Proposal for a Temporary Airspace Change NR-EWR BVLOS (ACP-2021-014)

1.0 Introduction

This document defines the requirment for a temporary restriction to airspace by the creation of a temporary danger area (TDA) above Network Rail infrastructure for the purposes of beyond visual line of sight (BVLOS) flight operations utlising a small unmanned aircraft.

Network Rail has been using aerial inspection tools now for over fifteen years. In the last six years this has included UAS/drones. Within the last four years four colleagues have tradigically lost their lives whilst working in the track environment. The primary reason for most colleagues being on the track is to undertake visual inspections or to respond to incidents.

Network Rail has already established that many routine inspections can be undertake using UAS but recognises this is not a suitable tool for the whole 20,000 miles of track it manages. This is because of varying factors, including the proximity of the infrastruture assets, airspace restrictions and weather parameters that can affect the performance of UASs.

To protect lives and keep colleagues safe, Network Rail recognises that UAS can play a significant role in supporting inspection methods that reduce the risk of people having to enter the extremely hazardous track environment. A UAS that can fly BVLOS has the potential to revlotutionlise the way inspections are carried out in the future and introduce a safe alternative to the traditional manual inspections carried out today. The proposed BVLOS proof of concept is driven by the need to improve safe working practices.

Network Rail Air Operations is proposing to carry out BVLOS test flights over a 20 kilometre section of track between Oxfordshire and Buckinghamshire, to prove that it can be achieved in a safe and effective way. The track to be flown over is part of the East West Rail project and is currently under construction.

The airspace where the TDA is required is for the 20km of track that runs from Bicester to Bletchley and is specified as Class G by the CAA. The TDA would affect Bicester Aerodrome, however, we are working closely with this entitiy and an agreement is in place for the BVLOS flight to be conducted from this facitilty. Also one grass strip to the East of Bicester.

The operating height requested is no higher than 400ft AGL, with the lateral dimensions defined within the images detailed in this document The widest extremities of the proposed restriction take into account a glide ratio of 1:20, being the worst case scenario in the event of propulsion failure. For the purposes of the proposed flight, intended track is immediately above the East to West Railway line (Bicester to Bletchley).

2.0 Objectives

- To take off from Bicester Aerodrome and to fly 20km BVLOS along the track to Bletchely and return back to the airfield at Bicester.
- To capture medium definition imagery all along the track to show change detection in lineside ground and vegitation.
- To test ADSB technology alongside the manned aviation aircraft in and around the area utilising the Network Rail helicopter.
- To feed back findings to the wider Network Rail family and the CAA.

3.0 Summary of Engagement Activity Undertaken to Date

Recognised stakeholders and likely affected air users within the area of operation that have already been engaged with:

- Network Rail and East West Rail Alliance
- Network Rail Aviation – likely affected air user
- Bicester Aerodrome - likely affected air user

Stakeholders that will be engaged with that are immediately affected by the 90 day TDA:

- Weston on the Green to the West of the area
- Botolph Claydon grass strip to the south of the area
- Bicester Gliding Club now based at Aylesbury to the south of the area

Other Stakeholders that are not directly affected but will be contacted seperate to the CAA highlighted stakeholders:

- National Police Air Service
- Thames Valley Air Ambulance
- Her Majesty’s Coastguard
- MOD/RAF low flying cell

The process of NOTAM application is expected to capture wider stakeholders that might need to be aware of the TDA whilst en route. The proposed operational height

is deemed to be low risk to general aviation at max. 400ft AGL. It is noted that a rail line presents a major navigation feature.

As required by CAP 1616, a process for collating any objections or complaints has been established (refer to the attached document Stakeholder responce form). Furthermore, engagment with local air users was established in the third quarter of 2020, notably Bicester Aerodrome.

3.0 Approach

All stakeholders will be contacted initially via email as a way of evidencing that they have been contacted. A follow up phone call will be made to ascertain that they have received the engagement document. If they have not, an address will be obtained and a hard copy will be posted.

This is only a 90 day TDA that will be 400 feet above ground level along a 20km piece of track being built. The impact on manned aviation should be at a minimum. We are imposing days and times that the TDA will be in place to try and reduce the impact on other air users. There will also be a contact process for unmanned flights so that these can facilitated via the National Drone Manager at Network Rail Air Operations. The TDA will not need to be prolonged after the 90 days. We will be able to carry out enough test flights along the 20 km to suffice the needs of the project.

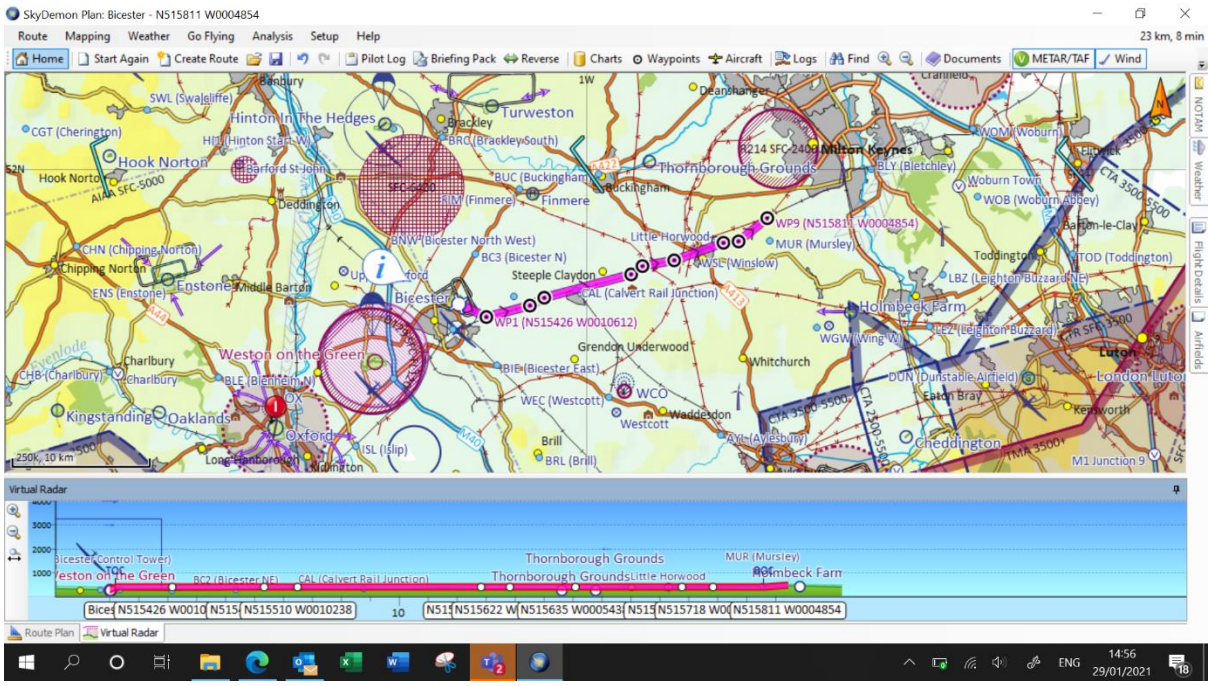
4.0 Length

All stakeholders will have 6 weeks to make contact with Paul Lindup at Network Rail Air Operations on 07701068131 or email paul.lindup@networkrail.co.uk. Once the 6 weeks have elapsed, if there are no unanswered questions or objections, Network Rail will submit all responces to the CAA Air space team for consideration of approving the TDA via the online portal.

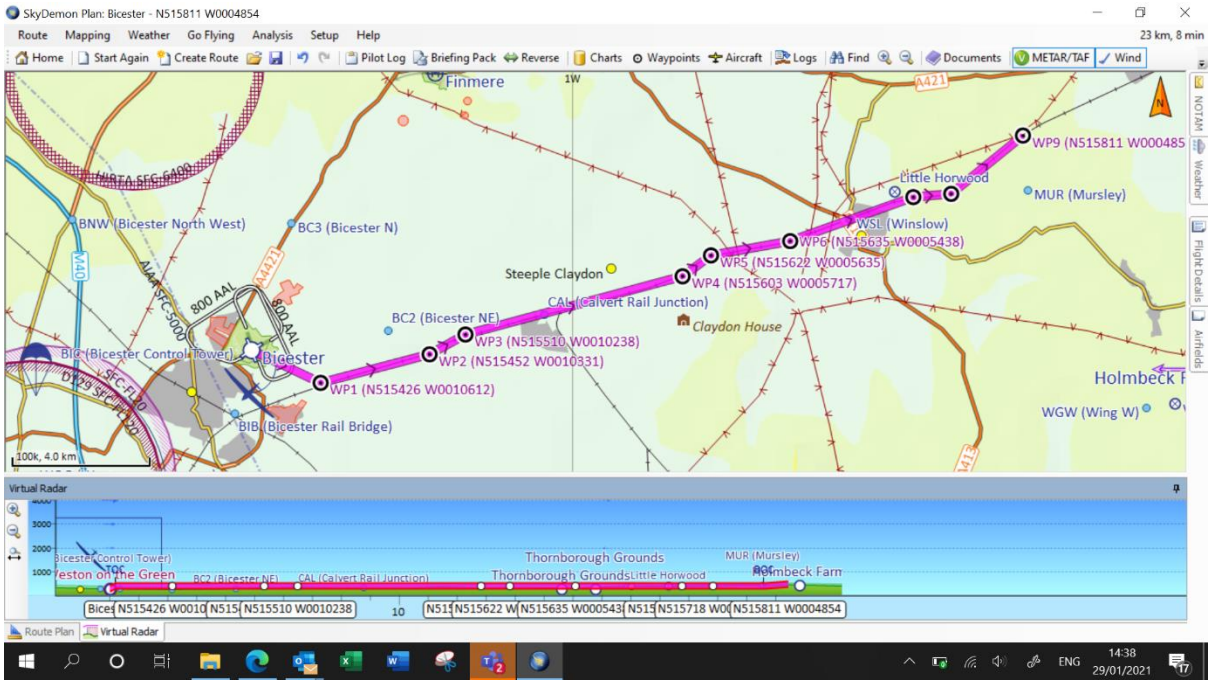
We envisage that the TDA being active in August through to November(permissions allowing) for 90 consecutive days. There will be timings of activity between 0900-1600 Monday to Friday only, all other times the TDA will not be active. This would mean evenings and weekends are not restricted and the airspace would be available for use. There will be a mechanism to ascertain if the airspace is being utilised during the above times. If it is not then there will be a further reduction in restrictions for GA. There will also be a telephone number on the TDA for all unmanned flights.

5.0 Proposed Area of Operation

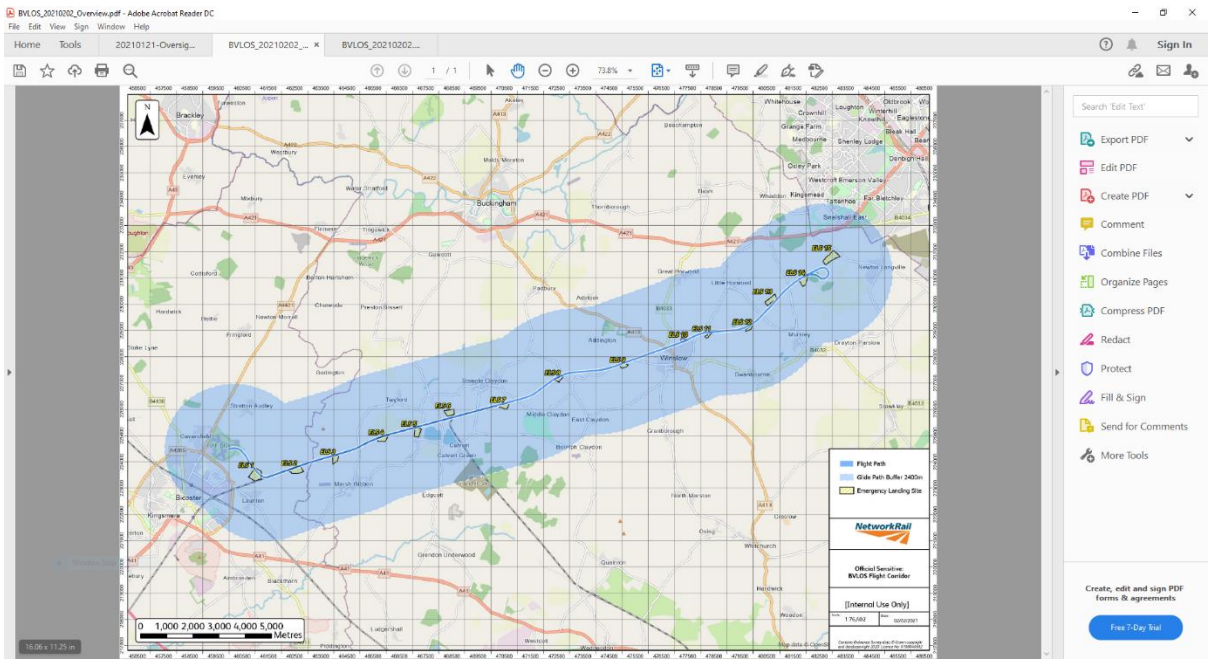
Topographical Map highlighting extent of East to West Railway line – Image 1



SkyDemon VFR Flight Plan, detailing surrounding airspace and proposed flight track (magenta line) – Image 2



SkyDemon VFR Flight Plan, detailing surrounding airspace and proposed flight track (magenta line) – Image 3



ESRO ARC GIS Map, detailing glide free area surrounding proposed flight track (Light blue shaded area) – Image 4

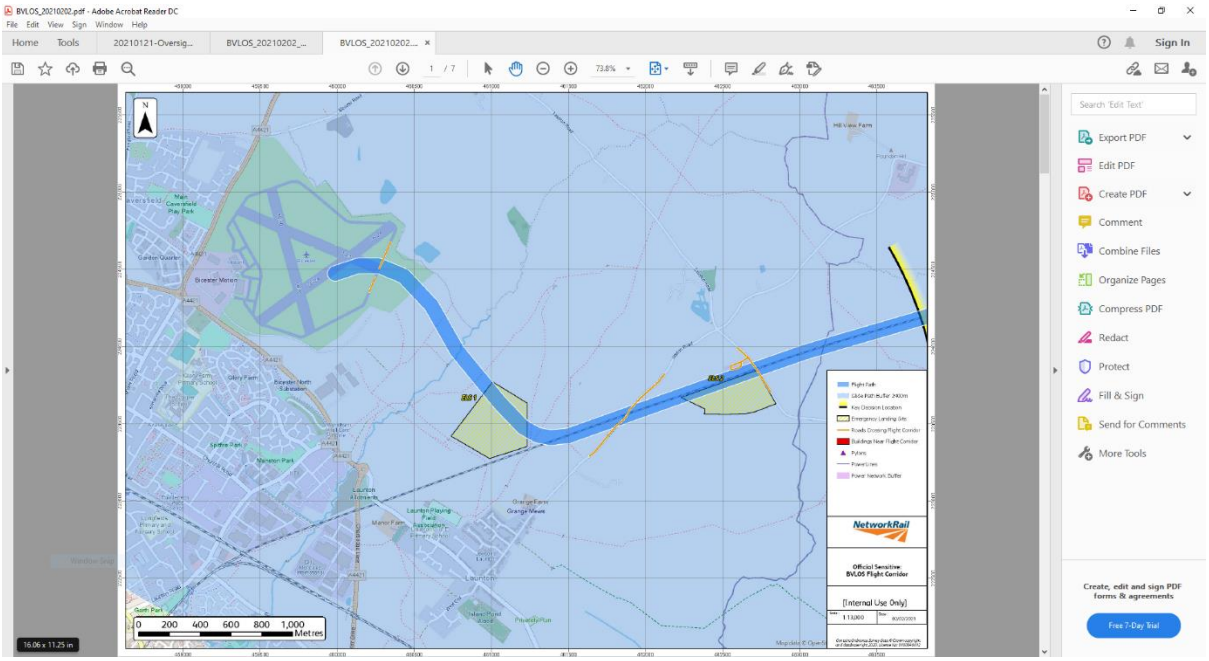
Requested Area co-ordinates:

Furthest point north: 51°58’39.87”

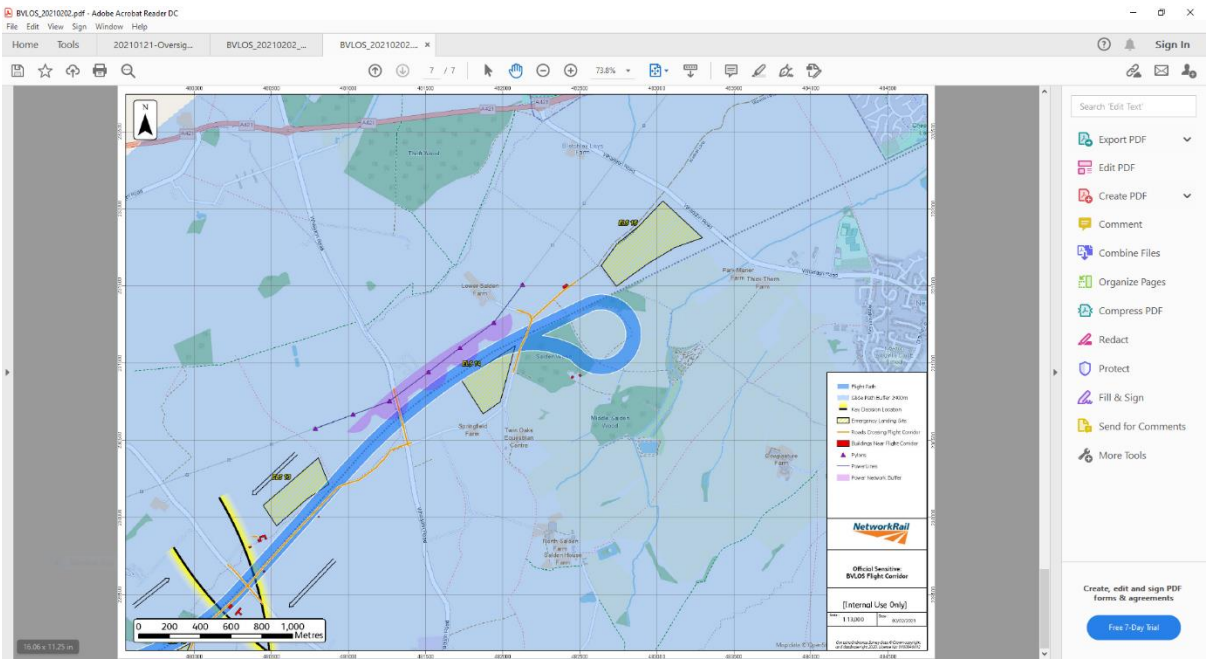
Furthest point east: 0°45’43.93”

Furthest point south: 51°51’42.70”

Furthest point west: -1°9’57.64”



ESRO ARC GIS Map, detailing proposed aircraft track in relation to East to West Railway Line, including GO/NO GO boundaries, alternate landing sites, higher risk urban areas and proximity to power lines – Image 5



ESRO ARC GIS Map, detailing proposed aircraft track in relation to East to West Railway Line, including GO/NO GO boundaries, alternate landing sites, higher risk urban areas, proximity to power lines – Image 6

6.0 Post Consultation

Upon closure of our 6 week consultation, we shall analyse responses from stakeholder and where possible, addreess any key concerns raised. We are also committed to informing stakeholders of the outcome of our application for the TDA and if successful will notify them of the approved dates and times when it will be in force.