



Naracoorte Lucindale Council

Better by Nature

NARACOORTE AERODROME MASTER PLAN

2018 -2038

CONTENTS

1	INTRODUCTION	2
1.1	Overview of the Airport	2
1.2	Purpose and Objectives of the Master Plan	2
1.3	Methodology and Consultation	3
1.4	Report Structure	3
2	MASTER PLAN CONTEXT	4
2.1	Historical Background	4
2.2	Regional Context	4
2.3	Socio-Economic Context	5
2.4	Regulatory Context	5
2.5	Policy Context	5
2.6	Previous and Current (Master) Plans	6
2.7	Key Stakeholders	6
3	CURRENT SITUATION	8
3.1	Ownership and Management	8
3.2	Site Description	8
3.3	Surrounding Land	8
3.4	Existing Activities	8
3.5	Existing Facilities	8
3.6	Ground Transport Access	9
3.7	Utility Services	9
3.8	Environmental Values	9
3.9	Heritage Values	10
4	STRATEGIC VISION AND OBJECTIVES	11
4.1	Strategic Vision	11
4.2	Objectives	11
5	CRITICAL AIRPORT PLANNING PARAMETERS	12
5.1	Forecast of Future Operations	12
5.2	Selected Design Aircraft	12
5.3	Runway configuration	13
5.4	Taxiways and Aprons	16
5.5	Navigation Systems	17
5.6	Aviation Support and Landside Facilities	17
5.7	Airspace Protection Surfaces	18
5.8	Aircraft Noise Contours	18
5.9	Environmental and Heritage Sites	19
5.10	Heritage Management Plan	20
6	LAND USE PLAN	21
6.1	Land Use Precincts	21
6.2	Land Use Precinct Guidelines	21
7	FACILITY DEVELOPMENT PLAN	24
7.1	Movement Area Facilities	24
7.2	Aviation Support Facilities	24
8	GROUND TRANSPORT PLAN	24
9	ENVIRONMENTAL MANAGEMENT PLAN	24
10	HERITAGE MANAGEMENT PLAN	24
11	AIRPORT SAFEGUARDING PLAN	25
11.1	National Airports Safeguarding Framework (NASF)	25
11.2	Airspace Protection Surfaces	26
11.3	Aircraft Noise Contours	27
11.4	Planning Policies and Controls	27
12	IMPLEMENTATION PLAN	28
13	DRAWINGS	28

1 INTRODUCTION

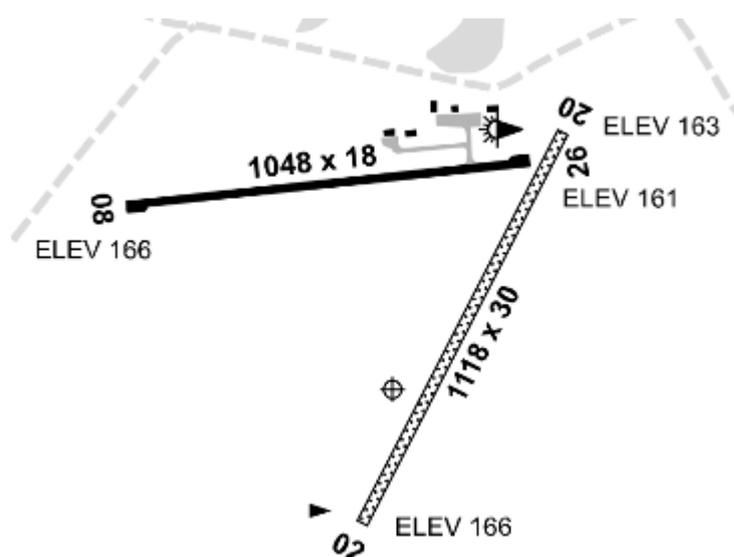
1.1 Overview of the Airport

The Naracoorte Aerodrome is a registered aerodrome facility; owned and managed by the Naracoorte Lucindale Council.

The aerodrome is at an elevation of 169 feet, located approximately 3 kilometres from the Naracoorte Town Centre.

The Aerodrome is situated on Sections 1068, 1069, 1094 and part Section 639, Hundred of Naracoorte and is contained within an area of 180 hectares.

Direct access to the aerodrome is provided from Doolans Road; the registered rural address being 139 Doolans Road Naracoorte.



Naracoorte Aerodrome Layout

1.2 Purpose and Objectives of the Master Plan

The purpose of this master plan is to:

- establish the strategic direction for efficient and economic development at the airport over the time frame of the plan;
- provide for the development of additional uses of the airport site;
- indicate to the public the intended uses of the airport site; and,
- reduce potential conflicts between uses of the airport site, and to ensure that uses of the airport site are compatible with the areas surrounding the airport.

The Naracoorte Aerodrome Strategic Management Plan 2013 forms the basis for the management of the aerodrome and provides the following objectives:

- ensure that the Aerodrome infrastructure meets community needs, in particular with regard to emergency services;
- define an agreed level of facilities and services to reduce the cost burden to Council and the community; and,
- ensure that decisions relating to the development Naracoorte Aerodrome are recognised and supported by all levels of Government – Federal, State and Local.

The Management Plan also references Council's Strategic Plan 2012-2022 objectives comprising:

- a prosperous community;
- a vibrant and progressive business centre;
- liveable neighbourhoods;
- a safe and integrated transport network;
- progressive leadership in managing community assets and natural resources for future generations; and,
- sustainable community finances and assets.

1.3 Methodology and Consultation

Organisations and individuals with an interest in the airport include;

- Naracoorte Aero club;
- fixed based operators;
- flying schools;
- tenants;
- companies regularly operating into Naracoorte;
- Naracoorte Lucindale Council; and,
- local residents.

1.4 Report Structure

This master plan comprises 2 parts;

- Sections 1-3 - Background information;
- Section 4 onwards Master Planning

2 MASTER PLAN CONTEXT

2.1 Historical Background

The first landing ground constructed at Naracoorte was on privately owned land and was jointly funded by both town and district councils, together with Dalgety and Co. in 1935/36. An investigation into a more suitable location for the airfield ensued, but in late 1938, on receipt of advice from the Department of Defence that no requirement then existed for either a civil or military airfield, this action was suspended. In 1944, the RAAF advised that an emergency 2-runway field was considered desirable in Naracoorte. Construction commenced in 1945 at the present location on land leased from the Department of Lands, and in 1947 an "A" Class Licence was first issued.

Since 1948, when passenger operations commenced from the present location, a number of operators have conducted Regional Passenger Transport (RPT) services, the last of which was O'Connor Airlines which ceased operations through Naracoorte in September 1985. Following the formation of the Naracoorte Aero club in 1957, the first hangar was constructed, and in about 1958 Ansett-ANA constructed a terminal building.

From 1980, the aerodrome has expanded from 1 hangar (2 aircraft permanently based) to 5 hangars housing 8 permanently based aircraft. In 1979 runway lights were installed on the sealed strip, with PAALC facility added in 1983 and in 1985 a Development Plan was commissioned from AUSDA, jointly funded by the Department of Aviation.

From 1985 to 2008, an additional nine hangars have been established on the property, none of these by Council. Three businesses are based at the Aerodrome; Southern Air Agricultural, Helifarm, and aircraft maintenance.

2.2 Regional Context

The Naracoorte Lucindale Council is located at the heart of the Limestone Coast region. The Council is approximately 300 kilometres from Adelaide and 450 kilometres from Melbourne. Naracoorte is the main service centre for the Council district, which also contains the smaller communities of Lucindale, Hynam, Kybybolite and Frances. The Naracoorte Aerodrome is located on the southern side of the Naracoorte Township.

The district is characterised by reliable rainfall and contains prime agricultural land and accessible underground water. It is home to a thriving and vibrant rural economy; featuring beef and dairy cattle, sheep for both wool and meat, and cereal growing. Two large enterprises; Toys Australia abattoir and Mini Jumbuk wool manufacturing centre value add to the primary produce with large grain storage facilities supporting the cereal growing industry. The Naracoorte Regional Livestock Exchange has recently undergone a major upgrade and attracts livestock from all over the region as well as more broadly. Naracoorte Lucindale Council is central to some of Australia's best wine producing areas with parts of both the Wrattontully and Padthaway wine regions within the district.

There is a strong tourism industry in the Council area supported by the Visitor Information Centre in Naracoorte. South Australia's only World Heritage site, Naracoorte Caves and Bool Lagoon Game Reserve, a wetland of international importance, are the district's two best known natural features. Several more conservation parks and reserves are home to abundant wildlife. Other attractions in

the area include the Sheep's Back Museum, Mini Jumbuk Centre, Cockatoo Lake, Limestone Coast Cheese Factory, Naracoorte Golf Club, Lucindale Country Club and the Naracoorte Swimming Lake.

The Naracoorte Aerodrome services a total area of over 4500sq km and a population of over 8000. Surrounding airport facilities include the Mt Gambier Airport (85km) Horsham Airport VIC (133km) and Hamilton Aerodrome VIC (139km).

2.3 Socio-Economic Context

The population count for the Naracoorte Lucindale Council from the 2011 Census is 8310, with a gender split of 51.3% males and 48.7% females. This was a small decline from the 2006 Census. Since the 2006 Census, there has been an increase in migrants settling in Naracoorte, reflected by the decrease in Australian born residents from 88% to 85% with 6% from non-English speaking backgrounds. Employment levels remain high at over 96% of the labour force.

2.4 Regulatory Context

Naracoorte is a registered aerodrome and therefore is required to comply with Civil Aviation Safety Authority (CASA) regulations and standards.

The following form regulatory references were used in the formation of this master plan:

- *CASA Civil Aviation Safety Regulations CASR 139*
- *CASA Manual of Standards Part 139 - Aerodromes*
- *Naracoorte Lucindale Development Plan (2012)*

2.5 Policy Context

National perspective:

Airports are critical pieces of national infrastructure and suitable locations are scarce. The current and future viability of aviation operations at Australian airports can be threatened by inappropriate development. Communities under flight paths and near airports can be affected by issues including noise, development restrictions and safety risks.

In the interest of safety and public amenity, development needs to be carefully managed in the vicinity of airport operations. However, there is also a need for airports to be easily accessible to population centres and for developments to be undertaken in a way that is compatible with airport operations, both now and into the future.

The National Airports Safeguarding Framework (NASF) was developed with the above in mind and comprises overarching Principles and Guidelines. Section 11 of this Master Plan (Airport Safeguarding Plan) provides further detailed information on the Framework.

State-wide Perspective:

The SA Government has developed seven strategic priorities. These include making South Australia an affordable place to live. The quality of life for South Australians is influenced by the rising costs of housing, transport and utilities. Regional airports are an important component of the transport sector.

The SA Government Strategic Plan targets include the provision of key economic and social infrastructure to accommodate population growth. Naracoorte Aerodrome is considered part of the strategic infrastructure for the area.

Population levels are planned to increase in regional areas, by 20 000 to 30 000 or more by 2020. Access to regional areas is a key component for the increased population.

Tourism Industry: Increase visitor expenditure in South Australia's total tourism industry to \$8 billion by 2020. Naracoorte is considered a regional centre to one of the premium wine growing regions in Australia.

The Integrated Transport and Landuse Plan allows to maintain aviation assets – to continue to actively support local councils and airport owners in maintaining regional and remote aviation assets. It also seeks to work with local council to identify upgrades of strategically important local airports and aerodromes

The Hudson Howells Regional Airports Project Final Report February 2012 states:

“In summary the Naracoorte Airport supports 24 jobs (FTE's) in the Naracoorte region, and generates Gross Regional Product (value added) of \$2.9 million annually (\$1.3 million in wages and salaries and \$1.6 million in Gross Operating Surplus), while at the State level it supports 35 FTE jobs and Gross State Product (value added) of \$4.5 million per annum.”

The following-policy references were used in the formation of this master plan:

- *Naracoorte Aerodrome Strategic Management Plan (2013-23) NB. This plan has been replaced by this Master Plan.*
- *Naracoorte Lucindale Council Strategic Plan (2016-26)*
- *Limestone Coast Regional Plan (2011)*
- *Naracoorte Lucindale Council Structure Plan Twenty-35 (2014)*

2.6 Previous and Current (Master) Plans

Currently this document is the second edition of an Airport Master Plan developed by the Naracoorte Lucindale Council, in accordance with guidelines provided by the Department of Transport, Planning and Infrastructure SA (DTPI).

2.7 Key Stakeholders

The airport provides a regional base for agricultural aerial spraying, bank freight and flight training while also providing access for the Royal Flying Doctor Services (RFDS) and Country Fire Service (CFS) water bombing.

Business

Two aerial spraying services operate out of Naracoorte Aerodrome;

- 1) Southern Aerial Agriculture (SAA) occupies the largest footprint at the aerodrome and is seeking to expand. It currently employs 6 staff.

- 2) Helifarm uses Naracoorte as a base for its business which operates over most of Australia, and utilises the servicing capacity where appropriate for its equipment. Helifarm has 5 full time staff, two part time and one seasonal staff member.

The bank plane uses the aerodrome on a regular basis.

Recreation

The Naracoorte Aero Club (NAC) has approximately 50 members. The Wimmera Aero Club has approximately 52 members, many of which have dual membership with Naracoorte. Aside from Naracoorte, the Wimmera Aero Club uses Horsham, Warracknabeal, Mount Gambier and Nhill aerodromes. The clubs operate a successful training school with Naracoorte well serviced with night lights. Sharp Aviation, based in Hamilton, also uses the aerodrome for training purposes. The NAC reports that Naracoorte is an important facility for refuelling and servicing of planes.

Emergency Services

The RFDS uses the aerodrome on an almost daily basis flying Pilatus PC12 aircraft which exclusively operate off the sealed runway. The unsealed runway 02/20 was upgraded to a rubble surface in 2017 and extended to 1350m to provide an all-weather surface that can better accommodate aircraft demands. In 2017, a joint venture between Naracoorte Lucindale Council, OneFortyOne Plantations and the Country Fire Service, constructed a permanent loading area for aircraft involved with Aerial Firefighting operations in the South East area. As Naracoorte is located approximately 22km from the Victorian border, the Airbase can service communities from the South East of South Australia and Western Victoria.

3 CURRENT SITUATION

3.1 Ownership and Management

Naracoorte Aerodrome is owned and operated by Naracoorte Lucindale Council. The council has a responsibility for the provision of the aviation infrastructure within the aerodrome boundary and ensuring compliance with aviation regulations and standards for the safe operation of the aerodrome.

3.2 Site Description

The aerodrome is on Section 1094 Hd Naracoorte (CR 5673/614) comprising approximately 168 hectares. Parcels not directly used for the purposes of aircraft activity and support services are leased for grazing. The site's address is 136 Doolans Road Naracoorte.

3.3 Surrounding Land

The adjoining land uses around the site are predominantly agricultural, with some recreational activities including radio controlled cars and motor sports (moto cross).

Residential development is restricted to the higher ground to the east mainly east of the Riddoch Highway. This zone of low development around the aerodrome reduces potential land use conflicts of noise, lighting glare, activities that attract birds and materials that affect navigational aids.

3.4 Existing Activities

The aerodrome services a number of group's activities throughout the year; these can vary from a daily basis to monthly frequencies. The aerodrome is used as a base for Emergency Services (CFS and Royal Flying Doctors Service), and services the Naracoorte Aero Club and the Wimmera Aero Club as well as several aerial spraying businesses.

3.5 Existing Facilities

Runway 08/26 length 1048m; width 18m; sealed, pavement unrated

This runway receives the most traffic and is equipped with pilot operated lights for night landings. It is used by the RFDS, commercial planes (bank, freight), agricultural and recreational use. Generally, the aircraft size is limited to maximum takeoff weight of 5,700 kg. Larger aircraft may operate subject to a Pavement Concession being approved by Council for the particular operation.

Runway 02/20 length 1350m; width 23m; unsealed.

The limestone rubble runway is useful during strong cross winds. The installation of compacted limestone rubble and changed vertical alignment has the runway all weather.

Sealed taxiway 100m x 12m.

The taxiway provides the main entry point from runway 08//26 onto the sealed apron

Unsealed Taxiway 230m x 15m

This taxiway provides the main entry from runway 02/20 onto the sealed apron.

Main Apron (asphalt). The public use area is 120m x 70m. This area has the capacity to park 12 aircraft

Additional Aerodrome Assets:

The main components of the aerodrome building area are shown below below.



- | | | | |
|---|------------------------------------|---|----------------------------|
| E | Evaporation Pond –Southern Air Ag. | C | Aero Club Clubhouse |
| S | Sheds – Private | IWI | Illuminated wind indicator |
| H | Hangars – Private |  | Proposed Helipads |

3.6 Ground Transport Access

Access by vehicle to the Naracoorte Aerodrome is via two main access points off Doolans Road; (a) western access gives direct access to private hangars and (b) public access to the Aero Club clubrooms and public apron. Access to the airside restricted to persons having a lawful excuse to be airside (pilots, passengers, person involved with aircraft servicing and maintenance, Council maintenance staff etc).

3.7 Utility Services

Engineering services; electricity, sewer water and telecom are available at the aerodrome.

3.8 Environmental Values

In 2012, Council investigated the feasibility of purchasing Section 1094, Hd of Naracoorte, which the aerodrome is wholly contained within. As part of this investigation, the Department of Environment,

Water and Natural Resources undertook an environmental assessment, and rated the land as low environmental value. Most of the land parcel is cleared, with a small ephemeral swamp in the north eastern corner.

3.9 Heritage Values

Council endorsed its Local Heritage List in 2011. The Aerodrome does not contain any items recognised on a formal heritage list. The Van Leuven Memorial and gates are of value to the aero community and should be maintained.

4 STRATEGIC VISION AND OBJECTIVES

4.1 Strategic Vision

The operation of the Naracoorte Aerodrome has a strategic alignment to the Naracoorte Lucindale Council Strategic Plan 2012-22; which has the following visions:

- a prosperous community;
- a vibrant and progressive business centre;
- liveable neighbourhoods;
- a safe and integrated transport network;
- progressive leadership in managing community assets and natural resources for future generations; and,
- sustainable community finances and assets.

4.2 Objectives

The following objectives are contained in the Naracoorte Lucindale Council Strategic Plan 2012-22;

- ensure that the Aerodrome infrastructure meets community needs, in particular with regard to emergency services;
- define an agreed level of facilities and services to reduce the cost burden to Council and the community; and,
- ensure that decisions relating to the development Naracoorte Aerodrome services that are recognised and supported by all levels of Government – Federal, State and Local.

5 CRITICAL AIRPORT PLANNING PARAMETERS

5.1 Forecast of Future Operations

Over the next 20 years anticipated changes in aircraft activity are predicted from:

- increased activity from fixed based operators, i.e. aerial work, aircraft maintenance;
- increased flying training;
- increased RFDS activity due change in demographics, population;
- increased use of the facility by the CFS; and,
- expanded tourism and charter flights.

Naracoorte does not have access to specific aircraft landing data. The current activity involves a varying number flights for agricultural, business charter including the bank plane, RFDS, flying training and private flying, generally in aircraft below a maximum weight of 5700kg. There are no RPT services. A reasonably busy day may see upwards of 20 flights or 40 movements. Using a possibly high annual growth rate of 3% gives a predicted 72 daily movements or 26,370 annual movements by the year 2035.

Planning documents such as the US Federal Aviation Administration Advisory Circular AC 150/5060-5 provides broad estimates of airport capacity. For a single runway, the annual capacity is of the order of 190,000 - 200,000 aircraft movements. The existing runway layout will meet future number of movement demand, although aspects of the layout may need to change in terms of length and pavement strength etc. to meet future aircraft requirements.

5.2 Selected Design Aircraft

Planning allowance has been made to accommodate aircraft size up to Reference Code 2B*. (see below for an explanation of the aerodrome reference code)

Typical Aircraft Characteristics

Aircraft ¹	Seats	ARFL (m) ²	MTOW (kg) ³	ACN ⁴	Ref code
Beech 1900D*	19	1098	7530	4	2B
Metro III	19	991	6577	4	2B

Note 1:	For indicative purposes only. Specific values for particular aircraft should be obtained from the aircraft operator or the aircraft manufacturer.
Note 2:	ARFL = Aircraft reference field length.
Note 3:	MTOW = Maximum take-off weight.
Note 4:	ACN = Aircraft Classification Number. The ACN is based on the aircraft's maximum take-off weight on a flexible pavement; the values listed are for medium a sub-grade rating of "B".

Aerodrome Reference Code System

The Reference Code is described by International Civil Aviation Organisation (ICAO) as a system that relates the characteristics of airports to specifications that are suitable for the aeroplanes that are intended to operate from these airports. The code number relates to the aeroplane reference field

length, the code letter is based on the aeroplane wingspan and outer main gear wheel span. Note that determination of the aeroplane reference field length is solely for the selection of the code number and is not intended to influence the actual runway length provided. The table below indicates the aircraft characteristics that determine the Aerodrome Reference Code.

Table 1 - Aerodrome Reference Code extracted from MOS Part 139 - Aerodromes

Aerodrome Reference Code				
Code Element 1		Code Element 2		
Code number	Aircraft reference field length (ARFL)	Code letter	Wing span	Outer main gear wheel span
1	Less than 800m	A	Up to but not including 15m	Up to but not including 4.5m
2	800m up to but not including 1200m	B	15m up to but not including 24m	4.5m up to but not including 6m
3	1200m up to but not including 1800m	C	24m up to but not including 36m	6m up to but not including 9m
4	1800m and over	D	36m up to but not including 52m	9m up to but not including 14m
		E	52m up to but not including 65m	9m up to but not including 14m
		F	65m up to but not including 80m	14m up to but not including 16m

5.3 Runway configuration

Analysis of Wind Data

CASA Regulations do not specify a wind useability level; it is left to pilots to operate within the allowable cross wind component prescribed for their particular aircraft. ICAO Annex 14 states the number and orientation of runways at an airport should ensure a usability of not less than 95% for the aeroplanes that the airport is intended to serve.

The allowable crosswind component varies with the specific aircraft type. ICAO Annex 14 provides the following guidance for planning purposes:

- 37 km/h (20 kt) for aircraft whose reference field length¹ is 1500m or over,
- 24 km/h (13 kt) for aircraft whose reference field length is 1200m or up to 1500m; and,
- 19 km/h (10 kt) for aircraft whose reference field length is less than 1200m.

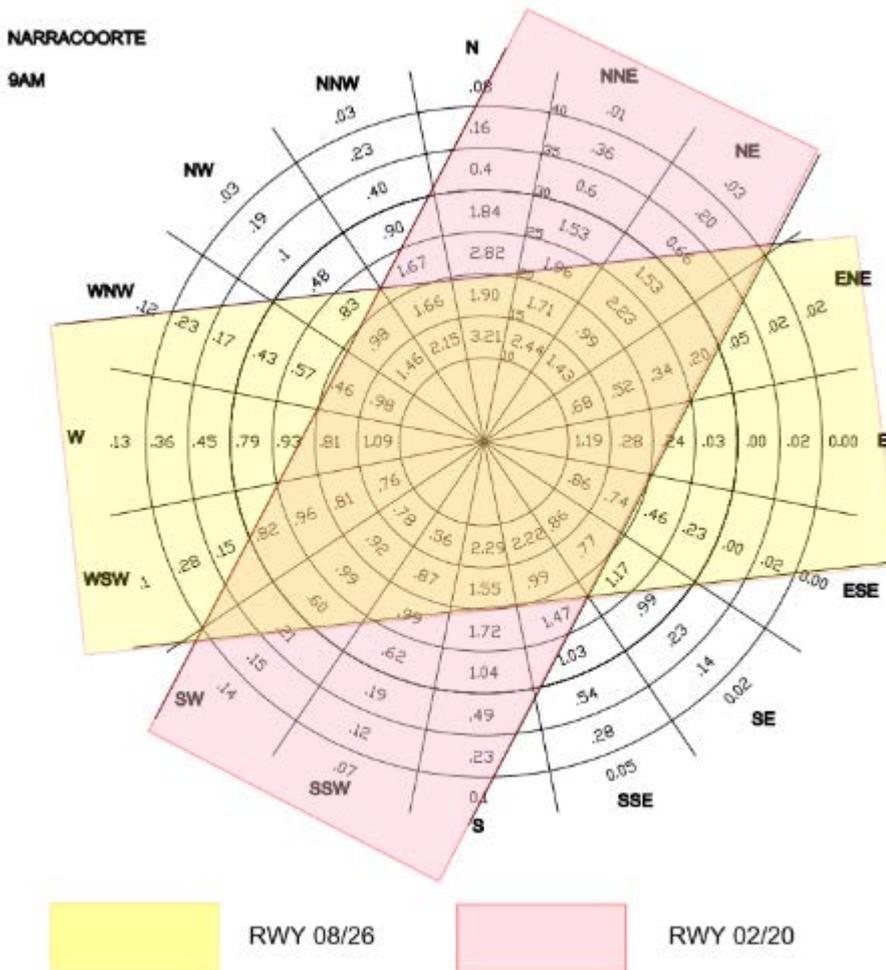
(ICAO Annex 14)

As the majority of operations at Naracoorte are light aircraft, a 19kph allowable crosswind component is considered appropriate.

An analysis was undertaken of wind data compiled from the Bureau of Meteorology (BoM). The wind data provides the percentage of time the wind, in 5km/hr increments, occurs within the 16 compass headings. The BoM data is shown as shown overleaf.

	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calms	Row Totals
9AM >= 0 and < 5	0.43	0.20	0.07	0.17	0.15	0.12	0.15	0.16	0.41	0.08	0.10	0.10	0.15	0.13	0.26	0.12	3.38	6.10
>= 5 and < 10	1.71	1.05	0.68	0.51	0.70	0.48	0.67	1.34	1.60	0.64	0.39	0.42	0.53	0.75	1.33	1.60	0.00	14.33
>= 10 and < 15	3.21	2.44	1.43	0.68	1.19	0.86	0.86	2.22	2.29	0.56	0.78	0.76	1.09	0.98	1.46	2.15	0.00	22.88
>= 15 and < 20	1.90	1.71	0.99	0.52	0.28	0.74	0.77	0.99	1.55	0.87	0.92	0.81	0.81	0.46	0.98	1.66	0.00	15.86
>= 20 and < 25	2.82	1.96	2.23	0.34	0.24	0.46	1.17	1.47	1.72	0.99	0.99	0.96	0.93	0.57	0.83	1.67	0.00	19.32
>= 25 and < 30	1.84	1.53	1.53	0.20	0.03	0.23	0.99	1.03	1.04	0.62	0.60	0.82	0.79	0.43	0.48	0.90	0.00	13.03
>= 30 and < 35	0.40	0.60	0.66	0.05	0.00	0.00	0.23	0.54	0.49	0.19	0.21	0.15	0.45	0.17	0.10	0.40	0.00	4.61
>= 35 and < 40	0.16	0.36	0.20	0.02	0.02	0.02	0.14	0.28	0.23	0.12	0.15	0.28	0.36	0.23	0.19	0.23	0.00	2.92
>= 40	0.08	0.10	0.03	0.02	0.00	0.00	0.02	0.05	0.10	0.07	0.14	0.10	0.13	0.12	0.03	0.02	0.00	0.95
Column Totals	12.53	9.89	7.78	2.45	2.58	2.88	4.98	8.08	9.41	4.12	4.21	4.38	5.27	3.78	5.63	8.72	3.38	100.00
	21.93	14.01	11.98	6.83	7.84	6.66	10.61	16.79										
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Calms	Row Totals
3PM >= 0 and < 5	0.08	0.02	0.03	0.03	0.08	0.05	0.05	0.08	0.08	0.12	0.12	0.05	0.08	0.05	0.05	0.10	0.40	1.47
>= 5 and < 10	0.92	0.46	0.57	0.28	0.45	0.32	0.24	0.57	0.82	0.64	0.40	0.60	0.64	0.50	0.70	0.53	0.00	8.57
>= 10 and < 15	1.51	0.69	0.63	0.57	0.87	0.63	1.00	1.53	2.48	1.82	0.97	1.06	1.27	0.75	1.06	1.32	0.00	18.18
>= 15 and < 20	1.39	0.78	0.45	0.27	0.41	0.40	0.38	1.11	2.07	1.41	0.78	0.88	0.78	0.48	0.93	1.03	0.00	13.57
>= 20 and < 25	1.92	0.75	0.68	0.34	0.23	0.23	0.81	1.65	3.12	2.24	1.39	1.90	1.67	1.21	1.32	1.74	0.00	21.19
>= 25 and < 30	1.28	0.73	0.28	0.18	0.03	0.23	0.46	1.08	2.57	1.65	2.16	1.83	2.07	1.38	1.00	0.98	0.00	17.92
>= 30 and < 35	0.28	0.18	0.12	0.03	0.02	0.03	0.10	0.42	1.05	0.68	0.84	0.84	1.20	0.87	0.36	0.40	0.00	7.38
>= 35 and < 40	0.28	0.05	0.00	0.00	0.02	0.02	0.09	0.33	0.75	0.62	0.73	1.18	1.62	0.83	0.45	0.23	0.00	7.19
>= 40	0.13	0.03	0.02	0.00	0.00	0.00	0.02	0.12	0.37	0.31	0.27	0.70	1.23	0.93	0.30	0.15	0.00	4.53
Column Totals	7.81	3.64	2.74	1.68	2.08	1.87	3.18	6.88	13.29	9.48	7.68	9.06	10.57	7.03	6.17	6.47	0.40	100.00

The study determined the 19 km/h cross wind useability of the combined runways 08/26 and 02/20 to be 94.7% for the 9am period which is considered consistent with the ICAO recommendation.



Wind rose with a 19km/h cross wind component plotted for the two available runways. The sum of the percentage of time within the coloured envelopes gives the usability for the 2-runway layout.

Layout - Number of Runways Needed

While provision of a new northwest – southeast runway would provide even greater useability, such an alignment is not considered practical due to the presence of a large open water network to the northwest of the aerodrome. The substantial system of water ponds is considered natural habitat to a large bird population. Flights over the area are not considered viable from a risk viewpoint. As result it is recommended the existing runway layout be retained

Runway Length

The required runway length is determined by:

- aircraft type, model etc;
- required payload (fuel etc to reach required destination plus mandatory holding requirement);
- ambient air temp and pressure; and,
- runway surface (unsealed runways have reduced operational performance).

Runway 08/26

In the absence of RPT or air transport charter services with specific destinations, the appropriate runway length remains indeterminate. From obstacle limitation surface data, it can be concluded there is little benefit in extending runway 08/26.

The recommendation for runway 08/26 is for the existing length of 1048m to remain unchanged.

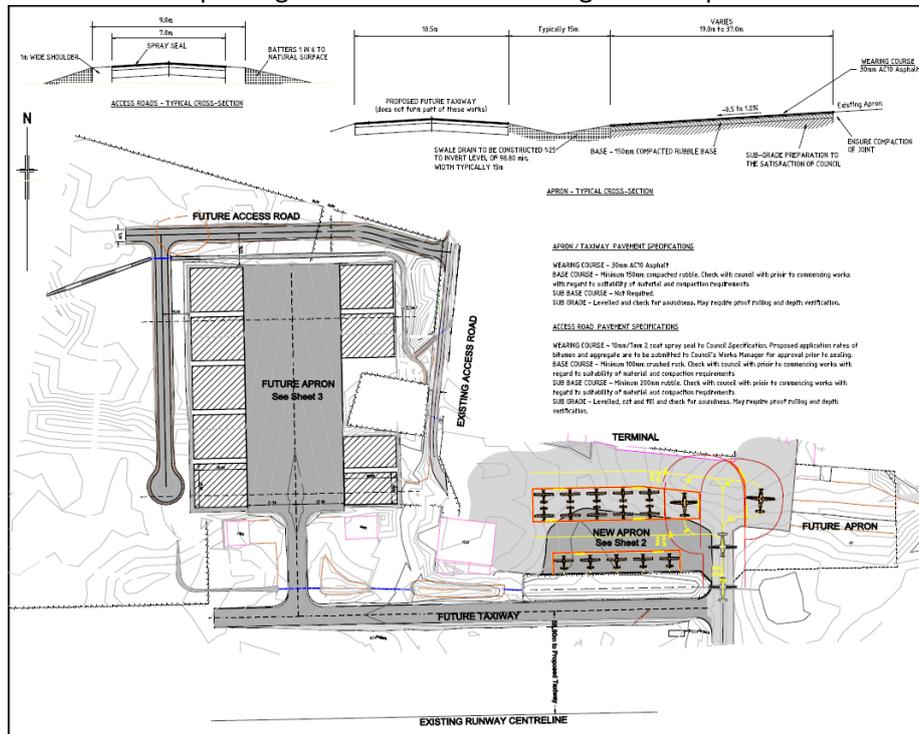
Runway 02/20

Runway 02/20 was upgraded in 2017 from grass to rubble. It was extended from 1118m to 1350m and widened to 23m. The upgrade has allowed the runway to be used all year and reduces the risk of runway closures. The extension will meet the intended use of Runway 02/20 for the next 20 years and should be preserved through planning controls.



5.4 Taxiways and Aprons

The existing aprons serving the aero club, private hangars etc will be retained and expanded as required to meet increased parking demand and future hangar development as shown below.



Future taxiway and apron layout

A new fire bomber loading apron has been constructed on the eastern side of runway 02/20. This allows aerial firefighting aircraft to load and operate independently of the existing apron. The layout is shown schematically below. Access to the Fire Bomber Loading apron is currently through the northern gate, but is proposed to enter from the eastern edge to minimize movement of vehicles on the manouvering areas.



Proposed access for CFS Aerial Firefighting site. To be built in conjunction with Doolans Road

5.5 Navigation Systems

Naracoorte currently has a Global Navigation Satellite System GNSS (GPS) non-precision approach to the threshold of runway 26. In the long term it may be beneficial to provide a GNSS approach to runway 02/20, particularly in the case where future increases tree obstructions to the east of 08/26 make this runway difficult to maintain to the required instrument approach standard.

The Council owned non directional beacon (NDB) was deemed as not required under the Air Services Australia Navigation Rationalisation Project and has subsequently has been decommissioned. There is currently no foreseeable requirement for a ground based navaid at Naracoorte.

5.6 Aviation Support and Landside Facilities

a) Passenger Terminal

The existing aero club facilities provide an open area for training, offices and toilets etc. The current location is consistent with the required use of the facility. Sufficient space is available to the west and north of the building for future expansion / redevelopment as needed over the next 20 years.

b) Security Requirements

Current security regulations do not require passenger or baggage screening for closed charter aircraft operations. Where charters are open to the public and involve aircraft with a maximum weight in excess of 20 tonnes, dedicated screening areas are mandatory. Within the next 20 years, it is unlikely Naracoorte will service 20 tonne aircraft so it is unlikely there will be a need for passenger and baggage screening unless there is a significant change to the existing regulations.

Increased security surveillance may be required in the form of additional lighting, and CCTV security monitoring, security standard fencing, monitored and controlled access through gates and buildings etc. Such provisions are unlikely to impact on the master planning layout for the aerodrome

c) Refuelling facilities

The location of the current Avgas 100 refuelling facilities east of the Aero Club is in an area that allows convenient access to light aircraft. The position is consistent with the foreseeable demand for refuelling with some additional space available if increased storage in the form of above ground tanks was required. With the increasing number of aircraft using Jet A1 fuel, including emergency aircraft, e.g. CFS, Medstar, consideration of a fuel sales licence is being sought by a private contractor to supply and sell Jet A1 fuel to operators using the Naracoorte Aerodrome. This fuel supply is on the western side of the apron.

d) Aircraft hangars

Based on past activity it is highly likely there will be ongoing demand for additional hangars within the master plan time frame. It is suggested (a) the existing hangars remain and (b) a new area for hangar development be provided to the west of the existing facilities. Survey and design has been completed, with construction of the taxiways to be done in 2018-19.

e) Meteorological facilities

The existing Bureau of Meteorology (BoM) facilities at Naracoorte currently comprises an automatic weather station AWS, but has no ceilometer or visibility meter.

The BoM Review of Aerodrome Forecast Services for The Aviation Industry Final Report September 2014 recommended the Naracoorte TAF to cease as neither the annual passenger or movement numbers met required thresholds. From 2014 a TAF service would only be offered on a contractual basis. Since 2014, movement numbers have substantially increased and lobbying has commenced

for the reintroduction of the TAF Weather Service at Naracoorte. Discussions have included BOM, Naracoorte Aero Club, Local Member of Parliament.

For master planning purposes the current BoM weather station site southwest of the intersection of the 2 runways can remain as the site is not required for any other use.

5.7 Airspace Protection Surfaces

Protection of airspace involves the provision of an obstacle limitation surface (OLS) plan and protections of Procedures of Air Navigation Operations PANS-OPS surfaces.

Forming part of this master plan is the preparation of plans showing OLS and PANS ops protection of the lengthened 02/20 runway.

5.8 Aircraft Noise Contours

a) Australian Noise Exposure Forecasts

At capital cities and major airports, information on aircraft noise has been provided using Australian Noise Exposure Forecasts (ANEF). Modelling of aircraft activity is used to produce ANEF noise contours which identify restriction of land uses according to the sensitivity of the nominated use.

The Australian Standard AS 2021 *Acoustics-Aircraft Noise Intrusion-Building Siting and Construction 2015* lists various land uses (e.g. houses through to heavy industrial areas) considered acceptable/unacceptable within the various ANEF contours as shown in the following extracted.

Building Site Acceptability Based On ANEF Zones

Building type	ANEF zone of site		
	Acceptable	Conditionally acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF

NOTES:

1. The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths.
2. Within the 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. *Ref AS 2021-2000*

b) Single Event Contours

Because the ANEF is a summation of the total noise over an average day, when applied at aerodromes with small numbers of aircraft movements the results are less than satisfactory, in that the ANEF contours barely go beyond the extent of the airport, whereas it is known aircraft noise will be heard over a far greater area and will, in some situations be considered intrusive.

Even with higher traffic levels than expected it is unlikely Naracoorte would receive more than 4 flights per day by a large seat aircraft of say 50 seat capacity. This low level of activity would be insufficient to expand the area covered by the ANEF contours to effectively describe the areas subject to potential noise intrusion.

An alternative is to plot the aircraft noise as a single noise level event contour, superimposed on the aircraft flight paths. Typically, the 70 dB(A) contour is the benchmark used in studies undertaken by Commonwealth Department of Transport and Infrastructure, as it is equivalent to a single event level of 60dB(A) specified in the Australian Standard 2021, as the accepted indoor design sound level for normal domestic dwellings. (An external single noise event will be attenuated by approximately 10 dB(A) by the fabric of a house with open windows) An internal noise level above 60 dB(A) is likely to interfere with conversation or listening to the television.

Building Site Acceptability Based On Aircraft Noise Levels*

Number of flights per day	Aircraft noise level expected at building site dB(A)		
	Acceptable	Conditionally acceptable	Unacceptable
House, home, caravan park, school, university, hospital, nursing home			
>30	<70	70-75	>75
15-30	<80	80-85	>85
<15	<90	90-95	>95
Hotel, motel, hostel, public building			
>30	<75	75-80	>80
>30	<85	85-90	>90
>30	<95	95-100	>100
Commercial Building			
>30	<80	80-85	>85
15-30	<90	90-95	>95
<15	<100	100-105	>105

The values in the above table are based on a small aerodrome with a small number of civil, non-jet aircraft movements. They should not be used in any other circumstances.

NOTE: The forecast daily average number of aircraft flights affecting the site should be obtained from the aerodrome owner. However, each night-time flight between 1900 hours and 0700 hours is to count as four operations.

The following assumptions have been made in selection of aircraft for the noise study:

- The maximum size aircraft will be the Metro III, Beech 1900 or equivalent.
- Regular operations will continue with general aviation single and twin engine aircraft.
- Use of the aerodrome by large aircraft such as a 50 seat charter will remain a one-off event; where operations take place during the day, it is unlikely they will create a significant noise effect due to infrequency of the operation.

A plot of the 70 dB(A) single event noise contour is included at the end of this document

5.9 Environmental and Heritage Sites

An airport specific Environmental Management Plan has not been prepared on the basis that there are no known sites of environmental significance within the aerodrome boundary. The airport will

be managed and developed in accordance with the Council Wide Provisions and objectives contained in the Development Plan 2012 in regards to the protection of the environment.

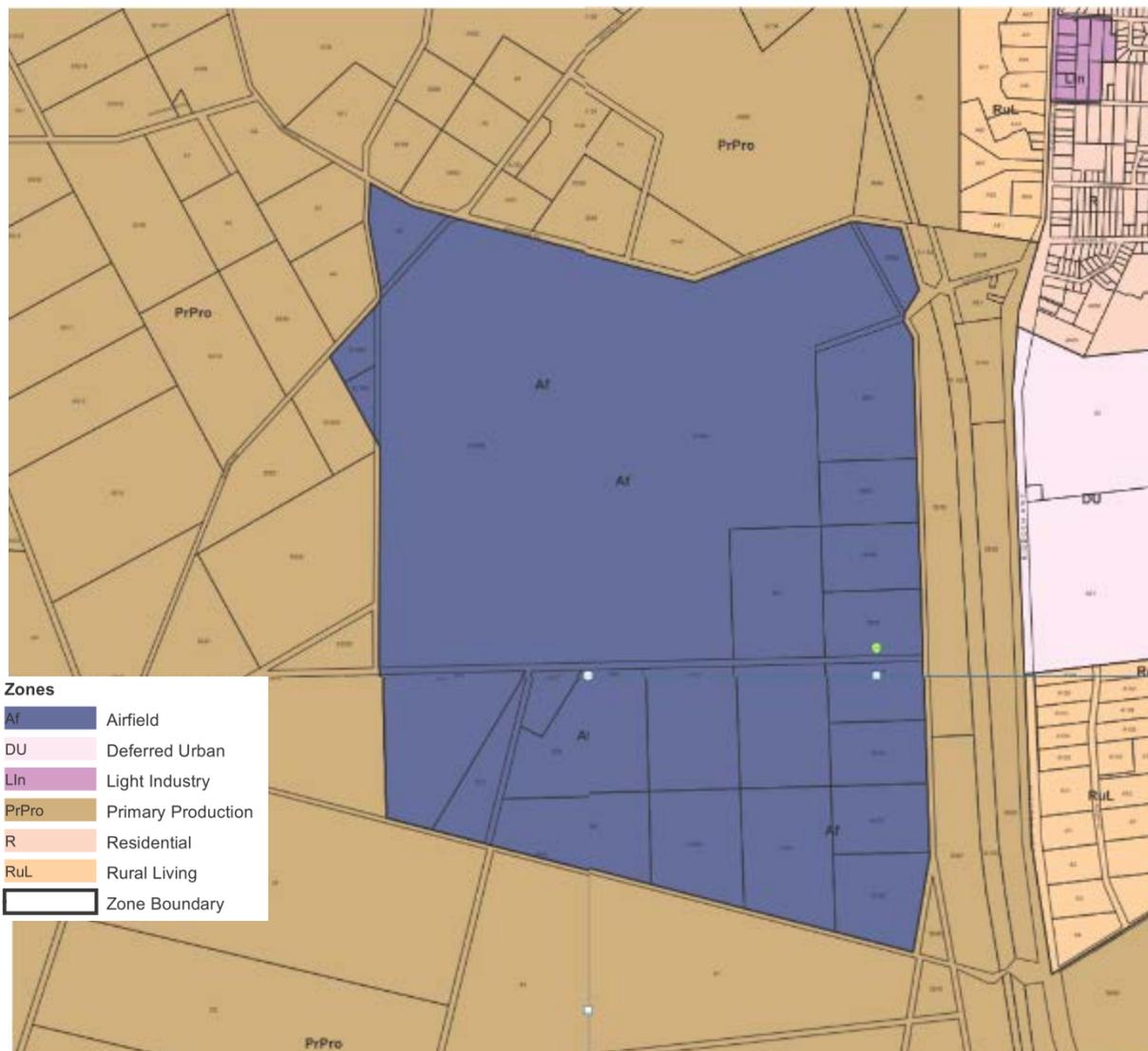
5.10 Heritage Management Plan

The Aerodrome does not contain any sites or items recognised on the formal heritage list. Accordingly, a Heritage Management Plan for the aerodrome has not been developed. The Van Leuven Memorial and gates are of value to the aero community and should be maintained.

6 LAND USE PLAN

6.1 Land Use Precincts

The land surrounding the aerodrome is zoned primary production. The adjacent land use zones are shown in the map below extracted from the NLC Development Plan 2012.



6.2 Land Use Precinct Guidelines

Building near Airfields

OBJECTIVES

- 1 Development that ensures the long term operational, safety and commercial aviation requirements of airfields (airports, airstrips and helicopter landing sites) continue to be met.

PRINCIPLES OF DEVELOPMENT CONTROL

1. The height and location of buildings and structures should not adversely affect the long term operational, safety and commercial aviation requirements of airfields.
2. Buildings and structures that penetrate the obstacle limitation surfaces (OLS) should not be developed unless a safety analysis determines that the building/structure does not pose a hazard to aircraft operations.
3. Development in the vicinity of airfields should not create a risk to public safety, in particular through any of the following:
 - (a) lighting glare
 - (b) smoke
 - (c) air turbulence
 - (d) storage of flammable liquids
 - (e) attraction of birds
 - (f) materials that affect aircraft navigational aids.
4. Lighting within 6 kilometres of an airport should be designed so that it does not pose a hazard to aircraft operations.
5. Development that is likely to increase the attraction of birds should not be located within 3 kilometres of an airport used by commercial aircraft. If located closer than 3 kilometres the facility should incorporate bird control measures to minimise the risk of bird strikes to aircraft.
6. Dwellings should not be located within areas affected by airport noise.
7. Development should not take place in the proximity to Naracoorte Aerodrome if the development would be unduly affected by noise.
8. Development within areas affected by aircraft noise should be consistent with Australian Standard AS2021 - Acoustics - Aircraft Noise Intrusion - Building Siting and Construction.

Airfield Zone

OBJECTIVES

- 1) A zone primarily accommodating aircraft operations, passenger terminals, airport and aviation-related light industrial, service industrial, warehouse and storage purposes.
- 2) Development that contributes to the desired character of the zone.

DESIRED CHARACTER

Naracoorte Aerodrome is a valuable regional facility. Development will be compatible with the operation of the aerodrome which will also have the character of an enterprise zone to assist with freight forwarded by air and to enable industrial development compatible with the operations of the airfield.

It is desirable to maintain the majority of the land in a single land parcel of land to assist with airfield management, however separate allotments under a community title scheme are encouraged to foster development of uses complementary to the aerodromes primary purpose.

Development throughout the zone will be required to conform to CASA requirements to maintain the safety of the airport's operation.

It is envisaged that the airport will be developed for a range of air services including charter operations, flight training, access for the Royal Flying Doctor Service, aircraft maintenance and agricultural operations.

Development of an industrial nature which relates to the operation of the aerodrome, or may provide a commodity which requires transportation by air, is encouraged within the zone. Buildings will be sited and designed so as to not impact upon the safe operation of the aerodrome.

PRINCIPLES OF DEVELOPMENT CONTROL

Land Use

- 1) The following forms of development are envisaged in the zone:
 - air passenger or air freight terminal
 - aircraft related facility
 - airport
 - fuel depot
 - light industry ancillary to and in association with aviation activities
 - recreation area
 - service industry ancillary to and in association with aviation activities
 - shop within the terminal building
 - warehouse ancillary to and in association with aviation activities.
- 2) Development listed as non-complying is generally inappropriate.
- 3) Development that would be adversely affected by noise and other hazards caused by airport activities should not be undertaken in the zone.
- 4) Development should not impede the use of the zone for aviation purposes.

Form and Character

- 5) Development should not be undertaken unless it is consistent with the desired character for the zone.
- 6) Commercial and light industrial development located on the airport site should:
 - a) facilitate the more efficient operation of the airport
 - b) be sited in defined clusters
 - c) not adversely affect the amenity of surrounding land uses.

Land Division

- 7) Land should not be divided except for the realignment of allotment boundaries, where this assists in the more efficient operation and use of the airport.
- 8) There should be no increase in the total number of allotments in the zone.

7 FACILITY DEVELOPMENT PLAN

7.1 Movement Area Facilities

1. Runway 08/26 will be retained
2. Runway 02/20 will be retained unsealed with limestone gravel. The runway has been extended to the south, (a) to improve the approach takeoff clearances over trees to the north of the runway and (b) increase the height of aircraft when flying over built up areas.
3. A new taxiway connection has been provided to runway 02/20
4. The existing sealed apron has been expanded toward runway 08/26
5. A new apron supporting fire bomber refilling has been established on the eastern side of Runway 02/20.
6. A new taxiway and apron system is being developed west of the current hangar facilities to support future hangar development

7.2 Aviation Support Facilities

1. Provision for a future light industrial area to provide aviation workshops training facilities etc to be provided in the northern part of the aerodrome.
2. The present Aero Club location has been retained with allowance to expand the facility if needed for example to support expanded flying training schools

8 GROUND TRANSPORT PLAN

There is no anticipated change to the external road network. A new roadway will be needed to connect to the proposed apron hangar and light industrial area in the northwest part of the aerodrome. Existing internal roads will eventually require resealing, widening and geometric upgrades.

9 ENVIRONMENTAL MANAGEMENT PLAN

At this stage an aerodrome specific environmental management plan has not been prepared on the basis that there are no known sites of environmental significance located within the aerodrome boundary. The airport will be managed and developed in accordance with the general provisions and objectives contained in the Development Plan 2012 in regards to the protection of the environment.

10 HERITAGE MANAGEMENT PLAN

At this stage an aerodrome specific Heritage Management Plan has not been prepared on the basis that there are no known sites of archaeological or heritage significance within the aerodrome boundary.

11 AIRPORT SAFEGUARDING PLAN

11.1 National Airports Safeguarding Framework (NASF)

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

- improve community amenity by minimising aircraft noise-sensitive developments near airports; and
- 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 National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA), has developed the National Airports Safeguarding Framework (the Framework).

The National Airports Safeguarding Framework was developed to provide guidance for Planners to consider potential impact of developments outside the airport on airport operations. Principles of the guideline will be considered in local planning processes when assessing a development application in the vicinity of Naracoorte Aerodrome. The purpose of the framework is to enhance the current and future safety, viability and growth of aviation operations by supporting and enabling:

- the implementation of best practice in relation to land use assessment and decision making in the vicinity of airports;
- assurance of community safety and amenity near airports;
- better understanding and recognition of aviation safety requirements and aircraft noise impacts in land use and related planning decisions;
- the provision of greater certainty and clarity for developers and land owners;
- improvements to regulatory certainty and efficiency; and
- the publication and dissemination of information on best practice in land use and related planning that supports the safe and efficient operation of airports.

NASF PRINCIPLES

Principle 1. The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance.

Principle 2. Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning.

Principle 3. Governments at all levels should align land use planning and building requirements in the vicinity of airports.

Principle 4. Land use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations.

Principle 5. Governments will protect operational airspace around airports in the interests of both aviation and community safety.

Principle 6. Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures.

Principle 7. Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.

NASF GUIDELINES

Over the long term, inappropriate development around airports can result in unnecessary constraints on airport operations and negative impacts on community amenity due to the effects of aircraft noise. These impacts need to be managed in a balanced and transparent way.

Guideline A provides advice on the use of a complementary suite of noise metrics, to inform planners and provide communities with comprehensive and understandable information about aircraft noise.

Guideline B presents a layered risk approach to the siting and design of buildings near airport runways to assist land use planners and airport operators to reduce the risk of building - generated windshear and turbulence. It also provides options to modify existing buildings.

Guideline C provides advice to help protect against wildlife hazards originating off-airport through appropriate land use planning decisions and the way in which existing land use is managed in the vicinity of airports.

Guideline D provides advice on the location and safety management of wind turbines and other similar structures which can constitute a risk to low-flying aviation operations and can also affect the performance of Communications, Navigation equipment operated by Airservices Australia.

Guideline E provides advice on ensuring lighting in the vicinity of airports is not configured so as to cause distraction or confusion to pilots

Guideline F provides advice for planners and decision makers about working within and around protected airspace, including obstacle limitation surface (OLS) and Procedures for Air Navigation Services (PANS-OPS) intrusions, and how these can be better integrated into local planning processes.

11.2 Airspace Protection Surfaces

Obstacle Limitation Surface Plan.

An airport OLS has been developed for Naracoorte for the protection of the 2 runways. The OLS plans protect for the existing 08/26 runway configuration and a future extension of runway 02/20. Naracoorte allowing for non-precision approaches to all runways and an extended

PANS OPS

Naracoorte has straight in approach Area Navigation Global Navigation Satellite System (RNAV GNSS) procedures for runway 08. The clearance surfaces associated with these procedures are covered by the OLS parameters.

For long term planning consideration, it is possible GPS non-precision approaches could be applied to the remaining 3 runways. The future OLS has been incorporated the design requirements for a GPS approach to all runway ends.

11.3 Aircraft Noise Contours

Australian Noise Exposure Forecasts have not been prepared for Naracoorte on the basis that the frequency of aircraft movements and the type of aircraft flying are not sufficient to generate a meaningful ANEF even using the most optimistic forecasts. Instead single event noise contours have been generated using modelling data for the largest aircraft types likely to use Naracoorte in the next 20 years.

11.4 Planning Policies and Controls

Planning policies and controls relating to safeguarding of the airport are contained within the NLC Development 2012.

The planning provisions of this Master Plan are in agreement with the principles and objectives contained in NLC Development Plan 2012.

The Master Plan also takes into account State, Regional and Local Government strategic directions, planning policies and legislative framework.

12 IMPLEMENTATION PLAN

Completed Works

Description	Completed	Year
Rubble 02/20 grass runway Stage 1, 2, & 3	Completed	2016/17
Construct gravel taxiway to 02/20	Completed	2016/17
Construct apron for fire bomber aircraft	Completed	2016/17
Refurbishment of toilets	Completed	2016/17
Upgrade fencing to rear of eastern hangars	Completed	2016/17
Replace and Relocate primary wind indicator south of runway 08/26	Completed	2016/17
Resealing of apron near leased area	Completed	2016/17
Extension to asphalt apron	Completed	2017/18

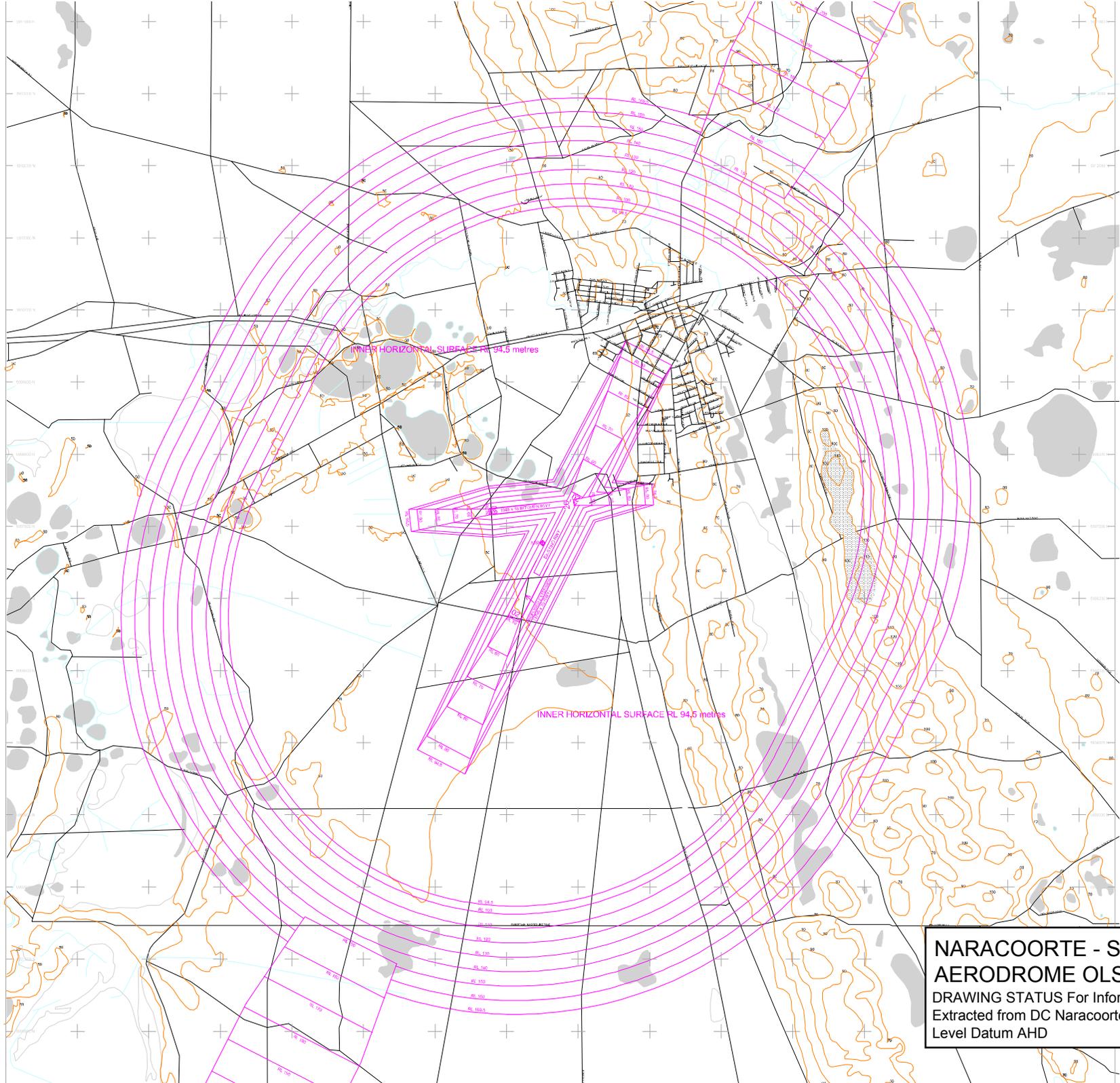
Future Upgrades

Item	Year	Estimate
Aerodrome Upgrades		
Establish licence for sale of Jet A1 fuel by private contractor	2018/19	Private investment
Construction of apron and taxiway to support future hangar development west of the current facilities	2018/19	\$ 100,000
Installation of new SWR power line into proposed hangar facilities	2018/19	\$ 40,000
Replace/upgrade runway and taxiway lighting	2019/20	\$ 100,000
Stabilise taxiway, 150m of runway 02/20 (both ends) and CFS Aerial Firefighting site with Dustbinder	2020/2021	\$ 60,000
Reseal runway 08/26	2023/24	\$400,000
Emergency Services Support		
Construct all weather road way access to Fire Bomber loading Apron. To be constructed concurrently with Doolans Road upgrade	TBD	
Installation of Helipad for 2 CFS Air Observation Helicopters. CFS changing from fixed wing to helicopters commencing fire season 2018-19.	TBD	\$ 150,000
Reinstatement of TAF Weather Service. This will support emergency services as well as other aerodrome users	TBD	TBD
Future Expansion		
Provide Aviation workshops and training facilities west of current facilities	TBD	

13 DRAWINGS

- I. Obstacle Limitation Surface Plan
- II. Single Event Noise Contour

III. 20 year Master Plan



INNER HORIZONTAL SURFACE RL 94.5 metres

INNER HORIZONTAL SURFACE RL 94.5 metres

- RL 114.2
- RL 110
- RL 108
- RL 106
- RL 104
- RL 102
- RL 100
- RL 98
- RL 96
- RL 94
- RL 92
- RL 90
- RL 88
- RL 86
- RL 84
- RL 82
- RL 80
- RL 78
- RL 76
- RL 74
- RL 72
- RL 70
- RL 68
- RL 66
- RL 64
- RL 62
- RL 60
- RL 58
- RL 56
- RL 54
- RL 52
- RL 50
- RL 48
- RL 46
- RL 44
- RL 42
- RL 40
- RL 38
- RL 36
- RL 34
- RL 32
- RL 30
- RL 28
- RL 26
- RL 24
- RL 22
- RL 20
- RL 18
- RL 16
- RL 14
- RL 12
- RL 10
- RL 8
- RL 6
- RL 4
- RL 2
- RL 0

NARACOORTE - SA
AERODROME OLS PLAN
DRAWING STATUS For Information
Extracted from DC Naracoorte OLS Plan 2002
Level Datum AHD



NARACOORTE AERODROME
SINGLE EVENT 70dB(A) NOISE CONTOUR
Regional Turbo Prop
Data extracted from AS 2021



AIRFIELD LAYOUT
SCALE 1:4000

LEGEND:

- EXISTING SEALED PAVEMENTS
- EXISTING GRAVEL PAVEMENTS
- PROPOSED GRAVEL EXTENSION
- PROPOSED SEALED PAVEMENTS
- TERMINAL PRECINCT
- CARPARK PRECINCT
- GENERAL AVIATION PRECINCT
- FUEL PRECINCT
- COMMERCIAL PRECINCT
- BUILDINGS / HANGARS

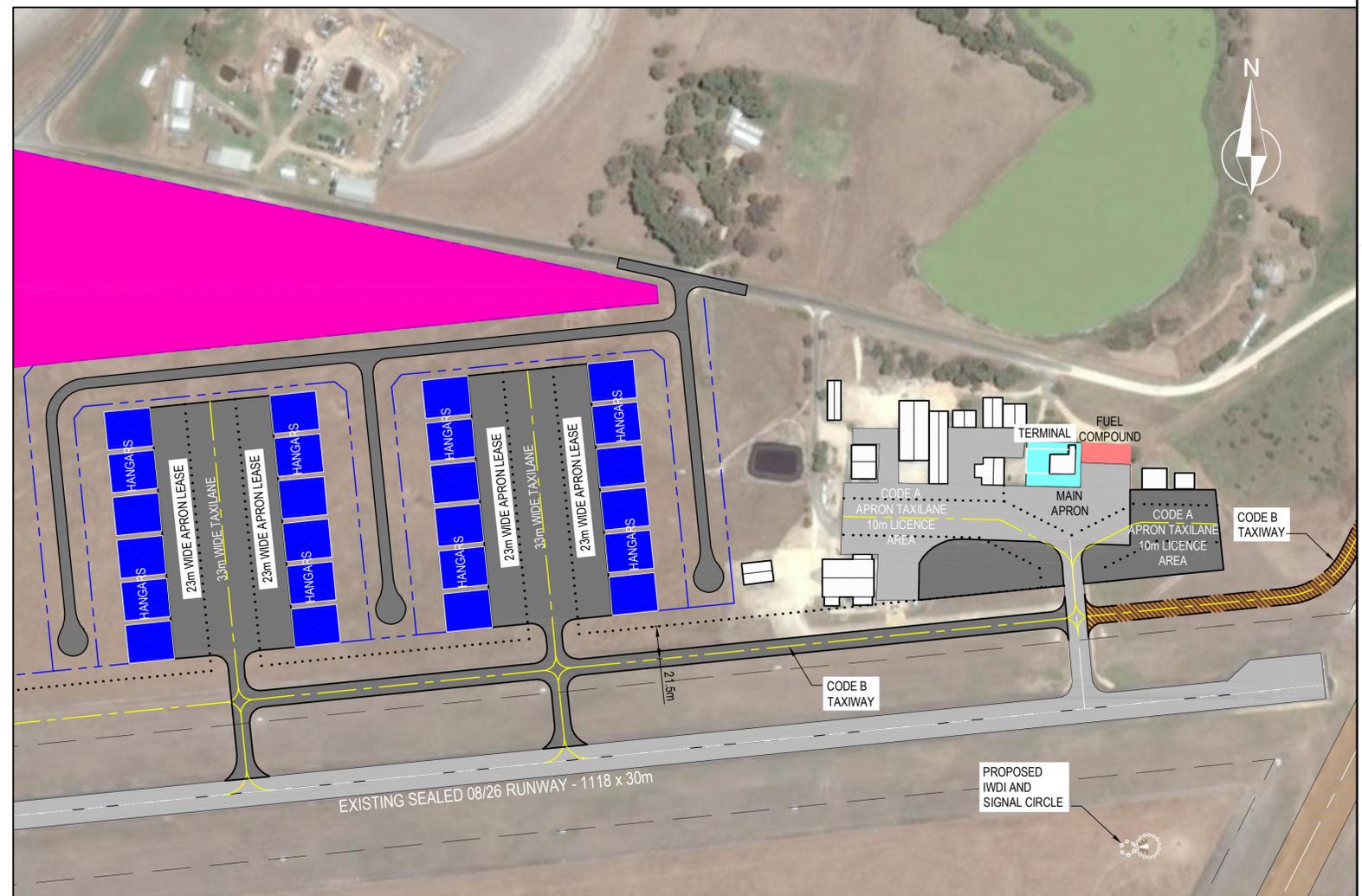
EXISTING DECLARED DISTANCES

	TORA	TODA	ASDA	LDA
RWY 02	1118	1178	1118	1118
RWY 20	1118	1178	1118	1118
RWY 08	1048	1109	1048	1048
RWY 26	1048	1108	1048	1048

PROPOSED DECLARED DISTANCES

	TORA	TODA	ASDA	LDA
RWY 02	1500	1560	1118	1118
RWY 20	1500	1560	1118	1118
RWY 08	1048	1121	1048	1048
RWY 26	1048	1109	1048	1048

TORA - TAKE-OFF RUN AVAILABLE
 TODA - TAKE-OFF DISTANCE AVAILABLE
 ASDA - ACCELERATE STOP DISTANCE AVAILABLE
 LDA - LANDING DISTANCE AVAILABLE



TERMINAL PRECINCT LAYOUT
SCALE 1:2000

REV	DATE	AMENDMENTS
B	28/08/16	AMENDED DECLARED DISTANCES
A	19/05/16	FOR INFORMATION

XREF LIST

Includes: ZSH_A1
 Includes: X YNRC BASE
 Includes: X YNRC HAT MP
 Includes: X YNRC MP
 Includes: X YNRC IMG
 Includes: X YNRC IMG MP
 Includes: X YNRC HAT EX BLDG
 Includes: X YNRC HAT EX
 Images: YNRC IMAGE.JPG

Note:
 This document carries Aerodrome Design Consultants copyright and is reproduced here for information only. The information shown must be verified for accuracy and completeness by necessary investigation and site inspection and measurement. Users of this information hereby agree and indemnify the company against any claim from the use of the information contained herein and associated discussions.

AERODROME DESIGN Pty Ltd
 ABN 63 102 371 871
 71 Salisbury Crescent
 Colonel Light Gardens SA 5041

CLIENT
 NARACOORTE
 LUCINDALE
 COUNCIL

DRAWN: AIRWORKS 23/05/16
DESIGNED: AIRWORKS 23/05/16
ORIGINATOR: P.FRANCIS
COMPANY: AERODESIGN
APPROVED:

NARACOORTE AERODROME
 20 YEAR MASTER PLAN
TITLE
 RUNWAY AND TERMINAL PRECINCT

SCALE
 40 0 40 80 120m
 AT SCALE 1:4000

DRAWING No.
 YNRC16MP01

REV
 B

A1 Border