

# **Appendix 21-2**

# **Consideration of**

# **Public Rights of Way**

## **Calderdale Energy Park**

PEIR Volume 3

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Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations  
2009 – Reg 5 (2) (a).

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## A21 Appendix 21-2: Consideration of Public Right of Way

### A21.1 Introduction

A21.1.1 In their scoping response, Calderdale Council's Public Rights of Way Officer has requested that the impact of shadows on horse riders on bridleways, including the Pennine Bridleway and Calder-Aire Link should be included in the assessment.

A21.1.2 There are three main Public Rights of Way (PRoW) that pass through, or close to, the Proposed Development; the Pennine Way, the Pennine Bridleway, and the Calder-Aire Link, and these are indicated on **Figure A21-2-1**.

- The Pennine Bridleway runs roughly north to south but skirts around the Proposed Development site to the west of the Proposed Development. At its closest, the Pennine Bridleway is approximately 860 m south of T02.
- The Pennine Way runs roughly north to south through the approximate centre of the Proposed Development, along the eastern side of the three Walshaw Dean Reservoirs. The Pennine Way is 150 m to the north west of T33 at its closest to the Proposed Development.
- The Calder-Aire link starts at the junction where the Pennine Way and Pennine Bridleway diverge, approximately 1.3 km south west of Walshaw Dene Lower Reservoir. It then runs to the east, to the south of the Proposed Development, and then northwards along the eastern side of the Proposed Development. The Calder-Aire link is approximately 650 m to the east of T34 at its closest point to the Proposed Development.

A21.1.3 This appendix has been prepared to address the concerns raised regarding the potential for shadow impacts on the Pennine Bridleway and Calder-Aire Link for equestrian users and considers shadow cast i.e. turbine shadows cast upon open ground (in particular, moving shadows). Although this issue falls outside the scope of a Shadow Flicker assessment as defined in national planning policy, it has been highlighted as a locally important matter through feedback received during pre-application consultation, and also national policy. Calderdale Council specifically requested an assessment of shadow flicker on the Pennine Bridleway and Calder-Aire Link, in their scoping response. In their Scoping response, Natural England drew attention to paragraph 100 (now 105 in the most recent version) of the National Planning Policy Framework, which states: *'Planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.'*

This appendix provides a summary of the planning context, an explanation of the characteristics and extent of shadow cast, an assessment of its potential impact on horses and riders, and a set of proportionate mitigation measures, demonstrating compliance with the requests made by Calderdale Council, and Natural England in their Scoping responses.

### **Planning Context and Rationale for Assessment**

- A21.1.4 The available guidance in the UK — including the National Policy Statement EN-3 (Onshore Wind) — defines Shadow Flicker as a residential amenity issue, limited to instances where turbine blade shadows pass through a window into an enclosed building. Where shadows cast by a turbine do not pass over an aperture into an enclosed space, this is not considered to be Shadow Flicker.
- A21.1.5 The phenomenon of shadows passing over open ground does not have an agreed upon name but is generally referred to as shadow throw or shadow cast (hereafter referred to as shadow cast).
- A21.1.6 No national policy or guidance documents require the assessment of shadow cast on open ground or on public rights of way, including bridleways. However, at the local level, there is a clear expectation that the visual effects of turbine operation on bridleway users be considered. In response to this, and with due regard to specific feedback received during consultation, the Applicant has opted to take a precautionary, site-specific assessment of shadow cast on the Pennine Bridleway and Calder Aire link.
- A21.1.7 The British Horse Society (BHS), in its May 2025 guidance “*Advice on Wind Turbines and Equestrian Access*”<sup>1</sup> (the “BHS guidance”), confirms that Shadow Flicker applies only to buildings, but recognises that moving blade shadows on the ground<sup>2</sup> may prompt hesitation or reaction in some horses.
- A21.1.8 The BHS guidance recommends a minimum separation distance of blade tip height plus 10% (‘fallover distance’) between commercial turbines and any equestrian route. It also highlights a range of site-specific factors that may influence how horses respond to turbines, including turbine orientation, surface type, visual enclosure, and the frequency or direction of shadows. Where the minimum distance cannot be achieved, BHS advocates for either greater mitigation or the provision of alternative off-road routes secured through planning condition.

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<sup>1</sup> British Horse Society (2025), *Advice on Wind Turbines and Equestrian Access*, [Online] Available at: <https://www.bhs.org.uk/media/lgwdbphr/wind-turbines-0525.pdf>

<sup>2</sup> Referred to by BHS as ‘Shadow Throw.’

A21.1.9 A tip height plus 10% buffer has been applied to all turbines that comprise the Proposed Development and these are plotted on **Figure A21-2-1**. As the Proposed Development is currently planned to consist of turbines of 200 m to tip or 150 m to tip, the recommended buffer distances are 220 m and 165 m respectively. It can be seen that neither the Pennine Bridleway nor the Calder-Aire link pass through the buffer zones.

A21.1.10 The Pennine Way is within the ‘fallover’ distance of three turbines; T22, T32, and T33, in the region where the Pennine Way runs past Walshaw Dean Lower Reservoir and Walshaw Dean Middle Reservoir. However, as this is a pedestrian route, and so limited to foot traffic only, horses would not be using this path.

## A21.2 Likely Impacts on Users of the PRow

A21.2.1 The BHS guidance acknowledges that horses may respond to moving shadows, particularly if the movement is sharp or falls across a hard track where the contrast is more visible. However, these types of visual effects are not unusual in outdoor environments. Horses routinely encounter a wide range of natural stimuli, including flickering light through trees, reflections from puddles, long grass moving in the wind, or shadows from overhead birds and clouds.

A21.2.2 Behavioural responses vary between individual animals, but the BHS guidance states that, with regard to shadow flicker:

A21.2.3 *“Most horses appear unperturbed, possibly because of the height of the movement and because the horse as a species does not have aerial predators so its senses are directed to ground dangers or to an animal dropping from a tree. Although the actual sweep of the blades covers a large area, it is not one that is immediately apparent even to humans, and most horses do not seem disturbed by it.”*

A21.2.4 The risk of a serious or uncontrolled reaction is very low and is typically mitigated by rider familiarity with their horse, prevailing weather conditions, and the surrounding environment. There is no recorded instance in the UK or internationally, of injury, rider fall, or horse fatality, linked to turbine-related shadow cast on a bridleway.

A21.2.5 When the 10% tip height buffers are applied for the Proposed Development, it is evident that there is no overlap between the buffers and the Pennine Bridleway or Calder-Aire link. Therefore the positions of the turbines are in line with the BHS recommended buffer distances. Any potential effects that may be apparent at these greater distances can be mitigated against through a combination of clear signage and pre-arrival information, notifying riders that a wind farm is on the path ahead, and so helping riders make informed decisions about when and how to use the route.

A21.2.6 A positive example of successful equestrian integration can be seen at Whitelee Wind Farm near Glasgow — the UK's largest onshore wind farm. In partnership with the BHS, a Windfarm Familiarisation Day was held to help horse riders safely introduce their horses to the wind farm environment. Riders were encouraged to approach turbine areas gradually, ideally on calm days, and to accompany nervous horses with more experienced companions. With time and consistent exposure, riders reported that horses quickly adapted to the turbines and surrounding tracks.

A21.2.7 Whitelee now offers over 95 km of off-road trails across previously inaccessible terrain. The project demonstrates how, with appropriate surface design and access features, wind farms can not only accommodate equestrian use but create new, high-quality riding opportunities. In this context, any residual risk associated with turbine shadow throw at the Proposed Development can be addressed through proportionate mitigation and familiarisation measures, consistent with best practice at other UK sites.

A21.2.8 There is no guidance or limits on the effects of shadow cast on people, but it is assumed that people will be much less sensitive to such effects than horses. At Whitelee wind farm, several of the mountain bike trails and paths are closer to the wind turbines than for the Proposed Development, and the positive feedback to that scheme suggests that this proximity will not impact the use of these paths in an unacceptably negative manner.

### **A21.3 Assessment of Risk Acceptability**

A21.3.1 Based on the available guidance, shadow cast is not considered to constitute an unacceptable risk in planning or safety terms. It is a low-level, infrequent, and non-hazardous visual effect, affecting open ground intermittently and under specific conditions.

A21.3.2 Neither the National Planning Policy Framework (NPPF) nor the National Policy Statement EN-3 (Onshore Wind) identify shadow cast on public rights of way as a material planning consideration.

A21.3.3 Furthermore, there is no known planning precedent in the UK where the presence of shadow cast on a bridleway has resulted in the refusal of a wind farm application.

A21.3.4 The effect does not obstruct access, prevent safe use, or materially undermine the recreational value of the Pennine Bridleway or the Calder-Aire link. Where shadow cast does occur, it is momentary and location-dependent, and its presence is unlikely to deter confident riders or render the route inaccessible for equestrian users.

A21.3.5 While the overall risk posed by shadow cast is low, the Applicant acknowledges the importance of responding constructively to local concerns. As such, the following

measures are proposed to ensure the effect is well understood and appropriately managed on the ground:

- Familiarisation sessions will be offered to local equestrian groups, enabling riders to experience and understand the nature of the effect in a controlled setting.
- Advance signage will be installed at key bridleway access points, alerting users to the potential for moving shadows and encouraging caution during sunny conditions.
- A publicly accessible digital map will be provided, illustrating predicted shadow throw locations and associated time windows, to assist riders with route planning.
- A post-construction feedback mechanism will be established, allowing users to report concerns or observations, which can be reviewed and responded to by the site operator.
- The Applicant will maintain ongoing engagement with the BHS and local riding groups to ensure open communication, monitor rider experience, and adapt measures if needed.
- The Applicant will open and maintain close dialogue with local walking groups to ensure the Proposed Development has no unacceptable negative impacts on the Pennine Way, and can contribute to improvements in this PRow if possible.

A21.3.6 These actions are intended to reduce any residual risk, build confidence among local riders and walkers, and ensure that the bridleways and paths remain safe and welcoming for all users.

## A21.4 Conclusion

A21.4.1 This assessment shows that the Pennine Way and the Calder-Aire link lie entirely outside the buffer zones proposed by the British Horse Society, and no unacceptable negative shadow effects are predicted to occur as a result of the Proposed Development.

A21.4.2 The Pennine Way is within the buffer zones of three turbines, but as the Pennine Way is a pedestrian only route, and such routes are already present at closer distances to turbines for other wind farms, no unacceptable negative shadow effects are predicted for this PRow either.

A21.4.3 There is no evidence to suggest that the Proposed Development poses a serious safety concern to the safety or enjoyment of users of the three PRow assessed here.

