be successfully implemented.

12.17.4. With respect to the drainage for CWF this will connect into the existing peatland drainage system which is in situ for the overall lands and which I have discussed above. Amongst the significant mitigation measures associated with CWF are those relating to water quality protection as described in the EIAR. As well as construction phase measures including check dams, attenuation ponds, settlement ponds, silt fences and collector and interceptor drains and construction phase monitoring it is stated that the operational phase maintenance and management of the drainage system by the developer will take place and will incorporate the activities associated with keeping the drainage system operating effectively. I have previously expressed my views on this important aspect of the proposals which are critical with respect to AA. I do not consider that based on the available information these mitigation measures are shown to be within the control of the future operator of the wind farm.

12.17.5. The CWF drainage maintenance regime involving weekly inspections during construction and monthly inspections for one year after construction and quarterly for the operation of the lifetime of the windfarm is described. Drawings D101 - D107 in Appendix 4-9 (duplicated in Appendix 9-3) presents the detailed drainage plan showing the location of the drainage mitigation measures together with the watercourses and the buffer zones.

12.17.6. The mitigation measures relevant to the GCR and the main windfarm site are incorporated in the CEMP, which is presented as Appendix 2 of the NIS. Works will be supervised and overseen by an ECoW. A range of monitoring proposals are set out for various specified parameters which are described in section 9.4.1.1 of the EIAR as supplemented in the report of HES.

12.17.7. Bohemian Knotweed, Japanese Knotweed, Himalayan Knotweed and Rhododendron were recorded along the proposed grid connection route. With respect to the potential for significant effects relating to invasive species and the need for mitigation I note the planned treatment and control of invasive alien species in accordance with relevant guidance. In addition specific mitigation measures are itemised in section 6.8 of the NIS.

12.17.8. Observers comment negatively on the proposed post construction Bird Monitoring Programme and the targeted bird collision survey or corpse search being carried out using trained dogs, which are considered unacceptable. I consider that measures of this nature will assist in the availability of scientific information and is to be welcomed. For legal reasons there is no opportunity to utilise this information to close off any lacunae in AA.

12.17.9. **The Natura Impact Statement Overview**

12.17.10. The relevant document is the revised Natura Impact Statement (NIS) prepared by McCarthy Keville O'Sullivan Ltd. (MKO), which supersedes the original NIS. All references to the NIS in this report refer to the revised document.

12.17.11. The NIS is stated to take account of the request for further information issued by the Board and the submissions raised. It is presented to facilitate the Board in conducting an Appropriate Assessment under Part XAB of the Planning and Development Acts 2000-2019 of the proposed construction of a 15 No. turbine wind energy development including the grid connection, near Coole, in north Co. Westmeath.

12.17.12. The NIS was informed by the following studies, surveys and consultations:

- Desktop study including a review of the information obtained for the previous application.
- Consultation with prescribed bodies and other groups as reported in table 4 – 1 of NIS.
- Multidisciplinary walkover studies on various dates since 2016 and up to 2022.
- Targeted surveys at locations of infrastructure including GCR including habitat assessment surveys.

- Faunal surveys including aquatic surveys which were updated in 2022, and invasive species surveys.
- Bird surveys were undertaken in two survey periods between 2015 and 2017 and 2018 and 2022 and further surveys between 2021 and 2022 to verify results and conclusions of previous surveys. This included vantage point surveys which are described in section 4.2.2.2.1 where in a small gap in the viewshed is acknowledged but justified. Data recording included dawn and dusk watches to coincide with highest levels of bird activity. Breeding bird surveys were undertaken as described in appendix 7 – 2 of NIS. Breeding raptor surveys were undertaken on a monthly basis during the core breeding season between 2016 and 2019. Winter transect surveys , waterfowl surveys, breeding Woodcock surveys and surveys along the GCR are described.
- Review of the Conservation Objectives and of the site-specific pressures and threats to the European sites which was part of the desk study review is reported in section 4.3 of the NIS.

12.17.13. In the NIS the proposed development is described and mitigation measures and best practice measures have been integrated into the design and Construction and Environmental Management Plan which has a focus on water quality and management of potentially polluting substances.

12.17.14. Section 5 of the NIS presents an assessment of potential effects and associated mitigation.

12.17.15. With respect to the key bird species the potential for ex-situ habitat loss at the proposed windfarm site, disturbance and collision risk is considered. The species assessed include Whooper swan, Greenland White-fronted goose, Golden plover, wigeon and teal. The risk of collision with wind turbines is calculated using the Band method (random) and incorporates avoidance rates based on SNH information from 2018. The potential for such effects on other SCI bird species including shoveler, pochard Tufted duck and coot has been excluded by the applicant based on the absence of these birds or the very low recordings at CWF during the surveys.

12.17.16. The potential for bird disturbance within SPA sites that could result from construction related activities and grid connection works relates to Lough Owel SPA and Lough Derravarragh SPA.

12.17.17. There is potential for adverse effects on aquatic habitats that would be related to any deterioration of water quality that could occur via hydrological connectivity between the proposed development and European sites due to the release of pollutants and sediments including peat during the construction phase and during the operational and any decommissioning phase. Mitigation measures have been integrated into the design of the proposed development and integrated into the CEMP. Proposals for the monitoring of mitigation measures includes daily visual inspections and water testing. Details of mitigation measures are provided in Section 6 of the NIS. The appendices presented include an Invasive Species Management Plan (ISMP) and the CEMP.

12.17.18. Section 6 of the NIS examines the potential for any residual effects on a site-by-site basis examining each SCI in terms of Conservation Objectives, attributes, and targets and in-combination effects.

12.17.19. The conclusion presented by MKO in the NIS is that, taking into account the project design and the implementation of mitigation measures identified in the NIS, the proposed development will not result in adverse effects on the integrity of any Natura 2000 site.

12.17.20. I note the assessment undertaken by Dr Flynn in relation to the scope, structure and content of the NIS and that it is in accordance with good practice guidance, including industry specific guidance. In overall terms I accept her conclusions with respect to the adequacy of the NIS and the manner in which it addresses the submissions and observations received. I am satisfied that the level of scientific information on surveys, sites, species, and habitats is generally adequate. This includes desk study, habitat survey and detailed surveys for invasive species, breeding birds, wintering birds, mammals and bats. Following the submission of additional information, the ecological surveys were undertaken in line with published good practice methods and at the optimum seasonal periods. In conclusion I consider that the NIS adequately addresses many of the issues of interest and is a professionally prepared document of substance which is based on an appropriate level of baseline information. However, as addressed below there are deficiencies in the NIS which I consider preclude favourable consideration of this application.

12.17.21. **European sites and species**

12.17.22. Based on the above screening for appropriate assessment, the likelihood of significant effects could not be excluded for 7 European sites and therefore appropriate assessment is required to determine if adverse effects on site integrity can be excluded in view of conservation objectives of the following:

- Lough Owel SAC (000688)
- Lough Ennell SAC (000685)
- Lough Owel SPA (004047)
- Lough Ennell SPA (004044)
- Lough Derravaragh SPA (004043)
- Lough Iron SPA (004046)
- Garriskil Bog SPA (004102)

12.17.23. The potential for significant effects could arise from hydrological connectivity resulting in indirect effects on habitats/species of conservation interest arising from a deterioration of water quality due to run-off of silt, hydrocarbons, cementitious material and other pollutants during construction, operation and decommissioning. Disturbance and displacement as a result of construction and collision risk associated with the operation of the turbines could also pose a significant risk to species of conservation interests in the SPAs.

12.17.24. Details of the 7 no. sites brought forward for Appropriate Assessment including their Conservation Objectives and QIs / SCIs and an assessment of the potential impacts having regard to the attributes and targets is provided below. The following takes into account the attributes and targets where available as reported in section 6 of the NIS and updated as published.

Lough Owel SAC (Site code: 000688)

12.17.25. Lough Owel SAC overlaps with Lough Owel SPA. The site synopsis describes this as one of the best examples in Ireland of a large spring fed calcareous lakes in the country. Lough Owel SAC is 12.5km from CWF and as such it is relatively remote from the large infrastructural elements of the project. However it is immediately adjacent and parallel to the N4 along which the GCR runs. There are potential impact mechanism related to the construction of the GCR which need to be examined in relation to Lough Owel SAC. There is hydrological connectivity by way

of a watercourse which flows under the N4. There is potential for deterioration in surface water quality during construction of the GCR as a result of run-off of silt, hydrocarbons, cementitious material and other pollutants which could affect all of the habitats and species for which the site is designated. It is considered that there is potential for adverse effects on all of these habitats and species which are qualifying interests.

12.17.26. Site specific objectives have been published for the site on 3 May 2013 and these provide for the maintenance of the favourable conservation condition of the habitats and species which is defined by a list of attributes and targets for each of the qualifying interests.

12.17.27. Consideration of the individual qualifying interests follows.

12.17.28. Regarding Hard oligo-mesotrophic waters with benthic vegetation of Chara spp the relevant attributes and targets refer to the maintenance of habitat area, distribution, presence of typical species, vegetation composition and distribution. The relevant attributes and targets include matters relevant to the hydrological regime and water quality. I accept the conclusion presented in the NIS that as the habitat was not identified within or adjacent the proposed development as all works are restricted to the existing N4 road corridor and taking into account the measures set out relating to prevention of water pollution affects as described in the EIAR and CEMP in particular it may be concluded that there will not be any resulting impacts that could be described as an adverse effect in terms of the attributes and targets.

12.17.29. The relevant attributes and targets for Alkaline fens refer to maintenance of habitat distribution, ecosystem function (including maintenance of soil pH, peat formation, natural hydrological regimes, pH and nutrient levels) and community diversity and vegetation composition. The habitat has not been identified within or adjacent to the proposed development which involves works in the vicinity of the European site which are within the existing N4 road corridor. I accept the conclusion presented by the applicant the taking into account the water quality mitigation measures which are set out in the EIAR and CEMP that there will be no alteration to alkaline fen habitat in terms of size, habitat area or distribution and no potential for alteration to the ecosystem function. It may be concluded that there will be no impact in addition on the ecological processes as the pathway for effect on vegetation

composition will be blocked by the mitigation for water quality which I am satisfied can be implemented.

12.17.30. The qualifying interest Transition mires and quaking bogs has not been identified within or adjacent the proposed development is all works will be restricted to the existing N4 road corridor. The attributes and targets for this qualifying interest refer to habitat area, habitat distribution and ecosystem function (including as relevant to soil nutrients, soil pH, water levels and water quality) as well as community diversity including vegetation composition. I accept the conclusion presented in the NIS that following mitigation measures to address water quality it may be concluded there will not be a risk of adverse effects on the extent of the habitat or alteration to the ecosystem function or hydrological regime.

12.17.31. The relevant attributes and targets for White clawed crayfish relate to the distribution, population structure, species health and water quality. The NIS states that there is no identified supporting habitat for the species within or adjacent the proposed development. The Triturus report identifies crayfish as being visibly abundant at the time of survey throughout the Brosna North River at site B6 as far as the Lough Owel confluence and notes the importance of the site in light of ongoing outbreaks of crayfish plague and resulting declines in the species. It is considered that the water quality mitigation measures which are set out for the purposes of the construction of the GCR in the vicinity of this European site can be satisfactorily mitigated and that there is no potential for adverse impact on this species or the supporting aquatic habitat. I accept that the water quality impacts which would be associated with the GCR are readily capable of mitigation. I consider that it may be concluded there will not be a risk of adverse effects in terms of the distribution, population structure, species health and water quality objectives for White clawed crayfish.

12.17.32. In conclusion I concur with the evaluation set out in the NIS in relation to the potential for adverse impacts on Lough Owel SAC having regard to its Conservation Objectives. I consider that it may be concluded in light of the best scientific knowledge and objective information that taking into account the relevant mitigation measures there will not be an adverse impact on this European site. I note the report of Dr Flynn which does not raise any concerns which would be contrary to my conclusion.

Lough Ennell SAC (000685)

12.17.33. The site synopsis describes Lough Ennell SAC as being of significance as a midlands marl lake which supports a rich variety of species. It overlaps with Lough Ennell SPA.

12.17.34. Lough Ennell SAC is 24.3km south of CWF and 4.2km from the GCR. There is a hydrological connectivity at a distance of 8.8km from the GCR to the SAC. Taking a precautionary approach it is considered that there is potential for deterioration in surface water quality as a result of run-off of silt, hydrocarbons, cementitious material and other pollutants which could affect all of the habitats and species for which the site is designated.

12.17.35. Site specific objectives have been published for the site on 12 January 2018 and these provide for the maintenance of the favourable conservation condition of the habitats and species which is defined by a list of attributes and targets for the sole qualifying interest Alkaline fens.

12.17.36. Alkaline fen has not been mapped in detail. The defined attributes include habitat area, habitat distribution, ecosystem function (soil nutrients and water quality), vegetative composition and indicators of local distinctiveness.

12.17.37. While there is potential for deterioration in water quality during the construction phase which could potentially affect this downstream habitat and result in deterioration of its substrate and potential impediment of flora and regeneration of species, I accept the applicant's assessment that taking into account the water quality measures there is no likelihood that there will be impacts which could adversely affect the extent of habitat, alter its size, habitat area or distribution or ecosystem function. I am satisfied that the necessary mitigation measures are sufficiently described, are robust and can be implemented. I note also the significant hydrological distance.

12.17.38. In conclusion I concur with the evaluation set out in the NIS in relation to the potential for adverse impacts on Lough Ennell SAC having regard to its Conservation Objectives. I consider that it may be concluded in light of the best scientific knowledge and objective information that taking into account the relevant mitigation measures there will not be an adverse impact on this European site. I note the report of Dr Flynn which does not raise any concerns which would be contrary to my conclusion.

Lough Owel SPA (004047)

12.17.39. Lough Owel is one of the most important midlands lakes for wintering waterfowl with nationally important populations of shoveler and coot. It is also notable for its use as a roost site on occasion by the internationally important midlands Greenland white-fronted goose flock.

12.17.40. There are First Order Site specific Conservation Objectives for this site which were published on 12 October 2022 and which replace the earlier generic conservation objectives. The SCIs are wetland and waterbirds, shoveler and coot.

12.17.41. Relating to the bird species listed as SCIs, shoveler and coot, the Conservation Objective is to maintain or restore the favourable consideration condition of the bird species. Relevant to the wetlands and waterbirds the second objective is included namely to maintain or restore the conservation condition of the wetland habitats at Lough Owel SPA as a resource for the regularly occurring migratory waterbirds that utilise it.

12.17.42. There are pathways for effect which are related to deterioration in water quality and disturbance of the SCI's during construction of the GCR.

12.17.43. Regarding wetlands and waterbirds the objective is to maintain or restore the favourable conservation condition of the wetland habitat as a resource for the regularly occurring migratory waterbirds that utilise it. My evaluation is that there is no potential for adverse effects on wetlands habitat area taking into account the fact that there would be no direct loss or decrease in habitat area as the GCR works are entirely within the road corridor and no potential for indirect effect as a result of decreased water quality during construction taking into account their mitigation measures set out in the EIAR including the CEMP. This evaluation is along the same lines as that presented earlier for Lough Owel SAC . Nothing in Dr Flynn's report would undermine my conclusions with respect to this SCI.

12.17.44. There is potential for disturbance of SCI species shoveler and coot during construction of the grid connection. I consider that the potential for water pollution to result in habitat deterioration can be ruled out having regard to the water quality mitigation measures presented above.

12.17.45. The NIS states that the bird surveys undertaken show no records of **shoveler** being recorded within 500 m of the proposed development and therefore there is no

potential direct habitat loss, display assessment or other effects on this SCI. I am satisfied that there has been sufficient and appropriate survey to justify this statement and I accept the conclusion presented in the NIS.

12.17.46. The NIS indicates that while **coot** was recorded within 500 m of the proposed development on seven occasions during the extensive surveys there is no evidence to suggest that the development site is of significance for the species and there is no potential for adverse effects in the form of ex-situ habitat loss, disturbance, displacement or collision. In view of the short-term duration and the restricted area of the grid connection works I accept the applicant's conclusion that the attribute of population trend and target of long-term population trend being stable or increased will not be adversely affected as a result of disturbance during construction. Similarly I accept that there should be no significant decrease in the range, timing and intensity of use of these areas and therefore no adverse effect on the Conservation Objective as measured by the attributes and targets set.

12.17.47. In conclusion I concur with the evaluation set out in the NIS in relation to the potential for adverse impacts on Lough Owel SPA having regard to its Conservation Objectives. I consider that it may be concluded in light of the best scientific knowledge and objective information that taking into account the relevant mitigation measures there will not be an adverse impact on this European site. I note the report of Dr Flynn which does not raise any concerns which would be contrary to my conclusion.

Lough Ennell SPA (004044)

12.17.48. The site synopsis describes Lough Ennell SPA as one of the most important midland lakes for wintering waterfowl with internationally important populations of pochard, tufted duck and coot. It is of significance also for wintering waterfowl and the occurrence of golden plover in the vicinity of the lake is of note.

12.17.49. Lough Ennell SPA is 24.3km south of CWF and 4.2km from the GCR. There is a hydrological connectivity at a distance of 8.8km from the GCR to the SAC. Taking a precautionary approach it is considered that there is potential for deterioration in surface water quality as a result of run-off of silt, hydrocarbons, cementitious material and other pollutants which could affect all of the habitats and species for which the site is designated.

12.17.50. There are First Order Site specific conservation objectives for this site which were published on 12 October 2022 and which replace the earlier generic conservation objectives. Relating to the bird species listed as SCIs, pochard, tufted duck and coot, the conservation objective is to maintain or restore the favourable consideration condition of the bird species. relevant to the wetlands and waterbirds the second objective is included namely to maintain or restore the conservation condition of the wetland habitats at Lough Ennell SPA as a resource for the regularly occurring migratory waterbirds that utilise it.

12.17.51. Regarding the SCI wetland and waterbirds the objective is to ensure that the permanent area occupied by wetland habitat is stable other than that occurring from natural patterns of variation and I am satisfied that there will be no direct or indirect effects which could undermine this objective. In this respect I refer to the significant separation distance in terms of hydrological connectivity and the short term and relatively small scale of the grid connection works which is nearest to the proposed development. I accept the conclusion presented in the NIS that the preventative measures will be successful and will not result in any impacts which could adversely affect the extent of habitat within the SPA and that there will be no deterioration in the condition of wetland habitat.

12.17.52. Relating to the bird species listed as SCIs, pochard, tufted duck and coot, the conservation objective for the species is not undermined as a result of water quality impacts for the same reasoning as set out above for wetland and waterbirds.

12.17.53. Regarding the potential for other impacts on SCI species pochard, tufted duck and coot these species are all assessed in the NIS as Non-Key Ornithological Receptors. These are species which based on the applicants surveys and assessment would not have potential for significant effects in the form of habitat loss, disturbance, displacement or collision as a result of the wind farm.

12.17.54. Pochard was recorded at CWF only on a single occasion and no roosting evidence was recorded. The species was recorded at Lough Bane during the 2018-2020 surveys, within 500m of CWF on a single occasion with one bird observed. I accept the applicant's conclusion that there is no evidence to suggest that CWF is of significance for pochard. Due to distance from the GCR there is no potential for significant effects relevant to bird disturbance. I conclude that there is no potential

for adverse effects on this species associated with Lough Ennell SPA in the form of ex situ habitat loss, disturbance, displacement or collision.

12.17.55. Tufted Duck was not recorded at CWF and no evidence of roosting was recorded. The nearest observations of birds in significant numbers as reported in the bird surveys were at Lough Kinale which is over 2km from CWF. I accept the applicant's conclusion that there is no evidence to suggest that CWF is of significance for pochard. Due to distance from the GCR there is no potential for significant effects relevant to bird disturbance. I conclude that there is no potential for adverse effects on this species associated with Lough Ennell SPA in the form of ex situ habitat loss, disturbance, displacement or collision.

12.17.56. Coot was recorded within 500m of the wind farm site on only seven occasions during surveys. There is no evidence to suggest that CWF is of significance to this species. I accept the applicant's conclusion that there is no evidence to suggest that CWF is of significance for coot. Due to distance from the GCR there is no potential for significant effects relevant to bird disturbance. I conclude that there is no potential for adverse effects on this species associated with Lough Ennell SPA in the form of ex situ habitat loss, disturbance, displacement or collision.

12.17.57. In conclusion I am satisfied that following the implementation of water quality mitigation measures, the proposed development works will not adversely affect the integrity of Lough Ennell SPA and no reasonable doubt remains as to the absence of such effects.

Lough Derravaragh SPA (004043)

12.17.58. The site synopsis describes Lough Derravaragh SPA as one of the most important midland lakes for wintering waterfowl with nationally important populations of Whooper swan, pochard, tufted duck and coot. The pochard population is of particular note. At times the SPA is used as a roost by the Greenland white-fronted goose population based in the region. It is of significance also for wintering waterfowl.

12.17.59. Lough Derravaragh is 4.8km south of CWF and 70m from the GCR. The proposed development is within the core foraging area of the Whooper swan and there is potential for collision risk. It is considered that there is potential for all bird species associated with the SPA to be affected by disturbance as a result of construction of the GCR. There is potential for indirect effects related to deterioration

in surface water quality as a result of run-off of silt, hydrocarbons, cementitious material and other pollutants during construction, operation or decommissioning which could affect all of the habitats and species for which the site is designated.

12.17.60. Any significant impact on the quality, functioning and accessibility of the wetland habitat within the SPA would likely significantly negatively impact the regularly occurring migratory waterbirds that utilise the wetland habitat. Impacts on wetland quality, functioning and accessibility would likely reduce the diversity and abundance of waterbird species that the wetland can support. This, in turn, could negatively impact the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly occurring migratory waterbird species.

12.17.61. There are First Order Site specific Conservation Objectives for this site which were published on 12 October 2022 and which replace the earlier generic Conservation Objectives but which will themselves be replaced by site specific conservation objectives when they are available.

12.17.62. Relating to the bird species listed as SCIs Whooper swan, pochard, tufted duck and coot, the Conservation Objective is to maintain or restore the favourable consideration condition of the bird species. No species-specific attributes or targets have yet been set for these species within the SPA.

12.18. Relevant to the SCI wetlands and waterbirds the second objective is included namely to maintain or restore the conservation condition of the wetland habitats at Lough Derravaragh SPA as a resource for the regularly occurring migratory waterbirds that utilise it. In the absence of site-specific conservation objectives, attributes and targets Dr Flynn refers to the attributes and targets commonly associated with the SCI of wetland habitat namely:

- Wetland habitat area: no significant loss wetland habitat within the SPA, other than that occurring from natural patterns of variation.
- Wetland habitat quality and functioning: no significant impact on the quality or functioning of the wetland habitat within the SPA, other than that occurring from natural patterns of variation.

The NIS in analysing the SCI species affected by water pollution and disturbance relies on targets and attributes associated with site-specific conservation objectives and presents this information in table 6 – 11.

Wetland and waterbirds

12.18.1. Lough Derravarragh SPA is 70m from GCR and there is potential for disturbance to waterbirds during construction as well as potential for indirect effects due to deterioration of water quality at supporting wetland habitats.

12.19. In view of the location of the works outside the boundary of the SPA there is no potential for direct loss of wetland habitat.

12.20. Lough Derravarragh SPA is the only European site subject of this AA which has direct hydrological links to CWF by way of the River Inny and its tributaries. Dr Flynn has referenced the potential for significant impact on the quality, functioning and accessibility of the wetland habitat within the SPA would likely significantly negatively impact the regularly occurring migratory waterbirds that utilise the wetland habitat as targets and attributes for other European sites. She notes that impacts on wetland quality, functioning and accessibility would likely reduce the diversity and abundance of waterbird species that the wetland can support and in turn there could be negative impacts the Conservation Objectives for waterbird species listed as Special Conservation Interests in the SPA or other regularly occurring migratory waterbird species.

12.20.1. I accept that the mitigation measures which are set out by the applicant are sufficient to mitigation adverse water quality impacts which could arise as a result of the laying of the cable. I refer to the mitigation section earlier and to comments relating to the nature and scale of the works involved and the likely success of the proposed mitigation measures.

12.20.2. I consider that the situation relating to the works at CWF differs. The submitted information does not deal with the possibility of concurrent peat harvesting and construction of the website and the adequacy of the proposed drainage infrastructure to accommodate those works. In addition I consider that there is a complete lack of clarity relating to the IMG and the implementation of the proposals set out in the EIAR. I have set out my position with respect to these matters earlier. I accept Dr Flynn's conclusions relating to the lack of certainty on water quality effects on Lough Derravaragh.

12.20.3. Regarding the potential for disturbance effects on the SCI wetlands and waterbirds arising from the works along the GCR I note the assessment in section 6.5.2 of the NIS which references the nature, scale and duration to grid connection works and the restriction of these works to the road corridor. On that basis it is concluded that there will not be any adverse effects as a result of waterbirds and no potential to adversely affect population trend and no significant decrease in the range, timing and intensity of use of areas by these SCI species. I accept this conclusion.

12.20.4. To summarise I do not agree with elements of the analysis presented in the NIS. I am not satisfied that it can be stated based on the highest level of knowledge and with certainty that there would be no significant deterioration in water quality in the Inny and that this would not impact on the quality and functioning of wetland habitats of Lough Derravarragh SPA downstream.

Whooper swan

12.20.5. Survey and analysis undertaken by the applicant at the windfarm site and of wetland sites in the wider area shows that CWF is within foraging ranges for Whooper swan associated with Lough Derravaragh SPA. As reported in the NIS in section 4.2.2.2.1 to section 4.4.2.2.3 the survey data shows for all vantage point surveys undertaken that birds were recorded within or partially within the potential collision risk zone and either within or partly within 500 m of CWF. An exception in terms of the results of surveys would be the winter transect surveys 2021 – 2022 which did not record the species. Whooper swan was recorded on the River Inny 56 m from the road along the GCR and 1 km from the boundary of the SPA. Despite the fact that Whooper swan are within the foraging range of the WFS the applicant did not record any regular commuting/ migratory flights that would constitute evidence of connectivity between the SPA and proposed development area.

12.20.6. In the assessment of potential impacts on Whooper swan in section 5 of the NIS the analysis presented focuses on ex-situ habitat loss, disturbance, displacement and barrier effects and collision risk. On the basis that the windfarm site is dominated by cutover bog which is unsuitable for wintering Whopper swan, the survey results recorded and the collision risk assessment the potential for effect on the SCI was discounted. In assessing disturbance, displacement and barrier effects, which were also discounted in terms of the potential for adverse effects, the analysis takes into account the unsuitable habitats which are unlikely to attract

Whooper swan, the absence of foraging areas and lack of evidence of roosting within 500 m and 1 km respectively. There was considered to be no potential for ex-situ habitat loss, disturbance or displacement.

12.20.7. Regarding the potential for barrier effects the survey results undertaken indicate that CWF is not on a migratory corridor for this species and I accept the applicant's assessment that no barrier effect is predicted. Displacement impacts are discounted in the NIS based on the low level of flight activity and low numbers recorded per flight. The assessment presented relating to barrier effects or displacement impacts again rely on maintenance of the existing habitats.

12.20.8. All of this analysis appears to me to rely on maintenance of the existing habitat at CWF, which I do not consider as a strong basis for assessment. It is with respect to the potential for adverse impacts relevant to collision risks that in my opinion the NIS is most poorly founded. The assumption in the collision risk model used by the applicant is that the habitat and bird activity will remain the same over time during the operational stage of the windfarm. It is reliant therefore on the continuation of peat harvesting. I have previously expressed my reservations about this basic premise. I agree with DHLGH that there is a need for the potential cumulative impacts of future land use coexisting with an operational windfarm to be simultaneously assessed and this is relevant in particular for appropriate assessment.

12.20.9. In relation to detail of the information presented in the NIS this is discussed in Dr Flynn's report in sections 5.48 to 5.51. The collision risk (155m rotor diameter) has been calculated at a ratio of 0.79 collisions per year based on the current situation (cutover bog) which is not considered significant at the population level. Her assessment acknowledges the low levels of observations of Whooper swan and notes that the majority of flights were associated with the Inny River along the western margin of the site and the peatland offsite and still further west of the wind farm site. Map WS01- WS016 in Appendix 5 of the FI response refers. She also provides information from the most recent Bird survey report (March 2021- March 2022) which updates the county population of the SCI to 982 birds. This is up from the figure of 389 which is provided in the EIAR. Dr Flynn notes that in order to be significant at the county level (based on a population of 982 individuals) the collision risk would have to reach 9+, which she describes as an unlikely scenario even if bird numbers increased at the site. However, a more moderate increase of collision risk

to 1+ birds per year could undermine the Conservation Objectives of Lough Derravarragh SPA for this species (regionally important population with baseline of 102 individuals stated in the sites Natura 2000 form) If the birds present /affected are associated with that SPA wintering population.

12.20.10. I think the issues around the collision risk and its assessment could be subject of considerable debate. Any assessment undertaken has to rely on its context and that can be a changing environment. One clear fact remains in this case and in my opinion, it completely undermines the conclusions presented with respect to Whopper swan; there is no analysis presented other than one based on the development of a wind farm within an overall habitat which is of low suitability for accommodating the species. That is at the heart of the analysis presented with respect to various impacts (table 5 – 1 of the NIS) and is central to the collision risk analysis undertaken. As I have concluded elsewhere, I simply do not accept that the applicant can control this scenario. I do not accept the scenario that any future proposed repurposing of the site or rehabilitation will be carried out appropriately and would be subject to AA, which is the approach presented in section 7.2.2.1 with respect to cumulative assessment. This assessment needs to be undertaken for the purposes of AA having regard to the status of the existing peat harvesting, the details of the IMG and the planning history as discussed under the planning assessment section of this report. Therefore, I do not accept that significant effects on Whooper swan at Lough Derravaragh SPA can be discounted.

Pochard, Tufted Duck and Coot

I consider that there is no potential for adverse effects on pochard, tufted duck and coot associated with Lough Derravarragh SPA in the form of ex situ habitat loss, displacement or collision and in this respect, I rely on the reasoning set out for Lough Ennell SPA. With respect to the potential for disturbance I refer to my consideration of the SCI wetlands and waterbirds for Lough Derravarragh SPA above and conclude that the grid connection works would not result in adverse effects by reason of disturbance notwithstanding the proximity of these works to the European site.

Lough Iron SPA (004046)

The site synopsis describes Lough Iron SPA as being of international importance as a site for wintering waterfowl. It supports internationally important populations of

Whooper swan and Greenland white-fronted goose and nationally important numbers of wigeon, teal, shoveler, coot and golden plover.

Lough Iron is 11.4 km southwest of CWF and 4.3km from the GCR and 3km from road junction works at Joanstown. CWF is outside the potential core foraging range of SCI species for which the site is designated. However there is a potential pathway for effects related to CWF. Taking a precautionary approach there is potential for indirect effects on wetland habitat as a result of deterioration in surface water quality as a result of run-off of silt, hydrocarbons, cementitious material and other pollutants during construction, including related to the road junction works at Joanstown.

There are First Order Site specific Conservation Objectives for this site which were published on 12 October 2022 and which replace the earlier generic conservation objectives. Relating to the relevant bird species the SCIs are Whooper swan, Greenland white-fronted goose, wigeon, teal, shoveler, coot and golden plover and the Conservation Objective is to maintain or restore the favourable consideration condition of the bird species. Relevant to the SCI wetlands and waterbirds the second objective is included namely to maintain or restore the conservation condition of the wetland habitats at Lough Iron SPA as a resource for the regularly occurring migratory waterbirds that utilise it.

12.21. Table 6-12 presents a summary assessment by the applicant for potential impacts on SCI species due to ex situ habitat loss, disturbance, displacement and barrier effect and collision. This references back to section 5 of the NIS.

12.22. With respect to the SCI Greenland white fronted goose the potential for ex-situ habitat loss notes that the majority of observations of flocks were recorded at Lough Iron itself and surveys between 2021 and 2022 show only one observation of a flock of 14 birds commuting over CWF with similar levels reported in other years of survey is and no evidence of roosting foraging within 1 km of CWF. It is therefore concluded that significant effects with regard to direct habitat loss are not predicted. It is similarly concluded in relation to the potential for disturbance, displacement and barrier effects that given the low numbers recorded and the abundance of suitable habitats in the wider area and based on the conclusion that there is no regularly used commuting corridor on migratory route crossing CWF there will be no significant disturbance, displacement or barrier effects. The potential for collision risk has been calculated at 0.04 collisions per year (one bird every 25 years). I accept the conclusion presented

that the potential effects on this SCI would not be adverse effects on any SPA populations.

12.23. Regarding the potential for effect on Golden plover the most recent surveys show no observations of golden plover utilising habitats on or within 500m of CWF although earlier surveys reported regular use of the site. Furthermore as analysed by Dr Flynn the data supports the fact that Golden Plover recorded at and in the vicinity of the windfarm site is a largely resident population during the winter months on local areas of cut over bog and is not a population associated with Lough Iron SPA.

12.24. I accept the conclusions presented by the applicant that significant direct habitat loss would not be predicted having regard to the confines of the infrastructure site. Regarding disturbance, displacement and barrier effects the 800 m zone of sensitivity refers to the breeding season. It is noted that the species was recorded commuting or circling CWF or within 500 m of CWF in the winter period. Having regard to the recent years' surveys I would generally accept the applicant's conclusion presented in table 5 -3 that disturbance, displacement and barrier effects are unlikely.

12.25. I now turn to the potential collision effects. I refer to sections 5.55 to 5.58 of Dr Flynn's report in this respect. The basic thrust of the conclusion presented by the applicant in table 5 – 3 relating to potential collision effects is that there would be no adverse effects on SPA populations. Taking into account Dr Flynn's report and the evidence from surveys that the local population is largely resident during winter months I accept the conclusion presented in the NIS. I have drawn a conclusion under EIA that significant effects on the wintering population of Golden plover cannot be ruled out but that is a different population and is not relevant to the SCI of Lough Iron SPA.

12.26. In terms of the potential for adverse effects on the SCI Teal due to the limited recording of this SCI at CWF or within 500 m of CWF and the unsuitable wintering habitat at CWF significant effects with regard to direct habitat loss are not predicted. Based on the continuance of peat harvesting at the overall lands this statement is reasonable. With respect to disturbance, displacement and barrier effects the NIS concludes that no adverse effects on any population associated with the SBA are predicted having regard to the records of species at CWF or within 500 m of CWF and the habitats. I accept that the collision risk of 0.010 collisions per annum may be described as insignificant.

12.27. As reported in table 5-4 wigeon it is regularly recorded feeding/roosting at Lough Bane 300 m from the nearest turbine. Direct habitat loss is not predicted. As the location is screened by scrub/woodland disturbance would not be expected. In commenting on displacement effects the NIS references wigeon activity within 500 m of the turbines in the vicinity of Lough Bane. It states that a 500 m buffer of the proposed turbines would overlap with 50% of the Lough but then goes on to describe how impacts at this location would be limited due to the screening and habitats present. I would accept the overall conclusion that potential displacement effects would not be anticipated and that there is an abundance of similar suitable habitats in the wider area. Regarding collision effects it is noted that the species was not recorded during vantage point surveys and collision -related mortality is not likely to be significant.

12.28. Regarding the potential for adverse effects on the SCIs as a result of deterioration of water quality including from the works Joanstown road junction I am satisfied these can be adequately mitigated.

Garriskil Bog SPA (004102)

12.28.1. The site synopsis describes Garriskil Bog as a raised big which is bounded by the rivers Inny and Riffey and contains a substantial area of uncut high bog. It was used at the time of designation by part of an internationally important population of Greenland white-fronted goose which appear to have abandoned the peatland sites in favour of grassland sites elsewhere. The site is within the range of the midland lakes for this species, which is centred on lakes Derravaragh, Iron, Owel and Ennell. However due to low numbers of birds it has been given a county level importance.

12.28.2. Garriskil Bog is 7.2km from CWF and 1.4km from the GCR. There is a potential pathway for effects from collision as the windfarm site is within the core foraging range of Greenland white-fronted goose.

12.28.3. There are First Order Site specific conservation objectives for this site which were published on 12 October 2022 and which replace the earlier generic conservation objectives. Relating to the sole SCI namely Greenland white-fronted goose, the Conservation Objective is to maintain or restore the favourable consideration condition of the bird species.

12.28.4. The SCI was included and assessed in the NIS including in terms of the collision model. This was described as being on a precautionary basis and relevant only to the operation phase.

12.28.5. Having regard to earlier discussion on Greenland white fronted geese, the separation distance from CWF, the low numbers recorded, the abundance of suitable habitats in the wider area and based on the conclusion that there is no regularly used commuting corridor on a migratory route crossing CWF it might be concluded that there will be no significant disturbance, displacement or barrier effects. However, my reservations relating to the adequacy of the information provided by the applicant undermine this conclusion

12.28.6. **In combination effects**

12.28.7. While observers have referenced this development was once part of a larger planned wind energy development, I do not consider that this is a matter for assessment under this case. I do not consider that there are any potential effects related to other permitted wind developments in this general area. I do not consider that the Board has any remit to consider other lands which might have suitability for similar types of development. Any such future applications for wind energy development would be subject to appropriate assessment at that time and that assessment would take into account any permission granted at the subject site and in that way the in-combination assessment would be made.

12.28.8. With respect to the future land use activities on the overall lands that is however a legitimate concern in this case and one which is included in section 7.2.1 of the NIS under the heading projects considered in cumulative assessment. I do not accept the fundamental point that should peat cutting operations permanently cease any rehabilitation or repurposed sing of the site will be subject of ecological assessment and possibly appropriate assessment and such assessment would take account of potential cumulative effects of any permitted or proposed wind farm. Furthermore I do not accept that the ecological impacts of any rehabilitation would be of lower significance than those associated with the ongoing peat cutting. I do not consider that there is sufficient information available for the Board in this respect. I refer to concluding remarks in Dr Flynn's report.

I do not have any other comments on the matter of in combination effects which is otherwise adequately considered in the NIS.

12.28.9. **Conclusion**

12.28.10. Due to the uncertainty relating to the future land management adjacent to CWF and peat stability and having regard to the assumptions for collision risk modelling and my conclusions relating to site drainage and management thereof, it cannot be concluded that there would be no adverse effects on the site integrity of European sites and particularly Lough Derravarragh SPA.

13.0 **Recommendation**

13.1. I confirm that this report represents my professional planning assessment, judgement and opinion on the matter assigned to me and that no person has influenced or sought to influence, directly or indirectly, the exercise of my professional judgement in an improper or inappropriate way.

13.2. I recommend that the Board refuse to grant consent for the reasons and considerations below.

14.0 **Reasons and Considerations**

Having regard to

(a) the nature of the proposed wind farm drainage, which utilises the existing peatlands drainage system within and outside of the site boundary, which has not been authorised by a grant of permission

(b) the continuance of peat harvesting as the baseline scenario for the EIAR, including bird collision risk assessment and the assumed continuance of this land use

(c) the uncertainty relating to future land use at the 'optioned lands'

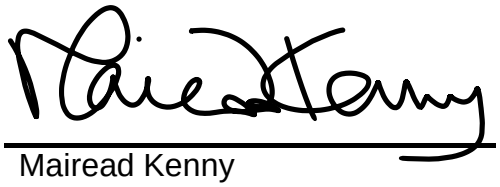
(d) the absence of evidence of sufficient legal control to support the management proposals for the 'optioned lands'

(e) the information presented in relation to peat depth

the Board considered that there is significant uncertainty relating to the effect on soils, water and ecology which precludes assessment of the full environmental effects in accordance with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The proposed development is, therefore, premature.

On the basis of the information provided by the applicant in relation to site drainage proposals and collision risk modelling for birds, and in the absence of an assessment of the future land use together with the proposed development, the Board cannot be satisfied that the proposed development individually, or in combination with other plans or projects would not be likely to have a significant effect on European site

Lough Derravaragh SPA (004043), or any other European site, in view of the site's Conservation Objectives. In such circumstances the Board is precluded from granting approval.



Mairead Kenny
Senior Planning Inspector

11 September 2023

Appendix – Observations List

Observations

Observations were received from the following persons and groups.

Aidan Walsh

Andrew Fagan and Others

Anne Butler and Others

Anthony and Catherine McGuire

Anthony Maguire and Rona Beverley Bate

Brendan Dermody and Others

Cariosa and Darren Fagan

Caroline and Derek Smyth

Caroline and Patrick Pilkington and Others

Christy McDonnell

Daryl Kennedy

DAU (DHLGH)

Denise Waters and Others

Geological Survey Ireland

Irish Aviation Authority

James Gibney

Jennifer and Gavin Gallagher

Jeroen Holtkamp and Mary Mulvey and Others

Joe and Oonagh Clarke

John and Jo Ann Barrett

John and Susan McGuire

John Delamere and Others

Johnny Guirke TD & Sorca Clarke TD

Kevin Brady

Kevin Brady & Others

Kevin Coffey and Patricia O'Donoghue

Kevin O'Neill

Mairead and Jimmy Kiernan

Matt Gibney

Michael and Gael Lawlor

Michael Fagan

North Westmeath Turbine Action Group Ltd

NWTAG

Octavia Tulloch & Others

Pamela Keegan and Others

Philip Donleavy

Rose, Jane, Maura and Patrick Gibney

Ruth and Adam Sweeney

Thomas and Valerie Packenham

TII

Val Martin

Further observations

Following circulation of the further information submitted by the applicant, further observations were received from the following persons and groups.

Aidan Walsh

Caroline and Patrick Pilkington and Others

Denis Waters and Others

Jennifer and Gavin Gallagher

John Delamere and Others

Kevin Brady

Kevin O'Neill

Margaret Mulligan and others

Michael Fagan

North Westmeath Turbine Action Group Ltd

Rona Beverly Bate

Ruth and Adam Sweeney

TII