CAA Airspace Regulation Operational Assessment

Title of airspace change proposal	North Norfolk TRA (+TMZ) for BVLOS Onshore Cable Corridor Survey
Change sponsor	StirlingX
Project reference	ACP-2025-025
Account Manager	[redacted]
Operational Assessment commencement date	10 Mar 26
Operational Assessment completed on	27 Mar 26

Instructions

In providing a response for each question, please ensure that the 'status' column is completed using the following options:

- YES
- NO
- PARTIALLY
- N/A

To aid the decision maker each question should also be highlighted accordingly to illustrate what is:

Has met the requirements YES Has partially met the requirements PARTIALLY Has not met the requirements NO

Executive Summary

Striling X are proposing the establishment of a segmented Temporary Reserved Area (TRA) with a collocated Transponder Mandatory Zone (TMZ) to enable Phase 4 ("Accommodation") operations of the Vanguard Beyond Visual Line of Sight (BVLOS) Sandbox.

The proposed SUA is within Class G airspace and CAS. The transit corridor from the Take Off and Landing Site (TOLS) is within the Norwich Airport CTR, which is Class D Airspace. The proposed flights will take place in phases, with the different drones to permit BVLOS flights to fly further along the airspace structure. The flight area is made up of a link route connecting the TOLS at Felthorpe Airfield, to the other segments. The purpose of the Beyond Visual Line of Sight (BVLOS) flights is to conduct regular construction monitoring surveys during the peak construction period of the Vanguard and Boreas offshore wind farm project.

The proposed flights will span the length of the 60 km construction corridor shown in Fig 1. The proposed flight area is shown in Fig 2 and includes the link route connecting the TLOS at Felthorpe Airfield to the construction corridor. No flights will take place off-shore.

Figure 1: Onshore cable corridor construction route

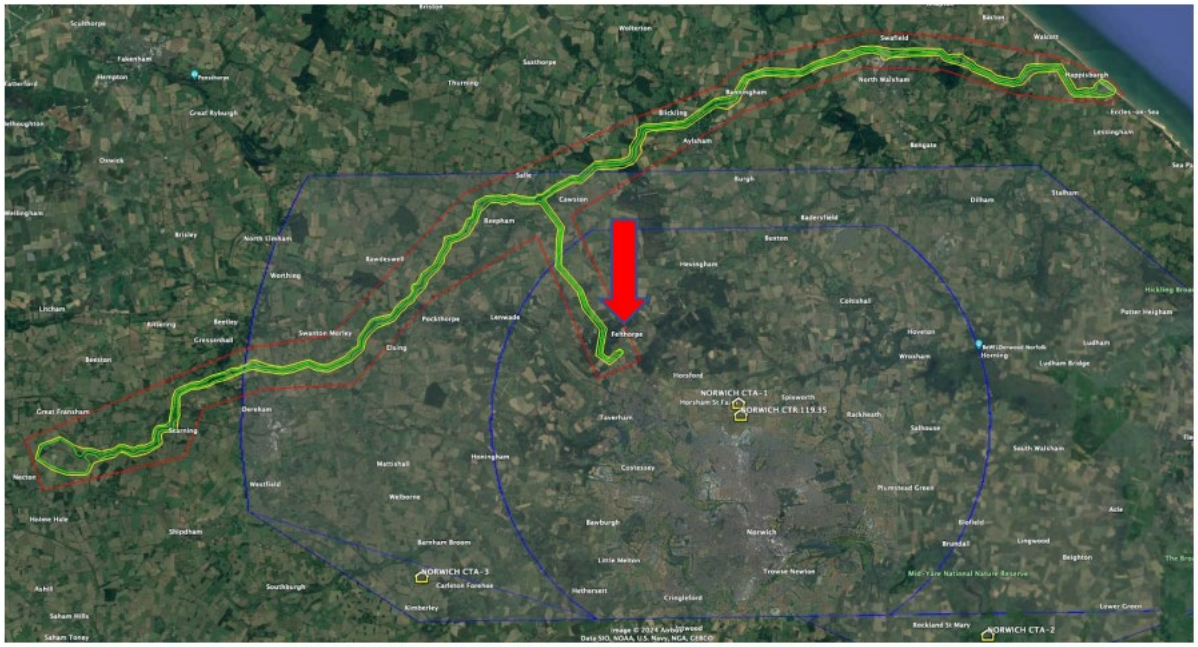
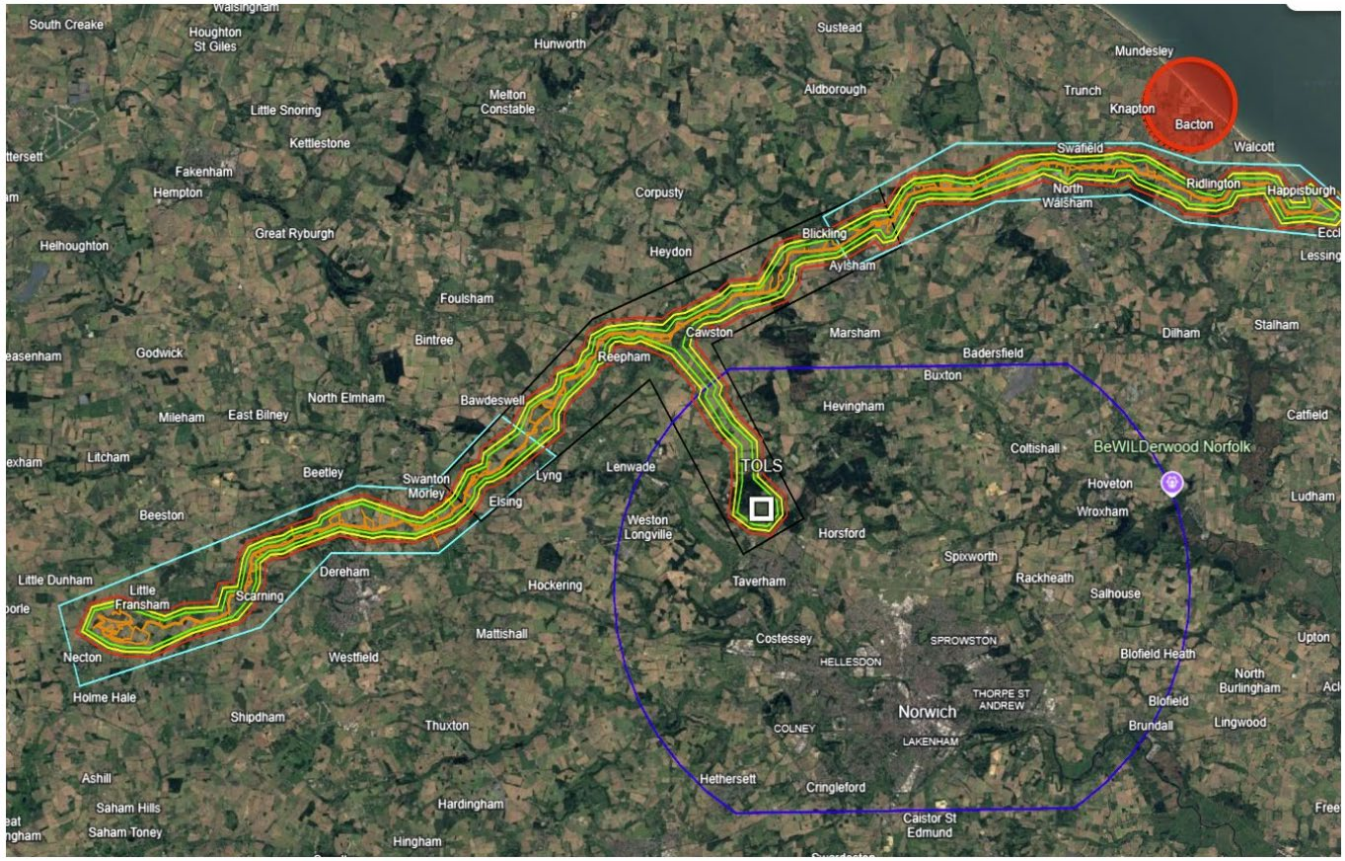


Fig 2: StirlingX CC & Felthorpe Airfield & Vanguard Cable Corridor


South Creake
Houghton St Giles
Hunworth
Sustead
Mundesley
Aldborough
Trunch
Knapton
Bacton
Melton Constable
Little Snoring
Kettlestone
Swafield
Walcott
Fakenham
Hempton
Corpusty
North Walsham
Ridlington
Great Ryburgh
Blickling
Heydon
Aylsham
Foulsham
Cawston
Marsham
Dilham
Stalham
Bintree
Godwick
Reepham
Badersfield
Buxton
North Elmham
Bawdeswell
Hevingham
Mileham
East Bilney
Litcham
Coltishall
BeWILDerwood Norfolk
Beetley
Swanton Morley
Lenwade
TOLS
Hoveton
Elsing
Lyng
Wroxham
Beeston
Weston Longville
Horsford
Spixworth
Dereham
Little Dunham
Little Fransham
Scarning
Hockering
Taverham
Rackheath
Salhouse
Mattishall
Costessey
SPROWSTON
Upton
Necton
Westfield
HELLESDON
Blofield Heath
Holme Hale
THORPE ST ANDREW
Norwich
Blofield
North Burlingham
Shipdham
Thuxton
COLNEY
LAKENHAM
Brundall
Lingwood
Ashill
Hethersett
Cringleford
Saham Hills
Saham Toney
Hardingham
Caistor St Edmund
Hingham

The ANSP will be Norwich Airport (NWI) Air Traffic Control.

The structure will enable sector-based routing. The structure was originally submitted as 3 sectors but has changed to be divided into 7 sectors which can be activated independently to reduce complexity and allows targeted containment and coordination.

Emergency services and military aircraft will have priority access as RPAS operations can be paused immediately when required.

1.	Justification for change and options analysis (operational/technical)	Status
1.1	What are the reasons or drivers for the change, and do they address the SoN? Are they stated and acceptable?	YES
	The sponsor has stated - *The Regulatory Sandbox for BVLOS Accommodation Airspace aims to trial a policy concept that utilizes temporary reserved areas (TRA) and appropriate procedures or technology to enable the safe integration of unmanned aircraft systems (UAS) operating beyond visual line of sight (BVLOS) into unsegregated airspace.*	

1.2	What will the ACP achieve if approved; what are its aims/objectives? Does this align with the SoN?	PARTIALLY
	The sponsor has stated – *The BVLOS Sandbox | Accommodation Phase (4)* *This phase involves several key components:* *1. Airspace Structure and Management: The trial utilizes Temporary Reserved Areas (TRA) and Transponder Mandatory Zones (TMZ) to create a **controlled environment for BVLOS operations**. These areas are managed by an Air Navigation Service Provider (ANSP) and are activated as needed to ensure safety.* This statement will be upheld by the ANSP, NWI, in co-ordination with StirlingX to a degree in that the effect of a TDA will be to segregate the airspace for the UA to operate safely. *2. Technology and Procedures: During this phase, **primary deconfliction relies on Electronic Conspicuity (EC) based systems, and Visual Observers (VO) are removed from the activity. This shift allows for the validation of specific technologies and airspace management procedures necessary for the safe integration of BVLOS UAS with crewed aircraft.*** The sponsor has since stated within the final submission that there will be **no integration** with either transponding or non-transponding air systems. The structure is now a modular segregated structure. In sum, the submission has changed, and the structure has developed into modular segregated airspace which will **not** accommodate other manned or unmanned air systems in the same segment where a UA is operating; this is aligned to a Temporary Danger Area (TDA). Should the need arise for an emergency response air system to transit the structure an agreement, via an LoA and agreement, it will necessitate the UA landing and the emergency air system having primacy. It is understood that this proposal **will** trial BVLOS without the need to use Visual Observers (VO). See condition 2 in the decision log.	
1.3	What assumptions have been made, and constraints have been considered?	YES

	As the applicant has been accepted on to the CAA Regulatory Sandbox and as described in CAP 2540 the applicant must be ready to test the TRA policy concept (CAP 2533).	
1.4	Is the justification for the selection of the proposed option sound and acceptable?	PARTIALLY
	This project was accepted into the Sandbox to test the TRA policy concept. The proposed option (TRA with an overlaid TMZ), would have been acceptable, if the proposal had been to demonstrate an acceptable method of safely accommodating crewed and UA in the same airspace. The proposal, as submitted, does not intend to do this, as it will segment the proposed overall SUA structure with the intent of only permitting the UA in one of the SUA segments at any one time. This construct will not permit any DAA trialling.	

2.	Airspace description and operational arrangements	Status
2.1	Are the summaries of the baseline airspace design and new airspace design clearly stated and understood?	PARTIALLY
	A TRA and associated TMZ in Class G and Class D airspace from SFC up to 750FT AMSL was proposed. For this trial the BVLOS activity in the proposed SUA will always be segregated from other airspace users, therefore it will not be operating as a TRA. Prior to implementation the sponsor must produce an executive summary to the ACP submission that clearly explains that the intended operation will be phased to permit 2 different drone types to fly BVLOS along segmented TDAs as the trial progresses. NWI cannot provide 'traffic information' as described in the Trial Plan (Annex F) as this is a radar service that relies on see and avoid. NWI can provide relevant information to the RP.	
2.2	If there are new or modified airspace objects[1]; for example, controlled airspace, air traffic service routes, special use airspace, instrument flight procedures, waypoints etc, how will the design interact with other existing airspace structures (this includes the FIR boundary)? Is the classification and design of the airspace structure justified?	PARTIALLY
	Special Use Airspace (SUA) is proposed which will be managed by NOTAM activation and de-activation. No change to airspace classification is proposed or implied. It is not understood what the requirements for access to the SUA in Class D CTR are (see condition on LoA acceptance in the decision log).	
2.3	Are the hours of operation of airspace structures and any seasonal variations, including aspects relating to airspace management clearly explained?	YES

[1] See ERNIP Part 1 Para 2.5, 9.2.2

	The submission is proposing 2-4 flights a day, Monday - Friday 0900-1700 for a 6-month trial period aiming to start in May 2026.	
2.4	Are the descriptions of instrument flight procedures as expected in terms of managing the overall design., Do the descriptions match what is in the instrument procedure design technical report, including relevant details on what has influenced the final design option?	N/A
	N/A	
2.5	Is the supporting statistical evidence relevant and acceptable (consider traffic data including statistics and forecasts for the various categories of aircraft movements (passenger, freight, test and training, aero club, other) and terminal passenger numbers)?	YES
	The sponsor has provided a clear current day scenario with traffic numbers ascertained from ADS-B information and traffic information provided by the MoD and Norwich for the proposed area.	
2.6	Are details of the purpose of new, or modified, draft letters of agreement (LoAs) or Memoranda of Understanding (MoUs), including any that have developed out of consultation and/or from airspace management requirements, included and in a satisfactory state?	YES
	The proposed SUA in Class G and Class D airspace is in and around the Norwich Airport CTR. The LoA between the Operator and the ANSP (Norwich) providing the SUACS has been drafted and is acceptable at this stage, however, it will need signing and acceptance by the CAA ATS Inspector. Additionally, together with an LoA with the National Police Air Service (NPAS), a Record of Agreement has been made with between Norwich Airport, Babcock Mission Critical Services Onshore Limited (BMSCO) and Stirling X which provides guidance for helicopters transiting on emergency flights. Engagement with the MoD, notably RAF Marham has produced an LoA. A draft TOI has been created by the ANSP which will need acceptance by the CAA ATS Inspector.	
2.7	Has the change sponsor provided high-quality diagram(s) of the airspace change in its entirety as well as supplementary diagrams illustrating different parts of the change as necessary? These diagrams must, as a minimum, show the extent of the airspace change in relation to known geographical features and centres of population.	YES

	The sponsor states: *The TRA/TRZ design has been modified following stakeholder engagement to allow greater separation from the main low level activity area of Norfolk Hang Gliding and Paragliding Club. It also avoids the area of increased risk around Bacton gas venting station. The ceiling of the TRA/TMZ is set as 750 feet AMSL, giving clearance above the contingency volume for the whole route.* Additional diagrams are contained within the Executive Summary. A modification to a TDA does not effect this modification.

3.	Supporting resources and communications, navigation and surveillance (CNS) infrastructure	Status
3.1	Is the evidence of supporting CNS infrastructure together with availability and contingency procedures complete and acceptable? The following must be satisfied if relevant:	
	• **Communication:** Is the evidence of communications infrastructure including RT coverage together with availability and contingency procedures complete and acceptable? Has this frequency been agreed with AAA Infrastructure?	PARTIALLY
	The sponsor has stated that primary communication between NWI and the RP is via VHF frequency (NWI Approach), fall back will be via phone.	
	• **Navigation:** Is there sufficient accurate navigational guidance based on in-line VOR or NDB or by approved RNAV-derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/ Eurocontrol standards? For example, for navaids, has coverage assessment been made, such as a DEMETER report, and if so, is it satisfactory? What are the contingency procedures?	YES
	RPAS to advise and condition to the ACP should be that the operator has received an OA, indicating that the RPAS has sufficient navigational guidance to remain within the TRA.	
	• **Surveillance:** Radar provision – have radar diagrams been provided, and do they show that the ATS route/airspace structure can be supported? What are the contingency procedures?	PARTIALLY
	The Stirling X UA is equipped with Mode 3A/C/S and ADS-B out to provide additional situational awareness to other airspace users about the location of the UA. NWI do not have the ability to see ADS-B and rely on SSR for identifying the UA. This will not affect Norwich ATC inability to see the Stirling X aircraft due to altitude. This trial will be segregated so no provision of service will be based on the location of	

	the UA. Under the draft Loa, NWI propose to provide a Traffic Service within radar coverage to support BVLOS operations, including timely traffic information and sector coordination	
3.2	Where appropriate, are there any indications of the resources (staff, equipment, training) to be applied, or a commitment to provide them, in line with current forecast traffic growth acceptable?	YES
	Norwich ATC have stated that the proposal can be safely managed with the resources available.	

4.	Technical data, Regulations and Policies	Status
4.1	If there is a requirement under SARG Policy 125, is the CAP1054 aero data spreadsheet complete and accurate?	YES
	Yes, as the submission will attract an AIP SUP, CAP1054 mandates that the aero data for the proposed structure be submitted for ADQ compliance. The sponsor has been guided on how to utilise the spreadsheet and how to produce a structured AIP SUP. The aero data has been approved.	
4.2	Has the change sponsor identified AIP pages affected by the change proposal and provided a draft amendment?	YES
	The change sponsor will produce an AIP SUP to be submitted to AIS in sufficient time to allow other airspace users to be appraised of the route and conditions of transit.	
4.3	Is the evidence and information provided, able to demonstrate that the airspace design is compliant with International Civil Aviation Organisation standards and recommended practices and other applicable UK policies sufficient? Is the information provided able to allow the CAA to consider any applications for dispensation? Has the change sponsor considered all the relevant Regulations and Policies to support their proposal? Have they requested any dispensations?	PARTIALLY
	The proposed TRA/TMZ structure will not be recommended for approval, a TDA as defined in SARG Policy 133 will be recommended for approval.	

5.	Anticipated Operational Impacts	Status
5.1	Is the change sponsor's analysis of the potential impacts of the change on all airspace users, airfields and traffic levels, and evidence of mitigation (safety case) of the potential effects of the change on any of these, complete and satisfactory? Consideration should be given to:	
	a) The impact on the flow of instrument flight rules operations including general air traffic and operational air traffic.	YES
	The proposed structure is SFC to 750FT AMSL, segmented and there will be the provision of a SUACS, therefore, it should have minimal impact upon IFR or GA traffic in the area. NOTAM activation/de-activation should ensure that local airspace users are informed of the activity and aircraft can speak with Norwich on the published frequency to gain information if required.	
	b) The impact on visual flight rules operations.	YES
	The sponsor has produced the design of the SUA to minimise the disruption to local aerodromes and specifically to Great Fransham which is a glider site. The proposed structure is SFC to 750FT AMSL segmented and there will be the provision of a SUACS, therefore, it should have minimal impact upon VFR traffic in the area. NOTAM activation/de-activation should ensure that local airspace users are informed of the activity and aircraft can speak with Norwich ATC on the published frequency to gain information if required. Engagement with the MoD, notably RAF Marham, has produced a LoA which should minimise any possible impact to MoD operations.	
	c) Consequential impacts on existing procedures and capacity, i.e. on SIDs, STARs, holds. Details of existing or planned routes and holds.	YES
	NWI has indicated that there will be no impact on normal ops. Stirling X will produce and submit the activation and de-activation NOTAMs. The SUA will be activated by NOTAM and managed in coordination with Norwich ATC, ensuring predictable and controlled use of the airspace during BVLOS trial activity.	
	d) The impact on aerodromes and other aviation activities within or adjacent to the area of the proposed changes.	YES

	The possible impact on adjacent airfields and other specific activities has been assessed and amendments made to the shape of the SUA structure to balance the requirements of airspace users and the sponsor's requirements. This will be further achieved via LoAs.	
	e) Any flight planning restrictions and/ or route requirements.	N/A
	N/A	
	f) Details of any changes to the provision of air traffic services, including justification for any delegation of the provision of air traffic services.	YES
	NWI will manage the potential impacts to the CTR for which they are the controlling authority via the LoA, which will need to be accepted by the ATS Inspector.	
	g) The impact of the traffic mix on complexity and workload of operations	YES
	The potential impact to NWI will be managed via the LoA.	
	h) Consideration of access requirements of other airspace users in accordance with the type and classification of airspace structure, including details on the ability to support the provision of air traffic services in accordance with the nature of the operation and the classification of airspace	YES
	The sponsor proposed a TRA/TMZ structure without indenting to permit accommodation of crewed aircraft and UA in the same sector at the same time. NWI will co-ordinate with Stirling X, in accordance with the LoA to provide a SUACS of the TDA sectors that are not being utilised as part of the trial. The sponsor must minimise the potential impact of the SUA by only notifying the sectors that they need for a particular period of time and in order to meet the trial objectives.	
	i) Consideration of how connectivity to/from the air traffic service network is to be achieved, including arrangements for aerodromes outside controlled airspaces	N/A
	N/A	

Operational Assessment conclusion – to be completed by Airspace Regulator (Technical)	Yes/No
From an operational perspective, has the change sponsor met the CAA's airspace change proposal requirements and airspace regulatory requirements above?	YES
The sponsor has proposed a volume of airspace that will segregate their BVLOS activity from other crewed and uncrewed aircraft as part of longer term view of accommodating crewed aviation when this can be safely and operationally demonstrated. The sponsor has considered feedback from their engagement and amended the design to balance the needs of airspace users and their own requirements. The proposal includes the ability for emergency access to the SUA for crewed aircraft.	

RECOMMENDATIONS/CONDITIONS/PIR DATA REQUIREMENTS	Yes/No
Are there any Condition(s) which the change sponsor **must fulfil** either before or after implementation (if approved)? If yes, please list them below.	YES
All conditions of approval are captured in the decision log.	
Are there any Recommendations which the change sponsor **should try** to address either before or after implementation (if approved)? If yes, please list them below.	YES

See the decision log.

Are there any specific requirements in terms of the data to be collected by the change sponsor for the Post Implementation Review (if approved)? If yes, please list them below.	N/A
N/A	

Comments and observations
The proposed trial by Stirling X will enable the sponsor to collect data for BVLOS operations within a segregated area. This data may be of use when planning any further trials that may involve integration/accommodation with other air users.

Operational assessment sign-off	Name	Signature	Date
Operational assessment completed by Airspace Regulator (Technical)	[redacted]	[redacted]	27 March 2026
Operational assessment approved by Principal Airspace Regulator	[redacted]	[redacted]	16 April 2026
Comments: See Decision Log			