

Technical Appendix 1.6

Telecommunications and Utilities

1. Telecommunications

1.1 Introduction

This section summarises the potential effects of the proposed Dalfad Wind Farm (hereafter referred to as “the Proposed Development”) on telecommunications infrastructure including fixed links, radio communications and television broadcasting services. The assessment has been informed by publicly available information and consultation with telecommunications operators.

Potential impacts on utilities are addressed separately within **Section 2** of this Technical Appendix.

Wind turbines have the potential to affect telecommunications networks where they are located within safeguarded signal paths. Potential effects can arise through physical obstruction of signals or electromagnetic interference. Consequently, consultation has been undertaken with relevant telecommunications operators to identify any constraints associated with the Proposed Development.

1.2 Baseline Conditions

Proposed Development

A review of publicly available information has been undertaken to establish whether the construction and operation of the Proposed Development would have any effects on telecommunications in the area. Ofcom, responsible for licensing two-way radio transmitters, maintains a register of most fixed links – this data was initially used to establish baseline conditions using publicly available information. From this data, it was determined that there is one fixed link that traverses the Site. This link travels in a northwest to southeast direction across the northern part of the Site as shown in **Figure TA1.6.1** and is operated by Vodafone.

However, not all telecommunications links and frequencies are published. Consequently, telecommunications and broadcasting network operators were consulted at scoping stage to determine whether any other broadcasting or telecommunications infrastructure is present within or near the Site. The information obtained at scoping stage was included in the Scoping Report (dated January 2026). In short, there were no other telecommunications links or other communications infrastructure identified within or near the Site.

Assumed Overhead Line (OHL) Grid Connection Routeing Corridor

There is a telecommunications tower / mast located approximately 2.5 km to the southwest of the Site near Avisyard Hill, which is within the western parts of the assumed OHL routeing corridor, visible on **Figure TA1.6.1** to the east of Craighens at a ground elevation of 330 m AOD. From publicly available data, this mast supports two Scottish Fire and Rescue Services’ telecommunications links.

Abnormal Indivisible Load (AIL) Route

There are four fixed links that cross the A70 and other parts of the proposed AIL route between the A70 and A76. There are also some overhead telephone wires



which are present alongside parts of the proposed AIL transport route, crossing over the road in some places.

1.3 Embedded and Standard Mitigation

Proposed Development (Turbine Layout)

Embedded mitigation has been incorporated into the design of the Proposed Development through the iterative design process. An appropriate stand-off distance (100 m buffer zone either side) has been applied to the Vodafone fixed link that traverses the Site and turbine locations refined to avoid the buffer zone. This is discussed in **Chapter 3: Design Evolution and Alternatives** and shown on **Figure TA1.6.1**. This was the only design mitigation required to address potential telecommunications constraints as no other potential constraints were identified through desk study or consultation.

The design process has therefore avoided potential effects through layout design rather than relying on post-consent mitigation measures.

Assumed OHL Grid Connection

It is anticipated that an overhead line would be routed within the assumed OHL routeing corridor in such a manner as to avoid potentially conflicting with existing telecommunications infrastructure, particularly the mast at Avisyard Hill and any telephone poles and overhead telephone lines. Should the OHL and overhead telephone wires require a crossing or overlap, this could be addressed through the application of technical engineering solutions and consultation between the owners of the relevant infrastructure.

AIL Route

It is expected that street furniture and other infrastructure such as telephone poles and wires would be temporarily relocated to allow the AIL vehicles to pass during the delivery of turbine components to the Site. This would be done in line with standard practice and would be done in such a way as to minimise disruption. Refer to EIAR **Chapter 10: Access, Traffic and Transport** for more detail.

1.4 Potential Effects

Based on the information available at the time of assessment, no turbines are located within identified safeguarded telecommunications corridors.

However, as requested during scoping phase consultation with telecommunications providers, once the final layout was available a second round of consultation was undertaken to check whether the changes made to turbine locations during the design evolution may have resulted in any effects on telecommunications infrastructure, and to check whether any new fixed links or other communications infrastructure may have been established within or near the Site since scoping.

Table TA1.6-1 summarises the responses from link operators consulted upon design freeze. In short, none of the telecommunications providers consulted raised any concerns or objections to the Proposed Development. As a result, no effects on telecommunications infrastructure are anticipated.



Table TA1.6-1: Telecommunications Consultee Responses

Consultee	Response
BT	BT have studied the proposal, with respect to electromagnetic compatibility (EMC) and related problems to BT point-to-point microwave radio links. The conclusion is the project indicated should not cause interference to BT's current and presently planned radio network.
JRC	The proposal is cleared - subject to 50m micrositing - with respect to radio link infrastructure operated by the local energy networks.
Atkins	The application has been examined in relation to UHF Radio Scanning Telemetry and Microwave communications, and Atkins confirm they have no objection to the proposal.
EE	Based on turbine coordinates, there will be no impact to EE's network.
Met Office	There is a potential that the turbines could be detected by the radar at Holehead. However, the Site is outside of Met Office consultation zones, and the impact would be limited.
Ofcom/Vodafone	Vodafone confirm that the Proposed Development will not impact on any microwave links.
Virgin Media/O2	Virgin Media/O2 confirm they do not have any microwave links in the area.

Micrositing

As mentioned in **Chapter 2: Project Description**, the Applicant proposes a micrositing allowance of up to 100 m in all directions within the Site boundary in respect of each turbine and the associated infrastructure, to address any potential difficulties which may arise in the event that pre-construction surveys identify unsuitable ground conditions or environmental constraints that could be avoided. This is proposed because of experience gained at the nearby North Kyle Energy Project site, where there were significant issues experienced with ground conditions, and there are likely to be similar conditions at the Proposed Development Site for example as a result of previous mining that has been undertaken.

During construction, the need for any micrositing would be assessed and agreed with the relevant personnel on site, e.g. Ecological Clerk of Works (ECOW) or Environmental Manager, as appropriate. New turbine micrositing locations would be checked (through the use of a combination of publicly available information and consultation of telecommunications providers) for potential effects on the existing telecommunications link which runs through the Site. The risk of potentially encroaching into the existing fixed link's pathway and its 100 m avoidance buffer is highest for T1 and T2 – any micrositing of these turbines in particular will be checked for telecommunications constraints prior to their relocation.

Future Baseline Conditions

It is acknowledged that technology evolves rapidly and new fixed links or other telecommunications infrastructure may be established within and around the Site prior to the commencement of construction. It is therefore proposed that a further check of publicly available information and consultation of telecommunications providers in sufficient time prior to the commencement of construction to check for new telecommunications infrastructure which may be impacted by the Proposed



Development at the time between submission of the Section 36 application for consent and the commencement of construction.

Assumed OHL Grid Connection Routeing Corridor

Since the overhead line would be unlikely to exceed 20 m in height, it is not anticipated that the grid connection would interfere with any telecommunications infrastructure. However, as the height of telecommunications links can vary greatly in height above ground level, this would be checked at the time that the application for consent for the grid connection is submitted.

Furthermore, as mentioned in **Section 1.3** above, it is anticipated that for any areas where the OHL may require to cross over or be located near an existing overhead telephone line, an engineering solution could be sought to address any potential issues. This is not anticipated to present a significant constraint or result in significant effects on existing telecommunications infrastructure.

AIL Route

Similarly, it is not anticipated that the creation of overrun areas along the AIL route would affect telecommunications fixed links, since the overrun areas would be constructed at ground level and unlikely to interfere within overhead fixed links. The application of embedded and standard mitigation would minimise disruption to existing overhead telephone wires (as discussed in **Section 1.3**, above), and significant effects are therefore not anticipated.

1.5 Conclusion

The assessment has been informed by consultation with telecommunications operators and a review of publicly available fixed links data. The iterative design process has incorporated identified fixed links constraints and turbines have been sited to avoid potential interference with known signal paths. The Proposed Development is not anticipated to affect the fixed link that is present within the Site.

Potential for interference with telecommunications signal pathways will be checked prior to the micro-siting of any turbines during construction – this is of greatest risk to T1 and T2 which are located relatively close to the fixed link which passes through the Site.

The Applicant will recheck baseline telecommunications data and reconsult with telecommunications providers in sufficient time prior to the commencement of construction to check for new telecommunications infrastructure which may be impacted by the Proposed Development at that time.

With the application of embedded and standard mitigation, the construction of an OHL grid connection within the assumed routeing corridor, and the transport of turbine components along the AIL route between the A70 and A76, are not anticipated to have significant effects on existing telecommunications infrastructure.



2. Utilities

2.1 Introduction

This section considers the potential for the Proposed Development to affect existing utility infrastructure within and surrounding the Site. The assessment has been informed by consultation responses received during the EIA process, desk-based review and consideration of utility infrastructure throughout the iterative design process.

The scope of assessment reflects the requirements of the ECU's Scoping Opinion, which requested consideration of potential interactions between the Proposed Development and:

- Licensed explosives sites;
- Gas pipelines;
- Existing overhead electric lines;
- Underground cables;
- Water pipes; and
- Telecommunications links.

Potential impacts on telecommunications are addressed separately within **Section 1** of this Technical Appendix.

2.2 Consultation and Baseline Conditions

Relevant utility providers and statutory consultees were consulted during the EIA process to identify existing utility infrastructure and determine whether the Proposed Development may adversely interact with any utility assets.

Table TA1.6-2: Utilities Consultation Responses

Consultee	Response
Health and Safety Executive (HSE)	Confirmed the Site is not located within a safeguarding zone for a licensed explosives site and is not located within consultation zones associated with major accident hazard pipelines or hazardous substances consented sites.
Scottish Power Energy Networks (SPEN)	Confirmed no objection to the proposal. SPEN advised that 33 kV overhead lines, high-voltage overhead lines and underground cables are present within the vicinity of the Site.
Scottish Water	Confirmed no objection to the proposal. Scottish Water advised that no Drinking Water Protected Areas are present within the area that may be affected by the Proposed Development. Scottish Water records indicate live infrastructure in the vicinity of the Site and advised that an Asset Impact Assessment should be undertaken where potential conflicts arise.
National Gas Transmission	Did not provide a consultation response.



2.3 Licensed Explosive Sites

Baseline Conditions

The ECU Scoping Opinion requested assessment of any interaction between the Proposed Development and licensed explosive sites.

The HSE confirmed that the Proposed Development is not located within the safeguarding zone of any explosives site licensed under the Explosives Regulations 2014 and is not located within the consultation zones associated with hazardous substances consented sites.

Assessment

As no licensed explosives safeguarding zones affect the Site, there is no pathway for interaction between the Proposed Development and licensed explosives infrastructure. Consequently, no effects are anticipated.

2.4 Gas Pipelines

Baseline Conditions

The ECU Scoping Opinion requested assessment of potential interaction with gas pipelines and other major accident hazard pipelines.

The HSE confirmed that the Site is not located within any land-use planning consultation zone associated with a major accident hazard (MAH) pipeline¹. In addition, a review of publicly available National Gas Transmission network mapping and asset information was undertaken to identify the presence of strategic gas transmission infrastructure within the Site and surrounding area. Further baseline data gathering was undertaken using Scotland Gas Network's (SGN's) publicly available data set².

The review of this publicly available data confirmed that no strategic gas transmission pipelines are located within or near the Site.

Assessment

Consultation with HSE confirmed that the Site is not located within any consultation zone associated with a MAH pipeline. A desk-based review of publicly available National Gas Transmission also confirmed that no strategic gas transmission infrastructure is present within the Site. Any buried utility assets present within public roads or local service corridors would be identified through standard pre-construction utility searches and accommodated during detailed design. Consequently, no effects on gas pipeline infrastructure are anticipated.

Conclusion

No effects on gas pipeline infrastructure are anticipated.

¹ Health and Safety Executive. 2026. HSE and Major Accident Hazard (MAH) pipelines. <https://www.hse.gov.uk/pipelines/introduction.htm> [Accessed 12/09/2026]

² Scotland Gas Networks. 2021. https://data.spatialhub.scot/dataset/sgn_gas_network-sgn



2.5 Overhead Electricity Infrastructure

Baseline Conditions

There are several overhead lines (OHLs) located near the Site – these are shown on **Figure TA1.6.1**. A single wood trident pole overhead line runs within the Site in a northeast-southwest direction for approximately 1.5 km. See **Image TA1.6.1**.



Image TA1.6.1: Image of single wood pole overhead line where it crosses over the A70 Muirkirk Road, photo facing southwest (Google Maps Streetview, accessed 15/01/2026)

Another single wood pole overhead line runs within the Site near the southwestern boundary and branches off along the existing access track to High Glenmuir (see **Image TA1.6.2**). It is likely this overhead line provides electricity to High Glenmuir and the surrounding properties.



Image TA1.6.2: Image of single wood pole overhead line where it follows the access track to High Glenmuir, photo facing northeast (Google Maps Streetview, accessed 15/01/2026)

There are no other overhead lines within or near the Site.



Consultation

The ECU Scoping Opinion requested assessment of existing overhead electricity infrastructure and recommended engagement with SPEN. In their Scoping response, dated 17th February 2026, SPEN raised no objection to the proposal, and informed the Applicant of the presence of a 33 kV overhead line and underground cables within the vicinity of the Site.

Embedded and Standard Mitigation

A utilities search will be conducted prior to the commencement of construction to determine whether there are any buried services within areas where excavations are required. The areas within which the utilities search is conducted will likely not require to be done within the backfilled opencast areas, but this will be confirmed during detailed design stage. The results of the utilities search will enable any existing underground infrastructure (e.g. water and gas pipelines, electrical cables, telecommunications cables, etc.) to be avoided during construction. Construction activities in proximity to underground assets will be undertaken in accordance with utility provider requirements and relevant health and safety guidance.

Proposed Development

The location of existing overhead electricity infrastructure was incorporated as a design constraint throughout the iterative design process (refer to **Chapter 3: Design Evolution and Alternatives**).

Turbine locations were checked to maintain appropriate separation from overhead lines and all turbines have been located outside applicable turbine topple distances (turbine maximum height plus 10%) from existing overhead electricity infrastructure.

Wherever possible, turbines have been spaced at least 3 x the maximum rotor diameter away from turbines (indicative rotor diameters were set out in **Table 2-1 of Chapter 2**). This was applied as a medium constraint; the design team was aware of SPEN's preference to implement a 3 x rotor diameter avoidance buffer between turbines and overhead lines.

It is understood that this avoidance buffer is preferred by SPEN in order to reduce the potential for the wake effects which are generated by the rotation of the turbine blades, to cause the OHL cables to swing³. This repetitive movement of the cables can cause elevated mechanical wear and consequently reduce the life of the cables, increasing maintenance and repair requirements.

Assumed OHL Grid Connection Route

It is anticipated that an overhead line would be routed within the assumed routeing corridor in such a manner as to avoid potentially conflicting with existing overhead lines. Should the assumed OHL require a crossing or overlap with other OHLs, this could be addressed through routeing, the application of technical engineering solutions and consultation between the owners of the relevant infrastructure.

³ Energy Networks Association. 2012. Engineering Recommendation L44 Issue 1 2012. Separation between Wind Turbines and Overhead Lines. Principles of Good Practice.
https://www.spenergynetworks.co.uk/userfiles/file/Energy_Networks_Association_Separation_Wind_Turbines_Overhead.pdf



AIL Route

It is expected that the temporary removal of street furniture and other infrastructure would allow the AIL vehicles to pass during the delivery of turbine components to the Site. This would be done in line with standard practice and would be done in such a way as to minimise disruption. Refer to EIAR **Chapter 10: Access, Traffic and Transport** for more detail.

Assessment

By conducting a utilities search prior to construction, it is anticipated that potential damage to existing underground infrastructure within construction areas will be avoided. The risk of damage to underground electricity infrastructure is consequently considered low and can be effectively managed through standard construction practices and utility protection measures.

Proposed Development

Potential destruction and direct damage to OHLs

By incorporating overhead electricity infrastructure into the design process at an early stage, and maintaining appropriate separation distances between turbines and overhead electricity infrastructure, potential conflicts between turbines and overhead lines have been avoided. In the highly unlikely event that a turbine topple incident occurs, the risk of potential damage to electrical infrastructure is therefore negligible.

Potential Reduction of Life of OHL Cables

All turbines are further than 3 x rotor diameter away from the 33kV overhead lines to the west of the Site, except for T3. This turbine is 438 m from the OHL, while 3 x rotor diameter is 486 m. T3 is therefore 48 m within the 3 x rotor diameter avoidance buffer. However, the predominant wind direction in this area is south-westerly (i.e. it blows towards the northeast most of the time). It is therefore anticipated that the wake effects from the turbines would occur towards the northeast, away from the existing OHL. It is consequently not anticipated that this encroachment into the 3 x rotor diameter avoidance buffer would result in damage to, or increased wear of, the existing OHL cables, even taking the 40 year lifecycle of the Proposed Development into account.

Micrositing

As mentioned in **Section 1.4** of this technical appendix, during construction, the need for any micrositing would be assessed and agreed with the relevant personnel on site, e.g. Ecological Clerk of Works (ECow) or Environmental Manager, as appropriate. New turbine micrositing locations would be checked (using a combination of publicly available information and consultation with SPEN) for potential effects on the existing OHLs within the vicinity of the Site.

The risk of potentially encroaching (or in the case of T3, encroaching further) into the 3 x rotor diameter avoidance buffer of the OHL running in a northeast-southwest direction to the west of the Site is highest for T3 and T6. Checks for telecommunications constraints will be carried out for these turbines in particular prior to any micrositing.



Future Baseline Conditions

It is acknowledged that the grid is expanding rapidly to respond to electricity generation and utilisation demands. With this in mind, new electricity transmission and / or distribution infrastructure may be established within and around the Site prior to the commencement of construction of the Proposed Development. It is therefore proposed that a further check of publicly available information and consultation of SPEN in sufficient time prior to the commencement of construction to check for new electricity infrastructure which may be impacted by the Proposed Development at the time between submission of the Section 36 application for consent and the commencement of construction.

Assumed OHL Grid Connection Route

Should the OHL require to cross over or be located near an existing overhead line, it is anticipated that a routing or technical solution could be sought to address any potential issues. Furthermore, the application of embedded and standard mitigation measures is anticipated to minimise potential effects on existing electrical transmission and distribution infrastructure. The construction and operation of an OHL grid connection within the assumed routing corridor is not anticipated to present a significant constraint or result in significant effects on existing OHL infrastructure.

AIL Route

The application of embedded and standard mitigation would minimise disruption to existing overhead lines, and is therefore not anticipated to result in significant effects.

Conclusion

No significant effects on existing electricity supply infrastructure are predicted.

2.6 Water Infrastructure

Baseline Conditions

The ECU Scoping Opinion requested assessment of potential effects on water pipes and water infrastructure.

Scottish Water confirmed that there are no Drinking Water Protected Areas or Scottish Water abstraction sources within the area that may be affected by the Proposed Development.

Scottish Water further advised that live infrastructure is present in the vicinity of the Site and recommended that any potential conflicts with Scottish Water assets are reviewed during the design process.

Review of Scottish Water asset mapping, as reported in **Chapter 8: Geology, Hydrology, Hydrogeology and Peat**, confirmed that there are no Scottish Water assets within the Site.

An assessment of private water supplied has been conducted as part of the EIA (see **Chapter 8** and **Technical Appendix 8.5** of the EIAR for details) and is not considered further in this document.



Embedded and Standard Mitigation

Proposed Development

Given the absence of Scottish Water assets within the Site, no specific mitigation measures are required.

As described in Section 2.5, above, a utilities search will be conducted prior to the commencement of construction. Should detailed design post-consent identify any infrastructure in proximity to proposed construction activities, appropriate protection measures and stand-off distances would be implemented in consultation with Scottish Water where required, albeit none is expected. This would apply to the potential micro-siting of turbines and ancillary infrastructure within the Proposed Development as well.

Assumed OHL Grid Connection

It is anticipated that Scottish Water would be consulted by SPEN during the routing consultation process for a defined overhead line route at the stage when the, as the Transmission Operator and therefore owner of the proposed OHL, SPEN would prepare an application for a Section 37 consent. It is anticipated that the application of embedded (through routing and design) and standard mitigation measures would result in the risk of potential effects of an OHL on water infrastructure being minimised.

AIL Route Overrun Areas

Should excavations be required to create the necessary overrun areas, between the A70 and A76, a utilities search would be conducted prior to construction to check for underground infrastructure. This would directly inform the required construction and mitigation measures to be implemented to avoid potential effects on any underground infrastructure which may be present within the overrun areas.

Assessment

No Drinking Water Protected Areas have been identified that would be affected by the Proposed Development. Furthermore, review of Scottish Water asset mapping confirms that no Scottish Water assets are present within the Site.

As a result, there is no anticipated interaction between the Proposed Development and Scottish Water infrastructure. It is also anticipated that any potential effects on water infrastructure by the assumed OHL grid connection and the AIL route overrun areas between the A70 and A76 would be avoided, or where this is not possible, would be minimised, through the application of embedded and standard mitigation. Consequently, no adverse effects on water infrastructure are predicted during life of the Proposed Development and associated (assumed) OHL grid connection.

Conclusion

No effects on existing water infrastructure are predicted.



Annex A

Figure TA1.6.1 Telecommunications and Utilities

