

PE1804/U

Petitioner submission of 13 November 2020

I would like to point out my concerns regarding the Highlands & Islands Airports Ltd commissioned [Connectivity Review. Version 2. Dated July 2019.](#)

Resilient, high capacity, stable communications links are of vital importance to the success of the HIAL Air Traffic Management Strategy (ATMS) Project. They are necessary not only for the Airport Remote Tower video displays but also allow the Air Traffic Controller at the Remote Tower Centre to operate and monitor all of the other Aerodrome equipment critical to aircraft safety. These include radio communications, aerodrome lighting, instrument landing systems, navigation aids, direct phone communications to the Fire Section, Emergency Services Rendezvous Point, etc.

Having studied the HIAL Connectivity Review I feel that it is deficient in several ways.

1. It fails to meet European Aviation Safety Agency guidance as set out in [`Easy Access Rules for Guidance Material on Remote Aerodrome Air Traffic Services`](#).
2. It fails to follow the [`Good Practice Guide`](#) for Telecommunications Resilience as recommended by the National Infrastructure Security Co-Ordination Centre, (Now incorporated into the Centre for the Protection of National Infrastructure).
3. The HIAL Connectivity Review frequently uses words such as “Assume” and “Believe” when referring to the routing of the existing cable ducting and fibre cables between the airports and BT Exchanges. Similar language is used when referring to the proposed Microwave links. There seems to be a lack of definite knowledge which does not inspire confidence.

Regarding Point 1

The UK Civil Aviation Authority at present continues to participate in the European Aviation Safety Agency system. The European Aviation Safety Agency document, [`Easy Access Rules for Guidance Material on Remote Aerodrome Air Traffic Services`](#), states the following on Page 44, Para 5.10. “Technical Architecture and Redundancy Aspects”:

“Based on current best practices, it is recommended that the connection between the aerodrome and the remote facility is doubled and physically separated and that a third independent connection is used for backup/emergency radio purposes.”

The HIAL Connectivity Review only looks into two communications connections at each airport, not the three required. Also, they are not physically separated between the aerodrome and the Remote facility as they frequently share a common exchange, particularly the Islands Aerodromes. Providing the necessary third independent connection could add significantly to cost and be difficult to achieve. Physically separated connections for the entire route between Aerodromes and the Remote Tower facility may be difficult to achieve in the Highlands & Islands.

The National Air Traffic Service are working with London City Airport to install and operate a Remote Tower system. They have frequently stated that the three Remote Tower communications links between London City Airport and the Remote Tower Centre at Swanwick follow three entirely independent, separate routes through different 'pipes'. The HIAL Review of Connectivity does not offer evidence to prove that this is possible without significant difficulty and expense. The standards set by the NATS London City Remote Tower communications should be used as a benchmark by both HIAL and the CAA with regard to the HIAL project.

On Point 2

In the '[Good Practice Guide](#)' for Telecommunications Resilience, on page 15, 'End to End Separation' of communications links is deemed to be Best Practice for Mission Critical Services. Systems are described as 'Mission Critical' if the loss of the system would cause the primary aim of the Company to fail. I believe that Air Traffic Control meets this definition. Figure 1 on page 16 shows an example of 'End to End Separation'. The HIAL Connectivity Review does not seem to use this method.

The HIAL Review only looks at Diverse Routing of communications links. Diverse Routing does not guarantee separation as there may be common failure points along the route between the Aerodromes and the Remote Tower Centre. The obvious common failure points are the single BT exchanges that receive the aerodrome data links as shown in the Wick, Kirkwall, Stornoway and Benbecula aerodrome site analyses in the HIAL Connectivity Review. Sumburgh is pointed out in the Review as being the most difficult airport for even Diverse Routing using only two links, achieving the necessary third connection may be complex.

Point 3

Throughout the HIAL Connectivity Review there is an uncertainty of language when referring to the routing of fibre cables and ducting, radio links and mast sharing. Given that BT Openreach are pretty much the only supplier of fibre telecommunications links in the Highlands & Islands, why didn't the authors of the Review approach them for a definitive answer on whether or not they can supply data communications which meet the standards set by the European Aviation Safety Agency?