

## **14 AVIATION, TELECOMMUNICATIONS AND UTILITIES**

### **14.1 INTRODUCTION**

1. This Chapter of the EIA Report identifies and assesses the potential effects that the proposed Heathland Wind Farm (the Development) may have on aviation, telecommunications and utilities stakeholders in the area. Analysis and assessment of baseline data has enabled identification of appropriate mitigation and compensation measures to prevent, reduce, or offset potential adverse aviation effects as well as enhancement measures to provide beneficial effects, where possible.
2. This Chapter of the EIA Report is supported by the following figure, provided in Volume 2a EIA Report Figures:
  - Figure 14.1: Aviation Lighting Scheme.
3. This Chapter of the EIA Report is supported by the following Technical Appendix document provided in Volume 3 Technical Appendices:
  - Technical Appendix A14.1: WPAC Aviation Lighting Report.
4. This Chapter has been written by Arcus based on consultation with appropriate stakeholders and technical support from Wind Power Aviation Consultants Ltd (WPAC), including modelling and further consultation with stakeholders. This Chapter is broadly structured as follows for each topic:
  - Overview;
  - Legislation, Policy and Guidance;
  - Assessment Methodology;
  - Scoping Responses and Consultation;
  - Baseline Conditions;
  - Assessment of Potential Effects;
  - Mitigation;
  - Residual Effects; and
  - Statement of Significance.

### **14.2 AVIATION**

#### **14.2.1 Overview**

5. Wind turbines have the ability to reflect radio waves and therefore have the potential to interfere with radar systems. In addition, wind turbines can present a physical obstruction at, or close to, an aerodrome or other aviation activity site, such as areas of low flying.
6. The general approach to wind farm development is to avoid adverse effects on aviation infrastructure where possible, and to find appropriate technical mitigation solutions where this cannot be achieved. Policy guidance and extant regulations in respect of the potential interference effects of wind turbines on air traffic control (ATC) radars are highlighted in civil and military publications. Furthermore, there are airfield physical safeguarding and telecommunication and navigational infrastructure safeguarding requirements.

#### **14.2.2 Legislation, Policy and Guidance**

7. The assessment takes into account consultation, regulatory, safeguarding and operational requirements outlined by Civil Aviation Authority Guidance<sup>1</sup>.
8. The primary sources of information for the technical assessments were:

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<sup>1</sup> Civil Aviation Authority (CAA) Policy and Guidance on Wind Turbines Version 6, February 2016

- Available online databases of aviation operations, including that from Ministry of Defence (MoD) and the Civil Aviation Authority (CAA), which is developed for this type of early assessment exercise;
- NATS (formerly National Air Traffic Services) Aeronautical Information Package – which includes coordinate information for navigation aids at licensed aerodromes; and
- The Applicant’s information pertaining to the Development including consultation responses.

### 14.2.3 Assessment Methodology

9. Where consultation has highlighted potential impacts, an assessment has been undertaken to quantify the predicted effects and assess the resulting significance. Where likely impacts are significant, mitigation will be applied.
10. The process for determining impact significance is by:
  - Determining the receptor sensitivity;
  - Determining the magnitude of change; and
  - Combining the above to determine the significance of effects.
11. The search for aviation assets included all assets across Scotland to ensure all potentially affected assets are identified. The Study Area is therefore defined as Scotland.
12. If the Development is found to have any adverse impacts on stakeholders’ operations, for example the safeguarding of a civilian airport, or if the Development is found to be located within an area of high priority military aviation activities, this would be considered a significant effect and mitigation would be required.

### 14.2.4 Scoping Responses and Consultation

13. Consultation with relevant aviation stakeholders is a routine part of windfarm development and the consultation process that is required to be undertaken is also laid down in Civil Aviation Publication (CAP) 764<sup>2</sup> (for civil aviation issues). In relation to the Development the following consultees have been identified:
  - Ministry of Defence (Defence Infrastructure Organisation);
  - National Air Traffic Services (NATS);
  - Glasgow Airport;
  - Edinburgh Airport; and
  - Civil Aviation Authority (CAA).
14. Aviation stakeholders were consulted in December 2019 within the Scoping Request and information requested for any telecommunication links which may be affected due to the Development. Turbine co-ordinates and dimensions were provided. **Table 14.1** provides a summary of the consultation undertaken.

**Table 14.1: Consultation Responses**

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
MoD	Email - Scoping Response, 29/11/19	No objection. Requests that turbines be fitted with MOD accredited aviation safety lighting in accordance with	The Applicant has proposed a lighting design for the number of turbines that will be fitted with MoD

<sup>2</sup> Civil Aviation Authority, 2016, CAP 764 Policy and Guidelines on Wind Turbines [Online] Available at: <https://publicapps.caa.co.uk/modalapplication.aspx?catid=1&pagetype=65&appid=11&mode=detail&id=5609> (Accessed 21/09/2019)

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		CAA Air Navigation Order 2016.	accredited Infra-Red aviation safety lighting. This has now been approved by the MoD.
NATS Safeguarding	Email – Scoping Response, 17/12/19	Objects to the proposal on the basis of predicted unacceptable impact on Lowther Hill, Glasgow, Glasgow Terma, Kincardine, and Cumbernauld RADARs. Therefore conflicts with safeguarding criteria.	The Applicant currently has a contractual agreement in place with NATS to mitigate the effects of the Development on these Radars. It is understood that due to this contractual agreement regarding a mitigation solution, NATS would not object to the proposal.
Edinburgh Airport	Letter by email – Scoping Response, 05/02/20	Object to the proposal on the grounds of aerodrome safeguarding perspective and conflicts with aerodrome safeguarding criteria. An assessment has shown the development will be in line-of-sight from the radar which will result in excessive clutter on the ATC display, and will produce a significant risk of poor coverage performance.	The Applicant is in discussions with Airport Navigation Services (ANS) to reach an agreement with regard to mitigating the effects of the Development. This is expected to involve an update to ANS' radar data processing system. Discussions are ongoing and the two parties are close to reaching an agreement, following which it is understood Edinburgh Airport will withdraw their objection.
Glasgow Airport	Letter by email – Scoping Response, 29/01/20	The site is located out with the obstacle limitation surfaces for Glasgow Airport. It is within Glasgow Airport's radar consultation zone, in an area controlled by Edinburgh Airport. Therefore it is unlikely to have an operational impact on Glasgow Airport. Glasgow Airport's position on the proposal will be confirmed once turbine details are	No further action required.

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
		finalised within the planning application.	
Civil Aviation Authority	No response to the Scoping Request.	n/a	The Applicant has proposed a lighting design for the number of turbines that will be fitted with Air Navigation Order (ANO) visible lighting and is subject to agreement with the CAA.

15. An earlier iteration of the aviation lighting scheme was prepared and agreed with the CAA and MoD via correspondence with WPAC in November 2020 and December 2020 respectively. A revised design amending the height of T1, T2 and T3 to 150 m to tip (previously at 149.9 m) has resulted in a slight change to the lighting layout. Details of the changes are provided in Appendix A14.1. The IR lighting layout has been approved by the MoD, and the revised visible lighting scheme, whilst still meeting regulatory requirements, requires formal agreement with the CAA.

#### 14.2.5 Baseline Conditions

16. The closest radar equipped civilian airport is at Edinburgh, approximately 22 km to the north-east which is also the closest licensed aerodrome. Glasgow Airport is located approximately 45 km to the west. Table 14.1 outlines the scoping responses from these airports.
17. The Development is located in an area relatively remote from military aviation infrastructure. There are no military airfields in the region, the closest is the former RAF Leuchars which is now an army base, located 79 km north-northeast. The MoD continue to safeguard radar there, however, radar modelling shows that there is no prospect of it being affected by the Development.
18. Military low flying areas are of regional scale. The MoD have set out priority levels of military flying zones as follows:
- *'Green level priority - Area with no military low flying concerns'*;
  - *'Blue level priority - Low priority military low flying areas less likely to raise concerns'*;
  - *'Amber level priority - Regular military low flying area where mitigation may be necessary to resolve concerns'*; and
  - *'Red level priority - High priority military low flying area likely to raise considerable and significant concerns'*.
19. The Site lies in an area designated as 'Blue', however the MoD have designated the gap between Edinburgh and Glasgow airports as a restricted flow (Choke Point) and will require Infra-Red lights on enough turbines for NVD/G users to identify the turbine site quickly and easily at night.
20. The NATS online self-assessment maps<sup>3</sup> indicate that the Site is within an area where turbines are likely to interfere with the primary surveillance radar of NATS En-Route Ltd (NERL). This has been confirmed through consultation, detailed in Table 14.1, that NATS

<sup>3</sup> NATS Self-assessment maps [online] Available at: <https://www.nats.aero/services/information/wind-farms/self-assessment-maps/> (Accessed 21/06/2020)

predict an impact on five radars as a result of the Development; Lowther Hill, Glasgow, Glasgow Terma, Kincardine and Cumbernauld.

## **14.2.6 Assessment of Potential Effects**

### **14.2.6.1 MoD**

21. It is necessary to take into account the aviation and air defence activities of the MoD. The types of issues that will be addressed include:
  - MoD Airfields, both radar and non-radar equipped;
  - MoD Air Defence (AD) Radars;
  - MoD Meteorological Radars; and
  - Military Low Flying.
22. The closest Met Office radar to the Development is located at Holehead, 42 km northwest of the Site. This is beyond the safeguarding distance laid down in the Eurocontrol Guidance, which states that wind turbines should be assessed when within 20 km of a Met Office radar. The potential for effects on Met Office radars is therefore not considered further.
23. The MoD scoping consultation response, detailed in Table 14.1, has confirmed that there is no objection in relation to air traffic movements and interference to ATC radars and AD radars. MoD have requested that the turbines be lit with either low intensity red lights or Infra-Red lights, and request that they be consulted again if any change to the application is to occur.
24. There are no military radar that are predicted to be affected by the Development. Therefore, the magnitude of effect for radar would be 'no effect' and the resulting impact significance would be 'not significant' by definition.
25. The Development is within a 'low priority' military low flying area. Military low flying areas are of regional scale. The level of acceptable development within a zone is variable and complicated to determine, however the overall sensitivity is considered 'low'.
26. The MoD have not objected to the Development. The magnitude of effect is 'minor' and the resulting impact significance is 'not significant'.

### **14.2.6.2 NATS**

27. NATS operates en-route radar and navigation aids throughout the UK, which are safeguarded against wind developments. The most significant concern for Primary Surveillance Radar (PSR) is the potential for false returns, or 'radar clutter' caused by the spinning rotor blades. Secondary Surveillance Radar (SSR) can also be affected by reflection issues, however these are safeguarded to shorter distances. No SSR concerns are applicable for the Development.
28. NATS highlighted in their scoping response that there is likely to be an unacceptable effect on Lowther Hill, Glasgow, Glasgow Terma, Kincardine, and Cumbernauld radars.
29. The predicted impact on the NATS radar will require technical mitigation, for which the Applicant and NATS have a contractual agreement in place. It is understood that NATS will withdraw their objection on the basis that a suitable mitigation solution has been agreed through the implementation of a suitably worded planning condition.

### **14.2.6.3 Civil Aviation**

30. Wind developments can affect airport safeguarding; physical safeguarding in the vicinity of an aerodrome and technical safeguarding of radar and radio navigation aids. There are no physical safeguarding issues as the Site is located beyond the safeguarded surfaces. Scoping consultation highlighted a technical safeguarding issue that could be caused by interference to ATC radar with regards to aerodrome safeguarding at

Edinburgh airport. Edinburgh Airport stated in their scoping response that they "*Object to the proposal on the grounds of aerodrome safeguarding perspective and conflicts with aerodrome safeguarding criteria*".

31. A technical mitigation solution will be required to ensure the performance of the surveillance systems at Edinburgh Airport are maintained at the required performance standards. The Applicant is currently in late stage discussions with ANS in agreeing a solution which will mitigate the effects of the Development and enable Edinburgh Airport to withdraw their objection, which would be subject to a suitably worded planning condition.

## **14.2.7 Mitigation**

### **14.2.7.1 Aviation Lighting**

32. Wind turbines with a tip height of 150 m or more are considered to be 'en route navigation hazards' and require illuminating in accordance with the guidance laid down in CAP 764 and CAA Policy Document '*Lighting of En-Route Obstacles and Onshore Wind Turbines*<sup>4</sup>'. A lighting scheme that is compliant with regulations and guidance contained within CAP 764 has been proposed for the Development. The lighting scheme is detailed in the Aviation Lighting Report, provided as Appendix A14.1, and illustrated on Figure 14.1. A summary is provided below.
33. The lighting scheme proposes that seven turbines (T1, T2, T4, T8, T9, T13 and T14) will be lit with medium intensity (2000 candela) visible red lights on the turbine nacelles e.g. at hub height. These turbines will be lit in order to define the perimeter of the Site. These lights will be capable of being dimmed to 10% of peak intensity when the visibility as measured at the wind farm exceeds 5 km. This will significantly reduce obstruction light effects in the area. These LED lights are also required to be able to shine a beam that reduces in intensity below the horizontal to reduce visibility to persons on the ground.
34. The lighting scheme also proposes that intermediate level 32 candela lights will be fitted on the towers of seven turbines (T1, T2, T4, T8, T9, T13 and T14). These lights will not be dimmed and will remain at full intensity.
35. Finally, Infra-Red lights will be installed on the nacelles of the perimeter turbines (T1, T2, T4, T6, T8, T9, T11, T13 and T14). These Infra-Red lights will be installed to MoD specification which will assist in aircrafts identifying the turbines at night, but will not be visible to the naked eye.
36. The combined visible lighting design and MoD infrared lighting scheme consists of 7 visible red lights and 9 Infra-Red lights in total, and is subject to agreement with the MoD and CAA.

### **14.2.7.2 NATS**

37. As outlined in Table 14.1, the Applicant has a contractual agreement in place with NATS to mitigate the effects of the Development. NERL are replacing the existing Raytheon long range ATC radar at Lowther Hill with a new Indra Lanza radar that has wind farm mitigation capabilities that will benefit a number of wind farms in the region. This mitigation can appropriately be secured by way of a suspensive condition.

### **14.2.7.3 Civil Aviation**

38. As outlined in Table 14.1, the Applicant is currently in late stage discussions with ANS in agreeing a solution which will mitigate the effects of the Development. It is likely this will

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<sup>4</sup> Civil Aviation Authority (2010) Policy Statement – Lighting of En-Route Obstacles and Onshore Wind Turbines [online] Available at: [https://publicapps.caa.co.uk/docs/33/DAP\\_LightingEnRouteObstaclesAndWindTurbines.pdf](https://publicapps.caa.co.uk/docs/33/DAP_LightingEnRouteObstaclesAndWindTurbines.pdf) (Accessed 26/01/2021).

involve an upgrade to ANS' radar processing system, which remove the aerodrome safeguarding risk at Edinburgh Airport. These discussions are ongoing.

#### **14.2.8 Residual Effects**

39. The above mitigation solutions have and will be designed to ensure that adverse impacts are remedied, such that any residual effects will be non-existent or not significant.

#### **14.2.9 Statement of Significance**

40. The potential effects of the Development on aviation activity has been identified by the Applicant and Consultees. Significant effects, in terms of the EIA regulations, are not predicted for MoD infrastructure or operations.
41. Significant effects are predicted in relation to civil aviation infrastructure and NATS radar operations. As stated throughout this section, the Applicant is in discussions with Edinburgh Airport to establish suitable mitigation to mitigate the potential significant effect. A technical mitigation has been agreed contractually with the Applicant and NATS.
42. A combined ANO visible lighting design and MoD IR lighting scheme that is compliant with regulations and guidance has been proposed for the Development. This lighting scheme is agreed with the MoD and will shortly be agreed with the CAA.

### **14.3 TELECOMMUNICATIONS, TELEVISION RECEPTION AND UTILITIES**

#### **14.3.1 Introduction**

43. Due to the size and nature of wind turbines, they have the potential to interfere with electromagnetic signals passing above ground during operation. Infrastructure affected can include telecommunication links, microwave links and television reception.
44. In particular, the tower and rotating blades of wind turbines have the most potential for interference with electromagnetic signals. The degree and nature of the interference will depend on:
  - The location of the wind turbines with respect to the receiver and the transmitter;
  - Characteristics of the rotor blades;
  - Signal frequency; and
  - The radio wave propagation in the local atmosphere.
45. In addition, other infrastructure such as buried utilities may be affected by the construction of the Development.
46. This section of the EIA Report details the relevant guidance, consultation that has been undertaken with infrastructure operators, the existing baseline for these elements as relevant to the Development and an assessment of the likely effects as a result of the Development.

#### **14.3.2 Legislation, Policy and Guidance**

47. There are a number of documents which provide guidance on telecommunications considerations for wind energy developments. The guidance considered in this assessment are:
  - British Wind Energy Association - Best Practice Guidelines of Wind Energy Developments<sup>5</sup>;

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<sup>5</sup> (BWEA), (1994) Best Practice Guidelines of Wind Energy Developments [online] Available at: <https://www.thenbs.com/PublicationIndex/documents/details?Pub=BWEA&DocID=258180> (Accessed 21/08/2020).

- Ofcom - Tall Structures and Their Impact on Broadcast and Other Wireless Service<sup>6</sup>; and
  - The Scottish Government - Onshore Wind Turbines: planning advice<sup>7</sup>.
48. The potential effects as a result of the Development have been assessed with reference to the above documents.

### 14.3.1 Scope of Assessment

49. The search for existing telecommunication, television and microwave links was undertaken within a 2.5 km radius of the approximate centre of the Site, which covers all turbine locations, and approximately 1km beyond the boundary of the Site. This ensures all telecommunication and microwave links potentially affected are identified.

### 14.3.2 Scoping Responses and Consultation

50. Telecommunication operators were consulted in October 2019 within the Scoping Request and information was requested for any telecommunication links which may be affected due to the Development. Turbine co-ordinates and dimensions of the scoping layout were provided. Table 14.2 provides a summary of the consultation undertaken.

**Table 14.2 Consultation Responses**

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
Arqiva	Scoping response – email, 28/01/2020	Arqiva have assessed the proposed location of the windfarm and can advise that it is unlikely to affect the integrity of public broadcasting networks.  It is also highlighted that operational mobile communication installations are located just outside the boundary of the windfarm, and that consultation should be extended to these mobile communication networks who may have communication 'links' crossing the wind farm development area.	EE Ltd and other Mobile Network Operators have been consulted with relation to the Development, and confirmed that they have no objections to the proposal.
	Follow up consultation email with Application Layout – 12/11/2020	Arqiva have considered whether this development is likely to have an adverse effect on operations, and have concluded that they have no objections to this development.	No action required.
Atkins	Scoping response – email, 30/01/2020	Atkins have examined the development in relation to UHF Radio Scanning Telemetry communications used by Clients in that region and are happy to inform that Atkins have no objection to the proposal.	Noted. Re-consulted with Application Layout.
	Follow up consultation email with Application	Atkins have examined the application in relation to UHF Radio Scanning Telemetry communications used by clients in that region (within	No action required.

<sup>6</sup> Ofcom (2009) Tall Structures and Their Impact on Broadcast and Other Wireless Service [online] Available at: [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0026/63494/tall\\_structures.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0026/63494/tall_structures.pdf) (Accessed 21/08/2020)

<sup>7</sup> Scottish Government (2014) Onshore wind turbines: planning advice [online] Available at: <https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/> (accessed 21/08/2020).

Consultee	Type and Date	Summary of Consultation Response	Response to Consultee
	Layout – 12/11/2020	500 m) and are happy to inform that Atkins have no objection to the proposal.	
BT	Scoping response – email, 11/12/2019	The Project indicated should not cause interference to BT’s current and presently planned radio network.	Noted. Re-consulted with Application Layout
	Follow up consultation email with Application Layout – 12/11/2020	BT have studied the proposal for Heathland Wind Farm with respect to EMC and related problems to BT point-to-point microwave radio links. The conclusion is that the turbine layout should not cause interference to BTs current and presently planned radio network.	No action required.
Joint Radio Company (JRC)	Scoping response – email, 06/02/2020	This proposal is cleared with respect to radio link infrastructure operated by Scottish Power and Scotia Gas Networks.	Noted. Re-consulted with Application Layout
	Follow up consultation email with Application Layout – 12/11/2020	No response at time of writing, however with consideration to the Scoping response it is not anticipated that there will be any issues with regards to JRC’s assets.	No action required.
EE Ltd and Mobile Broadband Network Links	Consultation email – 21/02/2020	Have confirmed that there are no microwave links within 100 m and no mast within 250 m of the proposed wind turbine locations, and therefore have no objections to the proposal.  Request that they are consulted again if any details relating to turbine location or size should change.	Noted. Re-consulted with Application Layout
	Follow up consultation email with Application Layout – 12/11/2020	Have confirmed that there are no microwave links within 100 m and no mast within 250 m of the proposed wind turbine locations, and therefore have no objections to the proposal.	No action required.

### 14.3.3 Baseline and Assessment of Potential Effects

#### 14.3.3.1 Telecommunications

51. Should the construction and operation of the Development materially affect the operation of telecommunication links, such as through degradation of signal quality to the extent that it warrants an objection from the link operator, this would be considered a significant effect. Mitigation is generally available either through rerouting of any affected links or upgrades to the transmitting and / or receiving apparatus.
52. Consultation with the relevant organisations was initiated during the Scoping Request to identify any potential microwave or telecommunication links that could be affected by the Development, and to identify these as initial constraints to design. Ofcom monitors the fixed microwave links throughout the UK, whereas JRC manages the radio spectrum used by the UK Fuel and Power Industry. Atkins undertakes a similar role for the water

industry. Arqiva operates the Freeview terrestrial transmission network including BBC and ITV. BT is concerned with the provision of fixed-line services, broadband, mobile and TV products and services as well as networked IT services.

53. The search for existing telecommunication and microwave links was undertaken within a 2.5 km radius of the approximate centre of the Site, which covers all turbine locations, and approximately 1 km beyond the boundary of the Site. This ensures all telecommunication and microwave links potentially affected are identified.
54. Ofcom's online search portal<sup>8</sup> confirms that there are no fixed links operating across the Site, and the nearest link is approximately 4 km north at Breich. Arqiva, Atkins, BT, JRC, and EE Ltd confirmed no links that would impact telecommunications and utility assets, and have raised no objection to the Development.
55. Digital television signals are rarely affected by the operation of wind turbines; however in some cases interference can be caused by blocking or reflections. A minimum signal strength is required for digital television to operate effectively, if a property already receiving a weak digital signal experiences additional blocking or reflections from wind turbines, the signal level may drop, causing the television to pixelate or cut out intermittently. Reflections and blocking from other objects (such as trees) close to a receptor can cause similar effects. Simple measures to boost the signal through an improved receiver are usually sufficient to correct the issue.
56. The nearest property to the Development is located at approximately 1.25 km southeast of the nearest turbine (T4) and approximately 200 m from the Site boundary. The area surrounding the Site receives television signals that were made exclusively digital, after the digital switchover was completed, and hence no analogue TV signals are broadcast in the area<sup>9</sup>. As a result, it is considered that the television reception received by the properties close to the Site will not be affected, and no significant effects will occur. However, in the event that interference which is directly attributable to the Development is experienced, the Applicant will endeavour to implement a suitable mitigation solution. Examples of technical solutions include: changing the receptor height, re-orientating the receptor to receive signals from an alternative transmitter, upgrading the receptor system or installation of satellite television. The requirement for a corrective action would be most appropriately identified after the onsite survey is complete, and the Development is operational.
57. Broadcast radio (FM, AM and DAB digital radio) are transmitted on lower frequencies than those used by analogue TV signals. Lower frequency signals tend to pass through obstructions more easily than the higher frequency TV signals, and diffraction effects also become more pronounced at lower frequencies. Both of these factors will tend to lessen the impact of wind turbines on radio reception. Should interference to radio signals be experienced as a result of the Development, the technical solutions described in the above paragraph are considered as suitable mitigation measures.
58. Overall it is therefore concluded that the Development will not result in any significant effects upon telecommunication or broadcasting operations.

#### **14.3.3.2 Utilities**

59. Other infrastructure, such as above or below ground utilities, could be affected during construction; however, implementation of best practice would ensure that these are not adversely affected.

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<sup>8</sup> Ofcom. (2020). Licences and Transmitters/Receivers Information Portal. Available at: <https://www.ofcom.org.uk/spectrum/information/spectrum-information-system-sis/spectrum-information-portal>. (Accessed 04/08/2020)

<sup>9</sup> Digital UK [http://www.digitaluk.co.uk/data/assets/pdf\\_file/0019/35083/National\\_Switchover\\_leaflet.pdf](http://www.digitaluk.co.uk/data/assets/pdf_file/0019/35083/National_Switchover_leaflet.pdf) (Accessed 04/08/2020)

60. Chapter 10 - Hydrology and Hydrogeology provides a full assessment of potential impacts on public and private hydrology related utilities.
61. A linesearch<sup>10</sup> utility search was undertaken during the EIA process, which identified that Scottish Gas Network (SGN) may have utilities within 1 km of the Site that have the potential to be affected by the Development. There is no indication of a gas network within the Site so infrastructure is likely to be associated with road network/residences. SGN have been contacted for confirmation and a response is awaited at the time of writing. Prior to construction, a further line search for undergrounded utilities would take place to identify any new or updated services. Any adverse effects would be avoided through the implementation of safe systems of work.
62. During construction, there may be construction traffic passing beneath electricity lines along the transportation route. Although it is very unlikely that any damage to this infrastructure will occur, appropriate management measures will be put in place to ensure that electricity lines are not affected by the Development, and that the Development is constructed in accordance with relevant health and safety legislation as appropriate.
63. Following the implementation of such measures, if necessary, there will be no effect on utility infrastructure as a result of the Development, and it is not considered further.

#### **14.3.4 Statement of Significance**

64. Consultation undertaken with the telecommunications consultees has confirmed no fixed communication links operating across the Site and that therefore the Development will not interfere with telecommunications and electromagnetic signals. Effects on television reception are unlikely, and technical solutions are readily available as suitable mitigation measures should adverse effects be present. Adverse effects on infrastructure such as utilities would be avoided through safe systems of work. Therefore, there are no significant effects predicted upon telecommunications and utilities as a result of the Development.

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<sup>10</sup> Linesearch Online Tool. Available online at: <http://www.linesearchbeforeudig.co.uk/#> [Search undertaken 04/08/2020]