New High School in Jerrabomberra

Aviation Assessment

Department of Education

16 September 2021

The Power of Commitment

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Printed date	16/09/2021 5:05:00 PM
Last saved date	16 September 2021
File name	https://projectsportal.ghd.com/sites/pp01_01/tsajerrabomberrahigh/ProjectDocs/12542771-REP-AviationAssessment.docx
Author	Evelyn Potoczny
Project manager	Evelyn Potoczny
Client name	Department of Education
Project name	New High School in Jerrabomberra Aviation Assessment
Document title	New High School in Jerrabomberra | Aviation Assessment
Revision version	Rev D
Project number	12542771

Document status

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S3	A	E. Potoczny D. Bradshaw					29/03/21
S3	B	E Potoczny D Bradshaw					25/08/21
S3	C	E Potoczny D Bradshaw					07/09/21
S3	D	E Potoczny D Bradshaw					16/09/21
[Status code]							

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1. Introduction

This GHD Pty Ltd report accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD-24461956). The SSDA is for a new high school located at Jerrabomberra.

This report addresses the Secretary's Environmental Assessment Requirements (SEARs), notably:

Table 1.1 SEARs Requirement

SEARs Requirement	Response

21. Aviation
Provide a report prepared by a suitably qualified person:
- Identifying whether the proposed school is located within any of the following Australian Noise Exposure Forecast (ANEF) contours as specified in Table 2.1 of Australian Standard 2021:2015 Acoustics – Aircraft noise intrusion – Building siting and construction (AS 2021:2015):
  o <20
  o Between 20 – 25
  o Or >25
- Providing details of any flight paths that may be impacted by the proposed development
Relevant Policies and Guidelines:
- National Airports Safeguarding Framework (NASF) and associated guidelines
	This report addresses the SEARs requirement for Aviation, and has been prepared by two suitably qualified professionals including an Acoustic Engineer and an Aviation Engineer.
	This report identifies the new high school at Jerrabomberra is located in between the 20 – 25 ANEF contour, which is considered conditionally acceptable, see Section 4.3.
	This report identifies that no flight paths are impacted by the development, see Section 5.
	This report identifies that there is no impact on operations of any nearby airports or on shore Helicopter Landing Sites (HLS) in accordance with NASF, see Section 5.

2. Proposal

The proposed development is for the construction of a new high school in Jerrabomberra. The proposal will meet community demand and to ensure new learning facilities are co-located near existing open space infrastructure. The proposal generally includes the following works:

- Site preparation;
- Construction of a series of buildings up to three storeys including administration/staff areas, library, hall and general learning spaces;
- Construction of new walkways, central plaza and outdoor games courts;
- Construction of a new at-grade car park;
- Associated site landscaping and open space.

The proposal has been designed to accommodate approximately 500 students with Stream 3 teaching spaces, however the core facilities will be future proofed to a Stream 5 to enable possible future expansion to meet projected demand.

The proposal will include site preparation works, such as clearing and levelling to accommodate the proposed buildings and play areas. The proposal will involve the construction of a series of buildings housing general learning spaces, administration and staff wings, outdoor learning areas, a library and assembly hall.

The proposal will include construction of a new driveway and hardstand with access proposed off the northern stub road east of Environa Drive. Pedestrian access is proposed off Environa Drive and the northern stub road.

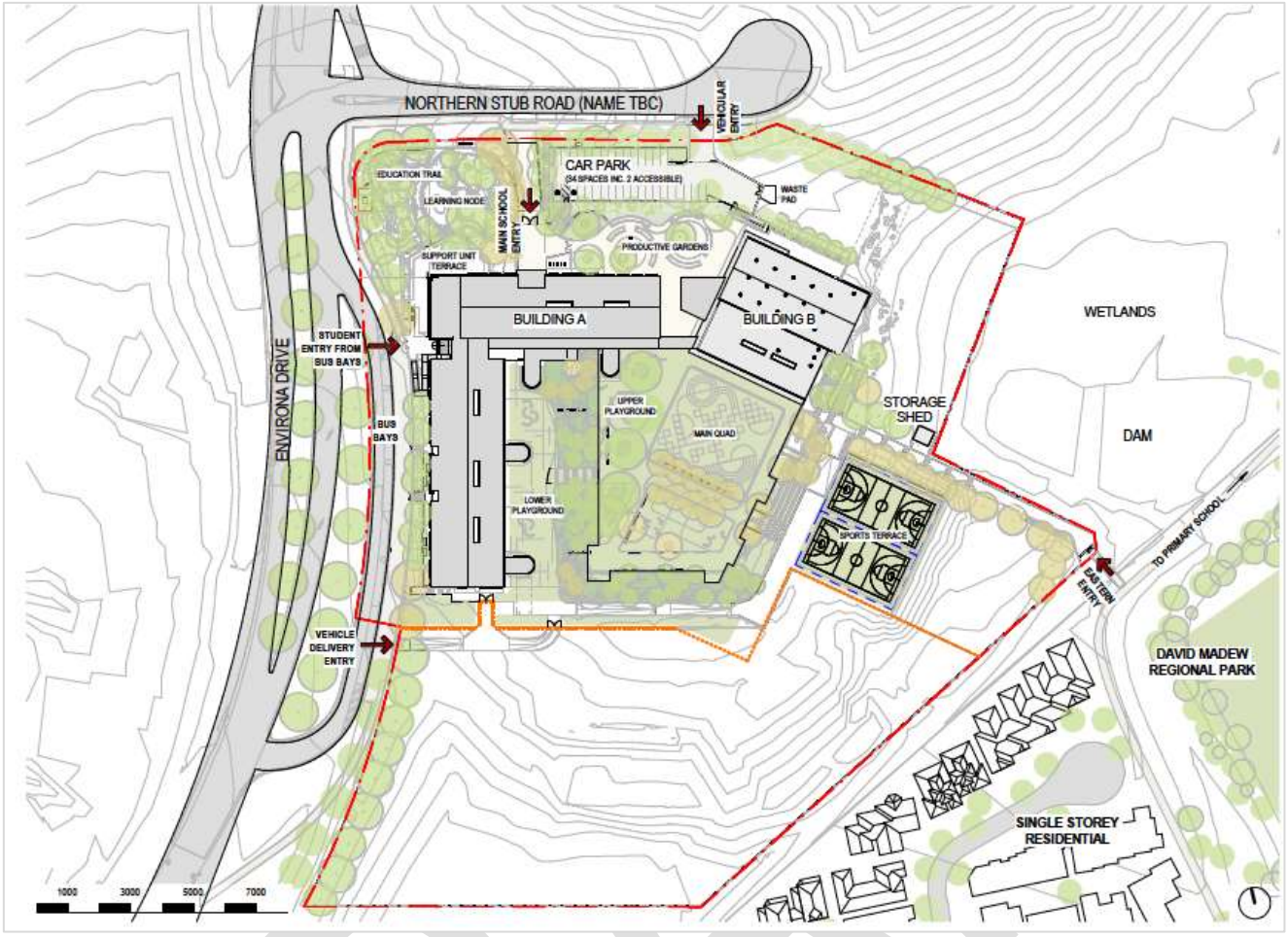

Figure 2.1 Proposed site plan (Source: TKD Architects)

3. Site description

The proposed development is located within the South Jerrabomberra Innovation Precinct, also referred as the Poplars Innovation Hub, in the local government area of Queanbeyan-Palerang Regional Council.

The school site- is part of an existing lot (Lot 1 in DP 1263364), which is approximately 65.49ha in area and will be characterised by a mix of business park and open space uses and a new north-south connector road named Environa Drive.

Delivery of the Precinct is underway with Environa Drive currently under construction. Most of the-lot, however, remains undeveloped.

The school site is subject to a proposed lot (Lot 2 in DP 1263364), which was approved by Council under DA332-2015 on 10 March 2021 but is not yet registered. The approved lot is irregular in shape, is largely cleared and is approximately 4.5ha in area. A small dam is located adjacent to the south eastern boundary of the site, which forms part of a broader wetland.

The site is located in excellent proximity to existing open space facilities. It adjoins David Madew Regional Park to the south east and is located 100m east of an existing recreational field associated with Jerrabomberra Public School.

A description of the site is provided in the table below.

Table 3.1 New High School in Jerrabomberra Site Description

Item	Description
Site address	School address yet to be determined however, it is located within the Jerrabomberra Innovation Precinct at 300 Lanyon Drive, Jerrabomberra.
Legal description	Lot 1 in DP 1263364 (existing) Lot 2 in DP 1263364 (proposed, but not registered)
Total area	Lot 1 – 65.49 ha Lot 2 – 4.5 ha
Frontages	The site provides frontage to Environa Drive and the northern stub road, both currently under construction.
Existing use	The site is undeveloped and contains a series of small vegetation clusters scattered across the site.
Existing access	Existing access is via an informal unsealed driveway off Tompsitt Drive along the northern boundary of the existing lot. The site will be accessed via Environa Drive and a secondary access road (North Road), which is currently under construction.
Context	Land to the south is primarily residential in nature. Jerrabomberra Public School and David Madew Regional Park are located to the east/south-east, while land to the west is undeveloped and features Jerrabomberra Creek. The site is located within the South Jerrabomberra Innovation Precinct, which is currently under construction. The areas north and west of the site are currently undeveloped but the site is currently undergoing a transition from rural to business park uses. Development further north on the opposite side of Tompsitt Drive and along Edwin Land Parkway includes retail and commercial uses. Development immediately to the south includes existing low density residential development. Land in the south west has been identified for future low density residential, light industrial and business park uses.

Figure 3.1 Site aerial depicting the land subject to the proposed High School (Source: TKD Architects)

3.1 Limitations

This report has been prepared by GHD for Department of Education and may only be used and relied on by Department of Education for the purpose agreed between GHD and Department of Education as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than Department of Education arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 3.2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

3.2 Assumptions

GHD have based this report on the information provided by Canberra Airport, being the 2019 ANEF and Obstacle Limitation Surfaces. This is the most recent information available and is correct at the time of writing this report.

4. ANEF investigation

Australian Standard 2021:2015 *Acoustics – Aircraft Noise Intrusion – Building Site and Construction* provides guidance on the siting and construction of buildings in the vicinity of airports to minimise aircraft noise intrusion. The assessment of potential aircraft noise exposure at a given site is based on the ANEF system.

According to AS 2021, the contours on ANEF charts indicate land areas around aerodromes which are forecast to be exposed to aircraft noise of certain levels. The higher the ANEF value, the greater the noise exposure.

4.1 Determination of building site acceptability

The acceptability of the building site is dependent on the type of building proposed and the ANEF zone in which it will be located. Table 2.1 of AS 2021 outlines building site acceptability, which is reproduced below.

Table 4.1 Table 2.1 Building site acceptability based on ANEF zones (AS 2021:2015)

Building type	ANEF zone of site		
	Acceptable	Conditionally acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF[1]	20 to 25 ANEF[2]	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF[1]	20 to 25 ANEF[2]	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF[1]	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF[1]	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

Note 1 – The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variations in aircraft flight paths. Because of this, the procedure in Clause 2.3.2 may be followed for building sites outside but near to the 20 ANEF contour.

Note 2 – Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate (see also Figure A1 of Appendix A).

Note 3 – There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building.) In these cases, Table 2.1 should be used to determine site acceptability, but internal design noise levels within specific spaces should be determined by Table 3.3 (of AS 2021:2015).

Note 4 – This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.

Note 5 – In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations.

4.2 Action resulting from acceptability determination

4.2.1 Acceptable

If from Table 2.1, the building site is classified as ‘acceptable’, there is usually no need for the building construction to provide specifically against aircraft noise. However, it should not be inferred that aircraft noise will be unnoticeable in areas outside the ANEF 20 contour. (See Notes 1, 2 and 3 of Table 2.1).

4.2.2 Conditionally acceptable

If from Table 2.1, the building site is classified as ‘conditionally acceptable’, the maximum aircraft noise levels for the relevant aircraft and the required noise reduction should be determined from the procedure of Clauses 3.1 and 3.2, and the aircraft noise attenuation to be expected from the proposed construction should be determined in accordance with Clause 3.3 (see Notes 1 and 3 of Table 2.1).

4.2.3 Unacceptable

If from Table 2.1, the building site is classified as ‘unacceptable’, construction of the proposed building should not normally be considered. Where in the community interest redevelopment is to occur in such areas, e.g. a hotel in the immediate vicinity of an aerodrome, refer to the notes to Table 2.1.

4.3 Location of new high school

Figure 4.1 and Figure 4.2 below show the Canberra airport 2019 ANEF contours, the most recent endorsed ANEF, and the proposed location of the new high school at Jerrabomberra in relation to the contours. Figure 4.2 in particular shows that the new high school at Jerrabomberra is approximately 200 m away from being within the ANEF 25 contour. The location of the proposed high school would place it at the very high end of being between the 20 to 25 ANEF contour. According to Table 4.1, a school within the 20 to 25 ANEF zone would be considered conditionally acceptable on the basis that appropriate noise control features be incorporated in the construction of the school buildings.

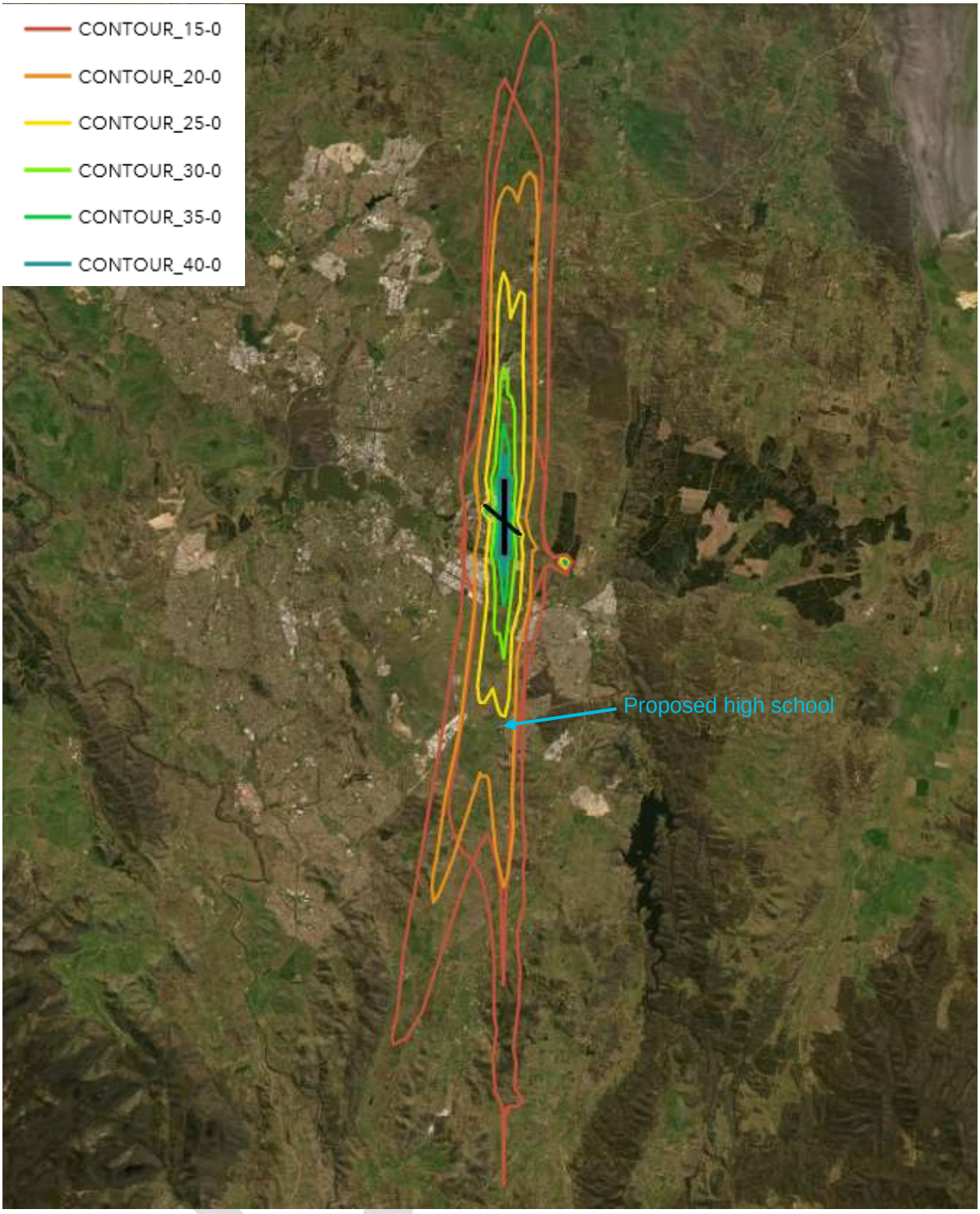

Figure 4.1 *Location of new high school at Jerrabomberra and 2019 Canberra Airport ANEF*

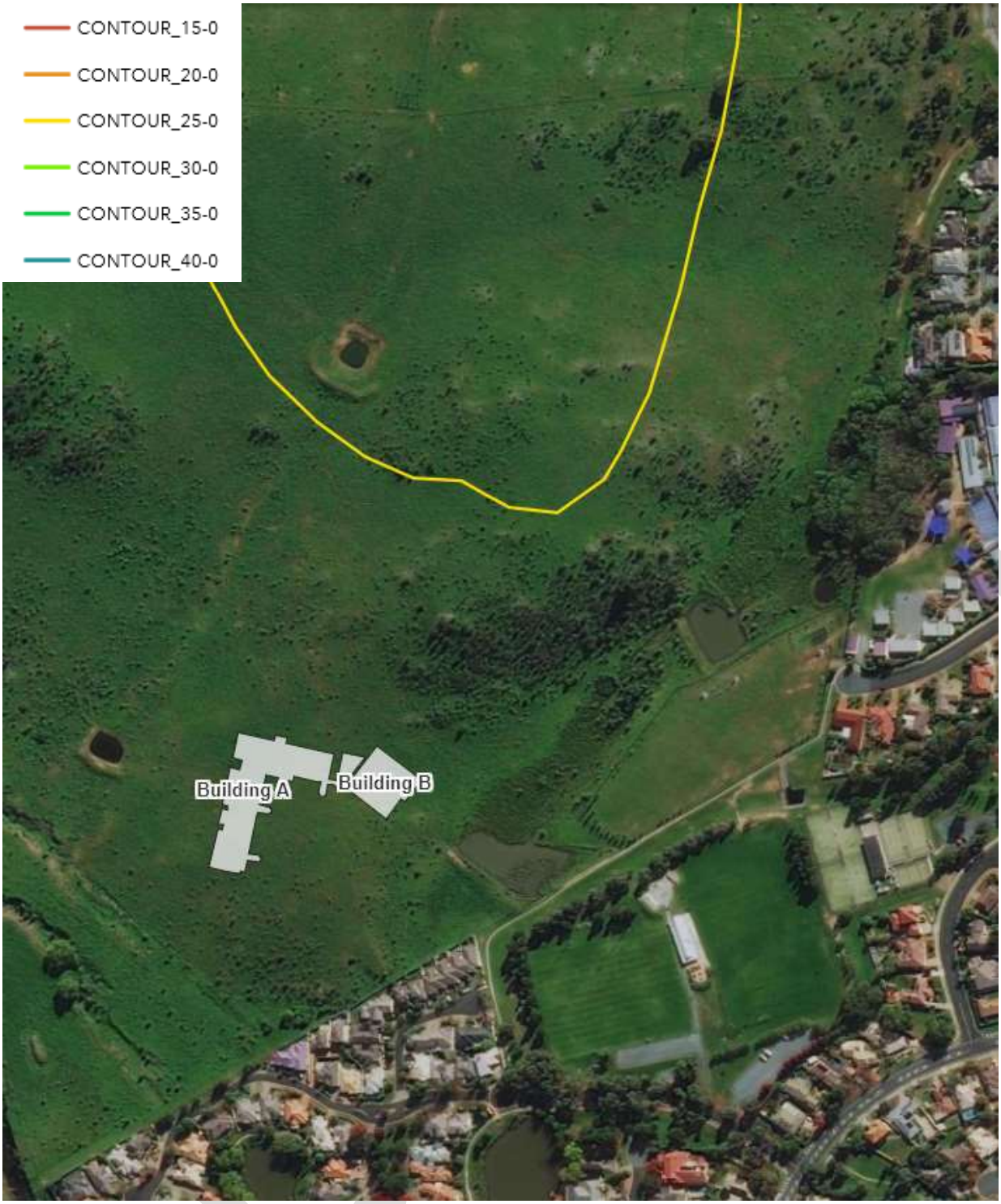

Figure 4.2 Location of new high school in relation to ANEF 25 contour

4.4 Recommendations and next steps

According to AS 2021:2015, where a building site is within a conditionally acceptable zone, the building should be designed such that the Aircraft Noise Reduction (ANR) (Clause 3.2.2 of AS 2021:2015), are achieved for all internal spaces. As such, the following process is recommended as part of the acoustic assessment for the new high school at Jerrabomberra:

1. Estimate the aircraft noise level likely to be experienced at the building site based on forecast aircraft types
2. Determine indoor design sound level for aircraft flyovers (Table 3.3 of AS 2021:2015) for the appropriate activity or building type under construction

3. Determine ANR required for each space
4. Appropriate acoustic design of building to achieve required ANR by suitably qualified acoustic consultant
5. Post construction noise compliance testing if required

5. Obstacle Limitation Surface (OLS) investigation

The National Airports Safeguarding Framework (NASF) includes information to guide State, Territory and Local Government in regulating and managing inter alia:

– The risk of intrusion into the protected operational airspace of airports
– The risk of distraction to pilots from lighting in the vicinity of airports

Operational Airspace

The Civil Aviation Safety Authority (CASA) Manual of Standards Part 139 (Part 139 MOS) defines the obstacle Limitation Surface requirements at aerodromes as follows.

***"obstacle limitation surfaces** (**OLS**) means a series of planes, associated with each runway at an aerodrome, that define the desirable limits to which objects or structures may project into the airspace around the aerodrome so that aircraft operations at the aerodrome may be conducted safely."*

Aerodrome operators are required to report the OLS in the information they provide for the Aeronautical Information Publication (AIP).

Accordingly, the OLS for Canberra Airport has been obtained and is shown in Figure 5.1.

The school site is located approximately 7.5 km from the southern runway end. The OLS at this location is some 109 m above the existing ground surface level so it is well above the projected development works. The adjacent terrain will also provide partial or full shielding of the approach and take off surfaces.

Lighting in the Vicinity of airports

The school site is located outside the 4.5 km distance from the end of the runway, hence is outside the zone within which lighting restrictions apply.

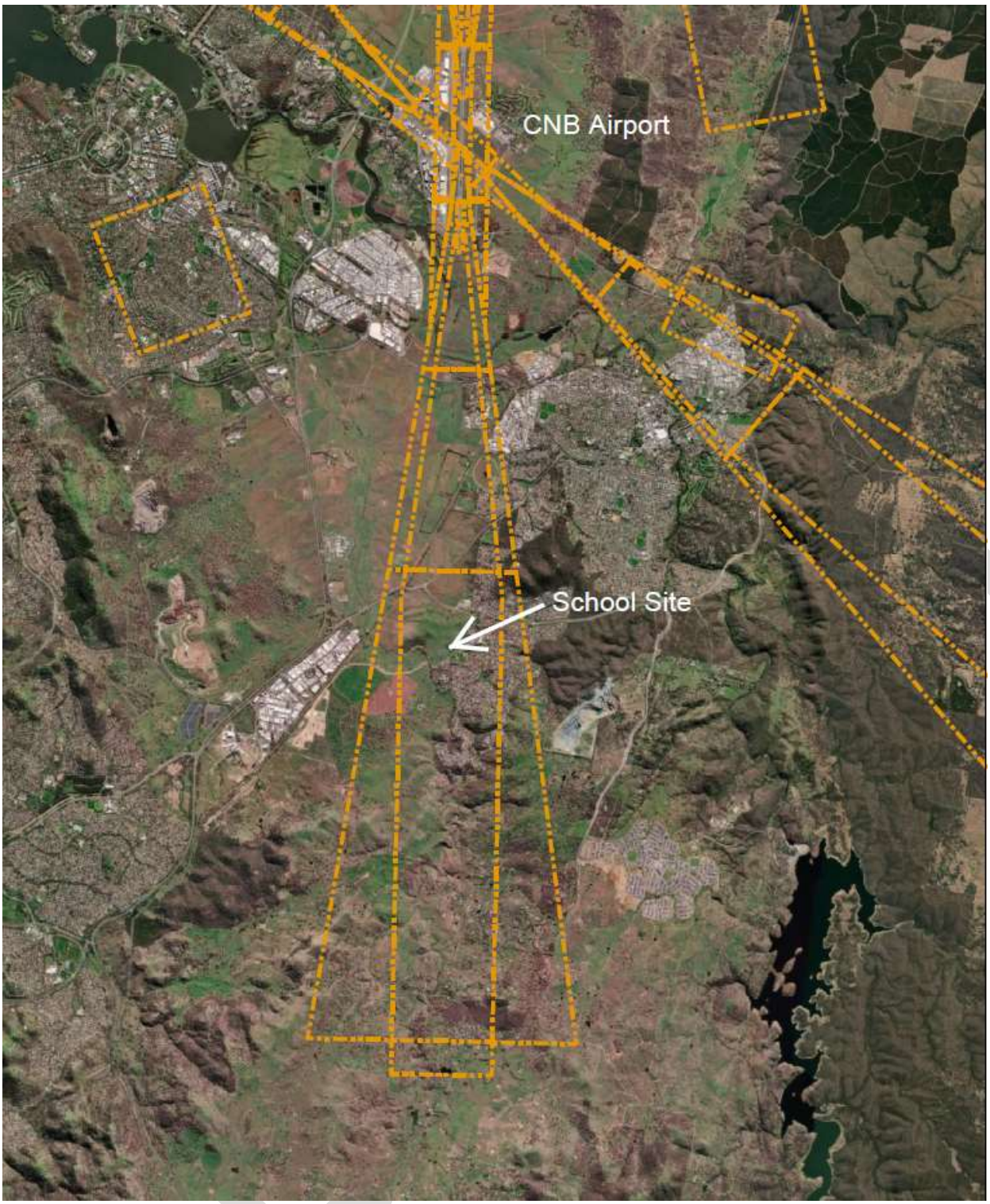

Figure 5.1 Location of new high school at Jerrabomberra and Canberra Airport OLS

The relative levels at the site are shown in Figure 5.2.

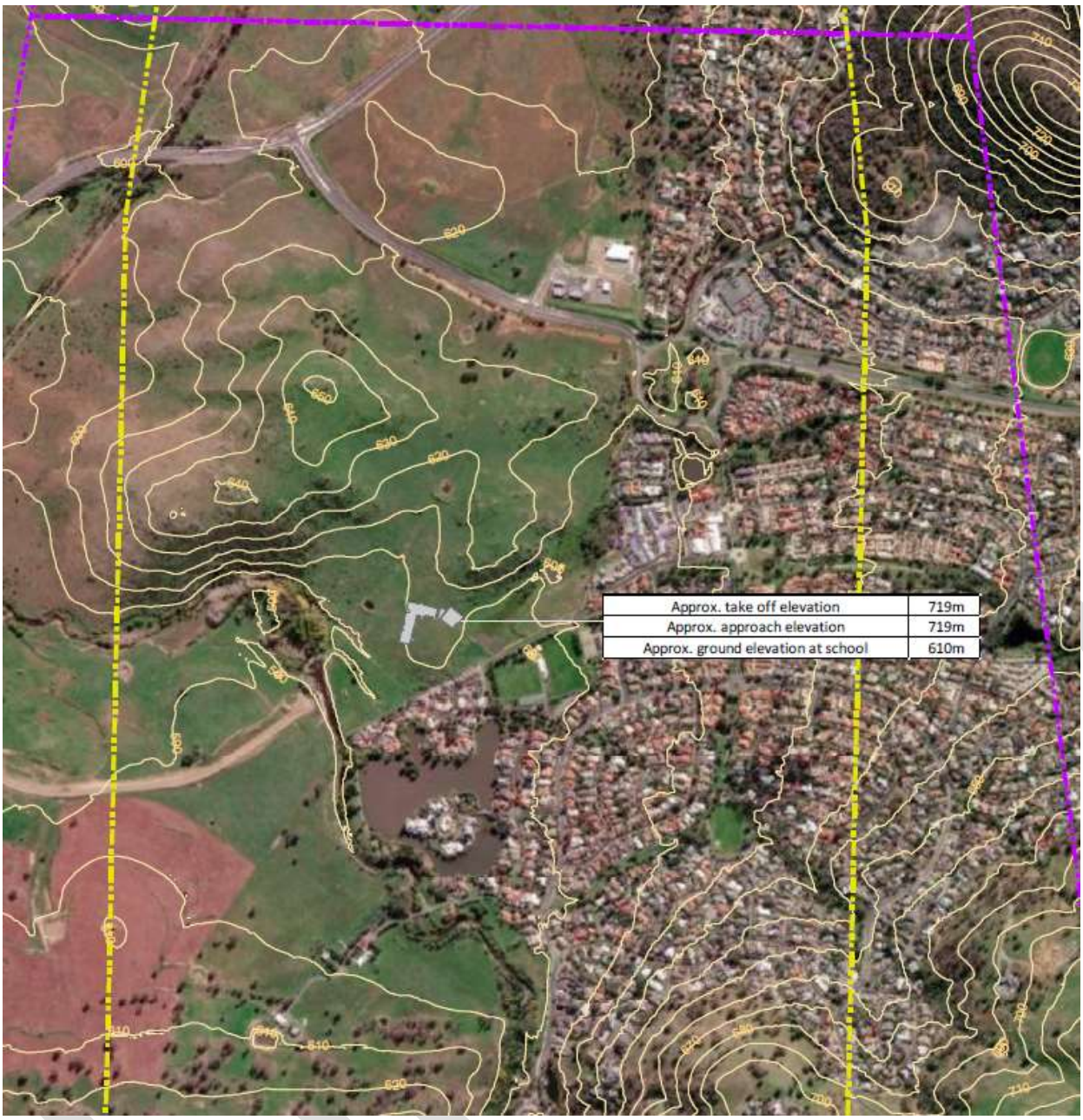

Figure 5.2 Location of new high school at Jerrabomberra and Canberra Airport OLS

The new Jerrabomberra school site is located approximately 2 km from the Snowy Hydro South Care heliport (YXSB) (Canberra hospital) which is sufficient distance away in terms of clearance from any flight paths to and from this heliport.

6. Conclusion

The site of the new high school at Jerrabomberra is located between the 20 and 25 ANEF contour from the 2019 Canberra Airport ANEF, however is only 200 m from being within the 25 ANEF contour. This places the building within a ‘conditionally acceptable’ zone. According to AS 2021:2015, where a building site is within a conditionally acceptable zone, the building should be designed such that the Aircraft Noise Reduction (ANR) (Clause 3.2.2 of AS 2021:2015), are achieved for all internal spaces. Recommendations and next steps have been suggested in section 4.4.

The new high school at Jerrabomberra was found not to impact on any obstacle limitation surfaces (OLS) from Canberra airport and also be at a sufficient distance from the heliport at Canberra Hospital as to not impact on any flight paths to and from this heliport.

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