

5. Consideration of Alternatives

Introduction

- 5.1 This Chapter reports the ‘reasonable alternatives’ considered with respect to the Project for Assessment.
- 5.2 Schedule 4, Paragraph 2 of the EIA Regulations¹ states that an ES should include:
- “2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”*
- 5.3 Planning Practice Guidance (PPG)² indicates that *“Where alternative approaches to development have been considered, the Environmental Statement should include a description of the reasonable alternatives studied which are relevant to the proposed development and its specific characteristics and provide an indication of the main reasons for the choice made, including a comparison of the environmental effects.”*
- 5.4 As such, in line with the EIA Regulations, if no alternatives have been studied by the Applicant, the EIA does not necessarily need to report or assess reasonable alternatives.
- 5.5 Neither the EIA Regulations, nor PPG identify a specific methodology for the reporting of alternatives, or the criteria to be used to inform the consideration of reasonable alternatives. Therefore, the methodology to be adopted for the purpose of the EIA is based on professional experience of similar projects and an understanding of the Project for Assessment and its characteristics, as well as focus on delivery of a proportionate output, in line with PPG.
- 5.6 This Chapter therefore reports:
- Consideration of ‘factors’ that constitute reasonable alternatives based on the EIA Regulations (i.e., alternative sites, alternative designs, alternative technologies and the ‘do nothing’ scenario) and justification / discussion of their inclusion / exclusion from further assessment; and
 - Qualitative appraisal of the ‘factors’ for which reasonable alternatives have been considered and, where appropriate, a comparison of the environmental effects.
- 5.7 The qualitative appraisal, when comparing the environmental effects, has been done so in line with the following terminology and definitions:
- **Avoided** – The decision has led to the avoidance of the environmental effect;
 - **More favourable** – The level of adverse environmental effect documented in **Technical Chapters 6 - 15** has been perceived to have reduced because of the change made; or the level of beneficial effect is greater than that prescribed in **Technical Chapters 6 - 15**, because of the change made;

- **Less favourable** – The level of adverse environmental effect documented in **Technical Chapters 6-15** has been perceived to have increased because of the change made; or the level of beneficial effect is less than that prescribed in **Technical Chapters 6 – 15**, because of the change made; and
 - **Neutral** – The effect documented in **Technical Chapters 6-15** is considered to remain the same in light of the change made.
- 5.8 Where the comparison of environmental effects is considered to alter the significance identified within **Technical Chapters 6-15**, this too has been stated or confirmed that significance is not judged to be different.
- 5.9 For Alternative Sites no explicit comparison of the environmental effects with other ‘sites’ has been undertaken by the Applicant. As stated in EIA Scoping Report (**Appendix 2.1**), a site suitability screening process that details a number of aspects that have been taken into consideration as part of the site identification process have been provided for context.

Further Environmental Information (FEI) Update 2026

- 5.10 Since the submission of the 2025 ES, the Project has undergone further design development in response to consultation feedback and environmental considerations, as well as advice from the supply chain. These refinements have been presented as part of the Further Environmental Information (FEI) submission.
- 5.11 The key changes comprise a reduction in turbine numbers from up to 17 to up to 12 turbines, together with associated updates to the turbine layout and infrastructure. These include refinements to the Scout Road access road upgrades, internal access track layout, alterations to the location and layout of the temporary construction laydown area and amendments to the location and layout of the on-site substation. In addition, the previously assessed grid connection route Option B has been removed and replaced with a new alternative western route (Option C), which includes two potential alignments within the main parcel of the site (Options C1 & C2) which merge into a single alignment as shown on **Figure 4.18**.
- 5.12 The substation has been relocated approximately 118m to the east and the indicative layout has been further refined. Updates have also been made to the Moorland Restoration and Management Plan, Biodiversity Net Gain proposals, drainage strategy, indicative fencing layout (**Figure 4.23**) and Outdoor Access Management and Enhancement Plan to reflect the revised infrastructure design.
- 5.13 These changes represent a continuation of the iterative design process, including refinement of the Proposed Scheme following the planning submission layout, and seeking to reduce environmental effects where practicable.

Consideration of Alternatives

- 5.14 The common ‘factors’ considered with respect to reasonable alternatives, in line with Schedule 4, Paragraph 2 of the EIA Regulations are:
- Alternative sites;
 - Alternative technologies;

- 'Do Nothing' scenario; and
- Alternative design.

5.15 As stated in Chapter 2 of the EIA Scoping Report (**Appendix 2.1**), the Applicant has considered all these factors within the EIA process and are reported within this Chapter.

Alternative Sites

5.16 As stated above, no explicit comparison of the environmental effects with other 'sites' has been undertaken by the Applicant. The process for identifying an area of land appropriate for commercial scale wind development is subject to a three-stage screening process prior to a project progressing to a planning application stage. This is a fundamental part of the site section process and has been detailed below for context.

Stage 1 Suitability

5.17 Before any project-specific development commenced, the Applicant undertook a GIS-based site identification exercise across Great Britain to locate areas with sufficient wind resource to support a commercially viable onshore wind farm. Using a combination of wind speed datasets and spatial analysis tools (e.g. ArcGIS Pro), areas with consistently high average wind speeds were mapped and analysed. This initial screening eliminated large parts of the country, including densely built-up areas and low-wind zones, leaving a smaller pool of technically suitable land parcels.

5.18 The remaining areas were then filtered through a second set of viability criteria to identify locations where a wind farm could be delivered in practice. These criteria included:

- **Proximity to a grid connection point** – Sites were assessed based on their distance to the nearest substation or grid connection point. Long cable routes or the need for new infrastructure can significantly increase cost, so the assessment reviews whether a site's likely generation yield could justify these connection costs.
- **Grid capacity and available connection dates** – Areas with available grid capacity and the potential for earlier connection dates were prioritised. Conversely, sites requiring substantial upgrades to the electricity network (e.g. major reinforcement works) were deprioritised or excluded.
- **Military land use areas / airfield buffers / aviation constraints** – Locations falling within sensitive military zones, airport safeguarding areas, or aviation radar buffers were also removed.

Stage 2: Environmental Designations

5.19 Once initial suitability was established, the shortlisted areas were screened further against a wide range of statutory and non-statutory environmental constraints. The following national and local designations were taken into account:

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| • National Parks; | • Sites of Special Scientific Interest; |
| • National Scenic Areas (Scot); | • Special Protection Areas; |
| • National Landscape Areas (Eng & Wales); | • Special Areas of Conservation; |

- Ramsar;
- National Nature Reserves.
- Local Nature Reserves;
- Registered Parks and Gardens;
- Scheduled Monuments;
- World Heritage Sites;
- Registered Battlefields;
- Conservation Areas;
- Listed Buildings; and
- Ancient Woodland.

5.20 These constraints were mapped using GIS software and excluded from the development envelope to avoid areas of highest environmental sensitivity. While this step does not eliminate the potential for environmental effects altogether, it is a critical filtering stage that significantly narrows the area of search to those locations with the lowest potential for adverse impacts. Following completion of both Stage 1 (Suitability) and Stage 2 (Environmental Designations), the current Assessment Boundary emerged as a strong candidate for development. It lies outside the key environmental constraints identified and benefits from proximity to the Rossendale Bulk Supply Point (BSP). Initial modelling indicated that the site offers favourable wind yield and grid connection feasibility, supporting its potential for commercial-scale wind generation.

Stage 3: Land / Legal Agreements

5.21 Once an area of land has gone through the viability and environmental constraint screening process, the ability to proceed with the planning application process is dependent on various land agreements and legalities, the success of which is highly dependent on specific site circumstances.

Summary

5.22 This outlined process above demonstrates that the Project for Assessment was identified from a rigorous site selection exercise, informed by wind resource modelling, infrastructure feasibility, and the application of environmental constraints. Based on the multi-stage screening process, the Applicant determined that the Assessment Boundary represents an appropriate location for a commercial onshore wind development and subsequently progressed with the development of a planning application. No explicit comparison of the environmental effects with other areas subject to the screening process has been undertaken by the Applicant.

Alternative Technologies

5.23 Due to the location of the Assessment Boundary, the Applicant has not considered any alternative renewable energy technologies for the Site. The moorland on which the Assessment Boundary is located is an optimal choice for wind energy generation due to being an open elevated landscape with minimal obstructions, as such, allowing the wind turbines to operate efficiently and maximise energy generation.

5.24 In terms of other forms of wind energy generation (i.e. Vertical Axis Wind Turbines (VAWT)), this was not considered a viable option nor studied as an alternative for the Project for Assessment. This is due to Horizontal Axis Wind Turbines (HAWT) being of higher efficiency and are therefore a better technological solution at a commercial scale. This is demonstrated through the majority of commercial onshore and offshore wind farms adapting HAWT solution. No environmental comparison has therefore been undertaken.

Do Nothing Scenario

- 5.25 Broadly, it is considered that the 'do nothing' scenario would mean that the likely significant effects identified and reported in this ES do not occur (i.e., no adverse or beneficial effects). The conclusions of the ES are presented in **Chapter 17: Summary of ES**.
- 5.26 In accordance with the EIA Regulations, each of the **Technical Chapters 6 – 15** report the future baseline scenario under a '*do nothing*' scenario (i.e., the anticipated changes that would occur over time if the Project for Assessment was not brought forward).
- 5.27 Overall, it is likely that with the absence of the Project for Assessment, the Assessment Boundary would not be developed meaning it would continue to be used for its current purposes that primarily includes the use for grazing sheep and cattle as well as for use by the public. However, the Assessment Boundary will continue to change regardless of the Project for Assessment due to the following:
- Increase in baseline traffic levels in line with the expected growth associated with macro-economic expansion;
 - The scheduled decommissioning of Scout Moor I in 2033 would mean effects associated with this development would cease to occur (i.e. noise effects; landscape and visual; setting of heritage assets);
 - The range and condition of habitat currently present and the suitability of these habitats to upland breeding birds would deteriorate under the current management regime, including grazing, drainage and management pressures; and use of quad bikes / off road motorcycles;
 - Ongoing natural processes and land use pressures may lead to gradual degradation of peatland areas that across the Assessment Boundary show areas of active erosion. Without intervention, these processes are likely to continue and may accelerate under the influence of changing climatic conditions leading to further loss of peat and associated hydrological and ecological function; and
 - Surface water drainage patterns and catchment integrity may be affected over time by land management practices, potentially altering runoff characteristics or increasing sediment loads.
- 5.28 Under the 'do nothing' scenario the likely significant effects identified and reported in this ES would not occur, summarised as follows:

Adverse Effects

- Effects on visual amenity during construction on Recreational users of Rooley Moor, Knowl Moor and Scout Moor;
- Effects on landscape character and features during construction (Landscape Character Area (LCA) A1 & 24));
- Effects on visual amenity during operation (Settlements of Norden and Wolstenholme / Rochdale / Catley lane Head / Whitworth / Bacup / Newchurch and Stacksteads / Cowpe / Rawtenstall / Haslingden / Edenfield / Ramsbottom / Greenmount and Summerseat / Hooley Bridge and Heywood; Users of Rooley Moor, Knowl Moor and

Scout Moor / Cowm Reservoir / Holcombe Moor and Stubbins Estate / Hollingworth Country Park / Pennine Bridleway / Rossendale Way / Rochdale Way / Irwell Sculpture Trail / NCR 6 / NCR 92 / M66);

- Effects on landscape character and features during operation (LCA A1; 24; D4; F1; C1; B2; and 22);
- Night time landscape and visual effects (The residents and settlements of Catley Lane Head / Whitworth / Bacup, Newchurch, Stacksteads, Rawtenstall / Cowpe; and recreational users of Holcombe Moor / Stubbins Estate and Peel Tower); and
- Loss / disturbance to potential / unknown buried archaeological remains (prehistoric artefacts and features)ⁱ.

Beneficial Effects

- Effect on degraded blanket bog habitat (M25 *Molinia caerulea* – *Potentilla erecta* mire, M20 *Criophore vaginatum* blanket and raised mire and M3 *Eriophorum angustifolium* bog pool); and
- Greenhouse Gas (GHG) emissions, savings and net GHG effect.

Alternative Designs

Introduction

- 5.29 The design of the Project for Assessment has been developed through an iterative process that tested alternative layouts, identified potential environmental effects, and refined the scheme to avoid or reduce those effects through design changes or mitigation. This process was informed by the completion of technical studies, environmental surveys, and modelling, and sought to balance the need to minimise adverse effects with the objective of maximising renewable energy generation. Consultation with stakeholders and the public also played a key role, as set out in the **Statement of Community Involvement** submitted with the Applications.
- 5.30 The following section below therefore reports the alternatives considered and provides an environmental comparison and reasoning for decisions made following iterative EIA-led design process relating to the following key design principles:
- The four key turbine layout iterations and why turbines were removed;
 - Turbine repositioning influences on layout; and
 - Access and infrastructure.

Turbine Layouts

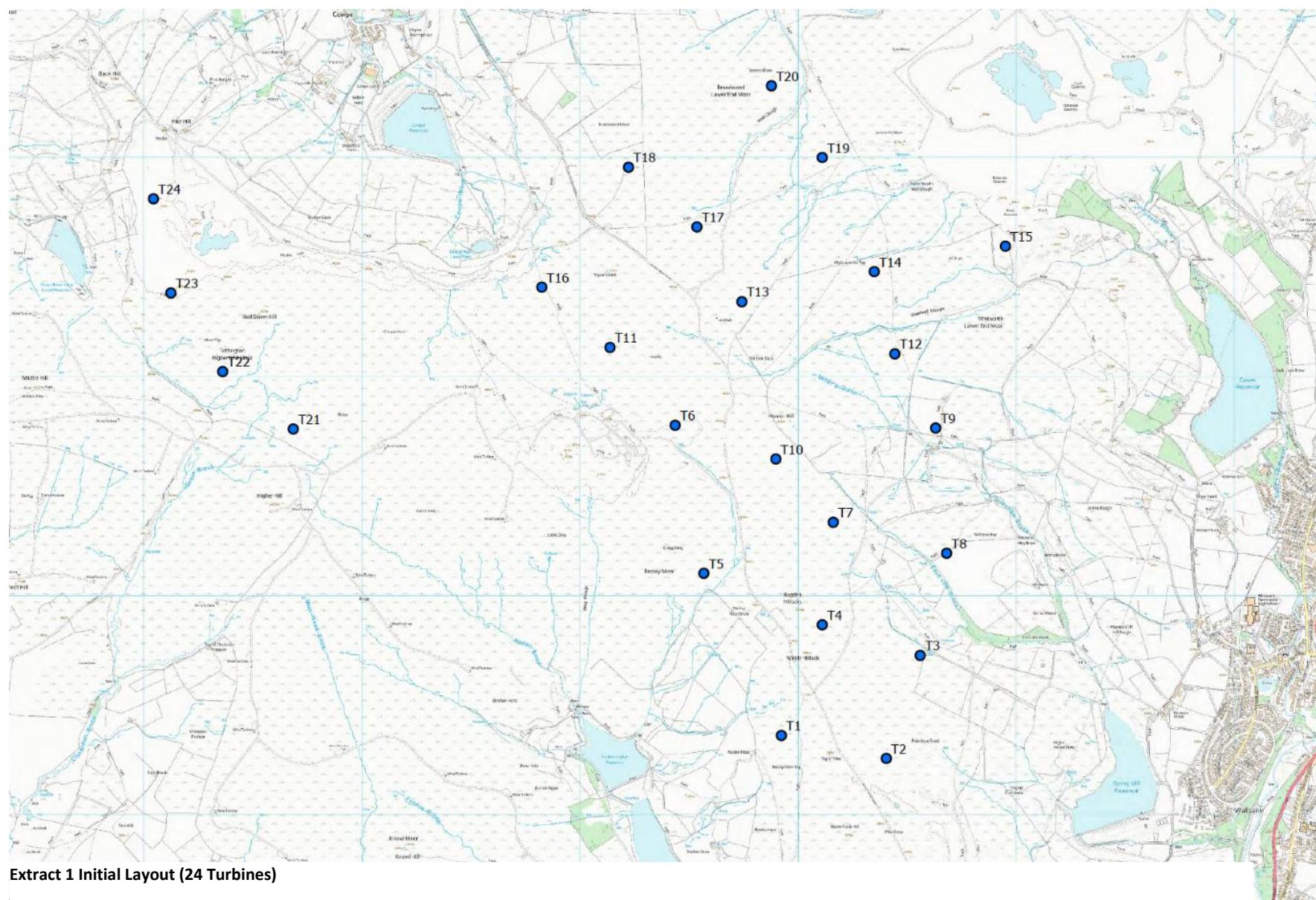
- 5.31 Following an initial desktop-based constraints mapping exercise, an initial layout of 24 turbines was completed in June 2024. Following a series of site visits and subsequent technical studies of this layout, this was refined to a 21-turbine layout, the maximum extent of which was utilised to develop the Turbine Development Zones (TDZ) that was submitted

ⁱ Dependant on nature of any encountered remains and mitigation strategy employed

as part of the EIA Scoping Report (**Appendix 2.1**)ⁱⁱ and forming the basis of the information provided at the 1st public consultation held between the 5th to 26th November 2024. Following stakeholder feedback and further design evolution, an 18-turbine layout was developed and formed the basis of the 2nd public consultation held between 25th March and 29th April 2025. Following consultation, a further single turbine was removed to from the final 17 turbine layout on which the 2025 ES was based.

- 5.32 Through further design evolution since the submission of the 2025 ES a number of studies / investigations / surveys / consultations were completed and taken into consideration to take account for environmental constraints and to optimise the layout. This led to the removal of a further five turbines equating to a 12-turbine layout assessed as part of this ES. A detailed breakdown of these key decisions for each of the five layouts is provided below.

ⁱⁱ To allow flexibility of the turbine layout to evolve in response to environmental and engineering constraints (beyond the EIA Scoping timescales) and feedback from the public consultation. Turbine Development Zones were utilised to demarcate the maximum spatial extent of the turbines whilst the layout was under development.

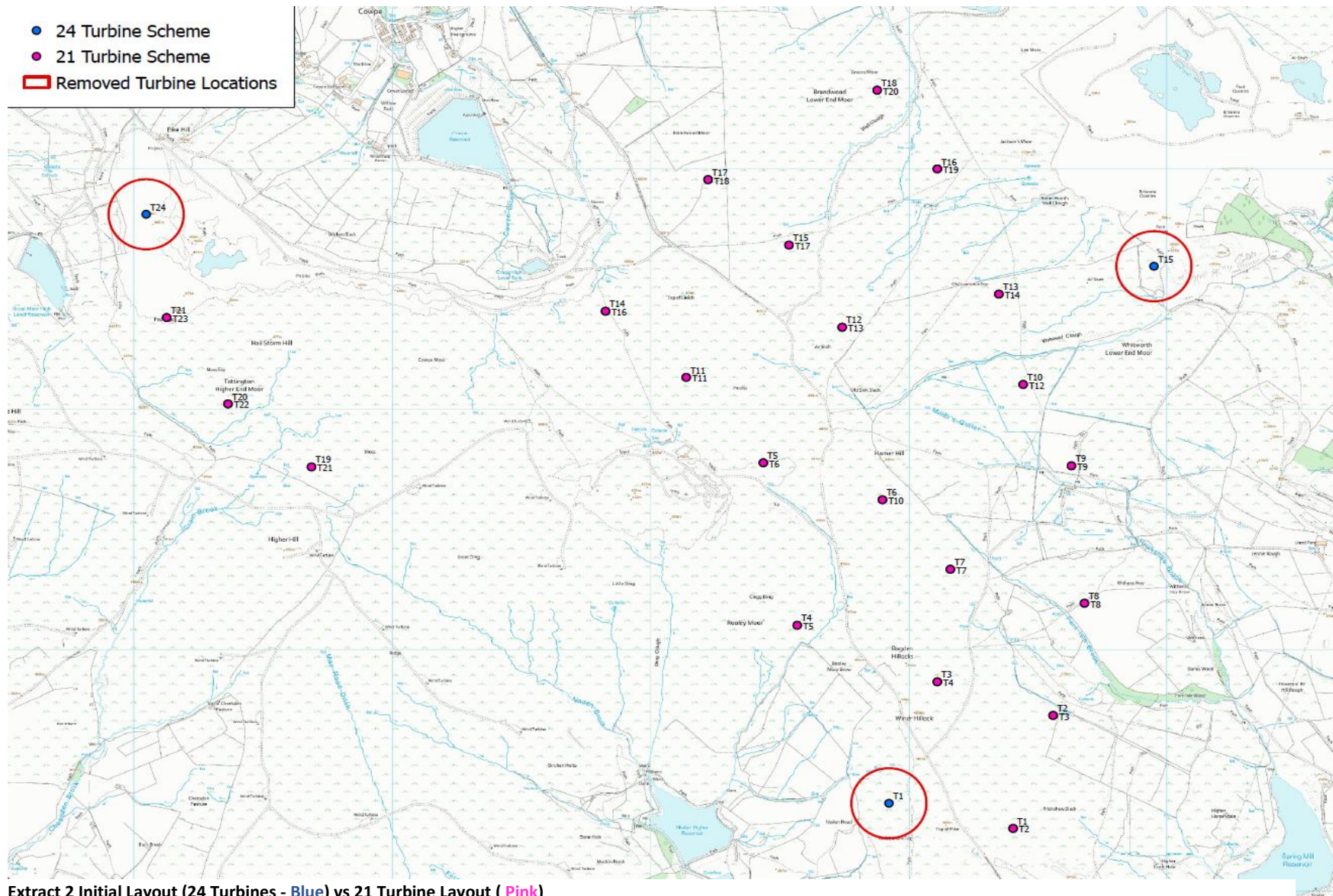


Layout 1: Initial Layout – 24 Turbines. June 2024.

5.33 As shown in **Extract 1**, an early concept layout was prepared to test the technical feasibility of the Assessment Boundary and inform the first site visit. This was used as a baseline to identify fixed topographical, hydrological and environmental constraints as well as potential development opportunities. These constraints included:

- Watercourses;
- Slopes >15% gradient;
- Rooley Moor Road (Pennine Bridleway and Mary Townsley Loop);
- Public Rights of Way;
- Telecommunications infrastructure;
- Residential properties;
- Electrical infrastructure;
- Designated ecological or archaeological features;
- Within 1 km of residential properties;
- Outside the moorland plateau; and
- Minimising areas located in peat > 1.0m in depth.

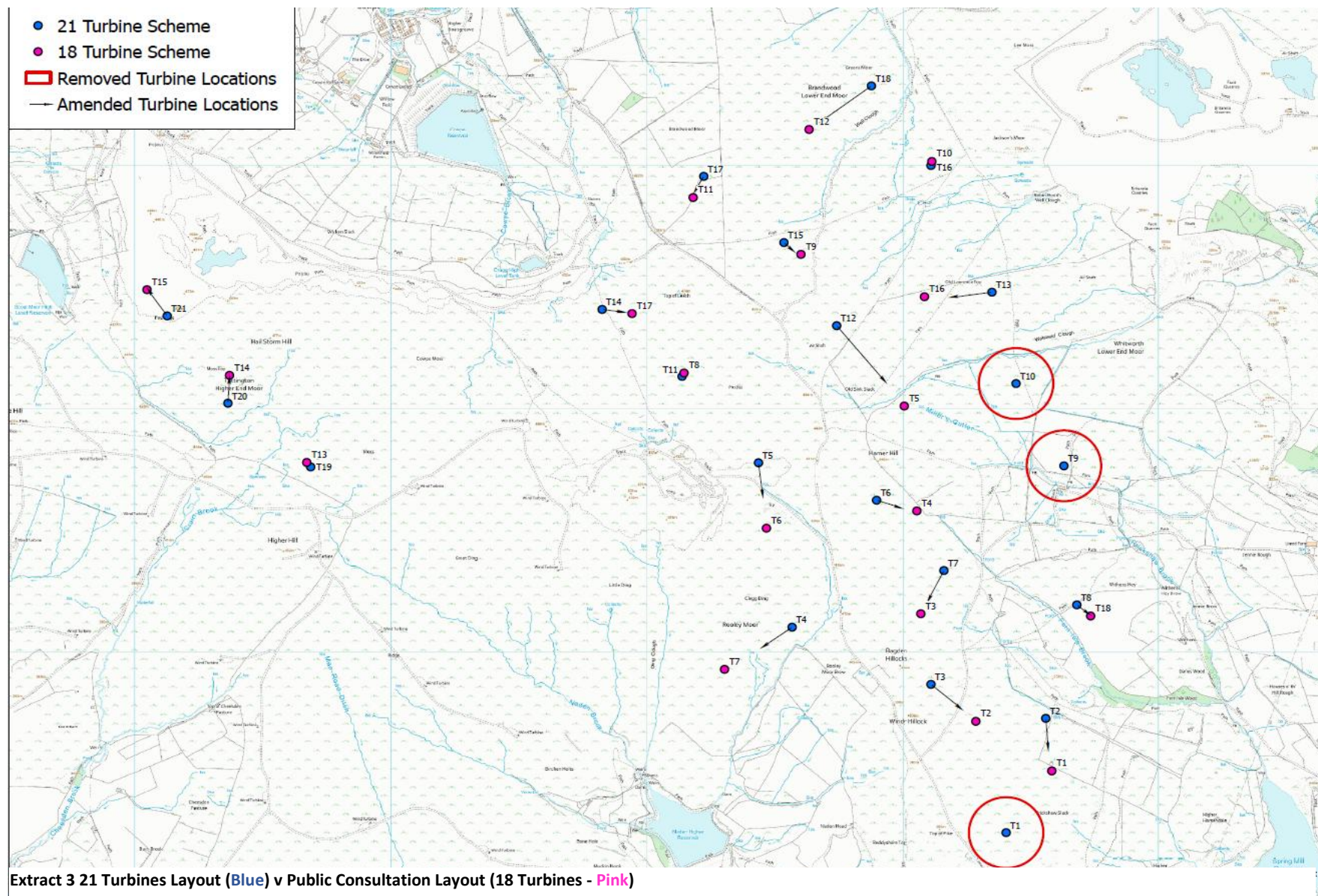
5.34 It was considered that the Assessment Boundary could theoretically accommodate up to 24 turbines, up to 150m tip height. This provided a platform to identify zones of suitability and to refine the layout accordingly. A comparison of the environmental effects with this layout and the subsequent layout are provided under '*Layout 2*' below.



Extract 2 Initial Layout (24 Turbines - Blue) vs 21 Turbine Layout (Pink)

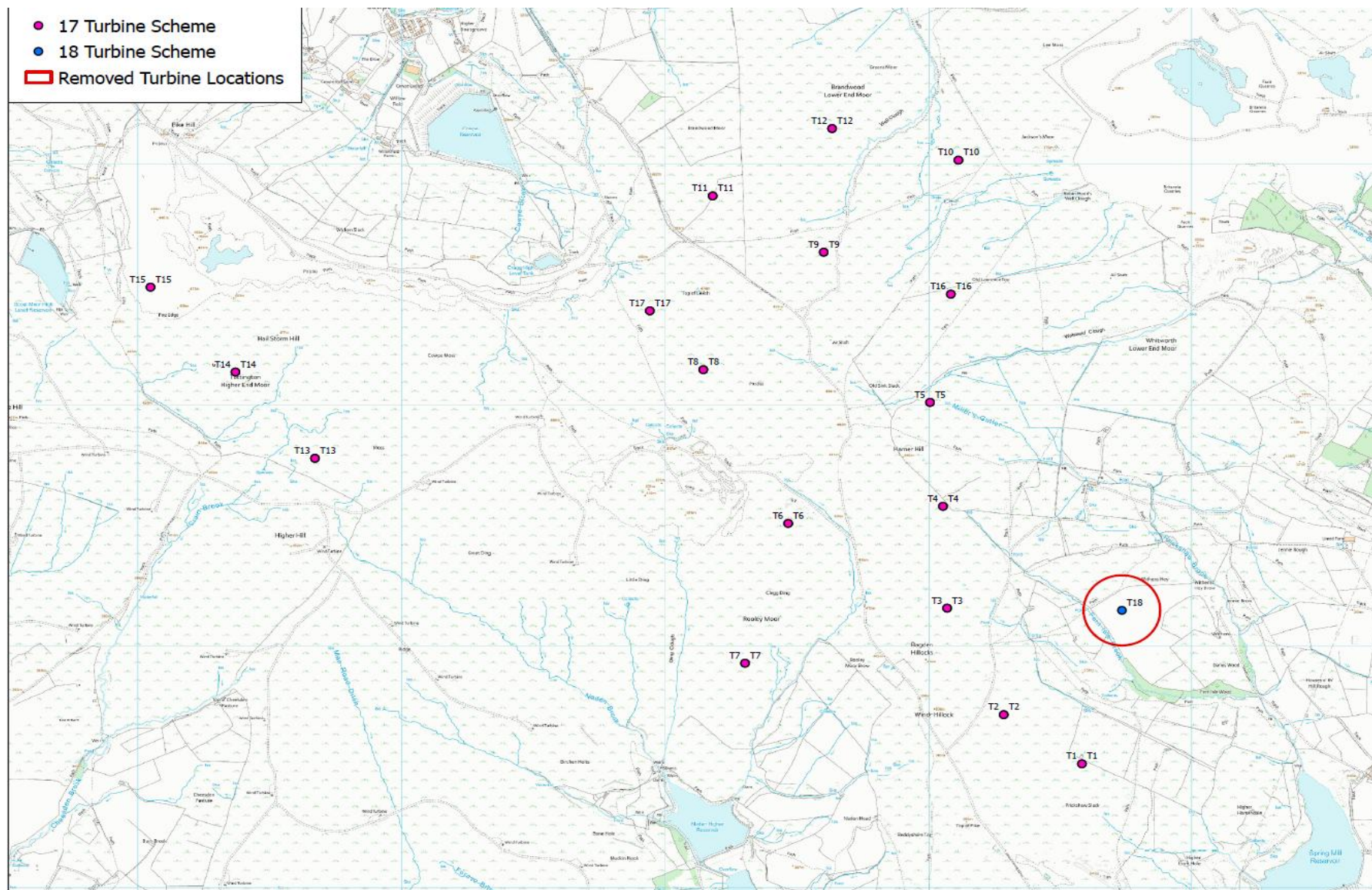
Layout 2: – 21 Turbines Layout. December 2024.

- 5.35 Following the Initial Layout, a site walkover and a series of iterative technical reviews were undertaken between July and December 2024. This process allowed key constraints to be reassessed and helped refine areas of potential suitability for turbine development. As a result, a 21-turbine layout was developed. While this layout was not shared publicly, it informed the definition of Turbine Development Zones, which were presented during the first phase of public consultation in November 2024 and included in the EIA Scoping Report (**Appendix 2.1**). These zones enabled broader, principles-based feedback before individual turbine locations were fixed. However, the preliminary 21-turbine layout was shared with key technical consultees – including NATS, the Ministry of Defence, and nearby airport operators – to support early engagement on aviation constraints.
- 5.36 As illustrated in pink in **Extract 2** above, this second iteration comprised 21 turbines, each up to 180m in tip height with a rotor diameter of 133m. The candidate turbine at this stage had a generating capacity of 5MW. The increase in turbine height was informed by the technical review process, which identified the potential to deploy larger machines on the site. On upland moorland terrain, higher turbines can capture stronger and more consistent wind flows due to the effect of wind shear, improving overall energy efficiency.
- 5.37 The decision to increase turbine height reflected a balance between maximising renewable energy output and managing environmental effects. Although the candidate turbines in both the Initial and Refined Layouts had a generating capacity of 5MW, increasing the tip height to 180m allowed for improved efficiency by accessing stronger and more consistent wind flows. At this stage, the reduction from 24 to 21 turbines was not driven by a change in generating capacity, but by a desire to minimise environmental effects—particularly in relation to landscape and visual impact, heritage setting, and peatland disturbance. As shown in blue in **Extract 2**, the Initial Layout comprised 24 turbines, three of which (Turbines 1, 15, and 24 – circled in red) were removed through this refinement process. The reasons for their removal are discussed in more detail below.
- 5.38 T1 (southern), T15 (eastern), and T24 (north-western) are all located on the outer edges of the Initial Layout. These areas were identified early on as particularly constrained from both a landscape and visual perspective and built heritage perspective as well as in terms of noise and vibration. Their proximity to nearby receptors made the turbines more visually prominent through the encroachment on the moorland tops and settled valley bottoms whilst also increasing the potential for adverse effects upon the significance of heritage assets, and for noise effects on the closest residential properties. Although their removal did not avoid an environmental effect, had these turbines been retained, there would be a perceived worse noise and visual effect at identified receptors. Therefore, this alternative would be less favourable to the level of effects reported for visual amenity, heritage significance and operational noise in **Chapter 11: Landscape and Visual**, **Chapter 12 Built Heritage** and **Chapter 7: Noise and Vibration** respectively.
- 5.39 The Initial Layout would have also led to less favourable direct effects on the quantity of habitats subject to removal and on the loss / degradation of peat resource than that presented in **Chapter 9: Ecology** and **Chapter 14: Hydrology, Hydrogeology and Peat** respectively due to a greater number of turbines required.



Layout 3: Public Consultation Layout – 18 Turbines. March 2025.

- 5.40 As illustrated in pink in **Extract 3** above, the third iteration of the layout comprised 18 turbines, each with a tip height of up to 180 metres. For context, the previous 21 turbine layout (Layout 2) is shown in blue, with the three removed turbines circled in red. Between the EIA Scoping stage and the first phase of public consultation, the design team received most of the baseline data from ecological surveys, peat probing, noise modelling and visual assessments. This information informed a further repositioning of turbines, described in more detail in the section below. The layout changes are shown by arrows in **Extract 3**. Feedback from the local community, particularly on peatland disturbance, moorland habitats, visual impact and the proximity to Rooley Moor Road, also played an important role in shaping the revised layout.
- 5.41 In response to consultation feedback and the emerging survey data, the applicant selected a more powerful 5.7 MW candidate turbine with a slightly larger rotor diameter of 149 metres. This change allowed the project to maintain the overall energy generation target of up to 99.9 MW using fewer turbines, which helped reduce the physical footprint of the scheme. The increase in rotor diameter also required a reassessment of turbine spacing to maintain performance efficiency and avoid wake effects. As a result of this change and the updated environmental evidence base, three turbines (Turbines 1, 9 and 10) were removed, along with their associated infrastructure such as access tracks, crane pads and foundations. In addition, several turbines were repositioned to reduce ground level impacts. Notably, Turbines 2, 4, 5, 6 and 7 were moved further away from Rooley Moor Road that runs through the middle of the site. This directly responded to community concerns, and the increased buffer distance can be seen in **Extract 3**.
- 5.42 Turbine 1, located at the southern edge of the Assessment Boundary, was closest to residential properties. Further noise modelling confirmed that the turbine would require significant operational curtailment in order to comply with relevant thresholds, which would have made it commercially unviable. Its removal also addressed concerns about visual prominence from the south and its position on sensitive peatland, as confirmed by updated ground condition surveys.
- 5.43 Turbines 9 and 10 were in the eastern most point of the layout. Initial visualisations of the Project for Assessment determined that due to their location and the topography of the Assessment Boundary their presence would be more visually prominent to receptors from the east such as the settlement of Whitworth and its associated heritage assets (e.g. Whitworth Church of St Bartholemew (Grade II Listed Building) and views over the Whitworth Conservation Area)). Similar to above, these turbines would have also exacerbated the adverse effects on noise receptors to the east and on peatland.
- 5.44 Given the above, although the removal of the three turbines will not avoid an environmental effect, had these turbines been retained, there would be a perceived worse effect at identified receptors. Therefore, this alternative would be less favourable to the level of effects reported for operational noise (**Chapter 7: Noise and Vibration**); visual amenity (**Chapter 11: Landscape and Visual**); heritage significance (**Chapter 12: Built Heritage**); and on the loss / degradation of peat resource (**Chapter 14: Hydrology, Hydrogeology and Peat**).



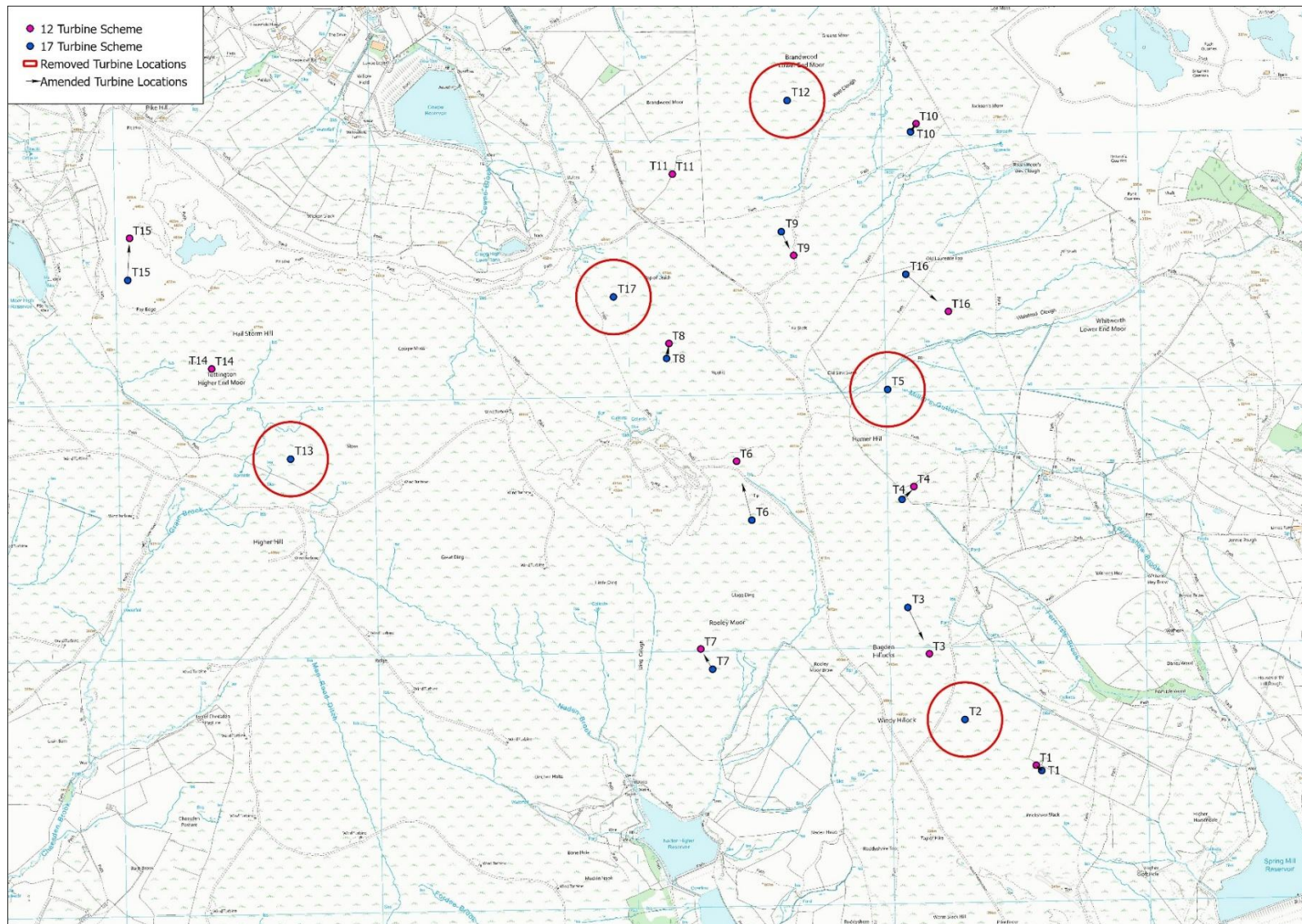
Extract 4 Public Consultation Layout (18 Turbines - Blue) v Submission Layout (17 Turbines – Pink)

Layout 4: 2025 Submission Layout – 17 Turbines. May 2025.

- 5.45 Through a series of further studies and the 2nd public consultation, as shown in **Extract 4** the key change to the layout included the removal of ‘Turbine 18’ and the associated infrastructure associated with its function (i.e. access track).
- 5.46 The turbine was removed due to the noise effects on residential receptors to the east of the Assessment Boundary and by removing it, this both increased separation and reduced the number of turbines (reducing overall noise output). As such, this alternative would have led to less favourable effects than that reported for operational noise (**Chapter 7: Noise and Vibration**).
- 5.47 The turbine was also located in an area of complex topography, as such, from an engineering perspective would have been challenging and required a substantial amount of works to construct. This would have led to a greater extraction of peatland, greater number of transport movements, and greater removal of habitat that would have led to less favourable effects than that reported in **Chapter 6: Transport and Access**, **Chapter 9: Ecology**, and **Chapter 14: Hydrology, Hydrogeology and Peat**.
- 5.48 The topography of this eastern portion of the Assessment Boundary also means that Layout 3 would be more visually prominent to receptors from the east such as the settlement of Whitworth and its associated heritage assets (e.g. Whitworth Church of St Bartholemew (Grade II Listed Building) and views over the Whitworth Conservation Area)). This alternative would therefore lead to less favourable effects on visual receptors (**Chapter 11: Landscape and Visual**) and the heritage significance of assets (**Chapter 12: Built Heritage**) to the east of the Assessment Boundary.

Layout 5: FEI Submission Layout – 12 Turbines. May 2026.

- 5.49 As part of the FEI Submission, the turbine layout has been further refined in response to consultation feedback and ongoing design development, resulting in a reduction from 17 to 12 turbines. The comparison between the 2025 Submission and FEI Submission layouts is illustrated in **Extract 5**.
- 5.50 The refinement of the layout has been informed by both environmental considerations and ongoing engagement with the turbine manufacturers (OEM) to ensure appropriate turbine spacing and a balanced design. This process has guided the evolution of the layout to respond to identified environmental constraints and consultation feedback, while also contributing to a reduction in the overall infrastructure footprint and associated environmental effects.
- 5.51 Turbines T2, T5, T12, T13 and T17 have been removed, alongside associated infrastructure. The layout of the remaining turbines has been updated, with turbines T11 and T14 retained in the same positions as the 2025 Submission and turbines T1, T3, T4, T6, T7, T8, T9, T10, T15 and T16 relocated within the Assessment Boundary.



Extract 5 FEI Submission Layout (17 Turbines - Blue) v FEI Layout (12 Turbines – Pink)

- 5.52 The repositioning of turbines has been undertaken to improve turbine spacing, respond to environmental constraints and optimise constructability. This includes localised adjustments to increase separation distances between turbines, reduce effects on nearby residential receptors, and reduce potential disturbance to peat and habitats. Refinements have also been made to facilitate construction access, including alignment with proposed access tracks and turning requirements.
- 5.53 The removal of turbines and associated infrastructure reduces the overall development footprint, including a reduction in the extent of access tracks, crane hardstandings and associated earthworks and reduces the overall development footprint by 17% (52,000m²) compared to the 2025 Submission layout. The 2025 Submission layout would therefore have resulted in greater disturbance to peat and soils, increased hydrological effects (**Chapter 14: Hydrology, Hydrogeology and Peat**), and greater habitat loss and disturbance (**Chapter 9: Ecology**).
- 5.54 The FEI Submission layout has also been informed by landscape and visual considerations, including the need to reduce the spread and prominence of turbines across the site and maintain appropriate buffers to key receptors. This includes the removal of turbines T12 and T17 to reduce visual impacts to the north (particularly in Cowpe), as well as the removal of turbines T2 and T5 to reduce visual impacts to the east (particularly in Whitworth). The 2025 Submission layout would therefore have resulted in less favourable effects on landscape character and visual amenity (**Chapter 11: Landscape and Visual**).
- 5.55 In addition, the reduction in turbine numbers and improved spacing between turbines contributes to reduced operational effects, including noise and turbine interaction effects. The removal of turbines T2, T12 and T17 in particular, which were closest to nearby residential receptors has led to lower operational noise and shadow flicker at the nearest sensitive receptors. The 2025 Submission layout would therefore have resulted in less favourable effects in respect of operational noise (**Chapter 7: Noise and Vibration**) and shadow flicker (**Chapter 8: Shadow Flicker**).
- 5.56 This iteration of the layout represents a refinement of the Project for Assessment which reduces environmental effects where practicable, whilst maintaining the overall viability of the Project. The layout represents the most suitable design identified through the iterative design process.

Access and Infrastructure

- 5.57 In addition to the turbine repositioning described above, further refinements to infrastructure have been undertaken as part of the FEI in response to consultation feedback and ongoing design development. The key infrastructure refinements are summarised below:

- **Internal Access Tracks**

The internal access track layout has been refined to reflect the updated turbine positions, including localised realignment to reduce environmental disturbance, avoid sensitive features (including areas of deeper peat and watercourses), and improve constructability. These refinements have resulted in a net reduction in the overall length of access tracks and associated excavation requirements.

- **Scout Road Access Improvements**

Revisions to the Scout Road widening works have been developed through ongoing design refinement and engagement with turbine suppliers to ensure safe delivery of turbine components. The extent and alignment of widening works have been optimised to ensure suitable access for construction traffic.

- **Grid Connection**

The grid connection strategy has been updated through the removal of the previously assessed Option B and the introduction of a new alternative western route (Option C). Option C has been identified through design development and consultation as having potential to reduce disruption to the public highway network during construction. Option A is retained and in combination with Option C provides flexibility in the delivery of the grid connection, recognising that the final route will be confirmed through detailed design and agreement with relevant stakeholders, and approved pursuant to a planning condition. The inclusion of Option C demonstrates a responsive approach to consultation feedback and ongoing scheme refinement.

- 5.58 These refinements reduce the extent of infrastructure where practicable and would result in more favourable environmental effects compared to the 2025 Submission layout. In particular, the previous infrastructure layout would have resulted in greater disturbance to peat and soils (**Chapter 14: Hydrology, Hydrogeology and Peat**), increased landscape and visual effects (**Chapter 11: Landscape and Visual**), and greater construction-related effects, including traffic and access impacts (**Chapter 6: Transport and Access**).

Micrositing and Repositioning

Micrositing

- 5.59 As stated in **Chapter 2: Approach to EIA**, a micrositing allowance of 50m is proposed to be applied to the wind turbines and other infrastructure to take account of unknown constraints due to the requirement for further engineering work and investigations following planning submission. This allowance represents a further level of flexibility beyond the design refinements already incorporated through the iterative design process and the FEI described above. How this has been considered for the purpose of the ES is detailed within **Chapter 2: Approach to EIA**.

- 5.60 How known environmental and engineering constraints have been taken into consideration leading to the repositioning of turbines as part of the design iteration process including as part of the FEI, is discussed below.

Repositioning

- 5.61 As stated in 'Layout 3 Public Consultation Layout' through the receipt of further studies / investigations / surveys to understand environmental constraints, not only have turbines been removed in their entirety, but the majority of turbines have also been subject to repositioning to an optimal location considering the known environmental and engineering constraints. Repositioning has continued throughout the iterative design process, including further refinements undertaken as part of the FEI to respond to consultation feedback and updated environmental information. Earlier movements were primarily between the 21 Turbine Layout and the Public Consultation Layout, with subsequent refinements incorporated through the FEI as described above. The movements of the retained turbines

are depicted by the arrows in **Extracts 3 and 5**. The environmental constraints considered in these movements include:

- Moving turbines out of areas of peat / deeper peat – The alternative turbine locations would have therefore led to a less favourable effect on the loss / degradation peatland resource than reported in **Chapter 14: Hydrology, Hydrogeology and Peat**;
- Moving turbines out of areas of archaeological potential – The alternative turbine locations would have therefore led to a less favourable effect on the loss / disturbance to known archaeological assets than reported in **Chapter 13: Archaeology**;
- Moving turbines out of identified mining risk areas;
- Moving some turbines more centrally within the Assessment Boundary – The alternative turbine locations for some turbines would have led to a less favourable effect on visual amenity of surrounding receptors and on operational noise receptors than reported in **Chapter 11: Landscape and Visual** and **Chapter 7: Noise and Vibration**; and
- Refinement of turbine spacing and layout informed by ongoing design development and turbine manufacturer (OEM) input, contributing to a balanced layout and reduction in overall infrastructure footprint.

5.62 A number of other constraints were taken into consideration for the movement of turbines including:

- Energy yield – Detailed energy yield studies found that the smaller turbine spacing would have led to a greater level of deterioration of the wind turbines due to the effect of wind turbulence. As such, some turbines were moved further apart from each other to reduce this; and
- Engineering constraints – Some turbines were moved out of more constrained areas (i.e. high slope angle) to reduce the level of works and costs required to construct.

Access and Infrastructure

Access

5.63 As part of early design iterations, a new alternative access to the Assessment Boundary was considered to provide access from the south. Though a logistically better solution, the option was discounted due to unacceptable environmental effects this would have had on the moorland over the access from the existing Scout Moor Quarry to the west. These included:

- Greater removal of peatland and habitats leading to a less favourable effect on the loss / degradation of peatland reported in **Chapter 14: Hydrology, Hydrogeology and Peat** and on habitat loss / fragmentation in **Chapter 9: Ecology**;
- Increased risk of archaeological disturbance leading to less favourable effects on the loss / disturbance to known / unknown archaeological assets and paleoenvironmental remains than reported in **Chapter 13: Archaeology**;

- Larger visual effects on southern views due to topography and increased direct disturbance of the landscape leading to less favourable effects on visual amenity and on landscape character and features than that reported in **Chapter 11: Landscape and Visual**; and
- Greater number of transport movements to construct leading to less favourable effects on all effects reported in **Chapter 6: Transport and Access**.

Internal Access Tracks

5.64 Once the turbine locations were fixed in the final layout, internal access tracks were routed in the most efficient manner from an engineering perspective to ensure the function of the Project for Assessment, reduce the length of the tracks, and avoid topographical constraints (i.e. steep slopes) whilst also taking into consideration a number of environmental constraints including:

- Using existing tracks where possible reducing the amount of material required for construction and reducing disturbance;
- Avoiding identified mining risk areas from a health and safety perspective;
- Reduce the number of watercourse crossings;
- Reduce the number of PRoW crossings to reduce disturbance to future site users during construction and operation;
- Avoiding peatland areas / areas of deep peat to reduce the disturbance / excavation and the introduction of floating tracks in areas where peat is >1.0m. The track locations and not using floating tracks in areas of deeper peat would have therefore led to a less favourable effect on the loss / degradation peatland resource than reported in **Chapter 14: Hydrology, Hydrogeology and Peat**; and
- Reduce the number of crossings of Rooley Moor Road to reduce the risk of damage / disturbance. The alternative track routes would have therefore led to a less favourable effect on the heritage significance of Rooley Moor Road than reported in **Chapter 12: Built Heritage**.

Substation

5.65 Once turbine locations were fixed, the initial location of the on-site substation was positioned in the central portion of the Assessment Boundary, to the east of Turbine 8. From an electrical engineering perspective, this was an optimal position due its relatively central position within the turbine array. However, the topography of the location meant that the substation would have formed a visually prominent position on the moorland tops that was considered unsuitable from a landscape a visual perspective.

5.66 Following this feedback, the substation was moved to the northern portion of the Assessment Boundary, off the moorland tops, onto slopes part way down the moorland. This site was relatively flat and substantially screened from the slopes below it, and above it, by landform. It was also closer to the moorland fringe landscape type which would be better able to accommodate the mitigation of proposed woodland planting surrounding the substation. This combined with the addition of proposed woodland planting surrounding the substation, aided local landscape integration. As such, the previous substation location

would have led to less favourable effects on visual amenity and on landscape character and features than that reported in **Chapter 11: Landscape and Visual**.

- 5.67 As part of the FEI, the onsite substation has been microsituated approximately 118m to the east to reduce potential impacts on peat, whilst retaining the other aspect of the mitigation.

Borrow Pits

- 5.68 Original iterations considered utilisation of the non-active Ding Quarry as a borrow pit to serve the stone material requirements for the Project for Assessment. This was not progressed due to the unacceptable effects this would have on landscape features and character. As such, the inclusion of the borrow pit would have led to less favourable effects than that presented in **Chapter 11: Landscape and Visual**.
- 5.69 With that said, with the Applicant requiring to export the stone material from outside the Assessment Boundary, this leads to an increase in the number of heavy goods vehicle (HGV) movements required to import this material. As such, the inclusion of the borrow would have led to less movements on the local road network and led to a more favourable effect than that presented in **Chapter 6: Transport and Access**. There may be options to avoid or reduce such impacts, but this is unknown at this stage and therefore the conclusions are considered to be worst-case.
- 5.70 The application of these principles led to the most optimised design solution presented as part of **Figure 4.1** in this ES.

Summary

- 5.71 Through a three-stage screening process, the Applicant identified the Assessment Boundary as an optimal location for a wind farm and progressed with the submission of an Application. This was informed by a series of environmental designations and their associated zone of influences. A do-nothing option has been studied and is presented which identifies the beneficial and adverse effects without the Project for Assessment.
- 5.72 An extensive design evolution process informed by numerous detailed baseline studies / investigations / surveys / analysis / consultation to take account of environmental constraints was undertaken by the Applicant. The Project for Assessment has evolved through a number of iterative layout stages, reducing from the Initial Layout of 24 turbines, through subsequent layouts of 21 and 18 turbines, to the 2025 Submission layout of 17 turbines, and subsequently to the FEI Submission layout of 12 turbines.
- 5.73 Each stage of refinement has been informed by environmental considerations, consultation feedback and ongoing design development, including engagement with the turbine manufacturer. Through this process, turbines have been removed where necessary and retained turbines, access and infrastructure have been repositioned to avoid or reduce environmental effects where practicable.
- 5.74 This has led to more favourable environmental effects presented in the following technical chapters than earlier iterations / options:
- **Chapter 6 Transport and Access;**
 - **Chapter 7 Noise and Vibration;**

- **Chapter 9 Ecology;**
- **Chapter 11 Landscape and Visual;**
- **Chapter 12 Built Heritage;**
- **Chapter 13 Archaeology; and**
- **Chapter 14 Hydrology, Hydrogeology and Peat.**

References

¹ The Town and Country Planning Act 1990. Available at:

<http://www.legislation.gov.uk/ukpga/1990/8/contents> [Accessed: 01/06/2026].

² Ministry of Housing, Communities and Local Government (Online Resource). Planning Practice Guidance Environmental Impact Assessment. Available at:

<https://www.gov.uk/guidance/environmental-impact-assessment> [Accessed: 01/06/2026].