



Mr Geoff McKeown, Shire of Williams CEO
The Shire of Williams,
9 Brooking Street,
Williams WA 6391

RE: Application for Development Approval - Meteorological Mast

Dear Mr McKeown,

RES Australia Pty Ltd (RES) is seeking Development Approval under the Shire of Williams' (the Shire) *Town Planning Scheme No. 2* (TPS No. 2) to construct and operate a temporary Meteorological Mast (Met Mast) within Lot 124 on Deposited Plan 301901.

As part of this application, the Project has considered general development standards outlined in the TPS No. 2 as well as other relevant elements of the State Planning Framework. This application describes this planning assessment, and all required supporting documents are provided in the attachments enclosed (and described below):

Attachment 1 – Shire of Williams' *Town Planning Scheme No. 2* Schedule 2 Form – Notice of Intention to Develop.

Attachment 2 – Certificate of Title (Lot 124 on Deposited Plan 301901).

Attachment 3 – Design Drawing.

Attachment 4 – Preliminary Aviation Assessment.

1 Purpose

The purpose of constructing and operating this temporary Met Mast (the Project) will be to conduct climatic monitoring to determine the suitability of the location for siting of a future wind farm. Any potential future development of a wind farm is dependent on the outcomes of pre-feasibility studies and approvals that are separate to this Development Application.

Western Australia's Energy Transformation Strategy (Energy Policy WA, 2021) seeks to achieve a secure, sustainable, and affordable electricity network for the future of WA. The utilisation of WA's abundant renewable resources, such as wind, to create such a network is also recognised as a key aspiration of the State Planning Strategy 2050 (WAPC, 2021). RES aims to contribute to these State level goals and have identified an area within the Shire that is suitable for collecting climate data, to inform the feasibility of a future wind farm.

The Met Mast is similar in function, purpose and appearance, to the Met Mast that recently received Development Approval in the Shire of Narrogin.

2 Project Location

The proposed location for the Met Mast is within the land parcel described in **Table 2.1** and illustrated in **Figure 1**. The location of the Met Mast on **Figure 1** is indicative and the final location will be confirmed following completion of heritage surveys and soil testing; to determine appropriate conditions for construction. Within the designated Lot 124 on P301901, the Met Mast will be constructed according to the design drawings provided in **Attachment 3** and will avoid any clearing of native vegetation or impact to watercourses. Access to the Met Mast site will either be directly from Collie-Williams Road via adjacent Lot 5021 on Deposited Plan 172826, or from Roccis Road (off Collie-Williams Rd) and via an existing internal access track within Lot 4756 on Deposited Plan 172306. It is not expected that either access option will require any upgrades or additional works.

Table 2.1 Project Location Details

| Lot on Deposited Plan | Certificate of Title | Total Lot Area (ha) | Planning Zone | Planning Scheme |
|---------------------------|--------------------------|---------------------|---------------|--|
| Lot 124 on <i>P301901</i> | Volume 1469 Folio 803 | 258.74 | Rural | Shire of Williams Town <i>Planning Scheme No. 2</i> |



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Scale 1:20000 or A4

GDA2020 MGA Zone 50

- Legend**
- Roads
 - Drainage Line
 - Met Mast Property
 - Property Boundaries
 - Indicative Met Mast Location
 - Access Route Option 1
 - Access Route Option 2

FIGURE 1
Indicative Project Location

3 Project Description

The primary objective of the Met Mast will be to provide detailed wind speed and direction data for the area. The data that is collected will be used to characterise suitability of the site for generating wind power and to inform the design and decision-making process around future proposals for development.

The proposed Met Mast will consist of a lightweight latticework design for minimum visual obstruction and be constructed according to the relevant Australian Standards to a height of ~80 m (detailed design provided in **Attachment 3**). The Met Mast will consist of:

- A galvanised steel framework.
- Mounting boom for climatic monitoring equipment.
- Guy-fixing system (including anchor footings and guy wires).
- Data and electrical cabling.

No clearing of native vegetation or crossing of watercourses will be required for the construction or operation of the Project.

The expected on-site construction time of the Met Mast is 1 week, with a construction force of 4-6 people. Pre-construction and construction activities will be undertaken during daylight hours and be as follows:

- 1) Prior to the installation of the met mast, soil testing will be completed. This will require:
 - a) The drilling of a 100 mm diameter hole to a maximum depth of 3 m at the Met Mast base. This enables assessment of soil structure and stiffness, soil classification, and pH level. These details will determine the type of foundation required.
 - b) A dynamic cone penetrometer test is also performed, which involves a 13 mm steel rod being driven into the ground by a known force with measurements recorded between blows to assess soil strength. The equipment used would be a utility vehicle mounted auger weighing approximately 4 tonnes.
- 2) Once the soil test is performed, construction works will be in accordance with the following steps:
 - a) The Met Mast foundation is set out:
 - i) Marking out points on the ground with stakes and line marking paint.
 - ii) Marking out the extent of excavation of the foundation points.
 - b) Excavation Process
 - i) Excavating the mast base (generally 1.5 m² x 0.6 m deep).
 - ii) Excavating the guy points (generally 1.8 m long x 1.8 m deep x 0.6 m wide) at six (6) locations.
 - c) Base pouring Process
 - i) Concrete is poured in the base excavation with reinforcing steel.
 - ii) Steel beams with threaded rod attached are installed in the foundation holes.
 - iii) Concrete is poured in those holes up to 0.6 m deep from the base of the holes.

iv) These holes are then backfilled after the concrete has hardened and extra soil from the digging is spread about to avoid trip hazards.

d) Hardware Delivery

i) The mast and hardware along with the installation equipment are delivered to site.

e) Installation and commissioning

i) The Met Mast and hardware will be assembled on-site and constructed over a period of 7 days.

The Met Mast will be unmanned for most of its operation and is primarily to be monitored from a remote location with inspections on a periodical basis. Up to six personnel would be expected on-site at any one-time during operations. The Met Mast will be similar in appearance to other Met Masts previously established for climatic monitoring for wind farms as illustrated in **Plate 1**, **Plate 2** and **Plate 3**.



Plate 1 Example of Meteorological Mast



Plate 2 **Example of Meteorological Mast Foundation**



Plate 3 Example of Meteorological Mast Visibility and Surrounds

4 Pre-submission Consultation

RES has undertaken targeted consultation with nearby landholders and relevant local government stakeholders to identify considerations in the planning and design of the proposed Met Mast. Stakeholders and engagement outcomes are detailed in **Table 4.1**. Further community and stakeholder consultation will be completed for a future wind farm development, should it progress.

Table 4.1 Consultation Summary

| Stakeholder | Engagement Outcomes |
|-----------------------------|---|
| Shire of Williams | Preliminary consultation with the Shire and their planning representative was undertaken to discuss the Shire of Williams planning process, align Development Application submission with Council meeting dates, and discuss potential issues regarding land zoning and land use classification for the Project. |
| Adjacent Landholders | Six (6) adjacent landholders within a 5 km radius of the Project were contacted and provided details of the Project activities to identify concerns and initiate engagement for future consultation opportunities. One (1) adjacent landowner was unable to be contacted and a voicemail was left with the relevant information. |
| Traditional Owners | The South West Aboriginal Land and Sea Council (SWALSC) and Gnaala Karla Booja Aboriginal Corporation have been engaged to obtain the details of suitable Traditional Owner representatives for the Project area. Traditional Owner representatives will be engaged as part of site surveys and future heritage assessments undertaken for the Project. |

5 Planning Considerations

Relevant aspects of the Western Australian planning framework have been considered as part of planning the Project and to support this Development Application. Considerations made for the Project and its alignment with relevant aspects of planning instruments and their objectives in WA are outlined in **Sections 5.1 and 5.2**.

5.1 Planning Framework

5.1.1 Town Planning Scheme No. 2

As assessment of Project elements against the General Development Controls under the TPS No. 2 is summarised in **Table 5.1**.

Table 5.1 Project Alignment with General Developments Controls (Part V, TPS No. 2)

| General Development Controls | Project Alignment |
|------------------------------|---|
| cl. 5.1 Carparking | Allocated car spaces are not required during operations given the nature of the Project's activities which will largely be remote. Parking of vehicles and equipment during the construction phase of the Project will be both temporary and minimal. Informal parking allocations during the construction phase may be designed in consultation with the Shire where necessary. |
| cl. 5.3 Access | Site access to Lot 124 will either be via an existing unsealed internal access track directly off Collie-Williams Rd which intersects Lot 5021 on P17826, or from Roccis Road (off Collie-Williams Rd) and via the existing internal access track in Lot 4756 on Deposited Plan 172306 (same landholder as Lot 124). Consultation with the landowner of Lot 5021 on P17826 for use of the internal access track will be undertaken should this option be selected for site access. The final route will be finalised following assessment by the manufacturer. It is not expected that neither access option will require any upgrades or additional works. |

5.1.2 Land use and zoning

The Lot listed in **Table 2.1** is currently zoned as 'Rural' under the Shire's TPS No.2.

In consideration of Schedule 1 of the TPS No.2, the proposed land use of the Project (meteorological mast) is not readily classified. In this instance, it is expected that the Project will be considered as a 'land use not listed' by the Shire and will be assessed against the planning objectives and controls for Rural zoned land. An assessment of the Project against the Shire's Policy Statement for Rural zoned land as outlined in clause 4.7(3) of the TPS No. 2 is provided in **Table 5.2**.

Table 5.2 Project Alignment with the Policy Statement for Rural Zone (cl 4.7, TPS No.2)

| Rural Zone Policy Statement | Project Alignment |
|--|---|
| <p>(a) There shall be a general presumption by Council against subdivision in the Rural zone unless:</p> <ul style="list-style-type: none"> I. the lots have already been physically divided by significant natural or man-made features which preclude the continued operation of a rural property as a single unit (unless adjoining land could be similarly subdivided and thereby, by the process of precedent, lead to an undesirable pattern or land use in the area or in lots too small for uses compatible with the prevailing use in the area or in ribbon development alongside roads); II. the lots are for farm adjustment and the erection of dwelling houses is restricted by memorials on Titles; III. the lots are for specific uses such as recreation facilities and public utilities; or IV. the lots are required for the establishment of uses ancillary to the rural use of the land. | <p>Not Relevant</p> <p>The Project does not propose or require the subdivision of any land.</p> |
| <p>(b) The Council does not recognize precedent resulting from subdivision created in the early days of settlement of the District as a reason for it to support subdivision in the Rural zone.</p> | <p>Not Relevant</p> <p>The Project does not propose or require the subdivision of any land.</p> |
| <p>(c) The Council will favourably consider applications for adjustment of lot boundaries where the application if approved will not result in the creation of one or more additional lots.</p> | <p>Not Relevant</p> <p>The Project does not propose or require the adjustment of any lot boundaries.</p> |
| <p>(d) The Council may recommend approval for subdivision for more intensive forms of rural production only where the application as submitted to the Commission is accompanied by the following:</p> <ul style="list-style-type: none"> I. such information as is set out in Regulation 6 of the State Planning Commission Regulations 1962 (as amended); II. identification of soil types, availability and adequacy of water supply, and any areas of salt affected land; III. evidence of consultations by the proponent with the Department of Agriculture on the suitability and capability of the proposed lot(s) and lot size for the intended land use; IV. a Statement of Undertaking by the proponent to proceed with the intended land use; V. details of stream protection where appropriate; and (vi) such other matters as may be requested by the Council. | <p>Not Relevant</p> <p>The Project does not propose or require the subdivision of any land.</p> |

5.1.3 State Planning Policy 2.5 – Rural Planning

The TPS No. 2 provides Policy Statements relating to Rural zoned land, however specific planning objectives for this zoning classification are not available. Considering this, an assessment against the *State Planning Policy 2.5 for Rural Planning* has also been completed (**Table 5.4**).

Table 5.3 Project Alignment with State Planning Policy 2.5

| What is it? | Alignment of the Project |
|--|---|
| <p><i>State Planning Policy 2.5</i> (SPP 2.5) provides the overarching planning objectives relating to rural zones defined in local planning schemes. SPP 2.5 aims to protect rural land, rural land uses, avoid land use conflicts, and support sustainable economic growth. The policy seeks to promote economic development opportunities while acknowledging the need to balance economic opportunity with the protection of the State’s primary production and natural resource assets. Relevant policy measures of SPP 2.5 include retaining land identified as priority agricultural land for that purpose and retaining and protecting rural land for biodiversity protection, natural resource management, and protection of valued landscapes and views.</p> | <p>The Project is considered to be aligned with the objectives and policy measures of SPP 2.5 given the footprint of disturbance constitutes a very small percentage of the subject land parcel and its temporary nature. Project activities will largely be undertaken remotely. As a result, the Project activities will not preclude other rural activities from being undertaken in surrounding areas and can be considered compatible with adjacent rural land uses. They will also not result in any direct impacts to environmental values in the area such as surface water resources or native vegetation. No vegetation clearing is required nor the use of local water resources. Visual impact from the Project is expected to be minimal as described in Table 5.5.</p> |

5.1.4 *Wheatbelt Regional Planning and Infrastructure Framework*

The Wheatbelt Regional Planning and Infrastructure Framework (WAPC, 2015a) (the Framework) provides the overarching planning objectives and direction for the Wheatbelt region. The Framework focuses on three key planning objectives specific to the Wheatbelt which are liveable communities, a vibrant economy, and valued natural amenity.

The Project is located within the ‘Wheatbelt South’ subregion and a summary of its alignment with each of the objectives of the framework is provided in **Table 5.3**.

Table 5.4 Project Alignment with the Wheatbelt Regional Planning and Infrastructure Framework

| Planning Objective | Project Alignment |
|--|---|
| <p>Liveable Communities Effective infrastructure and service delivery that:</p> <ul style="list-style-type: none"> • responds to local knowledge and values; • accommodates the Wheatbelt’s linkages to other regions; • builds on the interconnectedness of settlements; • assists and promote sustainable growth and cater for the needs of communities; • recognises the current and changing demographics of the region; and • seek to attract and retain a diverse population. | <p>RES have undertaken or commenced a number of engagement activities with stakeholders of the local community and traditional owners. It is not expected that the Project would have any adverse impacts to the liveability of surrounding areas or the Shire more broadly.</p> |
| <p>Vibrant Economy A diversified and adaptive economy that:</p> <ul style="list-style-type: none"> • increases its contribution to the Western Australian economy; • benefits from innovation in the primary production sector; and • enables diversification through the establishment and growth of new and innovative industries. | <p>Should the Project determine that the area has suitable climatic conditions for the development of a future wind farm, there is potential that this would result in a significant contribution to diversifying the local economy. Energy production is not currently a major industry within the Wheatbelt region; however, it has been recognised that there is an ample supply of renewable energy sources available (WAPC, 2015a, p 34). The Project represents a critical first step in identifying these untapped energy sources.</p> |

| Planning Objective | Project Alignment |
|--|--|
| <p>Valued Natural Amenity</p> <p>Environmental and landscape values that support the social, cultural and economic development of the region, and are managed for current and future generations.</p> | <p>The proposed Met Mast structure has minimal visual impact to the surrounding landscape and as a temporary structure, any potential impacts will be negligible and only in the short term.</p> <p>The Project does not require the clearing of any native vegetation or use of water resources and activities are largely passive with monitoring undertaken remotely. As such, the Project is not considered to have an impact on surrounding environmental values.</p> |

5.2 Other Planning Considerations

A number of early-assessment studies have been completed for the broader Dardadine Wind Farm Project. A summary of studies as relevant to the proposed Met Mast, as well as other considerations, is provided in **Table 5.5**.

Table 5.5 Additional Planning Considerations for the Project

| Planning Aspect | Project Alignment |
|--|--|
| <p>Aviation and Air Safety</p> | <p>A Preliminary Aviation Assessment was undertaken for the Project to identify potential impacts to aviation and safety (Attachment 4).</p> <p>As the proposed Met Mast has a height of ~80 m, notification to the Civil Aviation and Safety Authority (CASA) of its proposed construction under Part 139 of the <i>Civil Aviation and Safety Regulations (1998)</i> (CASR) is not necessary. There are also no certified aerodromes or other airfields within a 3 nautical-mile radius of the Project site and no other likely impacts to aviation safety that may result from its construction (Aviation Projects, 2023). The nearest landing strip is Hillman Farm Airport located approximately 20 km southeast of the Project (Geoscience Australia, n.d.).</p> <p>In accordance with the recommendations of the Preliminary Aviation Assessment, RES will consider the following measures to address air safety of the Met Mast:</p> <ul style="list-style-type: none"> • The top 1/3 of wind monitoring towers to be painted in alternating contrasting bands of colour; • marker balls or high visibility flags or high visibility sleeves placed on the outside guy wires; • ensuring the guy wire ground attachment points have contrasting colours to the surrounding ground/vegetation; • a flashing strobe light during daylight hours. |
| <p>Aboriginal and Historical Heritage</p> | <p>An Aboriginal & Historical Heritage Desktop Assessment was undertaken for the wider Study Area surrounding the Project site to identify potential risks to Aboriginal and historical heritage.</p> <p>The Traditional Owner group of the land encompassing the Project location are Gnaala Karla Booja (GKB). GKB is a Native Title group and a sub-set of the broader Southwest Native Title Settlement.</p> <p>The nearest Aboriginal heritage site is an Other Heritage Place (OHP) (AHIS ID 4648) located approximately 4 km west of the Project. There is one historical heritage site registered as a Local Heritage Place (LHP) which is located ~120 m south of the subject land parcel's (Lot 124) southwestern boundary. All remaining heritage sites identified are located >5 km from the Project.</p> <p>A site heritage survey and consultation with Traditional Owners is being undertaken.</p> |
| <p>Bushfire</p> | <p>The lot subject to development for the Project (Table 2.1) intersects designated Bushfire Prone Areas along sections of its northwest, eastern and southern perimeters (DFES, 2021).</p> <p>The final location for the Project within this land parcel will be selected to avoid these designated Bushfire Prone Areas.</p> |

| Planning Aspect | Project Alignment |
|--------------------------------|--|
| Environmental Impact | <p>The Project's development footprint is located within a cleared area of farmland and will not require the clearing of any native vegetation.</p> <p>The construction and operation of the proposed Met Mast will not impact on any watercourses or surface water bodies. The Project will also not require the taking of water from any surface or groundwater resources.</p> <p>There is no significant risk of soil degradation or erosion due to the minimal amount of excavation required.</p> |
| Land-Use Classification | <p>The proposed land-use (Meteorological Mast) is not defined within the Shire's TPS No.2 and is also not readily classified under any other listed land use in accordance with the definitions provided in Schedule 1 of the TPS No. 2. The Met Mast will not be used to generate electricity and is not 'incidental' to electricity generation as the predominant use of the land will remain as rural.</p> <p>The Project activities during operations will be primarily passive with the site unmanned during the majority of its life. No materials or goods will be processed, produced, or exported from the site.</p> <p>The Met Mast will provide data that will inform the potential future development of a wind farm. If feasible, a future wind farm may be the subject of a future development application, noting that:</p> <ul style="list-style-type: none"> - As per the <i>Position Statement: Renewable energy facilities (WAPC, 2020)</i> local planning schemes should include renewable energy facilities in the zoning table to enable projects to be permitted with discretion and advertising. - The model provisions in the <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> includes "wind farm" as a land use. |
| Visual Amenity | <p>A preliminary Landscape and Visual Assessment identified that the Study Area is located in the Rolling Rural Hills Landscape Character Type which is an elevated hilly landscape modified by grazing and agricultural activities.</p> <p>There is expected to be a low level of visibility and resulting visual impact due to slim-line, lightweight and semi-transparent lattice design of the Met Mast.</p> <p>Light emissions from the Met Mast will be unlikely or negligible and would consist of a strobe light active during daylight hours if deemed necessary for air safety.</p> |
| Traffic and Transport | <p>There will be a minimal increase in traffic during the construction and operations of the Project.</p> <p>The Met Mast is anticipated to be constructed over about 7 days, including the installation and testing of all sensors and equipment. The mast will not be manned during operations, and minimal access will be required to conduct routine maintenance during this time.</p> |
| Safety and Security | <p>The Met Mast will have an anti-climb guard installed as shown in the detailed design provided (Attachment 3) to prohibit access to the tower from unauthorised personnel.</p> |

6 Closing

As outlined in **Section 5.0**, any potential impacts arising from the Project can be suitably managed through the implementation of the controls described. The Project will not require clearing of any native vegetation, is not located in proximity to any existing conservation areas, will have no interactions or impacts to any surface water resources and is highly unlikely to result in impacts to local traffic.

As noted previously, the Project activities during operations will be primarily passive with the site unmanned during the majority of its life. Despite future potential for development of a wind farm (a separate activity to the Project and subject to future approvals), the Met Mast is not considered to be 'incidental' to electricity generation as the predominant land use will remain as rural. No materials or goods will be processed, produced, or exported from the site. The Met Mast's primary purpose is to provide data that will inform the potential future development of a wind farm.

The Project location has been provided as the land parcel listed in **Table 2.1**, however, it should be noted that the Project's footprint will be restricted to a very small proportion of this land parcel. The detailed coordinates for the Met Mast's location are yet to be finalised and are subject to the outcomes of Traditional Owner engagement and heritage surveys planned for the site. The Met Mast's final location will be selected with consideration for any potential ground disturbance and the likelihood for encountering or impacting cultural heritage material.

The predominant use of the land will remain as rural throughout the life of the Project. Following completion of meteorological monitoring, the Met Mast may be decommissioned and removed from the site, allowing for an alternative land use if the area is not deemed suitable for generating wind power.

We trust this information meets with your requirements, please reach out via the contact details below if you have any questions.

Kind regards.

Jack Faulkner

Development Project Manager | New Sites

M +61 487 213 767

Jack.faulkner@res-group.com | www.res-group.com

Committed to a future where everyone has access to affordable zero carbon energy

RES Australia Pty Limited, registered in New South Wales, Australia with Company Number ABN 55 106 637 754
Office Address: Suite 6.01 Level 6, 165 Walker Street, North Sydney, NSW 2060.

7 References

- Aviation Projects. (2023). Proposed Dardadine Wind Farm, Wind Monitoring Tower – Preliminary Aviation Assessment. Unpublished report (ref: 101816-02) prepared for RES Australia Pty Ltd, Mar 2023.
- Civil Aviation and Safety Regulations (1998)* (Cth)
- Department of Fire and Emergency Services (DFES). (2021). Bush Fire Prone Areas (OBRM-001). [Dataset]
<https://catalogue.data.wa.gov.au/dataset/bushfire-prone-areas-obrm-001>
- Energy Policy WA. (2021). *Energy Transformation Strategy Stage 2: 2021-2025*. Government of Western Australia.
<https://www.wa.gov.au/government/publications/leading-western-australias-brighter-energy-future>
- Geoscience Australia. (n.d.). *Airport Runway Centrelines and Landing Grounds Line Features*. [Dataset]
<https://portal.ga.gov.au/metadata/infrastructure/airfields/airport-runway-centrelines-and-landing-grounds-line-features/47b26078-bb9e-4c01-bf3b-85e1cbbb36fe>
- Planning and Development (Local Planning Schemes) Regulations (2015)* (WA)
- Rights in Irrigation and Water Act (1914)* (WA)
- Shire of Williams. (1994). *Town Planning Scheme No. 2*. Department of Planning Lands and Heritage (DPLH).
<https://www.wa.gov.au/government/document-collections/shire-of-williams-planning-information>
- Western Australian Planning Commission (WAPC). (2015a). *Wheatbelt Regional Planning and Infrastructure Framework Part A*.
<https://www.wa.gov.au/government/document-collections/regional-planning-and-infrastructure-frameworks>
- Western Australian Planning Commission (WAPC). (2015b). *State Planning Policy No. 3.7: Planning in bushfire prone areas*.
<https://www.wa.gov.au/system/files/2021-12/SPP-3.7-Planning-in-Bushfire-Prone-Areas.pdf>
- Western Australian Planning Commission (WAPC). (2016). *State Planning Policy No. 2.5: Rural planning*.
https://www.wa.gov.au/system/files/2021-06/SPP_2-5_Rural_Planning.pdf
- Western Australian Planning Commission (WAPC). (2020). *Position Statement: Renewable energy facilities*. Department of Planning Lands and Heritage (DPLH). <https://www.dplh.wa.gov.au/getmedia/8c0b28d3-8de0-4a35-8542-d55faff0d405/PS-Renewable-energy-facilities-position-statement>
- Western Australian Planning Commission (WAPC). (2021). *State Planning Strategy 2050*. Department of Planning Land and Heritage (DPLH). https://www.wa.gov.au/system/files/2021-05/FUT-SPS-State_Planning_Strategy_2050.pdf

Attachment 1

Shire of Williams' Town Planning Scheme No. 2 Schedule 2 Form – Notice of Intention to Develop.

SCHEDULE 2 - NOTICE OF INTENTION TO DEVELOP

Application is hereby made in accordance with the Shire of Williams Town Planning Scheme No. 2, that it is the intention of:-

Name: Jack Faulkner as designated authority of RES Australia Pty Ltd (ACN 106 637 754)

of

Address Suite 6.01, Level 6

165 Walker St

North Sydney NSW 2060

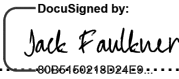
to develop and use land described below for the purpose of

the construction and operation of a meteorological mast tower as described in the attached cover letter.

Address of proposed development

Lot No 124 Loc. No 124 Plan No 301901

Certificate of Title Volume 1469 Folio 803

Applicants Signature: 

Date: 4/4/2023

Owners Signature: 
(if other than applicant)

Date: 5 / 4 / 2023

Attachment 2

Certificate of Title (Lot 124 on Deposited Plan 301901).



Transfers B348058
B348059

WESTERN



AUSTRALIA

VOL. FOL.
1469 803

Volume Folio
367 180A
367 177A

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

DATED 3rd June, 1977

Landmarch
REGISTRAR OF TITLES



ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Wellington Location 3974, and being Lot 124 on DP 301901, delineated and coloured green on the map in the Third Schedule hereto, limited however to the natural surface and therefrom to a depth of 60.96 metres.

FIRST SCHEDULE (continued overleaf)

~~Margaret Mary Buller, Married Woman, Christopher Michael Buller, Farmer and Patrick Stuart Buller, Farmer, all of Darkan, as tenants in common in equal shares.~~

SECOND SCHEDULE (continued overleaf)

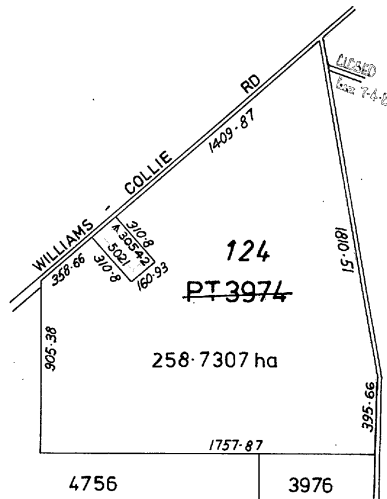
NIL

Landmarch

REGISTRAR OF TITLES

THIRD SCHEDULE

SCALE 1:30000
PUBLIC PLANS 384 C/40 D.4.
410 B/40 D1.



The Deposited Plan for this Certificate of Title is yet to be produced. The Plan and Lot number have been allocated as an interim measure to enable issue of a Digital Certificate of Title. Please refer to this Title for the sketch of the land.

Land Parcel Identifier amended - Regulation 6 of Transfer of Land (Surveys) Regulations 1995 Corr. 1775-2000-01
Date: 25/11/04 *SE*

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

53083/12/75-20M-S/2860

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

FIRST SCHEDULE (continued)

| REGISTERED PROPRIETOR | INSTRUMENT | | REGISTERED | TIME | SEAL | INITIALS |
|--|------------|---------|------------|------|------|----------|
| | NATURE | NUMBER | | | | |
| Steven James Hart, Farmer and Ann Lynette Hart, his wife, both of Warabeen, as joint tenants, Brian Neville Sargeant, Farmer, and Elaine Christine Sargeant, Married Woman, both of R.M.B. Highway as tenants in common in equal shares. Esplanade Investments Pty. Ltd., of Post Office Box 1021, East Victoria Park. | Transfer | D311192 | 12.12.77 | 9.00 | | A |
| | Transfer | B660390 | 8.2.79 | 9.11 | | A |
| | Transfer | D311192 | 26.8.86 | 3.09 | | |

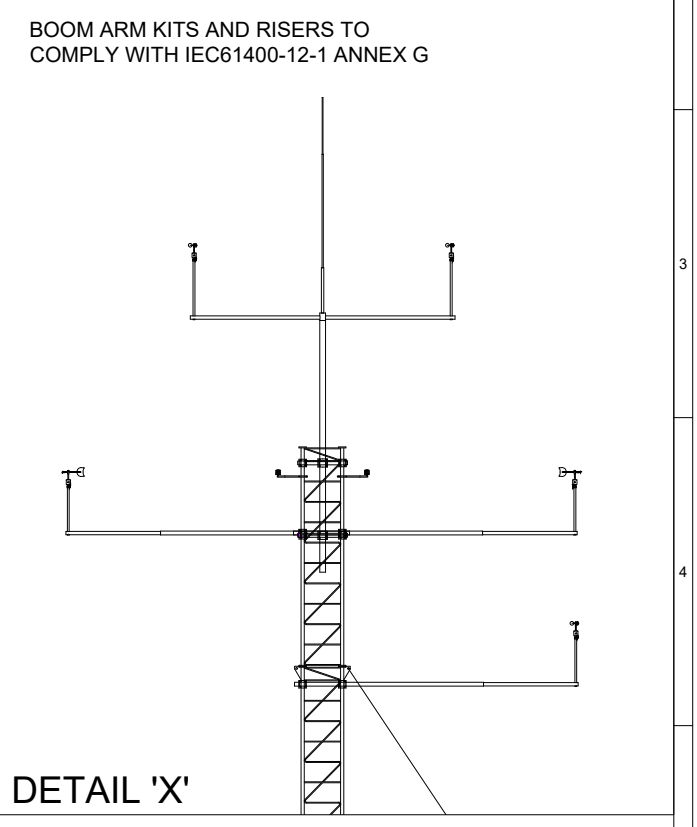
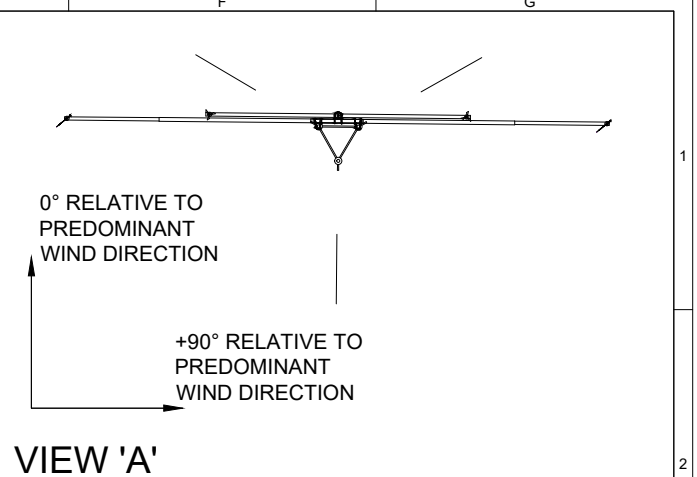
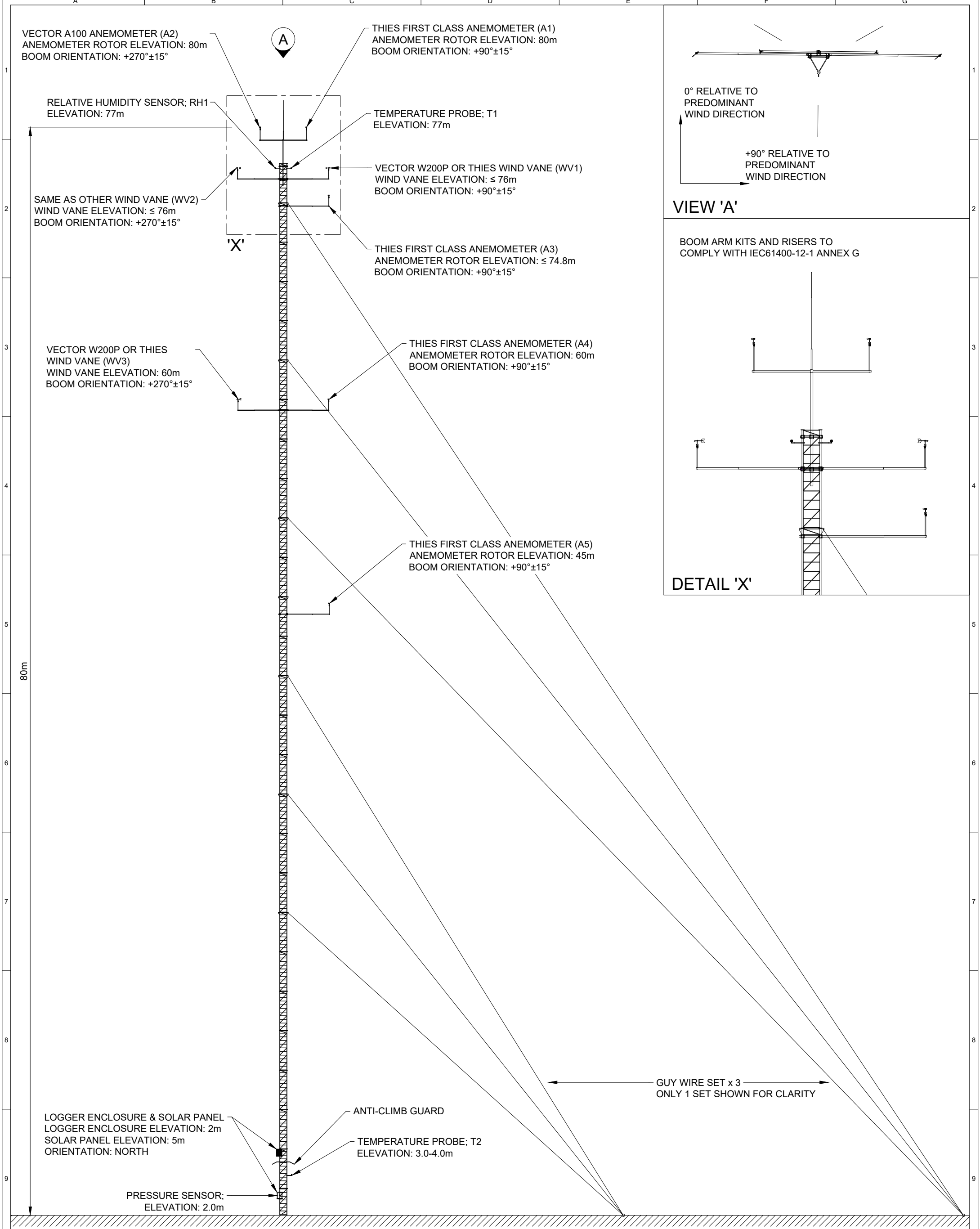
NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

SECOND SCHEDULE (continued)

| INSTRUMENT | PARTICULARS | REGISTERED | TIME | SEAL | INITIALS | CANCELLATION | NUMBER | REGISTERED OR LODGED | SEAL | INITIALS |
|------------|--|------------|------|------|----------|--------------|---------|----------------------|------|----------|
| | | | | | | | | | | |
| Mortgage | to Australis and New Zealand Banking Group Limited | 12.12.77 | 9.00 | | A | Discharged | B660389 | 8.2.79 | | A |
| Mortgage | to Steven James Hart, Farmer, and Ann Lynette Hart, his wife, both of Warabeen. | 8.2.79 | 9.11 | | A | Discharged | D311191 | 26.8.86 | | M |
| Transfer | of Mortgage B660391 to Peak of New South Wales | 20.4.79 | 9.02 | | A | By Discharge | D311191 | 26.8.86 | | M |
| Transfer | of Mortgage B660391 to Steven James Hart, Farmer and Ann Lynette Hart, his wife, both of Warabeen. | 12.4.81 | 7.17 | | A | By Discharge | D311191 | 26.8.86 | | M |
| Transfer | of Mortgage B660391 to Elderslie Finance Corporation | 12.4.81 | 7.17 | | A | By Discharge | D311191 | 26.8.86 | | M |
| Transfer | of Mortgage B660391 to Lloyd Irwin Lapsley and Dorothy Neel-Lapsley, both of 21 Beach Road, Marmion, as joint tenants. | 11.1.83 | 2.26 | | M | By Discharge | D311191 | 26.8.86 | | M |

Attachment 3

Design Drawing.



NOTES:
 1. FOR PURPOSE OF INSTRUMENTATION CONFIGURATION ONLY.
 2. THERE IS A TOLERANCE OF +/-0.25m TO ALL THE HEIGHTS.

| ISSUE | DRAWN | CHKD | APPD | DATE | REVISION NOTES |
|-------|-------|------|------|------------|---|
| 1 | JT | EC | PV | 2021-10-01 | First Issue |
| 2 | MN | PV | PV | 2022-08-11 | Amended - Included pressure sensor note |

| | | | |
|---|--|------------------------------|---------------------|
| PROJECT TITLE GENERIC WIND AUSTRALIA | | PURPOSE FOR DESIGN | PROJECTION DATUM |
| DRAWING TITLE STANDARD MET MAST INSTRUMENTATION CONFIGURATION | | SCALE NTS @A3 | DATUM N/A |
| RES DRAWING NUMBER 02347-RES-INS-DR-IN-001 | | LAYOUT DRAWING N/A | T-LAYOUT NO N/A |

REV 2
 THIS DRAWING IS THE PROPERTY OF RENEWABLE ENERGY SYSTEMS LIMITED AND NO REPRODUCTION MAY BE MADE IN WHOLE OR IN PART WITHOUT PERMISSION

Suite 6.01 Level 6,
 165 Walker Street,
 North Sydney, NSW 2060
 info-australia@res-group.com

Attachment 4

Preliminary Aviation Assessment.



Mr Jack Faulker
Development Project Manager – New Sites
RES Australia Pty Limited

By email: jack.faulkner@res-group.com

Our ref: 101816-02

Dear Jack

Re: Proposed Dardadine Wind Farm, Wind Monitoring Tower – Preliminary Aviation Assessment V2.0

Please find in this correspondence a summary overview of the initial analysis on possible constraints to the development of the Dardadine Wind Farm's Wind Monitoring Tower (WMT) due to aeronautical operational impacts, including applicable high-level risk mitigation options.

1.1. Project background

RES Australia Pty Limited (RES Australia) is planning for the development the Dardadine Wind Farm (DWF) – the Project.

The Project is located along the Williams Collie Road near the locality of Dardadine in Western Australia (WA).

RES Australia has requested Aviation Projects to prepare a Preliminary Aviation Assessment for the WMT including a pre-feasibility analysis, identifying potential aeronautical operational impacts and identifying a reasonable degree of certainty that these impacts can be mitigated if necessary.

Part of the scope of this task is to develop high-level mitigation options that will enable the development of the Project to proceed.

The Project site will include one WMT, centrally located within the wind farm with a maximum height of 80 m AGL.

Aviation. From the ground up.

Aviation Projects Pty Ltd / ABN 88 127 760 267

E enquiries@aviationprojects.com.au

P +61 7 3371 0788 **F** +61 7 3371 0799

PO Box 116, Toowong DC, Toowong Qld 4066

19/200 Moggill Road, Taringa Qld 4068

aviationprojects.com.au

1.2. References

References used or consulted in the preparation of this report included:

- Airservices Australia, *Aeronautical Information Package; including AIP Book, Departure and Approach Procedures and En Route Supplement Australia*, dated 23 March 2023
- Airservices Australia, *Designated Airspace Handbook*, effective 1 December 2022
- AS/NZS ISO 31000:2018 *Risk management—Guidelines*, Standards Australia
- CASA:
 - Civil Aviation Regulations (CAR) 1998, as amended
 - Civil Aviation Safety Regulations (CASR) 1998, as amended
 - CASR Part 91, (*General Operating and Flight Rules*) MOS dated 2 April 2022
 - CASR Part 139 (*Aerodromes*) MOS 2019, dated 13 August 2020
 - CASR Part 173 MOS, *Standards Applicable to Instrument Flight Procedure Design*, V1.8 11 August 2022
 - Advisory Circular (AC) 91-02 v1.1, *Guidelines for aeroplanes with MTOW not exceeding 5700 kg – Suitable places to take off and land*, dated November 2021
 - AC 91-10 v1.1, *Operations in the vicinity of non-controlled aerodromes*, dated November 2021
 - AC 139.E-01 v1.0, *Reporting of Tall Structures*, dated December 2021
 - AC 139.E-05 v1.0, *Obstacles (including wind farms) outside the vicinity of a CASA certified aerodrome*, dated May 2021
- Clean Energy Council, *Best Practice Guidelines – For Implementation of Wind Energy Projects in Australia*, 2013, Aircraft Safety
- EUROCONTROL, European Organisation for the safety of air navigation, *EUROCONTROL Guidelines: How to assess the potential impact of wind turbines surveillance sensors*, edition 1.2, ISBN: 978-2-87497-043-6, Reference number: EUROCONTROL-GUID-130, September 2014
- Government of Western Australia, Western Australia Land Information Authority, Landgate, Shared Location Information Platform (SLIP)
- International Civil Aviation Organization (ICAO), *Doc 8168 Procedures for Air Navigation Services—Aircraft Operations (PANS-OPS)*
- OzRunways, aeronautical navigation chart extracts, dated 31 March 2023
- Shire of Williams Strategic Community Plan 2017-2032; and
- other references as noted.

1.3. Client material

RES Australia provided the following materials for the purposes of this analysis:

- Met Mast Location.kmz dated 31 March 2023

1.4. Site overview

The Project site located along the Williams Collie Road and approximately 9 km (4.9 nm) north of the town of Darkan and 19.3 km (10.4 nm) southwest of the town Williams within the local government area (LGA) of Shire of Williams.

Figure 1 shows an indicative location of the Project site relative to the boundaries of LGA and nearest towns (source: Landgate, Shared Location Information Platform (SLIP)).

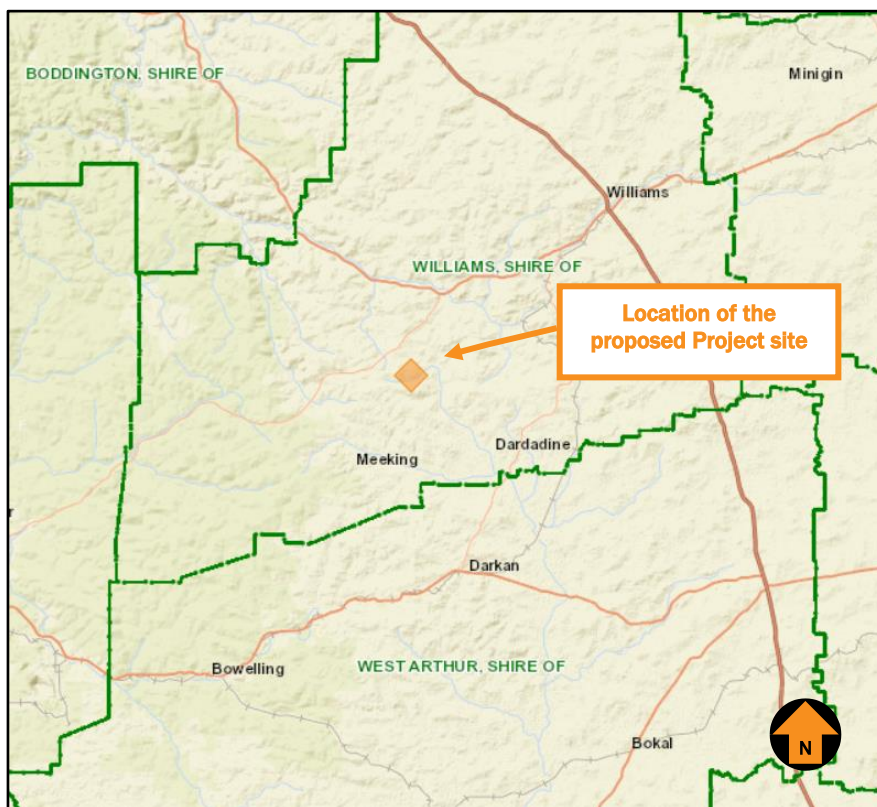


Figure 1 Project site overview

Figure 2 shows the location of the Project site relative to the closest certified airport (Bunbury Airport) illustrating a 30 nm buffer ring of this airport (source: Google Earth).

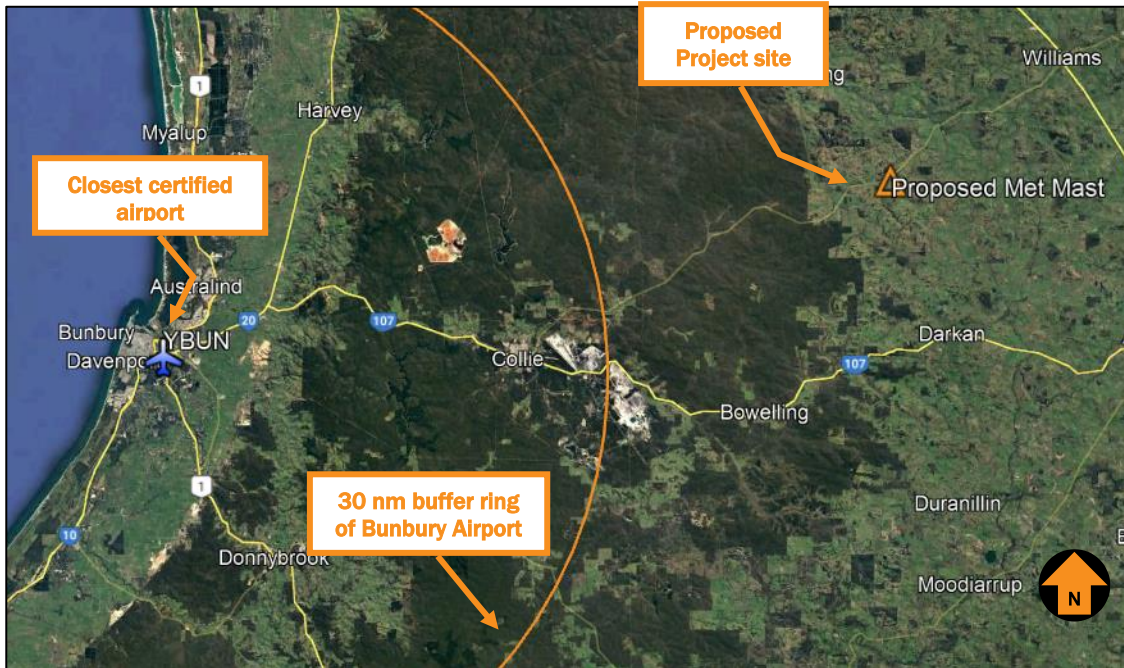


Figure 2 Project site layout relative to the closest registered airport

1.5. Planning context

RES Australia seeks to increase wind power production while protecting individuals, communities and the environment from adverse impacts from wind farms, through the Western Australian Planning Commission's Guidelines for wind farm development.

Section 5.2 of the Western Australian Guidelines for wind farm development sets out public health and aircraft safety requirements as follows:

The wind farm development should be highlighted on all navigational maps and be equipped with tower safety lighting or marking, to minimise any impact upon the safety of aircraft and the operation of airfields. The Civil Aviation Safety Authority (Manual of Standards 139), Air Services Australia and the RAAF should be consulted, as appropriate on wind farm proposals, in the vicinity of airfields and flight paths.

Section 7.4 requires applications to include proposals for consultation with the Civil Aviation Safety Authority, Airservices Australia and Commonwealth Department of Defence.

1.6. State Planning Strategy 2050

The State Planning Strategy 2050 recognises Western Australia's abundant renewable energy sources, including wind energy and stated the following:

The Commonwealth Large Scale Renewable Energy Targets remains the primary driver of renewable energy growth in Western Australia.

Aspirations of the State Planning Strategy 2050 include:

- Renewable energy (i.e., wind) to continue to be developed and integrated into the grid; and
- Western Australia is a leader in clean and renewable energy.

1.7. Clean Energy Council

Clean Energy Council has produced a Best Practice Guidelines for Implementation of Wind Energy Projects in Australia, 2013 version. The guidelines are designed to support the existing wind farm planning and development assessment process and are not mandatory.

Guidance provided under section 3.1.2.8 Aircraft safety state as follows:

Proponents should assess potential for aircraft safety issues by noting the proximity of the site to any major airports, aerodromes or landing strips. Proponents should contact the Civil Aviation Safety Authority, Airservices Australia and the authorities responsible for the operation of such facilities in the vicinity of the proposed site. Advice should be sought on contacting agricultural aviators who may operate in the area.

In addition, proponents should obtain advice from landowners on any farming-related uses of aircraft such as aerial spraying or mustering. In such cases, the district aerodrome supervisor should be contacted for advice on the potential impact of a wind energy development on these activities.

To provide more detailed guidance for wind farm proponents, a National Airports Safeguarding Advisory Group has prepared draft "Guidelines for land use planners and developers to manage the risk to aviation safety of wind turbine installations (wind farms)/wind monitoring towers."

1.8. Shire of Williams

The Shire of Williams Strategic Community Plan 2017-2032 does not include provisions for airfields.

1.9. Wind monitoring Tower Description

The maximum height of the proposed WMT will be up to 80 m AGL.

The maximum ground elevation for the proposed WMT is approximately 380 m AHD, which results in a maximum overall height of 460 m AHD (1509.6 ft AMSL).

Figure 3 illustrates the Project area and highlights the WMT. (Source: RES Australia and Google Earth).

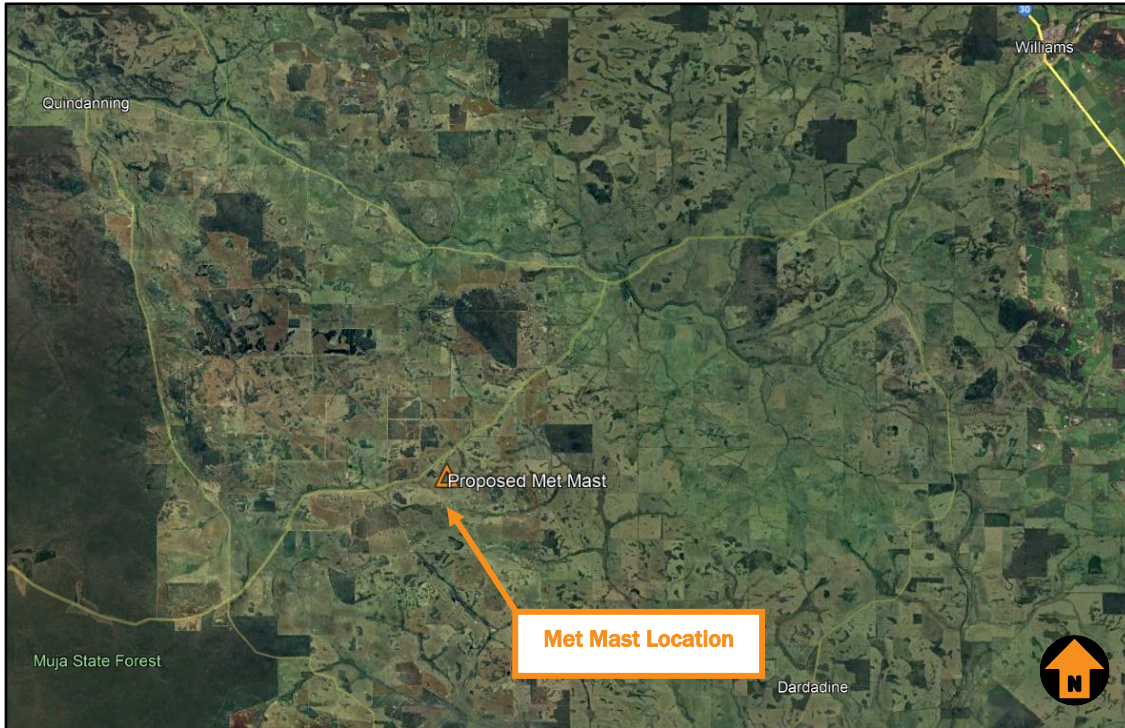


Figure 3 Met Mast Location

1.10. Nearby aerodromes

There are no certified airports within 30 nm of the Project site. The closest certified airport is Bunbury Airport (YBUN), which is located approximately 87.6 km (47.3 nm) southwest of the Project site.

The location of Bunbury Airport relative to the Project site is shown in Figure 2.

1.11. Nearby aircraft landing areas

The closest aircraft landing area (ALA) to the Project site is Hillman Farm ALA, located approximately 6 km (3.2 nm) southeast from the wind farm boundary.

As a guide, an area of interest within a 3 nm radius of an ALA is used to assess potential impacts of proposed developments on aircraft operations at or within the vicinity of the ALA.

A search on OzRunways, which sources its data from Airservices Australia (AIP) and Aircraft Owners and Pilots Association (AOPA) Australia Airfield Directory, returned no further nearby non-regulated aerodromes within a nominal 3 nm buffer from the Project site. The aeronautical data provided by OzRunways is approved under CASA CASR Part 175.

Figure 4 shows the location of the Hillman Farm ALA and the nominal 3 nm buffer area near the Project site (source: Google Earth).

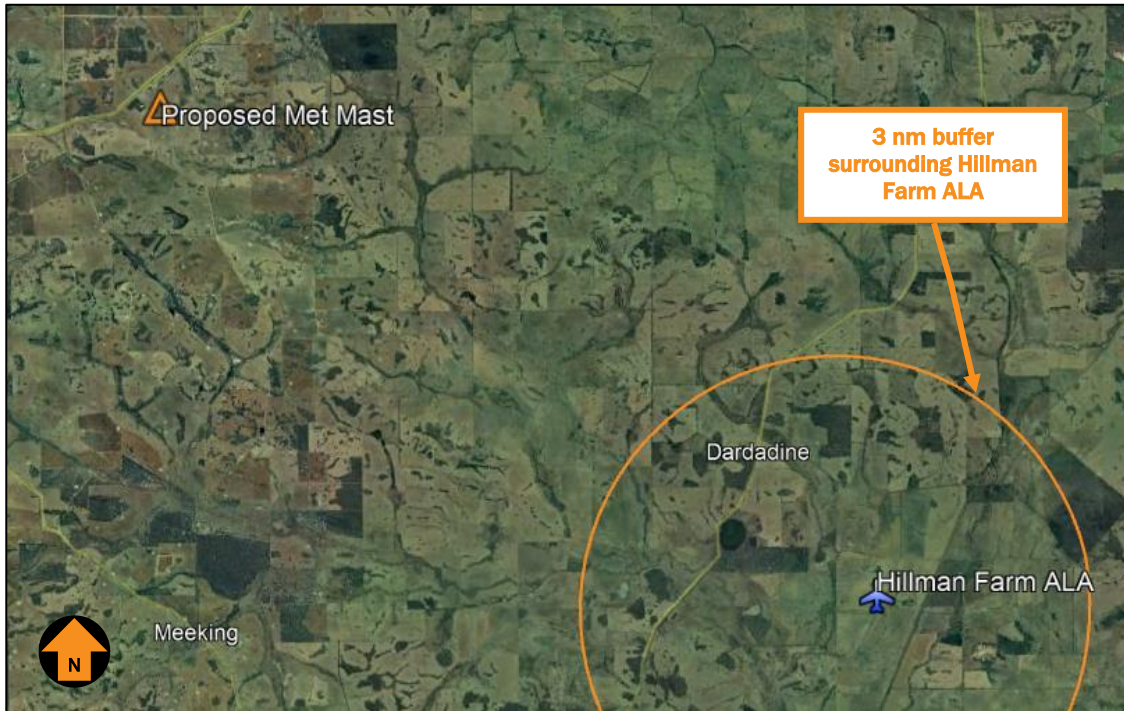


Figure 4 Project Site and Hillman Farm ALA

1.12. Aircraft operations at non-controlled aerodromes

CASA's Advisory Circular AC 91-10v1.1 provides guidance on procedures that, when followed, will improve situational awareness and safety for all pilots when flying at, or in the vicinity of, non-controlled aerodromes.

The following content is copied from AC 91-10:

2.1.5 It is strongly recommended that pilots of radio-equipped aircraft use the 'standard' traffic circuit and radio broadcast procedures outlined in sections 7 and 8 at all non-controlled aerodromes.

Traffic circuit direction

The standard aerodrome traffic circuit facilitates the orderly flow. Unless an alternative requirement for an aerodrome is stated in the ERSAs or NOTAMS, all turns must be made to the left (regulation 91.385).

When arriving at an aerodrome to land, the pilot will normally join the circuit on upwind, crosswind (midfield), or at or before mid-downwind. Landings and take-offs should be made on the active runway or the runway most closely aligned into wind.

The standard circuit consists of a series of flight paths known as *legs* when departing, arrival or when conducting circuit practice. Illustrations of the standard aerodrome traffic circuit procedures provided in AC 91-10 v1.1. are shown in Figure 5 and Figure 6.

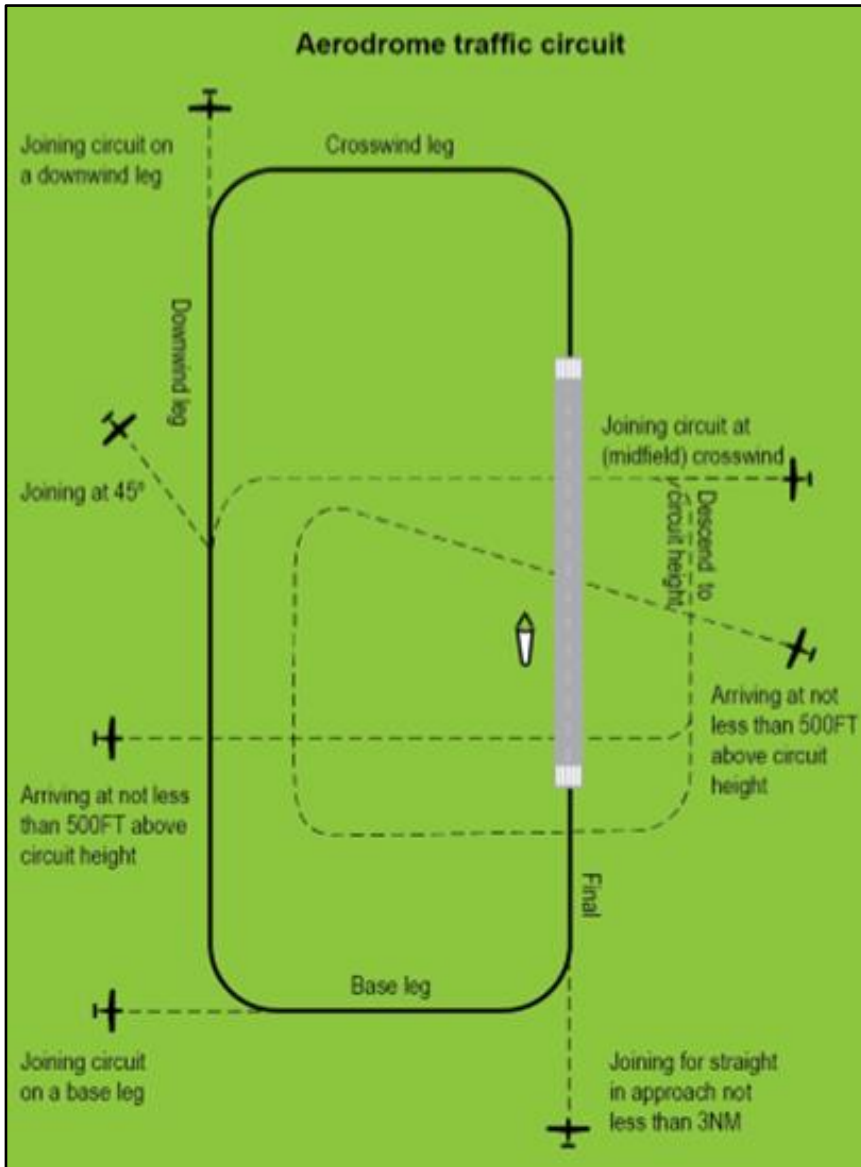


Figure 5 Aerodrome traffic circuit with arriving procedures

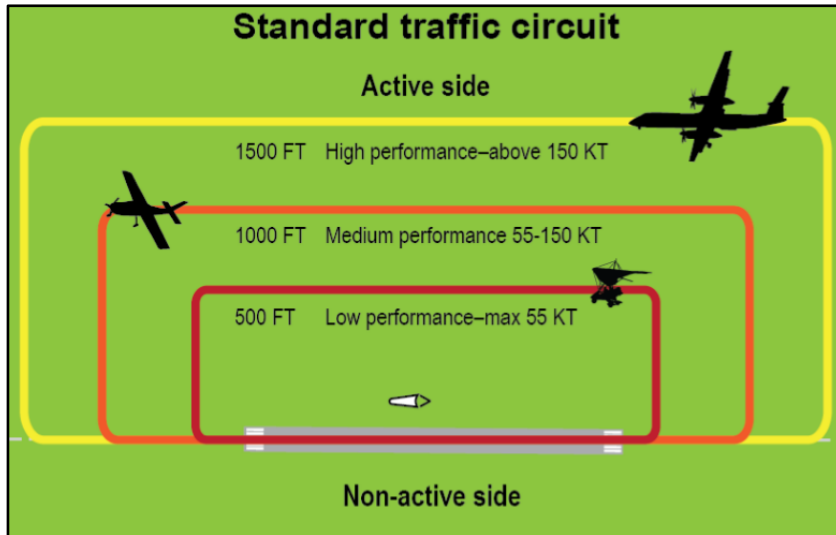


Figure 6 Lateral and vertical separation in the standard aerodrome traffic circuit

7.4.2 During initial climb-out, the turn onto crosswind should be appropriate to the performance of the aircraft but, in any case, not less than 500 ft above terrain so as to be at circuit height when turning downwind (regulation 91.390). Pilots may vary the size of the circuit depending on:

- the performance of the aircraft
- AFM/Pilot's Operating Handbook requirements
- company standard operating procedures
- other safety reasons.

7.5 Arrival procedures

7.5.1 Where a pilot is unfamiliar with the aerodrome layout, or when its serviceability, wind direction, wind speed, or circuit direction cannot be ascertained prior to arrival, the overfly procedure should be used. Pilots should consider the location of the wind sock when determining how to conduct the overflight of the aerodrome. The pilot should overfly or circle the aerodrome at least 500 ft above the circuit height, usually 2 000 ft or more above aerodrome elevation. When the circuit direction has been determined, the pilot should position the aircraft to a point well clear of the circuit (normally the non-active side of the circuit) before descending to the circuit height applicable to the aircraft's performance.

7.7 Final approach

The turn onto final approach should be:

- completed by a distance and height that is common to all operations at the aerodrome
- commensurate with the speed flown in the circuit for all aircraft of the same type.

7.7.2 Except for IFR circling operations, the turn onto final approach should be completed at least 500ft above aerodrome elevation. This should allow sufficient time for the pilot to ensure that the runway is clear for landing. It will also allow sufficient time for the majority of aircraft to fly a stabilised approach and landing.

7.10 Departing the circuit area

7.10.1 Aircraft should depart the aerodrome circuit area by extending one of the standard circuit legs or climbing to depart overhead. However, the aircraft should not execute a turn to fly against the circuit direction unless the aircraft is well outside the circuit area and no traffic conflict exists. This should be 500 ft or more above the circuit height and at least 3 NM from the departure end of the runway but may be less for aircraft with high climb performance. In all cases, the distance should be based on the pilot's awareness of traffic and the ability of the aircraft to climb above and clear the circuit area.

None of the wind turbines are located inside of a 3 nm from the departure end of the Hillman Farm ALA runway and will not impact the approach and departure paths.

There are no other ALAs that have a wind turbine within 3 nm.

1.13. Rules of flight

1.13.1. Flight under Day Visual Flight Rules (VFR)

According to CASR Part 91, Manual of Standards, Section 2.7, the visual meteorological conditions (VMC) required for visual flight in the applicable (class G) airspace at or below 3,000 ft AMSL or 1,000 ft AGL (whichever is the higher) are:

- 5,000 m flight visibility
- Clear of clouds; and
- Aircraft must be operated in sight of ground or water.

CASR 1998, 91.267, prescribes the minimum height for flight operating in areas other than over a populous area or a public gathering.

Generally speaking, aircraft are restricted to a minimum height of 500 ft AGL above the highest point of the terrain and any object on it within a radius of 300 m of the point on the ground or water immediately below the aircraft, in visual flight during the day. This provision does not apply:

- during take-off and landing operations in circumstances prescribed by the CASR Part 91 Manual of Standards
- during the authorised conduct of low-flying training or a low-level flight operation in circumstances where the landowner has granted permission and the pilot has conducted a survey of the area for obstacles before the flight
- the aircraft is performing training circuits at an aerodrome
- the aircraft is engaged in a procedure to determine the suitability of an aerodrome for a landing; and

- other prescribed circumstances not relevant to this report.

1.13.2. Night VFR

CAR 1998, 91.277, prescribes the minimum heights for VFR flight at night.

(2) *The minimum height is the lowest height of the following for the route or route segment:*

- (a) *the published lowest safe altitude for the route or route segment (if any);*
- (b) *the minimum sector altitude published in the authorised aeronautical information for the flight (if any);*
- (c) *the lowest safe altitude for the route or route segment;*
- (d) *1,000 ft above the highest obstacle on the ground or water within 10 nautical miles ahead of, and to either side of, the aircraft at that point on the route or route segment;*
- (e) *the lowest altitude for the route or route segment calculated in accordance with a method prescribed by the Part 91 Manual of Standards for the purposes of this paragraph.*

(3) *The circumstances are the following:*

- (a) *the aircraft is taking off or landing;*
- (b) *the aircraft is within **3 nautical miles** of the aerodrome from which the aircraft has taken off, or at which the aircraft will land;*
- (c) *the aircraft is being flown in accordance with an air traffic control clearance.*

1.13.3. IFR (Day or night)

Aircraft operating under the IFR cannot necessarily see the ground, water or obstacles. They are required to operate at altitudes that ensure terrain and obstacle clearance is maintained. This is accomplished by instrument flight procedures that are designed in accordance with International Civil Aviation Organisation (ICAO) standards and recommended (SARPS) that are accepted or modified by CASA for use in Australia.

CAR 91, Subdivision 91.D.4.3 prescribes the Instrument Flight Rules (IFR).

Generally speaking, pilots of IFR aircraft operating under the IFR must comply with the following minimum altitudes published in the authorised aeronautical information for the flight:

- The lowest safe altitude (LSALT) along an IFR air route segment
- The minimum segment altitude detailed on instrument approach and departure charts; and/or
- The minimum Grid LSALT.

A pilot does not need to comply with these requirements during operations authorised visual flight operations in VMC by day, during take-off and landing operations, or during a visual approach or departure procedures in accordance with CASR Part 91.

1.14. Instrument procedures

Hillman Farm ALA has no instrument procedures. Therefore, the Project will not impact on instrument procedures.

1.15. Obstacle limitation surfaces

Bunbury Airport's OLS extend to a maximum distance of 15 km from a runway end.

The Project will not impact an airport OLS.

1.16. Air routes and LSALT

CASR Part 173 MOS requires that the published LSALT, for a particular airspace grid or air route, provides a minimum of 1000ft clearance above the controlling (highest) obstacle within the relevant airspace grid or air route tolerances.

The Project is wholly located in the area with a Grid lowest safe altitude of 883.8 m AHD (2900 ft AMSL) with a protection surface of 579 m AHD (1900 ft AMSL).

The WMT is proposed at a maximum height of 460 m (1509.2 ft) AHD and will not impact the Grid LSALT.

Figure 7 provides the air routes in proximity to the Project site (source: ERC Low National, OzRunways, 1 December 2022).

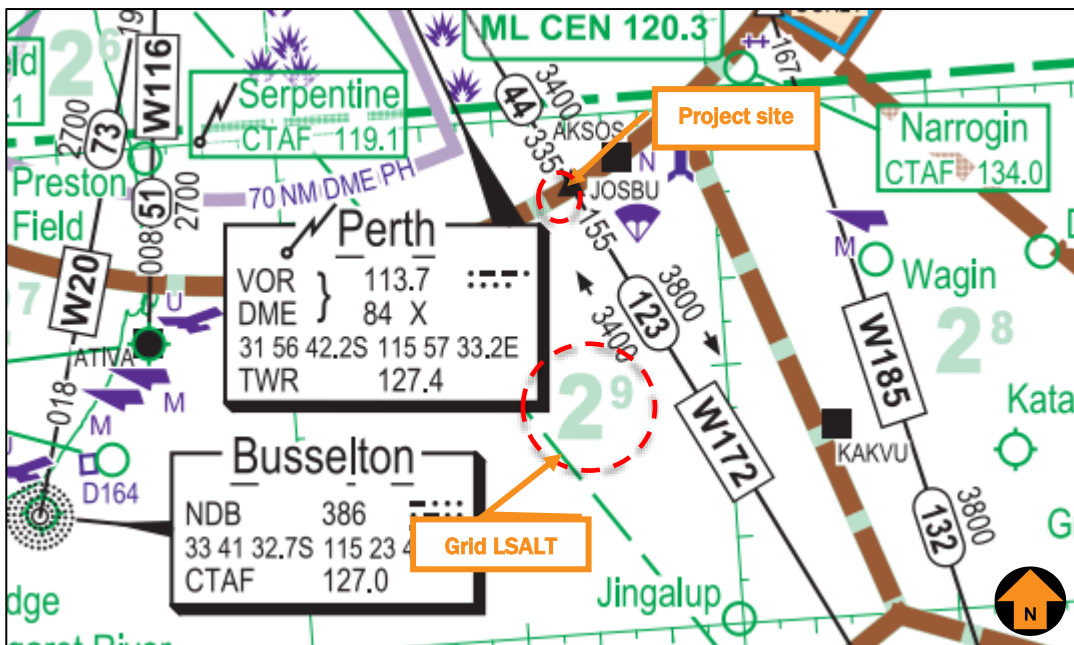


Figure 7 Air Routes and Grid LSALTs

An impact analysis of the surrounding air routes is provided in Table 1.

Table 1 Air route impact analysis

| <i>Air route</i> | <i>Waypoint pair</i> | <i>Route LSALT</i> | <i>Protection Surface</i> | <i>Impact on airspace design</i> | <i>Potential solution</i> | <i>Impact on aircraft ops</i> |
|------------------|----------------------|-------------------------|-----------------------------|----------------------------------|---------------------------|-------------------------------|
| W172 | Albany to AKSOS | 3400 ft AMSL northbound | 731.5 m AHD 2400 ft AMSL | Nil | N/A | N/A |

The Project will not impact LSALT of the nearest air routes.

1.17. Airspace Protection

The Project site is located outside of controlled airspace (wholly within Class G airspace) and is not located in any Prohibited, Restricted and Danger areas. Therefore, the Project will not have an impact on controlled or designated airspace.

1.18. Aviation facilities

The Project site is outside aviation facilities of certified airports.

1.19. Air Traffic Control Radar

Airservices Australia currently requires an assessment of the potential for wind turbines in a Project to affect radar line of sight.

With respect to aviation radar facilities, the closest radars are Perth Airport Secondary Surveillance Radar (SSR) and Perth Airport Primary Surveillance Radar (PSR) which are located approximately 136 km (74 nm) northwest of the Project site.

The EUROCONTROL guidelines for assessing the potential impact of wind turbines on surveillance sensors identifies the PSR and SSR safeguarding and assessments ranges.

The proposed Project site is located in Zone 4 and outside the radar line of sight of PSR and SSR. The EUROCONTROL guidelines state:

When outside the radar line of sight of a PSR, the impact of the wind turbine (3-blades, 30-200 m height, and horizontal rotation axis) is considered to be tolerable.

When further than 16 km from an SSR the impact of a wind turbine (3-blades, 30-200 m height, and horizontal rotation axis) is considered to be tolerable.

The Project will not impact Perth Airport's PSR and SSR.

1.20. Bureau of Meteorology

With respect to the Bureau of Meteorology (BoM) radars, the closest weather radar is Perth (Serpentine) weather watch radar located at Serpentine Airfield (Yangedi Road North, Hopelands) approximately 105 km (57 nm) northwest of the Project site (source: BoM, WA radar information).

It is unlikely the Project will impact Perth (Serpentine) weather watch radar.

1.21. Aircraft operations

Scheduled air transport operations aircraft normally operate under instrument flying rules (IFR).

Flying training may be conducted under either the IFR or visual flying rules (VFR). Other general aviation operations under either IFR or VFR are also likely to be conducted at various aerodromes in the area including Bunbury Airport.

Operations conducted under the visual flight rules (VFR) are required to remain in visual meteorological conditions (VMC) (at least 5000 m horizontal visibility at a similar height of the wind turbines) and clear of the highest point of the terrain by 500 ft vertical distance and 600 m horizontal distance. In VMC, the wind turbines will likely be sufficiently conspicuous to allow adequate time for pilots to avoid the obstacles. VFR operators will most likely avoid the Project area once wind turbines are erected.

There may be some low-level military jet aircraft and helicopter operations conducted in the area.

1.22. WMT hazard marking and lighting

In terms of obstacle marking and lighting requirements, relevant requirements set out in Part 139 MOS 2019 and NASF are provided below.

Consideration should be given to marking any WMTs according to the requirements set out in Part 139 MOS 2019 Chapter 8 Division 10 Obstacle Markings; specifically:

8.109 Obstacles and hazardous obstacles

(1) The following objects or structures at an aerodrome are obstacles and must be marked in accordance with this Division unless CASA determines otherwise under subsections (3) and (5):

any fixed object or structure, whether temporary or permanent in nature, extending above the obstacle limitation surfaces. Note an ILS building is an example of a fixed object;

any object or structure on or above the movement area that is removable and is not immediately removed.

8.110 Marking of hazardous obstacles

(5) long, narrow structures like masts, poles and towers which are hazardous obstacles must be marked in contrasting colour bands so that:

(a) the darker colour is at the top; and

(b) the bands:

i. are, as far as physically possible, marked at right angles along the length of the long, narrow structure; and

ii. have a length ("z" in Figure 8.110 (5)) that is, approximately, the lesser of:

(A) 1/7 of the height of the structure; or

(B) 30 m.

(7) Hazardous obstacles in the form of wires or cables must be marked using 3-dimensional coloured objects attached to the wire or cables. Note: Spheres and pyramids are examples of 3-dimensional objects.

(8) The objects mentioned in subsection (7) must:

(a) be approximately equivalent in size to a cube with 600 mm sides; and

(b) be spaced 30 m apart along the length of the wire or cable.

NASF Guideline D suggests consideration of the following measures specific to the marking and lighting of WMTs:

- *the top 1/3 of wind monitoring towers to be painted in alternating contrasting bands of colour. Examples of effective measures can be found in the Manual of Standards for Part 139 of the Civil Aviation Safety Regulations 1998. In areas where aerial agriculture operations take place, marker balls or high visibility flags can be used to increase the visibility of the towers;*
- *marker balls or high visibility flags or high visibility sleeves placed on the outside guy wires;*
- *ensuring the guy wire ground attachment points have contrasting colours to the surrounding ground/vegetation; **or***
- *a flashing strobe light during daylight hours.*

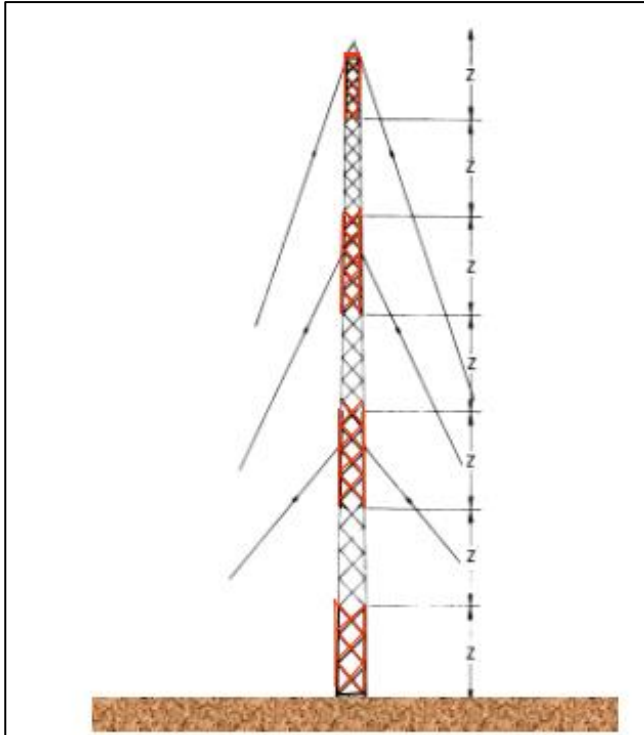


Figure 8 Indicative Met mast marking

1.23. Summary

Following a high-level evaluation of aviation operations aspects of the Project, no potential impacts were identified for further subsequent evaluation:

- There are no certified airports within 30 nm of the Project site. The closest certified airport is Bunbury Airport, which is located approximately 87.6 km (47.3 nm) southwest of the Project site.
- Hillman Farm ALA is the closest uncertified airfield located approximately 6 km (3.2 nm) southeast of the wind farm. The WMT is located outside the 3 nm from the departure end of the Hillman Farm ALA runway and will not impact the approach and departure paths.
- Hillman Farm ALA has no instrument approach procedures. Therefore, the Project will not impact on instrument procedures.
- The next phase of surveys to support the development of the Project would require confirmation of the ground elevation and heights for the proposed wind monitoring tower. Further advice regarding micrositing will be provided in the Phase 2 aviation impact assessment.
- The WMT does not infringe any Grid LSALT or Air Route LSALT protection surface

- The Project site is located outside of controlled airspace (wholly within Class G airspace) and is not located in any Prohibited, Restricted and Danger areas. Therefore, the Project will not have an impact on controlled or designated airspace.
- The Project site is outside aviation facilities of certified nearby airports.
- The Project will not impact Perth Airport's PRS and SSR.
- It is unlikely the Project will impact Perth (Serpentine) weather watch radar.
- There may be some low-level military jet aircraft and helicopter operations conducted in the area.
- The WMT should be equipped with appropriate hazard markings or an obstacle light as per Section 1.22

If you wish to clarify or discuss the contents of this correspondence, please contact me on 0417 631 681.

Kind regards



Keith Tonkin

Managing Director

5 April 2023