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Our Ref: 22847_R09_Williams Met Mast 2 DA Coverletter_V1

10 January 2024

Peter Stubbs
Chief Executive Officer
Shire of Williams

E| peter.stubbs@williams.wa.gov.au

Dear Peter

RE: Application for Development Approval – Meteorological Mast

Neoen is seeking Development Approval from the Shire of Williams (the Shire) under *Town Planning Scheme No. 2* to construct and operate a Meteorological Mast Tower (Met Mast).

The purpose of constructing and operating the Met Mast is to conduct climatic monitoring and determine the suitability of the location for siting of a potential future wind farm.

This supporting letter:

- Provides a description of the proposed Met Mast, including its location and construction and operational activities.
- Summarises consultation completed to date for the Met Mast, noting that a further consultation program will be implemented as part of a larger potential wind farm project (separate to this scope).
- Provides a brief assessment of aspects of the Western Australian planning framework relevant to this Development Application, including the Shire's *Town Planning Scheme No. 2* (the Scheme) and other relevant policies and planning considerations.

In addition to this supporting letter, the following attachments have been provided as part of the application:

- **Appendix 1: Application Form for Planning Consent and Checklist**
- **Appendix 2: Certificates of Title**
- **Appendix 3: 150 m General Arrangement drawings**
- **Appendix 4: Aviation Assessment**

Umwelt (Australia) Pty Limited

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1.0 Project Location and Description

One Met Mast will be constructed at the location and land parcel described in **Table 1.1** and illustrated on **Figure 1.1**.

Table 1.1 Met Mast Location details

Coordinates	Land Parcel	Certificate of Title (Volume/Folio)	Local Government Area
-32.97610132 116.94261621	Lot 1359 on Plan 105197	1633/464	Shire of Williams

The primary objective of the Met Mast will be to obtain 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 inform the design and decision-making process around future proposals for a wind farm development.

Indicative designs for the Met Mast's general arrangement are provided in **Appendix 1**. The proposed Met Mast will be of triangular steel lattice construction. It will be approximately 150 m in height and will be guyed in three directions. The mast will be equipped with wind and weather sensors at various heights, allowing for the measurement of wind speed, wind direction, wind shear, wind turbulence and air density. The mast is intended to be temporary for period of 5 -10 years and consist of:

- A galvanised steel framework with alternating contrasting bands of colour to at least top 1/3 of mast
- mounting boom for anemometers (instruments that measure wind speed and direction)
- guy-fixing system (inner, intermediate, and outer anchor footings and guy wires)
- data and electrical cabling
- potentially medium intensity lighting and markers on the mast and guy wires for aviation safety (if advised by the Civil Aviation Safety Authority (CASA)).

The Met Mast construction is expected to take place between early Q1 and mid Q2 of 2024 over a period of about 10-14 days with a construction workforce of 3–9 people. All components and construction materials for the Met Mast will be transported to site and the Met Mast will be assembled on-site. Access and parking for construction and operations will be confirmed closer to the commencement of construction, but is envisaged to be on cleared land adjacent to the proposed Met Mast. No clearing of native vegetation or crossing of watercourses will be required during construction.

The Met Mast will be unmanned for most of its operation and is primarily to be monitored from a remote location with inspections taken out on a periodical basis annually. The Met Mast will be similar in appearance to a Met Mast already established in the Shire of Narrogin to support the potential wind farm as illustrated in **Plate 1.1** and **Plate 1.2**.

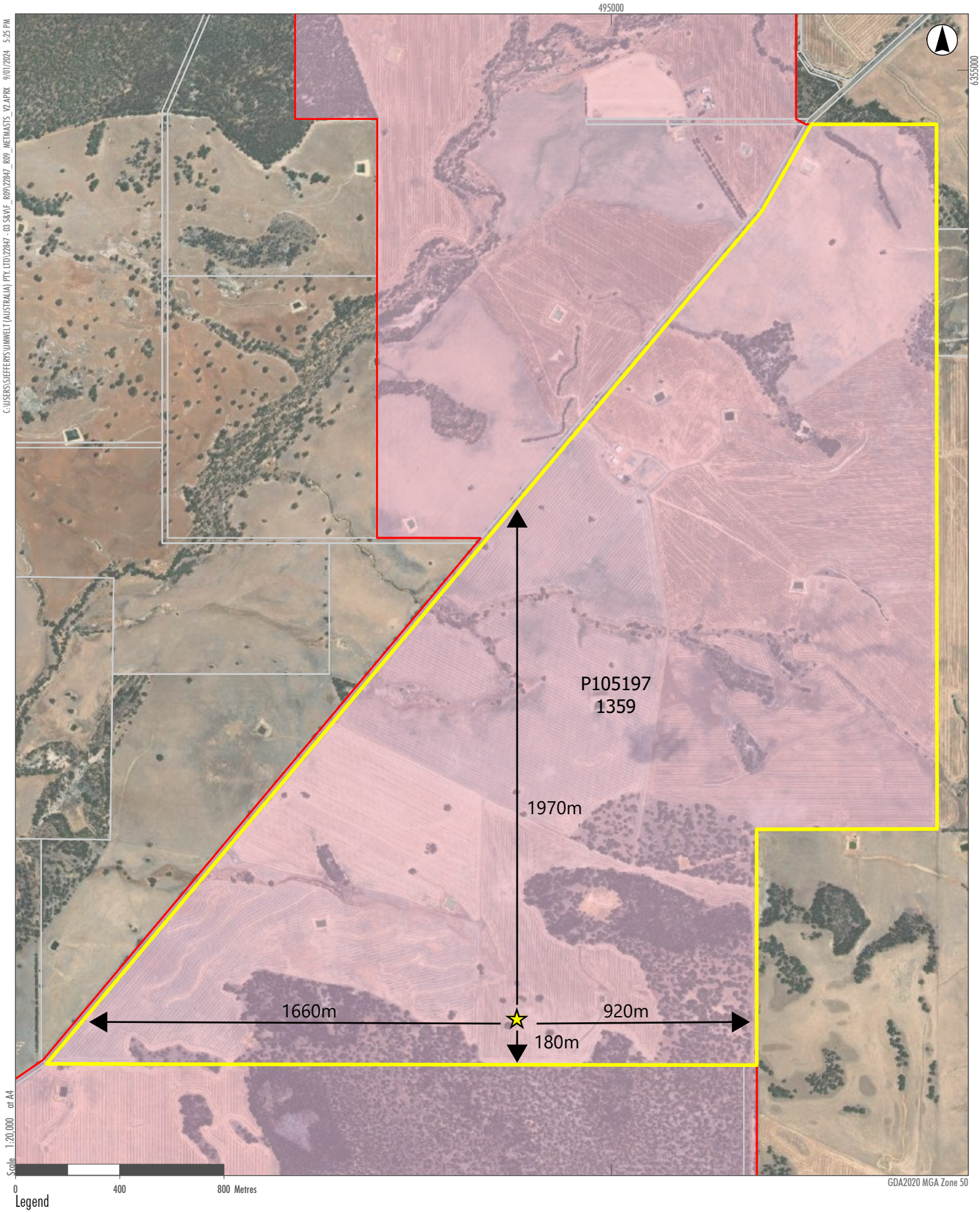


FIGURE 1.1

Project Location

Image Source: ESRI Basemap (2023) Data source: Landgate (2022), Western Power (2022), DBCA (2022)

Plate 1.1 Met Mast located in Shire of Narrogin

Plate 1.2 Met Mast base located in Shire of Narrogin

2.0 Pre-submission Consultation

Neoen has undertaken consultation with nearby landholders and relevant government stakeholders over recent months as part of broader discussions related to a potential wind farm development.

Stakeholder engagement to date is summarised in **Table 2.1**.

Table 2.1 Consultation Summary

Stakeholder	Consultation Outcomes
Shire of Williams	The Shire has been consulted on the submission of this Development Application.
Landowner: T.S. & D.E. Cowcher Farms Pty Ltd of Care of Macco Feeds	The landowner is a signatory to and supports the development application.
Adjacent landowners	Consultation with landowners with dwellings within 3 km of the project will be completed prior to construction. No adjacent landowner dwellings are located within 2.5 kilometres of the proposed met mast
Civil Aviation Safety Authority	Notification is needed before construction commences.

More detailed consultation is planned for nearby landholders, the local community, and other stakeholders in the broader area should the Project progress past the installation of the Met Mast. This consultation is separate to the scope of this Development Application.

3.0 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. This includes the Shire of Williams *Town Planning Scheme No. 2*, relevant State Planning Policies, and relevant aspects of the deemed provisions under Schedule 2 of the *Local Planning Scheme Regulations 2015* (WA). In completing this Development Application, the Shire of William's *Policy Manual 2021* has also been reviewed; however, no policies were identified as relevant to the Project.

Relevant aspects of the Western Australian planning framework as they relate to the proposed Met Mast are summarised in the following sections.

3.1 Town Planning Scheme No. 2 (the Scheme)

The Scheme classifies land zoning across the Shire of Williams and the permissibility of land uses within each zone. It also provides objectives for the overall Scheme and different zones, describes general development requirements, and outlines requirements for planning approval (among other things). The Project has been assessed against each of the relevant aspects of the Scheme in the following sections.

3.1.1 Land use and zoning

The land parcel listed in the **Table 1.1** is zoned as Rural under the Scheme. In consideration of Table 1 of the Scheme, the proposed land use (meteorological mast tower) is not readily classified. It is expected that the proposal will be considered a "use not listed" by the Shire. Land uses that are not readily classifiable are generally assessed against the objectives or policy statement for the zone in which the land use is proposed; however, the Scheme does not provide objectives for the Rural zone and all aspects of the Policy Statement for the Rural zone relate to subdivision or adjustment of Lot boundaries which the Project does not propose or require. To provide an indication of the land use permissibility of the Project, it has been assessed against the *State Planning Policy 2.5 – Rural Planning* in **Section 3.3**.

3.1.2 General development controls

An assessment of the Project's alignment with the General Development Controls under the Scheme is summarised in **Table 3.1**.

Table 3.1 Project Alignment with General Developments Controls (Part IV, TPS No. 2)

General Development Control	Project Alignment
Carparking	It is intended that once approval is obtained, provisions for car parking will be finalised in consultation with the Shire given that parking allocations will only be required temporarily during construction activities.
Site Access	The proposed Met Mast is located within a lot directly abutting Clayton Road from which there is an existing internal access track.
Setback Distances	Setback distances are not prescribed by the Scheme for the Rural zone. The Project will have a minimum setback distance of 150 m from the lot boundary.

3.2 Strategic Community Plan (Shire of Williams, 2023)

The Shire's Strategic Community Plan objectives which the Project may contribute to are outlined below:

- Economic Outcome 1 *Develop infrastructure and investment that is sustainable and an ongoing legacy to the Shire* – The Project is the first stage in understanding the wind resources available for future wind farm developments. This would introduce significant investment to the Shire and allow the Shire to diversify its current industry base into a new and growing sector.
- Land Use and Environment Outcome 4 *Recognising and implementing sustainability measures* – Renewable energy developments are critical in transitioning to a sustainable energy network and the Project will contribute to identifying the Shire's potential as a key renewable energy source for the region.

3.3 State Planning Policy 2.5 – Rural Planning (WAPC, 2016)

State Planning Policy 2.5 (SPP 2.5) provides the overarching planning objectives relating to rural zones defined in local planning schemes. The policy 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 the need for 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.

The Met Mast location has been selected following an analysis of constraints in the area to identify areas with minimal impacts to the surrounding landscape. Constraints that were considered include, but are not limited to, sensitive receptors and environmental values.

The proposed Met Mast will not significantly impact or decrease the area of agricultural land given the small footprint of impact, and there will be a low level of visibility and limited visual impact due to slim-line, lightweight and semi-transparent lattice design.

3.4 Position Statement – Renewable Energy Facilities (WAPC, 2020)

This Position Statement identifies assessment measures to facilitate appropriate development of renewable energy facilities and applies to development applications of these facilities in Western Australia. It supports development of facilities in areas that minimise potential impacts to the environment, natural landscape, and urban areas while maximising production and efficiencies.

Neoen has completed or is undertaking a range of studies for the broader potential Narrogin Wind Farm Project. Those that are relevant to the Met Mast include:

- A planning, environmental, cultural and heritage constraints assessment – this was used to inform the placement of the proposed Met Mast and inform the future design of the potential wind farm.
- An aviation impact assessment – to understand potential aviation impacts and constraints to the Met Mast specifically.
- Ecological surveys for flora, vegetation, and fauna (including birds and bats).
- Early-stage Aboriginal cultural heritage due diligence assessment.

Relevant aspects of the Position Statement and how these have been considered as part of this Met Mast application based on these assessments are described in **Table 3.2**.

Table 3.2 Consideration of the Position Statement – Renewable Energy Facilities

Planning Aspect	Project Alignment
Community consultation	Neoen has completed an initial assessment of the broader potential wind farm project (separate to this development application). As part of this assessment, key stakeholders and considerations for engagement with the local community have been outlined. To date, Neoen have held discussions with involved landholders and the Shire of Williams as described in **Section 2.0**. Further community consultation will be completed should the broader wind farm project progress.
Environmental impact	Neoen has completed an initial desktop assessment of the broader area. This has included desktop mapping of potential ecological values (flora, fauna, and ecological communities), water, and soils in the broader area. This assessment is being used to determine a "buildable area" that avoids environmental constraints where possible. Neoen has also undertaken flora, vegetation, and fauna surveys of the broader area to ground truth the results of the desktop assessment. The proposed Met Mast is located on cleared farmland currently used for cropping and will not require the clearing of any native vegetation.

Planning Aspect	Project Alignment
	The nearest conservation areas to the proposed Met Mast are approximately 8 km to the north (Dryandra National Park) and 9 km to the southwest (Williams Nature Reserve). Construction and operation of the proposed Met Mast will not impact on any watercourses, the proposed Met Mast is not within a proclaimed groundwater area, and no access to groundwater resources is required. There is not expected to be a significant risk to exposing Acid Sulfate Soils as a result of construction and operation of the Met Mast, and no significant risk of soil degradation or erosion.
Aviation/Air Safety	An Aviation Impact Assessment has been completed for the proposed Met Mast (**Attachment 4**). The key findings from the assessment are listed below: • There are no certified aerodromes located within 30 nautical miles (nm), and there will be no impact to any certified aerodrome caused by the Met Mast. • There are no uncertified aerodromes (aircraft landing areas) located within 3 nm of the Met Mast that will be affected. • The Met Mast will be located outside of controlled airspace (wholly within Class G airspace) and is not located in any Prohibited, Restricted and Danger areas. • The Met Mast is not anticipated to impact the Perth Primary Surveillance Radar and Secondary Surveillance Radar. • Some low-level aircraft operations related to aerial application operations are possible within the vicinity of the Met Mast. • It is not mandatory to mark the Met Mast; however, the following markings are recommended to be implemented in consideration of potential day VFR (Visual Flight Rule) aerial work operations in the vicinity: ○ marker balls or high visibility flags or sleeves should be placed on the outside guy wires (noting that dimensions of markers are not provided in the NASF guidance) ○ guy wire ground attachment points should be in contrasting colours to the surrounding ground/vegetation and ○ paint markings should be applied in alternating contrasting bands of colour to at least the top 1/3 of the mast. • Obstacle lighting is not technically required on the Met Mast however may be considered as an additional mitigation. CASA will review the Met Mast and provide a recommendation for obstacle lighting if they determine the Met Mast will be hazardous to aircraft operations. Neoen currently proposes to install one flashing light on the top of the Met Mast which would flash 24 hours a day. • Due to exceeding 100 m above ground level (AGL), details of the Met Mast must be reported to CASA as soon as practicable after forming the intention to construct or erect the proposed object or structure, in accordance with Part 139.165(1)(2) of the *Civil Aviation Safety Regulations 1998* (Cth) (CASR). The assessment determined that the development of the Met Mast in the proposed location is feasible in respect to aviation impacts.
Bushfire Hazard Management	The proposed Met Mast location is outside of any bushfire prone areas.
Visual and landscape impact	There is expected to be a low level of visibility from surrounding dwellings or publicly available areas and resulting visual impact due to slim-line and lightweight lattice design of

Planning Aspect	Project Alignment
	the Met Mast, noting the above measures to ensure adequate visibility for aircraft operating in the area.
Heritage	An initial desktop assessment of Aboriginal cultural heritage and non-Aboriginal heritage has been completed. Known heritage sites have been avoided by the proposed Met Mast. An Aboriginal Cultural Heritage Survey is being coordinated as part of the broader potential Narrogin Wind Farm and will be undertaken once the layout of the Wind farm is determined.
Traffic and Transport	There will be a minimal increase in traffic during the construction and operation of the proposed Met Mast. The mast is anticipated to be constructed over about 10-14 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 operations.
Safety and Site Access	Site safety measures include a metal grill barrier and anti-climb type protection.

3.5 Wheatbelt Regional Planning and Infrastructure Framework

The Wheatbelt Regional Planning and Infrastructure Framework (WAPC, 2015) (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 3.3**.

Table 3.3 Project Alignment with the Wheatbelt Regional Planning and Infrastructure Framework

Planning Objective	Project Alignment
Liveable Communities Effective infrastructure and service delivery that: • 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 • seek to attract and retain a diverse population.	Neoen has undertaken a number of engagement activities with stakeholders of the local community and traditional owners. It is not expected that the Met Mast will have any adverse impacts to the liveability of surrounding areas or the Shire more broadly.

Planning Objective	Project Alignment
Vibrant Economy A diversified and adaptive economy that: • increases its contribution to the Western Australian economy • benefits from innovation in the primary production sector • enables diversification through the establishment and growth of new and innovative industries.	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, 2015, p. 34). The Project represents a critical first step in identifying these untapped energy sources.
Valued Natural Amenity Environmental and landscape values that support the social, cultural and economic development of the region, and are managed for current and future generations.	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. The Project does not require the clearing of any native vegetation or use of water resources, and the proposed activities are largely passive with monitoring undertaken remotely. As such, the Met Mast is not considered to have an impact on surrounding environmental values.

4.0 Closing

The Met Mast proposed as part of this Development Application is necessary to collect wind data to determine the feasibility of a potential wind farm development. Such a development will directly contribute a secure, reliable, sustainable and affordable electricity network which is a primary aim of the Western Australian Energy Transformation Strategy (Energy Policy WA, 2021).

It is likely that a Met Mast development is considered a "use not listed" according to the Shire of Williams' *Town Planning Scheme No. 2*. However as described in this supporting letter, the proposed Met Mast does not significantly impact the agricultural or landscape amenity objectives or the intent of the *State Planning Policy 2.5 – Rural Planning* (WAPC, 2016) and may result in contributions to some of the Shire's Strategic Community Plan objectives.

The proposed Met Mast will not require clearing of any native vegetation, is not located near to any conservation areas, will not impact any watercourses, will not result in material changes to local traffic, and is not located in a bushfire prone area. It is expected that this Development Application will be referred to CASA, and that there may be recommendations for measures to manage aircraft safety.

A desktop social assessment has characterised the nearby community stakeholders and provides a starting point for broader community consultation for the potential wind farm development. Known cultural heritage constraints have been avoided, and Neoen is commencing a more in depth Aboriginal cultural heritage assessment for the broader wind farm project.

Following completion of meteorological monitoring, the Met Mast will be decommissioned and removed from the site, allowing for the small footprint to be returned to the existing agricultural use if the area is not deemed suitable for generating wind power.

We trust this information meets with your requirements. Please do not hesitate to contact the undersigned should you require clarification or further information.

Yours sincerely

Cormac Collins
Principal Environmental Consultant

E | ccollins@umwelt.com.au

Suite 3, Level 3. South Shore Centre.
South Perth Esplanade, South Perth WA 6151

5.0 References

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

Shire of Williams. (2023). *Strategic Community Plan 2022—2032*. https://www.williams.wa.gov.au/documents/330/strategic-community-plan-2022-2032

Western Australian Planning Commission (WAPC). (2015). *Wheatbelt Regional Planning and Infrastructure Framework*. https://www.wa.gov.au/government/document-collections/regional-planning-and-infrastructure-frameworks

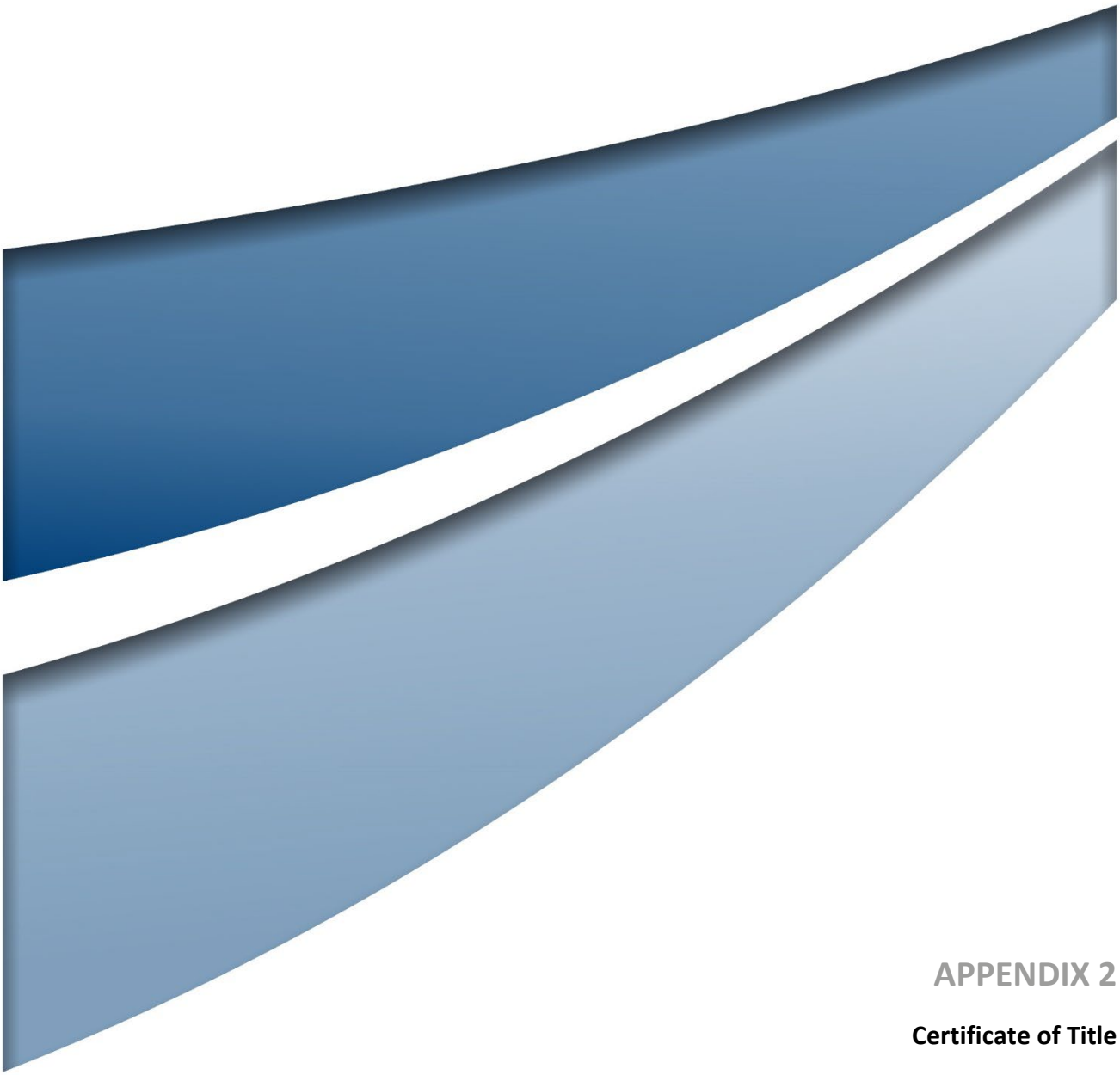
Western Australian Planning Commission (WAPC). (2016). *State Planning Policy No. 2.5: Rural planning*. Department of Planning, Lands and Heritage. https://www.wa.gov.au/government/publications/state-planning-policy-25-rural-planning

Western Australian Planning Commission (WAPC). (2020). *Position Statement: Renewable energy facilities*. Department of Planning, Lands and Heritage. https://www.wa.gov.au/system/files/2021-07/POS-Renewable-energy-facilities-position-statement.pdf

APPENDIX 1

Application for Planning Consent

Note - The application form includes owners private contact details so has been recorded by the Shire and deleted from this report for public advertising.



APPENDIX 2

Certificate of Title

WESTERN AUSTRALIA

TITLE NUMBER	
Volume	Folio
1633	**464**

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 1359 ON DEPOSITED PLAN 105197

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

PETER GLEN FORD
SHERYL ANNE FORD
BOTH OF POST OFFICE BOX 130, WILLIAMS
AS JOINT TENANTS

(T J276196) REGISTERED 6/5/2005

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE.
2. J276197 MORTGAGE TO ELDERS RURAL BANK LTD REGISTERED 6/5/2005.
3. N423360 EASEMENT BENEFIT FOR RIGHT OF CARRIAGEWAY PURPOSES. SEE INSTRUMENT AND DEPOSITED PLAN 400833 REGISTERED 31/8/2016.

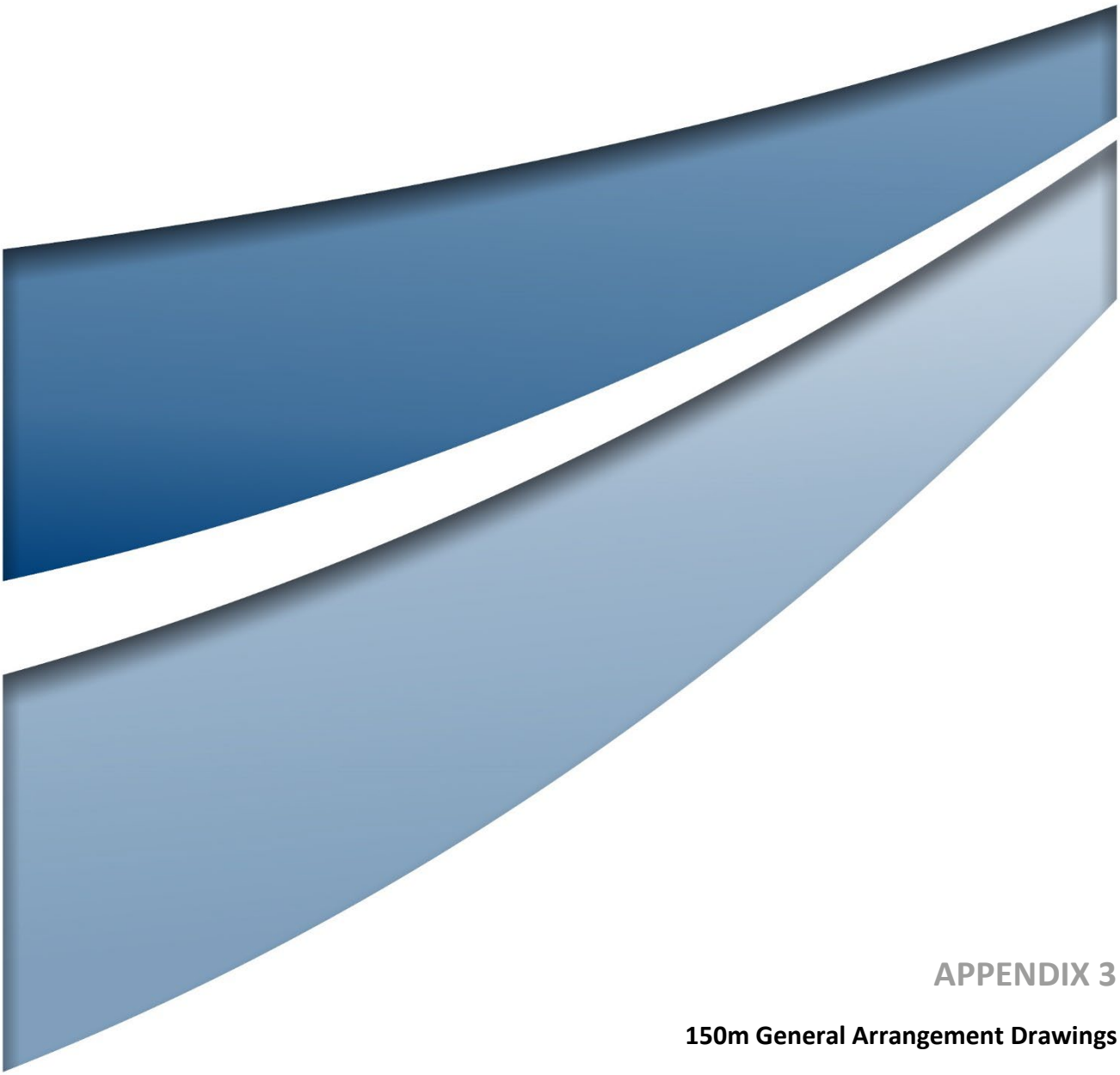
Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required. Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1633-464 (1359/DP105197)
PREVIOUS TITLE:	1123-358
PROPERTY STREET ADDRESS:	564 CLAYTON RD, WILLIAMS.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF WILLIAMS



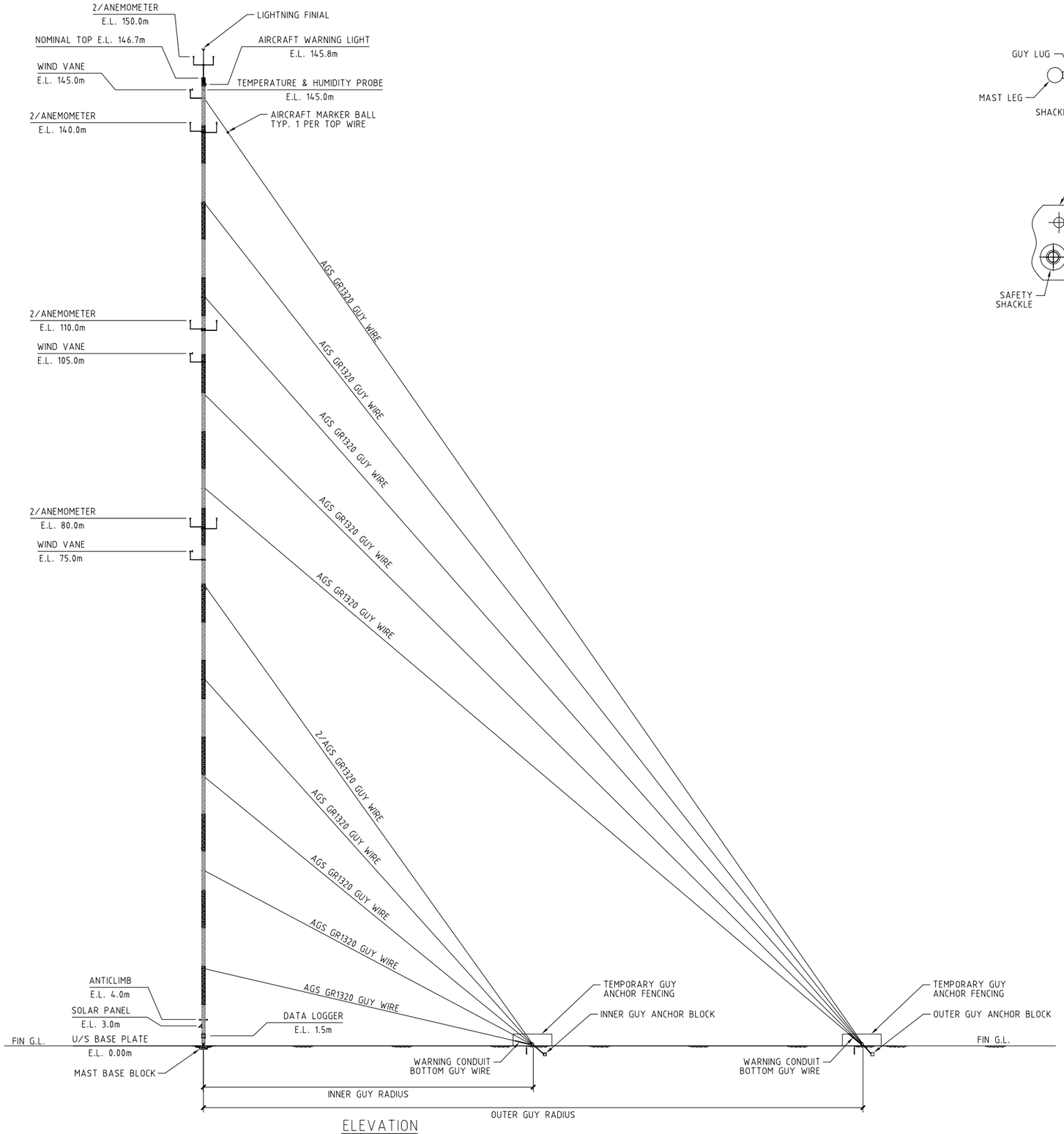
APPENDIX 3

150m General Arrangement Drawings

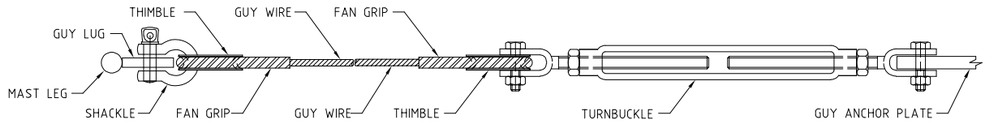
RED
WHITE
RED
WHITE
RED
WHITE
RED

NO PAINT

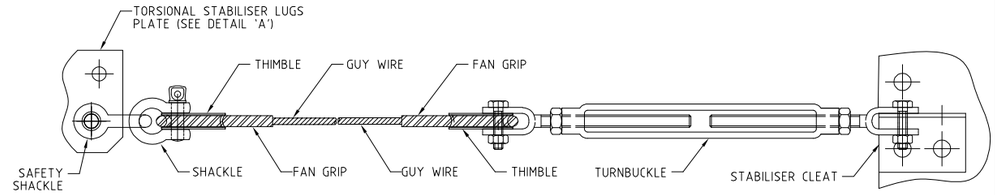
PAINTING



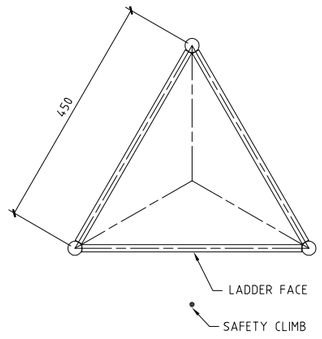
ELEVATION



TYPICAL GUY ASSEMBLY



TYPICAL TORSIONAL STABILISER GUY ASSEMBLY



TYPICAL PLAN

INFORMATION ONLY
NOT TO BE USED
FOR CONSTRUCTION

GENERAL NOTES

1. REFER TO FEC STANDARD NOTES F1/1/SN.
2. THIS GENERAL ARRANGEMENT DRAWING IS FOR INFORMATION ONLY AND DETAILS ARE SUBJECT TO CHANGE DURING DESIGN STAGE.

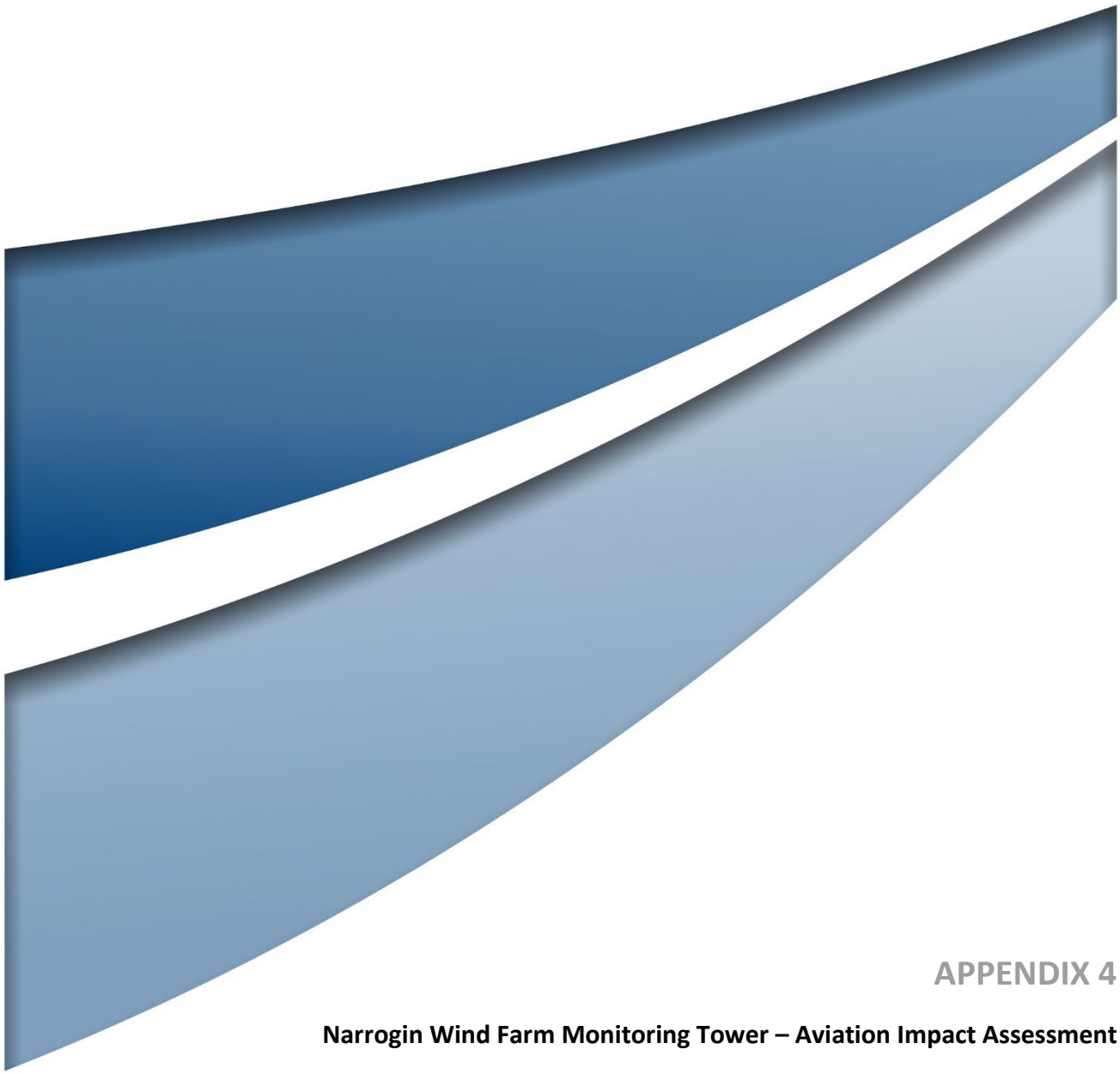
REFERENCE DRAWINGS						REVISIONS			
DRAWING No.	DESCRIPTION	DRAWING No.	DESCRIPTION	DRAWING No.	DESCRIPTION	REF	DESCRIPTION	DATE	APPv.
F1/1/SN	FEC STANDARD NOTES								

FUTURE
ENGINEERING & COMMUNICATION
E: ENGINEERING@FUTUREAU.COM.AU T: +61 8 9417 4999

DRAWN:	ENG.:
MP	
CHECKED:	APPv.:

NEOEN
NARROGIN WIND FARM
150m HUB F450 MET MAST #2
INDICATIVE GENERAL ARRANGEMENT

DATE:	SHEET:	SCALE:	DWG No. :	REV:
08-12-23	A1	NTS	J4037/1/2	



APPENDIX 4

Narrogin Wind Farm Monitoring Tower – Aviation Impact Assessment

AVIATION PROJECTS

Dec 2023

CJ Murray
Project Manager
Neoen Australia
Level 11, Parmelia House
191 St Georges Terrace, Perth WA, 6000

By email: cj.murray@neoen.com

Our reference: 104803-04

Dear CJ

Re: Proposed Narrogin Wind Farm - Wind Monitoring Tower DNV03 Aviation Impact Assessment

Please find in this correspondence a summary overview of the aviation impact assessment (AIA) of possible constraints to developing the wind monitoring tower (WMT) DNV03 to be installed in the Narrogin wind farm Project area.

1.1. Project Background

Neoen is planning the development of the Narrogin wind farm to be located approximately 17 km west of the town of Narrogin, and approximately 6 km west of Narrogin aerodrome (YNRG).

Neoen wishes to understand the potential impacts to YNRG and aviation operations generally caused by the installation of a 150 m AGL WMT (DNV03) in the Project area. Neoen has already installed a 150 m AGL WMT in the Project Area.

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 30 November 2023
- Airservices Australia, *Designated Airspace Handbook*, effective 30 November 2023
- Civil Aviation Safety Authority, *Civil Aviation Safety Regulations 1998* (CASR)
- Civil Aviation Safety Authority, Part 139 (Aerodromes) Manual of Standards 2019, dated 13 August 2020 Version F2020L00931
- Civil Aviation Safety Authority, Part 173 Manual of Standards Version 1.8
- Civil Aviation Safety Authority, Advisory Circular (AC) 139.E-05 v1.1 Obstacles (including wind farms) outside the vicinity of a CASA certified aerodrome (October 2022)
- Civil Aviation Safety Authority, Advisory Circular (AC) 139.E-01v1.0 Reporting of tall structures, December 2021

- Department of Infrastructure and Regional Development, Australian Government, National Airport Safeguarding Framework, Guideline D Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation, dated June 2013
- International Civil Aviation Organization (ICAO), Doc 8168 Procedures for Air Navigation Services—Aircraft Operations (PANS-OPS)
- ICAO Standards and Recommended Practices, Annex 14—Aerodromes
- Shire of Williams Town Planning Scheme No. 2, amendment 19

1.3. Client material

Neoen provided the following material for the purposes of this analysis by email on 22 November 2023:

- Mast location, *Narrogin Mon Plan Locations*.kmz

1.4. Project description

The WMT site is located approximately 7.7 km (4.2 nm) northeast of the town of Williams, 22 km (12 nm) west-southwest of the town of Narrogin, and 13 km (7 nm) southwest of the closest point of Narrogin aerodrome (YNRG), within the Shire of Williams local government area (LGA) in the wheatbelt region of Western Australia. The proposed WMT is located approximately 6 km (3.2 nm) west of the WMT already installed in the Project Area.

Figure 1 shows the proposed location of the WMT development site relative to Narrogin aerodrome, the towns of Williams and Narrogin and the Williams-Kondinin Road (source: Google Earth, Neoen).

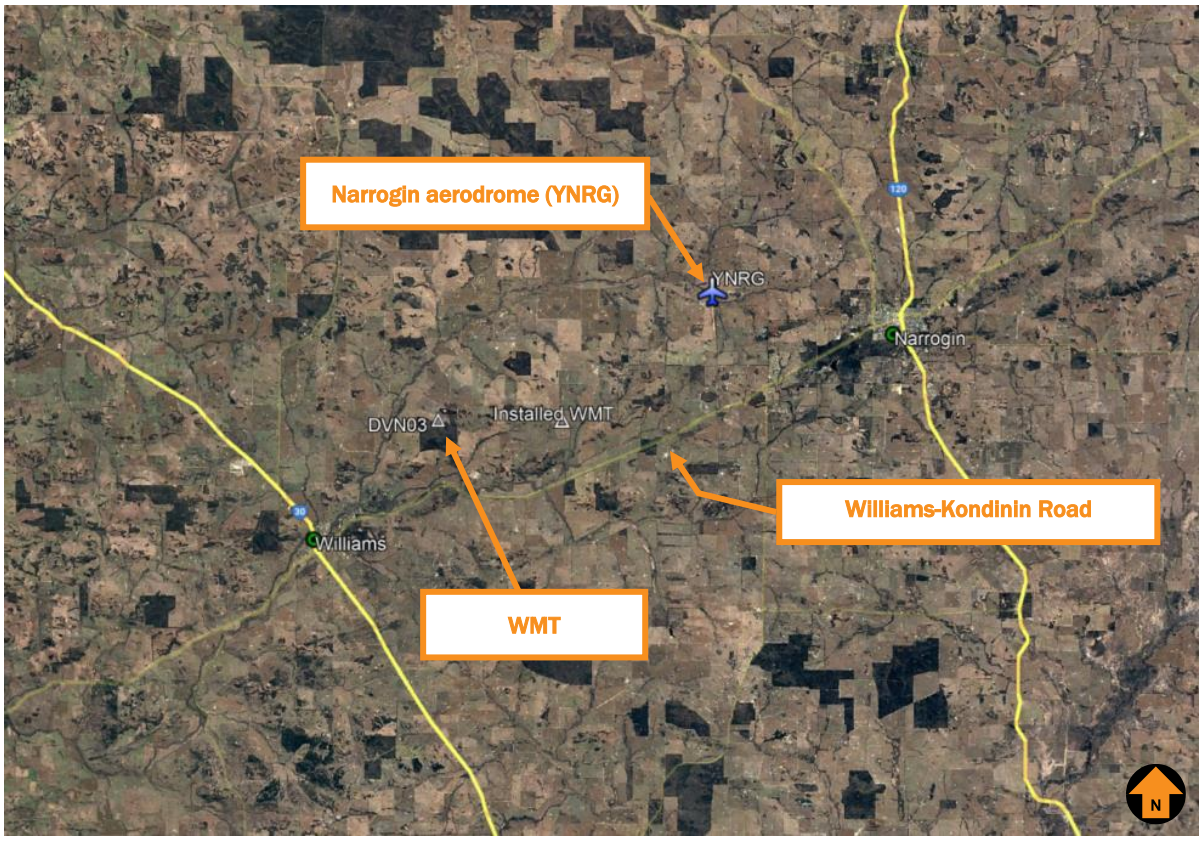


Figure 1 Project site overview

1.5. Wind monitoring tower description

The proposed wind monitoring tower will be of steel lattice construction and a maximum of 150 m in height above ground level (AGL) and will be guyed in 3 directions.

Table 1 provides the details of the WMT's location and height. The elevation for the WMT site is based on the maximum elevation observed on Google Earth elevation at the proposed location, with a 5 m terrain buffer applied.

Table 1 WMT details

Parameter	Details
Location	494638.00 m E 6351361.00 m S
Error budget (m)	5 m
Maximum ground elevation	330 m AHD
Height of tower AGL	150 m (492 ft)

Parameter	Details
WMT tip height (with 5 m buffer)	485 m (1591 ft)
Design	Steel lattice

1.6. Shire of Williams

The WMT will be subject to the Shire of Williams Town Planning Scheme No. 2, amendment 19. The WMT is located on land zoned as Rural, as identified on Town Planning Scheme No. 2 - map 03.

There are no provisions in the Planning Scheme related to airports, airstrips or aircraft operations. There are no certified aerodromes located within the Shire of Williams LGA.

1.7. Aviation Impact Assessment

This analysis considers the aeronautical impact of the WMT on the following:

- The operation of nearby certified aerodromes
- The operation of nearby aircraft landing areas (uncertified aerodromes)
- Grid and air route Lowest Safe Altitudes (LSALTs)
- Airspace protection
- Aviation facilities
- Radar installations
- Local aircraft operations.

1.8. Nearby certified aerodromes

Figure 2 shows the location of the WMT in relation to the nearest certified aerodromes.

A 30 nm radius is shown from the WMT location demonstrating the area of interest for potential impacts to terminal instrument flight procedures at certified aerodromes (source, Neoen, Google Earth, Airservices Australia). The 30 nm radius represents the 25 nm minimum sector altitude (MSA) for aerodromes with terminal instrument flight procedures. The 25 nm MSA minimum altitude is determined by assessing obstacles within 30 nm (25 nm MSA plus 5 nm buffer) of the aerodrome reference point or navigational aid on which the MSA is based.

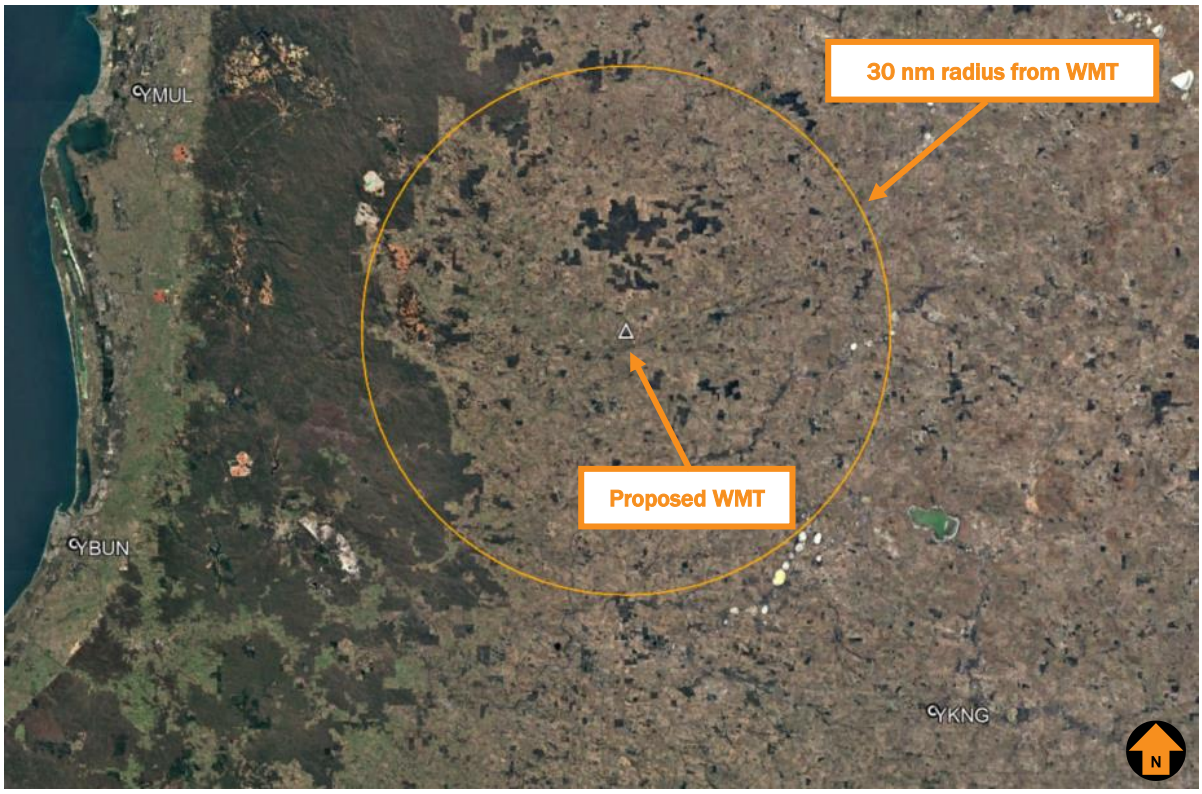


Figure 2 WMT relative to the closest certified aerodromes

The WMT is not located within 30 nm of any certified aerodrome, and there will be no impact to any certified aerodrome caused by the WMT.

1.9. Nearby aeroplane landing areas

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

A search on OzRunways, which sources its data from Airservices Australia (AIP), did not identify any unregulated aerodromes within 3 nm of the WMT site. The aeronautical data provided by OzRunways is approved under CASA CASR Part 175.

A review of NationalMap (an online map-based tool allowing access to spatial data from Australian government agencies) was also undertaken. No ALAs were identified within 3 nm of the proposed WMT.

Narrogin aerodrome (YNRG) is located approximately 7 nm (13 km) northeast of the proposed WMT location. Figure 3 shows the WMT in relation to YNRG, and a 3 nm radius from the western end of runway 10/28 (Source, Google Earth, Neoen).

Figure 3 WMT in relation to YNRG

YNRG regularly facilitates night-time aircraft operations, primarily by the Royal Flying Doctor Service (RFDS). As the aerodrome is uncertified, there are no formal safeguarding requirements or protection surfaces established for the aerodrome. If the aerodrome was certified, the proposed WMT would be clear of the obstacle limitation surface of a code 1 or 2 runway.

Aviation Projects has consulted with the RFDS previously in relation to the development of the proposed Narrogin wind farm. The RFDS has advised that generally any objects outside of 3 nm from any runway threshold at YNRG will not affect their operations. The 3 nm distance is associated with the Category B IFR circling area of 2.66 nm.

The proposed WMT is located approximately 7 nm from the aerodrome and will not affect aircraft operations at YNRG.

1.10. Air routes and grid LSALT

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

The proposed WMT will be in a grid identified in the EnRoute Chart – Low. (ERCL 8) The grid LSALT applicable to the proposed WMT location is 3400 ft AMSL, with a minimum obstacle clearance surface of 2400 ft AMSL.

The WMT will be located in the vicinity of 1 low-level air route –V415, between waypoints AKSOS and SOLUS.

Figure 4 shows the air routes and grid LSALT in proximity to the WMT (source: ERC Low 8, Neoen)

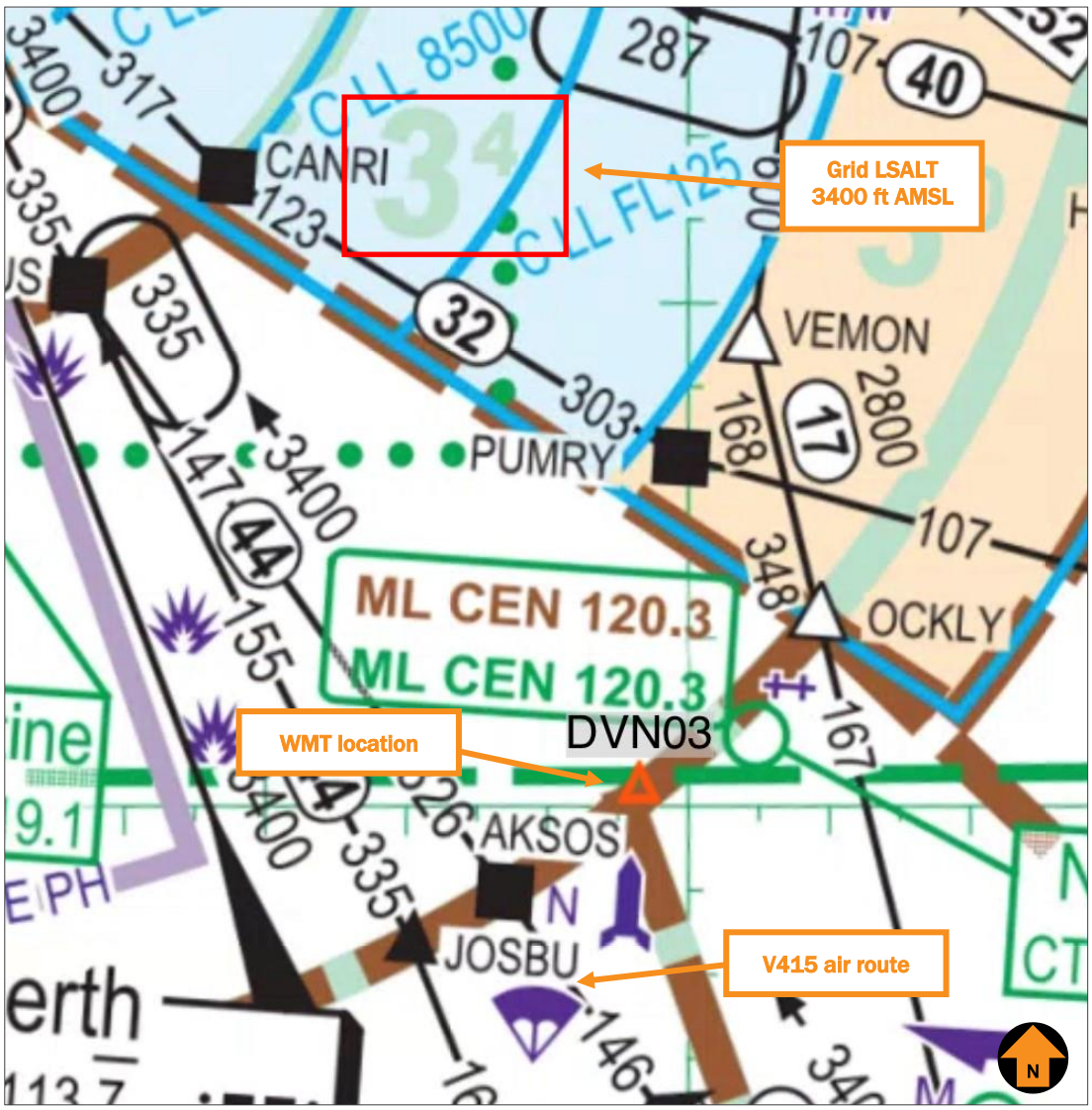


Figure 4 WMT in relation to LSALT

An impact analysis of the LSALT for the grid and surrounding air routes is provided in Table 2 based on the WMT height of 485 m AHD (1591 ft).

Table 2 Air route and grid LSALT impact analysis

Air route	*Waypoint pair*	*LSALT ft AMSL*	*Minimum Obstacle Clearance height ft AMSL*	*Impact on airspace design WMT*	*Potential solution*	*Impact on aircraft ops*
V415	AKSOS – SOLUS	3400	2400	No impact – below protection surface by 809 ft	N/A	N/A
Grid	N/A	3400	2400	No impact – below protection surface by 809 ft	N/A	N/A

The WMT will not impact the grid LSALT or LSALT of the nearest air routes at the proposed location.

1.11. Airspace

The WMT is located outside of controlled airspace (wholly within Class G airspace). The WMT is not located within any Prohibited, Restricted or Danger Areas.

1.12. Aviation facilities

Part 139 MOS 2019 specifies the protection of Communication, Navigation and Surveillance Systems (CNS) from development which may affect the function of these systems.

The WMT is not within the prescribed clearance zones or areas of interest as specified in Part 139 MOS 2019 Chapter 19.

1.13. ATC Surveillance Radar Systems

Airservices Australia currently requires assessment of the potential for wind farms to affect radar lines of sight.

The open lattice construction of slim wind monitoring towers does not have any impact upon ATC Surveillance Radar Systems.

1.14. Aircraft Operations in the vicinity of the WMT

Aircraft operations in the vicinity of the WMT will mostly be private and recreational aircraft including powered and glider aircraft associated with the Narrogin gliding club, and RFDS air transport (aeromedical) arrivals and departures at Narrogin aerodrome.

There is also likely to be aerial application operations conducted in the vicinity of the WMT.

Air transport operations are generally conducted under the instrument flying rules (IFR), while aerial work and private and recreational activities are likely to be conducted under visual flying rules (VFR).

Operations conducted under the visual flight rules (VFR) must remain in visual meteorological conditions (VMC) and clear of the highest point of the terrain by 500 ft vertical distance and 300 m horizontal distance, except as otherwise approved for operators with low-level approvals.

1.15. Civil Aviation Safety Authority - regulatory context

The Civil Aviation Safety Authority (CASA) regulates aviation activities in Australia. Applicable requirements include the Civil Aviation Regulations 1988 (CAR), Civil Aviation Safety Regulations 1998 (CASR) and associated Manual of Standards (MOS) and other guidance material. Standards for Certified Aerodromes are established in Part 139 MOS 2019.

A certified aerodrome means an aerodrome certified under Part 139 (Aerodromes) Civil Aviation Safety Regulations 1998. An aerodrome must be certified if there is a terminal instrument flight procedure implemented at the aerodrome, except for specialised helicopter operations. The standards for the operation and maintenance of a certified aerodrome are provided in Part 139 Manual of Standards 2019 (Part 139 MOS 2019).

Standards relevant to developing WMT's in proximity to a certified aerodrome include the control of tall and hazardous objects (as defined) located in the vicinity of an aerodrome and terminal instrument flight procedures and specifications for lighting and marking obstacles.

Civil Aviation Safety Regulations 1998, Part 139—Aerodromes

CASR 139.165 requires the owner of a structure (or proponents of a structure) that will be 100 m or more above ground level to inform CASA, even if the proposed object does not infringe a certified aerodrome's obstacle limitation surface. This must be given in written notice and contain information on the proposal, the height and location(s) of the object(s) and the proposed timeframe for construction. This is to allow CASA to assess the effect of the structure on aircraft operations and determine whether or not the structure will be hazardous to aircraft operations.

The proponent of the WMT is required to report the WMT to CASA in accordance with CASR 139.165, *as soon as practicable after forming the intention to construct or erect the proposed object or structure.*

The notification should be provided to CASA via email to Aerodromes@casa.gov.au and Airspace.Protection@casa.gov.au.

Manual of Standards Part 139—Aerodromes

Part 139 MOS 2019 Chapter 8.109 specifies when obstacles must be marked:

> *(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):*
>
> *a) 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.*
>
> *b) any object or structure on or above the movement area that is removable and is not immediately removed.*

Chapter 8.110 sets the requirement for marking hazardous obstacles:

> *As illustrated in Figure 8.110 (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.

Figure 5 provides a diagram of the marking specification for masts, poles and towers as specified by CASA in Part 139 MOS 2019 figure 8.110 (5).

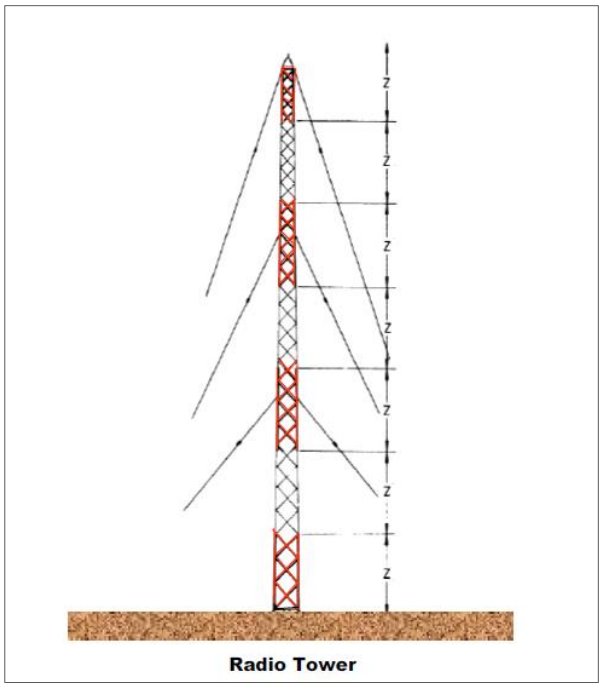


Figure 5 Part 139 MOS 2019 8.110 marking specification

The Part 139 MOS 2019 requirements relating to obstacle marking will not strictly apply to the proposed WMT as it is not located within the OLS of any certified aerodrome or above an aircraft movement area. It is likely that CASA will recommend the WMT be marked, particularly in consideration of the likelihood of aerial application and private aircraft operations during the day in the vicinity of the WMT.

The Proponent should consider marking the WMT in accordance with the specifications provided, noting there is no regulatory requirement to do so unless CASA determines the WMT will be hazardous to aircraft operations. Marking the WMT in accordance with these specifications will increase the visibility of the WMT during the day and reduce the risk of a collision by an aircraft, particularly low-level aerial application operations which may occur in the vicinity.

1.16. National Airports Safeguarding Framework

The National Airports Safeguarding Advisory Group (NASAG) was established by the Commonwealth Department of Infrastructure and Transport to develop a national land use planning framework called the National Airports Safeguarding Framework (NASF). The purpose of this framework is to enhance the current and future safety, viability, and growth of aviation operations at Australian airports. The NASF framework is not a regulatory requirement.

NASF *Guideline D Managing the Risk to Aviation Safety of Wind Turbine Installations (wind Farms)/Wind Monitoring towers* recognises the risk to aviation by WMTs, stating:

These structures are very difficult to see from the air due to their slender construction and guy wires. This is a particular problem for low flying aircraft including aerial agricultural operations. Wind farm proponents should take appropriate steps to minimise such hazards, particularly in areas where aerial agricultural operations occur.

Guideline D suggests consideration of the following measures specific to the marking and lighting of wind monitoring towers:

- the top 1/3 of wind monitoring towers to 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.

Neoen could consider marking the WMT in accordance with the NASF guidelines, which are slightly different to the Part 139 MOS 2019 specifications. Application of the NASF marking guidelines should be considered an appropriate measure noting the Part 139 MOS 2019 specifications are not technically applicable.

Obstacle Lighting

Part 139 MOS 2019 specifies when obstacle lights are required in Chapter 9.27(1):

(1) Subject to subsection (2), for a runway intended to be used at night, the following artificial objects or structures are hazardous obstacles and must be provided with obstacle lighting:

a) an object or structure that extends above the take-off climb surface within 3 000 m of the inner edge of the take-off climb surface;

b) an object or structure that extends above the approach or transitional surface within 3 000 m of the inner edge of the approach surface;

c) an object or structure that extends above the applicable inner, conical or outer horizontal surfaces;

d) an object or structure that extends above the obstacle assessment surface of a T-VASIS or PAPI;

e) an object or structure in the vicinity of a taxiway, an apron taxiway or a taxilane, that is a hazard to aircraft using the taxiway, apron taxiway or taxilane, except that obstacle lights must not be installed on elevated ground lights or MAGS.

Part 139 MOS 2019 Chapter 9.27(4) specifies that:

(4) Despite subsection (1), CASA may determine in writing, following an assessment:

a) that an object or structure on, or within the immediate vicinity of, the aerodrome is a hazardous obstacle; and

b) what, if any, lighting is required for that hazardous obstacle.

The requirements for obstacle lighting do not strictly apply to the proposed WMT as it will not infringe on any certified aerodrome's OLS or other surfaces as specified. CASA will review the WMT for potential hazards to

aircraft operations and may recommend lighting the WMT, likely in relation to night-time operations at Narrogin aerodrome.

If Part 139 MOS 2019 was applicable to the WMT, the use of a medium intensity obstacle light would be required. A low-intensity obstacle light may be supported by CASA because the WMT will be located in an area with minimal background lighting.

1.17. Summary

The following list of findings summarises the outcomes of this assessment, based on the maximum height of the WMT DNV03 of 150 m AGL and 485 m AHD (1591 ft AMSL):

- There are no certified aerodromes located within 30 nm of the WMT, and there will be no impact to any certified aerodrome caused by the WMT.
- There are no uncertified aerodromes (aircraft landing areas) located within 3 nm of the WMT that will be affected by the WMT.
- The WMT will not impact the grid LSALT of 3400 ft AMSL.
- The WMT will not impact the LSALT of nearby low-level air routes.
- The WMT will be located outside of controlled airspace (wholly within Class G airspace) and is not located in any Prohibited, Restricted and Danger areas.
- The WMT is not anticipated to impact the Perth Primary Surveillance Radar (PSR) and Secondary Surveillance Radar (SSR).
- Some low-level aircraft operations related to aerial application operations are possible within the vicinity of the WMT.
- It is not mandatory to mark the WMT, however, the following markings are recommended to be implemented in consideration of potential day VFR aerial work operations in the vicinity:
    - Marker balls or high visibility flags or sleeves should be placed on the outside guy wires (noting that dimensions of markers are not provided in the NASF guidance)
    - Guy wire ground attachment points should be in contrasting colours to the surrounding ground/vegetation and
    - Paint markings should be applied in alternating contrasting bands of colour to at least the top 1/3 of the mast.
- Obstacle lighting is not technically required on the WMT however may be considered as additional mitigation. CASA will review the WMT and provide a recommendation for obstacle lighting if they determine the WMT will be hazardous to aircraft operations.
- Due to exceeding 100 m AGL, details of the WMT must be reported to CASA as *soon as practicable after forming the intention to construct or erect the proposed object or structure*, in accordance with CASR Part 139.165(1)(2).
- 'As constructed' details of the WMT coordinates and elevation should be provided to Airservices Australia, by submitting the form at this webpage: https://www.airservicesaustralia.com/wp-content/uploads/ATS-FORM-0085_Vertical_Obstruction_Data_Form.pdf to the following email address: airport.developments@airservicesaustralia.com

The development of the WMT in the proposed location is feasible in respect to aviation impacts.

If you wish to clarify or discuss the contents of this correspondence, please contact me on 0417 862 727 or Keith Tonkin on 0417 631 681.

Kind regards

Jarrod Bell

Specialist Airport Operations Consultant

11 December 2023.

umwelt
Environmental & Social Consultants

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