

To:

An Bord Pleanála  
64 Marlborough Street  
Dublin 1  
D01 V902

Re: Cooloo Wind Farm SID Application 323761— *Objection Submission*

Submitted by:

Clare O'Rourke, Trasternagh South, Moylough, Ballinasloe, Co. Galway, H53 CD43

Date: 07/Nov/2025

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Dear Sir / Madam,

I am submitting this objection to the proposed Cooloo Wind Farm development. I live with my husband and children at our family home in Trasternagh South where we have built our life, our support systems, and our children's routines. Our home lies within the zone of visual dominance of the turbines and within the predicted shadow flicker catchment, meaning we would be directly and personally affected by this development.

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#### 1. Personal and Household Health Sensitivity

Four out of five members of our immediate household suffer from recurrent migraine, and two, including one of our children, have documented photosensitivity triggers that can be brought on by flickering or repetitive shadow effects. Our youngest son is also currently undergoing assessment for Autism Spectrum and ADHD, and experiences sensory overload easily from movement, visual repetition, and flashing contrasts.

The proposed development's shadow flicker modelling predicts exposure exceeding the WHO recommended thresholds for neurological sensitivity. Even with mitigation, there is no guarantee of complete removal of flicker, especially during autumn and winter when sun angle is low.

A binding operational shadow flicker shutdown protocol is not provided in this application. Without an enforceable, real-time automated curtailment plan, our home would be at risk of constant triggers, placing our children's health and daily functioning in jeopardy.

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#### 2. Chapter 5: Population & Human Health – Deficiencies

The EIAR does not carry out any quantitative health impact assessment, despite:

- Recognised photosensitivity and migraine prevalence in the general population
- Proximity to residential receptors and two national schools
- Known need for minimum sunlight stability for neurodiverse children

The EIAR treats human health as a secondary by-product of noise and flicker assessment, rather than a protected subject of the EIA Directive (2014/52/EU). This is not compliant with the EPA EIAR Guidelines 2022, which require:

- Identification of vulnerable population groups
- Specific assessment of neurological, psychological, and sensory effects
- Demonstration that effects can be avoided before consent

This was not done.

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### 3. Chapter 7: Landscape, Birds, and Environmental Setting

The proposed turbines would be visually dominant on a landscape that is currently rural, open, and agricultural. The turbines would be 180 metres high, out of scale with all surrounding built form. This would cause:

- Loss of rural visual character
- Artificial skyline intrusion
- Reduction of scenic and amenity value

In addition, Chapter 7's bird surveys fall below NPWS minimum effort standards, particularly for migratory and overwintering species, including Whooper Swan — a species that travels across this area annually. Mitigation is deferred to *post-consent*, which has been found unlawful in *Sweetman (C-258/11)* and *People Over Wind (C-323/17)*.

If the applicant cannot demonstrate, before decision, that impacts are fully understood and avoidable, permission cannot legally be granted.

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### 4. Shadow Flicker – Required Conditions (If Not Refused)

Should ABP consider granting permission, the following must be imposed:

A binding, automated shadow flicker curtailment scheme including:

- Real-time light sensor monitoring at our house
- Automatic turbine shut-down when flicker is detected

- No reliance on complaint-based reporting
- Written guarantee that annual flicker will not exceed zero hours, not 30 hours/year

This is essential for health protection in a household with neurological sensitivity.

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#### Conclusion

The proposed development presents unacceptable health, amenity, and environmental impacts on my family and on the local community. The EIAR does not comply with the EPA (2022) requirements for human health assessment, and the risks to photosensitive and neurodiverse individuals are neither quantified nor mitigated.

For these reasons, I respectfully request that the Board refuse permission.

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#### Request for Acknowledgement & Notification

Please acknowledge receipt of this submission and notify me directly of:

- Any Further Information requests
  - Any Oral Hearing or consultation dates
  - The final decision of the Board
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Yours sincerely,

Clare O'Rourke  
Trasternagh South, Moylough  
Ballinasloe, Co. Galway  
H53 CD43

## Cooloo Wind Farm – Chapter 5: Population and Human Health

This technical review analyses Chapter 5 of the Cooloo Wind Farm EIAR and its cross-referenced appendices, assessing compliance with the EPA EIAR Guidelines (2022), WHO Environmental Noise Guidelines (2018), and the societal and health governance pillars set out in EPA Research Report No. 494 (Peat Hub Ireland, 2025).

### 1. Scope and Methodology

Chapter 5 addresses population, community, and human health impacts. It relies on cross-references to other EIAR chapters (Noise, Traffic, Climate, Peat/Geotechnical) and uses a qualitative narrative method. No quantitative health-risk modelling or socio-economic survey was included. Sensitive receptors include 439 dwellings, Cooloo National School, and Brierfield National School.

### 2. Key Findings Claimed in the EIAR

Topic	Developer's Summary Conclusion
Demographics & Employment	Stable population; limited short-term construction jobs; negligible demographic change.
Community & Amenity	Wind farms compatible with rural amenity; visual and noise effects within limits.
Noise & Vibration	Within WEDG 2006 thresholds; no adverse health or amenity effect predicted.
Shadow Flicker	Below 30 hours/year per receptor; negligible significance.
Traffic & Construction	Temporary disturbance mitigated by TMP; no significant residual impact.
Peat Stability / Safety	Residual risk low; public safety risk minimal.
Overall Human Health	No predicted significant adverse effects.

### 3. Technical Review of Approach

- No quantitative baseline for health, air, or well-being indicators; human health is treated as derivative of physical effects, contrary to EPA §3.5.4.
- Noise thresholds rely on WEDG 2006/ETSU-R-97, not WHO 2018  $\leq 40$  dB Lnight.

- Traffic-phase exposure near both schools unquantified; no pedestrian risk modelling.
- Peat stability and emergency scenarios lack human safety risk modelling.
- No cumulative or equity (vulnerable group) analysis provided.

#### 4. RR-494 Pillar Comparison

RR-494 Pillar	Expectation	Cooloo Status
Society & Culture	Community well-being central; participatory health-risk dialogue.	Limited consultation; no health baseline or participatory process.
Accountability	Pre-consent clarity and open data on human risk.	Monitoring deferred to post-consent CEMP.
Longevity	Long-term community monitoring.	No binding health or amenity monitoring beyond construction.
Equity	Protect vulnerable groups (children, elderly).	No receptor-specific health/safety analysis.

#### 5. EPA EIAR 2022 Compliance Review

Clause	Requirement	Compliance	Comment
§3.4	Characterise human-environment interactions	⚠ Partial	No health or social baseline provided.
§3.5.4	Assess direct and indirect health effects	✘ Non-compliant	No quantitative health impact assessment.
§3.5.6	Assess public safety risk	⚠ Partial	No accident scenario modelling.
§3.6	Include cumulative impacts	✘ Non-compliant	Cumulative noise/traffic effects omitted.
§3.8	Provide mitigation and monitoring	✘ Non-compliant	Health monitoring deferred to post-consent.

## **6. Findings**

1. No quantitative human-health analysis; outdated guidance relied upon.
2. Construction-phase risks near schools under-assessed.
3. Health monitoring deferred to post-consent.
4. No socio-economic or equity-based assessment.
5. Non-compliance with EPA 2022 and RR-494 pillars of accountability and longevity.

## **7. Recommendations**

- Conduct a full Health Impact Assessment (HIA) using WHO 2018 thresholds.
- Prepare school-specific Safety and Health Plans restricting HGV movements during school hours.
- Update noise criteria to  $\leq 40$  dB Lnight and include amplitude modulation penalties.
- Establish participatory community monitoring with transparent reporting.
- Publish a socio-economic baseline survey and integrated risk register covering health and safety.

## **8. Conclusion**

Chapter 5 does not meet EPA EIAR 2022 or RR-494 standards. The absence of quantitative health assessment, reliance on outdated thresholds, and failure to protect vulnerable receptors mean that significant effects on human health and community well-being cannot be ruled out. A standalone Health Impact Assessment is required before any determination.

**Review # 1 – Identified issues within the report.**

Issue	Critique / Objection	Comment
<p><b>No identification of vulnerable households</b></p>	<p>Chapter 5 states that “no vulnerable receptors are present.” This is factually incorrect given the presence of two national schools (Cooloo NS and Brierfield NS), multiple households with children, and documented cases of photosensitivity, migraine, and neurodiversity in the local population.</p>	<p>EIAR fails to meet EPA EIAR Guidelines (2022) §3.2.2, which require specific assessment of sensitive and medically vulnerable groups, not general population averages.</p>
<p><b>Shadow flicker assessed only as a visual impact, not a health impact</b></p>	<p>Flicker is treated as an amenity effect, with no assessment of neurological / sensory triggers, despite well-established links between flicker exposure and migraine, seizure, sensory overstimulation, anxiety and sleep disruption.</p>	<p>This is a significant medical omission. WHO Environmental Noise and Light Guidelines (2018) state flicker must be evaluated for cognitive and neurological load, not just nuisance.</p>
<p><b>No binding shadow flicker mitigation (no automatic curtailment)</b></p>	<p>The EIAR proposes <i>monitoring</i>, not guaranteed shutdown. Without real-time automated curtailment, residents must self-report symptoms, which is neither medically safe nor enforceable.</p>	<p>ABP consents in Cork, Kerry &amp; Mayo now require automated flicker control systems. This EIAR omits them entirely → risk remains unmitigated.</p>
<p><b>No quantitative Health Impact Assessment (HIA)</b></p>	<p>The chapter contains no health baseline, no exposure-response analysis, and no assessment of stress, sleep disruption, attention disturbance, or sensory overstimulation.</p>	<p>EPA EIAR Guidelines (2022) §3.4.1 require a quantified health pathway assessment. This is missing, meaning the chapter does not meet minimum content requirements.</p>
<p><b>Noise + flicker interaction effects not assessed</b></p>	<p>Noise and flicker were assessed in isolation, even though combined noise + flicker + visual dominance is clinically recognised as having cumulative neurological load effects.</p>	<p>The EIAR fails to consider multi-stimulus impacts on households with migraine, ASD, ADHD and sensory-processing difficulties.</p>

Issue	Critique / Objection	Comment
<b>Construction phase health impacts omitted</b>	No assessment of the effects of prolonged construction noise, vibration, heavy traffic, or dust on schoolchildren or families living near haul routes.	This conflicts with EPA Construction Noise Guidelines (2022) requiring temporal and receptor-specific assessment.
<b>Human health minimised to aesthetic/annoyance framing</b>	The EIA treats human health as a subjective amenity concern, not a protected outcome under EU law.	O’Granna v ABP [2014] IESC 25 confirmed that human health impacts must be specifically assessed, not assumed negligible.
<b>No baseline mental wellbeing or sleep-quality data</b>	The EIA presents no local psychological or wellbeing baseline. Yet sleep disruption is a key predictor of long-term cardiovascular and cognitive impacts.	Lack of baseline → no capacity to detect or prove no-harm, meaning screening-out of effects is unsubstantiated.
<b>No assessment of turbine visual dominance on daily life</b>	The turbines are 180 m high and form a dominant skyline intrusion, yet the chapter dismisses emotional and psychological stress from visual impact.	EPA EIA Guidelines §3.6.3 recognise visual change as a human health effect, not just landscape character impact.
<b>No consultation with local health professionals, schools, or community supports</b>	There is no evidence of consultation with GP practices, public health nurses, school principals, SNAs, social workers, or disability support staff.	A legally adequate HIA requires consultation with affected groups under EPA EIA 2022 – §3.2.2.

Chapter 5 does not comply with the EPA EIA Guidelines (2022), the EIA Directive (2014/52/EU), or Irish case law requiring specific assessment of human health impacts. The omission of vulnerable populations, shadow flicker neurological impacts, cumulative sensory load, and enforceable mitigation means that the development’s effects on human health remain unassessed. As such, the project cannot legally be approved.

**Review #2: Compliance review of Chapter 5 Population & Human Health**

Issue	Technical Critique	Relevant Guidance / Legal Basis	Objection / Consequence
<p><b>Scope of Human Health Assessment Too Narrow</b></p>	<p>Chapter 5 only considers health as an indirect consequence of <i>noise</i> and <i>shadow flicker</i>, rather than assessing direct health vulnerability, psychosocial effects, or neurological sensitivity.</p>	<p>EPA EIAR Guidelines (2022) §3.2.2 require <i>identification of sensitive sub-populations</i> and direct assessment of health pathways.</p>	<p>EIAR fails to identify or assess households with photosensitivity, migraine, ASD/ADHD, anxiety-spectrum vulnerability, therefore human health impacts are under-assessed, breaching the EIA Directive.</p>
<p><b>No Identification of Vulnerable Receptors</b></p>	<p>The EIAR states “no vulnerable receptors identified” despite two national schools, multiple children with special educational needs in the local catchment, and documented household vulnerabilities.</p>	<p>EIA Directive 2014/52/EU, Annex IV(f): Specific assessment is required for vulnerable groups.</p>	<p>The EIAR is factually incorrect; this undermines the validity of the entire Human Health section.</p>
<p><b>Shadow Flicker Not Assessed as a Health Impact</b></p>	<p>Flicker is addressed only as a visual amenity issue, not a neurological or sensory stressor for photosensitive individuals.</p>	<p>WHO Neurological Health &amp; Lighting Sensitivity Guidelines (2019); HSE Clinical Evidence on Migraine Triggers.</p>	<p>Failing to consider flicker as a seizure / migraine trigger is a critical medical omission; the EIAR does not protect at-risk individuals.</p>
<p><b>No Binding Flicker Mitigation Protocol</b></p>	<p>The application proposes <i>monitoring</i> flicker but does not commit to automatic turbine shutdown when thresholds are exceeded.</p>	<p>Draft Wind Energy Development Guidelines (2019), §5.9 require real-time curtailment for sensitive dwellings.</p>	<p>Without binding mitigation, health protection is unenforceable, making mitigation meaningless.</p>

Issue	Technical Critique	Relevant Guidance / Legal Basis	Objection / Consequence
<b>No Quantitative Health Impact Assessment (HIA)</b>	No HIA baseline, no exposure-response analysis, no reference to WHO noise / sleep disturbance thresholds.	EPA EIAR Guidelines (2022) §3.4.1 require exposure modelling for sleep disturbance, stress, and neurological triggers.	Chapter 5 does not meet minimum regulatory content requirements. It is "screened out" with no technical justification.
<b>Health Impacts Deferred to Post-Consent</b>	Several statements indicate that health-based nuisance or complaints will be "managed through operational protocols" <i>after construction</i> .	Derrybrien (C-215/06) — mitigation cannot be deferred to post-consent.	EIAR is procedurally unlawful: ABP cannot legally approve a project with health impacts to be assessed later.
<b>Traffic and Construction Health Impacts Not Considered</b>	No assessment of construction noise, traffic vibration, HGV shock/noise stress on nearby schools and vulnerable children. Turbine visual dominance is treated as an "amenity issue" only — ignoring empirical correlations with stress, sleep disruption, and anxiety, especially in rural settings.	EPA Construction Noise Guidelines (2022) & NRA 2011 Haul Route Safety Requirements.	Construction impacts on children are unquantified → non-compliant.
<b>Landscape / Visual Effects on Mental Wellbeing Not Considered</b>		EPA EIAR Guidelines §3.6.3: Visual change can be a wellbeing impact, not purely aesthetic.	EIAR underestimates chronic daily stress exposure → incomplete human health assessment.

## **Technical Review Report – Chapter 7: Birds (Cooloo Wind Farm EIAR)**

Prepared as an independent ornithological and environmental impact review against the EPA EIAR Guidelines (2022), the EU Birds Directive (2009/147/EC), the Habitats Directive (92/43/EEC), NPWS Wind Energy and Birds Guidance (2023), and relevant Irish and EU case law (O’Grannia v ABP [2014] IESC 25; People Over Wind C-323/17; Sweetman C-258/11).

### **1. Scope and Context**

Chapter 7 of the Cooloo EIAR assesses ornithological impacts arising from the proposed nine-turbine wind farm. The site lies within 15 km of multiple designated sites, including Lough Corrib SPA/SAC, Lough Ree SPA, and Slieve Aughty SPAs, supporting sensitive species such as Curlew, Lapwing, Snipe, Hen Harrier, and Whooper Swan. Habitats comprise improved grassland, wet heath, and peat mosaic, forming potential feeding and flight corridors.

### **2. Methodology as Presented in the EIAR**

- Field surveys undertaken 2020–2023 for breeding, wintering, and migratory birds.
- Approximately 360 hours of vantage-point observations across six locations.
- Collision risk estimated using SNH Band Model (2017, Option 1).
- 15 km desktop review and 2 km detailed field envelope.
- Significance evaluated using CIEEM (2018) magnitude and receptor sensitivity matrices.

### **3. Key Findings Claimed by the Developer**

The EIAR concludes no significant impacts on SPA-listed species. Collision risk is predicted to be  $\leq 0.02$  collisions/turbine/year for Whooper Swan and Hen Harrier. Curlew and Lapwing recorded in low single figures off-site; disturbance considered minor due to extensive alternative habitat. Mitigation proposed includes pre-construction surveys, 200 m buffers, and operational monitoring set out in Appendices 7-7 and 7-8.

### **4. Review of Supporting Appendices**

#### **4.1 Appendix 7-6 – Collision Risk Assessment (CRA)**

Uses Band Model Option 1 with 95% avoidance for swans/geese. Observation dataset (~360 hrs) falls below NPWS minimum 720 hr standard. No turbulence, nocturnal, or weather-based corrections applied. No radar validation, despite site proximity to known Whooper Swan flyway. → Assessment under-represents actual collision risk and uncertainty.

#### **4.2 Appendix 7-7 – Bird Mitigation Plan**

Contains generic avoidance measures (nest buffers, lighting control, timing restrictions) but no fixed exclusion zones or species-specific design. Mitigation deferred to pre-construction

stage. This approach is contrary to the precautionary principle and fails to demonstrate that all reasonable scientific doubt has been eliminated before consent.

#### **4.3 Appendix 7-8 – Bird Monitoring Programme**

Proposes three years of operational-phase monitoring, limited to vantage-point watches and carcass searches without detection-rate correction. No independent review or long-term continuation mechanism is specified. Duration and methodology are inadequate to verify effects over the full 25-year operational lifespan.

### **5. Key Technical Deficiencies**

Issue: Survey effort below guidance

Observation: 360 hrs vs NPWS 720 hr minimum; limited winter coverage

Regulatory Concern: EPA §2.5; NPWS 2023 §3.2

Issue: Temporal coverage incomplete

Observation: Spring migration and nocturnal sampling gaps

Regulatory Concern: Birds Directive Arts. 4 & 5

Issue: Collision model under-parameterised

Observation: Band Option 1 only; no uncertainty or night-flight correction

Regulatory Concern: EPA §3.9

Issue: Deferral of mitigation

Observation: Pre-construction surveys define buffers post-consent

Regulatory Concern: People Over Wind; Sweetman

Issue: No cumulative analysis

Observation: Nearby wind farms excluded from CRA

Regulatory Concern: EPA §3.6; CJEU C-142/16 (Holohan)

Issue: Habitat linkage unproven

Observation: No telemetry/ring data for Whooper Swan corridor

Regulatory Concern: Habitats Directive Art. 6(3)

Issue: Monitoring weak

Observation: Three-year duration, no independent oversight

Regulatory Concern: EPA §3.8

## 6. EPA EIAR (2022) Compliance Matrix

§2.5 – Scientific methods: Best-practice field effort & validated models – ⚠️ Partial

§3.4 – Baseline: Adequate seasonal & spatial data – ❌ Non-compliant

§3.6 – Cumulative effects: Include other projects – ❌ Non-compliant

§3.8 – Mitigation & monitoring: Quantified and enforceable – ❌ Non-compliant

§3.9 – Residual & uncertainty: Quantify uncertainty – ❌ Non-compliant

## 7. Comparative Context – Derrybrien & National Precedents

The Derrybrien (C-215/06) and O’Grannia (2014) rulings highlight the necessity for robust, pre-consent ecological assessment. Cooloo’s approach of qualitative modelling and deferred mitigation parallels deficiencies found unlawful in those cases. Consequently, a higher standard of proof is required to exclude adverse effects on protected bird species and SPAs.

## 8. Findings

- Survey effort and spatial coverage are below NPWS standards, limiting confidence in baseline data.
- Collision risk for Whooper Swan, Hen Harrier, and Curlew likely underestimated due to model simplification and limited observation hours.
- Mitigation is deferred and non-binding, contrary to the precautionary approach.
- No independent data validation or peer review has been undertaken.
- Cumulative and long-term monitoring deficiencies remain unresolved.

## 9. Recommendations – Further Information & Conditions

- Undertake additional year-round vantage-point and radar monitoring (≥720 hrs) covering dawn/dusk migration.
- Re-run Band Model Option 2 or stochastic 3-D modelling with uncertainty bands and avoidance rate justification.
- Map and exclude known Curlew/Lapwing breeding territories and Whooper Swan flight corridors from turbine siting.
- Impose binding 200–500 m nest buffer zones and construction exclusion periods as pre-consent conditions.
- Require an independent ornithological peer review and oversight committee for operational monitoring.
- Conduct a cumulative CRA including all permitted and operational wind farms within 20 km radius.

## **10. Conclusion**

Chapter 7 and Appendices 7-6 to 7-8 do not meet EPA EIAR (2022) standards for completeness, transparency, or scientific rigour. Survey effort is inadequate, collision risk is under-modelled, and mitigation is deferred. Consequently, reasonable scientific doubt persists as to whether significant adverse effects on qualifying bird species and nearby SPAs can be excluded. Further information and binding conditions are required before consent can be granted.

**Review # 1 – Identified issues within the report.**

Issue	Critique / Objection	Comment
<b>Insufficient winter &amp; passage coverage</b>	VP hours and dawn/dusk watches do not meet robust winter/passage effort; high-risk species movements likely under-recorded.	Requires supplementary winter and passage surveys (multi-season, weather-normalised).
<b>Whooper Swan &amp; Goose linkage unproven</b>	No mapped flightlines or roost/feeding connections to Lough Corrib SPA; CRA relies on generic avoidance.	AA cannot exclude significant effect; further field verification is mandatory.
<b>Optimistic CRA avoidance rates</b>	Adopts upper-end avoidance for swans/raptors without local justification; no uncertainty bands.	Run sensitivity with lower avoidance ( $\pm 10-20\%$ ), $\pm$ flight flux; present confidence intervals.
<b>Displacement and barrier effects qualitative only</b>	No quantitative area-loss model or travel-cost/barrier analysis along flyways.	Provide displacement/buffered habitat loss (ha), behavioural avoidance rates, and barrier-cost modelling.
<b>Cumulative impacts under-assessed</b>	Excludes forestry felling pulses and nearby/in-flight wind projects.	Produce in-combination collision/displacement with regional wind farms and scheduled felling.
<b>No shutdown-on-demand (SoD)</b>	Mitigation lists generic measures; no real-time curtailment for high-risk movements.	Condition SoD/curtailment triggered by observer/radar for swans/geese/raptors.
<b>Monitoring lacks triggers</b>	No numeric thresholds; no independent oversight; no corrective actions.	Adopt TARP: thresholds (e.g. carcass rates/VP crossings) $\rightarrow$ auto-curtailment; independent ecologist reporting.
<b>Under-surveyed linear infrastructure</b>	Roads/cables not fully surveyed for breeding/wintering birds; risk along corridors ignored.	Extend surveys to all linear features; quantify edge effects and nest risk.
<b>Forestry change not integrated</b>	Felling timing and habitat turnover effects on birds unquantified.	Commit to seasonal felling windows, post-felling adaptive mitigation.

**Review #2: Compliance review of Chapter 5 Population & Human Health**

Compliance Requirement	Standard / Reference	Cooloo Approach (Ch.7 & Appx 7-6/7-7/7-8)	Rating	Issue / Consequence & Objection Basis
Clear linkage to European sites & qualifying interests	Habitats Directive Art. 6(3); EPA EIAR 2022 §3.5	Lough Corrib SPA/SAC acknowledged, but source-pathway-receptor chains for SPA QIs (e.g., Whooper Swan, Greenland White-fronted Goose, Golden Plover) are not evidenced by flightline mapping or telemetry/tracing.	Partial	Without demonstrable functional linkage, AA cannot be completed beyond reasonable scientific doubt; <i>Waddenze/Sweetman</i> .
Survey seasons & duration (breeding, passage, winter)	EPA EIAR 2022 §3.4; NPWS/standard practice	Year coverage presented but effort per season not evidenced to minimum thresholds (e.g., winter VPs across peak months; spring/autumn passage).	Partial	Under-sampling of peak periods risks missing peak use by swans/geese/raptors → collision/displacement underestimated.
Vantage-point (VP) effort and visibility	SNH/standard VP guidance (e.g., 36+ hrs/VP/season typical for higher risk)	VP hours reported but intermittent and weather-constrained; viewsheds partially screened; no visibility correction.	Partial/Insufficient	Low/variable VP effort reduces detectability of rare high-risk flights → CRA inputs biased low.
Flight activity data quality (altitude, direction, height bands)	CRA best practice	Flight heights recorded, but height-band resolution and turbine-swept-area overlap not consistently tabulated; no uncertainty bounds.	Partial	CRA uses point estimates; parameter uncertainty not propagated → credible intervals on collisions absent.

Compliance Requirement	Standard / Reference	Coolooloo Approach (Ch.7 & Appx 7-6/7-7/7-8)	Rating	Issue / Consequence & Objection Basis
<b>Collision Risk Assessment (method &amp; inputs)</b>	Band model (updated) or equivalent; avoidance rates justified	Band-type CRA used, but avoidance rates for Whooper Swan/raptors adopt generic high values with limited local justification; turbine specs (hub height/rotor) scenarioing narrow.	Partial/Insufficient	Using optimistic avoidance rates can mask exceedances; require sensitivity runs ( $\pm$ avoidance, $\pm$ flux).
<b>Displacement/barrier effects</b>	EPA EIA 2022 §3.6; NPWS	Displacement assessed qualitatively; no quantitative area-loss model for sensitive waders/raptors, nor barrier-effect travel cost for swans/geese.	Non-compliant	Under-assessed indirect effects $\rightarrow$ functional habitat loss unquantified; significant for SPA QIs.
<b>Cumulative assessment</b>	EPA EIA 2022 §3.6 (cumulative)	Considers limited nearby schemes; excludes forestry felling/road upgrades and regional wind farm interactions along flyways.	Non-compliant	Cumulative collision flux and cumulative barrier effect not modelled $\rightarrow$ decision cannot weigh in combination effects.
<b>Hen Harrier / raptor risk</b>	NPWS/raptor guidance; Annex 1 birds	Suitable habitat present; no targeted vantage dawn/dusk or roost surveys evidenced; raptor flight data sparse.	Partial/Insufficient	Low detectability protocols needed; otherwise CRA may understate raptor risk.

Compliance Requirement	Standard / Reference	Cooloo Approach (Ch.7 & Appx 7-6/7-7/7-8)	Rating	Issue / Consequence & Objection Basis
Whooper Swan / Goose usage of fields & flyways	NPWS SPA site synopses; winter counts	Desk refs noted; no systematic field mapping of swan/Goose feeding/roost flightlines across winter months; no dawn/dusk watches.	Non-compliant	Without flightline evidence, SPA linkage unresolved; AA cannot exclude adverse effect with certainty.
Breeding birds / ground-nesters (waders, Skylark)	Breeding bird survey (BBS) standard	Breeding surveys undertaken but buffered turbine footprints only; linear infrastructure (roads/cables) under-surveyed.	Partial	Area of effect underestimated; displacement and nest failure risks along tracks not tallied.
Forest edge / felling impacts	Forest Guidelines; EPA §3.6	Felling area noted, but bird community turnover (e.g., Nightjar/raptors) not assessed; clear-fell timing controls not binding.	Partial	Potential disturbance/displacement pulses at felling not mitigated with enforceable timing windows.
Mitigation specificity & enforceability	EPA EIAR 2022 §3.6.2	Appendix 7-7 offers generic measures (toolbox talks, buffers), no shutdown-on-demand (SoD) for high-risk movements, no curtailment during peak passage.	Non-compliant	Non-binding mitigation cannot satisfy Art. 6(3) certainty; <i>People Over Wind</i> bars reliance on vague measures.

Compliance Requirement	Standard / Reference	Cooloo Approach (Ch. 7 & Appx 7-6/7-7/7-8)	Rating	Issue / Consequence & Objection Basis
<b>Monitoring &amp; adaptive management</b>	EPA EJAR 2022 §3.6.2	Appendix 7-8 proposes monitoring but no trigger thresholds, no independent ecologist oversight, no curtailment protocol if thresholds exceeded.	Non-compliant	Lacks Trigger-Action-Response Plan (TARP) → no mechanism to prevent significant effects if observed.
<b>Data limitations statement &amp; uncertainty treatment</b>	EPA EJAR 2022 §2.5	Chapter 7 states minimal limitations; no formal uncertainty analysis (e.g., bootstrapping CRA).	Non-compliant	Under-reporting limitations undermines transparency; precautionary principle not demonstrably applied.
<b>Deferral to post-consent</b>	<i>Derrybrien (C-215/06)</i>	Several key confirmations (flightlines, cumulative) are deferred to construction/operation.	Legally Non-compliant	Post-consent data collection cannot cure pre-consent gaps; risk of legal challenge.