

KWF KOJONUP WIND FARM



Preliminary Transport Route Assessment

Kojonup Wind Farm

Kojonup Wind Farm Pty Ltd

ACN 664 578 803

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1 Overview

1.1 Purpose

This document describes observations and previous experience on the proposed transport route for the Kojonup Wind Farm project. It assesses the proposed transport of wind turbine components from the Port of Bunbury to the Kojonup Wind Farm (**KWF** or the **Project**).

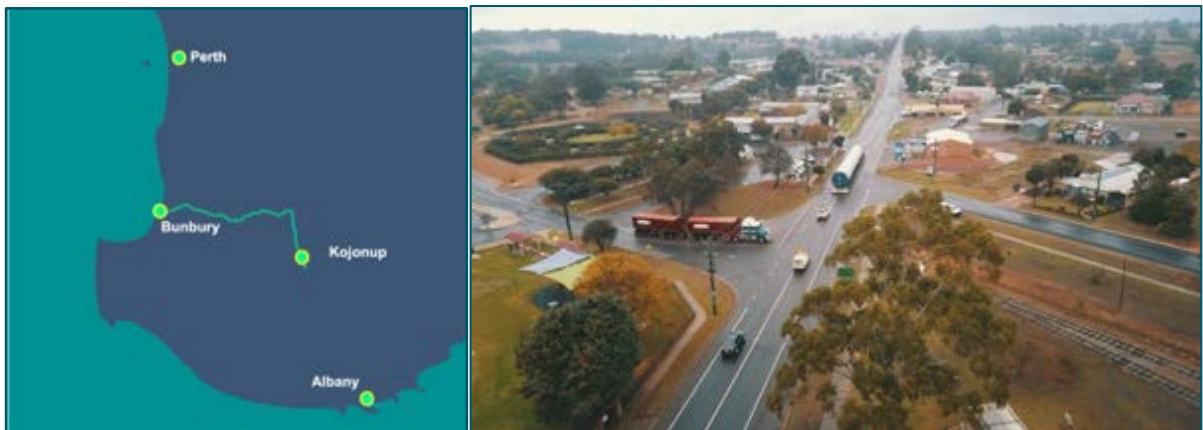
This Preliminary Transport Route Assessment document (has been prepared by Moonies Hill New Energy Pty Ltd (ACN 664 489 310) (**MHNE**). MHNE is the Project Manager for the Kojonup Wind Farm. The document summarises the expected size of the KWF turbine components, and potential impacts that may be encountered on the transport route from Port of Bunbury to KWF Project site.

1.2 Transport Task

This Preliminary Transport Assessment is based on the expectation that all turbine components and towers are received at the Port of Bunbury for offloading and delivered by road to the Project Site located on the Jingalup Road, 20 km south of Kojonup, 227 km from the Port of Bunbury.

The transportation assessment considers the delivery of 33 x Vestas V162 6.2MW turbines with a 125m hub height.

Figure 1: Delivery of Turbines, Albany Highway Kojonup



1.3 Nature of Document

This Preliminary Transport Assessment is to be revised and submitted to the Shire of Kojonup for approval prior to the delivery of turbine components, once the specialised trucks and trailers used for transport are confirmed, in accordance with condition 11 of the Development Approval granted in February 2026 (refer to Appendix 1).

2 Route Overview

2.1 Route Summary

The 33 turbines and associated components are to be transported 227 km by road from the Port of Bunbury to the Project Site as summarised in Table 1 below. The majority of the transport route is on major highways and sealed roads, namely the Forrest Highway (State Route 1), Raymond Road/Australind Roelands Link, Coalfields Road and the Albany Highway (State Route 30). The last 9 km of the transport route are on local sealed roads, namely the Shamrock Road and Jingalup Road.

Table 1: Port of Bunbury to Kojonup Wind Farm Transport Route

Bunbury Port:	Bunbury Port , via Leschenault Drive to Estuary Drive	0.14
	Estuary Drive to Koombana Drive	0.17
	Koombana Drive to Eelup Rotary	0.35
	Eelup Rotary to Raymond Road/State Route 1	10.9
	Raymond Road/Australind Roelands Link to South Western Highway/State Route 20	6.8
	South Western Hwy/State Route 20 to Coalfields Road	0.17
	Coalfields Road to Albany Highway State Route 30, near Arthur River	128
	Albany Highway/State Route 30 to Shamrock Road	72.1
	Shamrock Road to Jingalup Road	2.6
Project Site	Jingalup Road to Site	6.0
TOTAL DISTANCE:		227.2
GPS LINK:	https://maps.app.goo.gl/meBy4qD49UkcCyFA	

The proposed transport route will predominantly follow that used for the successful delivery of the Flat Rock Wind Farm Stage 1 Project (**FRWF1**). Importantly the first 147 km of route will be exactly the same route to be used by both the King Rocks Wind Farm (see Figure 2 below) and the Narrogin Wind farm from the Port of Bunbury to the turn off from Coal Fields Road onto the Albany Highway at Arthur River as shown in Figure 2. The King Rocks Wind Farm is transporting the same Vestas V162 6.2 MW WTGS with 162m rotor diameter as is proposed to be installed at the KWF. The Narrogin Wind Farm is approved to utilise similar or larger size turbines of between 6 – 8 MW WTGs with up to 182 m rotor diameter.

The next 72km from the Arthur River intersection along the Albany Highway will be the same as that used for delivery of FRWF1 turbines and associated components. The final 9km of the KWF transport route, from Shamrock Road onto Jingalup Road to the Project site entry, will be unique to the Project. Accordingly, the transport task will benefit from the lifting of powerlines and civil works conducted to facilitate deliveries to FRWF1, King Rocks and Narrogin Wind Farm.

Figure 2: King Rocks Transport Route (Currently being utilised for transport)¹



As noted above, KWF will utilise the same first 147 km transport route as the Kings Rock transport route, for which transport has commenced. Environmental studies conducted for clearing permit approvals for Kings Rock indicate that all vegetation and the intersections for this portion of the overall route are either degraded or completely degraded². Given the transport task for King Rocks will be completed prior to the KWF transport task no further clearing of roadside vegetation is expected and all upgrades and modifications required for that section of the route will have been completed, although temporary earth works or removal of signs and lights may need to be reinstated.

¹ See <https://static1.squarespace.com/static/69ca07a79d24c4265a30bcb2/t/6a0e97b36ef01a12e3ac2e0f/1779341235673/Full+route.jpg> and <https://www.synergyred.net.au/s/King-Rocks-Transport-Route-Community-Notice.pdf>

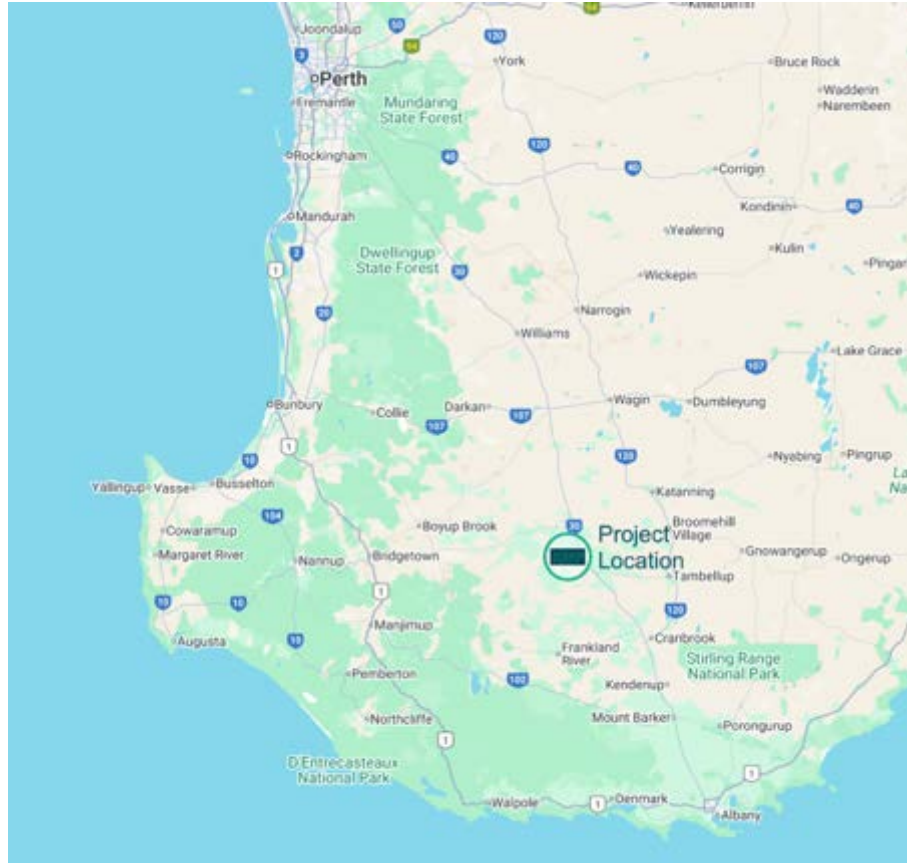
² See <https://ftp.dwer.wa.gov.au/permit/11076/Permit/>

3 Project Overview

3.1 Site Location

The Kojonup Wind Farm main entrance is located approximately 25 Kilometres south of Kojonup, in the Shire of Kojonup on the western side of the Albany Highway, with site access via the sealed Jingalup Road.

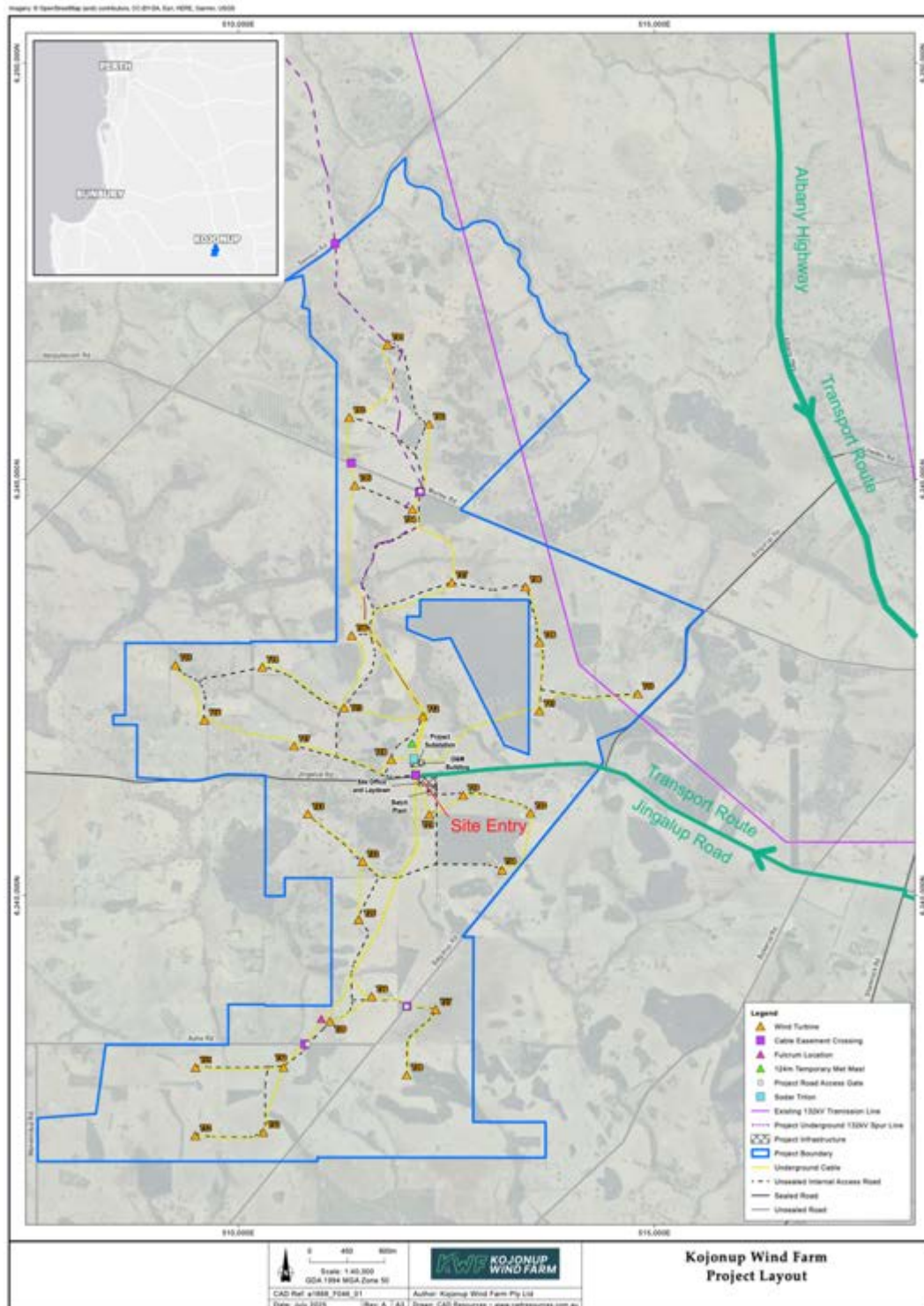
Figure 3: Project Location



3.2 Turbine Layout and Site Access Routes

The Kojonup Wind Farm is accessed from new main northern and southern access gates off the Jingalup Road, 8km west from Albany Highway. The main entry is located in the centre of the overall project development area. Trucks will turn either south or north off Jingalup Road onto the purpose built internal Project access tracks that will then be used to distribute components to the 33 turbine sites. The Site layout is shown below in Figure 4.

Figure 4: Site Layout



4 Bunbury Port

4.1 Point of Import

The wind turbine and associated components for the Kojonup Wind Farm will be imported from various countries and travel via sea to the Port of Bunbury.

The proposed berth for these shipments is Berth 5. This facility has a hardstand storage area of roughly 30,000 m², adjacent to the berth and was used for the successful import for the 18 wind turbines for the Flat Rocks Wind Farm and more recently the 17 wind turbines for the King Rocks Wind Farm project.

Figure 5: Bunbury Port



Blades can be delivered to the existing Bunbury Port berth # 5, located at the south eastern end of the port, where they can be unloaded onto the storage area (see Figure 6) and back onto the port access road.

Figure 6: FRWF1 Turbine Components Unloading at Port of Bunbury

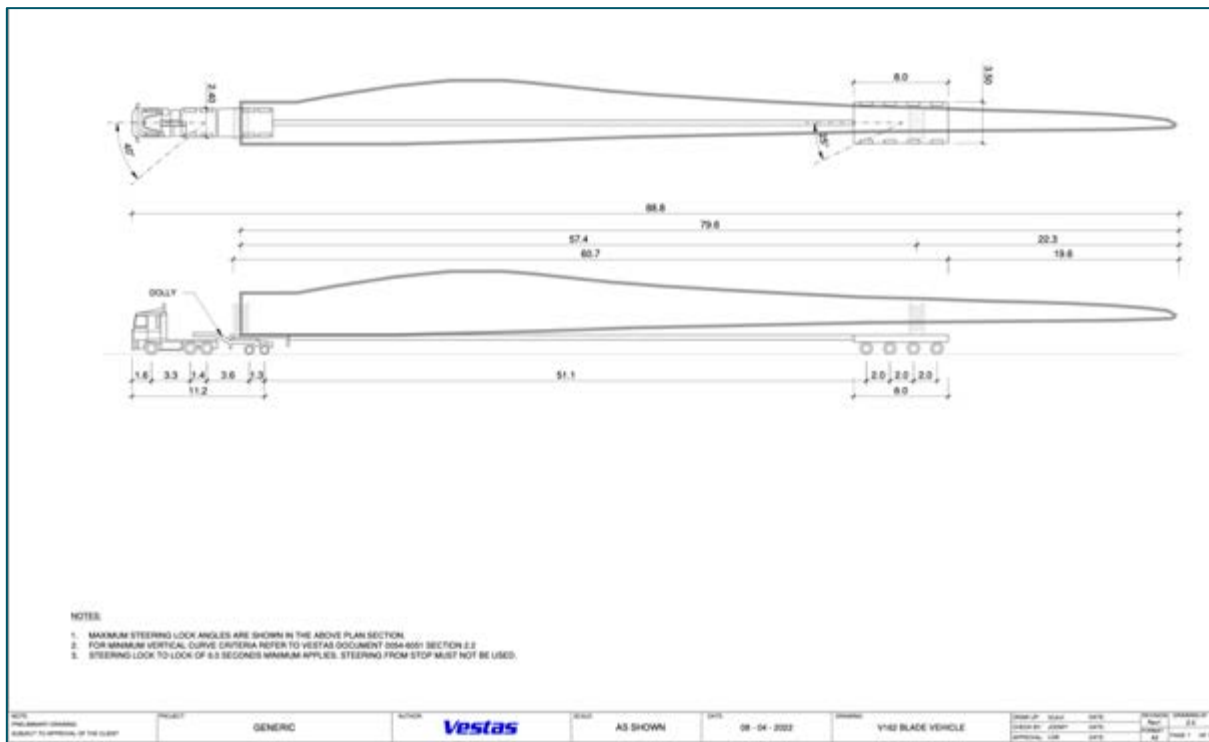


5 Transport Details

Drawings are provided in this section of the Vestas V162 6.2MW wind turbine components and the size of the transport units required to transport them from the Port of Bunbury to the Project Site. These preliminary transport specifications have been supplied by Vestas³. The final truck and trailer selection may vary to those shown below depending upon availability, transport contractor and final Traffic and Transport Management Plan.

The blades have a total length of 79.6m, but with blade lifting cage attached and the total length of the transport unit is 88.8 m⁴. As the largest sized component of the wind turbine, the blades are the critical factor for the determination of the modifications required along the transport route.

Figure 7: Blades for Vestas V162

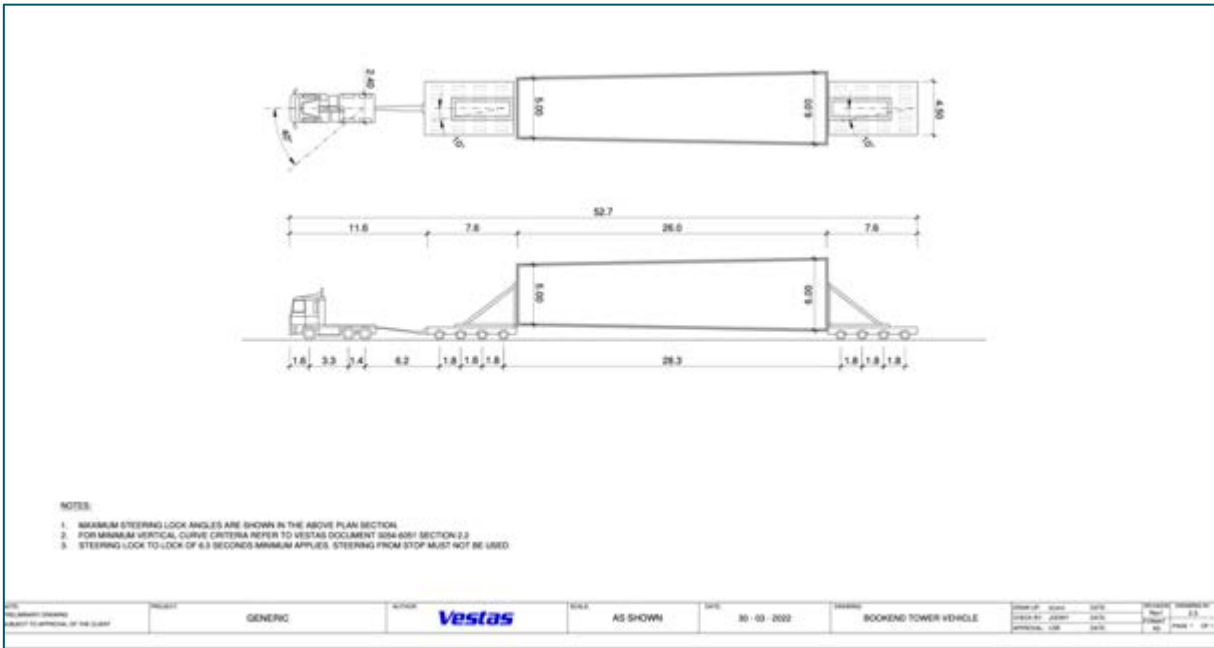


³ Vestas document "Wind Farm Road Requirements, DMS no: 0201-2020"

⁴ This is 9 metres longer than the length of the blade transport unit used for the FRWF1 Project

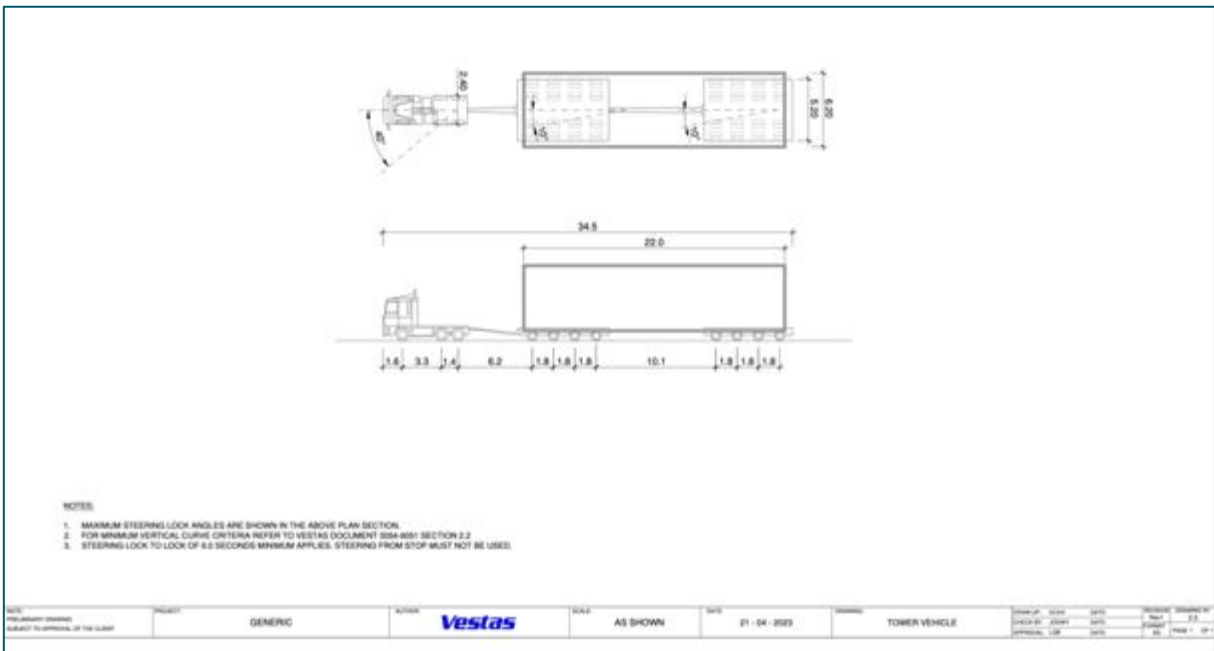
The towers sections have a 26m length with a total transport unit length of 52.7m.

Figure 8: Tower Section Dimensions



The WTG tower base components are of 22m length with a total transport unit length of 34.5m.

Figure 9: Base Dimensions



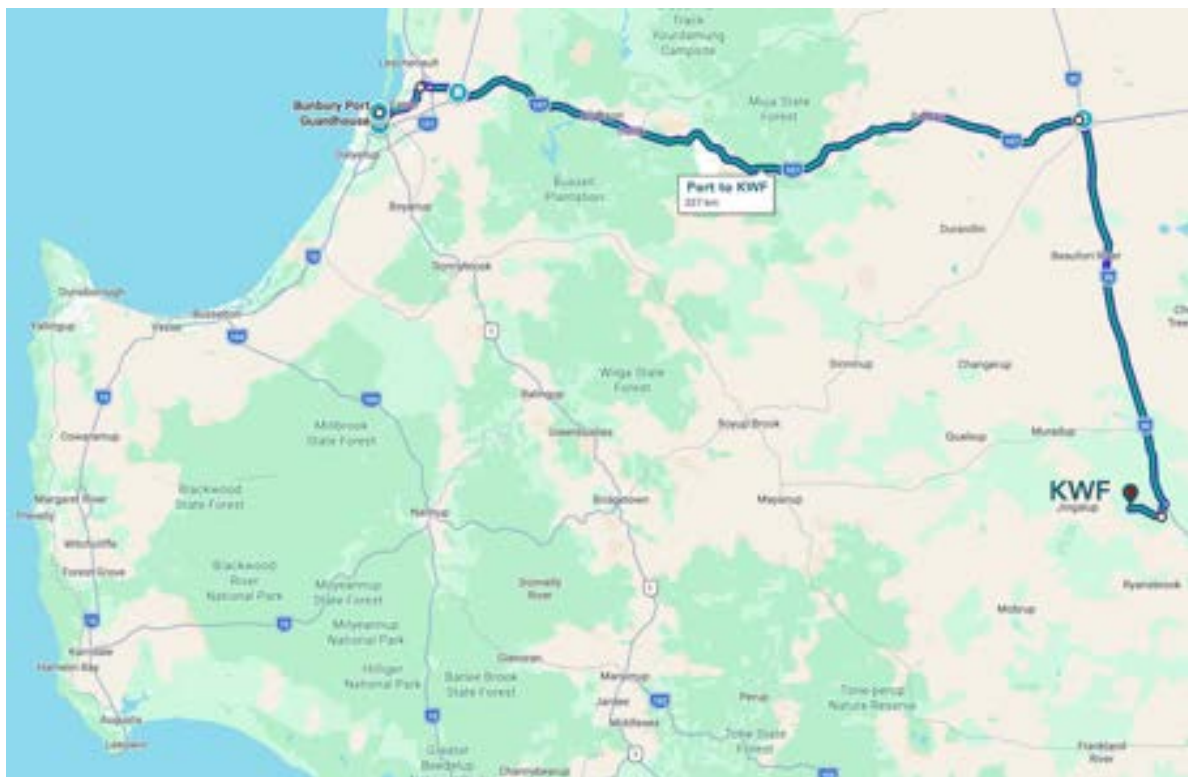
6 Preliminary Route Survey: Port of Bunbury to Kojonup Wind Farm

The turbines and associated components will be transported by trucks from the Port of Bunbury to the Project main entrance located south of Kojonup on existing sealed roads, with 219 km of the 227 km route on substantial main roads, including the Forrest Highway/State Route 1, Raymond Road, Coal Fields Road, and Albany Highway/State Route 30. The last 9 km will be on sealed local roads, Shamrock Road and Jingalup Road.

6.1 Transport Route

The transport route is shown in Figure 10 below. The route deviates from the FRWF Stage 1 route as deliveries will turn right at the Shamrock Road/Albany Highway intersection and travel 2.6 km before a right-hand turn onto the Jingalup Road. The main entrance gate is then a further 6 km along the Jingalup Road where deliveries will turn either north or south to access KWF internal access roads.

Figure 10: Transport Route from Port to Site



6.2 Key Intersection Details

Details of critical road intersections are provided below in Figure 11 through to **Error! Reference source not found.** with the turbine blades being the longest and most difficult transportation unit superimposed to illustrate clearances.

The roads are mainly straight, predominantly highways and main sealed roads with sufficient radius curves for the transport without the requirement for significant modification or vegetation clearing.

A full transport survey will be undertaken prior to delivery of turbine components and a Traffic and Transport Management Plan will be submitted to the Shire of Kojonup for approval in accordance with the Development Approval granted by the Regional DAP 26 February 2026 (refer also to Appendix 1). The Traffic and Transport Management Plan will include detail of any additional civil works or road augmentation required for safe transport of the turbine components to project site. Western Power will also be consulted in regard to external and internal transmission and distribution lines on the transport route and access roads within the development area.

Main Roads of Western Australia have stated that given the Bunbury bypass has been constructed and opened since the transport of the FRWF1 WTG components, an alternative transport route to that used by FRWF1, is to travel north from Bunbury and then turn east onto Raymond Road/Australind Roelands Link and then briefly north onto the South West Highway before turning on to Coalfields Road, before following the original FRWF1 route. This avoids travelling under the newly constructed May Hollman bridge. This is the route adopted for this Preliminary Transport Assessment for the Project.

The proposed transport route will leave the Port of Bunbury and travel along Leschenault Drive to the roundabout at Estuary Drive. The potential hardstand upgrade shown in Figure 12 is likely to have been undertaken to facilitate the current delivery of the King Rocks Wind Farm turbines and associated components.

Figure 11: Port Access Road onto Leschenault Drive



6.2.1 Estuary Drive to Koombana Drive

The turn from Leschenault Road onto Estuary Drive as shown in Figure 12, will require the transport units to cross on the wrong side of the roundabout. This is the same route being used by King Rocks so minimal work is

required although there may need to be temporary removal of street signs and lighting if they are reinstated post the King Rocks transport task being completed.

Figure 12: Leschenault Drive onto Estuary Drive



The trucks will then turn right off Estuary Drive onto Koombana Drive as shown in Figure 13.

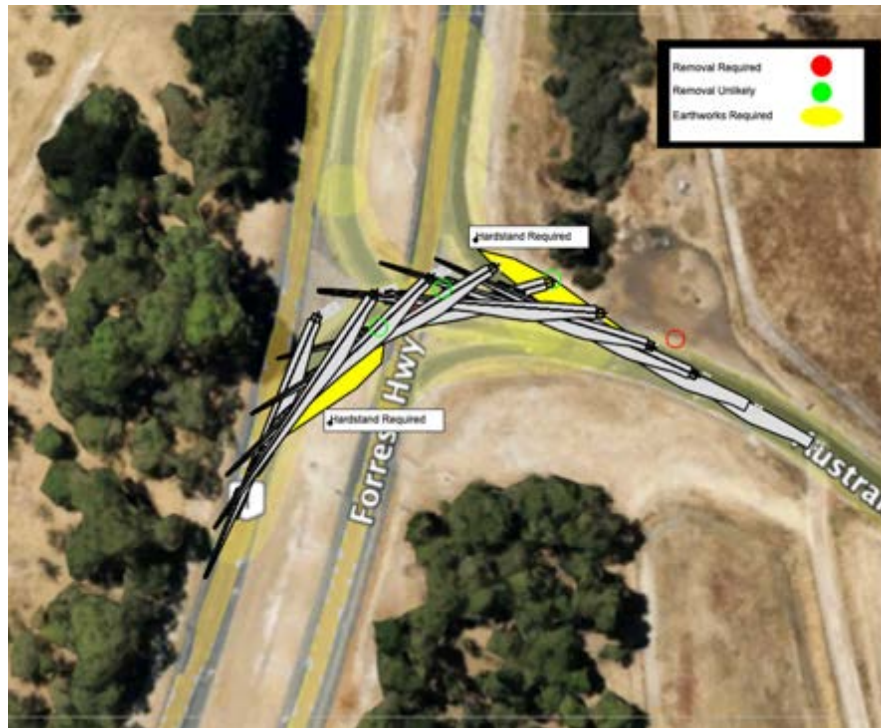
Figure 13: Estuary Drive onto Koombana Drive



6.2.2 Koombana Drive to Forrest Highway

From Koombana Drive trucks will take the first exit on the Eelup Rotary roundabout to join the Forrest Highway as shown in Figure 14 below. The trucks will then travel 10.9km and turn right onto Raymond Road as shown in Figure 15. Again, this is the same route as being used by King Rocks so minimal work is required

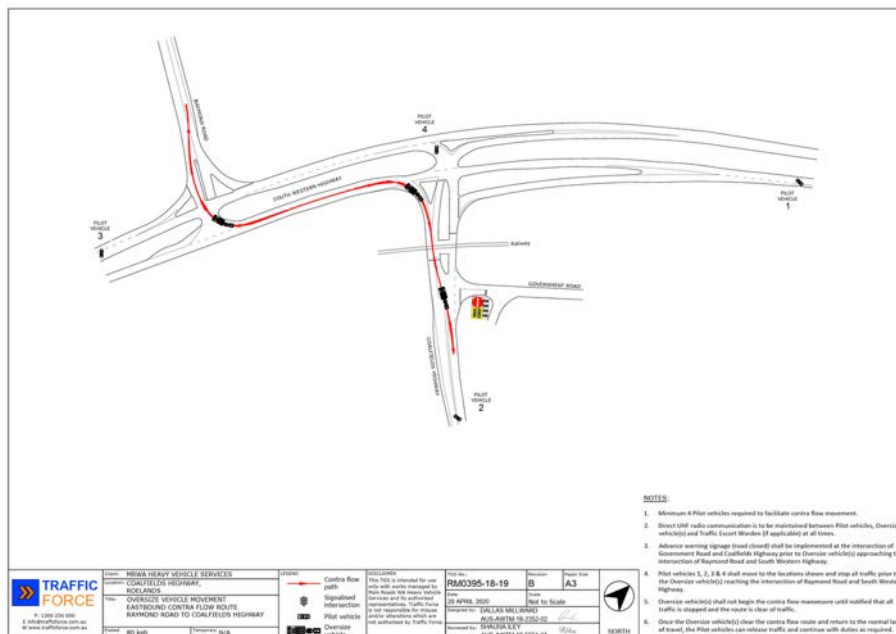
Figure 15: Forrest Highway onto Raymond Road



6.2.3 South West Highway onto Coalfields Road

After turning left off Raymond Road and travelling 200 m along the South West Highway, the trucks will turn right onto the Coalfields Road as shown in Figure 16⁵. This figure shows the Main Roads contra flow that can be used to avoid vegetation clearing at this series of intersections.

Figure 16: South Western Highway onto Coalfields Road⁶



⁵ The Narrogin Wind Farm Transport Plan has made reference to the potential for transport to use a contraflow at this intersection if required to minimise clearing or removal of infrastructure on the Western Side of the South Western Highway. This option would also be available the KWF project to ensure minimal impact.

⁶ <https://www.mainroads.wa.gov.au/4a3772/globalassets/heavy-vehicles/permits-orders-schemes/tgs/rm0395-18-19-raymond-road-contra-flow-movement-to-coalfields-hwy.pdf>

6.2.4 Coalfields Road/Albany Highway

Having turned off the South West Highway/State Route 20, trucks will travel along the Coalfields Road and travel a further 128km to the T intersection with the Albany Highway at the Arthur River Roadhouse. Here the trucks will take a right turn and head south towards Kojonup.

At the intersection of the Coalfields Road and Albany Highway trucks will need to crossover to the incoming lane. Delivery for the Flat Rocks Wind Farm successfully navigated this corner with little to no requirement for augmentation. This intersection has been specifically designed for heavy vehicle turns and incorporates an area of temporary verge that can readily be expanded if required with minimal impact.

The King Rocks project transport route includes the same right turn at this intersection before they turn left off the Albany Highway shortly after at the Collie Lake King Road. The Narrogin Wind Farm trucks will turn left off the Coalfields Road onto the Albany Highway and proceed north to Narrogin.

Figure 17: Coalfields Road onto Albany Highway



6.2.5 Arthur River to Kojonup

Once on the Albany Highway/State Route 30, the trucks will proceed 72 km through the town of Kojonup utilising the same route as used for the FRWF1 project until a right hand turn off Albany Highway at Shamrock Road.

6.2.6 Albany Highway to Shamrock Road

The turn off from the Albany Highway onto the Shamrock Road at Lumeah is shown in Figure 18. Review work conducted indicates there may be a need for minor temporary earthworks to allow trucks to turn off the highway to avoid clearing vegetation.

Figure 18: Albany Highway onto Shamrock Road.



Figure 19 shows the view from Albany Highway where the trucks will turn off right onto Shamrock Road. Some temporary earthworks maybe required on the northwestern corner to allow the blades to pass and avoid the existing vegetation. Temporary removal of road signs will also likely be required. A view looking back from Shamrock Road to Albany Highway is shown in Figure 20.

Figure 19: Albany Highway onto Shamrock Road



Figure 20: Shamrock Road Looking back to Albany Highway



The penultimate turn from Shamrock Road to Jingalup Road is shown in Figure 21 below. Preliminary review indicates temporary earthworks and potential temporary relocation of the paddock fence, will be required on the north western corner to allow the blades to pass through the corner and avoid existing roadside vegetation. Temporary removal of road signs on the Jingalup Road will be required, as shown in Figure 22.

Figure 21: Shamrock Road on Jingalup Road Intersection

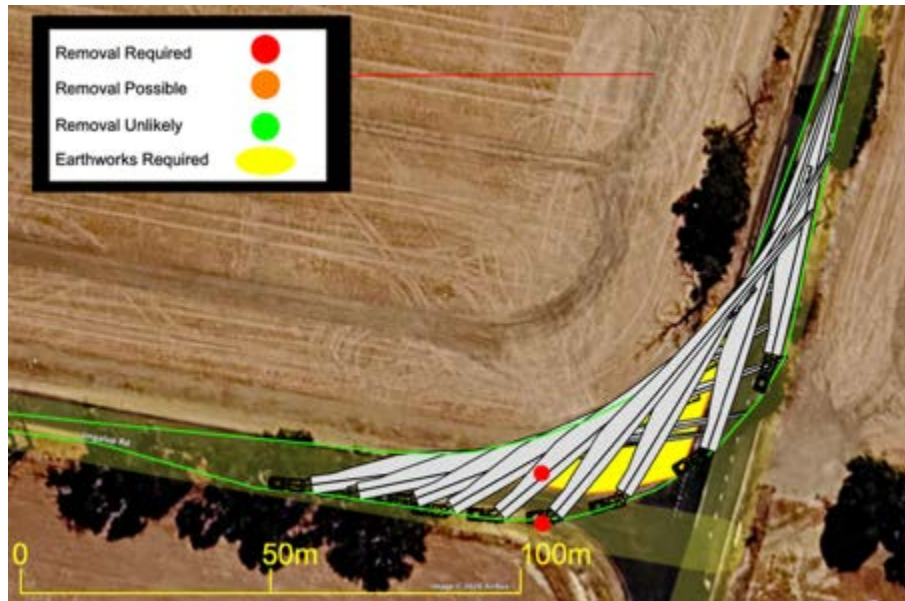


Figure 22: Shamrock Road Intersection (Looking South West to Jingalup Road)



Figure 23: Shamrock Road Intersection (Looking East to Shamrock Road)



6.2.7 Main Site Entrance

The main entry to the Northern access road network of the Project Site (Figure 24) will require the clearing of verge trees and pruning of trees adjacent to the entry. All trees have been assessed, and once final delivery configurations are known a clearing permit will be submitted and included in the Traffic and Transport Management Plan to be submitted to the Shire of Kojonup for approval. The trucks will exit from the sealed Jingalup Road onto new gravel access track constructed within the Project area.

Figure 24: Site Entry North



The main entry to the Southern access road network of the Project site will require minimal clearing and some tree pruning. All trees likely to be impacted in this section have been assessed and will be included in clearing permit applications and identified in the final Traffic and Transport Management Plan.

Figure 25: Site Entry South



7 Conclusion

Results of the desktop and physical route assessment, show the wind turbine components and associated ancillary equipment can be transported to the Project site with minimal impact to the existing road network and avoid the majority of roadside vegetation.

Table 2 summarises the key factors to be considered in the final design of the KWF transport route to be documented in the Traffic and Transport Management Plan.

Table 2: Summary

	Comments
Port of Bunbury	Based upon experience gained from the FRWF1 and the King Rocks Projects, the Port of Bunbury has sufficient storage and access from the berth through to the storage area, and onto the road network.
Bunbury	A small number of intersections required reasonable levels of work for the delivery of the FRWF1 wind turbine components during construction in 2022 to 2023. This included the relocation of a light poles and two corners required earthworks. The King Rocks project is using largely the same route as FRWF1 from the Port of Bunbury to Arthur River, and this route will also be used by KWF. It is therefore expected that minimal additional works will be required to facilitate the transport of the KWF turbine components although some temporary works/removals for King Rocks may need to be put back in place if reinstated post the completion of the King Rocks transport task.
Outer Ring Road	The Outer Ring Road has been constructed post the construction of FRWF1. The selected route utilising Forrest Highway and Raymond Road is the Main Roads preferred route and minimal additional work is required, noting again the route is the same as that being used for the King Rocks wind farm project.
Jingalup (Turn Off Albany Highway)	No clearing or road augmentation expected for the last 9 km after turn-off from the Albany Highway at Shamrock Road, some minimal clearing is required at the main site entry.
Bridges	Given the successful transport of FRWF1 over all the bridges in the Bunbury to FRWF1 route no issue is expected with the strength of bridge infrastructure to handle the KWF loads. There are no bridges located in the otherwise untested last 9 km of the route along Shamrock Road and Jingalup Road.
Overhead Structures	There are no overhead structures on the route.
Overhead Utilities	The final route will need to be checked by Western Power for a likely travel height of 5.5 metres for the highest load. Given powerlines were raised for FRWF1 project and the King Rocks project is transporting the same turbines as those proposed for KWF for the first 147 km of the route, minimal if any augmentation is expected.
Rail Assets	There is 1 rail crossing on route that will require approval from authorities before loads can access the routes (located near the Port of Bunbury).
Vegetation	The delivery route from Port of Bunbury to Shamrock Road turnoff (221 km) to the Project Site is clear of vegetation and therefore there is no need for any clearing. Minimal clearing will be required at the main site entry to accommodate the blade delivery. All potential impacted vegetation has been assessed and will be included in the project clearing permit application and in the Traffic and Transport Management Plan.
Pavement Quality	The pavement up to Shamrock Road is of suitable highway grade. The Shamrock and Jingalup Roads are used extensively by trucks delivering grain to the local oil refinery and carting of harvested grain seasonally. Jingalup and Shamrock Roads are sealed and well maintained and are expected to be capable of withstanding the transport load.
New Roadworks	The Project will commence discussions with government authorities at least 18 months prior to turbine transport to site to confirm if the project would conflict with any upcoming roadworks. Following the completion and approval of the Traffic and Transport Management Plan the movement dates will need to be communicated with Main Roads WA and all local councils along the transport route to ensure road stakeholders will be aware of the movements (refer also to Appendix 1).

8 Disclaimer:

This Preliminary Transport Assessment is a guide only; further detailed assessment based on actual road transport configurations will be undertaken along with government approvals required before these routes could be deemed suitable for transporting the components over the listed routes. This information will be detailed in the Traffic and Transport Management Plan.

This study was undertaken by MHNE based on previous transport studies conducted for the nearby Flat Rocks Wind Farm Stage 1 project for the delivery of 18 off Vestas V150 4.2MW wind turbines and associated infrastructure. Consideration has also been given to publicly available information for the King Rocks Wind Farm and Narrogin Wind Farm projects that will utilise the same transport route for the initial stretch of 147 km from the Port of Bunbury to Arthur River Roadhouse for the same or larger turbine component deliveries.

In relation to the final 9 km route along Shamrock and Jingalup Roads that are not covered by the above projects, MHNE has undertaken road verge and internal route survey work in conjunction with flora, fauna and vegetation surveys and civil contractors, for the intersections where the trucks will turn off the Albany Highway onto Shamrock Road and then onto the Jingalup Road.

The preliminary swept path analysis has been conducted using typical swing paths for similar size blades.

Appendix 1

Table 1: Transport Plan Requirements under KWF Development Approval⁷

Condition 11	<i>Prior to delivery of turbines, a Traffic and Transport Management Plan relating to construction related transport within the Shire of Kojonup shall be submitted to the Local Government for approval.</i> <i>The Traffic and Transport Management Plan shall address the requirement for the applicant to assess the pavement condition pre and post construction and to rectify and restore the road network and other affected infrastructure following construction to the satisfaction of the local government, in consultation with Main Roads WA.</i> <i>Once approved, the Traffic and Transport Management Plan shall be implemented at all times to the satisfaction of the Local Government for works on local roads and Main Roads WA for works on State roads, including Albany Highway if / as required.</i>
Advice Note 7	With regard to the Traffic and Transport Management Plan required by Condition 11, the following information should be included: (i) Traffic impact assessment; (ii) Details of Oversize and Overmass loads; (iii) Swept path analysis; (iv) Haul movements and routes; (v) Details of any temporary or permanent modifications, works or upgrades required to intersections, roads or site access points; and (vi) Permit /approval requirements, local government or Main Roads WA.
Advice Note 8	With regard to the Traffic and Transport Management Plan, Main Roads WA approval and permit requirements may include: (i) Movements of wind farm components require necessary permits from Main Roads WA's Heavy Vehicle Services (HVS) under the Road Traffic (Vehicles) Act 2012 complying with the HVS route survey requirements, Oversize Overmass Transport Management Plan (OSOM-TMP) requirements, the Movement of High Risk OSOM Vehicles Policy and the Single Trip OSOM Vehicle Standard Operating Conditions; (ii) Proposed works within State road reserves are subject to a separate approval process under the Main Roads Act 1930; (iii) All Traffic Control Signal installations, removals, or alterations within Western Australia require approval from Main Roads Network Operations under Regulation 297 of the Road Traffic Code 2000; (iv) Main Roads approval for signage and pavement marking modifications is required under the Road Traffic Code 2000; and (v) Any road signs are to comply with Main Roads Policy Application Guidelines for Advertising Signs within and beyond State Roads Reserves under the Main Roads (Control of Advertisements) Regulations 1996.
Advice Note 9	With regard to the Traffic and Transport Management Plan, local government approval requirements may include: (i) Roads to remain open for public use where practicable during road construction/upgrade activities; (ii) Source of and testing results of gravel proposed for use on public roads are to be to the satisfaction of the local government; and (iii) Upgrades of the entry points to the Project Site from adjoining public roads.

⁷

See https://www.planning.wa.gov.au/docs/default-source/daps/minutes---no-64---city-of-kalgoorlie-boulder---shire-of-kojonup---shire-of-harvey.pdf?sfvrsn=5c5c10c5_1



Kojonup Wind Farm Pty Ltd

64 578 803
5 Barnfield Road
CLAREMONT WA 6010