

Proposal for Temporary Danger Areas in the Canterbury Bight – Kea Aerospace and Tāwhaki

Enabling RPAS Research & Development



Kea Atmos Mk1

V2.2

Kea Aerospace / Tāwhaki

November 2023

Disclaimer

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Record of Amendments

| Version | Date | Details |
|---------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.0 | October 2022 | Initial Issue; proposal for temporary Danger Area(s) to support the Kea Aerospace RPAS Flight Test Programme. |
| 2.0 | July 2023 | Complete renewal of temporary Danger Area(s), with collaboration between Kea Aerospace and Tāwhaki. |
| 2.1 | September 2023 | Increase in the upper limit height of the smaller Danger Area from 5,000' to 8,500' to account for the Fresnel zone, allowing the RPAS to operate at higher altitude and thus provide improved radio line of sight performance. |
| 2.2 | November 2023 | <p>Remove discussion regarding 12NM restriction, with the matter now resolved by the CAA.</p> <p>Discussion of possible impact on ICE flights.</p> <p>Split area 'B' in two, to step the upper limit down over Kaitorete Spit.</p> <p>Designation date changed from 1st September 2023 to 22nd February 2024, reflecting time consumed with addition consultation due to Rev 2.1 changes, along with predicted CAA processing time.</p> |

Introduction

Earlier this year, a Temporary Danger Area (DA) was established to support Kea Aerospace's flight test programme of a solar-electric, remotely piloted aircraft system (RPAS). This DA expired at the end of June 2023.

Kea Aerospace (Kea) and the Tāwhaki Joint Venture (Tāwhaki) are collaborating on supporting the research and development (R&D) of advanced aviation systems including remotely piloted aircraft systems (RPAS) from the Tāwhaki Aerospace Research Centre (Centre) at Kaitorete.

In the interests of maintaining flight safety and situational awareness for the wider airspace community in the vicinity of Kaitorete, Kea and Tāwhaki are proposing to re-establish a Temporary Danger Area around Kaitorete and offshore, between 22nd February 2024 and 30th June 2024.

Proposal Summary

There are three discrete DAs proposed. An area for low-level flight operations from Kaitorete up to 5000' (the Smaller area), an area extending offshore from the surface up to FL600 (the Larger area), and a third intermediate area up to 8,500' intended for flights to transit between the two.

Figure 1 illustrates the requested Danger Areas, (nominally NZDXXA, NZDXXB, and NZDXXC - for ease of reading 'A', 'B' and 'C')

KEA flight operations would make use of all three areas, with most of the flight time spent exclusively in area A, and using the other areas for take-off, landing, and transit to and from area A.

Operations by other Tāwhaki partners would use only Danger Areas B and C.

All flight operations will be in visual meteorological conditions (VMC).

There are changes to the DAs since the previous designation:

- 1) The previous smaller area is split into Danger Area C and Danger Area B
- 2) The northern boundary of Danger Area C now extends just offshore from Kaitorete across Te Waihora / Lake Ellesmere
- 3) The proposed Using Agency for the smaller Danger Areas B and C will now be Tāwhaki.

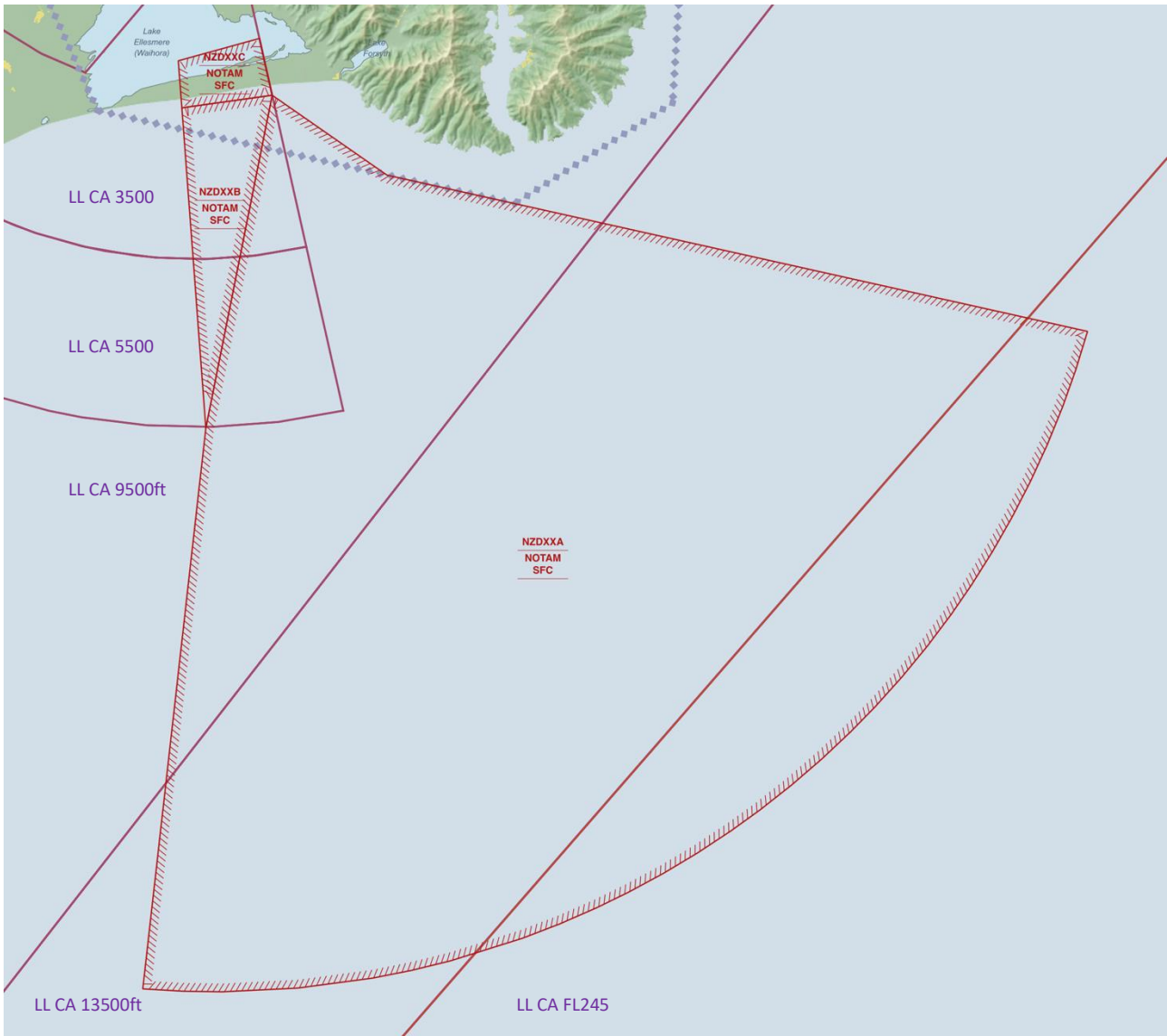


Figure 1 Danger Area Overview

An overview of the proposed Temporary Danger Areas is provided in the table below, with the detailed content later in this document.

| Danger Area(s) | | | |
|-------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------|
| Designation in this document | NZDxxC (Smaller DA) | NZDxxB (Intermediate DA) | NZDxxA (Larger DA) |
| Using Agency | Tāwhaki | Tāwhaki | Kea |
| Effective Period | 22/02/24 – 30/06/24 | | |
| Activation | NOTAM 24-hrs prior | | |
| Kea Aerospace Operations | | | |
| Frequency of Activation | ~3 times per month | | |
| Activation Period | Entire daylight period, plus a few hours either side | | |
| Altitude | Surface to 5000' | Surface to 8,500' | Surface to FL600 |
| | NOTAM to nominated altitude Both uncontrolled and controlled airspace | | |
| Other User Operations | | | |
| Frequency of Activation | ~3 times per month | ~3 times per month | N/A |
| Activation Period | Daylight hours only | Daylight hours only | N/A |
| Altitude | Surface to ≤5,000' NOTAM to nominated altitude Primarily within uncontrolled airspace | Surface to ≤8,500' NOTAM to nominated altitude Primarily within uncontrolled airspace | N/A |

Background

Reason for Application

- The previous temporary DAs which were in place expired in June 2023. Redesignation is required to facilitate ongoing flight testing.
- Flight operations for both Kea and other operators may take place from the Tāwhaki Aerospace Research Centre at Kaitorete.
- Kea has a range of RPAS which would utilise the DA, the primary aircraft being the solar-electric high-altitude aircraft, the Atmos Mk1.
- In addition to Kea, Tāwhaki has a several operators who are looking to develop their aircraft systems. The establishment of a DA provides an additional layer of situational awareness and flight safety for all airspace users.

Using Agencies

Kea Aerospace

Kea Aerospace Ltd is a CAA Rule Part 102 Certificated RPAS operator, developing high-altitude solar-electric aircraft.

Larger DA Using Agency

The larger section of airspace will see Kea Aerospace remain as the Using Agency, with an expected activation by Notice to Airmen (NOTAM) of approximately three times per month, which is unchanged from the previous arrangement.

Kea Point of Contact:

Phillip Stott

Chief Operations Officer

Email: phillip.stott@keaaerospce.com

Mobile: +64 21 750 202

Tāwhaki

Tāwhaki (a joint venture between Kaitorete Limited and the Crown) is taking a phased approach to developing aerospace and research and development facilities.

In 2022, Tāwhaki established Aotearoa's first a multi-user Aerospace Research Centre at Kaitorete which is providing critical infrastructure to support aerospace activities.

A renewed Danger Area at Kaitorete will enable multiple users to conduct research and development activities at the Centre by maintaining flight safety and providing enhanced situational awareness to all airspace users of activities taking place.

Smaller DA Using Agency

The smaller sections of airspace will see Tāwhaki as the Using Agency, activating the area by NOTAM, up to approximately six times per month. This includes the three activations required by Kea and provisions for an additional three activations per month for other operators.

Tāwhaki Point of Contact:

Stan Topping

Head of Aerospace Strategy & Global Partnerships

Email: stan@tawhaki.co.nz

Mobile: +64 21 088 17858

Concepts of Operations

The following two sections describe the Concept of Operations (CONOPS) for Kea Aerospace and for Tāwhaki.

Kea's CONOPS is the more complex operation and provides the foundations of the design for the proposed DA's.

Tāwhaki's CONOPS provides the framework for a range of operators who would look to use the DA, and utilises the design of the Smaller DA.

Kea Aerospace

The Kea Atmos Mk1 is a remotely piloted aircraft with a 12.5m wingspan, and a cruise Indicated Air Speed (IAS) of about 20 knots.

As the primary user of the Danger Areas, Kea flights of the Atmos Mk1 will climb from a sea level launch point on Kaitorete up to a maximum of FL600 and return. The aircraft will operate in VMC.

Because the aircraft is solar-electric powered, the flights will be timed to make maximum use of daylight. The test flights will typically operate for the entire daylight period, and a few hours either side.

Kea intends to operate south east of Kaitorete in airspace clear of most Instrument Flight Rules (IFR) procedures and with few if any other flights.

Kea proposes addressing separation assurance in the following ways:

- In controlled airspace, the test flights would be segregated from other traffic by containing the RPAS operation within Danger Areas. There are currently no Air Traffic Control (ATC) separation rules applicable to the Kea RPAS, because it is not equivalent to aircraft operating according to either the VFR or IFR. However, ATC are able to separate aircraft from Danger Areas. Where necessary, ATC would separate other aircraft from the Danger Areas by at least 3nm laterally or 500ft vertically in accordance with rule 172.293 (a)(2) [when aircraft in the Special Use Airspace (SUA) may be operating in VMC]. Aircraft operating on most of the adjacent instrument flight procedures (IFP) are separated from the requested Danger Areas by at least these distances. ATC are able to provide vectors to other aircraft to remain clear of the Danger Area.
- In uncontrolled airspace, using Danger Areas adds a formal warning to other operators via the activation NOTAM, which would also enable contact with these aircraft if required.

The aircraft will operate navigation and strobe lights, and a Mode-S + ADS-B transponder.

In uncontrolled airspace, crewed aircraft may be visible to Kea Pilots who will also be monitoring ADS-B, the Banks Peninsula CFZ frequency (118.75 MHz) and the uncontrolled aerodrome frequency, 119.1 MHz. The aircraft is also equipped with a 'first person view' (FPV) camera for use by the pilot. Two-way communication with other pilots is the primary means for deconfliction and separation assurance in uncontrolled airspace. The Kea pilot will be contactable on the above VHF frequencies, will be broadcasting position and intentions approximately every 15 minutes, and will be pro-actively contacting other aircraft where a potential conflict is identified.

In controlled airspace, published IFP, or ATC vectoring under surveillance control would separate other controlled flights from RPAS in the Danger Area. Kea shall establish an MOU with Airways to manage these flights.

The Danger Areas will be activated by NOTAM at least 24 hours prior to each test flight. The NOTAM will contain details of the proposed test flight and include Kea's contact details. In addition, Kea / Tāwhaki will proactively email airspace user groups to highlight pending flights.

Tāwhaki

The underpinning principle of the CONOPS for other operators who wish to use the proposed DA is to maintain flight safety and provide additional situational awareness for all airspace users during the flight testing of uncrewed aircraft around the Centre.

Given the variety of operators who are working with Tāwhaki, some of whom are looking to undertake Beyond-Visual-Line-of-Sight (BVLOS) flight operations, there are common elements which would be in place to enable them to use the DA. Key points include:

- Operators will have been reviewed by Tāwhaki to ensure their credibility and approach to their operations
 - There are aligned values between the operator and Tāwhaki,
 - The required operator approvals are in place for the operators' proposed flights, for example a Part 102 Operators Certificate issued by the CAA,
 - Robust operating and safety procedures including emergency response plans.
- Use of the DA would be within uncontrolled airspace, except where specific agreements have been established between the operator and with Airways e.g., Kea
 - Should an operator require flight operations in controlled airspace (CTA), an agreement with between the operator and Airways would be required. This is in addition to the CAA approving the operations via the operators Part 102.
- The NOTAM would be raised no less than 24-hours prior to the DA's activation, and would include:
 - Details of the operator's flights
 - Contact details for the operator
- The altitude of the activation would be set to a suitable altitude to support the operator's flights and no greater
 - The majority of activations will be within uncontrolled airspace (<3,500' and <5,500'). It is anticipated that there would only be a need to activate the DA to lower altitudes to minimise the impact to other airspace users e.g., 2,000'.

Requested Danger Areas

Kea / Tāwhaki requests three linked Danger Areas be designated in the interests of flight safety.

The purpose of the Danger Areas is to warn other pilots of RPAS operations originating from Kaitorete, and to provide a formally defined boundary for use by ATC in keeping IFR traffic clear if required.

ATC would separate controlled aircraft from RPAS in the Danger Areas, where this is in CTA. In addition, the lower portion of the Danger Areas in uncontrolled airspace provides a warning to pilots in that airspace.

The Danger Areas would be activated by NOTAM over the hours that RPAS are operating. Either the Smaller Danger Area over Kaitorete, or all Danger Areas would be activated when required.

Danger Area A is 5nm east of adjacent IFPs, extends to an arc 100km from the Tāwhaki Centre and except for a segment close to shore is clear of Banks Peninsula CFZ. When active it would extend from the surface to an upper limit advised by NOTAM, up to FL600.

Danger Area C covers the Tāwhaki Centre, and extends from Lake Ellesmere (2km from the lake shore) over Kaitorete and about 1km out to sea. When active it would extend from the surface to an upper limit advised by NOTAM, no higher than 5,000ft.

Danger area B connects areas A and C. When active it would extend from the surface to an upper limit advised by NOTAM no higher than 8,500ft.

An exact definition of the requested airspaces in the form used by the NZAIP is in Appendix 1.

The proposed temporary Danger Areas are designed to minimise the impact on other airspace users.

Danger Area A is clear of all instrument flight procedures (IFPs) and mostly clear of the Banks Peninsula CFZ.

Danger Areas B and C cover take-offs/landings from Kaitorete, and avoid most IFP and areas used by itinerant GA aircraft to the greatest practicable extent. Their western boundary is laterally separated from adjacent IFP. The maximum ceiling of area C is below a standard instrument arrival (STAR) overhead.

Danger Area B may affect a small number of summer ICE operations between Christchurch and McMurdo Station, conducted by the RNZAF and the National Science Foundation. This proposal will see only around 3 UAV flights per month venturing into Controlled airspace, with Area B providing a corridor to access Area A. The transition through Areas C and B is expected to take approximately 1 hour. Should there be an affected IFR flight which coincides with a UAV flight, options to deconflict include overflying Area B if able, ATC vectoring of the IFR flight to stay clear of Area B (which will add approximately 1.5NM to the ICE flights), or separation by time.

Effect on Aircraft in Uncontrolled Airspace

The proposed Danger Areas are expected to have minimal impact on flights in uncontrolled airspace and allows room for GA traffic circumnavigating the peninsula and transiting across or along Kaitorete.

GA operations over and around Banks Peninsula are largely contained within the Banks Peninsula CFZ. Danger Area A is clear of the Banks Peninsula CFZ except in a small area close to the Tāwhaki Aerospace Research Centre. The section of this Danger Area within the Banks Peninsula CFZ is at least 2.9 nautical miles (5.4 km) from the edge of Banks Peninsula and 1km from shore (Figure 2).

Itinerant GA aircraft flying along Kaitorete can avoid Danger Area C by flying north of the lake shore – a deviation of just over 1nm.

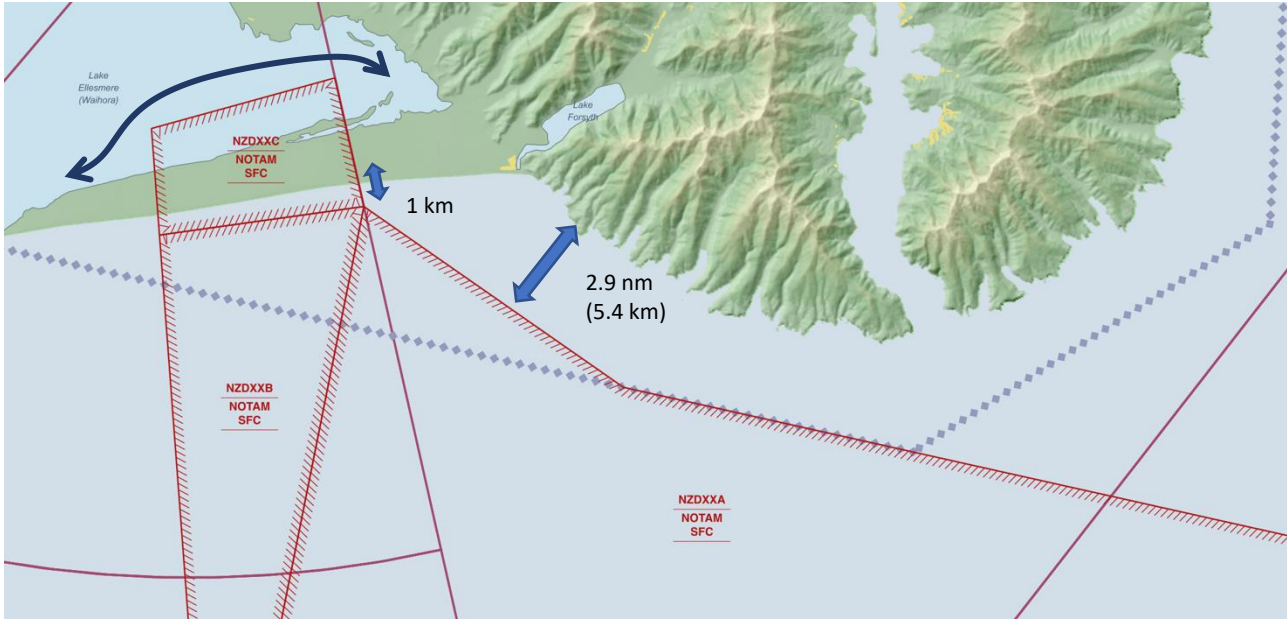


Figure 2 SUA in Uncontrolled Airspace

Effect on IFR Aircraft

The requested Danger Areas are expected to have minimal effect on IFR flights or ATC workload.

The Danger Areas are separated from most nearby IFP. Danger Area A is laterally separated from all IFP. Danger Area B and C may conflict with Christchurch RNAV SID RWY 02 MUKVO1P (PEHRR transition). Danger area B may conflict with the instrument approach procedures PEHRR2F and PEHRR4B.

The effect on aircraft using these IFP is infrequent and manageable, and discussed in more detail below.

ATC will be able to provide vectors to avoid the Danger Areas for aircraft not following IFP.

The Kea Atmos Mk1 aircraft will operate within the danger areas in VMC. Where the rules require ATC to separate controlled aircraft from the SUA, a vertical separation of at least 500ft and lateral separation of 3nm is required. The following discussion is based on this separation requirement.

Separation from nearby Instrument Flight Procedures

Nearby IFR procedures include SIDs and STARs for flights between Antarctica and Christchurch International Airport, between Dunedin and Christchurch runway 20, and some air routes between airports north of Christchurch and east coast airports south of Christchurch.

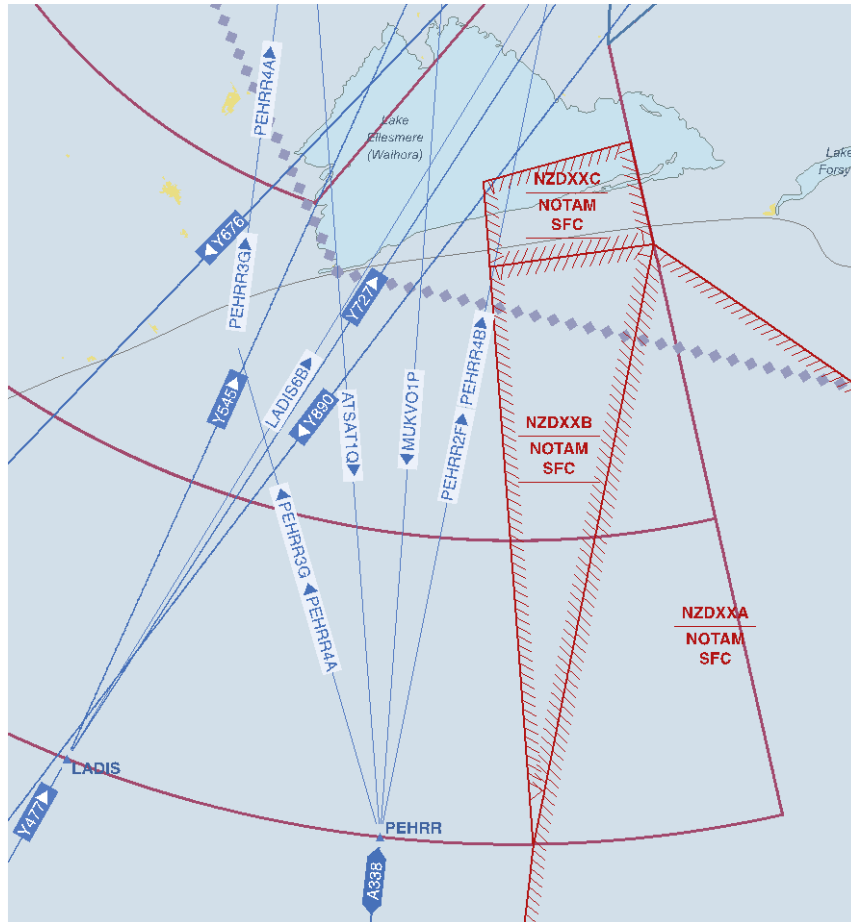


Figure 3 Nearby IFR Routes and Procedures

The separations from the closest relevant routes and IFR procedures (SID and STAR) are:

| Danger Area | IFR Procedure/Route | Separation |
|-------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | PEHRR2F PEHRR4B A338 Y890 | At least 5nm lateral separation. |
| B & C | ATSAT1Q | 5nm lateral separation |
| | Y727 Y890 Y545 Y676 | These routes are normally flown well above 9000ft, providing vertical separation under normal circumstances. |
| B | LADIS6B LADIS2F | 3.4nm lateral separation |
| C | LADIS6B LADIS2F PEHRR4B PEHRR2F | Vertical separation. The maximum upper limit of danger area C is 5000ft. Arrivals on these procedures are required to be at or above 6000ft at VEPL0 after passing danger area C. |

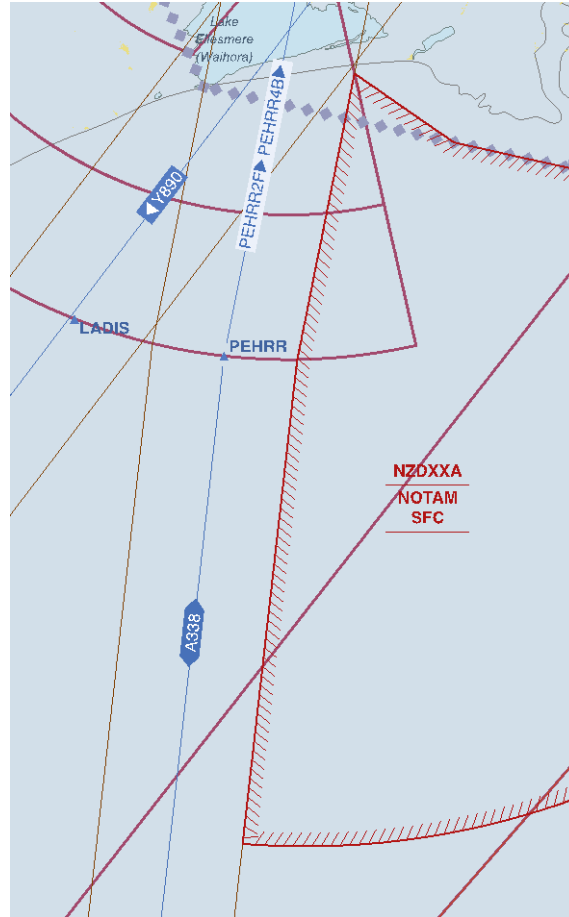


Figure 4 Danger Area A Separation from PEHRR4B, PEHRR2F, A338 and Y890. Buffers are 5nm either side IFP

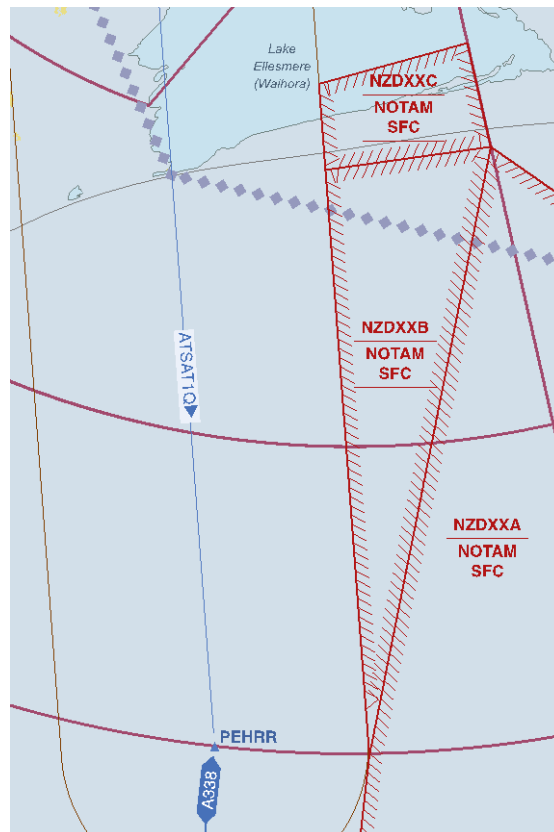


Figure 5 Danger Area B and C Separation from ATSAT1Q. Buffer is 5nm either side of ATSAT1Q

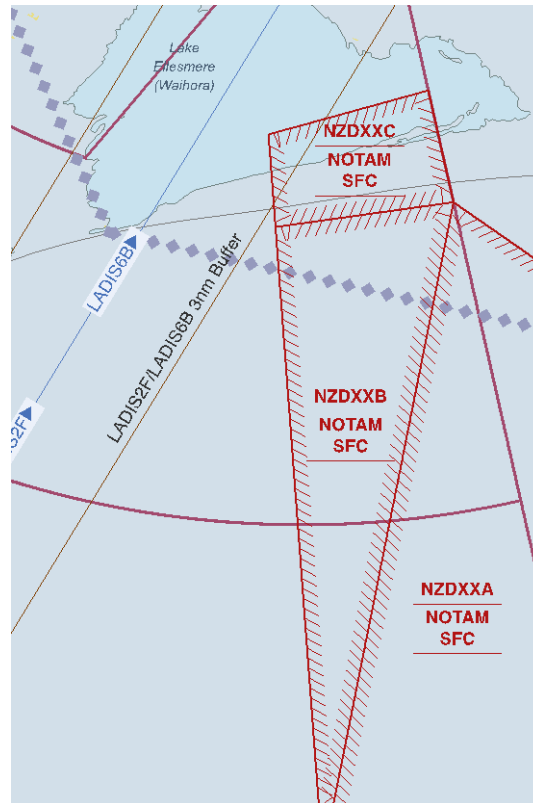


Figure 6 Danger Area B Lateral Separation from LADIS2F & LADIS6B. Buffer is 3nm either side of the IFR.

Effect on En-Route IFR overflights

The Danger Areas will not affect domestic IFR overflights.

Danger Area A is clear of all IFR routes.

Danger Areas B and C are below Y727, Y545 (northbound) and Y890, Y676 (southbound). The maximum upper limit of Danger Area C is 5000ft, and of Danger Area B is 8500ft. These are expected to be well below any overflying traffic.

Danger Area A may be traversed occasionally by commercial international flights. Qantas commenced a service from Santiago, Chile to Sydney, Australia from 30 October 2022. This flight may occasionally wish to cross the airspace concerned.

Qantas change the exact route for each flight to take advantage of the winds on the day. Previous flights from Buenos Aires to Sydney are known to have crossed New Zealand anywhere from well north of Cape Reinga to south of Stewart Island. If following a similar pattern, the Santiago-Sydney flight could be expected to fly near the proposed area of operations between zero and perhaps two times per year.

With advance warning via NOTAM, (at least 2 hours prior to ETD) Qantas are able to make an efficient minor alteration in the flight plan to avoid the SUA. The Danger Area would be activated by NOTAM with at least 24hours notice.

Effect on ICE Flight Movements

Areas B and C are not separated from MUKVO1P. The danger areas may affect a small number of ICE flights departing from Christchurch runway 02 via MUKVO1P (or with a turn out to the east under surveillance control).

For KEA operations only, Danger Area B may also affect a small number of ICE flights arriving to Christchurch runway 20 via PEHRR2F or PEHRR4B, requiring a delayed descent.

Using Christchurch Runway 02 and Runway 29

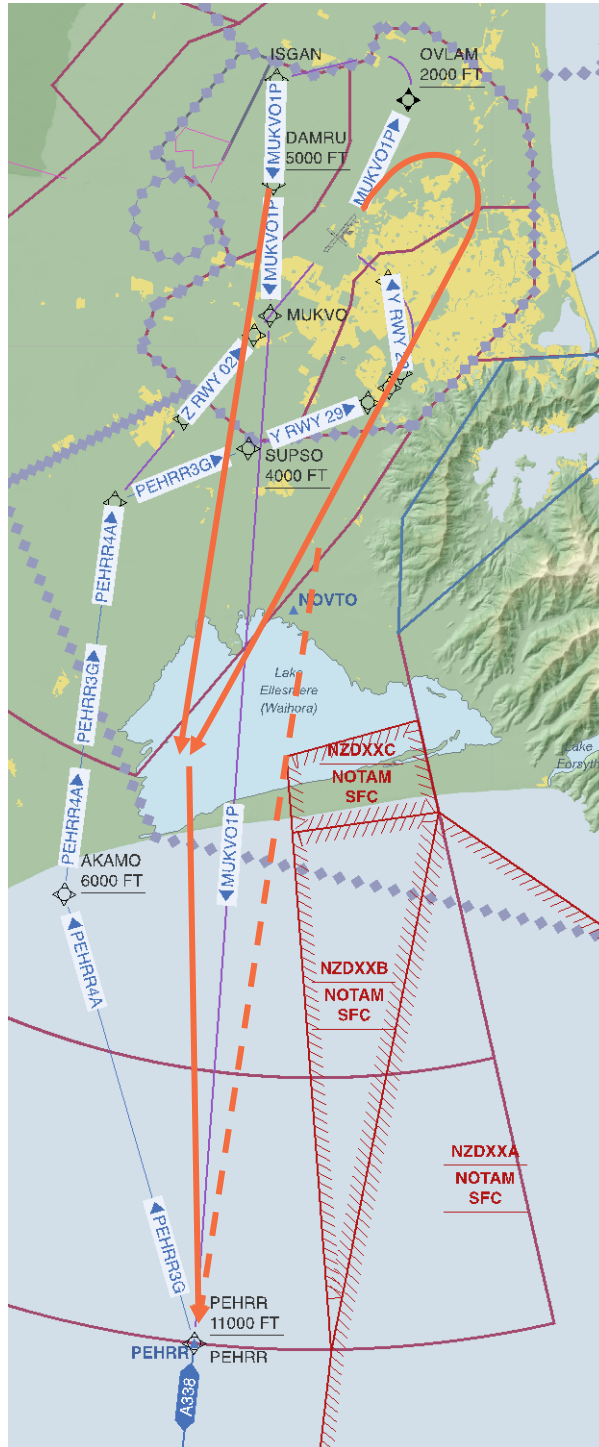


Figure 7 Danger Areas B and C Conflict with MUKVO1P

Danger Areas B and C are clear of IFR approaches to NZCH runway 02 and 29 and would not affect arrivals from Antarctica.

Danger Areas B and C may conflict with departures from NZCH runway 02 used by ICE flights. Danger area C is within 1.7 nm laterally from MUKVO1P (PEHRR transition), and there are no formal requirements on the departure for flights to be above the Danger Area.

Airways advise that it is common practice to depart ICE flights via a right turn over the city and direct to PEHRR under surveillance control. Although it creates ATC and pilot workload, it is slightly shorter than the MUKVO1P IFP and can simplify the traffic situation at NZCH. The Danger Areas conflict with this practice.

Confliction with ICE flight departures is likely to be rare. KEA plan to operate no more than 3 days per month from 22nd February 2024 to 30th June 2024. The US Antarctic Programme Intercontinental Airlift and Continent Sealift Schedule, Rev 3, 11th October 2023 reveals that, if unfortunately timed, two C-17 departures for Antarctica may coincide with KEA operations during the designation period.

Options to separate ICE flights from KEA operations include

- Separation by time
- Overflying Danger Area B and C for flights that can reach 9000ft prior
- Diversionary climbs around the Danger Areas under surveillance control

Separation by time is preferred. The KEA Atmos Mk1 aircraft will take about 75 minutes early in the day to climb from take-off into Danger Area A, with part of that time below controlled airspace. A similarly short time will be required in Danger Area B and C on return to landing late in the day. For the remainder of the flight the KEA aircraft would remain within Danger Area A. The KEA aircraft will be in communication with ATC and identified by ADS-B. Provided that acceptable protocols can be agreed with Airways and CAA, it may be practicable to allow IFR flights through danger areas B and C, with the KEA aircraft required to remain in Danger Area A at the time. For early morning ICE flight departures, the timing of the KEA flight may be able to be adjusted to avoid confliction.

Flights using MUKVO1P could overfly danger areas B and C if able to reach 9000ft before lateral separation is lost. Jet flights may be able to achieve this. C-130 flights might be unable to do so due to limited climb performance.

For departures vectored to the east of Christchurch airport under surveillance control, the departure route would need to remain clear of the danger areas. Figure 7 shows practicable diversionary climb paths for Jet (dotted line, assuming adequate climb performance) and C-130 (solid line) departures.

The dog-leg southeast over Waihora/Lake Ellesmere would add about 1.5nm to flights being vectored via a right turn out, and about 0.4nm to flights using MUKVO1P. Given the rarity of the requirement and the short additional flight path, RNZAF and the US Antarctic Programme operators have indicated that these diversions are acceptable.

Using Christchurch Runway 20

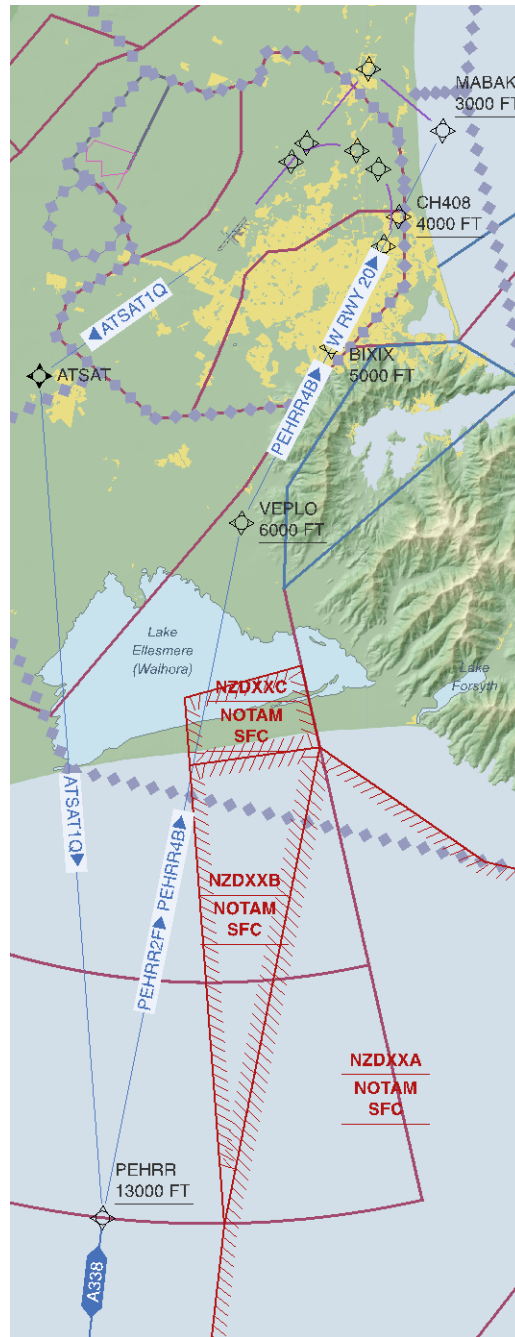


Figure 8 Danger Area B Conflict with PEHRR4B, PEHRR2F

The Danger Areas are clear of all IFR departures from NZCH runway 20.

Danger Area C is below the IFP profile for PEHRR2F and PEHRR4B (at or above 6000ft at VEPLO).

Danger Area B may conflict with arrivals via PEHRR. The IFP require at or above 13000ft at PEHRR and at or above 6000ft at VEPLO. For ICE flights arriving via PEHRR2F or PEHRR4B, descent would need to be restricted to at or above 9000ft until clear of Danger Area B. There are about 15nm from the lateral separation point to BIXIX. To reach the minimum altitude at BIXIX (5000ft), flights would need to descent at 333ft/nm. This descent rate appears reasonable.

Consultation Process

This document “*Proposal for Temporary Danger Areas in the Canterbury Bight – Kea Aerospace and Tāwhaki*” forms the basis for a pre-consultation process with other airspace users. A record will be kept of this process and responses received, which will then be provided to the CAA, accompanying the formal application for designation of the Special Use Airspace under CAR Part 71.

Appendix 1 Requested Danger Area Definitions

Kea Aerospace - Proposed Danger Areas off Kaitorete Spit

| NOTES: Upper Limit and Lower Limit are expressed in FT (AMSL) or FL (Flight Level) | | | | | | |
|------------------------------------------------------------------------------------|---------|-------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--|
| Identifier | Name | Upper Limit | Lower Limit | Remarks | Remarks to Working Hours | |
| NZDXXA | KEA | NOTAM | SFC | [Activity or Purpose:] RPAS testing [Organisation:] Kea Aerospace Ltd. Ph +64 21 750202. Email: phillip.stott@keaerospace.com During flight operations contact Operator on Banks Peninsula CFZ 118.75 MHz | [Active:] When advised by NOTAM [Upper Limit:] as advised by NOTAM, not above FL600 | |
| NZDXXB | TĀWHAKI | NOTAM | SFC | [Activity or Purpose:] RPAS testing [Organisation:] Tāwhaki Joint Venture Ph +64 21 08817858. Email: stan@tawhaki.co.nz During flight operations contact Operator on Banks Peninsula CFZ 118.75 MHz | [Active:] When advised by NOTAM [Upper Limit:] as advised by NOTAM, not above 8500 FT | |
| NZDXXC | TĀWHAKI | NOTAM | SFC | [Activity or Purpose:] RPAS testing [Organisation:] Tāwhaki Joint Venture Ph +64 21 08817858. Email: stan@tawhaki.co.nz During flight operations contact Operator on Banks Peninsula CFZ 118.75 MHz | [Active:] When advised by NOTAM [Upper Limit:] as advised by NOTAM, not above 5000 FT | |

Kea Aerospace - Proposed Danger Areas off Kaitorete Spit

| Boundary line types CIR (Circle), CWA (Clockwise Arc), CCA (Counterclockwise Arc), GRC (Great Circle), RHL (Rhumbline), FNT (geoborder i.e. a line following the road , etc) | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|------------|-------------|------|--------------|---------------|------------|----|
| Identifier | Sequence | Remarks | Latitude | Longitude | Type | Arc Latitude | Arc Longitude | Arc Radius | |
| NZDXXA | 1 | | 435030.46S | 1723700.92E | GRC | | | | |
| NZDXXA | 2 | | 435517.24S | 1724626.82E | GRC | | | | |
| NZDXXA | 3 | Tāwhaki site | 440427.96S | 1734421.21E | CWA | 434952.75S | 1723223.07E | 100 | KM |
| NZDXXA | 4 | | 444340.26S | 1722550.65E | GRC | | | | |
| NZDXXA | 5 | | 441018.88S | 1723123.42E | GRC | | | | |
| NZDXXB | 1 | | 435113.81S | 1722933.96E | GRC | | | | |
| NZDXXB | 2 | | 435030.46S | 1723700.92E | GRC | | | | |
| NZDXXB | 3 | | 441018.88S | 1723123.42E | GRC | | | | |
| NZDXXC | 1 | | 434825.54S | 1722917.98E | GRC | | | | |
| NZDXXC | 2 | | 434707.32S | 1723559.11E | GRC | | | | |
| NZDXXC | 3 | | 435030.46S | 1723700.92E | GRC | | | | |
| NZDXXC | 4 | | 435113.81S | 1722933.96E | GRC | | | | |