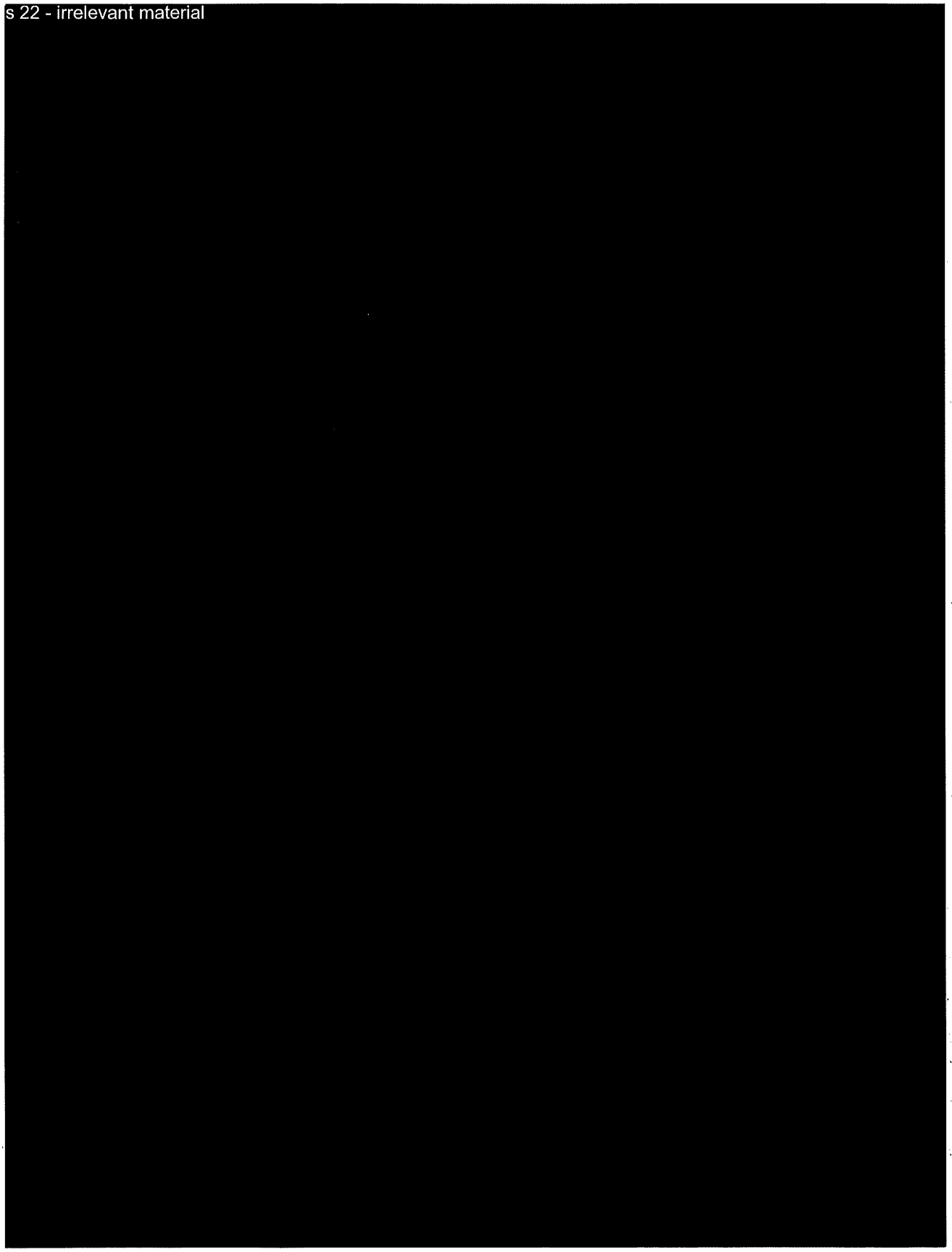
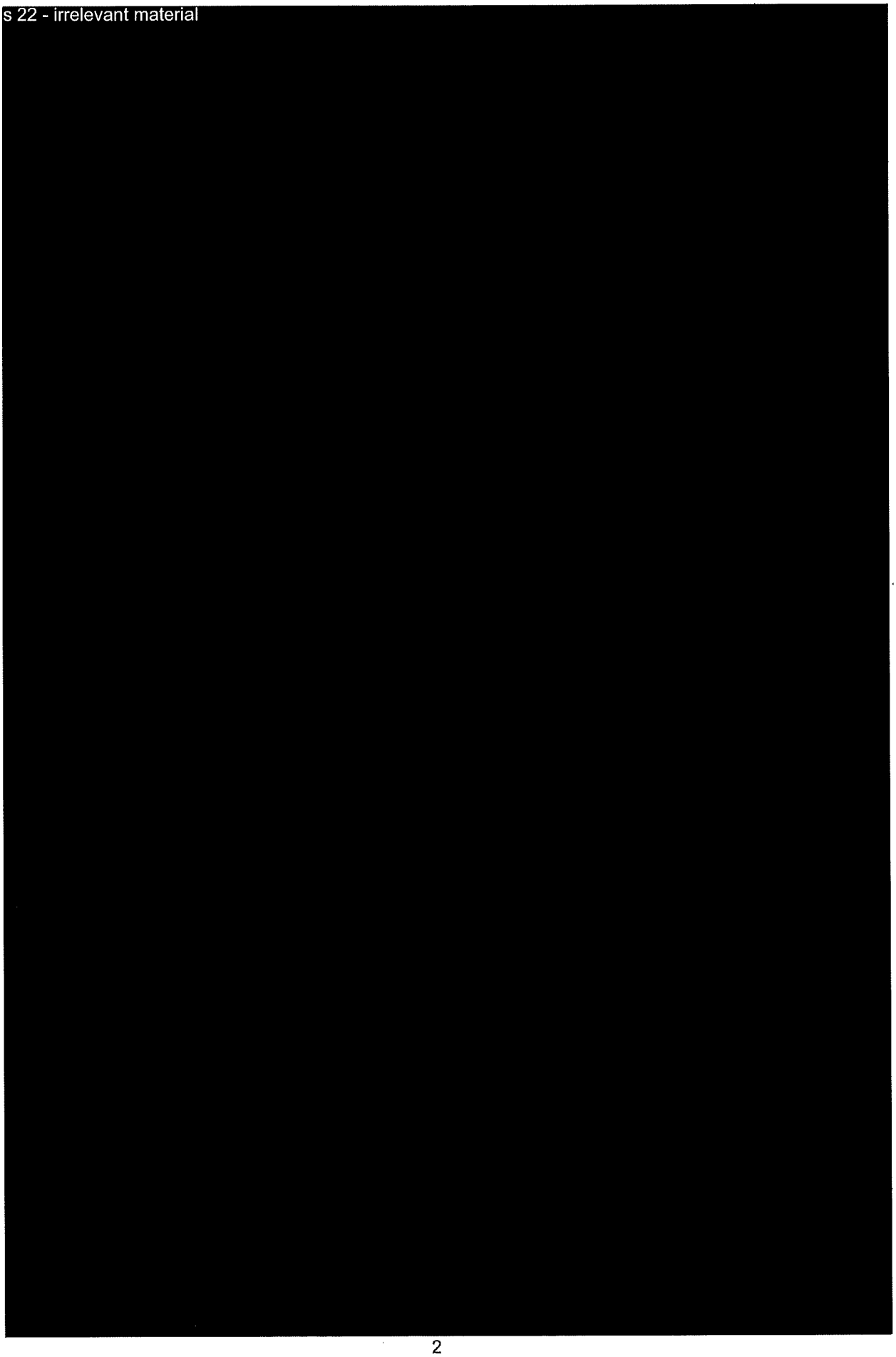
Airspace and Aerodrome Regulation Division (AAR)
Weekly Report 13 December 2013

s 22 - irrelevant material

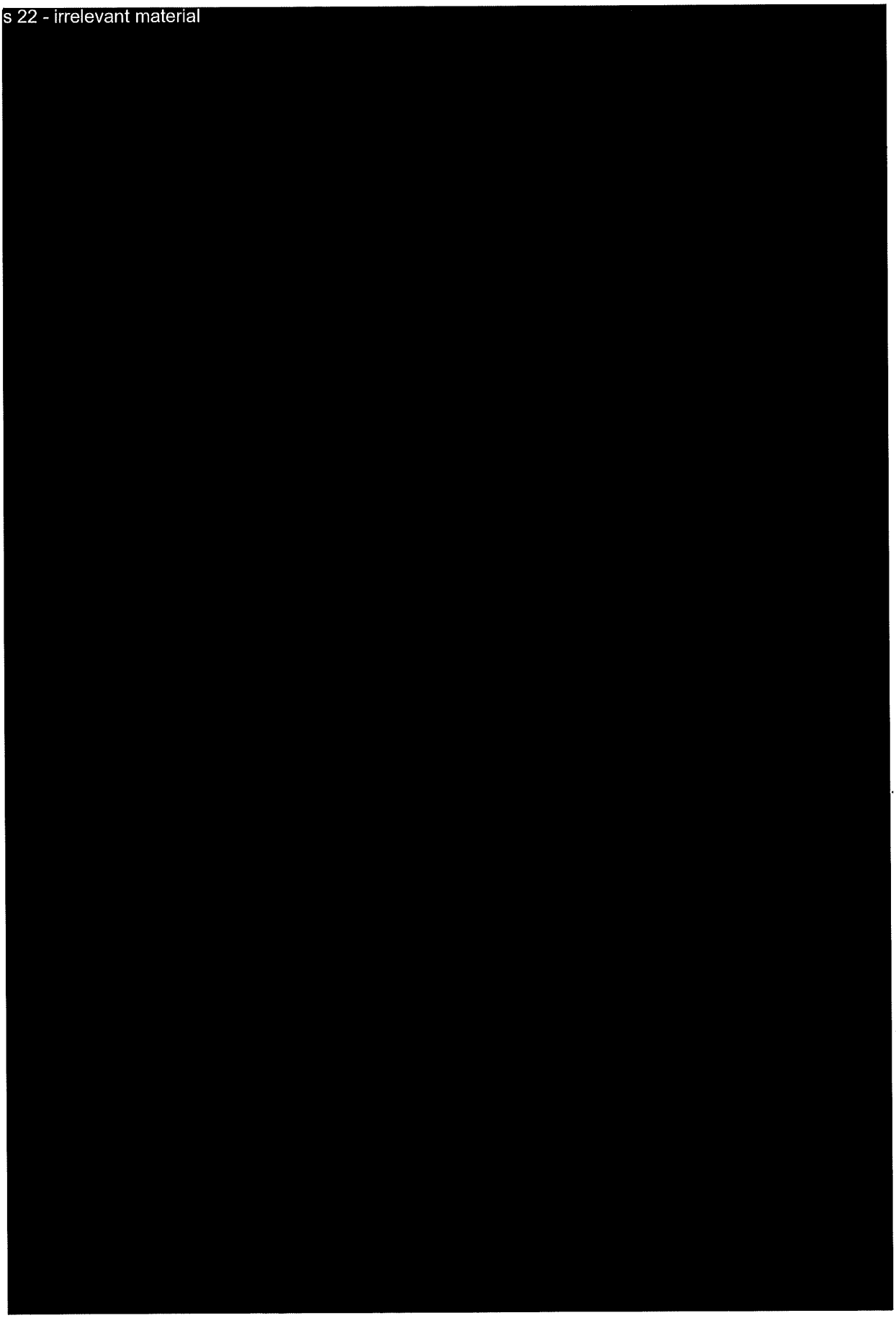


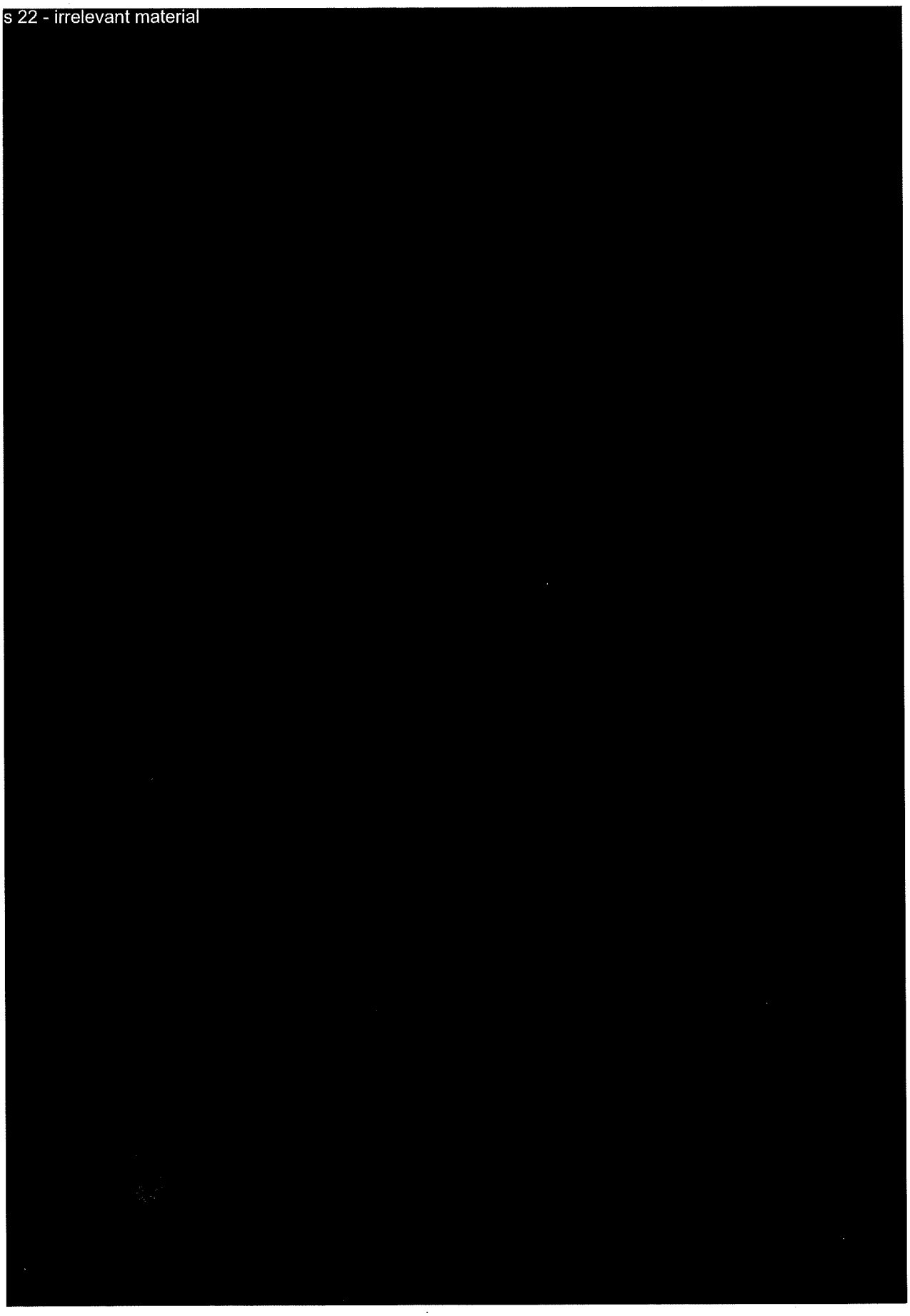
s 22 - irrelevant material



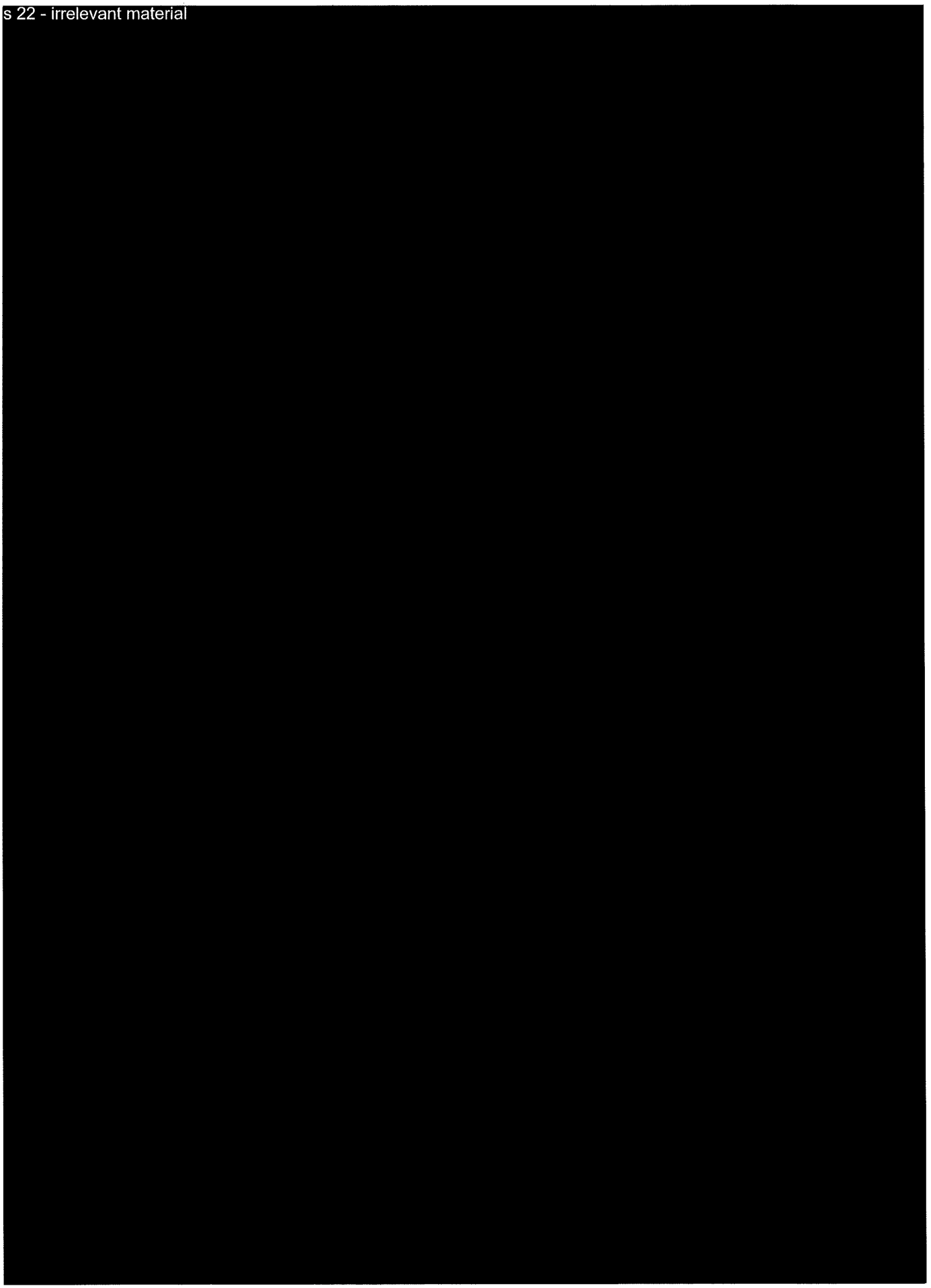
s 22 - irrelevant material

[redacted]


s 22 - irrelevant material


s 22 - irrelevant material

s 22 - irrelevant material



s 22 - irrelevant material

[redacted]

Office of Airspace Regulation (OAR)

s 22 - irrelevant material

[redacted]

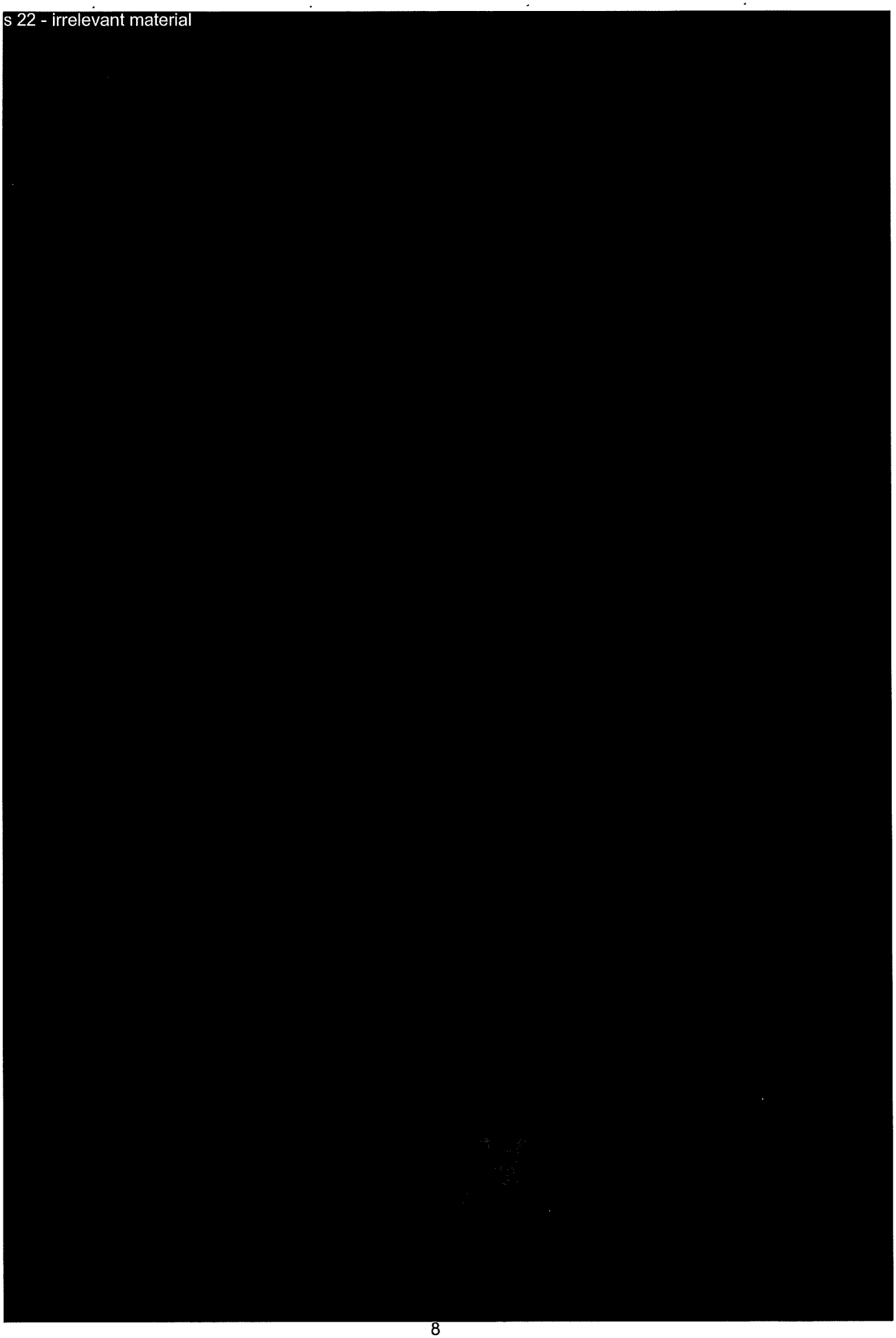
Current Issues

Brisbane West Wellcamp Aerodrome and Airspace (new development)
The draft Preliminary Airspace Assessment has been sent to the Wellcamp Aerodrome Working Group members for review. Feedback on the draft assessment has been requested by 24 January 2014. Once comments are received and considered by CASA, the next step will be publishing a further draft for public comment. This is expected to occur in March 2014.

s 22 - irrelevant material

[redacted]

s 22 - irrelevant material



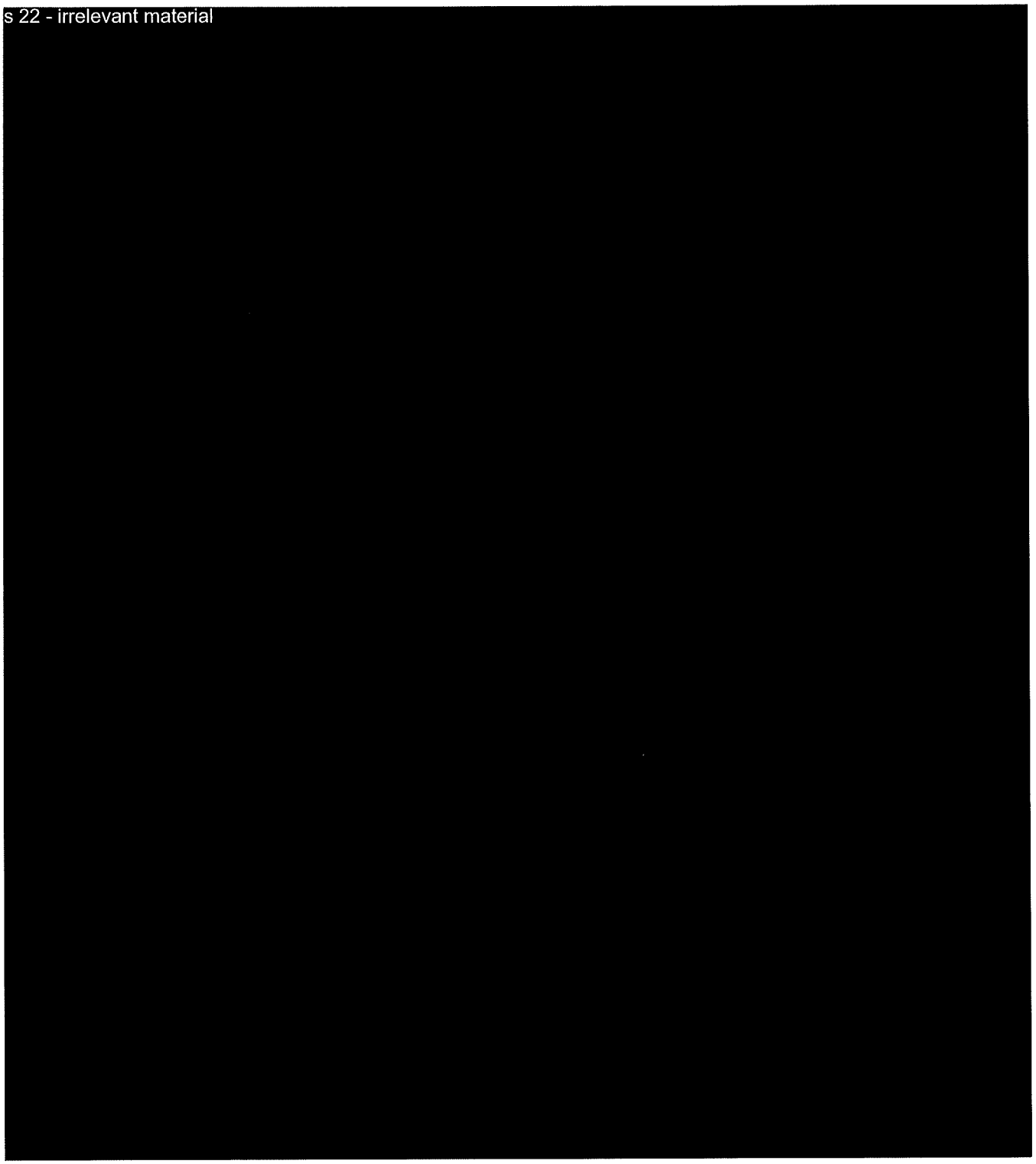
s 22 - irrelevant material

[redacted]

s 22 - irrelevant material

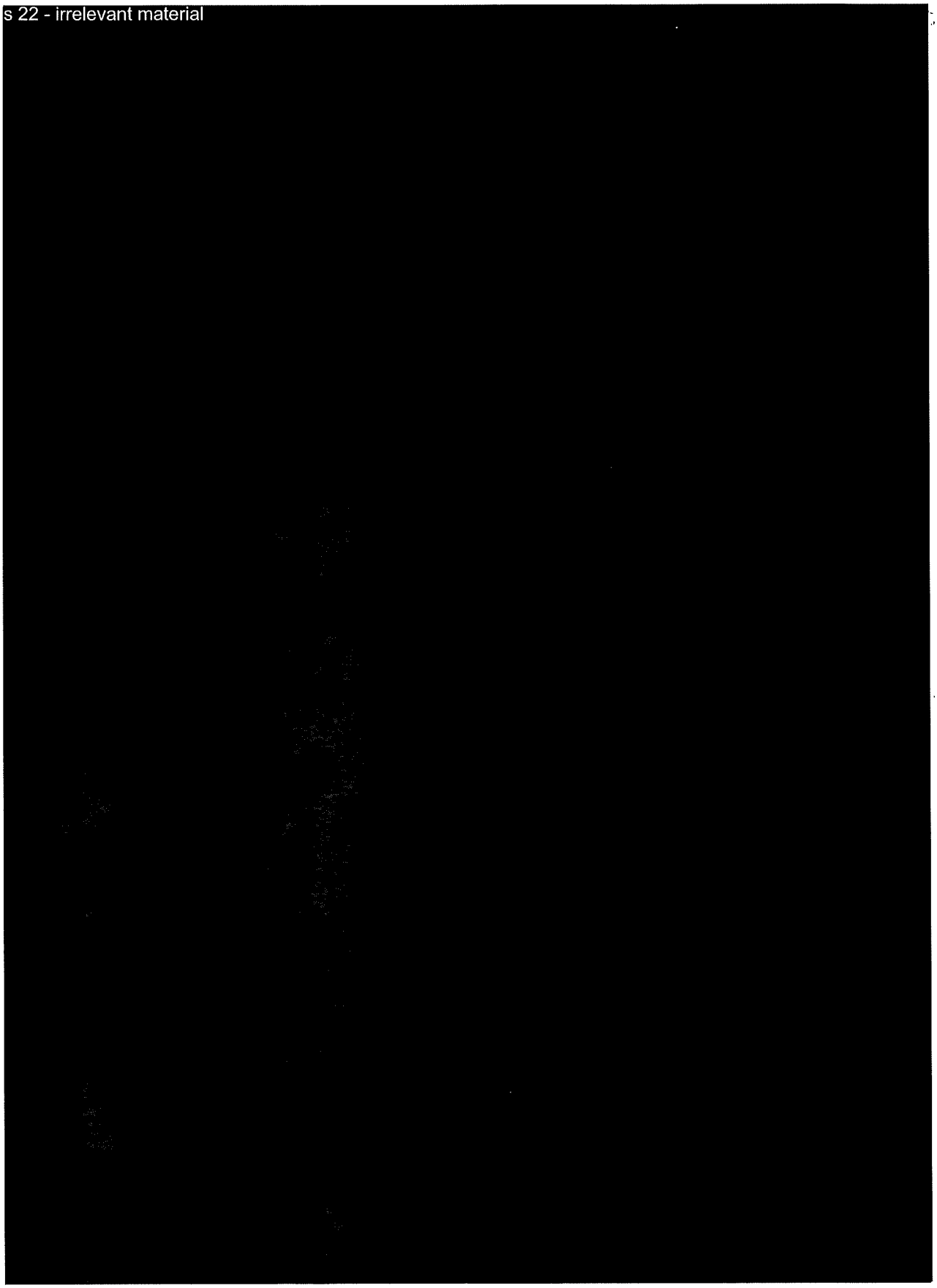
Study / Project	Action Complete	Action(s) Underway	Next Action / Milestone
s 22 - irrelevant material			
Brisbane West Wellcamp Airspace Assessment	Draft preliminary airspace assessment distributed to the Wellcamp airport working group for comment by 24 January 2014.	Draft airspace assessment currently under review by the Wellcamp working group.	Incorporate Working Group feedback and release for public comment.
s 22 - irrelevant material			

s 22 - irrelevant material



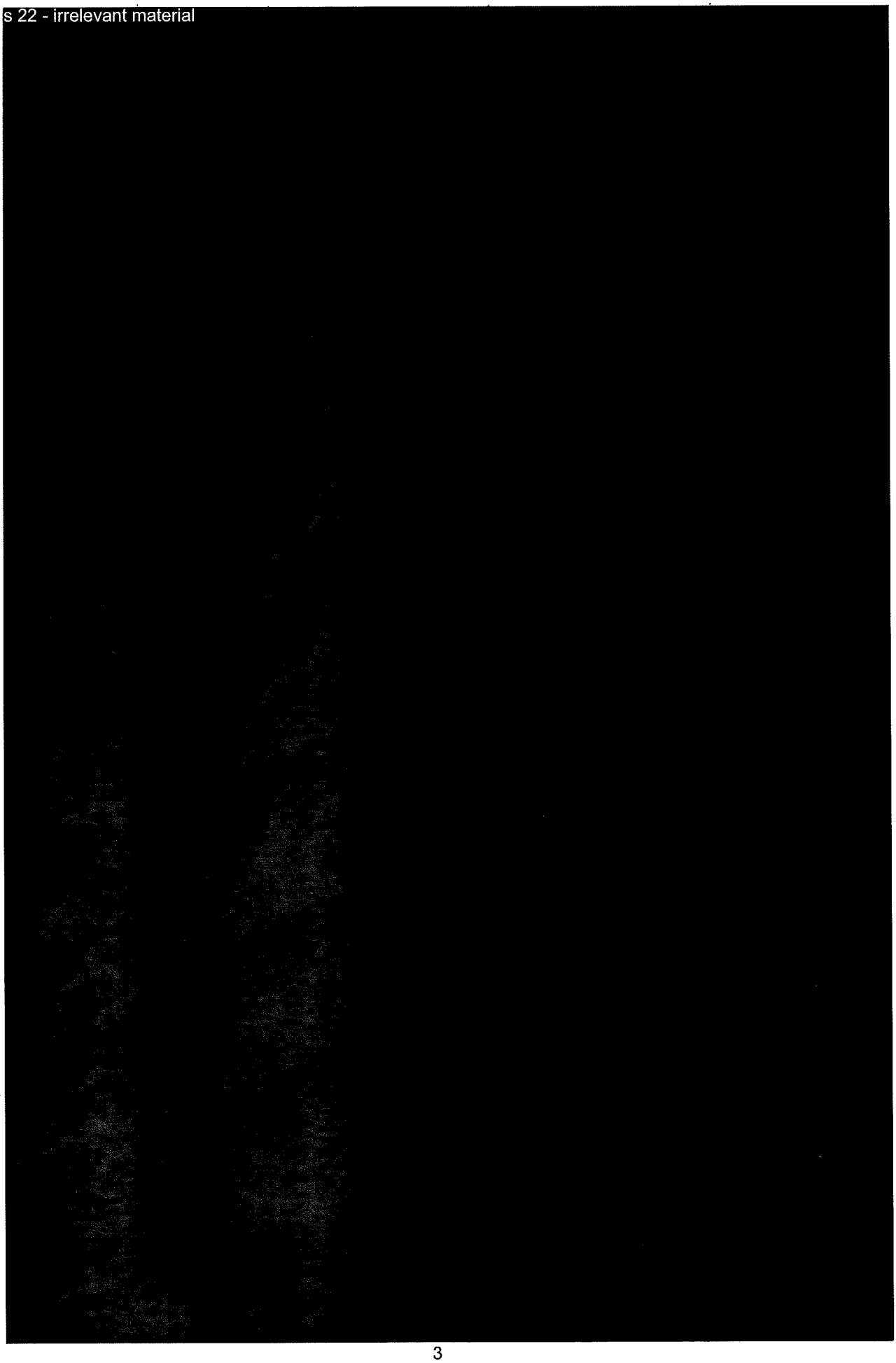
Airspace and Aerodrome Regulation Division (AAR)
Weekly Report 20 December 2013

s 22 - irrelevant material

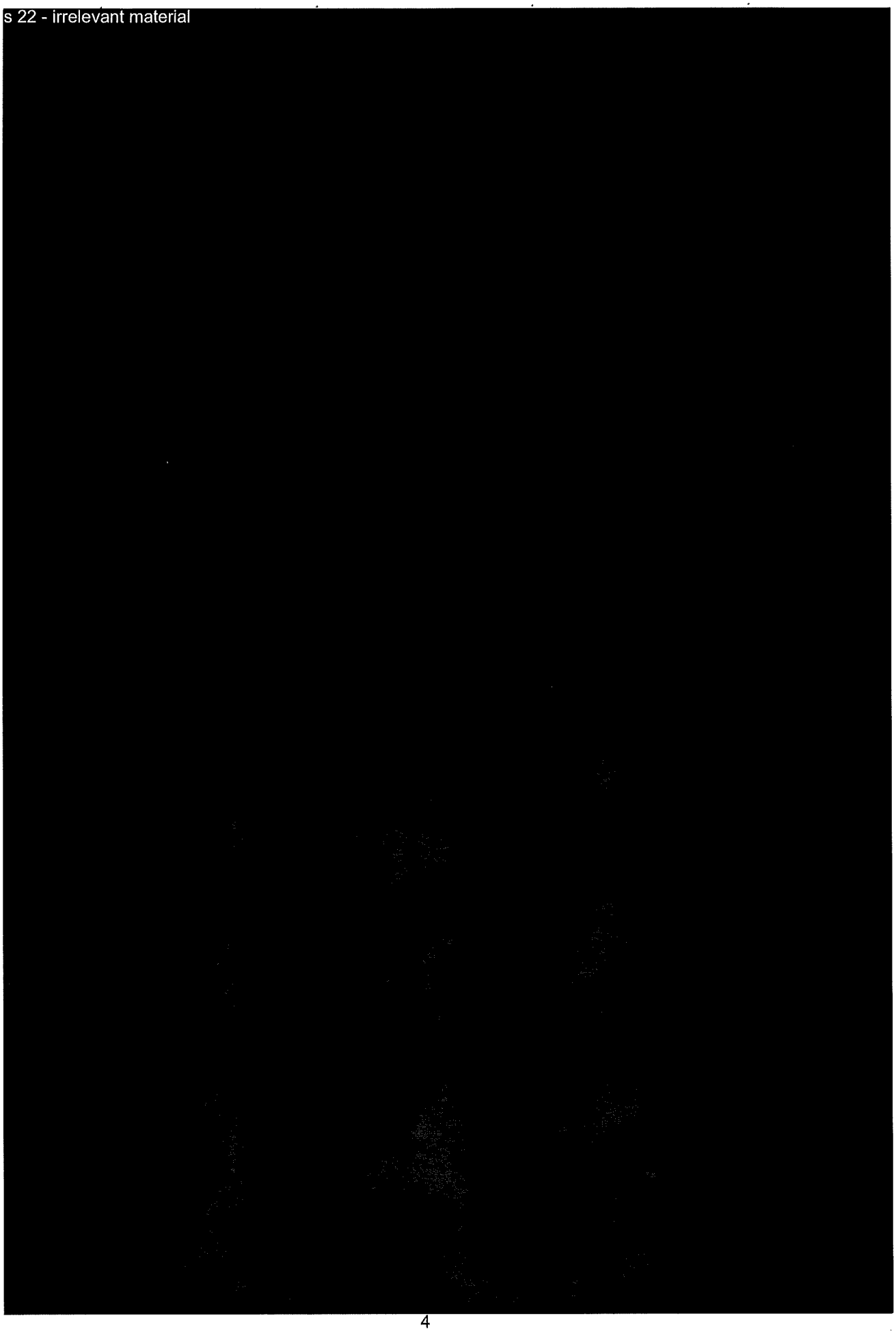


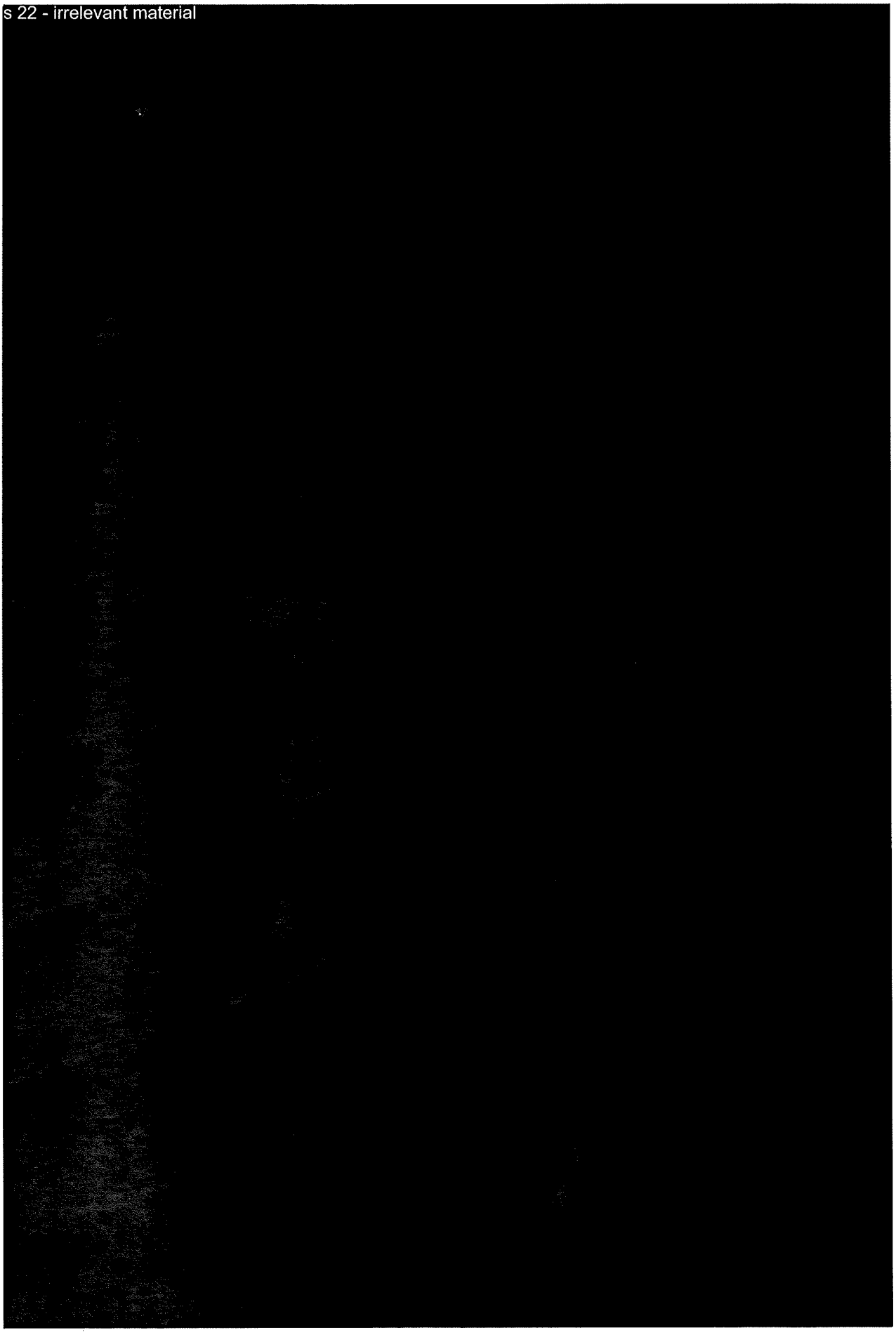
s 22 - irrelevant material

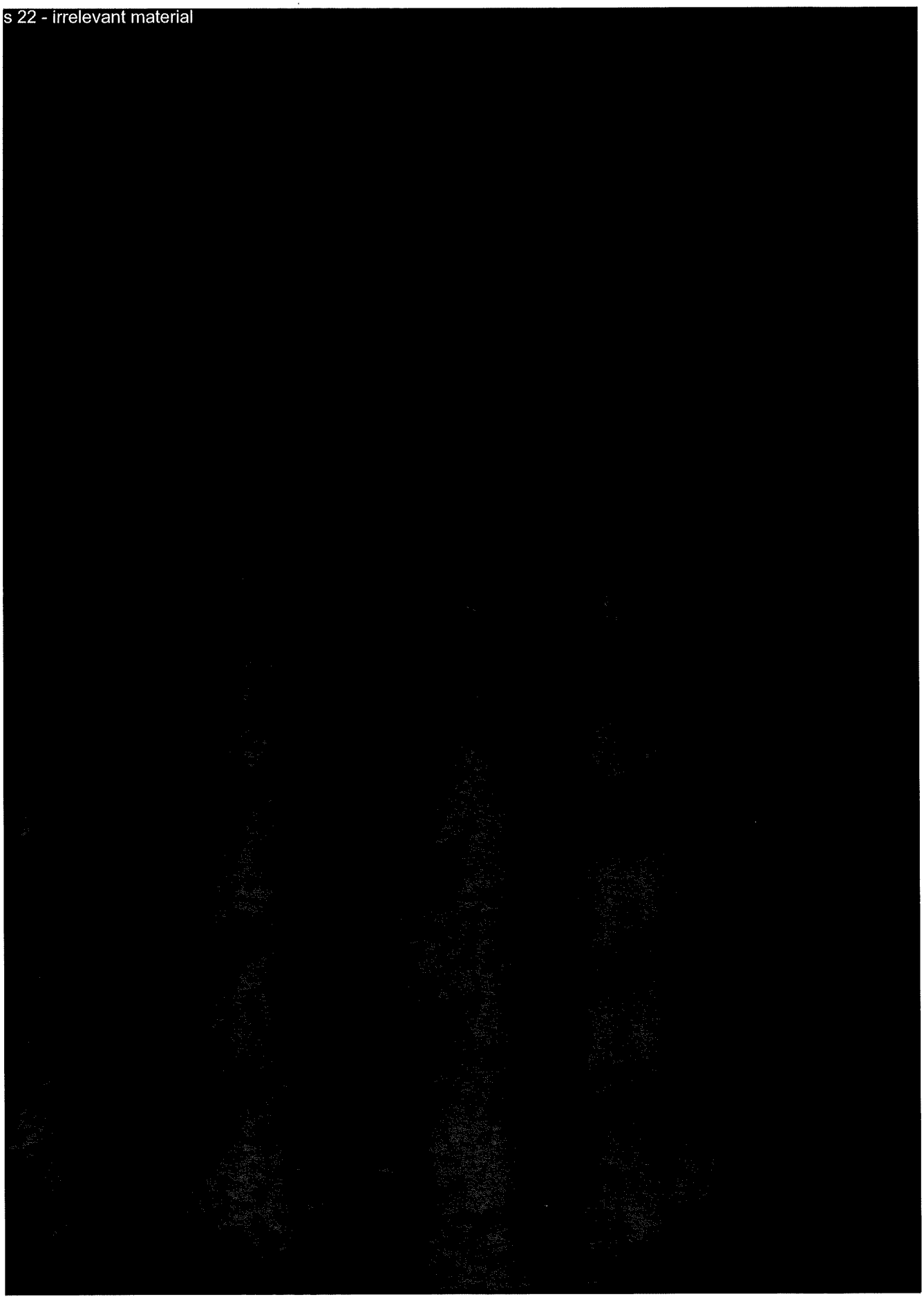
[redacted]


s 22 - irrelevant material

s 22 - irrelevant material




s 22 - irrelevant material


s 22 - irrelevant material

Office of Airspace Regulation (OAR)

s 22 - irrelevant material

[redacted]

Current Issues

s 22 - irrelevant material

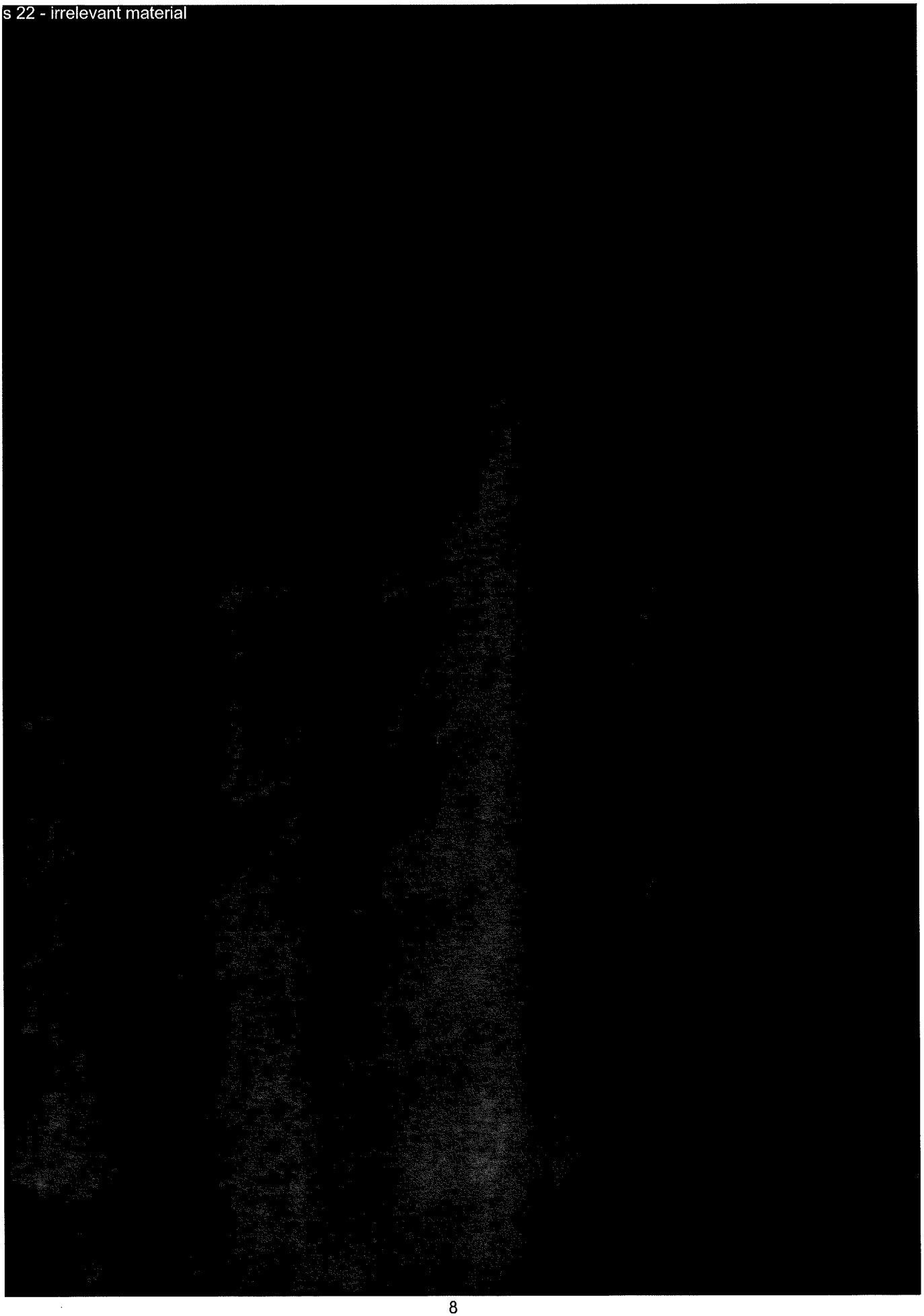
[redacted]

Brisbane West Wellcamp Aerodrome and Airspace (new development)
The draft Preliminary Airspace Assessment has been sent to the Wellcamp Aerodrome Working Group members for review. Feedback on the draft assessment has been requested by 24 January 2014. Once comments are received and considered by CASA, the next step will be publishing a further draft for public comment. This is expected to occur in March 2014.

s 22 - irrelevant material

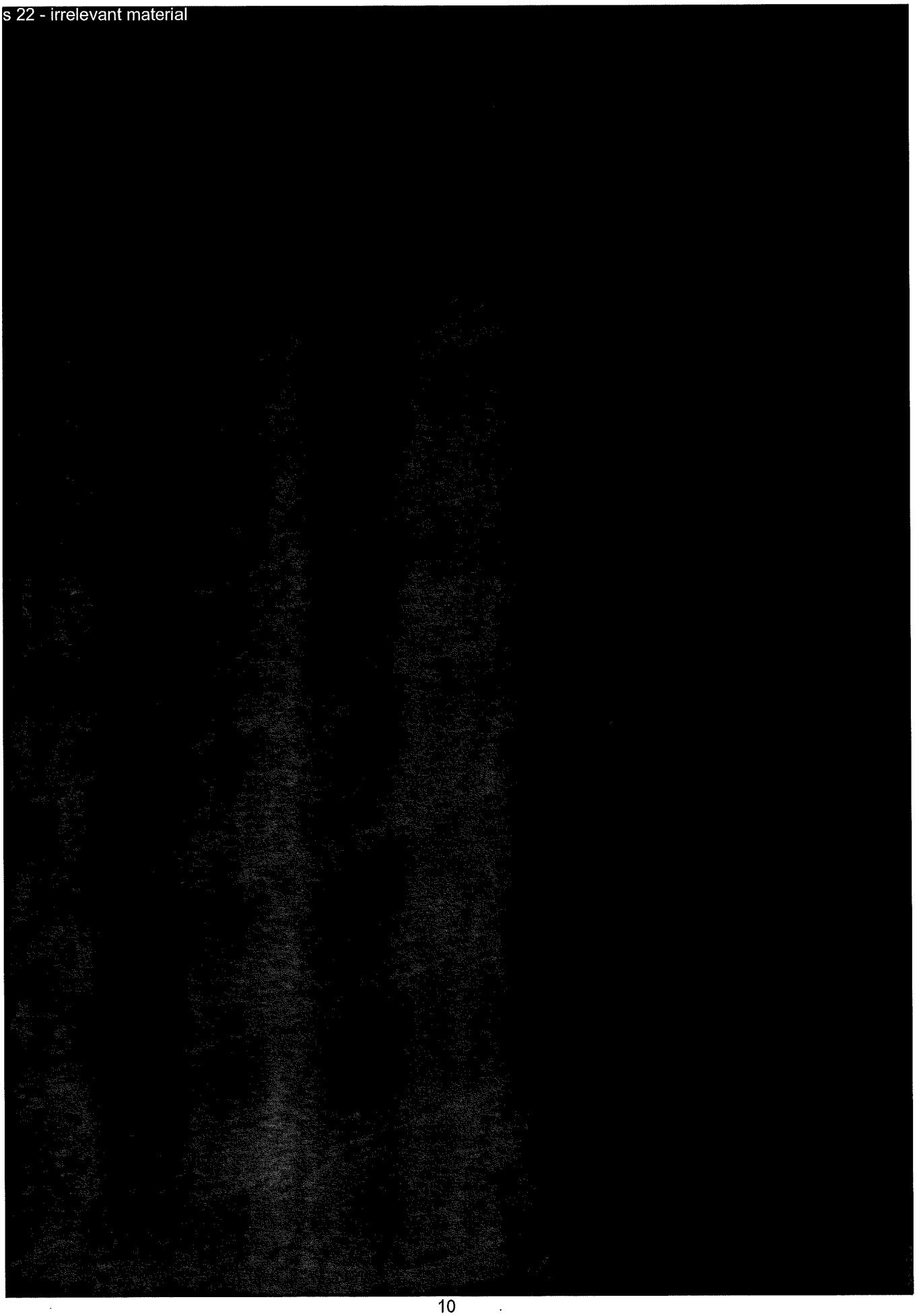
[redacted]

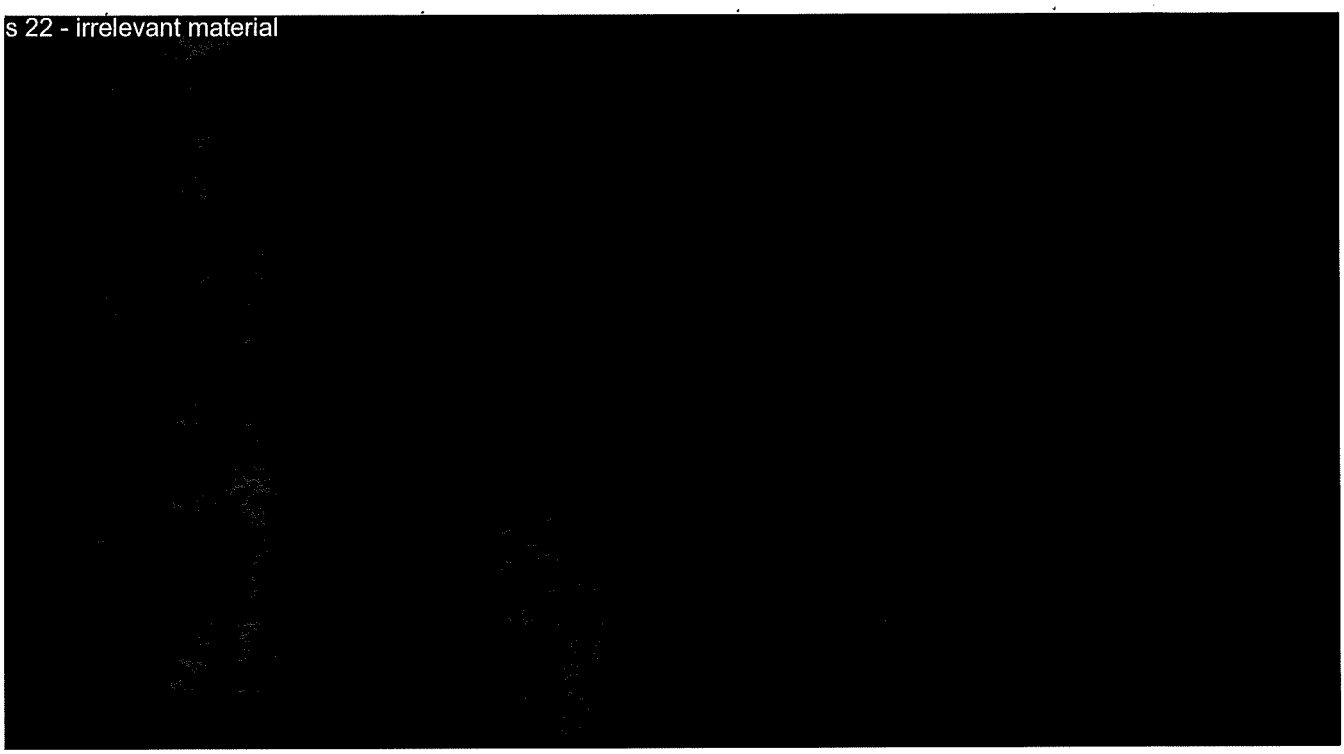
s 22 - irrelevant material



Study / Project	Action Complete	Action(s) Underway	Next Action / Milestone
s 22 - irrelevant material			
Brisbane West Wellcamp Airspace Assessment	Draft preliminary airspace assessment distributed to the Wellcamp airport working group for comment by 24 January 2014.	Draft airspace assessment currently under review by the Wellcamp working group.	Incorporate Working Group feedback and release for public comment.
s 22 - irrelevant material			

s 22 - irrelevant material




s 22 - irrelevant material

Smith-Roberts, Jennifer

From: NEAL, STEPHEN
Sent: Friday, 1 November 2013 10:12 AM
To: Allman, Cheryl
Cc: HAYWARD, ALISON
Subject: 3(i) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]
Attachments: 3(i) Wellcamp Aerodrome_Final 081013.docx

For-Official-Use-Only-DLM-ONLY

Cheryl

As requested- I believe this this is the latest.

Regards

Steve Neal
Section Head
Government, Industry and Community Relations Section
CASA Corporate Relations

Phone 6217 1352

Version 5 / 4 October 2013

Wellcamp Aerodrome development

Key Points

- A private company, Wagners, is constructing a new public aerodrome in the Toowoomba region—the first to be constructed in Australia since Tullamarine (Melbourne) in the 1960s. The proximity of the development to civil and military aerodromes indicates that airspace and traffic management issues may result.
- Wagners is constructing an aerodrome on private land which is close to Oakey (8 nautical miles south) and Toowoomba (six nautical miles west) and immediately under military training restricted airspace. The construction of the aerodrome may cause airspace and traffic management issues.
- A rapid construction time frame is planned with construction of the Wellcamp aerodrome having already commenced, the runway is expected to be completed in April 2014 with operations expected to commence in late 2014.
- CASA has established a working group to promote management of the aviation safety issues associated with the aerodrome development. The working group meets every six weeks.
- CASA is conducting an assessment of the airspace within the vicinity of Toowoomba, Oakey and the Wellcamp development site.
- As the aerodrome does not exist yet, reasonable predicted traffic data for the aeronautical study is difficult to obtain or estimate. CASA is working with airspace users and the developer in order to complete fast time simulation modelling of the airspace.
- CASA plans to release its airspace study for public comment and consultation in late 2013.

Background

- CASA has established a working group comprising representatives from Defence, Defence Estate, Airservices Australia and the Department of Infrastructure and Regional Development to facilitate the management of airspace safety and operational issues involved with the Wellcamp aerodrome development. The Wellcamp airport developers were invited to and attended a working group meeting in March 2013.
- An airspace assessment is being conducted by CASA to determine appropriate airspace arrangements and any other mitigation needed to accommodate the commencement of aircraft operations at Wellcamp aerodrome into the existing operating environment of airspace users.
- Defence is likely to propose a change to the existing Restricted Areas (airspace) at Oakey to permit aircraft to operate to and from Brisbane West Wellcamp without impacting upon Army helicopter training operations. Further detail around this change is expected to be provided to CASA by late 2013. The final design is intended to be published on aeronautical charts that become effective May 2014.
- The development has been the subject of criticism from several media outlets including Mr Alan Jones. CASA has received correspondence from Mr Jones on two occasions in July 2013 and his concerns have been addressed as far as possible, detailing the extent and limitations of CASA's regulatory authority around State Government approved building development applications.

Contact: Cheryl Allman (02) 6217 1414

Smith-Roberts, Jennifer

From: Allman, Cheryl
Sent: Friday, 1 November 2013 4:43 PM
To: Cromarty, Peter
Cc: HOLBERTON, MARTIN
Subject: FW: 3(i) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]
Attachments: 3(i) Wellcamp Aerodrome_Final 011113.docx

For-Official-Use-Only-DLM-ONLY

Peter

I have made some updates to the Wellcamp Senate Estimates brief.

Could you review and clear as appropriate?

Thanks

Cheryl Allman
Manager
Office of Airspace Regulation
Airspace and Aerodrome Regulation
Civil Aviation Safety Authority
GPO Box 2005
CANBERRA ACT 2601

Telephone: 02 6217 1414
s 47F
Fax: 02 6217 1747

From: NEAL, STEPHEN
Sent: Friday, 1 November 2013 10:12 AM
To: Allman, Cheryl
Cc: HAYWARD, ALISON
Subject: 3(i) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]

For-Official-Use-Only-DLM-ONLY

Cheryl

As requested- I believe this this is the latest.

Regards

Steve Neal
Section Head
Government, Industry and Community Relations Section
CASA Corporate Relations

Phone 6217 1352

Version ~~56~~ / 41 ~~Octo~~November 2013

Wellcamp Aerodrome development

Key Points

- A private company, Wagners, is constructing a new public aerodrome in the Toowoomba region—the first to be constructed in Australia since Tullamarine (Melbourne) in the 1960s. The proximity of the development to civil and military aerodromes indicates that airspace and traffic management issues may result.
- Wagners is constructing an aerodrome on private land which is close to Oakey (8 nautical miles south) and Toowoomba (six nautical miles west) and immediately under military training restricted airspace. ~~The construction of the aerodrome may cause airspace and traffic management issues.~~
-
- A rapid construction time frame is planned with construction of the Wellcamp aerodrome having already commenced, the runway is expected to be completed in April 2014 with operations expected to commence in late 2014.
- CASA has established a working group to promote management of the aviation safety issues associated with the aerodrome development. The working group meets every six weeks.
- CASA is conducting an assessment of the airspace within the vicinity of Toowoomba, Oakey and the Wellcamp development site.
- As the aerodrome does not exist yet, reasonable predicted traffic data for the ~~aeronautical study~~airspace assessment is difficult to obtain or estimate. CASA is working with airspace users and the developer in order to complete fast time simulation modelling of the airspace. This cannot be finalised until 2014 when air routes and instrument flight procedures are known with greater certainty.
- CASA plans to release ~~its~~a preliminary airspace ~~study~~ assessment for public comment and consultation in late 2013.

Background

- CASA has established a working group comprising representatives from Defence, Defence Estate, Airservices Australia and the Department of Infrastructure and Regional Development to facilitate the management of airspace safety and operational issues involved with the Wellcamp aerodrome development. The Wellcamp airport developers were invited to and attended a working group meeting in March 2013.
- An airspace assessment is being conducted by CASA to determine appropriate airspace arrangements and any other mitigation needed to accommodate the commencement of aircraft operations at Wellcamp aerodrome into the existing operating environment of airspace users.
- Defence ~~is likely to~~has ~~propose~~ submitted an Airspace ~~c~~Change Proposal to the existing Restricted Areas (airspace) at Oakey to permit aircraft to operate to and from Brisbane West Wellcamp without impacting upon Army helicopter training operations. This proposal will be assessed in accordance with usual processes. ~~Further detail around this change is expected to be provided to CASA by late 2013.~~ The final design is intended to be published on aeronautical charts that become effective May 2014.
- The development has been the subject of criticism from several media outlets including Mr Alan Jones. CASA has received correspondence from Mr Jones on two occasions in July 2013 and his concerns have been addressed as far as possible, detailing the extent and limitations of CASA's regulatory authority around State Government approved building development applications.

Contact: Cheryl Allman (02) 6217 1414

Smith-Roberts, Jennifer

From: Allman, Cheryl
Sent: Monday, 4 November 2013 8:37 AM
To: NEAL, STEPHEN
Cc: HOLBERTON, MARTIN
Subject: FW: 3(i) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]
Attachments: 3(i) Wellcamp Aerodrome_Final 041113.docx

For-Official-Use-Only-DLM-ONLY

Stephen

Please find attached the updated Wellcamp brief. I have considered Peter's feedback and agree with his statement, therefore I have changed the second dot point appropriately to remove the potential confusion.

Regards

Cheryl Allman
Manager
Office of Airspace Regulation
Airspace and Aerodrome Regulation
Civil Aviation Safety Authority
GPO Box 2005
CANBERRA ACT 2601

Telephone: 02 6217 1414
s 47F
Fax: 02 6217 1747

From: Cromarty, Peter
Sent: Monday, 4 November 2013 8:27 AM
To: Allman, Cheryl
Cc: HOLBERTON, MARTIN
Subject: RE: 3(i) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]

For-Official-Use-Only-DLM-ONLY

Cheryl

Not sure the locations of Oakey and Toowoomba are clear – could be read to mean Wellcamp is 8 north of oakey

Apart from that – all good – straight to Marty.

Rgds

Peter

From: Allman, Cheryl
Sent: Friday, 1 November 2013 4:43 PM
To: Cromarty, Peter
Cc: HOLBERTON, MARTIN
Subject: FW: 3(i) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]

For-Official-Use-Only-DLM-ONLY

Peter

I have made some updates to the Wellcamp Senate Estimates brief.

Could you review and clear as appropriate?

Thanks

Cheryl Allman
Manager
Office of Airspace Regulation
Airspace and Aerodrome Regulation
Civil Aviation Safety Authority
GPO Box 2005
CANBERRA ACT 2601

Telephone: 02 6217 1414
s 47F
Fax: 02 6217 1747

From: NEAL, STEPHEN
Sent: Friday, 1 November 2013 10:12 AM
To: Allman, Cheryl
Cc: HAYWARD, ALISON
Subject: 3(l) Wellcamp Aerodrome_Final 081013 [SEC=DLM-ONLY:For-Official-Use-Only]

For-Official-Use-Only-DLM-ONLY

Cheryl

As requested- I believe this this is the latest.

Regards

Steve Neal
Section Head
Government, Industry and Community Relations Section
CASA Corporate Relations

Phone 6217 1352

Version ~~5~~7 / 4~~4~~ ~~Octo~~November 2013

Wellcamp Aerodrome development

Key Points

- A private company, Wagners, is constructing a new public aerodrome in the Toowoomba region—the first to be constructed in Australia since Tullamarine (Melbourne) in the 1960s. The proximity of the development to civil and military aerodromes indicates that airspace and traffic management issues may result.
- Wagners is constructing an aerodrome on private land which is ~~close to~~eight nautical miles south of Oakey ~~(8 nautical miles south)~~ and six nautical miles west of Toowoomba ~~(six nautical miles west),~~ ~~and~~ immediately under military training restricted airspace. ~~The construction of the aerodrome may cause airspace and traffic management issues.~~
-
- A rapid construction time frame is planned with construction of the Wellcamp aerodrome having already commenced, the runway is expected to be completed in April 2014 with operations expected to commence in late 2014.
- CASA has established a working group to promote management of the aviation safety issues associated with the aerodrome development. The working group meets every six weeks.
- CASA is conducting an assessment of the airspace within the vicinity of Toowoomba, Oakey and the Wellcamp development site.
- As the aerodrome does not exist yet, reasonable predicted traffic data for the ~~aeronautical study~~airspace assessment is difficult to obtain or estimate. CASA is working with airspace users and the developer in order to complete fast time simulation modelling of the airspace. This cannot be finalised until 2014 when air routes and instrument flight procedures are known with greater certainty.
- CASA plans to release ~~its~~a preliminary airspace ~~study~~ assessment for public comment and consultation in late 2013.

Background

- CASA has established a working group comprising representatives from Defence, Defence Estate, Airservices Australia and the Department of Infrastructure and Regional Development to facilitate the management of airspace safety and operational issues involved with the Wellcamp aerodrome development. The Wellcamp airport developers were invited to and attended a working group meeting in March 2013.
- An airspace assessment is being conducted by CASA to determine appropriate airspace arrangements and any other mitigation needed to accommodate the commencement of aircraft operations at Wellcamp aerodrome into the existing operating environment of airspace users.
- Defence ~~is likely to~~has ~~propose~~ submitted an Airspace ~~c~~Change Proposal to the existing Restricted Areas (airspace) at Oakey to permit aircraft to operate to and from Brisbane West Wellcamp without impacting upon Army helicopter training operations. This proposal will be assessed in accordance with usual processes. ~~Further detail around this change is expected to be provided to CASA by late 2013.~~ The final design is intended to be published on aeronautical charts that become effective May 2014.
- The development has been the subject of criticism from several media outlets including Mr Alan Jones. CASA has received correspondence from Mr Jones on two occasions in July 2013 and his concerns have been addressed as far as possible, detailing the extent and limitations of CASA's regulatory authority around State Government approved building development applications.

Contact: Cheryl Allman (02) 6217 1414

Version 7 / 4 November 2013

Wellcamp Aerodrome development

Key Points

- A private company, Wagners, is constructing a new public aerodrome in the Toowoomba region—the first to be constructed in Australia since Tullamarine (Melbourne) in the 1960s. The proximity of the development to civil and military aerodromes indicates that airspace and traffic management issues may result.
- Wagners is constructing an aerodrome on private land which is eight nautical miles south of Oakey and six nautical miles west of Toowoomba, immediately under military training restricted airspace.
- A rapid construction time frame is planned with construction of the Wellcamp aerodrome having already commenced, the runway is expected to be completed in April 2014 with operations expected to commence in late 2014.
- CASA has established a working group to promote management of the aviation safety issues associated with the aerodrome development. The working group meets every six weeks.
- CASA is conducting an assessment of the airspace within the vicinity of Toowoomba, Oakey and the Wellcamp development site.
- As the aerodrome does not exist yet, reasonable predicted traffic data for the airspace assessment is difficult to obtain or estimate. CASA is working with airspace users and the developer in order to complete fast time simulation modelling of the airspace. This cannot be finalised until 2014 when air routes and instrument flight procedures are known with greater certainty.
- CASA plans to release a preliminary airspace assessment for public comment and consultation in late 2013.

Background

- CASA has established a working group comprising representatives from Defence, Defence Estate, Airservices Australia and the Department of Infrastructure and Regional Development to facilitate the management of airspace safety and operational issues involved with the Wellcamp aerodrome development. The Wellcamp airport developers were invited to and attended a working group meeting in March 2013.
- An airspace assessment is being conducted by CASA to determine appropriate airspace arrangements and any other mitigation needed to accommodate the commencement of aircraft operations at Wellcamp aerodrome into the existing operating environment of airspace users.
- Defence has submitted an Airspace Change Proposal to the existing Restricted Areas (airspace) at Oakey to permit aircraft to operate to and from Brisbane West Wellcamp without impacting upon Army helicopter training operations. This proposal will be assessed in accordance with usual processes. The final design is intended to be published on aeronautical charts that become effective May 2014.
- The development has been the subject of criticism from several media outlets including Mr Alan Jones. CASA has received correspondence from Mr Jones on two occasions in July 2013 and his concerns have been addressed as far as possible, detailing the extent and limitations of CASA's regulatory authority around State Government approved building development applications.

Contact: Cheryl Allman (02) 6217 1414

Smith-Roberts, Jennifer

From: West, Matt WGCDR <matt.west@defence.gov.au>
Sent: Wednesday, 6 November 2013 1:56 PM
To: West, Matthew
Subject: FW: Oakey and Amberley AChP [SEC=UNCLASSIFIED]
Attachments: RMP - Oakey Re-design in Response to Wellcamp.XLS; AChP - Oakey Re-design in Response to Wellcamp.DOC; AIC - Oakey and Amberley Re-design in Response to Wellcamp.doc; EIF - Oakey Re-design in Response to Wellcamp.doc

UNCLASSIFIED

cheers

Matt 'Humph" West

M.P. West
WGCDR
ADF CASA Liaison Manager (AFHQ)

Civil Aviation Safety Authority
Office of Airspace Regulation
Level 4, 16 Furzer Street
Phillip
ACT 2606

Phone: 02 6217 1073
s 47F [redacted]

Fax: 02 6217 1747
E- Matt.West@defence.gov.au
E- Matthew.West@casa.gov.au

From: Hartley, Peter WGCDR
Sent: Thursday, 31 October 2013 11:31
To: West, Matt WGCDR
Cc: HQJOC AOC-JACC
Subject: Oakey and Amberley AChP [SEC=UNCLASSIFIED]

UNCLASSIFIED

Humph,

AChP for Oakey and Amberley in response to the Wellcamp development.

Enjoy.

Pete

ADF JOINT AIRSPACE CONTROL CELL

Revised Oakey Airspace in Response to Wellcamp Operations

CONTEXT: Introduction of the Brisbane West Wellcamp Aerodrome will increase the airspace and traffic complexity within the Toowoomba-Oakey-Wellcamp basin. The increased complexity will include varying procedures depending on Oakey's activation status, increase pilot and ATC workload and potentially adversely impact the Oakey mission. A redesign of the Oakey airspace will assist in reducing airspace complexity, reduce aircrew/ATC workload and assure the ADF mission.

ACTIVITY DESCRIPTION	The ADF requires dedicated restricted airspace associated with Oakey to facilitate its rotary wing aircrew training operations (including by contractual obligations, Republic of Singapore Air Force aircrew training). The commencement of operations from the Wellcamp Aerodrome will introduce a complexity to the Toowoomba basin, to which Oakey will amplify by necessitating an amended airspace system during its activation periods (nominally 40% of an average week). Additionally, Wellcamp traffic will introduce a traffic complexity within Oakey airspace that will increase ATC workload and reduce efficiency in the provision of ATC services to ADF aircraft. In accordance with the attached risk management plan, Oakey airspace requires amending to reduce the Toowoomba basin airspace/traffic complexity, ensure the safety of transiting civil aircraft and facilitate the continuance of ADF rotary wing aircrew training.	
ACTIVITY OBJECTIVES	ADF retains sufficient airspace within which to conduct rotary wing aircrew training, while ensuring the airspace has minimal impact on civil operations within the Toowoomba-Wellcamp basin, provides safe segregation/separation between military and civil operations and avoids an increase in civil-military ATC workload.	
ACTIVITY SIGNIFICANCE	STRATEGIC	Oakey/Amberley operations are integrated into the Toowoomba-Wellcamp basin without a loss in Defence capability, with minimal impact on civil industry and without an increase in ATC services.
	OPERATIONAL	Oakey/Amberley airspace design supports ADF and RSAF aircrew training while mitigating complexities associated with Wellcamp Aerodrome. Oakey airspace re-design compliments the Toowoomba-Wellcamp traffic flow to reduce civil aircrew and ATC complexities and ensure safe air navigation for civil aircraft.
	TACTICAL	Oakey/Amberley flying and ATC units conduct operations within Oakey/Amberley airspace with minimal interaction with Wellcamp operations. Civil traffic are able to operate in the Toowoomba basin utilising common procedures regardless of Oakey's activation status. Civil aircraft able to be separated/segregated from Oakey operations.
STAKEHOLDERS	Department of Defence, Republic of Singapore Air Force, CASA, Airservices, Wagner Corp, Civil aviation industry.	
TOLERABLE RISK	CAPABILITY SAFETY MISSION PUBLIC RELATIONS / IMAGE	MEDIUM LOW MEDIUM MEDIUM

REFERENCES:

PUBLICATIONS	MATS, MATS SUPP - South Queensland, AIP, DAH
MRPs / RMPs	NIL
FLYING ORDERS	NIL
OTHER	Minutes from Wellcamp Working Group meetings, Toowoomba regional council land-use approval, Wellcamp Airport Master Plan 2012 -2031 Version 1, Initial Draft Design of RNAV (GNSS) Instrument Flight Procedures for Wellcamp Aerodrome as produced by IDS Australasia.

NOMINAL CONDITIONS:

MISSION	This RMP covers the risks associated with processing Wellcamp traffic through current Oakey/Amberley airspace and the risks associated with a re-design of Oakey/Amberley airspace to exclude Wellcamp traffic.
EQUIPMENT	Surveillance and control capabilities (radar and communications) provided by existing equipment within 452SQN OAK FLT and 452SQN AMB FLT.
PERSONNEL	Aircrew and controllers appropriately trained and meeting currency/recency requirements, IAW relevant publications, to perform the tasks and duties associated with the described mission.
ENVIRONMENT	Day and night, all weather conditions. Normal Oakey traffic.
ASSUMPTIONS	Wellcamp traffic as per Wagner Corp Wellcamp Airport Master Plan. Oakey/Amberley traffic remains as per extant operations. Wellcamp instrument procedures are able to be plotted clear of re-designed Oakey/Amberley airspace. The Oakey/Amberley airspace re-design will not affect the Brisbane traffic flow. Future waypoints associated with tracking to/from Wellcamp will be plotted outside the re-designed Oakey airspace boundaries.
LIMITATIONS	This RMP can not account for any coincident increase in traffic within the Oakey-Toowoomba-Wellcamp basin that occurs independent to the Wellcamp development. This RMP does not include risks that may be identified by Airservices or CASA.

MAIN HAZARDS	POTENTIAL CONSEQUENCE
Current Oakey/Amberley airspace design: Differing Wellcamp procedures depending on Oakey's activation status	Increased aircrew/controller workload. Confusion amongst aircrew. VCA Confliction between aircraft resulting from pilot errors/loss of situational awareness. Confliction between aircraft resulting from controller error. Adverse public reaction.
Current Oakey/Amberley airspace design: Increased traffic complexity (regardless of Oakey's activation status).	Increased aircrew/controller workload. Confusion amongst aircrew. Confliction between aircraft resulting from pilot errors/loss of situational awareness. Confliction between aircraft resulting from controller error. Adverse public reaction
Current Oakey/Amberley airspace design: Increased traffic through Oakey's airspace.	Delays to ADF aircraft resulting in incomplete sorties. Increased controller/aircrew workload. Increased likelihood of confliction between civil and military aircraft.
Current Oakey/Amberley airspace design: Oakey providing approach services simultaneously to two aerodromes.	Increased controller workload. Confliction between aircraft resulting from controller errors/loss of situational awareness. Adverse public reaction
Re-design of Oakey/Amberley airspace: Wellcamp instrument approaches enter Oakey/Amberley airspace necessitating a clearance and thus negating intent of airspace re-design.	Increased controller workload. Confliction between aircraft resulting from controller errors/loss of situational awareness. Delay to Oakey ACFT. Adverse public reaction
Re-design of Oakey/Amberley airspace: Wellcamp instrument approaches enter Oakey/Amberley airspace necessitating a clearance. Delay in clearance issue due Oakey traffic.	Wellcamp traffic hold OCTA while awaiting clearance (potentially wide bodied jet holding in class G). Adverse public reaction.
Re-design of Oakey airspace: Increased military traffic in smaller airspace volume. Civil VFR ACFT unable to sight random manoeuvring camouflaged ACFT.	Possible risk of collision Adverse public reaction Mission degradation
Re-design of Oakey airspace: Increased military traffic in smaller airspace. Civil VFR ACFT unable to sight random manoeuvring camouflaged ACFT. Flies through wake turbulence of Medium/Heavy ACFT.	Possible risk of collision Adverse public reaction Mission degradation
Re-design of Oakey airspace. Increased military traffic in smaller airspace. Military crew operating in high workload environment with complex systems leading to decreased capacity to sight civil aircraft.	Possible risk of collision Adverse public reaction Mission degradation
Re-design of Oakey/Amberley airspace: Civil aircraft not familiar with new airspace boundaries.	VCA Confliction between aircraft.

AUTHORISED:

D. BURKE
COL
COMANT AAvnTC

OCT 13

COMPILED:

P. HARTLEY
WGCDR
CJACC

OCT 13

NO	RISK	CONTROLS	CONSEQUENCE		LIKELIHOOD	RISK LEVEL	COMPLIANCE	TREATMENT/ACCEPT	CONSEQUENCE AFTER TREATMENT		LIKELIHOOD AFTER TREATMENT	RISK LEVEL AFTER TREATMENT	COMPLIANCE AFTER TREATMENT	RECOMMEND ACCEPTABLE RISK	ALRP?
1	Current airspace design: Oakey airspace active 40% of week. Current design encompasses Wellcamp. Wellcamp procedures will differ depending on Oakey's activation status, potentially creating uncertainty for aircrew. VCA and/or confliction occurs between aircraft	1. ATC with surveillance to observe ACFT entering current Oakey airspace without a clearance or diverging from correct procedure. 2. NOTAMs to advertise Oakey airspace activation. 3. DAH.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Redesign Oakey airspace to remove Oakey's influence on Wellcamp - common Wellcamp procedures regardless of Oakey's activation status. Aircrew operate to a single procedure.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
2	Current airspace design: Wellcamp operations introduce new complexity to Oakey-Toowoomba basin (regardless of Oakey's activation status), potentially creating uncertainty for aircrew and controllers. VCA and/or confliction occurs between aircraft	1. ATC with surveillance to observe ACFT entering current Oakey airspace without a clearance or diverging from correct procedure. 2. NOTAMs to advertise Oakey airspace activation. 3. DAH.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Redesign Oakey airspace to reduce the complexity of the Oakey-Toowoomba-Wellcamp basin.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/Image	Minor		Low			PR/Image	Minor		Low			
3	Current airspace design: Wellcamp operations introduce increased traffic flow through Oakey airspace resulting in increased controller workload and reduced efficiency in the provision of ATC services to ADF aircraft.		Capability	Moderate	Probable	Medium	NOT COMPLIANT	Redesign Oakey airspace to exclude Wellcamp traffic.	Capability	Critical	Rare	Low	COMPLIANT	Yes	Y
			Safety	Minor		Medium			Safety	Minor		Low			
			Mission	Critical		Very High			Mission	Critical		Low			
			PR/Image	Minor		Medium			PR/Image	Minor		Low			
4	Current airspace design: Wellcamp operations result in Oakey controllers simultaneously providing approach services for two different airfields. The complex increase in workload results in controller error and a separation breakdown with possible risk of collision.	1. Radar surveillance. 2. ATC Supervision.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Redesign Oakey airspace to exclude Wellcamp traffic.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
5	Oakey airspace redesigned, but Wellcamp instrument approach paths infringe Oakey airspace. Controller error results in a separation breakdown with possible risk of collision.	1. Radar surveillance. 2. ATC Supervision.	Capability	Minor	Rare	Low	COMPLIANT	Accept	Capability					Yes	Y
			Safety	Major		Low			Safety						
			Mission	Moderate		Low			Mission						
			PR/Image	Moderate		Low			PR/Image						
6	Oakey airspace redesigned, but Wellcamp instrument approach paths infringe Oakey airspace. An airways clearance and coordination between BN CEN and Oakey Approach required to process Wellcamp aircraft through Oakey airspace. Coordination breakdown results in a VCA.	1. Radar surveillance. 2. MATS SUPP procedure 3. ATC Supervision.	Capability	Minor	Possible	Low	COMPLIANT	Accept	Capability					Yes	Y
			Safety	Minor		Low			Safety						
			Mission	Minor		Low			Mission						
			PR/Image	Minor		Low			PR/Image						
7	Oakey airspace redesigned, but Wellcamp instrument approach paths infringe Oakey airspace. An airways clearance and coordination between BN CEN and Oakey Approach required to process Wellcamp aircraft through Oakey airspace. Coordination breakdown results in a VCA and separation breakdown with possible threat of collision.	1. Radar surveillance. 2. MATS SUPP procedure. 3. Oakey ATC Supervision.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Wellcamp instrument procedures designed to avoid Oakey airspace to remove airways clearance and coordination requirement.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
8	Oakey airspace redesigned, but Wellcamp instrument approach paths infringe Oakey airspace. Oakey unable to issue airways clearance to Wellcamp aircraft due conflicting Oakey traffic. Wellcamp aircraft required to hold OCTA in Class G airspace (potentially wide-bodied aircraft). Aircraft and Wellcamp operators complain to CASA and/or Defence and/or Federal Government; Defence required to prioritise Wellcamp aircraft to avoid large aircraft holding in Class G airspace. Delays enforced upon Oakey traffic.		Capability	Moderate	Improbable	Low	COMPLIANT	Accept	Capability					Yes	Y
			Safety	Minor		Low			Safety						
			Mission	Critical		Medium			Mission						
			PR/Image	Major		Medium			PR/Image						
9	Oakey airspace redesigned, but Wellcamp instrument approach paths infringe Oakey airspace. Oakey unable to issue airways clearance to Wellcamp aircraft due conflicting Oakey traffic. Wellcamp aircraft required to hold OCTA in Class G airspace (potentially wide-bodied aircraft). Near miss occurs with another aircraft OCTA. No capability, safety or mission consequence to Defence, however risk is projected onto the aircraft operator. This risk shows the potential safety and mission consequences the civil operators will assume if instrument approaches infringe Oakey airspace. Civil operators may assess this risk differently.	1. TCAS. 2. Traffic information from BN CEN. 3. VFR/IFR levels.	Capability		Improbable		NOT COMPLIANT	Wellcamp instrument procedures designed to avoid Oakey airspace to remove airways clearance and coordination requirement. No delays on approach.	Capability		Rare		COMPLIANT		Y
			Safety	Critical		Medium			Safety	Critical		Low			
			Mission	Critical		Medium			Mission	Critical		Low			
			PR/Image						PR/Image						
10	Oakey airspace redesigned, but Wellcamp instrument approach paths infringe Oakey airspace. Oakey unable to issue airways clearance to Wellcamp aircraft due conflicting Oakey traffic. Wellcamp aircraft required to hold OCTA in Class G airspace (potentially wide-bodied aircraft). Near miss occurs with another aircraft OCTA. Due to size of aircraft, wide spread media attention. No capability, safety or mission risk to Defence; these risks are projected onto the aircraft operator.		Capability		Improbable		COMPLIANT	Accept	Capability					Yes	N
			Safety						Safety						
			Mission						Mission						
			PR/Image	Critical		Medium			PR/Image						

NO	RISK	CONTROLS	CONSEQUENCE		LIKELIHOOD	RISK LEVEL	COMPLIANCE	TREATMENT/ACCEPT	CONSEQUENCE AFTER TREATMENT		LIKELIHOOD AFTER TREATMENT	RISK LEVEL AFTER TREATMENT	COMPLIANCE AFTER TREATMENT	RECOMMEND ACCEPTABLE RISK	ALRP?
11	Oakey airspace redesigned. Airspace of insufficient volume to support Oakey flying operations	1. Consultation with Army Aviation.	Capability	Catastrophic	Rare	Low	COMPLIANT	Accept.	Capability					Yes	Y
			Safety	Minor		Low			Safety						
			Mission	Critical		Low			Mission						
			PR/Image	Minor		Low			PR/Image						
12	Oakey airspace redesigned. Oakey flying operations condensed into a smaller volume of airspace and operate in closer proximity to civil transits. Delays occur to Oakey aircraft, reducing sortie efficiency and Defence mission.	1. ATC 2. Surveillance 3. Requirement for airways clearances to transit Oakey airspace.	Capability	Moderate	Possible	Medium	NOT COMPLIANT	Key portin of redesigned Oakey airspace assigned RA2 status. ATC exclude civil aircraft as necessary to afford priority to Oakey operations. ATC only process ACFT through RA2 airspace during light traffic.	Capability	Moderate	Rare	Low	COMPLIANT	Yes	Y
			Safety	Minor		Low			Safety	Minor		Low			
			Mission	Critical		High			Mission	Critical		Low			
			PR/Image	Minor		Low			PR/Image	Minor		Low			
13	Oakey airspace redesigned as RA2. High priority civil traffic (MEDEVAC, EMERG etc) delayed in gaining clearance to transit airspace resulting in injury or death of aircraft occupant.	1. ATC and surveillance. 2. Coordination between BN CEN and Oakey ATC. 3. MATS	Capability	Minor	Rare	Low	COMPLIANT	Accept. High priority traffic will be afforded priority through Oakey airspace.	Capability					Yes	Y
			Safety	Catastrophic		Low			Safety						
			Mission	Minor		Low			Mission						
			PR/Image	Catastrophic		Low			PR/Image						
14	Oakey airspace redesigned as RA2. Civil traffic denied transit due high volume of Oakey operations. Adverse public reaction.	1. ATC and surveillance. 2. Coordination between BN CEN and Oakey ATC. 3. MATS 4. NOTAMs and DAH to advertise Oakey status	Capability		Possible		COMPLIANT	Accept	Capability					Yes	Y
			Safety						Safety						
			Mission						Mission						
			PR/Image	Moderate		Medium			PR/Image						
15	Oakey airspace redesigned. Changes not advertised to civil industry with sufficient notice to avoid confusion. VCA occurs.	1. AIC 2. DAH. 3. NOTAMs 4. AIP. 5. Notification through RAPAC. 6. Local industry engagement. 7. Airspace changes involve a reduction in size, with the remaining boundaries encompassing extant airspace volumes. If civil aircraft are unfamiliar with new boundaries and plan to avoid old boundaries, by default they will avoid new boundaries.	Capability	Minor	Rare	Low	COMPLIANT	Accept	Capability					Yes	Y
			Safety	Minor		Low			Safety						
			Mission	Minor		Low			Mission						
			PR/Image	Minor		Low			PR/Image						
16	Initial approach fixes for Wellcamp runway 30 will likely commence at A060 and be in close proximity to/underneath Amberley airspace, R620E which has a lower level of A065. Amberley approach will be required to process Wellcamp onto the RWY30 approach and thereby increasing controller workload and the possibility of a VCA.	1. ATC and surveillance. 2. Coordination between BN CEN and Oakey ATC. 3. MATS 4. NOTAMs and DAH	Capability	Minor	Improbable	Low	COMPLIANT	Accept	Capability					Yes	Y
			Safety	Minor		Low			Safety						
			Mission	Minor		Low			Mission						
			PR/Image	Minor		Low			PR/Image						
17	Initial approach fixes for Wellcamp runway 30 will likely commence at A060 and be in close proximity to/underneath Amberley airspace, R620E which has a lower level of A065. VCA occurs resulting in a breakdown of separation with Amberley traffic.	1. ATC and surveillance. 2. Coordination between BN CEN and Oakey ATC. 3. MATS 4. NOTAMs and DAH	Capability	Minor	Improbable	Low	NOT COMPLIANT	Raise R620E to A065 to afford greater separation with Wellcamp RWY30 initial approach fixes. A065 will also align with upper level of redesigned Oakey RA2 airspace and the lower limit of civil Class E airspace.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
18	Oakey airspace redesigned. Southern low flying areas no longer afforded protection by restricted areas. More ADF aircraft operate in northern and eastern low flying areas. While avoiding Wellcamp, the northern and eastern low flying areas are also not protected by a restricted area, nor is notification of the flying training OPS obvious to civil operators. Increased military activity results in a near miss with a civil aircraft OCTA.		Capability	Minor	Improbable	Low	NOT COMPLIANT	Encompass northern and eastern low flying areas within a new Danger Area.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Major		Medium			Mission	Major		Low			
			PR/Image	Minor		Low			PR/Image	Minor		Low			
19	Oakey aircraft cleared not above A030 to facilitate pilot training/auto rotations. IFR civil aircraft cleared to enter Oakey airspace below A040. Approach loses ident on Oakey helicopter as the aircraft descends into remote landing area. Separation breakdown occurs.	1. ATC and surveillance.	Capability	Minor	Possible	Low	NOT COMPLIANT	Key portin of redesigned Oakey airspace assigned RA2 status. Civil aircraft excluded from key portions of Oakey airspace. ATC only process ACFT through RA2 airspace during light traffic.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Moderate		Medium			Safety	Moderate		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/Image	Minor		Low			PR/Image	Minor		Low			
20	Oakey aircraft cleared not above A030 to facilitate pilot training/auto rotations. Loss of radar ident at low levels in training area. IFR civil aircraft unable to be cleared into Oakey airspace due inability to prove separation. IFR aircraft required to hold OCTA, potentially at short notice as it is on departure from Toowoomba. IFR aircraft holding OCTA in close proximity to TWB resulting in a confliction with another aircraft, potentially on an alternative frequency.	1. ATC an surveillance. 2. CTAF OPS.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Key portin of redesigned Oakey airspace assigned RA2 status. Civil aircraft excluded from key portions of Oakey airspace. ATC only process ACFT through RA2 airspace during light traffic. Develop RA1 route to track civil aircraft away from commonly busy portions of Oakey airspace while avoiding the need to hold OCTA.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			

NO	RISK	CONTROLS	CONSEQUENCE		LIKELIHOOD	RISK LEVEL	Compliant	TREATMENT/ACCEPT	CONSEQUENCE AFTER TREATMENT		LIKELIHOOD AFTER TREATMENT	RISK LEVEL AFTER TREATMENT		RECOMMEND ACCEPTABLE RISK	ALRP?
21	Redesigned Oakey airspace becomes RA2. Civil VFR aircraft track south to avoid Oakey airspace and enter confliction with Wellcamp traffic.	1. VFR see and avoid 2. CTAF OPS.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Promulgate RA1 VFR route to allow VFR ACFT to avoid Wellcamp and Oakey CIRA.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/Image	Moderate		Low			PR/Image	Minor		Low			
22	Redesigned Oakey airspace becomes RA2. Civil IFR aircraft track south to avoid Oakey airspace and enter confliction with Wellcamp traffic.	1. CTAF OPS 2. BN CEN traffic information.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Promulgate RA1 IFR route to allow IFR ACFT to avoid Wellcamp. Two way structure required to avoid head-to-head TWB traffic.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/Image	Moderate		Low			PR/Image	Minor		Low			
23	Current airspace design: Wellcamp operations result in Amberley controllers simultaneously providing approach services for two different airfields. The complex increase in workload results in controller error and a separation breakdown with possible risk of collision.	1. ATC and surveillance. 2. ATC supervision.	Capability	Minor	Improbable	Low	NOT COMPLIANT	Wellcamp instrument approaches designd to be clear of Amberley airspace. Raise R620E lower limit to 8500FT to assist in removing approach from Amberley airspace.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
24	Oakey airspace redesigned. Civil IFR ACFT flight plan TWB departures through Oakey CTR to avoid RA2 airspace. Increased IFR traffic in CTR with TWB departures nose-to-nose with TWB arrivals (arrivals required to track through OAK CTR due to RWY11 RNAV approach). OAK ATC have insufficient airspace to manoeuvre ACFT to provide separation. Separation breakdown occurs with a near miss.	1. ATC and surveillance. 2. ATC supervision	Capability	Minor	Improbable	Low	NOT COMPLIANT	Promulgate RA1 IFR Rotue to direct TWB departures away from CTR and away from TWB arrivals.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Critical		Medium			Safety	Critical		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
25	Primary and/or secondary areas of intermediate and/or final segments of Wellcamp RWY12 approach less than required distance from Oakey airspace boundary. VCA occurs resulting in separation breakdown occurs with Oakey traffic.	1. Oakey ATC and Surveillance 2. BN CEN ATC and surveillance. 3. RNAV track OCTA 4. MATS 2-30-230: No separation required at boundary of Class C and G. 5. MATS 10-10-220: No separation required with ACFT OCTA.	Capability	Minor	Rare	Low	COMPLIANT	Accept and treat. 1. Add note to IAP to warn of Oakey airspace proximity. 2. BN CEN provide Oakey with ident on boundary traffic. 3. Oakey monitor Wellcamp traffic and take action in event of VCA.	Capability					Yes	Y
			Safety	Major		Low			Safety						
			Mission	Moderate		Low			Mission						
			PR/Image	Minor		Low			PR/Image						
26	Multiple Oakey aircraft operating VFR at random levels with random tracking and rapidly changing altitudes. Camouflage limits ability for civil ACFT to sight and avoid Oakey VFR traffic. Possible threat of collision	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
27	Multiple Oakey aircraft operating VFR at random levels with random tracking and rapidly changing altitudes. High cockpit workload in complex operating environment limits Oakey pilot ability to sight and avoid civil traffic. Possible threat of collision.	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			
28	Multiple Medium and Heavy Wake Turbulence category Oakey aircraft operating VFR at random levels with random tracking and rapidly changing altitudes. Camouflage limits ability for civil ACFT to sight and avoid Oakey VFR traffic. Civil light ACFT transits Oakey ACFT wake turbulence.	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	Yes	Y
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/Image	Moderate		Low			PR/Image	Moderate		Low			

NO	RISK	EXISTING CONTROLS/ ADDITIONAL COMMENT	CONSEQUENCE		LIKELIHOOD	RISK LEVEL	COMPLIANT	TREATMENTS REQUIRED OR ACCEPT RISK	CONSEQUENCE AFTER TREATMENT		LIKELIHOOD AFTER TREATMENT	RISK LEVEL AFTER TREATMENT	COMPLIANCE AFTER TREATMENT	ALARP	RECOMMEND ACCEPT RISK
29	Multiple Oakey aircraft operating VFR at random levels with random tracking and rapidly changing altitudes. Civil traffic unfamiliar with military operations and unable to predict flight path. Unable to formulate deconfliction. Possible threat of collision	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	YES	YES
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/image	Moderate		Low			PR/image	Moderate		Low			
30	Multiple military ACFT operating randomly in condensed airspace. Less airspace within which to manoeuvre clear of other traffic. Possible threat of collision.	1. Oakey ATC and Surveillance 2. Mission planning 3. Mission scheduling 4. Aircrew utilising common procedures	Capability	Moderate	Rare	Low	COMPLIANT	Accept	Capability					YES	YES
			Safety	Major		Low			Safety						
			Mission	Major		Low			Mission						
			PR/image	Moderate		Low			PR/image						
31	RA1 route places civil ACFT into confliction with BN arrivals. Increased workload for ATC to achieve separation prior to clearance into Class E/A airspace.		Capability	Minor	Possible	Low	NOT COMPLIANT	Align RA1 route with BN route structure.	Capability	Minor	Rare	Low	COMPLIANT	YES	YES
			Safety	Minor		Low			Safety	Minor		Low			
			Mission	Minor		Low			Mission	Minor		Low			
			PR/image	Moderate		Medium			PR/image	Moderate		Low			
32	Oakey airspace redesigned. Oakey aircraft operations condensed into reduced volume of airspace. Missions delayed due civil transits. Delays lead to increased cost, flight hours, shorter period between servicings and incomplete mission objectives.		Capability	Major	Possible	Medium	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Major	Rare	Low	COMPLIANT	YES	YES
			Safety	Minor		Low			Safety	Minor		Low			
			Mission	Major		Medium			Mission	Major		Low			
			PR/image	Minor		Low			PR/image	Minor		Low			
33	Multiple Oakey aircraft operating at random levels with random tracking and rapidly changing altitudes at night while utilising night vision devices with minimal external lighting. Civil pilot unable to sight and avoid military traffic. Possible threat of collision	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	YES	YES
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/image	Moderate		Low			PR/image	Moderate		Low			
34	Aircraft involved in preservation of life (declared emergency, MEDEVAC, HOSP, SAR, FFR, POLAIR RED, FEDPOL RED) delayed obtaining a clearance through RA2 airspace. Loss of life.	1. Oakey ATC afford aircraft priority through the RA2 airspace by restricting/delaying military aircraft.	Capability	Minor	Rare	Low	COMPLIANT	Accept	Capability					YES	YES
			Safety	Critical		Low			Safety						
			Mission	Minor		Low			Mission						
			PR/image	Major		Low			PR/image						
35	Student pilots under instruction operating high powered aircraft, under complex conditions. Student pilot and instructor focus inside cockpit. Reduced ability to observe civil transiting aircraft. Possible threat of collision.	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	YES	YES
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/image	Moderate		Low			PR/image	Moderate		Low			
36	Military aircraft conducting random manoeuvres in training area. ATC communications unable to extend into low level areas to pass civil traffic information or control instructions to facilitate separation. Separation breakdown occurs with possible threat of collision.	1. Oakey ATC and Surveillance	Capability	Minor	Improbable	Low	NOT COMPLIANT	1. Designate key areas of Oakey airspace as RA2. 2. ATC only process ACFT through RA2 airspace during light traffic and when confident sight and avoid easy to achieve.	Capability	Minor	Rare	Low	COMPLIANT	YES	YES
			Safety	Major		Medium			Safety	Major		Low			
			Mission	Moderate		Low			Mission	Moderate		Low			
			PR/image	Moderate		Low			PR/image	Moderate		Low			

RISK NUMBER	TREATMENT	OUTCOME
18	Create new Danger Area to north of OAK	Provide increased awareness of Oakey OPS to civil traffic
12	Designate key portions of OAK airspace as RA2	Remove civil traffic from OAK instrument training areas to provide priority to OAK traffic.
19	Designate key portions of OAK airspace as RA2	Avoid breakdown in separation between military and civil ACFT due loss of ident on Oakey traffic at low levels.
20	Designate key portions of OAK airspace as RA2	Avoid civil ACFT holding OCTA while waiting to obtain ident on Oakey traffic at low level
26	Designate key portions of OAK airspace as RA2	Avoid confliction resulting from civil ACFT failing to sight random manoeuvring camouflaged aircraft
27	Designate key portions of OAK airspace as RA2	Avoid confliction resulting from OAK crews failing to sight civil aircraft due high cockpit workload.
28	Designate key portions of OAK airspace as RA2	Avoid confliction resulting from civil ACFT failing to sight random manoeuvring camouflaged aircraft and flying through wake turbulence of medium/heavy ACFT.
29	Designate key portions of OAK airspace as RA2	Avoid confliction resulting from civil ACFT failing to avoid random manoeuvring camouflaged aircraft and flying through wake turbulence of medium/heavy ACFT.
32	Designate key portions of OAK airspace as RA2	Avoid increase in cost, flight hours, decreased time between servicings and incomplte mission objectives.
33	Designate key portions of OAK airspace as RA2	Avoid confliction resulting from civil aircraft failing to avoid random manoeuvring military aircraft at night operating under NVD with minimal external lighting.
35	Designate key portions of OAK airspace as RA2	Avoid confliction resulting from student/instructor crew failing to sight civil traffic.
35	Designate key portions of OAK airspace as RA2	Avoid confliction with civil aircraft due reduced communications coverage in training areas
20	Develop RA1 route through OAK RA2 airspace	Direct civil IFR ACFT away from busy portions of OAK airspace.
22	Develop RA1 route through OAK RA2 airspace	Provide method for alleviating nose-to-nose tracking between TWB arrivals/departures
24	Develop RA1 route through OAK RA2 airspace	Remove congestion in CTR and nose-to-nose with TWB arrivals/departures
21	Develop VFR route through CTR	Provide method for VFR ACFT to avoid Wellcamp
31	RA1 route aligned with BN route structure	Avoid complex coordination/clearance issue to achive seapration prior to clearing Toowoomba departures into Class E/A airspace
17	Raise lower level of R620E to 8500	Remove likelihood of Wellcamp RWY30 VCA and separation breakdown in AMB airspace.
23	Raise lower level of R620E to 8500	Reduce AMB ATC workload associated with Wellcamp IAP
1	Re-design OAK airspace to exclude Wellcamp	Remove OAK influence on Wellcamp procedures
2	Re-design OAK airspace to exclude Wellcamp	Remove OAK influence on Wellcamp procedures
3	Re-design OAK airspace to exclude Wellcamp	Remove Wellcamp traffic from OAK airspace to provide priority to OAK ACFT
4	Re-design OAK airspace to exclude Wellcamp	Remove Wellcamp traffic from OAK airspace to reduce ATC workload
7	Wellcamp IAP avoid OAK airspace	Remove Wellcamp traffic from OAK airspace to reduce ATC workload and risk of separation breakdown
9	Wellcamp IAP avoid OAK airspace	Remove Wellcamp traffic from OAK airspace to remove holding requirement OCTA

Consequence	Definition
Catastrophic (5)	Capability: Indefinite loss of ADF capability provided by an aviation or core system.
	Safety: Many fatalities / ACFT Collision, accident.
	Mission: Failure to achieve a mission that is essential to a strategic objective.
	Public/Image/morale: Widespread public condemnation of ADF, long-term media condemnation or formal Government inquiry.
Critical (4)	Capability: Long-term degradation to ADF capability provided by an aviation or core system. Single aircraft loss.
	Safety: Single fatality / Serious Separation Breakdown - near miss.
	Mission: Failure to achieve an essential operational objective with significant strategic implications.
	Public/Image/morale Widespread public discontent with ADF or Service, prolonged adverse national media attention or coronial inquest.
Major (3)	Capability: Temporary loss or severe degradation to ADF capability provided by an aviation or core system. Aircraft category 4 damage.
	Safety: Serious injuries that could result in permanent disability/ Separation Breakdown, possible threat of collision.
	Mission: Failure to achieve an important to operational objective with serious unit/tactical implications.
	Public/Image/morale Negative reaction by public defence interest groups and short-term national media attention. FEG morale seriously affected but recoverable.
Moderate (2)	Capability: Substantial temporary degradation to ADF capability provided by an aviation or core system. Aircraft category, 3/2 damage.
	Safety: Injuries that could result in temporary disability / Separation Breakdown - no threat of collision.
	Mission: Failure to achieve an important operational objective with significant unit/tactical implications.
	Public/Image/morale Local prolonged media attention and negative public reaction. FEG morale slightly affected.
Minor (1)	Capability: Temporary degradation to ADF capability provided by an aviation or core system. Aircraft category 1 damage.
	Safety: Minor injuries requiring medical attention / Procedural Breakdown - no breakdown in separation.
	Mission: Partial achievement of a mission with significant unit/tactical implications but does not affect an operational objective.
	Public/Image/morale Local short-term media attention and negative public reaction. Unit morale slightly affected.

Likelihood	Definition
Likely (A)	Expected to occur during the activity under consideration.
Probable (B)	Could occur during the activity under consideration. (It has happened previously at least once per year)
Possible (C)	Occurrence conceivable but only expected infrequently during the aviation system life (nominally 20 years) (It has happened during the last five years but not every year).
Improbable (D)	Occurrence conceivable but only expected on a few occasions during the aviation system life (nominally 20 years). (It may have occurred in the last five years)
Rare (E)	Occurrence conceivable but expected no more than once during the aviation system life (nominally 20 years). (You haven't heard of this happening in the last 20 years)

Risk Level	Description
Extreme	A considerable potential for loss of ADF capability, multiple fatalities, mission failure of strategic significance, or serious long-term degradation of public image and morale.
Very High	A considerable potential for serious degradation of an ADF capability, fatal injury, aircraft loss, mission failure of operational significance, or significant degradation of public image/morale.
High	A moderate potential for serious degradation of an ADF capability, fatal injury, aircraft damage/loss, mission failure of tactical significance or short term impact to public image/morale.
Medium	Has the potential to degrade capability, injure personnel, damage equipment or compromise the mission.
Low	Minimal potential for impact to personnel, equipment, the mission or public image/morale.

	Catastrophic	Critical	Major	Moderate	Minor
Likely				Medium	Medium
Probable				Medium	Medium
Possible			Medium	Medium	
Improbable	Medium	Medium	Medium		
Rare					

INCIDENT	LIKELIHOOD	OCCURRENCE								LIKELIHOOD	TREATMENT							
		CONSEQUENCE				RISK LEVEL					CONSEQUENCE				RISK LEVEL			
		Capability	Safety	Mission	PR/Image	Capability	Safety	Mission	PR/Image		Capability	Safety	Mission	PR/Image	Capability	Safety	Mission	PR/Image
1	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
2	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
3	4	5	3	5	5	Low	Medium	Low	Low	5	5	3	5	5	Low	Low	Low	Low
4	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
5	2	4	5	2	5	Medium	Medium	Very High	Medium	5	2	5	2	5	Low	Low	Low	Low
6	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
7	5	5	3	4	4	Low	Low	Low	Low									
8	3	5	5	5	5	Low	Low	Low	Low									
9	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
10	4	4	5	2	3	Low	Low	Medium	Medium									
11	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
12	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
13	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
14	4		2	2			Medium	Medium		5		2	2			Low	Low	
15	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
16	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
17	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
18	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
19	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
20	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
21	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
22	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
23	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
24	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
25	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
26	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
27	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
28	4				2				Medium									
29	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
30	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
31	5	1	5	2	5	Low	Low	Low	Low									
32	3	4	5	2	5	Medium	Low	High	Low	5	4	5	2	5	Low	Low	Low	Low
33	5	5	1	5	1	Low	Low	Low	Low									
34	3				4				Medium									
35	5	5	5	5	5	Low	Low	Low	Low									
36	4	5	5	5	5	Low	Low	Low	Low									
37	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
38	4	5	3	3	5	Low	Medium	Medium	Low	5	5	3	3	5	Low	Low	Low	Low
39	3	5	4	5	5	Low	Medium	Low	Low	5	5	4	5	5	Low	Low	Low	Low
40	4	5	3	5	4	Low	Medium	Low	Low	5	5	3	5	4	Low	Low	Low	Low
41	4	5	3	5	4	Low	Medium	Low	Low	5	5	3	5	5	Low	Low	Low	Low
42	4	5	3	5	4	Low	Medium	Low	Low	5	5	3	5	5	Low	Low	Low	Low
43	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
44	4	5	2	5	4	Low	Medium	Low	Low	5	5	2	5	4	Low	Low	Low	Low
45	5	5	3	4	5	Low	Low	Low	Low									
46	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
47	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
48	4	5	3	4	4	Low	Medium	Low	Low	5	5	3	4	4	Low	Low	Low	Low
49																		
50																		
51	DO NOT USE BELOW FIFTY - UP TO FIFTY ONLY IS USEABLE																	
52																		
53																		
54																		
55																		
56																		
57																		
58																		
59																		
60																		
61																		
62																		
63																		
64																		
65																		
66																		
67																		

44WG SOURCE DATA

LIKELIHOOD	CONSEQUENCE	EFFECT AREA
Likely	Catastrophic	Capability
Probable	Critical	Safety
Possible	Major	Mission
Improbable	Moderate	PR/Image
Rare	Minor	

LIKELIHOOD	CONSEQUENCE	RISK
1	1	Extreme
2	1	Extreme
3	1	High
4	1	Medium
5	1	Low
1	2	Very High
2	2	Very High
3	2	High
4	2	Medium
5	2	Low
1	3	High
2	3	High
3	3	Medium
4	3	Medium
5	3	Low
1	4	Medium
2	4	Medium
3	4	Medium
4	4	Low
5	4	Low
1	5	Medium
2	5	Medium
3	5	Low
4	5	Low
5	5	Low

Australian Government
Civil Aviation Safety Authority

Airspace Change Proposal

Before completing this form consult the Airspace Planning Manual on the CASA website: www.casa.gov.au/manuals/regulate/apm) for the latest airspace change guidance material.

Submission Procedures

DURING Business Hours (9am-5pm EST):	AFTER Hours (if urgent):
Phone: (02) 6217 1177 Fax: (02) 6217 1747 Email: info_oar@casa.gov.au NOTE: A follow up phone call to confirm receipt is required if you send by fax or email.	s 47F [redacted]

By Post:

Operations Manager
Office of Airspace Regulation
GPO Box 2005
CANBERRA ACT 2601

Proponent Details

Contact Name	**Peter Hartley**
Name of Organisation	**ADF**
Nature of Organisation	**Joint Airspace Control Cell**
Phone (BH)	**1800 562 222**
Email	**adf.airspace@defence.gov.au**
Address	**B1-1- L005**
No. of Pages	**14 (including this one)**
No. of Attachments	**Three –Draft AIC, Risk Assessment, EIF**
Date Submitted	
ACP No: (Office use only)	

ACP Details

Please describe the activity or change in detail. Please attach copies of the proposed AIC, NOTAM and/or charting amendments if applicable.

OAKEY AND AMBERLEY AIRSPACE RE-DESIGN IN RESPONSE TO THE DEVELOPMENT OF WELLCAMP AERODROME

1. INTRODUCTION

1.1. The purpose of OAK airspace is to restrict and control public access due to the hazardous nature of the military operations. In particular, the restricted airspace associated with Oakey is used to facilitate rotary wing training for Australian and Singaporean military aircrew. The operations at OAK range from single pilot, single engine helicopters, to multi engine, multi crew heavy helicopters. It includes day and night operations, with and without illumination, with night vision equipment. Training also encompasses basic helicopter flying skills, formation flying, slung load operations, advanced tactics and weapon employment in simulated battlefield environments.

1.2. The commencement of operations from the Wellcamp Aerodrome will introduce a new level of complexity to the Toowoomba basin. It is the opinion of Defence that this level of complexity will increase the level of risk to all airspace users. In the interests of the protection of all operators and efficiency, Defence has conducted a review of the restricted airspace. Defence has concluded that the OAK restricted areas could be rationalised to reduce some of the risk associated with increased traffic levels from Wellcamp operations and also deliver efficiencies for all airspace users in the Toowoomba basin.

1.3. This ACP presents the outcome of the airspace review and rationalisation. It outlines a 40% reduction in restricted areas, providing greater efficiencies for airspace users. However, the decrease in volume of OAK restricted areas will result in an increase in the density of military operations within the new volume. Therefore, the ability to grant access on any route and any time under RA1 access to non-military airspace users will become problematic, without a compromise to the safety or efficiencies of all users. Therefore, a change to the condition status from RA1 to RA2 is warranted to provide protection and predictability of access for all users. For airspace users that do require access to the restricted areas, a RA1 VFR lane and an IFR route are provided. These routes will provide predictable access and protection from hazardous military activities. The changes to restricted airspace will also align with adjoining civil controlled airspace, reducing the overall number of NOTAMs and reducing the likelihood of confusion of airspace status.

2. Summary of Airspace Changes

2.1. **Delete:**

2.1.1. Oakey airspace R643A, R643B, R643C and R655.

2.1.2. Amberley airspace D612C and D612D

2.2. **Amend:**

2.2.1. Oakey CTR (C)

2.2.2. Amberley airspace R620E

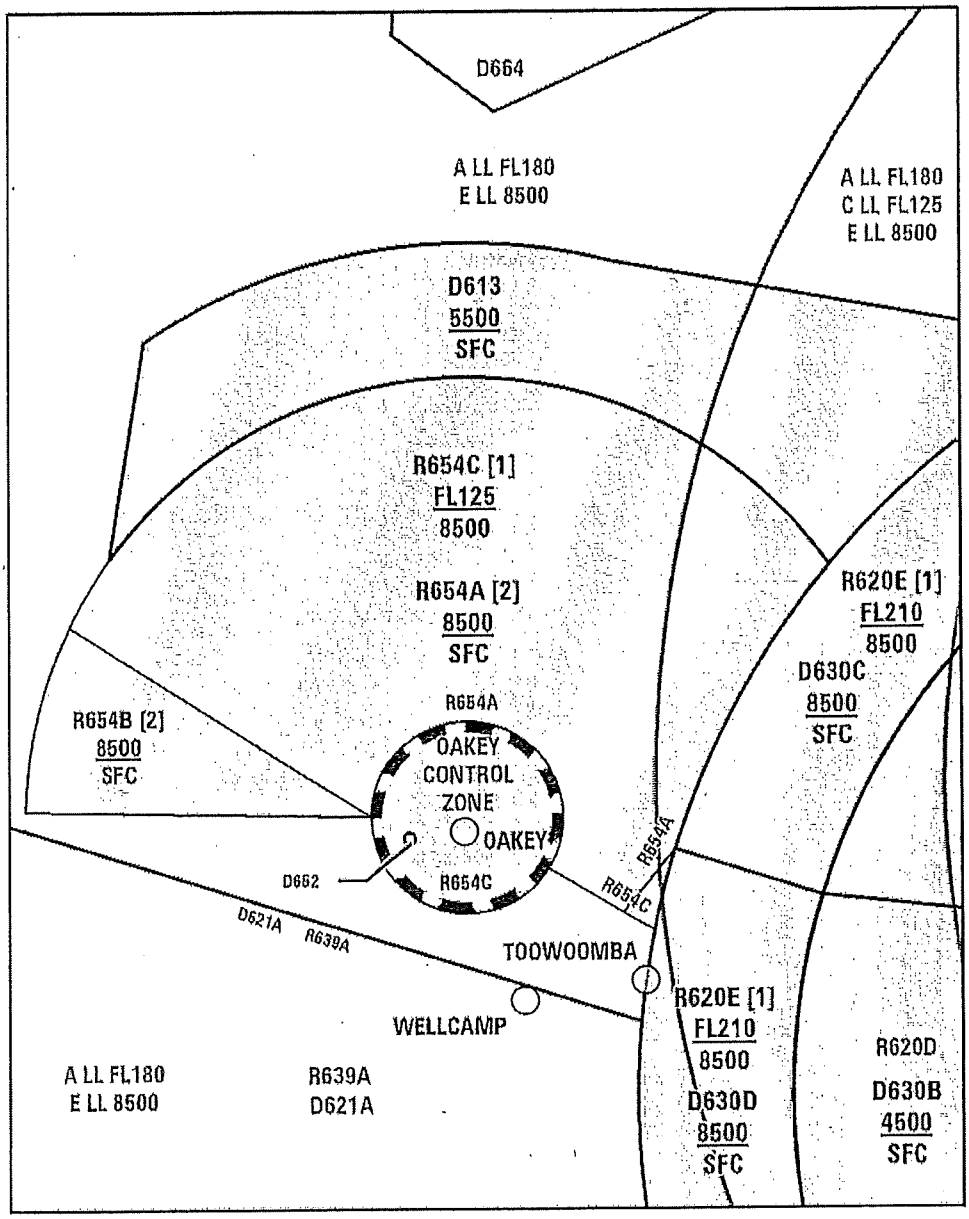
2.3. **Add:**

2.3.1. Oakey airspace R654A, R654B, R654C and D613

2.3.2. Amberley airspace D630A, D630B, D630C and D630D

2.4. The following diagrams and explanations depict the proposed changes to Oakey's and Amberley's Restricted and Danger Areas. A detailed description of the boundaries is contained in the attached draft AIC. Rationale for the changes is detailed in the following paragraphs.

3. OAKEY AIRSPACE



3.1. The Oakey CTR (C) is reduced to 5NM in radius. The height is increased to 8500ft to align with the upper limit of the new R654A/B.

3.2. R654A, R654B and R654C are new Restricted Areas, reducing the overall Oakey airspace to approximately 60% of its current volume.

3.3. The new airspace boundaries are either comprised of current Oakey boundaries, or are contained within current airspace – the Restricted Areas do not overly any surface area that is not already overlayed with the current Oakey airspace.

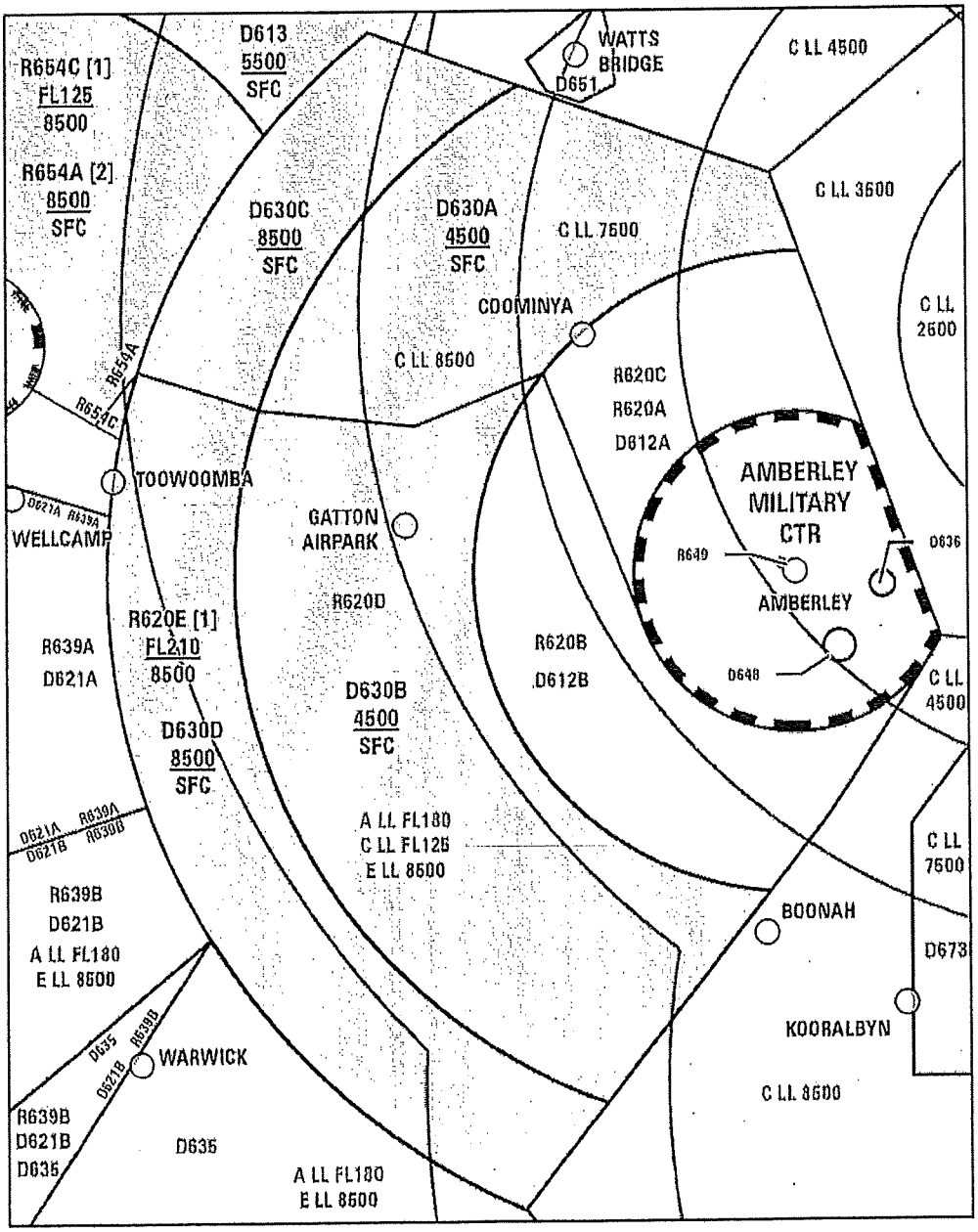
3.4. R654A and R654B are RA2 status.

3.5. R654C is RA1 status.

3.6. No increase to upper limit of R654C, compared to current airspace.

3.7. D613 is a new airspace SFC-5500.

4. AMBERLEY AIRSPACE



4.1. R620E is amended in vertical dimensions only; the lateral boundaries remain unchanged.

4.2. The upper limit of R620E remains unchanged.

4.3. The lower limit of R620E is raised to 8500. This aligns with the upper level of the new Oakey airspace R654A/B and the lower level of Class E airspace to the west of R620E.

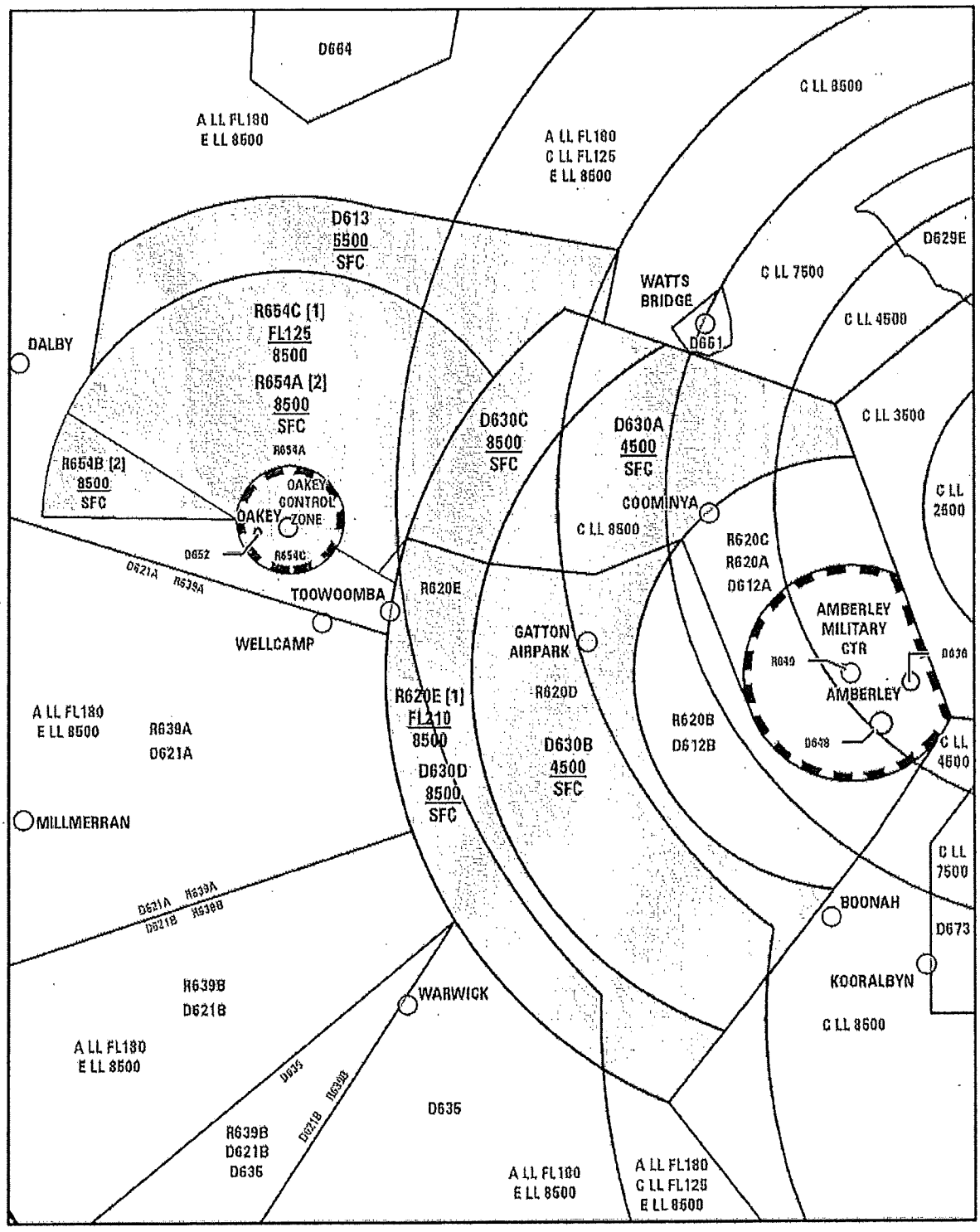
4.4. The current D612C and D612D are subdivided into four new Danger Areas, D630A/B/C/D. The Danger Areas do not overly any surface area that is not already overlayed with the current Amberley airspace

4.5. D630A/B/C/D are encompassed by the same lateral and vertical boundaries as current airspace D612C and D612D.

4.6. D6630A and D630C will encompass Oakey low flying areas.

4.7. The southern boundary of D630A is designed to avoid the Lake Clarendon – Lake Manchester VFR route.

5. COMPLETE AMBERLEY AND OAKEY AIRSPACE OVERVIEW



6. CTR AND RESTRICTED AREA DESIGN RATIONALE

6.1. The stimulus for the proposed amendments to Oakey's restricted airspace was the commencement of construction of the Wellcamp aerodrome. The key considerations when redesigning the restricted airspace of OAK and adjoining AMB restricted areas to allow for Wellcamp traffic, was safety, efficiency and the environment.

6.2. **Safety.** Key safety outcomes of the changes are:

6.2.1. A reduction in the volume of restricted areas and use of specific RA1 routes below A085 ensures the strategic segregation and separation of high risk military activities from non-participants, reducing the need for tactical separation and providing greater safety for all airspace users.

6.2.2. Reduced volume allows non-participant traffic to avoid restricted airspace, which inturn decreases the number of non-participant aircraft in the Oakey Restricted Areas and also reduces the likelihood of VCAs.

6.2.3. Reduced volume of restricted airspace in the Toowoomba basin provides more class G airspace to allow greater freedom of movement around traffic, terrain and weather without the need for clearances into restricted airspace.

6.2.4. Reduction in restricted airspace volume also reduces the number of frequency changes required by aircrew prior to class G and CTAF

6.3. **Efficiency.** Key efficiency outcomes of the changes are:

6.3.1. Reduced volume of restricted airspace allows for predictable flight planning around restricted areas into and out of Wellcamp and Toowoomba aerodromes.

6.3.2. RA1 VFR Route, RA 1 IFR Route and RA 1 airspace provides for manageable access through the restricted airspace and reduction in track miles.

6.3.3. Reduced volume of restricted airspace, results in reduced ATC to ATC co-ordination.

6.3.4. Reduced volume of restricted airspace provides greater access to all users of the Toowoomba basin, irrespective of OAK RA status (eg sports aviation aircraft)

6.3.5. New restricted airspace accurately reflects the current needs of military aviation at OAK.

6.3.6. Reduced volume of restricted airspace removes influence on Wellcamp-Toowoomba procedure design.

6.4. **Environment.** Key environmental outcomes of the changes are:

6.4.1. Reduced military aircraft noise footprint in Toowoomba basin.

6.4.2. RA1 VFR route and RA1 IFR route allow for predictable flight planning, a

reduction in track miles and inturn potential reduced fuel use.

6.4.3. Reduced volume of airspace allows for environmental procedure design for Toowoomba and Wellcamp.

7. RISK ASSESSMENT

7.1. The risk assessment was conducted in accordance with AS/NZS 4360:1999—*Risk Management* and identified an increased risk of collision between military aircraft and civil aircraft. This elevated risk was a result of the increase in the density and complexity of operations within the new volume of restricted airspace.

7.2. To mitigate the risk of collision, R654A and R654B have been designated RA2 to control and manage the access of non-participant aircraft. In making this determination, the following issues were considered:

7.2.1. **Condensed traffic**. Oakey traffic is condensed into a smaller volume of airspace than currently utilised. With less airspace in which to operate there is a decreased ability to provide tactical separation between military and transiting civilian aircraft. Previously, transits had been facilitated through the ability to apply tactical separation in the larger airspace volume.

7.2.2. **Hazardous operations.** Oakey operations are incompatible with civil traffic as per the following:

I. The majority of Oakey traffic is not subject to ATC. A significant volume of Oakey traffic operates autonomously in discrete training areas. Under these conditions it is not possible for ATC to implement tactical separation in the reduced volume of airspace.

II. Oakey traffic consists of high powered, camouflaged aircraft conducting random manoeuvres under a complex operating environment.

III. Oakey aircraft are crewed by student pilots operating high powered, complex aircraft. Inexperienced student pilots, and instructor pilots (including foreign crews – RSAF) under a high workload, will have a reduced capacity to sight and avoid transiting civil traffic.

IV. Oakey aircraft crews are rehearsing procedures that require the aircraft to operate at the limits of their performance, including emergencies and military tactical flying. The crews' abilities to receive external inputs and observe civil aircraft traffic is significantly diminished during such operations.

V. Civil VFR pilots will experience difficulties in sighting the camouflaged traffic and will not be familiar with the types of manoeuvres executed by the military pilots. Military flight path prediction will be difficult to calculate and visualise; avoiding action difficult to determine. ATC will not be able to assist during these operations as the military pilots are not operating under ATC control (operating in designated flying training areas).

VI. Military aircraft are Medium and Heavy wake turbulence category. Civil traffic below 8500ft will be a light wake turbulence category. This further

increases the risk to civil aircraft when unable to sight and/or avoid random manoeuvring military aircraft.

VII. Military aircraft operate under night vision devices with minimal external lighting rendering it difficult for civil pilots to sight and avoid the military aircraft during hours of darkness.

7.2.3. **Radar coverage.** Radar and communication coverage is not reliable at low levels within the Oakey training areas. ATC will be unable to prove separation between military and civil aircraft, and will be unable to pass traffic information and/or control instructions to facilitate separation.

8. ECONOMIC AND MISSION CONSIDERATIONS

8.1. **Defence.** The risk assessment identified a mission risk to Defence, whereby the reduced amount of airspace may create delays to Oakey aircraft resulting from the requirement to achieve tactical separation to facilitate civil transits. This mission delay will have follow on effects associated with cost, airframe hours, airframe servicings, pilot training curriculum and mission objectives. RA2 will mitigate this mission risk, with minimal impact on non-participant aircraft.

8.2. **Civil.** Based upon 2013 civil aircraft transits statistics, the RA2 airspace may affect up to 17 IFR aircraft and 6 VFR aircraft per day of Oakey activation. The actual realised number of affected civil aircraft may be less than that indicated through current statistics, due to:

8.2.1. the reduction in airspace volume when compared to the current restricted areas (captures less transits).

8.2.2. RA2 will only affect aircraft below 8500.

8.2.3. track shortening through the RA2 airspace may be facilitated, depending on Oakey traffic disposition.

8.2.4. Toowoomba arrivals able to track through the CTR to utilise the RWY11RNAV approach.

8.3. To further reduce economic impact on non-participant aircraft, an RA1 IFR route outbound from Toowoomba within R654A (SFC-8500) is provided. The RA1 route:

8.3.1. aligns with the existing Brisbane route structure (post November 2013) to facilitate a continuity of procedures, regardless of Oakey's activation status;

8.3.2. allows IFR traffic to transit Oakey airspace, in a regimented manner as to not conflict with Oakey's random manoeuvring and IFR operations;

8.3.3. allows Toowoomba departures to track north and thus removes potential:

I. opposite direction conflictions with Toowoomba arrivals; and

II. conflictions with Wellcamp traffic.

8.3.4. alleviates conflictions within the Oakey CTR between Toowoomba arrivals and departures.

8.4. A RA1 VFR route is also provided through the Oakey CTR to:

8.4.1. allow VFR aircraft to avoid Wellcamp traffic; and

8.4.2. allow VFR traffic to transit Oakey airspace, in a regimented manner as to not conflict with Oakey circuit and instrument pattern operations.

9. HIGH PRIORITY AIRCRAFT TRANSIT

9.1. In all cases, aircraft involved in the preservation of life (MEDEVAC, HOSP, FFR, SAR, POLAIR RED, FEDPOL RED and aircraft with a declared emergency) will receive priority for transit of the new restricted areas.

10. DANGER AREA DESIGN RATIONALE

10.1. Oakey will have an increased emphasis on the use of the northern and eastern low flying areas in Class G airspace as a result of the reduction in southern Oakey airspace, coupled with the increased traffic associated with Wellcamp. Currently, operations within these low flying areas are notified via a weekly series of complex NOTAMs which contain numerous latitude and longitude coordinates. The following series of NOTAMs illustrate the current methodology for advising civil pilots of Oakey's operations within Class G airspace:

C610/13
MIL HEL CONDUCTING LLO IN AREA BOUNDED BY
S26 56.0 E152 20.0 / S27 29.0 E152 18.0 / S27 29.0 152 05.0 / S27 09.0 E151 57.0 / S27 05.0 E151 44.0 /S26 56.0 E151 48.0
AREA BTN KILCOY KINGAROY GATTON AND OAKEY
AND TRANSIT BTN AREA AND OAKEY. NO COM.
SFC TO 4500FT AMSL
FROM 05 122230 TO 05 170630
1305122230 TO 1305130630
1305132230 TO 1305140630
1305142230 TO 1305150630
1305152230 TO 1305160630
1305162230 TO 1305170630

C612/13
MIL ACFT CONDUCTING LLO IN AREA BOUNDED BY:
S26 59.0 E151 36.9, S26 58.9 E151 32.3, S27 03.4 E151 26.3,
S27 06.7 E151 23.8, S27 11.4 E151 23.2, S27 11.7 E151 34.4,
S26 59.0 E151 36.9 (AREA BTN OAKEY DALBY) AND TRANSIT BTN AREA AND OAKEY. NO COM.
SFC TO 4500FT AMSL
FROM 05 122230 TO 05 170630
1305122230 TO 1305130630
1305132230 TO 1305140630
1305142230 TO 1305150630
1305152230 TO 1305160630
1305162230 TO 1305170630

C611/13
MIL HEL CONDUCTING LLO IN AREA BOUNDED BY
S26 55 E151 35 / S27 07 E151 35 / S27 07 E151 51 / S26 55 E151 51 / S26 55 E151 35 (OAKEY AREA). NOCOM
SFC TO 4500FT AMSL
FROM 05 122230 TO 05 170630
1305122230 TO 1305130630
1305132230 TO 1305140630
1305142230 TO 1305150630
1305152230 TO 1305160630
1305162230 TO 1305170630

C614/13
MIL ACFT USING LGT ENHANCEMENT DEVICES
MAY NOT DISPLAY EXTERNAL LGT. OPR IN AN AREA BOUNDED BY
S26 55 E151 35 / S27 07 E151 35 / S27 07 E151 51 / S26 55 E151 51
/S26 55 E151 35 (OAKEY AREA)
SFC TO 4500FT AMSL
FROM 05 130800 TO 05 161200
1305130800 TO 1305131200
1305140800 TO 1305141200
1305150800 TO 1305151200
1305160800 TO 1305161200

C613/13
MIL ACFT USING LGT ENHANCEMENT DEVICES
MAY NOT DISPLAY EXTERNAL LGT
OPR IN AN AREA BOUNDED BY
S26 56.0 E152 19.0 / S27 29.0 E152 19.0 / S27 29.0 E152 05.0 /
S27 09.0 E151 57.0 / S27 03.0 E151 48.0 / S26 56.0 E151 48.0
AREA BTN KILCOY KINGAROY GATTON AND OAKEY
AND TRANSIT BTN AREA AND OAKEY.
SFC TO 4500FT AMSL
FROM 05 130800 TO 05 161200
1305130800 TO 1305131200
1305140800 TO 1305141200
1305150800 TO 1305151200
1305160800 TO 1305161200

C615/13
MIL ACFT USING LGT ENHANCEMENT DEVICES
MAY NOT DISPLAY EXTERNAL LGT
IN AREA BOUNDED BY:
S26 59.0 E151 36.9, S26 58.9 E151 32.3, S27 03.4
E151 26.3, S27 06.7 E151 23.8, S27 11.4 E151 23.2,
S27 11.7 E151 34.4, S26 59.0 E151 36.9
(AREA BTN OAKEY DALBY)AND TRANSIT BTN AREA AND OAKEY.
SFC TO 4500FT AMSL
FROM 05 130800 TO 05 161200
1305130800 TO 1305131200
1305140800 TO 1305141200
1305150800 TO 1305151200
1305160800 TO 1305161200

10.2. The increased use of these areas necessitates a more practical method for warning civil pilots of the military operations. This proposal is therefore requesting the establishment of a new Danger Area to the north of Oakey's Restricted Areas (D613), and the re-design of Amberley's Danger Areas to allow the use of the northern areas (D630A and D630C) while Amberley is deactive. These Danger Areas will facilitate visibility of boundaries to the pilots via publication on charts and alleviate the current complex NOTAM system. The coordination of NOTAM responsibilities between Amberley and Oakey will be promulgated via the South Queensland MATS SUPP.

11. RA1 ROUTE

11.1. The RA1 route aligns with the Brisbane route structure for Toowoomba departures. The RA1 route therefore allows aircraft to track via common procedures, regardless of Oakey's activation status. An Environmental study on this tracking has already been completed as part of the Brisbane route review. The route facilitates civil transit while avoiding a majority of the Oakey traffic. The current issues experienced by Oakey approach regarding the head-to-head tracking of aircraft arriving into and departing from Toowoomba, and the limited time the controllers have to sort the confliction, are mitigated through the promulgation of the RA1 route. Aircraft

remaining below 8500ft (and remaining within RA2 airspace) may be offered westerly tracking for track shortening, depending on Oakey traffic disposition.

11.2. A detailed description of the RA1 route is contained in the attached AIC.

12. VFR ROUTE

12.1. The VFR Route allows civil VFR traffic to enter the Oakey CTR and avoid Wellcamp traffic via a prominent geographical feature. The VFR route requires the pilots to expect to avoid R654B; however, tracking north/south while remaining south of the Warrego HWY within R654B may be available depending on Oakey traffic disposition.

12.2. A detailed description of the VFR route is contained in the attached AIC.

13. SAFETY ASSESSMENT

13.1. A risk assessment has been conducted on the new airspace and its impact on civil and military operations. The risk assessment formulated a number of the procedures contained within this proposal. A copy of the risk assessment is attached.

14. ENVIRONMENT ASSESSMENT

14.1. An ECC was not conducted for the new Oakey/Amberley Restricted/Danger Areas as the new airspace boundaries either correlate to existing boundaries, or are completely contained within the existing airspace volumes. These new airspaces overlay surface space that is already overlayed by existing Restricted or Danger Areas.

14.2. An EIF has been completed for the new Oakey Danger Area. The Danger Area will encompass Class G airspace, and is designed to warn pilots about military operations, rather than contain operations and place tracking restrictions upon aircraft. The Danger Area encapsulates existing Oakey operations, rather than creating a volume of airspace to support new operations.

15. CONSULTATION

15.1. The re-designed airspace has been coordinated with Defence, CASA OAR, Airservices and Wagner Corp via the Wellcamp Working Group, and via development of this change proposal. This proposal represents an agreed compromise amongst all parties concerned. The airspace was briefed at the South Queensland RAPAC on 18 September 2013.

16. IMPLEMENTATION PLAN

16.1. **Date the change will take effect:** Change is to be permanently included in relevant documents and charts with effect from the 29 May 2014 AIRAC cycle.

16.2. **Pilot education:** Oakey and Amberley ATC will ensure regular users and managers of this airspace have been informed about the changes. Defence will release an AIC to facilitate familiarity prior to the change.

16.3. **ATC training:** Oakey and Amberley ATC will ensure all controllers are familiar with the new airspace. Defence will liaise with Airservices to provide the necessary briefing information to aid in controller training.

ACP No:	

Please answer the following questions			
Question 1 Is this a new ACP or a repeat of a previously submitted ACP?	New		
Repeat Activity: a) The last ACP Number:		Date of the activity:	
b) Attach a post activity report that includes safety, environmental and procedural feedback eg. accident/ incident reports, noise complaints, community comments, aviation stakeholder feedback etc.(as applicable).			
Question 2 Is this a Temporary or Permanent airspace change proposal?	Permanent		
Question 3 Have you consulted with any other area of CASA?	Yes		
Question 4 Has Airservices been consulted on this ACP?	Yes.		
Question 5 Is this a recurring activity?	Yes		
Recurring Activity: a) How often will this activity occur?	Frequency:	Restricted Areas activated as per Oakey ERSA hours of operation.	
Question 6 What consultation has been undertaken with operators and the community? (Please list with whom, when and outcomes)			
o CASA, Airservices, Wagner Corp as per Wellcamp Working Group o Civil aviation industry at the South Queensland RAPAC meeting of 18Sep13. o An education process for local civil operators will be conducted by Oakey ATC.			

ACP No:	

Please answer the following questions	
Question 7 Has a risk assessment been carried out?	Yes. Attached.
Question 8 Has an environmental assessment been carried out?	Yes. Attached.
Question 9 Are there any known Matters of Environmental Significance which may be impacted upon due to this ACP?	No.
Matters of Environmental Significance:	
Submitted by: Name: Peter Hartley	Signature:
Title: Chief Joint Airspace Control Cell	Date:
Please indicate your preferred method of communication:	
	Email **peter.hartley@defence.gov.au**

I am aware of, and accept, the risk that information sent via email may be intercepted and read during transmission, not delivered or modified. (If you do not accept the risk, material will be sent by post.)		
For information on CASA's Privacy Policy, please visit http://www.casa.gov.au/tools/privacy/index.htm		
The Federal Government TimeSaver initiative aims to assess the time taken to complete Government forms. Please indicate the approximate time taken to complete this form.	Hrs	Mins

TELEPHONE:
1300 -306- 630
(local call - Aust. wide, except from mobile phone)
FAX: 02-6268 5111

AUSTRALIA
AERONAUTICAL INFORMATION SERVICE
AIRSERVICES AUSTRALIA
(GPO BOX 367
CANBERRA ACT 2601

AIC
AIRAC
H /13

E-mail: publications.unit@airservicesaustralia.co

DATE : 29 MAY 14

OAKEY AND AMBERLEY RESTRICTED AND DANGER AREA CHANGES WITH EFFECT FROM 29 MAY 14

1. INTRODUCTION

1.1 The commencement of aircraft operations from Brisbane West Wellcamp in the second half 2014 will introduce a new level of complexity to operations in the Darling Downs. Defence has conducted a review of the Amberley and Oakey airspace with the aim reducing this complexity. Defence has concluded that the Amberley and Oakey restricted areas could be rationalised to reduce the risks associated with increased traffic levels from Wellcamp operations while delivering efficiencies for all airspace users in the Toowoomba basin.

1.2 The amendments to Oakey airspace necessitate some restrictions on public access to ensure the safe navigation of civil flights. Oakey's restricted areas and CTR will reduce by approximately 40% in volume, resulting in an increase in military flight density within the new airspace. These military flights range from camouflaged single pilot, single engine light helicopters, to multi engine, multi crew heavy helicopters. They include day and night operations, with and without illumination, with night vision equipment, advanced tactics and weapon employment in simulated battlefield environments. The ability to grant access to non-military users will become problematic without a compromise to the

safety or efficiencies of all users. Therefore, a change to the condition status from RA1 to RA2 for portions of the new Oakey airspace is warranted to provide protection and predictability of access for all users. For airspace users that require access to the RA2 restricted areas, a RA1 VFR lane and IFR route are provided.

1.3 Military helicopter training in Class G airspace adjacent to the Oakey restricted areas will be focused to the north and east of Oakey to assist in reducing the traffic density in the vicinity of Wellcamp. New danger areas have been created in these areas to provide warning to civil operators on these operations.

1.3 These airspace changes will take effect on 29 May 14 to facilitate a period of pilot and ATC familiarisation prior to the commencement of Wellcamp operations.

1.4 A pictorial representation of the new restricted areas is contained in Appendix 1.

2. CANCELLED OAKEY RESTRICTED AREAS AND AMBERLEY DANGER AREAS

2.1 The following Oakey and Amberley Restricted Areas and Danger Areas are cancelled with effect from 29 May 14:

R643A OAKEY
R643B OAKEY
R643C OAKEY
R655A OAKEY
R655B OAKEY
D612C AMBERLEY
D612D AMBERLEY

3. AMENDED OAKEY CONTROL ZONE (C)

3.1 The following amended Oakey CTR will be promulgated with effect from 29 May 14.

YBBB/OAKEY CONTROL ZONE (C)
LATERAL LIMITS: A circle of 5.00NM radius centred on
27 23 59S 151 44 17E (OK/DME)
VERTICAL LIMITS: SFC-8500
HOURS OF ACTIVATION: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN OAKEY

4. NEW OAKEY RESTRICTED AREAS

4.1 The following new Oakey Restricted Areas will be promulgated with effect from 29 May 14.

YBBB/R654A OAKEY
CONDITIONAL STATUS: RA2
MILITARY FLYING
LATERAL LIMITS: 27 23 56S 151 38 40E, 27 13 54S 151 21 04E
then along the minor arc of a circle of 23.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 27 10 54S 152 05 32E
then along the minor arc of a circle of 43.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 25 23S 151 56 37E
27 28 51S 151 53 23E, 27 26 33S 151 49 06E
then along the major arc of a circle of 5.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 27 23 56S 151 38 40E
VERTICAL LIMITS: SFC - 8500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN OAKEY

YBBB/R654B OAKEY
CONDITIONAL STATUS: RA2
MILITARY FLYING
LATERAL LIMITS27 23 56S 151 38 40E, 27 23 35S 151 18 27E
then along the minor arc of a circle of 23.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 27 13 54S 151 21 04E
27 23 56S 151 38 40E
VERTICAL LIMITS: SFC - 8500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN OAKEY

YBBB/R654C OAKEY
CONDITIONAL STATUS: RA1

MILITARY FLYING
LATERAL LIMITS: 27 23 56S 151 38 40E, 27 23 35S 151 18 27E
then along the minor arc of a circle of 23.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 27 10 54S 152 05 32E
then along the minor arc of a circle of 43.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 29 52S 151 55 17E
27 26 33S 151 49 06E,
then along the minor arc of a circle of 5.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 27 23 56S 151 38 40E
VERTICAL LIMITS: 8500 – FL125
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN OAKEY

5. NEW OAKEY DANGER AREA

5.1 The following new Oakey Danger Area will be promulgated with effect from 29 May 14:

YBBB/D613 OAKEY
FLYING TRAINING
LATERAL LIMITS: 27 10 26S 151 23 23E, 26 59 03S 151 25 26E
then along the minor arc of a circle of 30.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 26 54 23S 151 50 20E
26 58 57S 152 18 35E, 27 05 46S 152 17 03E
27 04 27S 152 12 59E,
then along the minor arc of a circle of 43.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 10 54S 152 05 32E
then along the minor arc of a circle of 23.00NM radius centred on
27 23 59S 151 44 17E (OK/DME) to 27 10 26S 151 23 23E
VERTICAL LIMITS: SFC - 5500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN OAKEY

6. AMENDED AMBERLEY RESTRICTED AREA

6.1 The following amended Amberley Restricted Area will be promulgated with effect from 29 May 14. Note: No change to lateral dimensions, amendment to lower vertical limit only.

YBBB/R620E

CONDITIONAL STATUS: RA1
MILITARY FLYING
LATERAL LIMITS: 27 04 27S 152 12 59E, 27 07 49S 152 23 29E
then along the minor arc of a circle of 35.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 28 11 29S 152 29 24E
28 18 05S 152 23 37E,
then along the minor arc of a circle of 43.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 04 27S 152 12 59E
NOTES: Area may be subject to short notice recall.
VERTICAL LIMITS: 8500 – FL210
CONTROLLING AUTHORITY: FLTCDR 452SQN AMBERLEY

7. NEW AMBERLEY DANGER AREAS

7.1 New Amberley Danger Areas will be utilised by Oakey based aircraft for military flying training. These areas may be activated independent to the Amberley Restricted Areas. The following new Amberley Danger Areas will be promulgated with effect from 29 May 14:

YBBB/D630A AMBERLEY
FLYING TRAINING
LATERAL LIMITS27 29 10S 152 16 04E, 27 28 05S 152 05 05E
then along the minor arc of a circle of 35.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 07 49S 152 23 29E
27 13 25S 152 41 03E, 27 18 23S 152 43 04E
then along the minor arc of a circle of 20.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 25 55S 152 25 08E
27 29 10S 152 16 04E
VERTICAL LIMITS: SFC - 4500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN AMBERLEY

YBBB/D630B AMBERLEY
FLYING TRAINING
LATERAL LIMITS: 27 28 05S 152 05 05E, 27 29 10S 152 16 04E
27 25 55S 152 25 08E,
then along the minor arc of a circle of 20.00NM radius centred on
27 38 26S 152 42 43E (YAMB/AD) to 27 58 25S 152 40 49E
28 11 29S 152 29 24E,

then along the minor arc of a circle of 35.00NM radius centred on 27 38 26S 152 42 43E (YAMB/AD) to 27 28 05S 152 05 05E
VERTICAL LIMITS: SFC - 4500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN AMBERLEY

YBBB/D630C AMBERLEY
FLYING TRAINING
LATERAL LIMITS: 27 28 05S 152 05 05E, 27 25 23S 151 56 37E
then along the minor arc of a circle of 43.00NM radius centred on 27 38 26S 152 42 43E (YAMB/AD) to 27 04 27S 152 12 59E
27 07 49S 152 23 29E,
then along the minor arc of a circle of 35.00NM radius centred on 27 38 26S 152 42 43E (YAMB/AD) to 27 28 05S 152 05 05E
VERTICAL LIMITS: SFC – 8500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN AMBERLEY

YBBB/D630D AMBERLEY
FLYING TRAINING
LATERAL LIMITS: 27 25 23S 151 56 37E, 27 28 05S 152 05 05E
then along the minor arc of a circle of 35.00NM radius centred on 27 38 26S 152 42 43E (YAMB/AD) to 28 11 29S 152 29 24E
28 18 05S 152 23 37E,
then along the minor arc of a circle of 43.00NM radius centred on 27 38 26S 152 42 43E (YAMB/AD) to 27 25 23S 151 56 37E
VERTICAL LIMITS: SFC – 8500
HOURS OF ACTIVITY: NOTAM
CONTROLLING AUTHORITY: FLTCDR 452SQN AMBERLEY

8. FLIGHT PLANNING AND ROUTE LIMITATIONS

8.1 Aircraft requiring transit through the Oakey RA2 airspace for destinations west of Oakey shall flight plan via the following RA1 ATS Air Routes:

Q303
YTWB - MESED - CCA

Q303/Q237
YTWB - MESED – Q237 – MORRO

8.3 Aircraft tracking for destinations east of Oakey shall flight plan to avoid the Oakey RA2 airspace. The following ATS Air Route is available for flight planning:

W602
MATVI – LUKEY – YTWB

Note. MATVI/WPT (S27 15 00 E151 12 06) will be published with effect from 29 May 14.

8.3 Pilots tracking via W602 shall check NOTAMs for status of R639 Amberley. Clearance through R639 will not be available, unless in an emergency.

8.4 Aircraft with a declared emergency or involved in the preservation of life (e.g. MEDEVAC, FFR, SAR, POLAIR RED, FEDPOL RED) will be afforded priority transit of Oakey RA2 airspace via a route as required.

8.5 YTWB arrivals via the YTWB RNAV-Z (GNSS) RWY 11 approach are available via TWZWE and TWZWD. Airways clearance for this approach is subject to sequencing and separation with traffic in the Oakey CTR. Aircraft with a declared emergency or involved in the preservation of life (e.g. MEDEVAC, FFR, SAR, POLAIR RED, FEDPOL RED) will be afforded priority for the approach.

9. VFR TRANSIT ROUTE

9.1 The WARREGO VFR route is established for VFR transit of the OAK CTR. Tracking shall be south of the Warrego HWY not above 2,500FT AMSL. Normal Class C airways clearance procedures apply. Aircraft to/from locations west of Oakey shall expect tracking south of the Jondaryan Saint Ruth Road between the Warrego HWY and Tipton to remain outside R654B.

9.2 Direct tracking through R654B between Oakey-Dalby while remaining south of the Warrego HWY may be available pending Oakey traffic disposition. For flight planning purposes pilots shall assume a requirement to avoid R654B.

10. CANCELLATION

10.1 This AIC self–cancels at 1405282359.

11. DISTRIBUTION

11.1 Via Airservices website only.

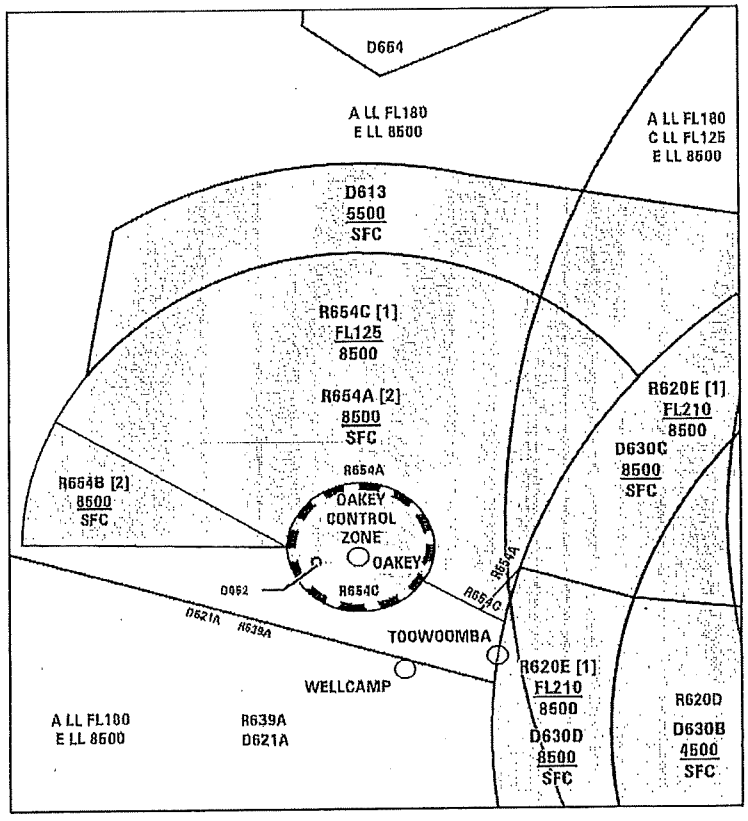
Appendix:

1. New Oakey Restricted Areas, Danger Areas and Control Zone. R654A, R654B, R654C, D613 and CTR
2. Amended Amberley Restricted Area R620E and new Amberley Danger Areas D630A, D630B, D6630Cand D6630E
3. New Amberley and Oakey Airspace – complete diagram.
4. New Oakey Flight Planning Route
5. New Oakey VFR Route

(SUP H /13) * of

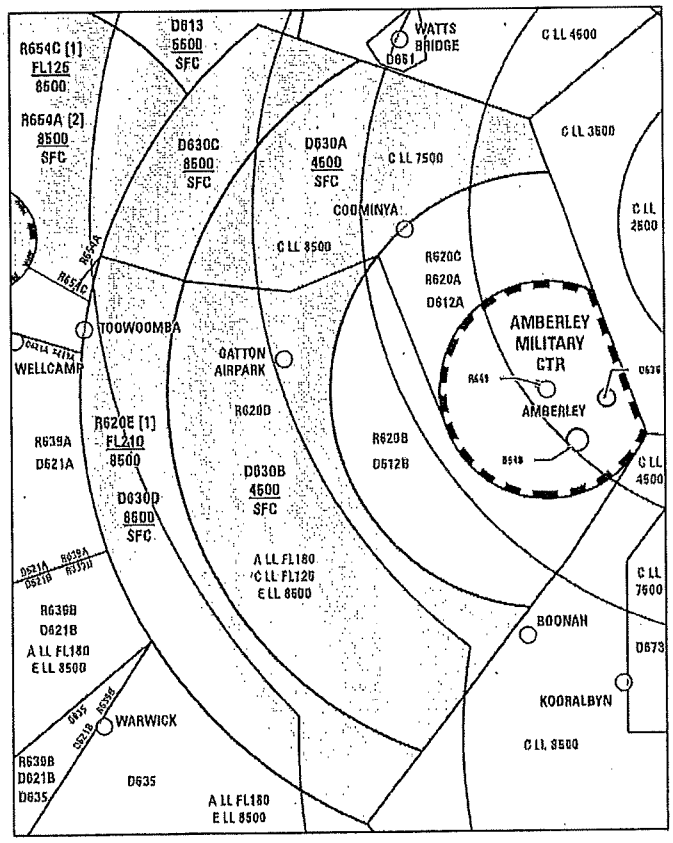
APPENDIX 1 TO
AIC HXX/13

NEW OAKEY RESTRICTED AREAS, DANGER AREAS AND CONTROL ZONE R654A, R654B, R654C, D613 AND CTR



APPENDIX 2 TO
AIC HXX/13

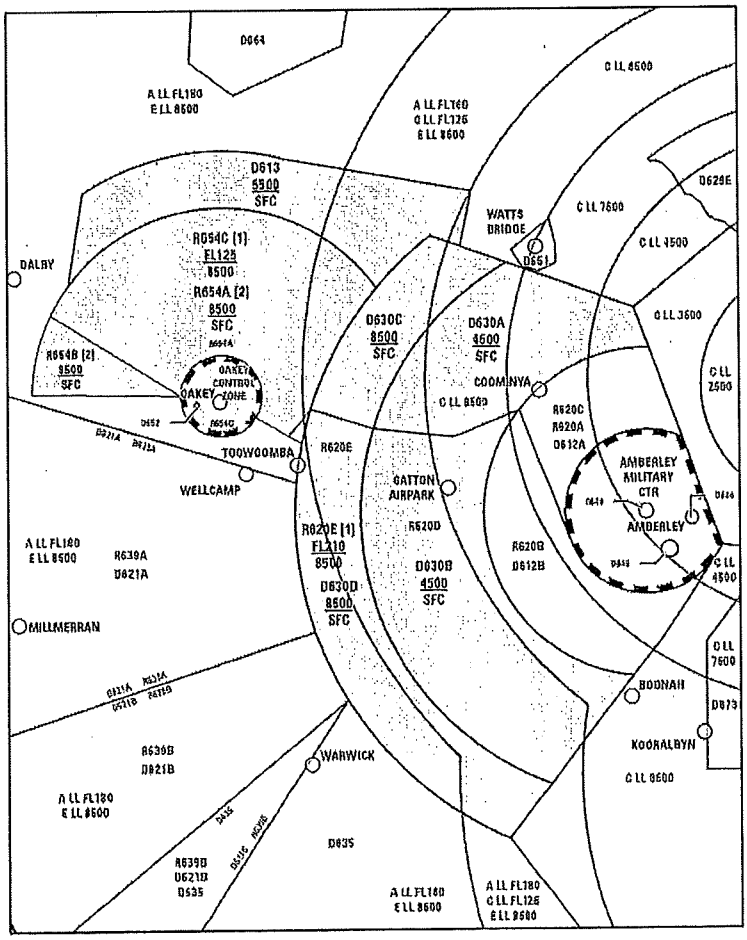
AMENDED AMBERLEY RESTRICTED AREA R620E AND NEW AMBERLEY DANGER AREAS D630A, D630B, D630C AND D630D



(SUP H /13) * of

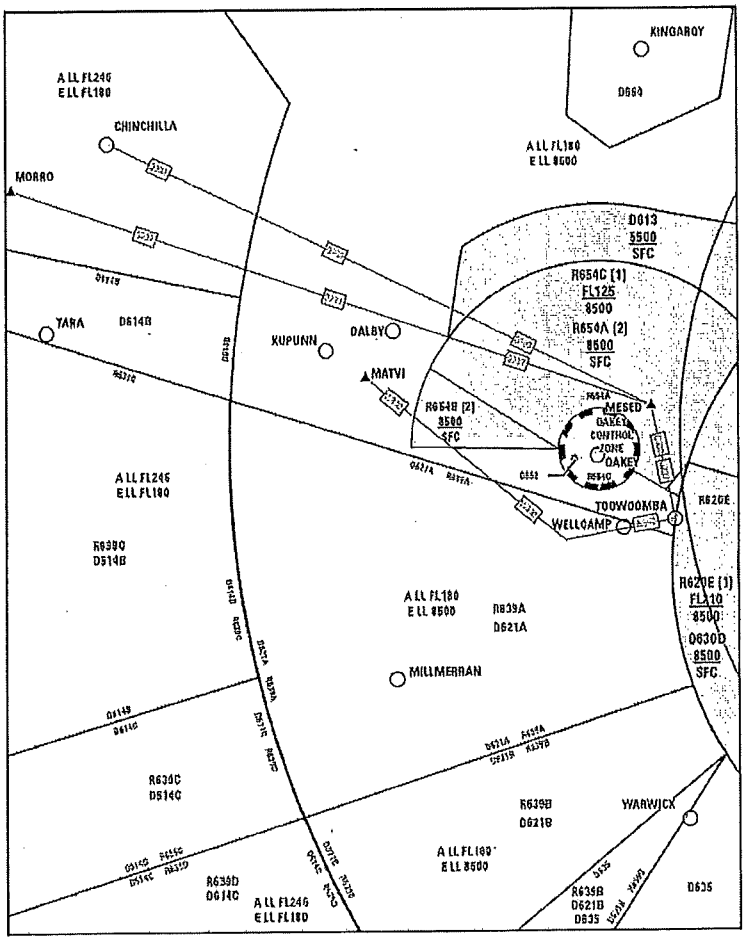
APPENDIX 3 TO AIC HXX/13

NEW AMBERLEY AND OAKEY AIRSPACE



APPENDIX 4 TO
AIC HXX/13

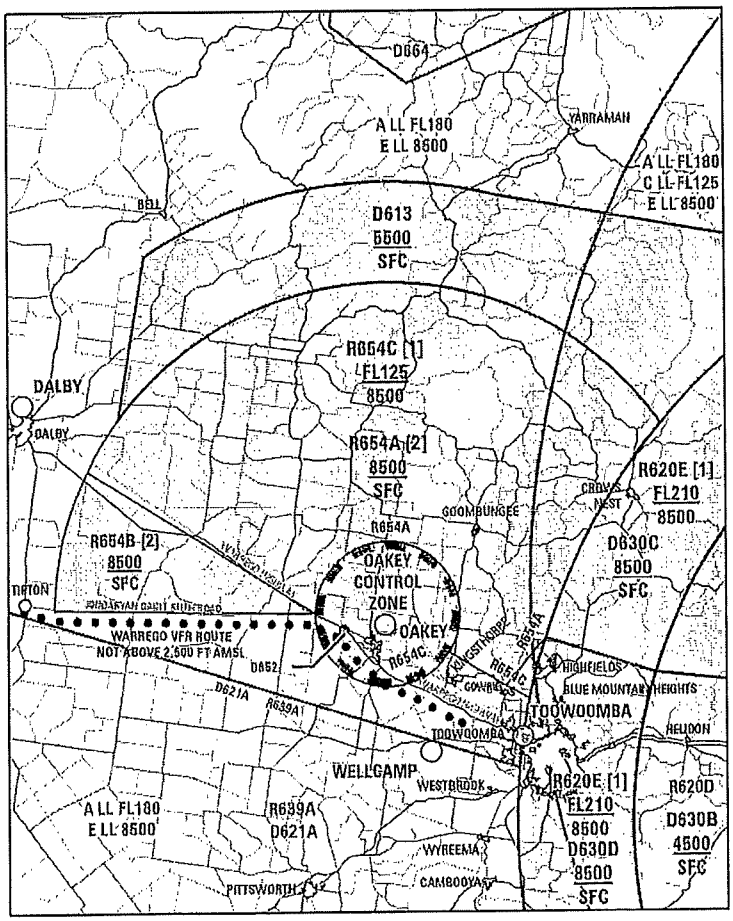
OAKEY FLIGHT PLANNING ROUTE



(SUP H /13) * of

APPENDIX 5 TO AIC HXX/13

OAKEY CTR VFR ROUTE



Australian Government
Civil Aviation Safety Authority

Office of Airspace Regulation
Environmental Implications

Airspace Change Proposal Details

ACP No:	Title of Proposed Change
	Oakey Restricted Area Re-Design in Support of Wellcamp

The Office of Airspace Regulation (OAR) is required to assess whether any proposal for airspace change is likely to affect the environment to a significant extent. This requirement is defined in s160 of the *Environment Protection and Biodiversity Conservation Act 1999*. Accordingly, responses to the questions below are required.

Please note that positive changes (eg, a reduction in noise exposure or fuel burn) should be reported, as well as negative changes.

For further information on the OAR's environmental screening process and for information to assist you to complete this Form, please refer to the OAR website: *www.casa.gov.au/oar* and review the *EPBC Act Policy Statement 1.2 – Significant Impact Guidelines*.

Aircraft Noise

Is the proposed change likely to change the level of aircraft noise exposure at ground level, or the pattern of noise exposure, particularly over built-up areas?	☐ Yes ☒ No

If yes, will this change be caused by a change in aircraft type, the number of aircraft, aircraft configuration, operating heights, flight tracks or other factors? (*State which.*)

Airspace already heavily used by ADF rotary wing aircraft.

Describe the nature of the change(s). Quantify the change(s) and provide maps where relevant.

As per Airspace Change Proposal.

Vibration

Is the proposed change likely to vary the level or pattern of aircraft-induced vibration at a sensitive receiver site or over a residential area?	☐ Yes ☒ No

If yes, describe the nature of the change(s). Quantify the change(s) and provide maps where relevant.

Airspace already heavily used by ADF rotary wing aircraft.

ACP Tracking Reference No:

Privacy

Will the proposed change allow low-level operations in the vicinity of residential facilities, recreational areas or other sensitive sites that might be perceived as invading the privacy of people in those areas?	☐ Yes ☒ No

If yes, describe the nature of the change(s). Quantify the change(s) and provide maps where relevant.

Airspace already heavily used by ADF rotary wing aircraft.

Interactions with Birds and Animals

Is the proposed change likely to result in interactions (including exposure to noise and vibration) with bird or animal species in their natural states?	☐ Yes ☒ No

If yes, describe the nature of the interactions (i.e. low flying operations).

Airspace already heavily used by ADF rotary wing aircraft.

Emissions from Low Level Operations	
Is the change likely to cause a change to fuel burn or the nature, volume or composition of combustion products, or cause changes in the atmosphere?	☐ Yes ☒ No
If yes, describe the change(s) in emissions, identify the combustion products involved and describe possible atmospheric changes.	
Airspace already heavily used by ADF rotary wing aircraft.	

Emissions from High Level Operations	
Is the change likely to cause a change to fuel burn or the nature, volume or composition of combustion products, or cause changes in the atmosphere?	☐ Yes ☒ No
If yes, describe the change(s) in emissions, identify the combustion products involved and describe possible atmospheric changes.	

ACP Tracking Reference No:	

Matters of National Environmental Significance
To the best of your knowledge, are there any matters of National Environmental Significance that could be affected by this airspace change? Matters of National Environmental Significance include, but are not limited to: threatened and migratory species, Ramsar wetlands, the marine environment, World Heritage properties, National Heritage places and nuclear actions. If unsure about whether matters of National Environmental Significance are located within the area affected by the change, refer to the Protected Matters search tool on the Department of the Environment, Water, Heritage and the Arts website: *http://www.environment.gov.au/erin/ert/epbc/index.html*. (*State which matters are affected and how they are affected.*)

Environmental Implications Form Completed by:	
Name: WGCDR P. HARTLEY	Signature: .....
Title: Chief Joint Airspace Control Cell	Date:

peter.hartley@defence.gov.au

Postal Address: Headquarters Joint Operations Command
Air and Space Operations Centre
Joint Airspace Control Cell State: ACT Postcode: 2610

From: De Bray, Serghei
Sent: Thursday, 7 November 2013 1:22 PM
To: Darlington, Bruce
Cc: Webb, Simon; HENRY, ANNA; Lawler, Anthony; West, Matthew; Alberts, Stephen; Hodder, John; Allman, Cheryl; HOLBERTON, MARTIN
Subject: Oakey VFR route - D652 heat plume [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi Bruce

I reckon also adjust the route away from D652 attached.

YBBB/D652 OAKEY
HEAT PLUME AVOIDANCE
LATERAL LIMITS: A circle of 0.30NM radius centred on
27 25 04S 151 40 53E
VERTICAL LIMITS: SFC - 2800
HOURS OF ACTIVITY: H24
CONTACT: Power Holding

cheers
Serghei

From: Darlington, Bruce
Sent: Thursday, 7 November 2013 11:17 AM
To: De Bray, Serghei
Cc: Webb, Simon; HENRY, ANNA; Lawler, Anthony; West, Matthew; Alberts, Stephen; Hodder, John; Allman, Cheryl; HOLBERTON, MARTIN
Subject: RE: Oakey VFR Lane [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi Serghei

Looking at the way it is meant to work, I believe the intention is to follow the highway which is at about 1600' near Mt Gowrie. This would be ok and not much issue with the houses.

Looking at the VFR route I actually have a question about when you finish it. As Toowoomba is at over 2000' and the approach will be over houses, is 2500' the best height? Would 3500' be available and a better option as that would be the Eastbound VFR level?

I will let Matt and Simon discuss further.

Cheers

Bruce

From: De Bray, Serghei
Sent: Thursday, 7 November 2013 11:02 AM
To: Darlington, Bruce
Cc: Webb, Simon; HENRY, ANNA; Lawler, Anthony; West, Matthew; Alberts, Stephen; Hodder, John; Allman, Cheryl; HOLBERTON, MARTIN
Subject: Oakey VFR Lane [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hi Bruce

Re the Oakey VFR route (diagram below + attachments), there's two issues at Gowrie Mountain:

1. Ground level reaches 2215 FT AMSL but transit should be below 2500 FT AMSL ?
2. There's approx. 50 residential dwellings that would be exposed to aircraft noise – presumably new VFR transit noise ?

Should the route be adjusted ?

Hi Matt (West)

Apologies re the email below relating to the screener yesterday - I incorrectly Cc'd West Mailbox instead of you !

Cheers

Serghei de Bray

Office of Airspace Regulation
Airspace & Aerodrome Regulation
Civil Aviation Safety Authority
GPO Box 2005
CANBERRA ACT 2601

Phone (02) 6217 1409
s 47F [redacted]

From: De Bray, Serghei
Sent: Monday, 4 November 2013 1:57 PM
To: Darlington, Bruce
Cc: Webb, Simon; HENRY, ANNA; Lawler, Anthony; West Mailbox; Alberts, Stephen
Subject: TRIM: Oakey and Amberley AChP [SEC=UNCLASSIFIED]

UNCLASSIFIED

Hello Bruce

May I offer a couple of environmental queries/comments in relation to the ACP.

I understand the attached OAR Environmental Implications Form is for D616 only – is that correct?

Please can the current relevant RAAF ECCs (environmental clearance certificates) as noted in the ACP covering the Oakey and Amberley & associated airspace be attached for OAR records ?

It is recommended these ECCs be reviewed and amended where appropriate and reference the attached RAAF environmental management plan in the lead up to the implementation of the ACP to reflect the new airspace arrangements.

In relation to the proposed OAKEY VFR Route in the diagram below, what would be the aircraft altitude range ? Would you have the coordinates of this route so I can cross check the location of residential areas ?

Happy to discuss if need be.

Regards

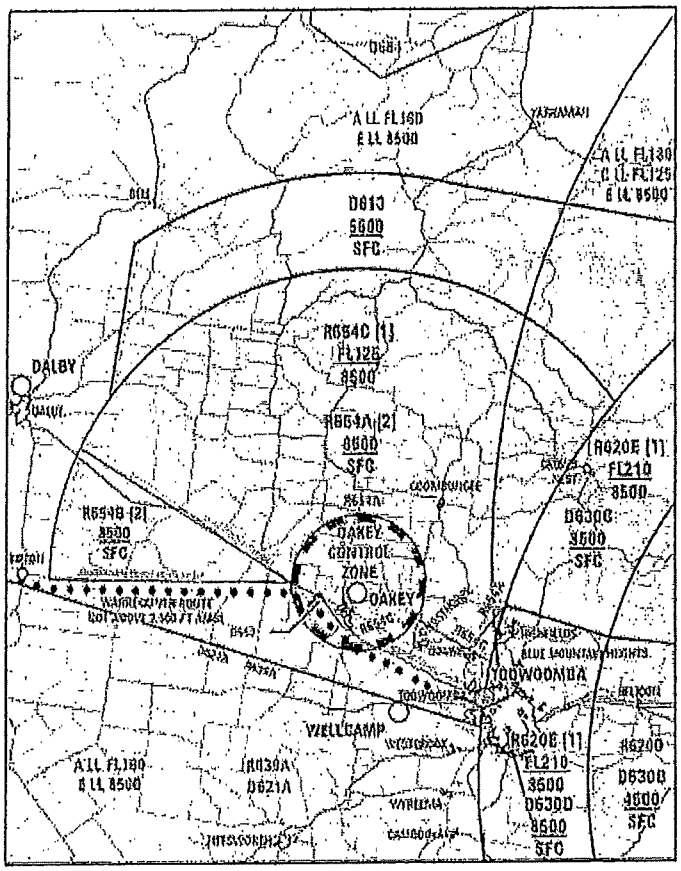
Serghei de Bray

Office of Airspace Regulation
Airspace & Aerodrome Regulation
Civil Aviation Safety Authority
GPO Box 2005
CANBERRA ACT 2601

Phone (02) 6217 1409
s 47F [redacted]

Trimmed OP13/1672

OAKEY CTR VFR ROUTE


D613
5600
SFC
R664C (1)
FL125
8500
DALBY
R664A (2)
8500
SFC
R664B (2)
8500
SFC
OAKEY
CONTROL
ZONE
OAKEY
R620E (1)
FL210
8500
D630C
8500
SFC
TOOWOONBA
WELLCAMP
R620E (1)
FL210
8500
D630D
8500
SFC
R6200
D630B
8500
SFC
R630A
D621A

Smith-Roberts, Jennifer

From: Allman, Cheryl
Sent: Wednesday, 11 December 2013 6:19 PM
To: Patrick.Cooper@defence.gov.au; Robyn.Leece@AirservicesAustralia.com; steve.tattam@AirservicesAustralia.com; mark.young1@defence.gov.au; david.burke@defence.gov.au; Charles.Hausknecht@infrastructure.gov.au; peter.hartley@defence.gov.au; jim.wolfe@infrastructure.gov.au; steven.stockley@defence.gov.au; David.Guerin@AirservicesAustralia.com; peter.hartley@defence.gov.au
Cc: HOLBERTON, MARTIN; PATTERSON, CRAIG; ALECK, JONATHAN; McCormick, John; FARQUHARSON, TERENCE; Mavin, Sandra; Allen, Katherine; Stein, Matthew; SCHONING, WALTER; Alberts, Stephen; Lamy, Dennis; Dickie, Geoffrey; Hurley, Timothy; Thompson, Keith
Subject: Preliminary Airspace Assessment of Brisbane West Wellcamp - DRAFT FOR WORKING GROUP MEMBERS ONLY [SEC=UNCLASSIFIED]
Attachments: Preliminary Airspace Assessment - Brisbane West Wellcamp - December 2013 - v0.1 DRAFT FOR WORKING GROUP MEMBERS.pdf

Importance: High

UNCLASSIFIED

All

Please find attached a draft copy of the Preliminary Airspace Assessment of Brisbane West Wellcamp for the working group members review and comment. It would be appreciated if all comments could be provided by 24 January 2014.

As this is only a draft document, it would be appreciated if the document remained with working group members' organisations during this review period.

Once comments are received and considered by CASA, the next step will be publishing a further draft for public comment. This is expected to occur in March 2014.

If there are any questions about the document, please contact either myself or Martin Holberton (martin.holberton@casa.gov.au) who will be taking over the Chair of the working group in 2014.

Kind regards

Cheryl Allman
Acting Executive Manager
Airspace and Aerodrome Regulation
Civil Aviation Safety Authority

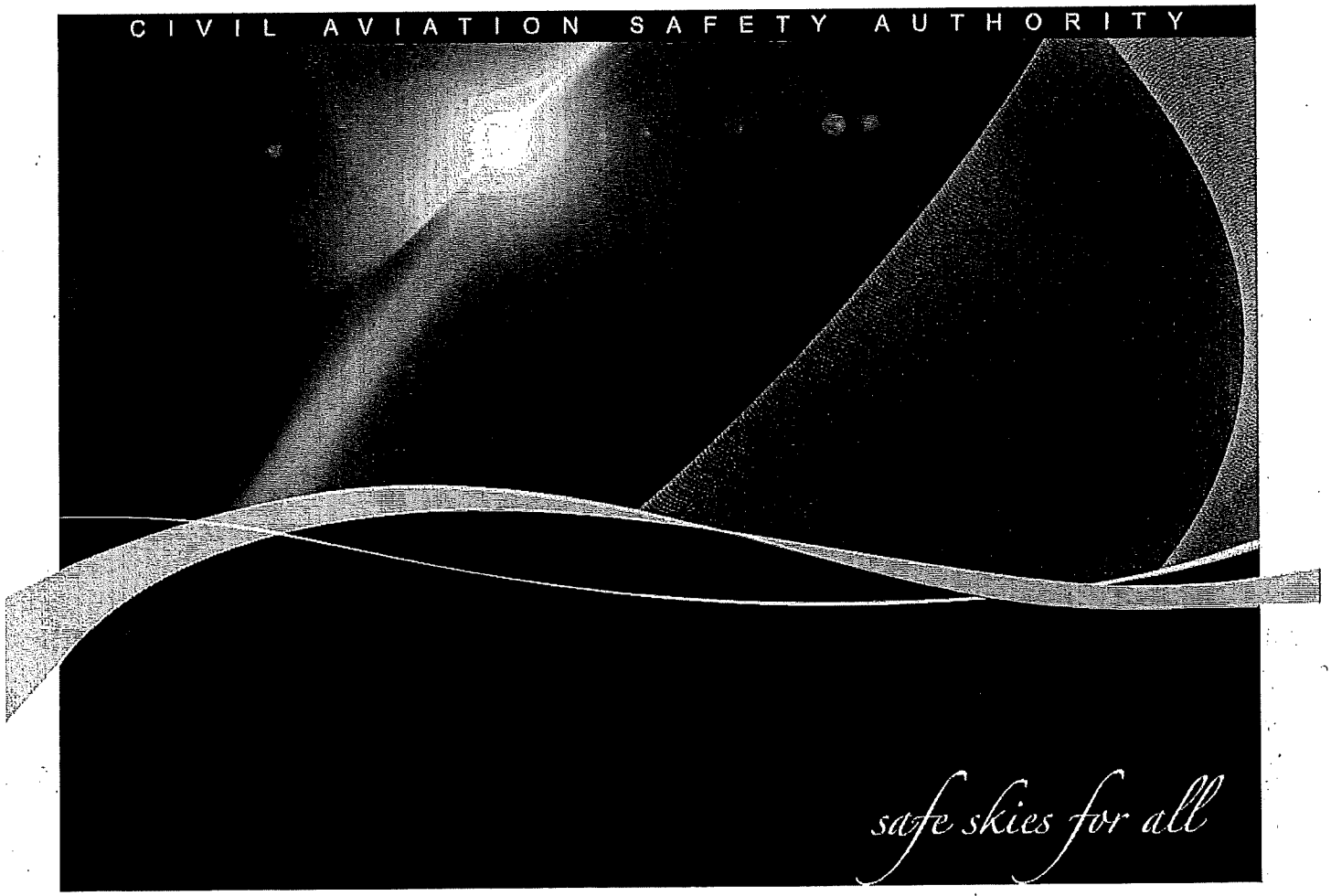
Telephone: 02 6217 1414
s 47F [redacted]
Fax: 02 6217 1747

Australian Government
Civil Aviation Safety Authority

www.casa.gov.au

Preliminary Airspace Assessment of Brisbane West Wellcamp

December 2013



DOCUMENT SPONSOR: **OFFICE OF AIRSPACE REGULATION**

TRIM REFERENCE: **D13/461180**

FILE REF: **EF12/10977**

Document distribution:

This preliminary airspace assessment is for the dissemination to the Wellcamp Aerodrome Working Group only and is not to be distributed further without prior permission.

Document control:

Version	Issue/Nature of Revision	Date
0.1	Draft	11 December 2013

1. EXECUTIVE SUMMARY

This preliminary airspace assessment was commissioned in response to the Government's expectation under the Australian Airspace Policy Statement[1] (AAPS[2]) that the Civil Aviation Safety Authority (CASA) undertakes regular and ongoing studies to meet its obligations under Section 13 of the Airspace Act 2007 (Act). The Office of Airspace Regulation (OAR) undertakes a risk based approach in determining which locations are studied. However, this preliminary airspace assessment has been undertaken to analyse the anticipated risks the proposed operations at Brisbane West Wellcamp aerodrome (hereafter referred to as Wellcamp) may pose and to suggest suitable mitigating actions in response.

The purpose of the preliminary airspace assessment is to determine the appropriate airspace arrangements and any other mitigation needed to accommodate the commencement of operations at Wellcamp into the current environment. The Government considers the safety of Passenger Transport[3] (PT) services as the first priority in airspace administration and CASA should respond quickly to emerging changes in risk levels for passenger transport operations. Airspace administration should also seek to deliver good safety outcomes to all aviation participants.

On the 25 October 2012, the Toowoomba Regional Council sought comment from CASA and other agencies regarding the Development Application (MCUC/2012/3399) for a proposed public aerodrome at Wellcamp. As a result of the approval of the development application by the Toowoomba Regional Council, the OAR commenced this preliminary airspace assessment to consider the anticipated impacts of new aviation activity in and around the Toowoomba region.

The OAR conducts aeronautical studies of aerodromes and airspace throughout Australia. This preliminary airspace assessment is different from previous aeronautical studies as it is being conducted on an aerodrome which is in the process of being constructed. Due to limited movement data being available, assumptions have been made in relation to future aircraft movements, passenger numbers and changes to aircraft operations. The construction of Wellcamp has introduced multiple variables and potential unknown issues into the region. The findings and recommendations within this report are based on the available information known to CASA at the time. Due to the absence of definitive data there is a risk that some issues may not have been identified and considered.

The OAR will continue to monitor, asses and review aircraft and passenger movements within the Wellcamp and Toowoomba region and respond appropriately to changes in risk levels.

1.1 Operational Context

Wellcamp is located approximately 9 nautical miles (NM) south of the Oakey Army Aviation Training Centre (Oakey) and 6 NM west of the Toowoomba aerodrome (Toowoomba). The airspace considered in this assessment extends from the surface to 8,500 feet (ft) Above Mean Sea Level (AMSL) within 50 NM of Wellcamp. The airspace immediately surrounding Wellcamp is uncontrolled (Class G) airspace with adjacent Restricted Areas (RAs) and Danger Areas (DAs).

[1] http://www.comlaw.gov.au/Details/F2012L01389

[2] A full list of abbreviations and acronyms used in this report can be found in Annex A.

[3] For the purposes of this assessment, PT services can be defined as activities involving Regular Public Transport (RPT) and all non-freight-only Charter operations.

The airspace is used by PT operators, the Department of Defence (Defence), Emergency Services, flying training organisations, charter companies, private pilots, helicopter operators, skydiving operators, gliding clubs and recreational (ultralight and microlight) pilots. In addition to the diverse traffic mix in the region, airspace users have operational constraints due to terrain and weather.

Wellcamp is currently under construction and is expected to be completed in mid-2014. Once complete, the aerodrome operator will be seeking aerodrome certification in accordance with Civil Aviation Safety Regulation (CASR) Part 139.

It is anticipated that Wellcamp will support domestic passenger transport services and potentially some international freight operations at some point in the future. Once complete the aerodrome will have one Code 4 runway, designated 12/30, 2,870 meters (m) long and 45m wide. The runway will be able to accommodate aircraft up to B747 size. Plans are in place for the development of aerodrome infrastructure, which includes a passenger terminal, conference facilities, hotel accommodation, and a freight terminal.

The forecasted movement data used within this preliminary airspace assessment has been sourced from the Wellcamp Airport Master Plan 2012-2031 and market survey information provided by the aerodrome operator. Regular passenger transport operations cannot commence until aerodrome certification is completed. This is anticipated to occur in late 2014.

Instrument flight procedures (IFPs) are being developed for Wellcamp. The certification and flight-validation of these procedures is planned for mid-2014. The IFPs will not be published and used until the aerodrome certification process has been completed and an environmental assessment and other requirements have been met in accordance with the requirements of CASR Part 173.

A number of RAs surround Oakey to protect airspace users from the hazardous nature of military operations. The RAs associated with Oakey are used to facilitate rotary wing training for Australian and the Republic of Singapore Air Force military aircrew. Within the RAs a military Air Traffic Control (ATC) Tower and Approach radar service operates on weekdays or by Notice to Airmen (NOTAM). Outside hours of activation the RAs become uncontrolled (Class G) airspace.

A recent review by Defence of the airspace has concluded that the Oakey RAs could be rationalised to better reflect the airspace that is needed for the safe conduct of military aircrew training thereby freeing up portions of RA that were not used regularly. This airspace change will deliver efficiencies for all airspace users in the Toowoomba basin. It is also anticipated that this will assist in reducing some of the risk associated with the increased traffic levels from Wellcamp operations. The changes to the Oakey and Amberley RAs and DAs will come into effect from 29 May 2014. This report will only reference the RAs and DAs which will be in effect after 29 May 2014.

In addition to military and civil traffic, over 41 unregistered aircraft landing areas (ALAs) were identified in the assessment area. Operating from the ALAs are a large number of recreational, sports aviation and gliding aircraft that operate in the Class G airspace around Wellcamp, Oakey and Toowoomba. An unconfirmed number of these aircraft are equipped with transponders with the exception of gliders. As a number of these ALAs are in close proximity to Wellcamp, aircraft operating at these locations may pose a hazard to Wellcamp operations.

Airservices Australia (Airservices) and Defence provide the Air Traffic Services (ATS) within the Wellcamp assessment area. Electronic surveillance for the region is achieved using radar services located at;

- Mt Somerville radar, located approximately 5 NM south-west of the Gold Coast;
- Mt Hardgrave radar, approximately 20 NM south-east of the Brisbane;
- Brisbane radar, located at Brisbane Airport; and
- Oakey radar.

1.2 Process

In conducting this preliminary airspace assessment, the OAR held industry forums and met with user group representatives such as Regular Public Transport (RPT) operators, charter operators, flying training schools, Department of Defence (Defence), emergency services operators, sport and recreational aviation groups to discuss airspace issues. Incident and accident data was sourced, reviewed and analysed from the Australian Transport Safety Bureau's (ATSB) Aviation Safety Incident Reports (ASIRs).

Aircraft movement data for Toowoomba was sourced from the Bureau of Infrastructure, Transport and Regional Economics (BITRE) and Airservices. Due to the absence of actual movement data for Wellcamp, the assessment has relied upon the predicted aircraft and passenger movement data, obtained from a market survey. The market survey data only covered limited PT routes and did not take into account possible fly-in fly-out (FIFO) passenger transport operations to support the mining and resources sector in the Surat and Bowen Basins. It is not envisaged that FIFO operations will make a significant impact on Wellcamp operations within the short term (2014-2016).

Airservices provided a sample of radar surveillance data which was analysed to detect the typical traffic patterns throughout the Wellcamp, Oakey and Toowoomba airspace. The analysis of the data identified the traffic patterns that may conflict with Wellcamp operations.

The OAR conducted a Hazard Identification and Assessment (HAZID/AP) of the assessment airspace. The HAZID/AP utilised ASIR incidents and all movement data available to CASA. The process included a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, leading to a full HAZID/AP. The results can be found in Appendix 1.

In late 2012, the OAR formed the Wellcamp Aerodrome Working Group (WAWG) to bring together key stakeholders from CASA, Defence, Airservices and the Department of Infrastructure and Regional Development (DIRD) to examine and discuss aviation safety and operational issues and determine actions surrounding the proposed Wellcamp development. The purpose of the WAWG is to provide a mechanism for the collaboration of effort to ensure issues are considered holistically and appropriate planning is undertaken in a timely and effective manner.

Air routes into Wellcamp and Toowoomba are being designed. Due to lack of information on the air routes, IFPs and actual traffic movement data, there was no fast time simulation done for this preliminary airspace assessment. However, once further information is available, this work will be completed.

1.3 Issues and Findings

Wellcamp and Toowoomba are surrounded by Class G airspace, within which there are no separation services but limited ATS are provided depending upon the flight category being operated.

Based on the current local and the predicted Wellcamp activity during weekdays and weekends, the OAR identified a series of potential air traffic segregation challenges:

1. **Proximity to other aerodromes.** Wellcamp is located in proximity to Oakey, Toowoomba and a number of ALAs. CASA's preliminary analysis indicates that there are significant airspace and potential traffic conflict issues to be considered, including:
   a. **Traffic mix (aircraft types, performance, equipment, pilot training, and experience).** The airspace would see an increase in turbo prop aircraft and the potential future introduction of passenger jet and freight aircraft.
   b. **Types of operations.** The airspace covered by this preliminary airspace assessment is currently used for pilot training (civil and military), passenger transport, freight carriage, recreation including ballooning, gliding and hang gliding, sightseeing flights and military specific training including rappelling and winching from hovering helicopters, and parachuting day and night.
   c. **Overlapping instrument procedures.** Potential conflicts due to the introduction of instrument approach and departure procedures at Wellcamp and their proximity to Oakey and Toowoomba have been considered. Instrument procedures at Oakey and Toowoomba currently overlay one another, though they are vertically separated. During hours of Oakey activation instrument approaches to Oakey are managed by Oakey ATC. Outside of hours, there is limited traffic at Oakey. The designer of the Wellcamp IFPs is working with Defence and Airservices to address any conflict issues. The outcome of this work is expected in March 2014.
   d. **Runway alignment.** The runway direction at Wellcamp (12/30) has the potential to bring circuit traffic into conflict with circuit traffic at Toowoomba (runway alignment 11/29) in periods of nil / light variable wind.
2. **Proximity to Restricted and Danger Areas**. The airspace surrounding Wellcamp has a number of RAs and DAs which limits the airspace available for manoeuvring.
3. **Interaction with transiting aircraft.** The airspace south and west of Oakey and west of Toowoomba is known to be busy due to the funnelling effect on the flow of Visual Flight Rules (VFR) aircraft operating to/from Toowoomba and Archerfield aerodromes avoiding the controlled airspace, RAs and the nearby terrain. Instrument Flight Rules (IFR) aircraft conducting an instrument approach to Wellcamp runway 30 could potentially conflict with transiting VFR aircraft and aircraft operating within the nominated Toowoomba flying training area.[4]
4. **Unknown risks.** Due to the unique situation posed by the development of Wellcamp in close proximity to other existing aerodromes and airspaces, there may be risks associated with the new operations that are yet to be fully realised or understood. The airspace will be closely monitored by CASA from

[4] A full hazard identification process identified other risks – refer to Appendix 1 for further detail.

the commencement of operations at Wellcamp in order to inform itself of additional appropriate actions which may be warranted.

The airspace surrounding Toowoomba and Wellcamp is complex and at times congested. When the overlaying RAs and DAs are activated, the aircraft manoeuvring area can be limited. Feedback received by stakeholders suggests this can increase pilot workload, radio congestion and impact on pilot situational awareness within the Toowoomba airspace. This is supported by ASIR data trends.

Suggested causes for this increase included:

- Increased use of high performance turboprop aircraft;
- Increased recreational and sports aviation within the region;
- Change in the traffic mix and the wide range of aircraft performance capabilities at Toowoomba occurring at short notice; and
- Wide range of pilot experience from student pilots, private pilots, and military users to commercial pilots.

Defence has responded to the growing demand for airspace by reducing the size of RAs, DAs and the Oakey Control Zone (CTR) airspace. This reduction will enable greater access to the airspace for civilian aircraft. Defence has changed the RA conditional status[5] of the restricted airspace at Oakey from RA1 to RA2, which does not allow civilian aircraft to flight plan through the airspace. However, Defence has also introduced a VFR Route through the Oakey CTR and introduced a number of RA1 air routes via the waypoint MESED, which will increase civilian access to the airspace. New air routes and associated waypoints will be established to allow aircraft to plan around Oakey's airspace.

The changes to the Defence airspace are unlikely to have a negative effect on aircraft gaining a clearance through the region as it will be managed on a "clearance on request" basis. Airspace users will likely have similar access post 29 May 2014 as they did prior with Defence reserving the right to deny the clearance request if operational or emergency requirements dictate. Refer to Figure 1.

[5] Refer to Annex D.

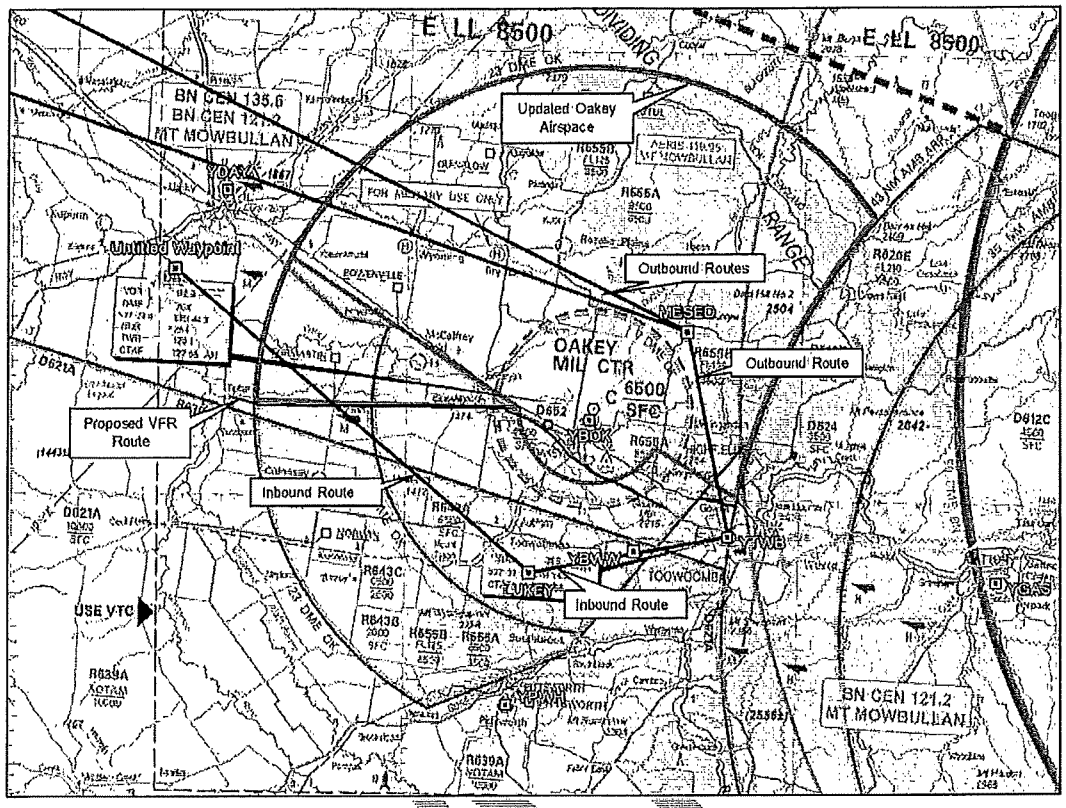


Figure 1: Oakey (YBOK); Toowoomba (YTWB) and Wellcamp (YBWW) airspace – showing new RA boundaries and air routes. Brisbane Visual Navigation Chart (VNC).

The results of research and comments received from stakeholders have provided the OAR an understanding of the anticipated traffic dynamics around Toowoomba and Wellcamp, as far as they can be determined.

The HAZID/AP of the assessment airspace and found:

1. Wellcamp aerodrome has a number ALAs located within vicinity (2-4 NM North West of Wellcamp). Aircraft at Wellcamp and aircraft operating from the nearby ALAs could conflict with each other;
2. IFR aircraft departing Wellcamp towards the north and flying towards the waypoint MESED and the RA could conflict with VFR and glider aircraft;
3. Aircraft departing Wellcamp towards the west and east could conflict with VFR aircraft transiting to and from the ALAs and IFR aircraft transitioning to and from the west;
4. Aircraft departing Wellcamp could conflict with IFR aircraft below 8,500 ft AMSL arriving and departing Toowoomba and Wellcamp;
5. Sports aviation and gliders could conflict with IFR aircraft arriving and departing Wellcamp;
6. Frequency congestions due to the high traffic density and some undisciplined radio calls could result in pilots losing situational awareness; and
7. Hazards that may be present and are related to the Oakey aerodrome when it is deactivated have been considered in the HAZID/AP.

8. The following additional matters have been raised and considered as either potential hazards or concerns:

   a. Overlapping IFPs at Wellcamp, Oakey and Toowoomba;

   b. The Wellcamp IFPs are co-incident with the glider flying training area and their overland routes south from McCaffrey Field;

   c. Potential military activity outside the hours of the air traffic service; and

   d. Private VFR aircraft operating at Oakey.

1.4 Recommendations

Wellcamp is still under construction and as a result, many assumptions had to be made, which included estimating movement and passenger numbers. It is realistic to accept that a number of aircraft movements from Toowoomba will relocate to Wellcamp.

It is important to note that this preliminary airspace assessment has made recommendations based on existing and projected data. This preliminary airspace assessment has recommendations that will undoubtedly be overtaken because of the change of air traffic mix and unforseen patterns which will develop.

The following comment as summarised by Chief Justice Sir Harry Gibbs of the High Court of Australia has been considered while conducting the preliminary airspace assessment:

> *Where it is possible to guard against a foreseeable risk which, though perhaps not great, nevertheless cannot be called remote or fanciful, by adopting a means which involves little difficulty or expense, the failure to adopt such means will in general be negligent.*[6]

CASA applies a precautionary approach when conducting aeronautical studies. Given the unknown level of traffic that may operate at Wellcamp is it difficult to forecast airspace requirements. However, CASA recommends a graduated airspace and ATS response to changes in traffic levels. CASA recommends:

Initial response: 2014-2016.

Based on the data available to CASA at the time of this assessment, from the planned commencement of operations until 2016, the following are considered appropriate actions:

1. The airspace surrounding Wellcamp should remain as Class G airspace.
2. CASA should monitor airspace risk through traffic and passenger volumes, and reported incidents.
3. Toowoomba airspace users should submit an Airspace Change Proposal to redesign the Toowoomba flying training area. The re-design may result in a segmentation of a flying training area north and a flying training area south. The flying training area north may be unavailable when Wellcamp is in use.

Communications:

4. CASA should facilitate the introduction of a Broadcast Area to encompass Toowoomba and Wellcamp aerodromes and Oakey during hours of Oakey

[6] Gibbs, Chief Justice Sir Harry. *Turner v State of South Australia* (1982). High Court of Australia before Gibbs CJ, Murphy, Brennan, Deane and Dawson JJ.

de-activation. This is anticipated to reduce frequency confusion and improve situational awareness. The dimensions of the Broadcast Area to be determined through industry consultation.

5. Appropriate radio communication should be available between aircraft on the ground at Wellcamp and aircraft on the ground at Toowoomba including other airspace users.
6. Appropriate radio communication should exist between Brisbane Centre and aircraft on the ground at Oakey, Toowoomba and Wellcamp.
7. All aircraft, including gliders, to use the appropriate frequency when operating within the proposed Broadcast Area. This provides airspaces users with an alerted see-and-avoid capability resulting in greater situational awareness.

Local procedures and publications:

8. CASA should implement non-standard circuit directions at Wellcamp to reduce possible conflicts with circuit traffic at Toowoomba. (E.g. Wellcamp Runway 12 to be non-standard right-hand circuits and Wellcamp Runway 30 to be standard left-hand circuits).
9. CASA and Airservices should work together to develop and publish relevant navigational information (e.g. recommended VFR/IFR routes/ corridors/tracking points into and out of Toowoomba and Wellcamp and traffic de-confliction procedures) in the En-Route Supplement Australia (ERSA), VNC and Departure and Approach Procedure charts.
10. CASA and Airservices should work together to develop a VFR flight guide for the region to assist VFR pilots to de-conflict with operations at Wellcamp.

Education, Training and Airspace User Groups:

11. CASA Aviation Safety Advisors should provide safety seminars to airspace users with a focus on:
    - Procedures at non-controlled aerodromes;
    - Appropriate and effective radio use;
    - Effective lookout and collision avoidance procedures;
    - New information and changes published in Aeronautical Information Publication (AIP) Charts and ERSA; and
    - IFR operations at Wellcamp; and
    - The use of the recommended VFR routes and improved awareness of ALA locations and Wellcamp.
12. Local stakeholders establish a 'Darling Downs Aviation Safety Group'. The collaborative sharing of information between users will provide the forum to co-ordinate airspace usage, demand and limit possible conflicts.

Instrument Flight Procedures:

13. CASA should ensure segregation, or that other mitigators are developed if segregation is not achievable, between different IFPs through Civil Aviation Safety Regulation (CASR) Part 173.

Secondary response: 2017-2019.

The initial response attempts to treat foreseeable risks with a series of appropriate mitigators designed to reduce the risk of operations in the area without unduly adding

cost or onerous requirements upon airspace users. This provides a balance of safety and accessibility. However, CASA acknowledges that this approach, even with the diligent support and compliance of airspace users does have limits. As traffic volumes, increase further controls will be required to ensure risk remains As Low As Reasonably Practicable (ALARP).

CASA should conduct a Post Implementation Review (PIR) of the Oakey airspace changes and the introduction of operations at Wellcamp within 12 months of commencement of Wellcamp operations.

Should CASA determine the recommendations implemented for initial Wellcamp operations cannot maintain the risk at an acceptable level then an airspace classification change may be necessary. This may result in the following actions:

1. CASA considers the implementation of controlled airspace as an outcome of further risk assessment.
2. CASA to continue to monitor risk levels and traffic movements and coordinate with Airservices regarding any required airspace change strategies for Wellcamp.

1.5 Next Step

Stakeholders are requested to provide feedback on the preliminary airspace assessment to oar@casa.gov.au no later than XX Month Year. CASA will consider feedback received to be public information and will normally attribute feedback, however requests to remain anonymous will be considered.

Contents

2. INTRODUCTION

The Office of Airspace Regulation (OAR) within the Civil Aviation Safety Authority (CASA) has carriage of the regulation of Australian-administered airspace, in accordance with section 11 of the *Airspace Act 2007* (Act). Section 12 of the Act requires CASA to foster both the efficient use of Australian-administered airspace and equitable access to that airspace for all users. CASA must also take into account the capacity of Australian-administered airspace to accommodate changes to its use. In exercising its powers and performing its functions, CASA must regard the safety of air navigation as the most important consideration[7].

Section 3 of the Act states that 'the object of this Act is to ensure that Australian-administered airspace is administered and used safely, taking into account the following matters:

a. protection of the environment;

b. efficient use of that airspace;

c. equitable access to that airspace for all users of that airspace;

d. national security.'

2.1 Overview of Australian Airspace

In line with the International Civil Aviation Organization (ICAO) Annex 11 and as described in the Australian Airspace Policy Statement (AAPS), Australian airspace is classified as Class A, C, D, E and G depending on the level of service required to manage traffic safely and effectively. The AAPS also allows the use of Class B and Class F airspace, however they are not currently used in Australia. The classification determines the category of flights permitted and the level of air traffic services (ATS) provided. Annex B provides details of the classes of airspace used in Australia. Within this classification system aerodromes are either controlled (i.e. Class C or Class D) or non-controlled.

Non-controlled aerodromes in Australia are subject to procedures at non-controlled aerodromes. Pilots of aircraft operating at all registered, certified, Military and CASA designated aerodromes are required to carry and use a Very High Frequency (VHF) radio. Further information about aircraft operations at non-controlled aerodromes can be found on the CASA website:

http://casa.gov.au/wcmswr/_assets/main/pilots/download/nta_booklet.pdf

2.2 Purpose

The purpose of the preliminary airspace assessment is to determine the appropriate airspace arrangements and any other mitigation needed to accommodate the commencement of operations at the Brisbane West Wellcamp aerodrome (hereafter referred to as Wellcamp) into the current environment. This preliminary airspace assessment has been undertaken to analyse the anticipated risks the proposed operations at Wellcamp may pose and to suggest suitable mitigating actions in response.

The outcome of the preliminary airspace assessment is to demonstrate that all sensible and practicable precautions are in place to reduce the risk to acceptable levels.

[7] Civil Aviation Act 1988, Section 9A – Performance of Functions

For the purpose of this preliminary airspace assessment, a multifaceted approach was used including quantitative and qualitative analysis consisting of:

- Stakeholder interviews;
- Hazard Identification and Assessment; and
- Site visits.

2.3 Scope

The scope of the preliminary airspace assessment includes identification and consultation with stakeholders to gather the necessary data and information related to airspace issues around the Wellcamp development. As a minimum, this includes consultation with Regular Public Transport (RPT) operators, charter operators, flying training schools, Department of Defence (Defence), emergency services operators, sport and recreational aviation groups and the Wellcamp operator.

The scope of this preliminary airspace assessment is not intended to examine the proposed aerodrome facilities and infrastructure issues. This preliminary airspace assessment will not examine any components relating to the aerodrome certification process unless any weakness or failings in these areas have a significant impact on the safety of airspace operations in the vicinity of the proposed Wellcamp aerodrome.

Also shaping the scope of this preliminary airspace assessment is the AAPS, under the Act, provides guidance to CASA on the administration of airspace as a national resource.

2.4 Objective

The objective of this preliminary airspace assessment is to examine the airspace within 50 nautical miles (NM) of Wellcamp to determine the appropriateness of the current airspace classification. This was accomplished by:

a. Investigating through stakeholder consultation, the appropriateness of the current airspace classification, access issues, instrument approach design[8] issues, expected changes to the current traffic levels and mix of aircraft operations within the existing airspace;

b. Assessing the opportunity to adopt proven international best practice airspace systems adapted to benefit Australia's aviation environment as required by the AAPS;

c. Analysis of forecasted traffic levels and mix of aircraft operations within the existing airspace in relation to the level of services provided;

d. Identifying any threats to the operations, focussing as a priority on the safety and protection of Passenger Transport (PT) services;

e. Carrying out a qualitative and quantitative risk assessment of the current airspace environment and the expected impact of any changes;

f. Identifying appropriate and acceptable risk mitigators to the known threats;

g. Reviewing extant Aeronautical Information Publication (AIP) entries for applicability;

h. Review impacts of proposed airspace and flight path considerations;

[8] Refer to Civil Aviation Safety Regulation (CASR) Manual of Standards (MOS) Part 173.

i. Ensuring that the issues are passed onto the relative stakeholder group for their consideration; and

j. Providing assurance to the Executive Manager, Airspace and Aerodrome Regulation Division of the projected levels of airspace risk associated with operations at the Wellcamp aerodrome.

The OAR issues a review of its Permanent Legislative Instruments on a bi-annual basis. Any changes to airspace determined by this preliminary airspace assessment with respect to airspace classifications, air routes, prohibited, restricted or danger areas will be reflected in these Instruments.

3. AERODROMES

3.1 Brisbane West Wellcamp aerodrome

Wellcamp is located approximately 12 kilometres (km) west of Toowoomba township and 17 km south of the Oakey Army Aviation Training Centre (Oakey).

It is anticipated that Wellcamp will be a certified aerodrome at its completion. The expected aerodrome elevation will be 1,464 feet (ft) Above Mean Sea Level (AMSL). The aerodrome will have one runway, designated as 12/30 which will be 2,870 metres (m) long and 45 m wide and be supported by approach, runway and taxiway lighting. Refer to Figure 2.

As Wellcamp is being constructed, there is no historical traffic information available. However, the submitted Wellcamp Airport Master Plan[9] indicates the build design of the runway and taxiway infrastructure will meet code 4E design standards. This standard may accommodate a wide body passenger transport aircraft (e.g. B747).

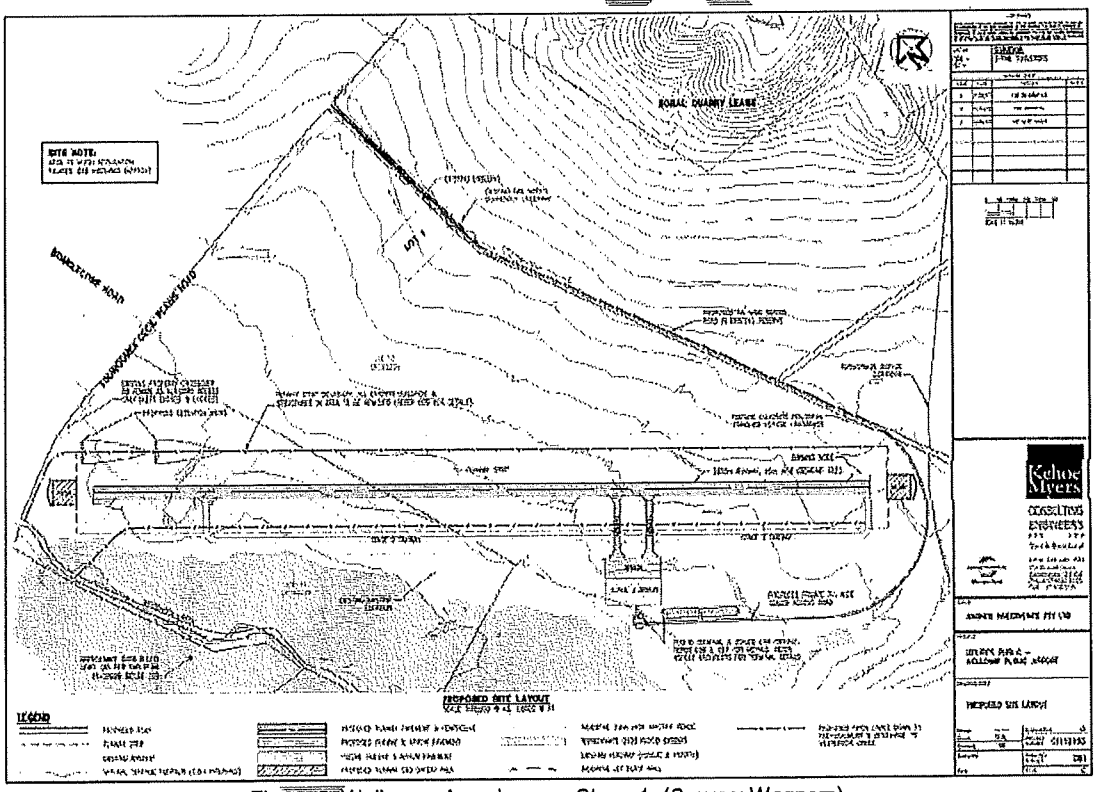


Figure 2: Wellcamp Aerodrome – Stage 1. (Source: Wagners)

3.2 Toowoomba Aerodrome

Toowoomba aerodrome (hereafter referred to as Toowoomba) is a certified aerodrome, owned and operated by the Toowoomba Regional Council. Toowoomba hosts operators such the Royal Flying Doctors Service and Skytrans who operate flights regularly servicing the region. Approximately six organisations including PT and charter organisations are based at the airport. Toowoomba services a large number of training operations from neighbouring aerodromes and aircraft landing areas (ALAs).

[9] Wellcamp Airport Master Plan 2012 – 2031 version 1.

PT and charter operators provide services from Toowoomba to regional centres such as Bedourie, Birdsville, Boulia, Charleville, Cunnamulla, St George and Brisbane.

Toowoomba has two runways. The primary runway is designated 11/29 is a sealed runway 1,341 m long and 30 m wide. The secondary runway, designated 06/24, is a grass strip 660 m long and 18 m wide. Refer to Figure 3.

Toowoomba is a non-controlled aerodrome however, is subject to curfew requirements. Operations at Toowoomba are permitted between 0500-2300 (local), Emergency and medical operations are permitted outside of this period.

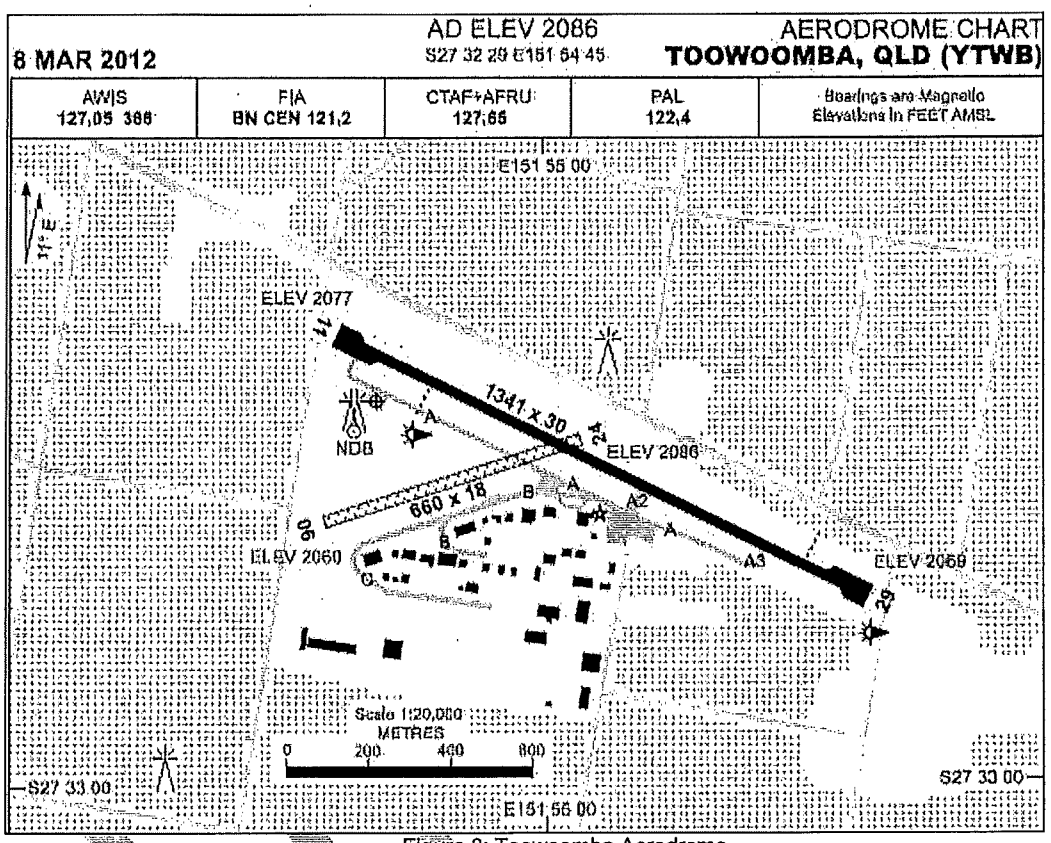


Figure 3: Toowoomba Aerodrome.
(Departure and Approach Procedures chart (DAP) effective date 8 March 2012).

3.3 Oakey Aerodrome

Oakey is a Military aerodrome operated by the Australian Army. The Oakey Army Aviation Training Centre provides flying training on Army Kiowa and Black Hawk helicopters.

Oakey operates three runways and a number of helicopter landing sites. The runways at Oakey are:

- 14/32 which is 1,649 m long and 30 m wide,
- 05/23 which is 914 m long and 30 m wide,
- 09/27, which is 1,089 m long and 23 m wide. Refer to Figure 4.

Oakey tower hours of operation are dependent on the scheduling of local military operations and are notified by Notice to Airmen (NOTAM).

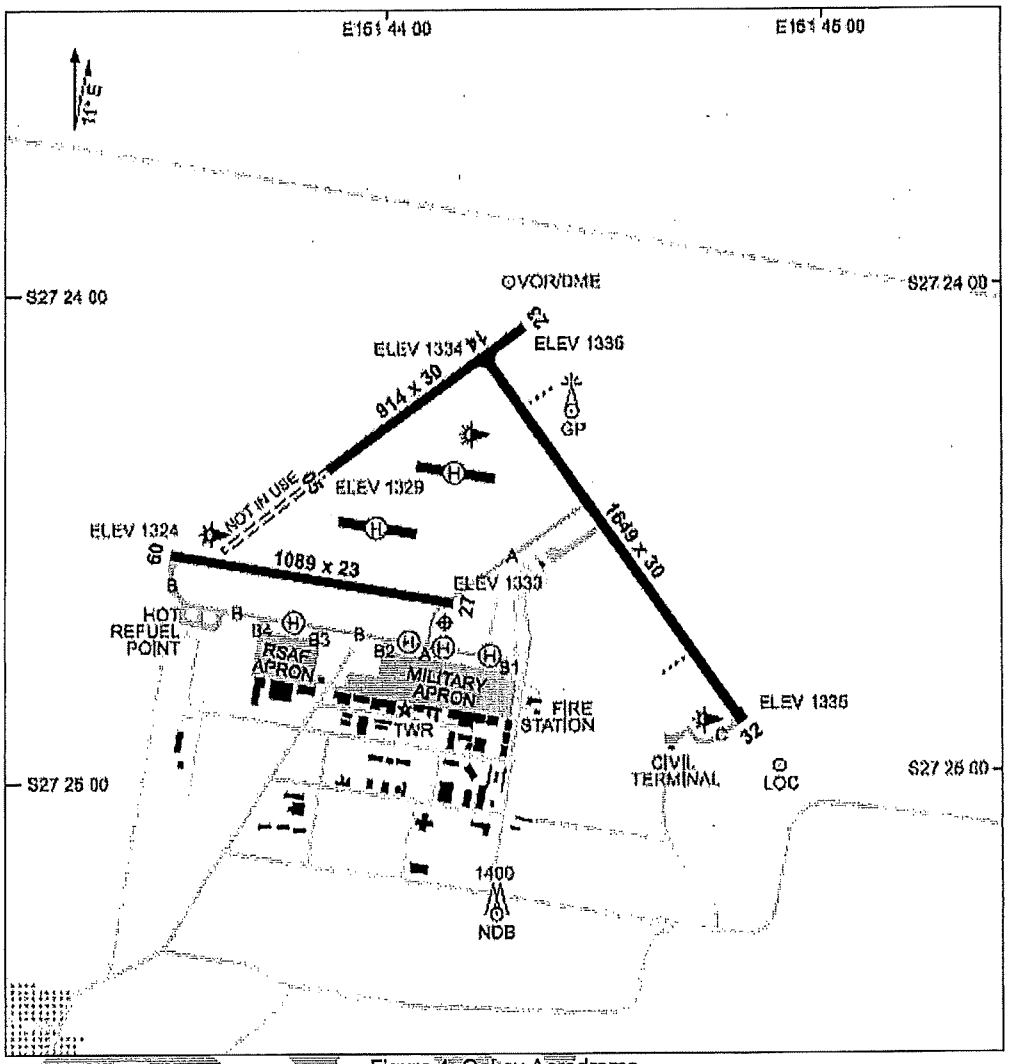


Figure 4: Oakey Aerodrome
(DAP effective date 8 March 2012).

3.4 Instrument Approaches

Wellcamp will provide Global Positioning System (GPS) based instrument flight procedures (IFPs) for both runway ends. At time of the preparation of this preliminary airspace assessment, the instrument approach design process was not complete. Draft designs from the Wellcamp operator have been presented to CASA however, it is anticipated that further alterations will occur after engagement with stakeholders and other procedure design organisations.

Some alterations are necessary to accommodate Wellcamp procedures and the pre-existing IFPs at Toowoomba and Oakey. Potential conflicts have been identified as a result of the proposed introduction of the IFPs at Wellcamp with the neighbouring aerodromes. Some of the existing procedures at Oakey and Toowoomba are expected to require redesign consideration to minimise potential overlap which may result in aircraft conflicts. The certification and flight-validation of these procedures is planned for mid-2014. The IFPs will not be published and used until the aerodrome certification process has been completed and an environmental assessment and other requirements have been met in accordance with the requirements of CASR Part 173.

4. AIRSPACE

4.1 Airspace Structure

The airspace within 50 NM of Wellcamp from the surface up to 8,500 ft AMSL is predominately Class G non-controlled airspace (Refer to Figure 5). The airspace contains a number of Restricted Areas (RAs) and Danger Areas (DAs). An explanation of the terminology can be found in Annex C.

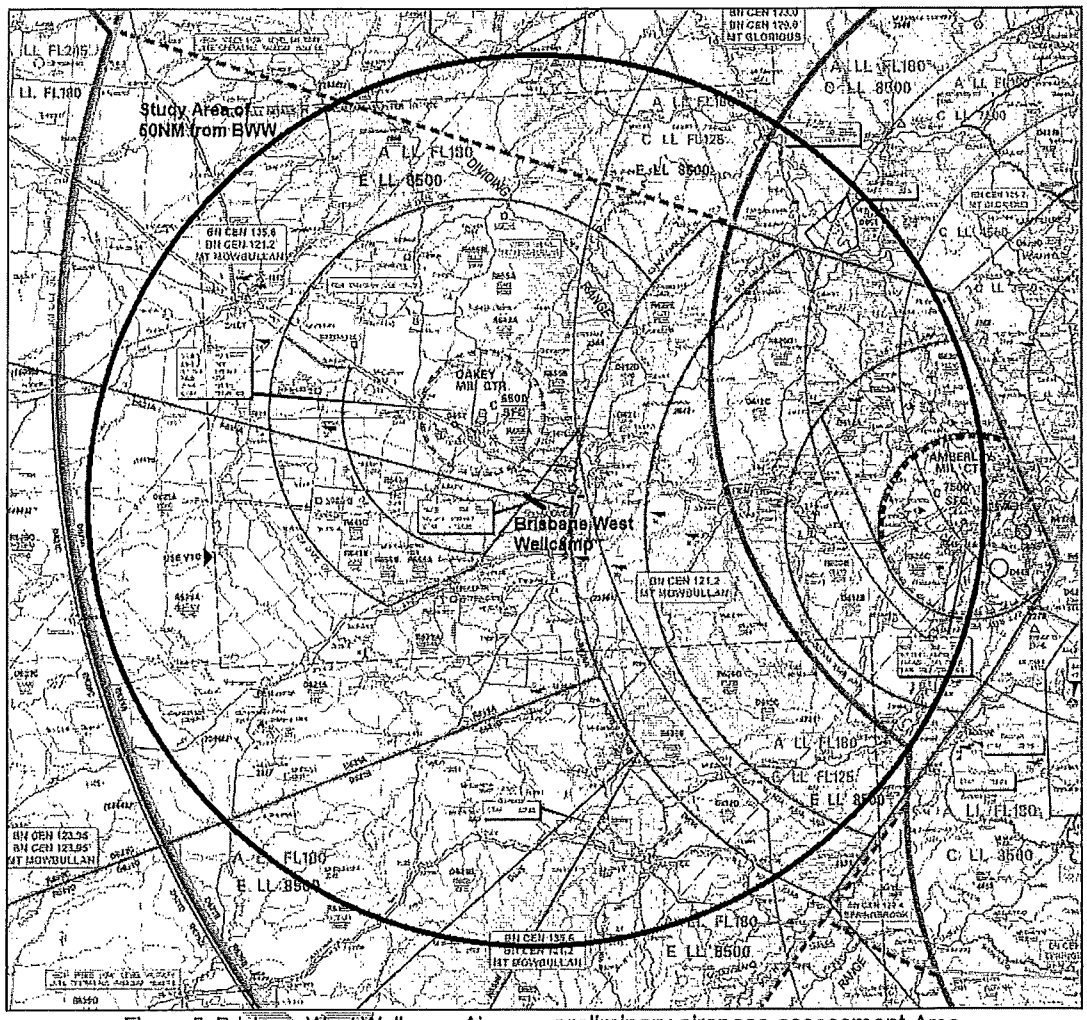


Figure 5: Brisbane West Wellcamp Airspace preliminary airspace assessment Area.
Brisbane VNC – effective date 14 November 2013.

The airspace within the study area is directly influenced by the operational activity of the Oakey Control Zone (CTR) and surrounding RAs. Complexity to this airspace is increased when the CTR and surrounding RAs and DAs are activated.

During hours of activation, a Class C ATS is provided within the Oakey CTR and surrounding RAs. These areas are activated via NOTAM.

4.2 Restricted Areas

There are a number of RAs within the vicinity of Wellcamp. Four of the RAs have the potential to affect operations into and out of Wellcamp and have been discussed further below.

R639A – Amberley

R639A is activated via NOTAM and has vertical limits from 10,000 ft AMSL up to a level specified by NOTAM. Refer to Figure 6. The RA has an RA2 conditional status[10] and therefore pilots may not flight plan through the RA or expect a clearance from Air Traffic Control (ATC). When active, R639A limits arriving and departing civil aircraft to a maximum altitude of 10,000 ft AMSL. The altitude restriction would affect flights to the west when runway 12 is in use and flights from the west when runway 30 is being utilised.

Stakeholders commented that when the RA is active it concentrates traffic below 10,000 ft AMSL travelling into and out of Toowoomba to the west and south. As a result this requires pilots to fly aircraft in the active DAs below the active RAs to access Toowoomba. This combined with the traffic complexity, frequency congestion and the minimal circling space to manoeuvre places high workloads on pilots.

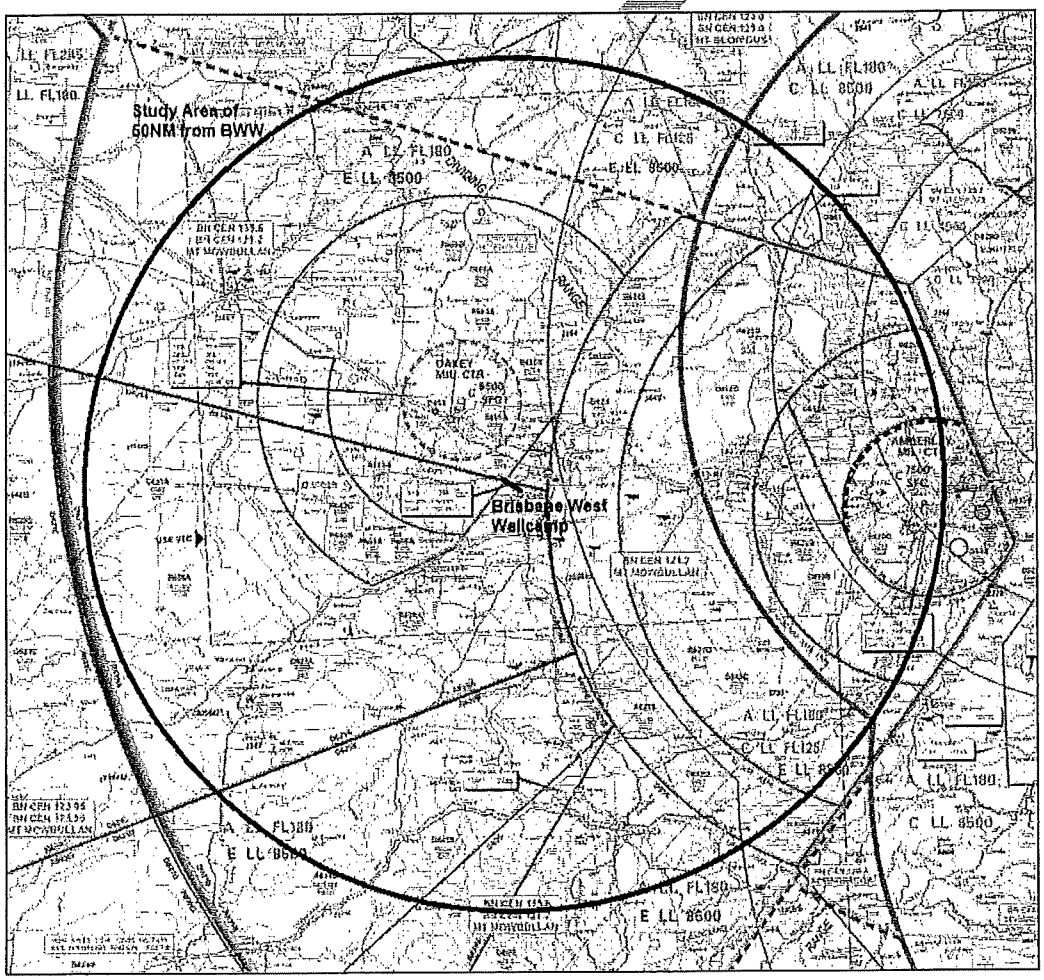


Figure 6: Amberley Restricted Area R639A (Outlined in red)
Brisbane VNC chart – effective date 14 November 2013.

R654A to R654C - Oakey

Oakey restricted areas R654A to R654C are activated via NOTAM. R654A and R654B operate with vertical limits from the surface to 8,500 ft AMSL. R654C operates with vertical limits from 8,500 ft AMSL to Flight Level 125. Refer to Figure 7.

[10] Refer to Annex C for information on the RA Conditional Status.

The proximity of the RAs to proposed arrival and departure routes for Wellcamp may dictate that user preferred routes and runway direction cannot be used. This may add extra track miles and increase aircraft manoeuvring at lower levels. Close collaboration with Defence may reduce the delays.

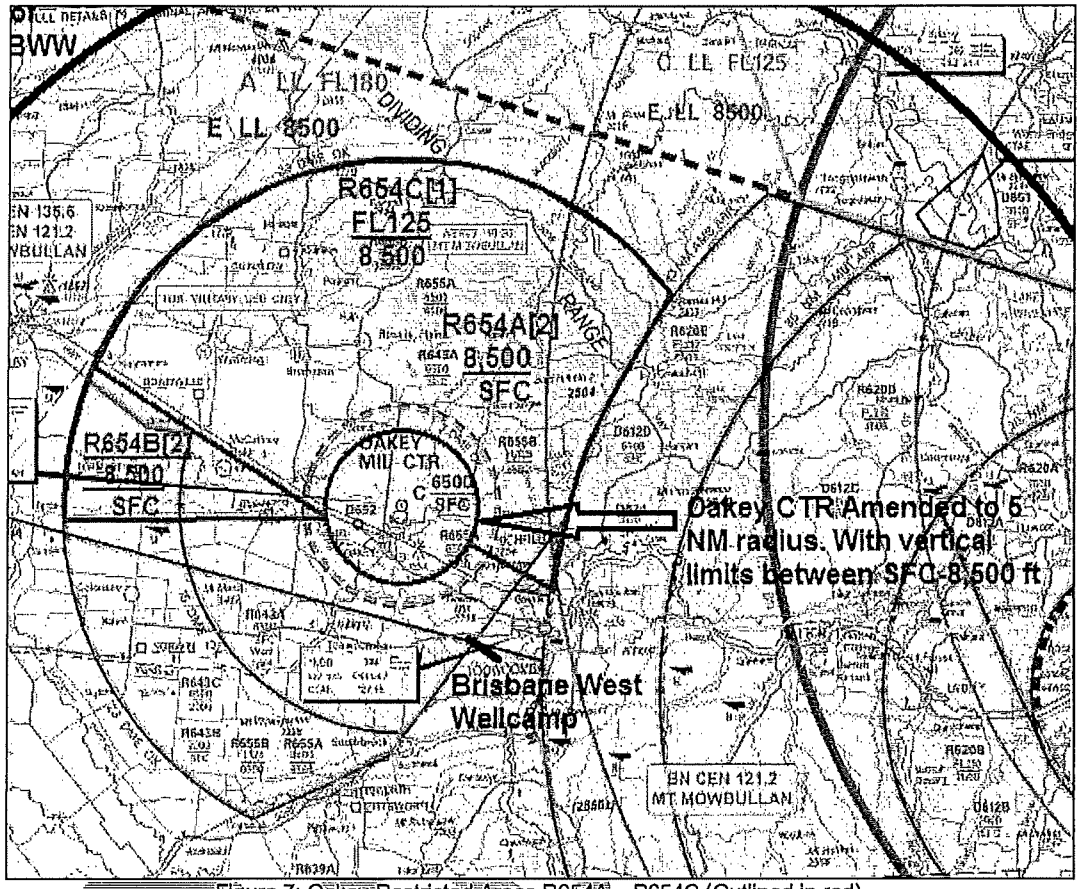


Figure 7: Oakey Restricted Areas R654A – R654C (Outlined in red)
Brisbane VNC chart – effective date 14 November 2013

As a result of the Oakey RA changes, Defence has also proposed changes to the conditional status of R654A and R654B from the existing RA1 to RA2. As a result of this change pilots must not flight plan through the RA unless on a route specified in En-Route Supplement Australia (ERSA) or under agreement with the Department of Defence. However, a clearance from ATC is not assured. Other tracking may be offered through the RA on a tactical basis.

To assist Toowoomba departures to the west, Defence has proposed two Instrument Flight Rules (IFR) routes through the Oakey RA airspace, which will increase civilian access to the airspace. The new air routes and associated waypoints will be established to allow aircraft to flight plan through Oakey's airspace. Refer to Figure 8.

The proposed routes are:

- Toowoomba – Q303 – Waypoint (MESED) – Q303 – Waypoint (CCA).
- Toowoomba – Q303 – Waypoint (MESED) – Q237 – MORRO.

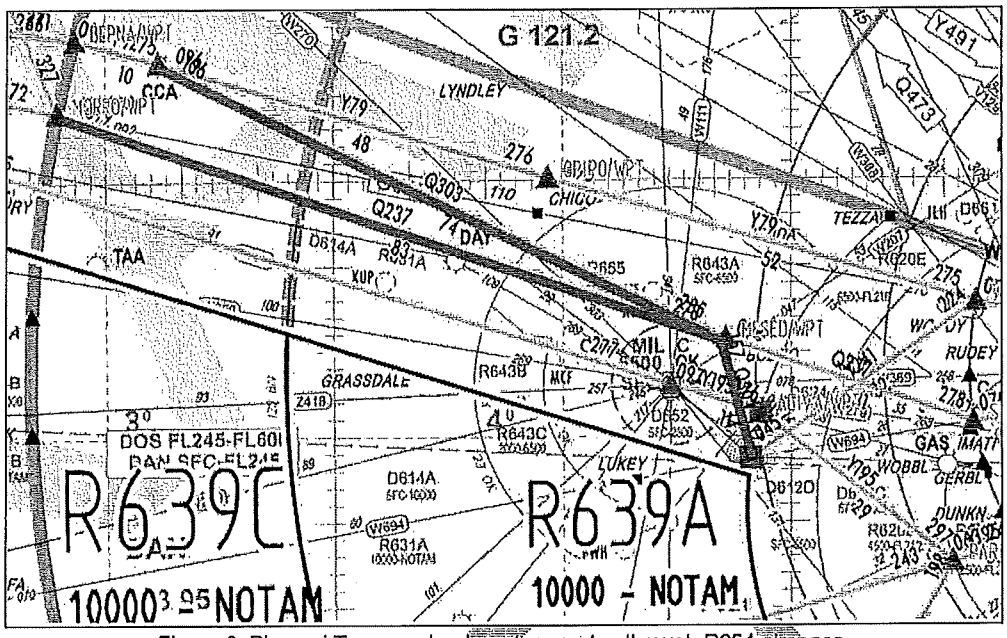


Figure 8: Planned Toowoomba departure routes through R654 airspace.

Aircraft arriving into Toowoomba from the West must flight plan to avoid the active Oakey RAs and track via the following waypoints.

- Latitude 27 14 59S Longitude 151 12 07E – LUKEY – Toowoomba.

Aircraft arrivals into Toowoomba using the Runway 11 Area Navigation (Global Navigation Satellite System) (RNAV (GNSS)) instrument approach procedure will require an airways clearance from Oakey. Clearance availability will be subject to ATC workload, sequencing, and separation with Oakey instrument traffic in the Oakey CTR.

It is anticipated that the Toowoomba routes shown above will also accommodate Wellcamp traffic.

4.3 Airspace Management

Defence operates ATC Towers at Amberley and Oakey. Where Class G airspace exists, Airservices provide a Flight Information Service (FIS) to IFR aircraft, which includes traffic information. Aircraft operating under the Visual Flight Rules (VFR) in this airspace receive a FIS and may receive a surveillance information service on request and when ATC workload permits. Communications can be established on the ground at Wellcamp with Brisbane Centre. However, ground communications cannot be established between aircraft on the ground at Wellcamp to aircraft on the ground at Oakey or Toowoomba.

Wellcamp lies on the Western boundary of the Brisbane Basin Terminal Area (TMA). This region experiences a complex configuration of airspace management, including controlling authorities located at Oakey, Amberley and Brisbane. The Brisbane Basin TMA has been subject to increased traffic along busy air routes. This has resulted in higher degrees of coordination between the respective controlling authorities. Defence ATC are not co-located with the Brisbane Airservices Terminal Control Unit (TCU) controllers however, this has no impact on effective traffic coordination. The operational coordination between Defence and Airservices appeared to be safe and effective.

4.4 Surveillance

The following radars provide radar surveillance coverage in the assessment area;

- Oakey radar, located 5 NM north of Oakey;
- Brisbane radar, located at Brisbane Airport;
- Mt Hardgrave, approximately 20 NM south-east of Brisbane Airport; and
- Mt Somerville radar site, located approximately 5 NM south-west of the Gold Coast.

The proximity and elevation of the coastal radar sites provides poor low-level coverage for this area. The Brisbane and Gold Coast radars provide surveillance above approximately 9,000 ft AMSL. The Oakey radar coverage provides surveillance to approximately 300 ft above ground level (AGL) at Wellcamp. Airservices receives data from the Oakey radar.

5. AIRSPACE USERS

5.1 Airspace Users

The assessment identified a number of operators that regularly fly within the Toowoomba/Oakey airspace. These include domestic PT services, charter, air ambulance, flying training, military, and other civil aerial work activities. In addition to these activities there is also substantial sports and recreational aviation activity in the airspace.

Organisations this study has identified include:

- Skytrans operates the following routes from Toowoomba; Brisbane, St George, Charleville, and Sydney.
- Royal Flying Doctor Service.
- CareFlight.
- Various charter operators.
- Flying training organisations.
- Military aircraft both rotary and fixed wing.
- Sports and recreational aviation operators.
- Itinerant traffic.

With the exception of Skytrans, most of the airspace users operate throughout this airspace at short notice. Periods of activity can sometimes lead to high levels of congestion.

Surveillance Data

A sample of radar surveillance data was collected and analysed to identify typical traffic patterns throughout the Wellcamp and Toowoomba area. Refer to Figure 9. It is important to note that the sample set of data only recorded Secondary Surveillance Radar (SSR) data provided by aircraft that are transponder equipped. Primary radar data received by aircraft that are not transponder equipped was not captured.

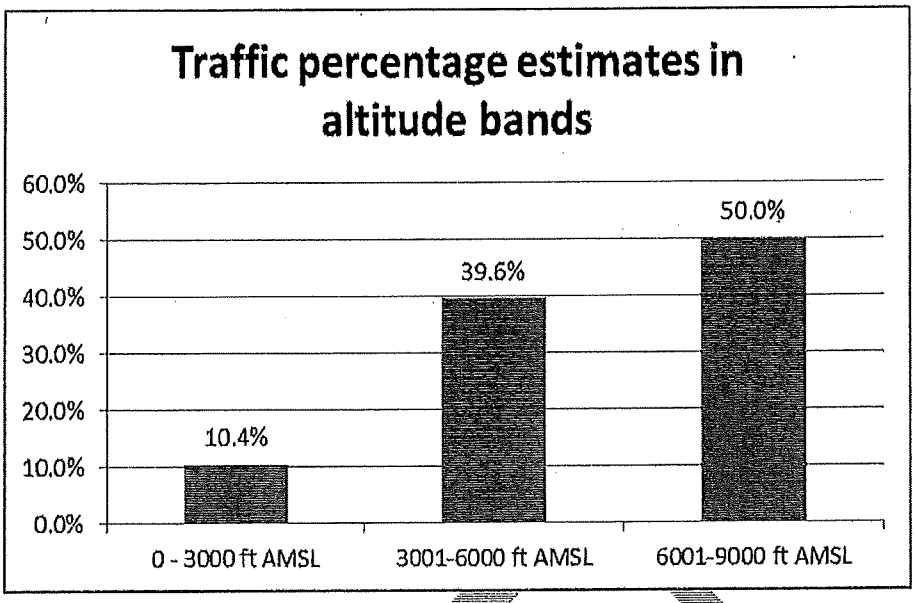


Figure 9: Traffic percentage by altitude bands (Airservices Surveillance data 31 January 2013 to 1 March 2013).

The radar data sampled ranged from the surface to 9,000 ft AMSL. At the higher altitudes, the radar data reflected the published IFR routes to and from Brisbane. The data analysed for aircraft operating between 6,001 ft AMSL and 9,000 ft AMSL represented approximately 50% of total traffic during the period of 31 January 2013 to 1 March 2013. Refer to Annex E.

The analysis of data from the surface to 3,000 ft AMSL identified traffic flows that may be in conflict with operations at Wellcamp. The traffic captured at this level predominantly reflected concentrations of approaches and departures into Dalby, Oakey, Toowoomba and Amberley. This altitude range represented approximately 10% of the total traffic captured within the data sample. Refer to Annex E.

VFR traffic flow strategies may be considered to assist the safe flow of transiting traffic operating to and from Toowoomba within Class G airspace.

The radar data indicates the majority of traffic would not conflict with aircraft within the Wellcamp circuit area. However, any future additions or changes to the approach and departure procedures at Oakey, Wellcamp or Toowoomba may alter aircraft tracks from what is currently experienced.

6. CONSULTATION

OAR representatives sought input from stakeholders who operate in and around the Toowoomba region. An industry forum was held at the Darling Downs Aero Club on 9 April 2013. Further follow up meetings were also held. All stakeholders and interested parties invited to provide input to the preliminary airspace assessment are listed in Annex D.

6.1 CASA

Extensive consultation was made with various Divisions within CASA. Consultation was conducted with CASA Flying Operations Inspectors (FOI), Aerodrome Inspectors, Air Safety Auditor (ATC), Instrument Approach and Navigation Specialists and Sports Aviation Safety Assessment Officers. All comments and feedback has been considered during compilation of this preliminary airspace assessment.

6.2 Aerodrome Operator

The aerodrome operator of Wellcamp is Wagner Investments Pty Ltd. Discussions have occurred with the operator regarding the aerodrome's development and the types of operations that may be expected once the aerodrome is completed.

6.3 Air Navigation Service Providers

Airservices and Defence provide ATS within the Wellcamp area. Extensive consultation with Defence and Airservices air traffic controllers has occurred throughout the preparation of this assessment. The following points were raised by the ANSPs during generative interviews:

- The airspace considered within this preliminary airspace assessment experiences a high volume and diverse traffic mix.
- Non-transponder equipped aircraft and gliders have been observed (by primary radar) to operate throughout the assessment area regularly.
- During peak periods at Toowoomba, frequency congestion has been observed to be an issue.
- Aviation Safety Incident Reports (ASIRs) indicate airspace infringements into controlled airspace and restricted airspace are the main recorded incident type in this airspace during periods of Oakey airspace activation.
- The bulk of aircraft traffic regularly using this airspace is transit traffic departing from Brisbane and tracking on published western routes. This traffic has been observed to operating predominantly from 6,500 ft AMSL to 9,000 ft AMSL and are operating under the IFR.
- Where possible traffic information is provided to IFR aircraft in Class G. This service is usually subject to workload.
- Evidence indicates that westbound traffic will continue to increase. Airservices are currently reviewing route structures designed to service central Queensland destinations from Brisbane.
- Any changes to airspace within the Brisbane TMA or the implementation of a control service at Wellcamp will take considerable time to implement. Training of staff and the construction of a tower facility will be required. The minimum period required to achieve this is approximately two years.
- If Class G airspace is maintained around Wellcamp, then a strategy to manage the VFR traffic operating within the vicinity of Wellcamp is required. The development of a preferred VFR route that encourages transiting VFR traffic to remain clear of arriving and departing Wellcamp aircraft would be beneficial. Publishing preferred VFR routes on the charts and/or in ERSA would also assist VFR operations.

6.4 Airspace Users

OAR representatives sought input from a wide range of airspace users. Over 60 airspace users attended the industry forum held at the Darling Downs Aero Club on 9 April 2013. Attendees were invited to respond to an airspace questionnaire or submit feedback via the 'Feedback to the Director' portal on the CASA website. Out of the responses received, the following was recorded.

- Main categories of operations were Private, Flight Training and Charter.

- Of the survey respondents, only 20% reported that they operate predominantly under the IFR.

Airspace Congestion

Respondents were asked to indicate their perception of airspace congestion within 15 NM of Toowoomba Aerodrome. 55% of the respondents considered the airspace congestion to be moderate or heavy. Reports received indicated that airspace congestion occurred for relatively short periods with clear peaks and troughs throughout the day. It was the heavy congested periods where Toowoomba saw high traffic volumes.

Transponder equipage

Survey results indicated that most airspace users were equipped with a Mode A/C transponder and have it switched on. The exception to this were the glider pilots who are not equipped with a transponder.

Airspace Efficiency

Respondents indicated that inefficiency occurred more when Oakey CTR and surrounding RA airspace was active. This results in further aircraft tracking distances that impact on operating costs for airspace users.

Airspace Architecture

A large number of respondents indicated that the Class G airspace for Toowoomba and surrounding airspace was appropriate. Respondents indicated that if controlled airspace were introduced to the Toowoomba and Wellcamp area, it would be a barrier to their own airspace access. Some transient Recreational Aviation Australia (RA-Aus) operators are not transponder equipped and the current licence limitations require them to operate only within Class G.

With the existing design of airspace, surrounding Toowoomba users expressed concern regarding their access to their traditional flying training areas as these conflict with aircraft arrivals and departures into and out of Wellcamp. This may be exacerbated if controlled airspace was implemented around Wellcamp.

Other comments

During consultation, civil operators raised concerns in regards to operations at Toowoomba aerodrome. They expressed concerns regarding the levels of perceived risk at Toowoomba. This perception was formed as a result of the following:

- Increased use of high performance turboprops.
- Change in traffic mix and varying aircraft performance categories can impact on other aircraft in the airspace at short notice.
- A wide range of pilot experience from low hour students, private pilots, military users, and public transport operations, all of which display varying levels of airmanship and aptitude.

Glider operations

The Darling Downs Soaring Club operates from McCaffrey Field to the west of Oakey. At least 30 gliders operate most weekends and up to 95 gliders could operate in the area (including Warwick). Gliders usually operate up to the cloud base or to 7,000 ft AMSL. The assessment identified that the gliders access all the surrounding airspace around Wellcamp. These aircraft are generally equipped with the following.

- Radio (In most cases only one radio is fitted).
- Navigation/performance computer.
- FLARM (glider to glider traffic and collision-warning system).

Current operating practices are that glider pilots operate on one of three discrete frequencies and not on the recommended centre frequency or Common Traffic Advisory Frequency (CTAF). As a result, the gliders are unable to use alerted see-and-avoid to mitigate risks of conflict with the wider aviation industry.

6.5 Defence

Defence identified the following issues as a result of the Wellcamp runway development:

- Military operations within the Oakey RA airspace are considered high risk activities and are incompatible with regular civil aircraft operations;
    - The majority of Oakey traffic is not subject to ATC. A significant volume of Oakey traffic operates autonomously in discrete training areas. Under these conditions, it is not possible for ATC to implement tactical separation in the reduced volume of airspace.
    - Oakey traffic consists of high powered, camouflaged aircraft conducting random and abrupt manoeuvres.
    - Oakey aircraft are crewed by student pilots operating high powered, complex aircraft. Inexperienced student pilots and instructor pilots (including foreign crews – Republic of Singapore Air Force) under a high workload, will have a reduced capacity to see and avoid transiting civil traffic.
    - Oakey aircraft crews are rehearsing procedures that require the aircraft to operate at the limits of their performance, including emergencies and military tactical flying. The crews' abilities to receive external inputs and observe civil aircraft traffic is significantly diminished during such operations.
    - Civil VFR pilots will have trouble in sighting the camouflaged traffic and will not be familiar with the types of manoeuvres executed by the military pilots. Military flight path prediction will be difficult to calculate and visualise; avoiding action difficult to determine. ATC will not be able to assist during these operations, as the military pilots are not operating under ATC control (operating in designated flying training areas).
    - Military aircraft are Medium and Heavy wake turbulence category. Civil traffic below 8,500ft AMSL will be a light wake turbulence category. This further increases the risk to civil aircraft when unable to sight and/or avoid random manoeuvring military aircraft.

- Military aircraft operate under night vision devices with minimal external lighting rendering it difficult for civil pilots to sight and avoid the military aircraft during hours of darkness.
- Low level operations within Oakey restricted airspace will potentially cause issues with erroneous TCAS advisories for civil traffic.

- The orientation of the Wellcamp runway is almost directly towards Oakey resulting in Runway 12 arrival and Runway 30 departure flight profiles likely to infringe the Oakey circuit area. This will potentially require circuit operations at Oakey to cease or be restricted for a period for each Wellcamp movement.
- Potential of Wellcamp traffic requiring restrictions to be placed on Oakey traffic.
- The close proximity of Wellcamp to Oakey aerodrome and the subsequent traffic conflict issues this may bring.
- Overlapping of IFPs including missed approaches.
- Aircraft transiting from RAs to Class G or vice versa creates separation issues for Toowoomba arrivals and departures. The addition of Wellcamp will further exacerbate an already less than ideal situation.
- Radar and communication coverage is not reliable at low levels within Oakey RAs. ATC will be unable to provide separation between military and civil aircraft, and will be unable to pass traffic information and/or control instructions to facilitate separation. In the vicinity of Wellcamp, tests have found that radar identification is lost below 200ft AGL and communications cannot be reliably established with Oakey ATC on the ground.
- Over many years Oakey has attempted to foster a good relationship with the surrounding landowners, this has included the introduction of local noise avoid areas in some instances. At least five of the local noise avoid areas are in close proximity to Wellcamp. The introduction of another source of aircraft noise may potentially hinder the existing good will.

7. TRAFFIC DATA

To make an accurate evaluation of the airspace it is important that all reasonable precautions have been taken to ensure that the data being reviewed is correct and reliable. Data for this study has been gathered from a number of sources. These sources include, but are not limited to:

- Defence;
- Airservices;
- Airspace users;
- The Australian Transport Safety Bureau (ATSB);
- Aeronautical Information Publications; and
- Aircraft movements proposed by the Wellcamp operator.

7.1 Airspace Research Application (ARA)

Airservices' ARA database was developed to enhance their situational awareness of traffic at aerodromes throughout Australia and to identify locations of interest that may trigger further research. CASA obtains ARA data from Airservices to assist in the analysis of collision risk at aerodromes that are under review.

ARA data consists of aircraft movements, passenger numbers and aircraft incidents from sources such as Avdata Australia (Avdata), ATSB, Electronic Safety Incident Reports (ESIRs), submitted flight plans and location specific intelligence reports. Detailed data supported operations at Toowoomba. Due to the fact, Wellcamp aerodrome is a "Green Fields" site no historic data is available. As a result, the analysis, was completed using forecasted and market survey data provided by the Wellcamp operator.

7.2 Brisbane West Wellcamp Demand Forecast

The Wellcamp operator has predicted airport demand to 2019. The forecast considered the following influences:

- Airlines schedules by aircraft type;
- Passenger characteristics;
- Present and predicted demographic and economic trends influencing demand; and
- Seasonal factors.

It is considered that the existing RPT service operating from Toowoomba will eventually transfer to Wellcamp. The operator also plans to attract fly-in fly-out (FIFO) passenger transport operations to support the mining and resources sector in the Surat and Bowen Basins. As a result, South East Queensland is expected to see significant demand increases for FIFO operations.

Figure 10 depicts the forecasted daily movement schedule. The Wellcamp operator has indicated a conservative schedule and proposed routes. It is important to re-iterate that this is a green field site and no historical movement data is available.

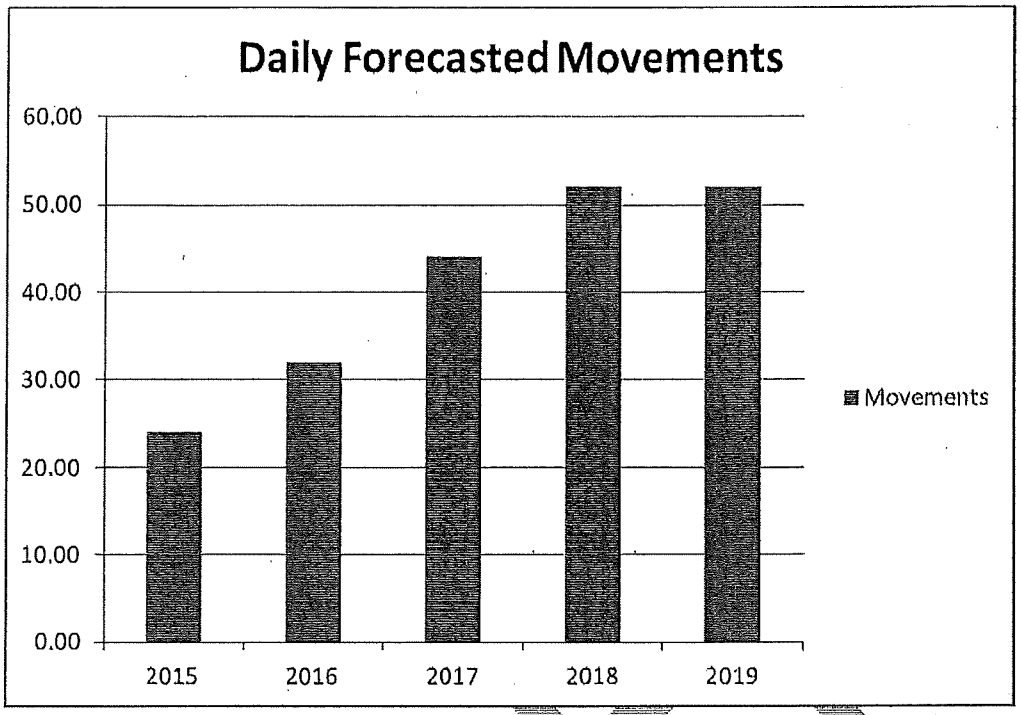


Figure 10: Daily forecasted combined arrivals and departures. (Includes Charter and PTO)

The movement data includes both PT and private charter operations. It is anticipated by the end of 2019 calendar year the Wellcamp aerodrome will have established initial start-up and airport screening operations. The aerodrome will then enter the medium term and consolidation phase of the project. This will include ongoing capital works and infrastructure program such as upgrades to large aircraft parking areas.

7.3 Airspace Criteria Thresholds

The AAPS 2012 contains Airspace Criteria Thresholds. Refer to Table 1. To assist CASA in determining when a review of airspace classification may be required in the airspace immediately around an aerodrome, the following criteria are used:

- Annual passenger transport operations (PTO) aircraft movements;
- Annual number of passengers, and
- Annual aircraft movements.

	Class B	Class C	Class D
Service provided	ATC	ATC	ATC
Total annual aircraft movements	750,000	400,000	80,000
Total annual PTO aircraft movements	250,000	30,000	15,000
Total annual PTO passengers	25 million	1 million	350,000

Table 1: Airspace Criteria Thresholds – AAPS 2012.

The current data in CASA's possession indicates that the largest aircraft currently utilising Toowoomba is a DHC8. It is reasonable to assume that within Wellcamp's second year of operation, some of the movements at Toowoomba will relocate to

Wellcamp—increasing the traffic at Wellcamp and decreasing it at Toowoomba but not substantially increasing the traffic in the area. However, in the medium term this could change.

Based on the forecasted annual traffic movements the highest demand is projected for 2019 at 18,980 PTO movements. This forecast places movements well above the Airspace Criteria Threshold for a Class D ATS.

The lead-in time to introduce a control service and associated airspace changes is at least two years. CASA must monitor and anticipate the actual growth well in advance of the aerodrome exceeding one of the criteria thresholds. However, it is important to note that these thresholds are an indicator used by CASA to determine, on the basis of risk, if any airspace classification changes or other suitable mitigators are required. Other factors may include incident and accident data, traffic mix, complexities brought about by pilot experience, mix of operations, terrain and weather.

It should be noted that the figures used in this preliminary airspace assessment are based on speculation and market forecasts and have yet to be realised. However, CASA will continue to monitor and adjust projected aircraft movements and review subsequent risks over the short to medium term.

8. AIRSPACE RISK

CASA applies the concept of ALARP (As Low as Reasonably Practicable) to demonstrate that the identified risks have sufficiently been mitigated. The purpose of applying the ALARP principle is to ensure that the residual risk is mitigated to a level that is acceptable (cost accedes the benefits) and to prevent infinite time, effort and money being spent to reduce the residual risk to zero.

It is important to note the following regarding ALARP:

a. It is driven by values;

b. It takes significant analysis to determine how to achieve ALARP;

c. It needs a benchmark to be able to assess if the mitigators bring us closer to ALARP; and

d. There is no perfect ALARP and trade-offs have always to be considered.

e. CASA may use safety panels to identify hazards and assist in the process of risk assessments.

8.1 CASA HAZARD and Risk Assessment Processes

The OAR took a precautionary approach to airspace safety by adopting the principles of dependency risk management. In terms of hazard identification, risk assessment and mitigation designed to determine 'what could go wrong'.

The OAR utilised a risk management process and a variety of analytical tools in its approach to assessing Wellcamp's airspace risk. This approach included a SWOT analysis which led to a full HAZID/AP.

The risk assessment process was designed to consider the risk of a mid-air conflict or collision in the vicinity of Wellcamp and the existing aerodromes at Toowoomba and Oakey. Throughout this process, the OAR applied the concept of ALARP to demonstrate that identified risks were sufficiently mitigated. The purpose in adopting this approach ensures that the residual risk is mitigated to a level that is acceptable. It is important to note that this process does not eliminate the residual risk entirely.

A safety panel of personnel was established to review possible conflicts in the study area. A list of possible threats was generated and a number of mitigations were applied to ensure that the threats were sufficiently treated.

During the assessment process the safety panel identified Risk Groups which are listed in the Hazard and Risk Log (Refer to Appendix 1). These Hazards formed elements of a causal chain. Subsequently the safety panel treated these causal chains with relevant mitigators to achieve ALARP.

8.2 Airspace Risk Assessment

The operational environment surrounding Wellcamp that was considered in the risk assessment process refers to an uncontrolled, Class G airspace. It has a radius of 50 NM and extends to 8,500 ft AMSL.

The aviation activity operating within the study region considered within the risk assessment includes a range of aircraft and operators engaged in the following activities:

- IFR passenger transport aircraft operating into and out of Toowoomba;
- Gliders from McCaffery Field and Dalby;

- General aviation ab-initio training operating from Toowoomba and surrounding aerodromes;
- IFR and VFR itinerates from the east of Toowoomba transiting locations west of Toowoomba and Wellcamp;
- Sports aviation operators including registered RA-Aus aircraft operating throughout the airspace and surrounding ALAs.

Defence operations from Oakey operating within controlled airspace and designated RA and DA airspace were excluded.

8.3 Aviation Safety Incident Reports (ASIRs)

All accidents and incidents involving Australian registered aircraft, or foreign aircraft in Australian airspace must be reported to the ATSB. The ATSB receives incident information via pilot reports, Airservices' ESIRs and Defence's Aviation Safety Occurrence Reports (ASORs).

The ATSB maintains its own database, the Safety Investigation Information Management System (SIIMS), in which all reported occurrences are logged, assessed, classified, and recorded. The information contained within SIIMS is dynamic and subject to change based on additional and/or updated data. Each individual report is known as an ASIR and for identification purposes is allocated its own serial number.

During the three year period from 01 September 2010 to 31 August 2013 a total of 248 airspace related ASIRs were submitted to the ATSB for locations within 50 NM of Toowoomba below 10,000 ft AMSL. The number of incidents in the airspace surrounding Wellcamp was low.

Establishing an additional aerodrome in the region could increase the operational complexity of the airspace. This may (depending of traffic levels and traffic mix) result in an increase to the number of incidents if no additional risk mitigators are considered.

9. SUMMARY OF ISSUES

9.1 Issues and Findings

Wellcamp and Toowoomba are surrounded by Class G airspace, within which there are no separation services but limited ATS are provided depending upon the flight category being operated.

Based on the current local and the predicted Wellcamp activity during weekdays and weekends, the OAR identified a series of potential air traffic segregation challenges:

1. **Proximity to other aerodromes.** Wellcamp is located in proximity to Oakey, Toowoomba and a number of ALAs. CASA's preliminary analysis indicates that there are significant airspace and potential traffic conflict issues to be considered, including:
    a. **Traffic mix (aircraft types, performance, equipment, pilot training, and experience).** The airspace would see an increase in turbo prop aircraft and the potential future introduction of passenger jet and freight aircraft.
    b. **Types of operations.** The airspace covered by this preliminary airspace assessment is currently used for pilot training (civil and military), passenger

transport, freight carriage, recreation including ballooning, gliding and hang gliding, sightseeing flights and military specific training including rappelling and winching from hovering helicopters, and parachuting day and night.

c. **Overlapping instrument procedures.** Potential conflicts due to the introduction of instrument approach and departure procedures at Wellcamp and their proximity to Oakey and Toowoomba have been considered. Instrument procedures at Oakey and Toowoomba currently overlay one another, though they are vertically separated. During hours of Oakey activation instrument approaches to Oakey are managed by Oakey ATC. Outside of hours, there is limited traffic at Oakey. The designer of the Wellcamp IFPs is working with Defence and Airservices to address any conflict issues. The outcome of this work is expected in March 2014.

d. **Runway alignment.** The runway direction at Wellcamp (12/30) has the potential to bring circuit traffic into conflict with circuit traffic at Toowoomba (runway alignment 11/29) in periods of nil / light variable wind.

2. **Proximity to Restricted and Danger Areas.** The airspace surrounding Wellcamp has a number of RAs and DAs which limits the airspace available for manoeuvring.
3. **Interaction with transiting aircraft.** The airspace south and west of Oakey and west of Toowoomba is known to be busy due to the funnelling effect on the flow of VFR aircraft operating to/from Toowoomba and Archerfield aerodromes avoiding the controlled airspace, RAs and the nearby terrain. IFR aircraft conducting an instrument approach to Wellcamp runway 30 could potentially conflict with transiting VFR aircraft and aircraft operating within the nominated Toowoomba flying training area.
4. **Unknown risks.** Due to the unique situation posed by the development of Wellcamp in close proximity to other existing aerodromes and airspaces, there may be risks associated with the new operations that are yet to be fully realised or understood. The airspace will be closely monitored by CASA from the commencement of operations at Wellcamp in order to inform itself of additional appropriate actions which may be warranted.

The airspace surrounding Toowoomba and Wellcamp is complex and at times congested. When the overlaying RAs and DAs are activated, the aircraft manoeuvring area can be limited. Feedback received by stakeholders suggests this can increase pilot workload, radio congestion and impact on pilot situational awareness within the Toowoomba airspace. This is supported by ASIR data trends.

Suggested causes for this increase included:

- Increased use of high performance turboprop aircraft;
- Increased recreational and sports aviation within the region;
- Change in the traffic mix and the wide range of aircraft performance capabilities at Toowoomba occurring at short notice; and
- Wide range of pilot experience from student pilots, private pilots, and military users to commercial pilots.

Defence has responded to the growing demand for airspace by reducing the size of RAs, DAs and the Oakey CTR airspace. This reduction will enable greater access to the airspace for civilian aircraft. Defence has changed the RA conditional status of the restricted airspace from RA1 to RA2, which does not allow civilian aircraft to flight plan through the airspace. However, Defence has also introduced a VFR Route

through the Oakey CTR and introduced a number of RA1 air routes via the waypoint MESED, which will increase civilian access to the airspace. New air routes and associated waypoints will be established to allow aircraft to plan around Oakey's airspace.

The changes to the Defence airspace is unlikely to have a negative effect on aircraft gaining a clearance through the region as it will be managed on a "clearance on request" basis. Airspace users will likely have similar access post 29 May 2014 as they did prior with Defence reserving the right to deny the clearance request if operational or emergency requirements dictate.

The results of research and comments received from stakeholders have provided the OAR an understanding of the traffic dynamics around Toowoomba and Wellcamp.

The HAZID/AP of the assessment airspace and found:

1. Wellcamp aerodrome has a number ALAs located within its vicinity. Aircraft at Wellcamp and aircraft operating from the nearby ALAs could conflict with each other;
2. IFR aircraft departing Wellcamp towards the north and flying towards the waypoint MESED and the RA could conflict with VFR and glider aircraft;
3. Aircraft departing Wellcamp towards the west and east could conflict with VFR aircraft transiting to and from the ALAs and IFR aircraft transitioning to and from the west;
4. Aircraft departing Wellcamp could conflict with IFR aircraft below 8,500 ft AMSL arriving and departing Toowoomba and Wellcamp;
5. Sports aviation and gliders could conflict with IFR aircraft arriving and departing Wellcamp;
6. Frequency congestions due to the high traffic density and some undisciplined radio calls could result in pilots losing situational awareness; and
7. Hazards that may be present and are related to the Oakey aerodrome when it is deactivated have been considered in the HAZID/AP.
8. The following additional matters have been raised and considered as either potential hazards or concerns:
    a. Overlapping IFPs at Wellcamp, Oakey and Toowoomba;
    b. The Wellcamp IFPs are co-incident with the glider flying training area and their overland routes south from McCaffrey Field;
    c. Potential military activity outside the air traffic service; and
    d. Private VFR aircraft operating at Oakey.

9.2 Recommendations

Wellcamp is still under construction and as a result, many assumptions had to be made, which included estimating movement and passenger numbers. It is realistic to accept that a number of aircraft movements from Toowoomba will relocate to Wellcamp.

It is important to note that this preliminary airspace assessment has made recommendations based on existing and projected data. This preliminary airspace assessment has recommendations that will undoubtedly be overtaken because of the change of air traffic mix and unforseen patterns which will develop.

CASA applies a precautionary approach when conducting aeronautical studies. Given the unknown level of traffic that may operate at Wellcamp is it difficult to forecast airspace requirements. However, CASA recommends a graduated airspace and ATS response to changes in traffic levels. CASA recommends:

Initial response: 2014-2016.

Based on the data available to CASA at the time of this assessment, from the planned commencement of operations until 2016, the following are considered appropriate actions:

1. The airspace surrounding Wellcamp should remain as Class G airspace.
2. CASA should monitor airspace risk through traffic and passenger volumes, and reported incidents.
3. Toowoomba airspace users should submit an Airspace Change Proposal to redesign the Toowoomba flying training area. The re-design may result in a segmentation of a flying training area north and a flying training area south. The flying training area north may be unavailable when Wellcamp is in use.

Communications:

4. CASA should facilitate the introduction of a Broadcast Area to encompass Toowoomba and Wellcamp aerodromes and Oakey during hours of Oakey de-activation. This is anticipated to reduce frequency confusion and improve situational awareness. The dimensions of the Broadcast Area to be determined through industry consultation.
5. Appropriate radio communication should be available between aircraft on the ground at Wellcamp and aircraft on the ground at Toowoomba including other airspace users.
6. Appropriate radio communication should exist between Brisbane Centre and aircraft on the ground at Oakey, Toowoomba and Wellcamp.
7. All aircraft, including gliders, to use the appropriate frequency when operating within the proposed Broadcast Area. This provides airspaces users with alerted see-and-avoid capability resulting in greater situational awareness.

Local procedures and publications:

8. CASA should implement non-standard circuit direction at Wellcamp to reduce possible conflicts with circuit traffic at Toowoomba. (E.g. Wellcamp Runway 12 to be non-standard right-hand circuits and Wellcamp Runway 30 to be standard left-hand circuits).
9. CASA and Airservices should work together to develop and publish relevant navigational information (e.g. recommended VFR/IFR routes/corridors/tracking points into and out of Toowoomba and Wellcamp and traffic de-confliction procedures) in the ERSA, VNC and Departure and Approach Procedure charts.
10. CASA and Airservices should work together to develop a VFR flight guide for the region to assist VFR pilots to de-conflict with operations at Wellcamp.

Education, Training and Airspace User Groups:

11. CASA Aviation Safety Advisors should provide safety seminars to airspace users with a focus on:
    - Procedures at non-controlled aerodromes;

- Appropriate and effective radio use;
- Effective lookout and collision avoidance procedures;
- New information and changes published in AIP Charts and ERSA; and
- IFR operations at Wellcamp; and
- The use of the recommended VFR routes and improved awareness of ALA locations and Wellcamp.

12. Local stakeholders establish a 'Darling Downs Aviation Safety Group'. The collaborative sharing of information between users will provide the forum to co-ordinate airspace usage, demand and limit possible conflicts.

Instrument Flight Procedures:

13. CASA should ensure segregation, or that other mitigators are developed if segregation is not achievable, between different IFPs through CASR Part 173.

Secondary response: 2017-2019.

The initial response attempts to treat foreseeable risks with a series of appropriate mitigators designed to reduce the risk of operations in the area without unduly adding cost or onerous requirements upon airspace users. This provides a balance of safety and accessibility. However, CASA acknowledges that this approach, even with the diligent support and compliance of airspace users does have limits. As traffic volumes, increase further controls will be required to ensure risk remains ALARP.

CASA should conduct a PIR of the Oakey airspace changes and the introduction of operations at Wellcamp within 12 months of commencement of Wellcamp operations.

Should CASA determine the recommendations implemented for initial Wellcamp operations cannot maintain the risk at an acceptable level then an airspace classification change may be necessary. This may result in the following actions:

1. CASA considers the implementation of controlled airspace as an outcome of further risk assessment.
2. CASA to continue to monitor risk levels and traffic movements and coordinate with Airservices regarding any required airspace change strategies for Wellcamp.

10. NEXT STEP

Stakeholders are requested to provide feedback on the study to oar@casa.gov.au no later than XX Month Year. CASA will consider feedback received to be public information and will normally attribute feedback, however requests to remain anonymous will be considered.

ANNEXES:

A. Acronyms and Abbreviations
B. Australian Airspace Structure
C. Definitions and Explanation of Terms
D. Stakeholders
E. Radar Surveillance Data Charts

APPENDIX:

1. Hazard and Mitigation Register

ANNEX A – ACRONYMS AND ABBREVIATIONS

Abbreviation	Explanation
AAPS	Australian Airspace Policy Statement
ACAS	Airborne Collision Avoidance System (generic term for TCAS)
Act	*Airspace Act 2007*
AD	Aerodrome
AFRU	Aerodrome Frequency Response Unit
AGL	Above Ground Level
AI	Airspace Incursion (previously known as Violation of Controlled Airspace)
AIP	Aeronautical Information Publication
AIRPROX	A close proximity event between two aircraft
Airservices	Airservices Australia
ALARP	As Low As Reasonably Practicable
AMSL	Above Mean Sea Level
ARA	Airspace Research Application
ASA	Aviation Safety Advisor
ASIR	Aviation Safety Incident Report (recorded by ATSB)
ATC	Air Traffic Control
ATI	Air Transport Inspector
ATS	Air Traffic Service
ATSB	Australian Transport Safety Bureau
Avdata	Avdata Australia (aviation movement data provider)
CAO	Civil Aviation Order
CAR	Civil Aviation Regulation 1988
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation 1998
CPL	Commercial Pilots Licence
CTAF	Common Traffic Advisory Frequency
CTR	Control Zone
DA	Danger Area
DAH	Designated Airspace Handbook
DAP	Departure and Approach Procedures
Defence	Department of Defence
Department	Department of Infrastructure and Transport
DME	Distance Measuring Equipment
DTI	Directed Traffic Information
EM	Executive Manager
ERC	En-Route Chart
ERSA	En-Route Supplement Australia
ESIR	Electronic Safety Incident Report (recorded by Airservices)
FIS	Flight Information Service
FL	Flight Level
FOI	Flying Operations Inspector
ft	feet
GA	General Aviation
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HLS	Helicopter Landing Site
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organization

IFR	Instrument Flight Rules
IFR (H)	IFR High – more than 38 passengers
IFR(L)	IFR Low – less than 10 passengers
IFR (M)	IFR Medium – between 10 and 38 passengers
IMC	Instrument Meteorological Conditions
ILS	Instrument Landing System
kg	kilograms
km(s)	kilometre(s)
kt(s)	knot(s)
LoA	Letter of Agreement
LL	Lower level
m	metre(s)
MOS	Manual of Standards
NavAid	Navigation Aid
NDB	Non-Directional Beacon (navigation aid)
NM	Nautical Miles
NOTAM	Notice to Airmen
OAR	Office of Airspace Regulation
PRD	Prohibited, Restricted and Danger Area
PT	Passenger Transport
QNH	An altimeter sub-scale to obtain local elevation or altitude
RA	Restricted Area
RAAF	Royal Australian Air Force
RAPAC	Regional Airspace and Procedures Advisory Committee
RFDS	Royal Flying Doctor Service
RNAV	Area Navigation
RNP	Required Navigation Performance
RPT	Regular Public Transport
RWY	Runway
SFC	Surface
SVFR	Special Visual Flight Rules
TCAS	Traffic Alert and Collision Avoidance System
TCU	Terminal Control Unit
TMA	Terminal Area
TWR	Tower
VCA	Violation of Controlled Airspace (now known as an Airspace Infringement)
VFR	Visual Flight Rules
VHF	Very High Frequency
VIS	Visibility
VMC	Visual Meteorological Conditions
VNC	Visual Navigation Chart
VOR	VHF Omni-Directional Radio Range (navigation aid)
VTC	Visual Terminal Chart
WAC	World Aeronautical Chart

ANNEX B – AUSTRALIAN AIRSPACE STRUCTURE

Class	Description	Summary of Services/Procedures/Rules
A	All airspace above Flight Level (FL) 180 (east coast) or FL 245	Instrument Flight Rules (IFR) only. All aircraft require a clearance from Air Traffic Control (ATC) and are separated by ATC. Continuous two-way radio and transponder required. No speed limitation.
B	In control zones (CTRs) of defined dimensions and control area steps generally associated with major capital city controlled aerodromes	IFR and Visual Flight Rules (VFR) flights only. All aircraft require a clearance from ATC and are separated by ATC. Continuous two-way radio and transponder required.
C	In control CTRs of defined dimensions and control area steps generally associated with controlled aerodromes	▪ All aircraft require a clearance from ATC to enter airspace. All aircraft require continuous two-way radio and transponder. ▪ IFR separated from IFR, VFR and Special VFR (SVFR) by ATC with no speed limitation for IFR operations. ▪ VFR receives traffic information on other VFR but are not separated from each other by ATC. SVFR are separated from SVFR when visibility (VIS) is less than Visual Meteorological Conditions (VMC). ▪ VFR and SVFR speed limited to 250 knots (kt) Indicated Air Speed (IAS) below 10,000 feet (ft) Above Mean Sea Level (AMSL)*.
D	Towered locations such as Bankstown, Jandakot, Archerfield, Parafield and Alice Springs.	▪ All aircraft require a clearance from ATC to enter airspace. For VFR flights this may be in an abbreviated form. As in Class C airspace all aircraft are separated on takeoff and landing. All aircraft require continuous two-way radio and are speed limited to 200 kt IAS at or below 2,500 ft within 4 NM of the primary Class D aerodrome and 250 kt IAS in the remaining Class D airspace. ▪ IFR are separated from IFR, SVFR, and are provided with traffic information on all VFR. ▪ VFR receives traffic on all other aircraft but are not separated by ATC. ▪ SVFR are separated from SVFR when VIS is less than VMC.
E	Controlled airspace not covered in classifications above	▪ All aircraft require continuous two-way radio and transponder. All aircraft are speed limited to 250 kt IAS below 10,000 ft AMSL*, ▪ IFR require a clearance from ATC to enter airspace and are separated from IFR by ATC, and provided with traffic information as far as practicable on VFR. ▪ VFR do not require a clearance from ATC to enter airspace and are provided with a Flight Information Service (FIS). On request and ATC workload permitting, a Surveillance Information Service (SIS) is available within surveillance coverage.
F	Not currently used in Australia	
G	Non-controlled	▪ Clearance from ATC to enter airspace not required. All aircraft are speed limited to 250 kt IAS below 10,000 ft AMSL*. ▪ IFR require continuous two-way radio and receive a FIS, including traffic information on other IFR. ▪ VFR receive a FIS. On request and ATC workload permitting, a SIS is available within surveillance coverage. VHF radio required above 5,000 ft AMSL and at aerodromes where carriage and use of radio is required.

* Not applicable to military aircraft.
**If traffic conditions permit, ATC may approve a pilot's request to exceed the 200 kt speed limit to a maximum limit of 250 kt unless the pilot informs ATC a higher minimum speed is required.

ANNEX C – DEFINITIONS AND EXPLANATION OF TERMS

Restricted Area: The declaration of a Restricted Area (RA) creates airspace of defined dimensions within which the flight of aircraft is restricted in accordance with specified conditions. Clearances to fly through an active RA are generally only withheld when activities hazardous to the aircraft are taking place, or when military activities require absolute priority. RAs are mainly declared over areas where military operations occur. However, RAs have also been declared to cater for communications and space tracking operations or to control access to emergency or disaster areas. RAs are generally promulgated at specified times and dates. For example, a temporary RA may be declared for special events where there may be a public safety issue – such as the Avalon Air Show or the Commonwealth Games.

In order to assist with shared use of airspace, all RAs have been allocated a "Restricted Area Conditional Status". This status will give an indication as to the likelihood of obtaining a clearance to fly through restricted airspace. NOTAMs may be issued to indicate changes to the Restricted Area Conditional Status, which should be checked prior to flight planning.

> **Conditional Status RA 1:** Pilots may flight plan through the Restricted Area and upon request will be granted a clearance from ATC when the area is active unless a NOTAM indicates that a clearance is not available.
>
> **Conditional Status RA 2:** Pilots may not flight plan through the Restricted Area or expect a clearance from ATC. However, tracking may be offered through the Restricted Area on a tactical basis by ATC unless a NOTAM indicates that a clearance is not available.
>
> **Conditional Status RA 3:** Clearance through the Restricted Area is not available except in a declared emergency.

Danger Area: The declaration of a Danger Area (DA) defines airspace within which activities dangerous to the flight of aircraft may exist at specified times. Approval for flight through a DA outside controlled airspace is not required. However, pilots are expected to maintain a high level of vigilance when transiting DAs. DAs are primarily established to alert aircraft on the following:

- Flying training areas where student pilots are learning to fly and / or gather in large numbers;
- Gliding areas where communications with airborne gliders might be difficult;
- Blasting on the ground at mine sites;
- Parachute operations;
- Gas discharge plumes; and
- Small arms fire from rifle ranges.

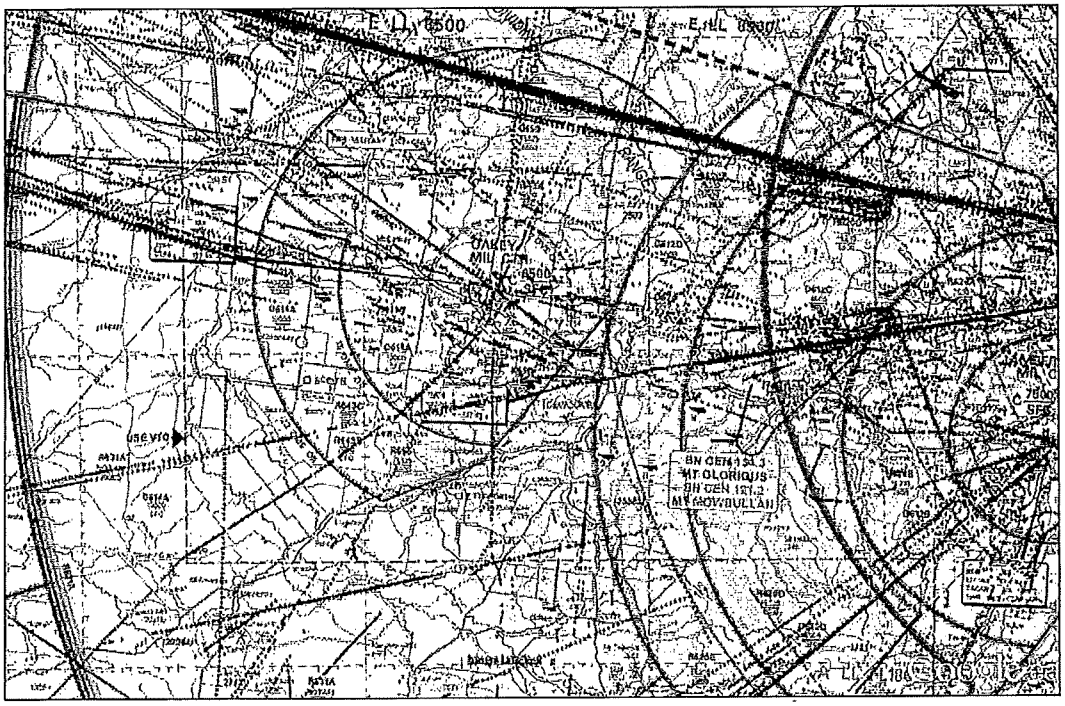
Directed Traffic Information (DTI): Information issued by an ATS unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid collision.

Flight Information Service (FIS): A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

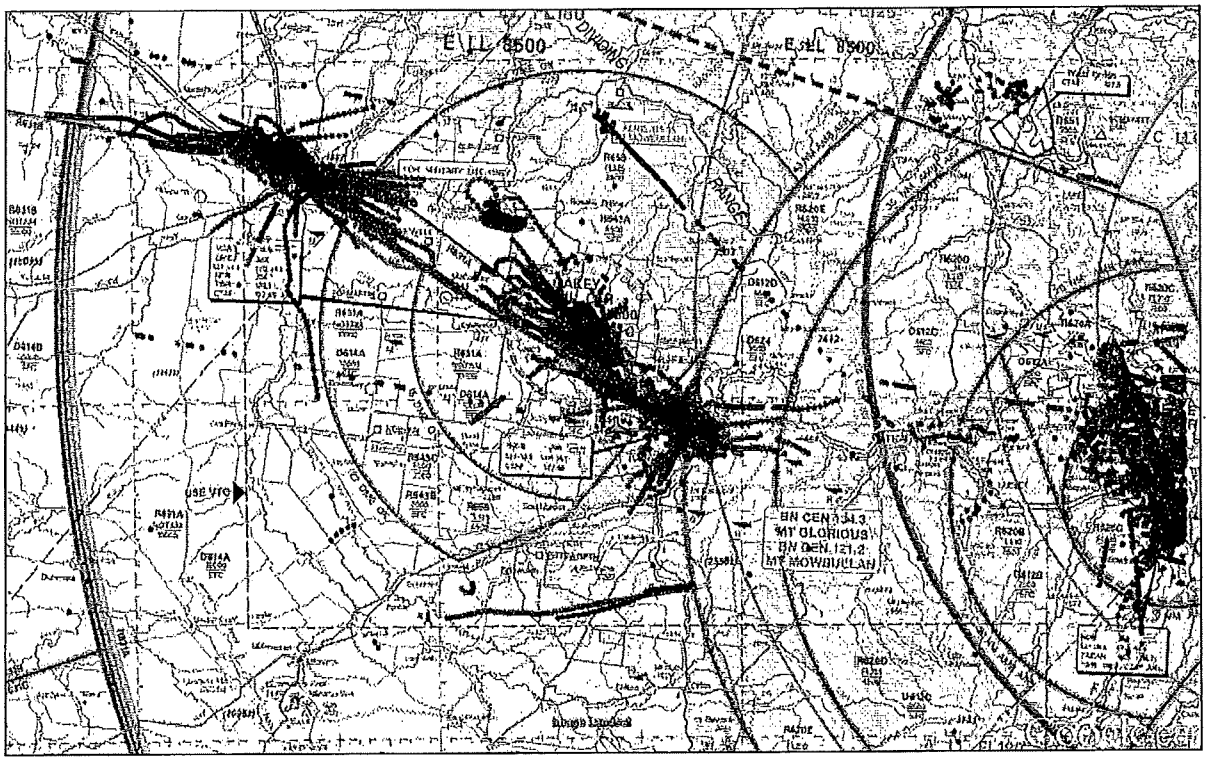
ANNEX D – STAKEHOLDERS

Position	Organisation
Aviation Safety Advisor (ASA)	Safety Analysis & Education Division, CASA
Flying Operations Inspector (FOI)	Operations Division, CASA
Aerodrome Inspector (AI)	Airspace and Aerodrome Regulation Division , CASA
Air Transport Inspector (ATI)	Operations Division, CASA
Military Manger	Office of Airspace Regulation (Defence)
Commandant	Oakey Army Aviation Training Centre
Chief of Staff	Oakey Army Aviation Training Centre
Operations Officer	Oakey Army Aviation Training Centre
Director Aviation Coordination & Operations	Royal Australian Air Force
General Manager	Air Traffic Policy, Department of Infrastructure
ATS Integrity Manager	Airservices Australia
Coordinator Aerodromes	Toowoomba Regional Council
Company Representative (Pilot)	Skytrans
Chief Pilot	Austrek Air Charters
Chief Flying Instructor	Darling Downs Aero Club
Chief Pilot	Easternwell
Director	Maktrans Qld Pty Ltd
Chief Flying Instructor	Darling Downs Soaring Club
Pilot	CareFlight Queensland
Managing Director	Aviation Projects
Managing Director	Aviation Specialists
Pilots	Individual Private and Recreational Pilot's

ANNEX E – RADAR SURVEILLANCE DATA CHARTS



Radar (SSR) data 31 January 2013 to 1 March 2013 (8,501 ft AMSL – 9,000 ft AMSL)



Radar (SSR) data 31 January 2013 to 1 March 2013 (Surface – 3,000 ft AMSL).

APPENDIX 1 – HAZARD AND MITIGATION REGISTER

Risk No.	Risk Area e.g (Legal, Financial, Political, HR, Operational, Other)	The Risk: What can happen and how it can happen?			Risk Determination			Risk Treatment		Post Risk Determination			Decision/
					Likelihood Rating	Consequence	Overall Risk Level	Controls to be Implemented		Likelihood Rating	Consequence	Overall Risk Level	Accept or Further
		Hazard Description	Causal Chain	The Consequence from an event happening	A	B	M/Ho	Treatment Details	A	B			
1.0	RUNWAYS	In light wind conditions, one or more aircraft at Toowoomba could select a different direction runway to that at Wellcamp or vice versa; e.g. RWY 14 at Toowoomba versus RWY 32 at Wellcamp.	Aircraft taking off at Wellcamp could conflict with aircraft taking off at Toowoomba.	Aircraft jet airborne at Wellcamp and Toowoomba become involved in: > a near miss > or a collision with an aircraft from the other aerodrome.	Possible (3)	4 or Severe		M04	M04: Publish circuit direction to deconflict. E.g. RWY RWY 32 RH, RWY RWY 30 LH	Extremely Rare (0)	4 or Severe	4	ALARP condition is achieved and is acceptable.
2.0	VFR VICINITY WELLCAMP / TOOWOOMBA (Normal Traffic Volume)	Wellcamp aerodrome has a number ALAs located within vicinity (2-4NM north west Wellcamp). VFR aircraft in Wellcamp circuit or aircraft operating ALAs could conflict.	VFR aircraft operating at Wellcamp either: > fails to hear about and/or > fails to appreciate and/or > fails to notice and/or > fails to appreciate ALA/reporting locations > fails to avoid > is not provided with an ATC advisory or separation service, in respect of another Wellcamp or ALA VFR aircraft.	VFR aircraft operating at Wellcamp conflict with VFR ALA traffic	Possible (3)	4 or Severe		M07, M08 & M09	M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms); M08: Pilot awareness of Wellcamp and ALA locations and need to remain clear of Wellcamp traffic; M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. EKIA, VFR Guide, Self managed VFR Areas, operating times & routes/corridors/tracking points).	Extremely Rare (0)	4 or Severe	4	ALARP condition is achieved and is acceptable
3.0	VFR VICINITY WELLCAMP / TOOWOOMBA (Heavy & Traffic Volume)	Wellcamp aerodrome is/has a number ALAs located within vicinity (2-4NM north west Wellcamp). VFR aircraft in Wellcamp CT or A/C operating ALAs could conflict.	Aircraft departing, arriving or operating at Wellcamp either: > fails to hear about and/or > fails to appreciate and/or > fails to notice and/or > fails to appreciate ALA/reporting locations > fails to avoid > is not provided with an ATC advisory or separation service in respect of another Wellcamp or Toowoomba aircraft.	VFR aircraft operating at Wellcamp conflict with VFR ALA traffic	Likely (4)	4 or Severe		M08, M09 & M10	M08: Pilot awareness of Wellcamp and ALA locations and need to remain clear of Wellcamp traffic; M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. EKIA, VFR Guide, Self managed VFR Areas, operating times & routes/corridors/tracking points); M10: During busy periods the operators at Wellcamp, Toowoomba and ALAs have agreements in place to manage operations in the circuits (Wellcamp, Toowoomba & ALAs) and flying training areas.	Extremely Rare (0)	4 or Severe	4	ALARP condition is achieved and is acceptable

Risk No.	Risk Area e.g. Legal, Financial, Political, HR, Operational, OH&S	The Risk: What can happen and how it can happen?			Risk Determination			Risk Treatment		Residual Risk Determination			Decision/ Remarks
					Likelihood Rating	Consequence Rating	Overall Risk Level	Controls to be Implemented		Likelihood Rating	Consequence Rating	Overall Risk Level	Accept or Further Treat Residual Risk
		Hazard Description	Causal Chain	The Consequence from an event happening	A	B	MRo	Treatment Details	A	B			
4.0	IFP DEPARTURE WELLCAMP North (R090 to R270 including Wellcamp CCT)	An aircraft departing Wellcamp to North (Toowoomba - MESED) conflicts with: 1 with departing and arriving VFR aircraft from/to Toowoomba 2 with VFR aircraft in the Toowoomba flying training area 3 with VFR aircraft in circuit at Wellcamp and Toowoomba 4 with VFR aircraft operating from ALAs 5 with enroute aircraft overflying Wellcamp or Toowoomba 6 with IFR aircraft on the same departure IFP 7 with IFR aircraft on Wellcamp IAP 8 with IFR aircraft on overlapping Toowoomba IFP 9 with IFR traffic departing Toowoomba to MESED	An aircraft departing Wellcamp to the north (Toowoomba - MESED) conflicts with: > IFR or VFR aircraft	as above	Likely (4)	5 or Catastrophic	[redacted]	M07, M08, M09, M12, M13 & M14	M12: Segment Toowoomba flying training area (e.g. self managed north/south) to provide level of segregation of VFR & IFR operating airspace; M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. ERSA, VFR Guide, Self managed VFR areas, operating times & routes/corridors/tracking points); M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms); M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms); M08: Pilot awareness of Wellcamp and ALA locations and need to remain clear of Wellcamp traffic; M13: Adequate communication and self segregation between IFR aircraft; M14: Adequate communication and self segregation between IFR aircraft and effective communication with Brisbane Centre;	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable
5.0	IFP DEPARTURE WELLCAMP South (R270 to R090)	An aircraft departing Wellcamp to East conflicts with: 1 VFR aircraft in Toowoomba flying training area 2 VFR aircraft arriving or departing Toowoomba 3 VFR aircraft operating at ALAs 4 VFR aircraft transiting area 5 IFR aircraft arriving & departing Wellcamp to south 6 IFR aircraft conducting Toowoomba IFP 7 IFR aircraft transiting area	An aircraft departing Wellcamp to the south conflicts with: > IFR or VFR aircraft	as above	Possible (3)	5 or Catastrophic	[redacted]	M12	M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. ERSA, VFR Guide, Self managed VFR areas & routes/corridors/tracking points); M12: Segment Toowoomba flying training area (e.g. self managed north/south) to provide level of segregation of VFR & IFR operating airspace; M14: Adequate communication and self segregation between IFR aircraft and effective communication with Brisbane Centre; M15: Introduction of IFR waypoints & VFR tracking points to facilitate segregation of inbound/outbound traffic;	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable
6.0	IFP DEPARTURE WELLCAMP East (R030 to R150)	An aircraft departing Wellcamp to East conflicts with: > Similar hazards exist to the north & south there have been covered.	An aircraft departing Wellcamp to the East conflicts with: > IFR or VFR aircraft	as above	Extremely Rare (0)	5 or Catastrophic	5	As per Risk serial Numbers 5 and 6		Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable
7.0	IFP DEPARTURE WELLCAMP West (R200 to R340)	An aircraft departing Wellcamp to west conflicts with (other hazards including flying training area traffic have been addressed above): 1 VFR aircraft transiting to/from west (Wellcamp or Toowoomba) including Defence VFR route & ALAs 2 IFR aircraft operating below AA 10,000 ft 3 IFR aircraft arriving/on approach Wellcamp 4 IFR aircraft arriving/on approach Toowoomba 5 IFR aircraft departing Toowoomba	An aircraft departing Wellcamp to the West conflicts with: > IFR or VFR aircraft	as above	Possible (3)	5 or Catastrophic	[redacted]	M07 M14 M16	M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms); M14: Adequate communication and self segregation between IFR aircraft and effective communication with Brisbane Centre; M16: Introduction of IFR waypoints /routes to facilitate segregation of inbound/outbound traffic.	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable

Risk No.	Risk Area e.g. Legal, Financial, Political, HR, Operational, OH&S	The Risk: What can happen and how it can happen?			Risk Determination			Risk Treatment		Residual Risk Determination			Decision / Remarks
					Likelihood Rating	Consequence Rating	Overall Risk Level	Controls to be Implemented		Likelihood Rating	Consequence Rating	Overall Risk Level	Accept or Further Treat Residual Risk
		Hazard Description	Causal Chain	The Consequence from an event happening	A	B	[illegible]	Treatment Details	A	B			
8.0	IFP ARRIVALS WELLCAMP	An aircraft arriving Wellcamp from north conflicts with: 1 VFR aircraft operating in Toowoomba flying training area 2 VFR aircraft arriving or departing Toowoomba 3 VFR aircraft transiting area or operating on Defence VFR route or at ALAs 4 IFR arrivals and departures both same track and opposite direction 5 IFR aircraft conducting same Wellcamp IFP 6 IFR aircraft conducting Toowoomba IFP	An aircraft arriving Wellcamp from the West conflicts with: > IFR or VFR aircraft	as above	Possible (3)	5 or Catastrophic	[redacted]	M07, M08, M09, M10, M12, M14 & M16	M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms). M08: Pilot awareness of Wellcamp and ALA locations and need to remain clear of Wellcamp traffic; M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. ERSA, VFR Guide, Self managed VFR areas & routes/corridors/tracking points); M10: During busy periods the operators at Wellcamp, Toowoomba and ALAs have agreements in place to manage operations in the circuits (Wellcamp, Toowoomba & ALAs) and flying training/glider areas; M12: Segment Toowoomba flying training area (e.g. self managed north/south) to provide level of segregation of VFR & IFR operating airspace; M14: Adequate communication and self segregation between IFR aircraft and effective communication with Brisbane Centre; M16: Introduction of IFR waypoints/routes to facilitate segregation of inbound/outbound traffic.	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable
9.0	TRANSITING AIRCRAFT	Addressed under arrivals and departures											ALARP condition is achieved and is acceptable
10.0	SPORTS AVIATION OPERATIONS (Gliders, RA-Aus etc.)	Sports aviation aircraft may conflict with: 1 Scheduled aircraft during peak glider operating times (10am-4pm) 2 IFR aircraft conducting Wellcamp & Toowoomba IFPs 3 IFR aircraft arriving/departing Wellcamp or Toowoomba 4 IFR transit flights	Sports aviation operations may conflict with: > IFR aircraft	as above	Possible (3)	5 or Catastrophic	[redacted]	M07, M08, M09, M10 & M17	M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms). M08: Pilot awareness of Wellcamp and ALA locations and need to remain clear of Wellcamp traffic. M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. ERSA, VFR Guide, Self managed VFR areas & routes/corridors/tracking points); M10: During busy periods the operators at Wellcamp, Toowoomba and ALAs have agreements in place to manage operations in the circuits (Wellcamp, Toowoomba & ALAs) and flying training/glider areas; M17: Collaboration between aircraft operating times/schedules.	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable
11.0	COMMUNICATION	Effective communication could be degraded or denied by: 1 Frequency congestion & over transmission of radio calls due multiple different area/aerodrome operators on same frequency during peak periods 2 Some non compliance with CAR 166 communication procedures 3 Frequency separation (e.g. incorrect frequency) 4 Terminology between IFR & VFR operations 5 Difficulty maintaining SA mental air picture from multiple & varied radio reports 6 Level of radio coverage aircraft to aircraft between different aerodromes 7 Level of radio coverage with ATC (centre)	Communication breakdown/overload	as above	Possible (3)	5 or Catastrophic	[redacted]	M17, M18 & M19	M17: Collaboration between aircraft operating times/schedules; M18: Education and training of effective radio use, including location reporting and terminology; M19: Provision of local frequency information (e.g. BA, VFR guide); M20: Installation of repeater to ensure adequate communication with ATC; M20: Installation of repeater to ensure adequate communication with ATC.	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable
12.0	GENERAL RISK	General Hazards		as above	Possible (3)	5 or Catastrophic	[redacted]	M21	M21: Establishment of Industry Darling Downs Aviation Safety Group	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable

Risk No.	Risk Area e.g legal, Financial, Political, HR, Operational, or H&S	The Risk: What can happen and how it can happen?			Risk Determination			Risk Treatment		Residual Risk Determination			Decision/ Remarks
					Likelihood Rating	Consequence Rating	Overall Risk Level	Controls to be Implemented		Likelihood Rating	Consequence Rating	Overall Risk Level	Accept or Further Treat Residual Risk
		Hazard Description	Cause/s	The Consequence from an event happening	A	B	All Risks	Treatment Details	A	B			
13.0	DAILY AIRSPACE DEACTIVATION PERIODS	Hazards that may be present and that have not already been considered during periods of Oakey airspace deactivations: 1 Overlapping IFPs at Wellcamp, BOI & Toowoomba potential IFR-IFR conflicts 2 Wellcamp IFP path overhead glider activity at McCaffrey Field 3 Potential military operations outside ATS hours 4 Private VFR aircraft operations at BOI 5 VFR aircraft arriving/departing Toowoomba early west conflict with Wellcamp IFP	Oakey airspace deactive	as above	Possible (3)	5 or Catastrophic		M07, M08, M09, M10, M14 & M22	M07: Adequate communication arrangements in place between ALAs & Wellcamp (check VHF comms); M08: Pilot awareness of Wellcamp and ALA locations and need to remain clear of Wellcamp traffic; M09: Local airspace and aerodrome/ALA traffic deconfliction procedures (e.g. ERSA, VFR Guide, Self-managed VFR areas & routes/corridors/tracking points); M10: During busy periods the operators at Wellcamp, Toowoomba and ALAs have agreements in place to manage operations in the circuits (Wellcamp, Toowoomba & ALAs) and flying training/glider areas; M14: Adequate communication and self segregation between IFR aircraft and effective communication with Brisbane Centre. M22: Segregation between different IFPs as per MOS 173.	Extremely Rare (0)	5 or Catastrophic	5	ALARP condition is achieved and is acceptable

CASA RISK MATRIX

RISK ASSESSMENT MATRIX - LEVEL OF RISK

7: Extreme risk
detailed action plan required

6-7: High risk
- needs senior management attention

4-5: Medium Risk
- specify management responsibility

<4: Low risk
- manage by routine procedures

Extreme and High risks must be reported to Senior Management and require detailed treatment plans which reduce the risk in accordance with the ALARP principle.

	Consequence					
People	Injuries or ailments not requiring medical treatment 1 complaint received about a decline in environment amenity.	Minor injury or First Aid Treatment Case 5 complaints received about a decline in environment amenity.	Serious injury causing hospitalisation or multiple medical treatment cases. 10 complaints received from the public about a decline in environment amenity.	Life threatening injury or multiple serious injuries causing hospitalisation. 50 complaints received about a decline in environment amenity.	Multiple life threatening injuries. Less than 10 fatalities. >50 & ongoing complaints received about the decline in environment amenity.	Multiple fatalities, 10 or more
Environment	Environment disruption not causing complaints and/or requiring remedy.	Environment harm causing disruption to a significant animal species over a week.	Environment harm causing a seasonal decline in a significant animal species population and or community / site.	Environment harm causing a 5 year decline in a significant animal species population and/or, community / site.	Environment harm causing a 10 year decline in a significant animal species population and/or community / site.	Environment harm causing a permanent decline in a significant animal species population and/or community / site.
Reputation	Internal Review	Scrutiny required by internal committees or internal audit to prevent escalation.	Scrutiny required by external committees or Auditor General's Office, etc.	Intense public, political and media scrutiny. Eg: Inquest, front page headlines, TV, etc.	Government inquiry or Commission of inquiry or adverse national media in excess of 1 week.	Government inquiry and ongoing adverse international exposure
Financial	1% of Budget	2.5% of Budget	5% of Budget	10% of Budget	25% of Budget	>25% of Budget

CASA RISK CLASSIFICATION

	Numerical	Historical		Insignificant (0)	Minor (1)	Moderate (2)	Major (3)	Severe (4)	Catastrophic (5)
LIKELIHOOD	> 1 in 10	Is expected to occur in most circumstances	Almost Certain (5)	5					
	1 in 10 - 100	Will probably occur	Likely (4)	4	5				
	1 in 100 - 1000	Might occur at some time in the future	Possible (3)		4	5			
	1 in 1000 - 10000	Could occur but considered unlikely or doubtful	Unlikely (2)			4	5		
	1 in 10000 - 100000	May occur in exceptional circumstances	Rare (1)				4	5	
	< 1 in 100000	Could only occur under specific conditions and extraordinary circumstances	Almost Impossible (0)					4	5