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Aviation Impact Assessment – 450 Mickleham Road, Attwood.

To Melbourne Airport Environs Safeguarding Standing Advisory Committee

For Rasco Pty Ltd

From Ian Jennings

Date 22 December 2020

NAME AND ADDRESS

Ian Jennings

Principal Consultant

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AREA OF EXPERTISE

My area of expertise is airspace and air traffic management. I also have expertise in aircraft maintenance planning and aircraft performance. Through these activities I have an extensive knowledge of aviation regulations.

I have undertaken Aeronautical Impact and Qualitative Risk Assessments as well as Obstacle Lighting Reviews for wind farm projects in Victoria, New South Wales, South Australia and Western Australia. These have included investigations into the impact of wind farms on the operation of Aeroplane Landing Areas and the use of aerial agricultural applications activity. Additionally, I have undertaken Aviation Impact Assessments and Glare Analyses for large scale solar farms as well as Qualitative Risk Assessments for high voltage transmission lines in Victoria and Western Australia.

A common requirement of all these analyses is a thorough knowledge of aviation legislation and regulations and the ability to apply them to the task at hand. I have also taught “air legislation” (rules and regulations) and “basic aero knowledge” (how aeroplanes fly) as part of my time as an Air Traffic Services Senior Instructor.

I am a Certified Air Ground Radio Operator with CASA Aviation Reference Number (ARN) 435274.

SCOPE

I have been commissioned by Rasco Pty Ltd to advise on the possible implications of aviation activity at Melbourne Airport to the future use and development, for employment purposes, of the land known as 450 Mickleham Road, Attwood.

DOCUMENTS AND MATERIALS CONSIDERED

The Australian Government Acts and Regulations that protect the airspace and operations of airports are:

- The Airports Act 1996;
- The Airports (Protection of Airspace) Regulations 1996;
- The Civil Aviation (Building Control) Regulations 1988;
- The Civil Aviation Regulations 1988;
- The Civil Aviation Safety Regulations 1998 and the associated Manuals of Standards.

Other documents considered are:

- National Airports Safeguarding Framework;
- Melbourne Airport Master Plan 2018;
- Victorian Planning Provisions, State planning Policy Framework

SUMMARY OF OPINIONS

Airports and Airspace Protection Legislation

A preliminary review of the Australian Government legislation that protects airports and their associated airspace indicates that the erection of buildings or structures on the subject land, whilst being constrained, is not precluded.

Aircraft Noise Exposure

The subject land, in accordance with the Melbourne Airport Environs Overlay (MAEO) can be used and developed to be compatible with current and forecast aircraft noise exposure.

National Airports Safeguarding Framework

The subject land, in accordance with the NASF Guidelines can be developed to be compatible with the safe and efficient operation of Melbourne Airport.

The land at 450 Mickleham Road, Attwood can be developed for employment purposes, within the constraints outlined without affecting the safety, efficiency or curfew free status of Melbourne Airport.

AIRPORTS AND AIRSPACE PROTECTION LEGISLATION

A preliminary review of the Commonwealth legislation that protects airports and their associated airspace indicates that the erection of buildings or structures on the subject land, whilst being constrained, is not precluded.

The Commonwealth Act and Regulations that protect the airspace and operations of airports in Australia are;

- The Airports Act 1996
- The Airports (Protection of Airspace) Regulations 1996
- The Civil Aviation (Building Control) Regulations 1998
- The Civil Aviation Regulations 1988
- The Civil Aviation Safety Regulations 1998 and the associated Manuals of Standards.

Airports Act 1996

Part 12, Division 3 of the Act creates Prescribed Airspace as “... *... airspace specified in, or ascertained in accordance with the regulations, where it is in interests of the safety, efficiency or regularity of existing or future air transport operations into or out of an airport for the airspace to be protected under this Part.*”¹

Part 12, Division 4 of the Act provides for the protection of prescribed airspace and at Section 182 defines Controlled Activities in relation to prescribed airspace.² In summary, these activities include;

- Constructing or altering a building or structure that intrudes into the prescribed airspace;
- Operating a source of artificial light capable of blinding or confusing pilots;
- Operating a prescribed plant or a prescribed facility that reflects sunlight capable of blinding pilots;
- An activity that results in air turbulence;
- An activity that results in the emission of smoke, dust or other particulate matter; and
- An activity that results in the emission of steam or other gas that may affect the operation of aircraft.

Outcome:

This legislation constrains the design and height but does not preclude the erection of buildings or structures on the subject land.

Airports (Protection of Airspace) Regulations 1996

The object of these Regulations is to establish a system for the protection of airspace at, and around, airports in the interests of the safety, efficiency or regularity of existing or future air transport operations into or out of airports.

Regulation 6 prescribes airspace for an airport as;

- a) the airspace above any part of an OLS or a PANS-OPS surface for the airport; and
- b) airspace declared in a declaration under Regulation 5, relating to the airport³

An OLS (Obstacle Limitation Surface) for an airport is a surface ascertained in accordance with the procedures in Annex 14 to the Chicago Convention.⁴ It should be noted that an OLS

¹ Airports Act 1996, Part 12, Division 3, Section 181

² Airports Act 1996, Part 12, Division 4 Section 182

³ Airports (Protection of Airspace) Regulations 1996, Regulation 6 (1)

⁴ Airports (Protection of Airspace) Regulations 1996, Regulation 4 (1)

can be penetrated subject to an aeronautical impact assessment showing that the penetration will not impact on aircraft safety.

A PANS-OPS (Procedures for Air Navigation Services - Aircraft Operations) surface for an airport is a surface ascertained in accordance with the procedures document number 8168, *Procedures for Air Navigation Services, Aircraft Operations*, published by the International Civil Aviation Organisation on 8 November 2018.⁵ Penetration of a PANS-OPS surface is not permitted.

Outcome:

These regulations constrain the overall height, but do not preclude the erection of buildings or structures on the subject land.

Civil Aviation (Buildings Control) Regulations 1988

These regulations set out in various schedules and on associated plans, height restrictions for buildings or structures in the environs surrounding the major Australian Airports. For the Hume Area 1 (Attwood) land it is necessary to review the schedules for both Melbourne Airport and due to its proximity, Essendon Airport. Regulations 3 through 6 prohibit the construction of a building or structure completely through to a maximum height above ground level of 150 feet except in accordance with an approval given under the regulations.⁶

Outcome:

A review of these regulations indicates the Hume Area 1 (Attwood) land to be subject to the restriction of a maximum height of 50 feet above ground level as defined by Regulation 5.⁷ It should be noted that the height of any structure may be more limited by the OLS and PANS-OPS surfaces than that specified by this regulation.

Civil Aviation Regulations 1988 (CAR)

CAR 94 imposes restrictions on Dangerous Lights at or in the neighbourhood of an aerodrome that may endanger the safety of an aircraft by reason of glare or by creating confusion with, or preventing the clear reception of, lights or signals associated with the operation of the aerodrome.⁸

Outcome:

This regulation amplifies the conditions referred to in the Airports Act 1996 and must be considered during concept design for any development.

Civil Aviation Safety Regulations 1998 (CASR)

CASR Part 139 deals with airports and is amplified by the Manual of Standards Part 139. Among other things these regulations and standards deal with interference to radar, navigation aids and communications equipment.

Outcome:

The construction of buildings or structures on the subject land is constrained by other parts of the legislation and as a consequence there should not be any interference.

⁵ Airports (Protection of Airspace) Regulations 1996, Regulation 4 (2)

⁶ Civil Aviation (Building Control) Regulations 1988

⁷ Civil Aviation (Building Control) Regulations 1988, Regulation 5, schedule 3, Item 10

⁸ Civil Aviation Regulations 1988, Regulation 94

Melbourne Airport Master Plan 2018

A review of the Melbourne Airport Master Plan 2018 indicates a planned extension to the east and the west of the existing east/west runway. The master plan also indicates a new parallel east/west runway to the south of the terminal buildings and freight areas.

The planned second east/west runway has been shelved (November 2019) in favour of a parallel north/south runway to the west of the existing north/south runway. This change is in part due to the predominant wind direction now favouring the north/south runway.

Aircraft Noise Exposure

The Victorian Planning Provisions (VPP) contains measures to protect the optimum ongoing operations of Melbourne Airport from, amongst other things, the impacts of aircraft noise exposure. These measures also protect the community from the establishment of any new use and development in the environs of the Airport that are incompatible with current and forecast aircraft noise exposure.

Worldwide experience shows that airports not adequately protected often suffer from incompatible development, giving rise to complaints and, eventually, the imposition of operational constraints such as curfews. Other noise amelioration measures may be imposed including the control of new use and development, noise attenuation of buildings and noise-sharing of aircraft operations.

Victorian Planning Policy

The Victorian Planning Provisions specifically support Melbourne Airport with Planning Policy Framework VPP 18.04-1R Melbourne Airport⁹. The strategies of this policy are to: -

- *To protect the curfew free status of Melbourne Airport and ensure any new use or development does not prejudice its operation.*
- *Ensure any new use or development does not prejudice the optimum usage of Melbourne Airport.*

Melbourne Airport Master Plan 2018

The Melbourne Airport Master Plan provides various Australian Noise Exposure Forecasts (ANEF) for the airport's runways.

The ANEF depicts several ANEF zones that provide the level and extent of aircraft noise exposure and is used, in conjunction with Australian Standard AS 2021, to determine what new building types are either, acceptable, conditionally acceptable, or not acceptable within the various ANEF zones.

Outcome:

It is necessary to refer to the approved Melbourne Airport Master Plan during concept design for any proposed development.

Melbourne Airport Environs Overlay

The VPP Overlays contains a Melbourne Airport Environs Overlay (MAEO) with purposes that accord with the State Planning Policy Framework. This overlay provides VPP controls to all the land within the ANEF noise contours. Specific controls are provided in Schedule 1 of the MAEO for land within the 25 and higher ANEF noise contours being the areas that are or will be subject to high levels of aircraft noise, and Schedule 2 of the MAEO for land between the

⁹ Victorian Planning Provisions, Planning Policy Framework, VPP 18.04-1R, available at https://planning-schemes.api.delwp.vic.gov.au/schemes/vpps/18_04-1R-1.pdf?_ga=2.117239055.868154153.1608527810-164620692.1608527810

20-25 ANEF noise contours being the areas that are or will be subject to moderate levels of aircraft noise. The provisions of the MAEO expand on the provisions of the ANEF.

Outcome:

The Melbourne Airport Master Plan at Figure 9-5 compares the 2003 MAEO Schedule 2 footprint with the 2013 and 2018 ANEF 20 contours. This shows that the ANEF contours are smaller than that used for the 2003 MAEO Schedule 2.

The Melbourne Airport Master Plan 2018 provides MAEO Notes detailing the requirements of the MAEO Schedules 45.08.

National Airports Safeguarding Framework

The National Airports Safeguarding Framework (NASF) is a national land-use planning framework that aims to: -

- Improve community amenity by minimising aircraft noise-sensitive developments near airports, including through the use of additional noise metrics and improved noise disclosure mechanisms.
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land-use planning decisions through guidelines being adopted by jurisdictions on various safety related issues.

The NASF has seven principles and nine guidelines. Of relevance to the Mickleham Road land are: -

- Guideline A – Managing aircraft noise
- Guideline E – Managing the risk of distraction from lighting
- Guideline F – Managing intrusions into protected airspace
- Guideline G – Protecting Aviation communications, navigation, and surveillance (CNS) facilities

In precis Guideline A provides guidance: -

In some circumstances, redevelopment of areas already exposed to aircraft noise can result in a better outcome through better design and construction responses.

In some instances, areas identified for urban consolidation can also be subject to aircraft noise impacts. In these circumstances, there is a need to balance the need to provide housing, economic growth, and strategic planning outcomes against the operational needs of the airports.

Whilst it would not be appropriate to allow for development that would impact on the operational safety of an airport, there may be circumstances where increasing settlement in existing areas exposed to a significant degree of aircraft noise, would be acceptable given other benefits the site has to offer.

Consideration should be given to measures to manage the implications. This could include conditions that require development to be undertaken in a manner that physically reduces noise impacts (e.g., through appropriate construction techniques) and requirements for disclosure processes that ensure future residents are made aware of these impacts prior to purchase.

Guideline E provides guidance: -

Pilots are reliant on the specific patterns of aeronautical ground lights during inclement weather and outside daylight hours. These aeronautical ground lights, such as runway lights and approach lights, play a vital role in enabling pilots to align their aircraft with the runway in use. They also enable the pilot to land the aircraft at the appropriate part of the runway.

It is therefore important that lighting in the vicinity of airports is not configured or is of such a pattern that pilots could either be distracted or mistake such lighting as being ground lighting from the airport.

Guideline F provides guidance: -

This document provides guidance to State/Territory and local government decision makers as well as airport operators to jointly address the issue of intrusions into the operational airspace of airports by tall structures, such as buildings and cranes, as well as trees in the vicinity of airports.

The guidelines are also designed to address the following risks:

(a) activities that could cause air turbulence, where the turbulence could affect the normal flight of aircraft operating in the prescribed airspace; and

(b) activities that could cause the emission of steam, other gas, smoke, dust or other particulate matter, where the smoke, dust or particulate matter could affect the ability of aircraft to operate in the prescribed airspace in accordance with Visual Flight Rules (VFR).

Guideline G provides guidance: -

To provide a consistent approach to land use planning protection of CNS facilities, as applied through State, Territory or Local planning systems.

These guidelines give planning authorities a uniform outline within which to make planning decisions about developments that may affect airport operations and aviation safety.

Outcome:

It is necessary to consider the relevant guidelines during concept design for any development.

The subject land, in accordance with the NASF can be used and developed to be compatible with the safe and efficient use of Melbourne Airport.

IMPLICATIONS FOR THE SUBJECT LAND

The land at 450 Mickleham Road, Attwood, falls within the ANEF noise contours and is subject to the provisions of the MAEO. In particular, land within the 25 and higher ANEF noise contours and between the 20 and 25 ANEF noise contours is controlled by Schedule 1 and Schedule 2 of the MAEO, respectively. The provisions of the overlay restrict the use and development of the land to that which is considered appropriate to the level of aircraft noise to which it will be exposed. Uses and developments that are compatible with the level of aircraft noise exposure are not restricted by the MAEO. In accordance with the provisions of the MAEO the subject land can be used and developed for a range of compatible uses.

The NASF Guidelines provide guidance about conditions and permitted activities such as lights, reflection and dust/smoke emissions. It is necessary to consider the relevant guidelines during concept design for any development.

There are several Civil Aviation Regulations that restrict the height of any proposed buildings.

Melbourne Airport is changing from building a parallel east/west runway to a parallel north/south runway. This is in part due to the predominant wind direction at the airport now favouring the north/south direction.

The current east/west runway is used predominantly in the westerly direction; that is take-off and landing is to the west on runway 27, commencing at the eastern end. The aircraft traffic passing over the subject land is, therefore, predominantly landing to the west and operating at reduced power settings and in the configuration required for landing. This means less noise.

Modern aircraft are larger and more efficient than previously, powered by more powerful and quieter engines. They can climb at steeper angles immediately after take-off, meaning they are higher earlier giving a smaller noise footprint at take-off. The noise from a landing aircraft is predominantly airframe rather than engine noise.

CONCLUSION

Any development of the subject land for employment purposes must consider, during concept design, any constraints imposed by the airports and airspace protection legislation.

The subject land, in accordance with the MAEO can be used and developed to be compatible with current and forecast aircraft noise exposure.

The subject land, in accordance with the NASF can be used and developed to be compatible with the safe and efficient use of Melbourne Airport.

Development of Melbourne Airport will see a shift of flight paths to a predominantly north/south direction.

The land at 450 Mickleham Road, Attwood can be developed for employment purposes, within the constraints outlined without affecting the safety, efficiency or curfew free status of Melbourne Airport.