

COPPABELLA WIND FARM

Environmental Management Strategy

10 February 2020

FINAL



Document Control

Document No:	CB-PM-PLN-001
Document Name:	CWF Environmental Management System
Current Revision No:	1.0
Original Created on:	8 October 2019
Last Updated:	10 February 2020
Status:	Final
Author/s:	Medard Boutry – Senior Environmental Advisor
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Document History

No:	Issue Date	Description	Author
0.1	8 October 2019 16 December 2019	Submission to DPIE	MB
1.0	10 February 2020	Final revision to DPIE	MB

Approvals

This plan must be endorsed by the Department of Planning, Industry and Environment Secretary prior to commencement of work on site. Acceptable approval methods are written correspondence or hard copy signature.

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Acronyms

ACHAR	Aboriginal Cultural Heritage Assessment Report
ADS-B	Automatic Dependent Surveillance-Broadcast
AIMP	Aviation Impact Management Plan
ARI	Average recurrence interval
ASA	Aviation Safety Assessment
BBAMP	Bird and Bat Adaptive Management Plan
BCA	Building Code of Australia
BCD	Biodiversity and Conservation Division within DPIE (formerly OEH)
BMP	Biodiversity Management Plan
BoP	Balance of Plant
CBoP	Civil Balance of Plant
CCC	Community Consultative Committee
CWF	Coppabella Wind Farm
CWFPL	Coppabella Wind Farm Pty Ltd
DoEE	Commonwealth Department of Environment and Energy
DPE	Former Department of Planning and Environment (abolished in 2019 and now assumed as DPIE)
DPIE	Department of Planning, Industry and Environment (formerly DPE)
EBoP	Electrical Balance of Plant
EEC	Endangered Ecological Community
EMS	Environmental Management Strategy
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation (EPBC) Act 1999</i>
EPC	Engineering, Procurement and Construction
EPL	Environment Protection Licence
ERP	Emergency Response Plan

ERSED	Erosion and sedimentation
ESCP	Erosion Sediment Control Plan
EWMS	Environmental Work Method Statement
HSE	Health, Safety and Environment
JSEA	Job Safety and Environmental Analysis
LEMC	Local Emergency Management Committee
LGA	Local Government Area
MCoC	Ministers Conditions of Consent (State Approval: SSD-6698)
MNES	Matters of National Environmental Significance
MOS	Manual of Standards
NGERS	National Greenhouse and Energy Reporting
OEH	Former Office of Environment and Heritage (a former division of the Government of NSW abolished in 2019. Now assumed by the DPIE as the BCD)
O&M	Operations and Maintenance
OOHW	Out of Hours Work
OSR	Owner's Site Representative
PIRMP	Pollution Incident Response Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RFS	NSW Rural Fire Service
RFDS	Royal Flying Doctors Service
RMS	NSW Road and Maritime Service
PSR/SSR	Primary Secondary Radar / Secondary Surveillance Radar
RVMLP	Roadside Vegetation Management and Landscape Plan
SDS	Safety Data Sheet
SWMS	Safe Work Method Statement
SWMP	Soil and Water Management Plan
TCP	Traffic Control Plan
TfNSW	Transport for New South Wales
TMP	Traffic Management Plan
WOM	Warranty, Operations and Maintenance

1 Introduction

1.1 Project Overview

The CWF is located approximately 30km west of the township of Yass within the Hilltops and Yass Valley Local Government Areas (LGAs). The CWF covers an area of dimensions 12 kilometres west to east and 10 kilometres north to south along the Coppabella Hills near the towns of Bookham and Binalong.

The project includes a wind farm of 69 wind turbines with associated access tracks, 33kV internal electrical network, grid connection at 132kV, permanent meteorological (met) masts, operation and maintenance facilities and temporary construction infrastructure.

The location of the site and the proposed infrastructure layout is shown on Figure 1-1. The project area comprises eleven host landowners.

1.2 Document Objectives

This Environmental Management Strategy (EMS) has been developed to address the Ministers Conditions of Consent (MCoC) for the CWF Project and serves as the primary guiding document for the management of environmental matters during design, construction, operation and decommissioning of the CWF.

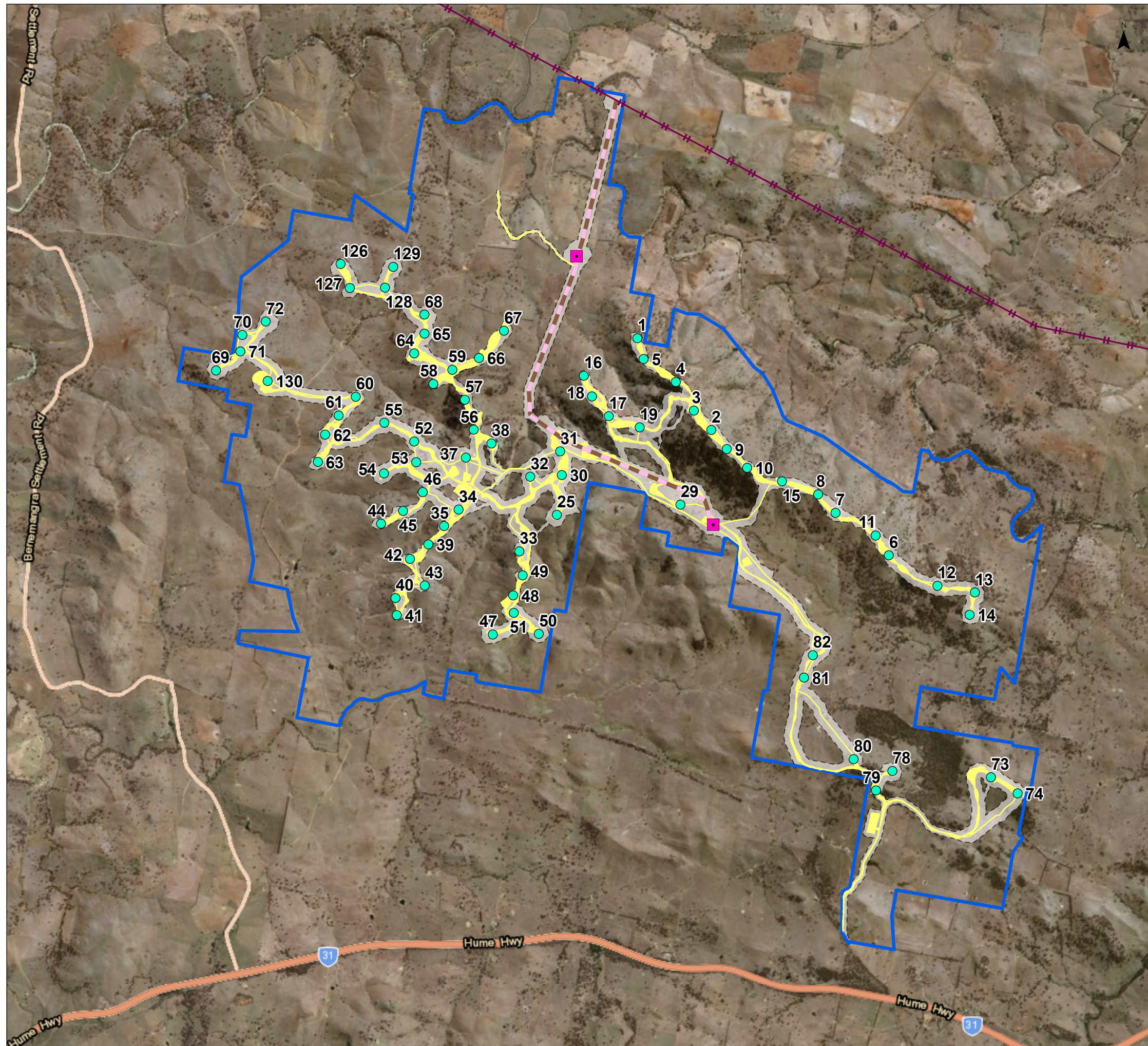
The objectives for this EMS document are:

- to comply with requirements of the Ministers' Conditions of Consent (MCoC, Sch. 4, C.1)
- to address ISO14001:2015 requirements
- to clearly define the relevant issues, risks and compliance requirements
- to provide practical and effective management measures
- to be succinct and easy to follow by the various users
- to be auditable.

This EMS applies to works within the CWF Project Area, Transport Routes and any related project activities that may occur outside the Project Area.

1.3 The Proponent

Coppabella Wind Farm Pty Ltd (CWFPL) (ACN 141 003 161) is owned by Goldwind Australia Pty Ltd (Goldwind) (ACN 140 108 390).



PROJECT	Coppabella Wind Farm	
TITLE	Development Corridor	
LEGEND	<ul style="list-style-type: none"> Site Boundary ● Approved Wind Turbine Layout Substation/Switchyard Indicative Construction Footprint 132kV Powerline Existing 132kV Transmission Line Development Corridor 	
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DATE	SCALE	CHECKED
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STATUS	PRODUCED	APPROVED
DRAFT	C.McArlein	--
DRAWING No.	CWF_OVR_009_2B	REV 02B

Figure 1-1. Location of Coppabella Wind Farm

1.4 Users of this EMS

This EMS and accompanying management plans have been developed to cater for a range of users. Key stakeholders and their function in relation to the EMS are outlined in Table 1.

Table 1 EMS audience and function

EMS Audience	Purpose / Function
Government Departments (i.e. NSW Department of Planning & Environment; Roads and Maritime Service; NSW Office of Environment and Heritage; Rural Fire Service; and Fire & Rescue NSW)	Documentation to attain satisfaction that the project is designed, constructed and operated in accordance with the MCoC and relevant laws, policies, standards and guidelines.
CWFPL Stakeholders	Project inspections and audits. Corporate governance.
Goldwind Australia Corporate HSE and Development Compliance Managers	Project inspections and audits
EPC Construction Manager / EPC HSE Representative	Key reference point to develop and/or review task-specific documentation (e.g. Inductions, EWMSs, Pre-start meetings, SWMS) and for regular site inspections and audits.
BOP Contractor (and other Contractors)	Key reference point for compliance and to develop task-specific documentation (e.g. Inductions, EWMSs, Pre-start meetings, SWMS) and for regular site inspections and audits.
Construction personnel	Reference point for project environmental conditions that must be adhered

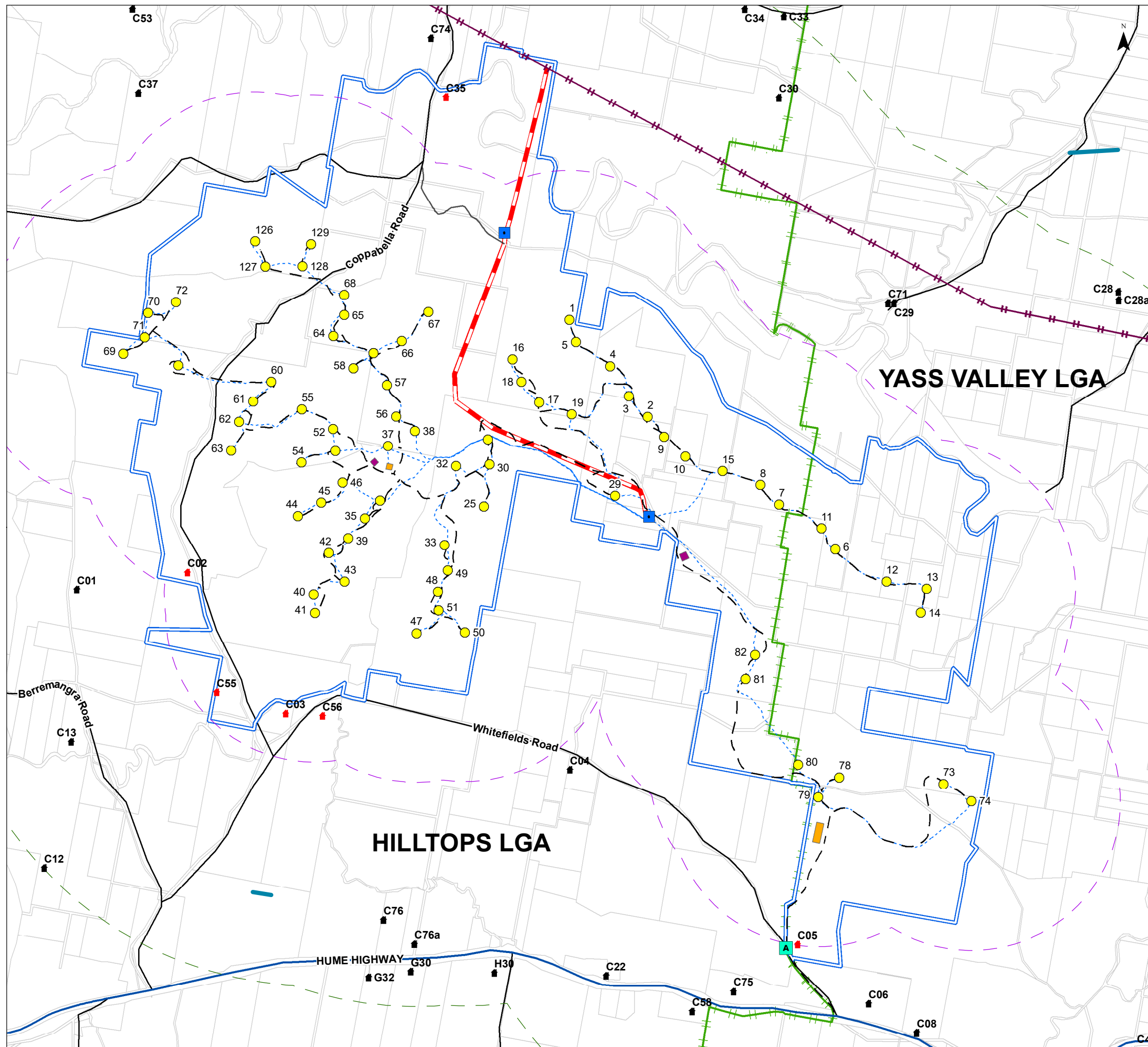
2 Project Design, Activities and Timeframes

2.1 Project Components

The construction works involve a range of activities that vary over time and generally progress across the site as the development proceeds. Key stages involve:

- site access and establishment of temporary site offices, laydown areas and a concrete batch plant
- progressive construction of approximately 50km of gravel-capped onsite access tracks and hardstand areas (includes bulk earthworks, blasting, rock crushing, etc) to enable works to progress across the site
- turbine site preparation for 69 wind turbine sites, including turbine footing excavations and steel fixing. The coordinates of approved turbine locations are provided at Appendix A
- formation of concrete footings for turbines and the substation
- installation of ~80km of 33kV underground cables
- installation of approximately 8km of 132kV double circuit overhead transmission line from the project substation to join the existing TransGrid 99M transmission line to the north of the site;
- transport of turbine components to turbine sites and substation items to the substation site
- erection of turbine components and ancillary infrastructure (including kiosk transformers and coolers) at turbine locations
- erection of substation/switchyard structures and associated buildings
- establishment of permanent operations and maintenance facilities
- substation and wind turbine commissioning trials
- progressive site restoration, rehabilitation of disturbed areas and completion of drainage works.

The following subsections provide a summary of construction, operation and decommissioning activities for CWF. The indicative location of project infrastructure is shown at Figure 2-1 with the more detailed layout provided at Appendix B.



PROJECT		
Coppabella Wind Farm		
TITLE		
Indicative Project Layout		
LEGEND		
	Coppabella Wind Farm	
	Proposed wind turbine	
	Proposed access track	
	Proposed underground reticulation (up to 33kv)	
	Proposed powerline (up to 132kv)	
	Existing 132kV Transmission Line	
	Substation/Switchyard	
	Permanent Construction Compound and O&M	
	Temporary Construction Compound	
	2km wind turbine buffer	
	5km wind turbine buffer	
	Host residence	
	Non-host residence	
	Local Government Area boundary	
	Airstrip	
	Primary site access	
	Existing road	
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STATUS	PRODUCED	APPROVED
DRAFT	C.McArlein	J.Bembrick
DRAWING No.	REV	
CWF_OVR_010_1E General Layout	01E	

Figure 2-1. Coppabella Wind Farm indicative infrastructure and surrounding context

2.1.1 Preparatory Works for Commencement of Construction

Works to upgrade Whitefields Road and the Whitefields Road/Hume Highway intersection will be undertaken prior to the commencement of construction. At this stage, it is not planned to use the short section of Coppabella Road (approximately 2km between WTGs 128 and 130) for construction traffic. It is therefore not proposed to upgrade this section of Coppabella Road.

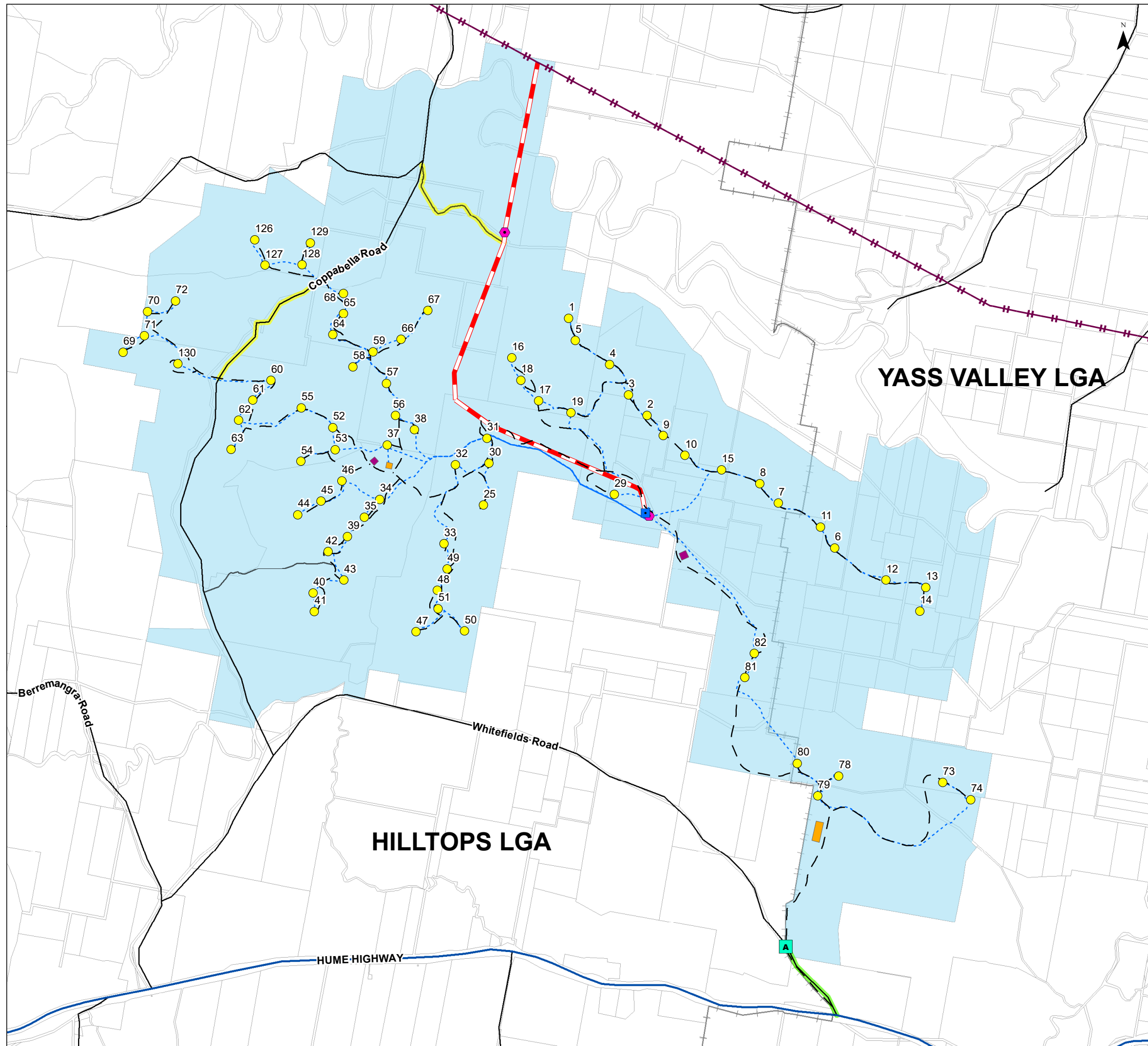
2.1.2 Site Establishment and Installation of Temporary Construction Facilities

Construction compounds will be established with the main construction compound located approximately 1.5km to the north of the Whitefields Rd entrance on the site. Other locations where temporary construction compounds may be established include ~400m northeast of T46 and ~800m southeast of the substation [refer to Figure 2-1]. These temporary construction facilities will be established on level gravel-capped hardstand areas. The compounds will include car parking, site offices, amenities for the construction workforce, and lay down areas for temporary storage of construction materials, plant, equipment and some wind turbine components. Temporary power supply is required either via supply from the local grid or generators. Other temporary construction facilities that will be established across the site include laydown, stockpile and parking areas, mobile rock crushing and concrete batching plants.

2.1.3 Site Access Tracks

A network of access tracks is required to facilitate site access and will remain in place for operational and maintenance purposes. Access tracks will be a minimum of 5m wide (wider at bends and passing lanes) and be all weather tracks. Further details include:

- Entry to the site will be from the south via Whitefields Road which is accessed directly from the Hume Highway. Access to the 132kV line route, to the northwest of the project will also be required from Coppabella Road with access via Binalong, Garry Owen Road and the northern section of Coppabella Road. Site access points are shown at Figure 2-2.
- Approximately 50km of internal access tracks from site entry points to the 69 wind turbine sites, substation and ancillary facilities. Overall, the tracks must be sufficient to allow passage of the oversize vehicles in a safe and efficient manner. Track construction will include drainage and flow controls to avoid erosion and sedimentation. Where batters are formed, the batter slopes will be progressively stabilised/revegetated as soon as practical after their formation. Batters cut into solid rock will not be revegetated but stabilised to prevent any rock falls or similar hazards
- installation of additional fencing, gates and grids particularly at property boundaries with all fences and gates designed to allow the movement of oversize components for the life of the windfarm. These would be arranged in consultation with relevant landowners.



PROJECT		
Coppabella Wind Farm		
TITLE		
Site Access Route		
LEGEND		
	Coppabella Wind Farm	
	Primary access route	
	Secondary access route	
	Primary site access	
	Proposed wind turbine	
	Proposed access track	
	Proposed underground reticulation (up to 33kv)	
	Proposed powerline (up to 132kV)	
	Existing 132kV Transmission Line	
	Substation	
	Potential switchyard locations	
	Permanent Construction Compound and O&M	
	Temporary Construction Compound	
	Local Government Area	
	Existing road	
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STATUS	PRODUCED	APPROVED
DRAFT	C.McArlein	J.Bembrick
DRAWING No.	REV	
CWF_OVR_012_1D Route	01D	

Figure 2-2. Site Access and Infrastructure Layout

2.1.4 Wind Turbines

Sixty nine of the 75 approved wind turbines will be constructed. The final selection will be confirmed during the detailed design for the project, shortly prior to commencement of construction.

Hardstands at each wind turbine site are expected to be constructed in parallel to the forming of the access roads as the construction front progresses to each turbine site. Hardstand areas are required at each turbine site to facilitate the delivery and assembly of the turbine components, and to enable sufficient crane access during construction and maintenance during operation. Hardstands are constructed as relatively flat benches from soil and rock material that is compacted and levelled with compacted gravel surface designed to a specified bearing capacity. The hardstand construction may involve varying degrees of cut and fill depending on the slope of surrounding land. The more steeply sloping sites will require more extensive cut and fill with batters adjacent to the hardstand.

Hardstand dimensions will be constructed as small as possible, but not exceeding 75 metres length and 40 metres width with a minimum area of 3,000 square metres, though the dimensions may vary across the site.

Once the hardstands are formed, the turbine footing will be excavated, and after geotechnical inspection, a thin concrete blinding poured. The excavation will be fenced, with an access ramp for fauna egress. Steel reinforcing and formwork will be established prior to the pouring of approximately 500m³ of concrete to form the turbine footing. Concrete will be batched onsite. Concrete pours for each footing must be poured in a single event for structural integrity and each will occur over much of the day. The concrete foundations take approximately one month to cure before the base section of the tower and remaining above ground components can be installed. The excavated area around the reinforced concrete foundation is backfilled.

Erection of the turbines typically requires a large crane and an auxiliary crane to assemble the turbine components. These are stored on the adjacent, or delivered to the crane “just-in-time” from a central storage laydown. The various sections of the turbine are lifted in a series of lifts that can be spread over days depending on the suitability of weather conditions as high winds are prohibitive for lifting components. The rotor is assembled on the ground with the blades before lifting. Once the turbines have been erected, kiosk transformers and coolers are installed near the base of the towers.

Provided sufficient foundations are completed, wind turbine erection can proceed at the rate of about two wind turbines per week, subject to suitable weather conditions, the number of large cranes on site and the ease of moving the cranes between turbine sites.

Turbine details are provided below:

- 69 Goldwind GW140 turbines will be installed
- Each wind turbine will be mounted on a tower with a hub height of approximately 100 metres
- The rotor for the wind turbine will have a diameter of up to approximately 136m (blade length 66.9m)
- Total height of the wind turbines will be up to 171 m
- A steel staircase will provide access to the turbine tower
- A kiosk transformer will be located on a small concrete pad near the base of each tower. The kiosk will be finished with a colour to blend with the surrounding landscape.
- Coolers will be located near the base of each tower consisting of two banks of fans each with approximately 160 l of coolant and will be off-white/grey in colour, similar to the turbines.
- The wind turbines will be off-white/grey and will not show any logos visible from surrounding locations.
- Only switchable low intensity lighting at the base of wind turbine will be provided (as required) for safe access at night

2.1.5 Underground Cables

From each wind turbine, the power voltage is stepped up from the turbine generator voltage to 33kV for reticulation to the substation. The cabling will be arranged in 9 Collector Circuits with between 7 and 10 wind turbines per circuit, subject to final design and energy loss calculations. A total of about 80 km of 33kV underground cables will be established to connect the wind turbines to the substation.

Underground cables will require a trench of 0.75m to 1m depth and be typically 0.3m – 1m wide for each circuit. Trenches will be excavated, a bed of sand placed in the trench and 33kv cables installed before being backfilled with suitable material. Blasting or rock cutting methods may be utilised in locations not suitable for trenching. The earth grid and communications cables will be co-located with the 33kv cables. Some cable routes will require

placing more than one collector group cables side by side.

2.1.6 Substation

One combined 33kV/132kV substation and 132kV switchyard (hereafter referred to as substation) will be established in the central portion of the site. It will include all necessary ancillary equipment such as control room and amenities, communication equipment, control cubicles, voltage and current transformers and associated High Voltage equipment for control and protection of the substation and switchyard.

Details of the substation are provided below:

- it will be constructed in the central portion of the site (refer to Figure 2-1)
- it will be surrounded by security fencing to meet security requirements
- the ground surface would be covered partly by gravel and partly by concrete pads for equipment, walkways and cable covers, and would have an underground earth grid extending outside of the boundary of the security fence
- the visual appearance of the substation will seek to blend in with the surrounding landscape as feasible to comply with Ministers Condition of Consent (MCoC) Schedule 3, Condition 3.

Within the secure area there will be:

- a 33kV/132kV transformer with suitable bunding and containment
- 132kV switchgear, bus bars and gantries consistent with electrical safety clearances
- electrical protection and control equipment, 33kV switch gear, a battery bank, amenities, offices, workshop and storage in one or more buildings/enclosures
- controllable low intensity lighting for security purposes
- parking area.

Some transmission equipment will also be installed at the TransGrid-owned Yass substation. This equipment will be installed by TransGrid under their own separate approval.

2.1.7 Operation and Maintenance Facilities

Operation and maintenance (O&M) facilities would be established during the construction period in readiness for site operations. The main O&M facility would be located adjacent to the main construction facility, approximately 1.5km north of the Whitefields Rd site entrance. A satellite O&M facility may also be established ~400m northeast of T46.

Operations and Maintenance facilities may include, offices, amenities, storage and workshop facilities.

2.1.8 Overhead Transmission Line

The overhead transmission line for the project will consist:

- Approximately 8km of twin circuit 132kV overhead transmission line from the project substation to join parallel to the existing TransGrid 99M transmission line to the north of the site. From there TransGrid is upgrading the existing 99M line (under a separate approval) to cater for the additional wind farm circuit between the wind farm and Yass Substation, where it will join the National Electricity Market
- single (or in some cases double) pole design proposed with construction hardstand at base of each structure
- an unsealed access track will be needed for construction of the line (i.e. to access each structure) and will be retained for ongoing maintenance.

2.1.9 Permanent Monitoring Masts

Up to two permanent monitoring masts and approximately four temporary monitoring masts will be installed during the construction period. Each mast will have a height of approximately 100m and be supported by guy wires. The masts are required to collect wind data required for performance assessment, ongoing operations and for obtaining reference wind speeds for noise monitoring studies. The permanent monitoring masts may also be used for other

telecommunications purposes. Locations of the masts are shown on Layout figures in Appendix B with coordinates provided at Appendix A. The temporary masts will be located at turbine sites and will be removed before the turbines are installed at each location.

2.1.10 Decommissioning of Temporary Facilities and Restoration

Temporary construction facilities that are not required for the ongoing operation of the wind farm will be removed once they are no longer required for the construction and site restoration works.

Site restoration works will involve stabilising disturbed ground that can be rehabilitated. Site restoration works will be implemented progressively as soon as practical following disturbance.

2.1.11 Operational Activities

The following activities are expected to be associated with the operation and maintenance of CWF:

- generation of electricity via 69 wind turbines
- operation of the wind turbines
- maintenance of mechanical, electrical and structural components of wind turbines (including nacelles, blades and towers), kiosk transformers and cooling systems
- scheduled or unscheduled outage maintenance for individual wind turbines or the wind farm as a whole
- maintenance of the on-site substation
- maintenance of 132 kV transmission line from the substation to the TransGrid 132kV transmission line to the north of the site, including maintenance of safe clearances
- use of the Operations and Maintenance (O&M) facilities including, office, amenities, storage facilities and workshop (Figure 3-2)
- maintenance of other electrical infrastructure (e.g. 33kV cables and infrastructure)
- maintenance of access roads, drainage and other civil infrastructure
- waste management
- land management, maintenance of rehabilitation and weed control.

The wind turbines will be available to operate 24 hours per day, seven days per week all year round and generate electricity whenever sufficient wind is available for operation. The CWF is expected to operate for at least 25 years from the completion of construction.

The Project will be operated from the primary O&M Compound and is also capable of being operated remotely.

Approximately 13 full-time staff members will operate and maintain the Project. Contractors and extra staff members will work on-site as required.

The majority of inspections and maintenance for the Project will be scheduled, primarily requiring light vehicle traffic to and around the site with occasional truck deliveries to the O&M Compound. Major repairs or maintenance activities may require larger cranes, trucks and possibly replacement turbine components to be brought onto site.

Maintenance activities will be carried out primarily during the standard working hours of Monday to Friday, 7am - 6pm and Saturday, 8am-1pm. Exceptions to the above working hours may include:

- deliveries of replacement parts or plant and equipment
- crane activities at turbine or substation sites to effect repairs in a timely manner during suitable weather conditions
- onsite activities required to respond to an emergency situation or unscheduled maintenance events
- Activities that are non-audible at non-associated residences (e.g. office work, instrument adjustments, inspections, etc.).

In the event that the above exceptions are necessary outside the standard work hours and are potentially noticeable at non-associated residences, then an internal risk assessment process would be undertaken to assess and manage those activities (see Section 4.10.4).

2.1.12 Decommissioning of Permanent Facilities and Turbines

At the end of the wind farm's operational life of the CWF, infrastructure will be either upgraded or decommissioned.

When the wind farm is to be decommissioned, an appropriate contractor will be engaged to undertake decommissioning and rehabilitation works.

Generally, aboveground infrastructure would be removed to a depth of 300mm and the land restored to preconstruction conditions. Consultation with landowners would be undertaken prior to decommissioning to determine which elements of the roads and hardstands landowners wish to retain. Materials would be on-sold or recycled wherever feasible. Details of the decommissioning are provided in the approved Decommissioning and Rehabilitation Plan.

2.2 Supply of Raw Materials

Water used for dust suppression and for the placement of material will predominantly be sourced on-site from farm dams and/or groundwater bores. CWFPL has obtained the relevant Water Access Licences and associated water allocations to enable the use of this water.

Water for concrete batching is anticipated to be sourced from Goldenfields Water or from Yass Valley Council as this water is required to meet stringent quality parameters for its purpose. The final source of water would be confirmed by the BoP Contractor.

The majority of gravel required for the project is expected to be sourced on site through the cut and fill of materials associated with the wind farm design. This strategy would minimise truck movements on offsite roads. There are various local quarries from which additional materials may be sourced from as necessary.

2.3 Construction Working Hours

The approved project construction hours are:

- (a) 7 am to 6 pm Monday to Friday;
- (b) 8 am to 1 pm Saturdays; and
- (c) at no time on Sundays and NSW public holidays.

The following construction activities may be undertaken outside these hours without the approval of the Secretary:

- activities that are inaudible at non-associated residences;
- the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons; or
- emergency work to avoid the loss of life, property and/or material harm to the environment.

Any works other than the above that are proposed to be undertaken outside the approved hours must be approved by the Secretary prior to those works proceeding.

An Out of Hours Work (OOHW) Application must be submitted to the EPC HSE Representative for all works proposed outside of the approved hours to demonstrate whether the proposed activity is predicted to be audible at non-associated residences. The OOHW Application must be approved by the EPC HSE Representative (and where relevant the Secretary, Department of Planning) prior to the works commencing. Details regarding OOHW Application are provided at Section 4.9.

2.4 Indicative Project Timeframe

The CWF construction works will extend over a period of approximately 2 years. An indicative breakdown of timing for the various construction phases is provided in Table 2.

Pre-construction works are expected to commence during the fourth quarter of 2018, with on-site construction works commencing in early 2020. Subject to satisfactory delivery of the respective phases and limited delays due to weather or other circumstances, the wind farm is expected to become operational during 2021. Establishment of all-weather site access roads at an early stage is an important component for maintaining the project schedule.

Table 2 – Indicative timing for construction activities and commencement of operations for CWF

Year	2019	2020												2021											
Month		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Early Works	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	
Mobilisation					Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded												
Clearing					Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded												
Access Roads					Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded												
Hardstands					Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded												
Turbine Footing																									
Batch Plant																									
Substation																									
Grid Connection																									
Turbine Install																									
Commissioning																									
Operation																									
Progressive Rehabilitation																									

2.5 Project Land

The project area mainly comprises of private landholdings interspersed with unformed Crown road reserves. There are 11 involved landholders within the project area. The landholdings are shown in Table 3, with corresponding locations shown at Figure 2-3. The Crown Road Reserves are also shown at Figure 2-3, shown as the yellow corridors that intersperse the project area.

A Crown Land Licence (Lic 571188) has been obtained for the areas where the development corridor intersects with Crown Land.

Table 3 - Schedule of Land

<i>Landowner</i>	<i>Lot/DP</i>	<i>Landowner</i>	<i>Lot/DP</i>
1	101/881434	11	344/753595
2	293/721898		1/1199238
3	284/753602	12	307/753595
4	1/659797		314/753595
	1/717646	13	106/753626
	Y/382611		119/753626
5	2/717646		123/753595
6	285/753602		124/753595
7	260/753602		125/753595
	268/753602		126/753595
10	1/593527		136/753626
	135/753602		137/753626
	137/753602		138/753626
	138/753602		146/753626
	194/753626		147/753626
	197/753602		148/753626
	2/593527		155/753626
	200/753602	180/753626	
	201/753626	181/753626	
	211/753602	182/753626	
	212/753602	183/753626	
	213/753602	184/753626	
	230/753602	186/753626	
	234/753602	222/753626	
	235/753602	51/753626	
	31/753602	57/753595	
	41/753602	59/753595	
	42/753602	60/753595	
	43/753602	76/753626	
	61/753595	77/753626	
	86/753602	78/753626	
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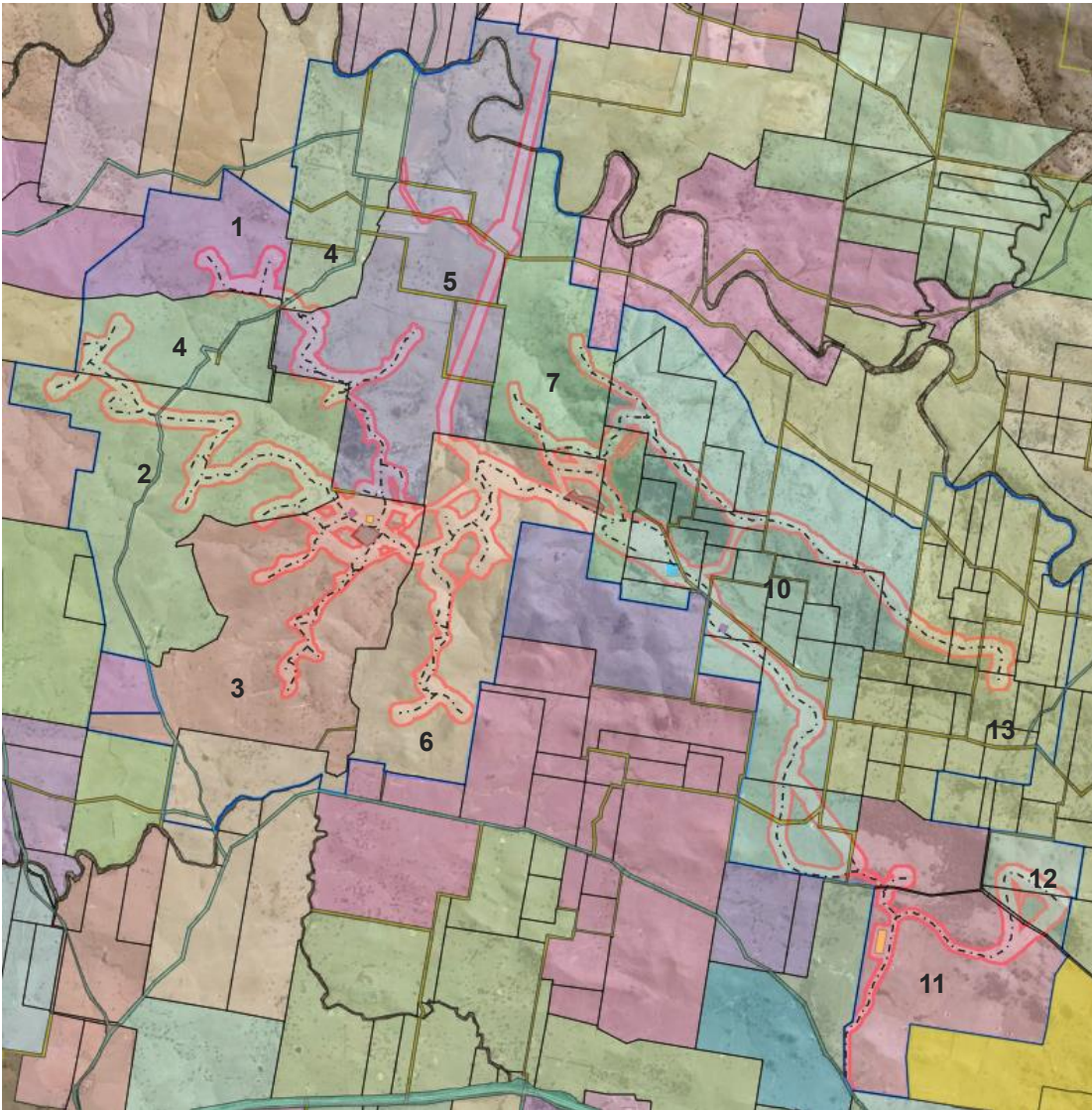


Figure 2-3 Coppabella Wind Farm landholdings in relation to approved project development corridor

3 Environmental Planning and Management

3.1 Project Statutory Context

The assessment and approval of the project (formerly known as Yass Valley Wind Farm) took place over several years from December 2008 to 30 March 2016. That process involved various iterations of the project, with the initial proposal containing up to 200 wind turbines, while the approved project comprises up to 79 turbines (Application Number: SSD 6698).

The original project was assessed under the now repealed Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), however is now classified as State Significant Development (SSD) under the *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011*. Modification 1 was consented by the Independent Planning Commission on 10 December 2018. The Conditions of Consent (MCoC) are provided at Appendix C.

The Commonwealth approval (EPBC 2013/7002) under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* was obtained on 5 November 2014. The EPBC approval authorised a larger project with up to 126 turbines (compared to the project ultimately approved under the Development Consent).

A new EPBC Referral was submitted in 2017 to reflect the particulars of the State Modification 1. The project was assessed on referral documentation (EPBC 2017/8129) and approved with conditions on 12 November, 2018.

Table 4 provides a summary of key legislation relevant to the project and identifies associated approvals, permits and licences that apply.

Table 4 Summary of relevant legislation

Legislation	Summary	Relevance to Project and requisite approval / permit / licence
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	Applicable to impacts on matters of national environmental significance (MNES). CWF has obtained Commonwealth Approval (EPBC 2017/8129)	A range of conditions of approval are documented and incorporated into this EMS
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	CWF is approved by the DPIE under Part 4 (Division 4.1) of the EP&A Act. MCoC are required to be complied with for the Project. Any future modifications to the Project Consent come under section 96 of the EP&A Act.	This EMS addresses MCoC 1 of Schedule 4. Any project modifications require further approval.
<i>Protection of the Environment Operations Act 1997</i> (POEO Act)	Section 148 of this Act requires notification of pollution incidents. Section 120 of this Act provides that it an offence to pollute waters. Schedule 1 of the POEO Act describes activities for which an Environment Protection Licence is required.	CWF Project Area will be subject to an EPL, which will contain conditions. Implementation of PIRMP. EPA and Secretary must be notified of any incidents resulting in actual or potential material environmental harm.
<i>Protection of the Environment Operations (Clean Air) Regulation 2002</i>	Relates to construction activities with the potential to impact on air quality	In relation to motor vehicles, the Regulation deals with the following matters: - The emission of air impurities, including excessive smoke from motor vehicles - The compulsory fitting and maintenance

		of antipollution devices, and exemptions from these requirements
		- The method of transfer of petrol into a vehicle's fuel tank.
<i>Biodiversity Conservation Act 2016</i>	Deals with the listing of threatened species, populations and communities, the declaration of critical habitat, recovery plans, threat abatement plans, licensing, Species Impact Statements, biodiversity certification and biobanking.	Schedule 3, MCoC 19 specifies the maximum area of Endangered Ecological Community (EEC) that can be disturbed under the project consent. This must not be exceeded. Disturbance should be avoided or minimised as much as feasible. Biodiversity offsets are conditioned.
<i>Contaminated Land Management Act 1997 (CLM Act)</i>	Establishes a process for investigation and (where appropriate) remediation of land where contamination presents a significant risk of harm to human health or some other aspect of the environment.	Under Clause 60 of the CLM Act, a person whose activities have contaminated land or an owner of land whose land has been contaminated is required to notify the EPA in writing as soon as they become aware of the contamination.
<i>Water Management Act 2000 (WM Act)</i>	Permits and approvals required for water extraction from groundwater aquifers or natural waterways. A water supply work approval is required to install a new bore, dam or river pump to access water.	The Department of Primary Industries (DPI) – Water .Test bore licences (x4) have been obtained from the Natural Resource Access Regulator (NRAR) to determine if sufficient groundwater resources are available on site. Further approval will be required if CWFPL wish to convert test bore licences to production licences.
	Transfer of water supply from surface waters from one property onto other properties requires licensing.	Water Access Licences have been obtained for each respective water source.
<i>Fisheries Management Act 1994</i>	The FM Act sets out to conserve fish stocks and key fish habitats, threatened species, populations and ecological communities of fish and marine vegetation and biological diversity.	No key fish habitat within Disturbance Footprint and no additional permits required.
<i>Heritage Act 1977</i>	The Act aims to conserve heritage values. Under the Heritage Act 1977 it is an offence to disturb an item of State heritage significance without the consent of the Heritage Office.	The MCoC allows for the salvage of artefacts where impacts cannot be avoided. These are identified at Appendix 5 of the MCoC.
<i>National Park and Wildlife Act 1974</i>	The Act is a broad piece of legislation that covers a number of different areas including reserving lands, managing certain reserved lands, the protection of Aboriginal objects and places, the protection of fauna and the protection of native vegetation.	The CWF Development Envelope is not in or in the vicinity of any protected areas as defined in the Act. An Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the NPW Act is not required for SSD (Section 89J EP&A Act). A Heritage Management Plan has been prepared for the project. Refer to Section 4.4 for management practices in the event that unanticipated heritage items are discovered.
<i>Occupational Health and Safety Regulation 2001 (WorkCover – storage licence)</i>	Relates to storage, handling and licensing of storage and/or transport of prescribed quantities of	CWF contractors to obtain licenses where storage of dangerous goods for construction is in licensable quantities.

(EPA- transport licence)	dangerous goods.	
Roads Act 1993	Section 138 consent required for erection of a structure, or carrying out of work in, on or over a public road or digging up or disturbance of the surface of the road.	The CWF project has a Traffic Management Plan (TMP) prepared in consultation with the RMS, Yass Valley Council, Hilltops Council and Police. Approval has been obtained from Council and RMS for the offsite road upgrade works.
Biosecurity Act 2015	CWFPL has General Biosecurity Duty to prevent, eliminate or minimise biosecurity risks on lands (or activities) under the Projects control.	Project inductions to address biosecurity. Vehicle hygiene practices, farm gate protocol and weed management implemented.
National Greenhouse and Energy Reporting Act 2007.	Systems for reporting energy consumption and production data, greenhouse emissions, abatement actions.	CWF to undertake NGERs reporting for energised facility.
Crown Lands Act 1989	The objective of the Crown Lands Act is to ensure that Crown land is managed for the benefit of the people of New South Wales.	Crown Land Licence (Lic 571188) obtained for areas of the project overlying Crown Land.

3.2 Environmental Management Strategic Framework

Goldwind is committed to work health and safety, minimising environmental impact and eliminating pollution, and the supply and maintenance of quality products and services on all its projects. Goldwind has developed a Management System designed to provide a comprehensive framework to address these requirements and to ensure that all relevant personnel assist Goldwind in meeting its commitments.

The Goldwind Australia Management System manages Health, Safety, Environment and other functions through a documented set of plans, actions and procedures to manage risk in an appropriate way. Goldwind's Environmental Policy is provided at Appendix K. The policy will be communicated to all staff and contractors during induction

Goldwind Australia has been independently externally accredited by DAKKS for the following standards:

- AS/NZS ISO 14001:2015 Environmental Management System
- AS/NZS 9001:2015 Quality Management System
- OHSAS 18001:2007 Occupational Health and Safety Management System

With regards to the CWF, this EMS provides the strategic framework for environmental management. It is supported by a suite of associated management plans which are included as appendices to the EMS. The EMS outlines Goldwind's commitment to environmental management, community engagement and reduction of project-related impacts. The strategic framework is structured generally in accordance with ISO 14001:2015's process of Plan → Do → Check → Act, which is illustrated with further details at Figure 3-1.

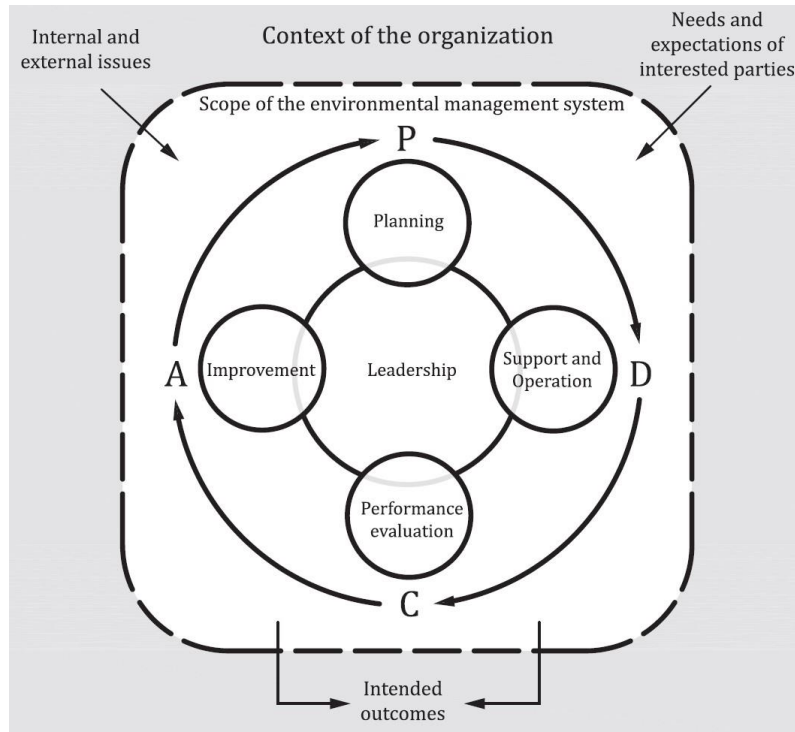


Figure 3-1 ISO14001:2015 Plan-Do-Check-Act extract

A description of this process and its relationship to the EMS is provided at Table 5.

Table 5 Structure of EMS

Element	Requirements	Where addressed in EMS
Plan	Establish the objectives and processes necessary to deliver results in accordance with the organisation’s environmental policy.	Section 1.2 Section 3.1-3.3 Objectives and Targets subsection for each of the key environmental issues within Section 4
Do	Implement the process.	Section 3.4 – 3.16 Mitigation Measures subsection for each of the key environmental issues within Section 4
Check	Monitor and measure processes against environmental policy, objectives, targets, legal and other requirements and report the results.	Section 3.10
Act	Take actions to continually improve performance of the EMS.	Section 3.17

3.3 Environmental Risk Assessment

A pre-construction environmental risk workshop will be undertaken with the successful BoP Contractor to identify the key environmental hazards and risks associated with the construction phase.

CWF’s approach to risk assessment and management is ongoing throughout the life of the project. The following key stages are identified:

1. Pre-construction Environmental Risk Workshop involving key staff and Contractors.

2. Pre-Construction Hazard Identification session(s) covering health, safety and environment management (HSE).
3. Construction activity and area-specific risk assessments in association with the preparation of Environmental Work Method Statements (EWMS).
4. Job Safety and Environmental Analysis (JSEA) or Safe Work Method Statements (SWMS) during project operations

The purpose of the pre-construction Risk Workshop is to ensure that all the key risks are documented and have been considered in the context of the proposed activities, the approved EMS and to ensure appropriate controls are in place.

The Risk Assessment process will:

- Provide a list of the activities to be carried out including by Contractors, Subcontractors or suppliers in relation to all project components for construction
- Identify the actual or potential environmental impacts associated with each activity
- Identify reasonable and feasible management controls and monitoring (by reference to sub-plans) to prevent or minimise those impacts appropriately

The risks will be identified and assessed using the risk assessment matrix process under Goldwind's Environmental Management System. The outcome of the Risk Assessment Workshop will be a full Project Risk Analysis documenting Health, Safety and Environmental risks.

The Risk Assessment will be reviewed and incorporated into field-based risk assessment (i.e. during construction) to document actual on ground circumstances, such as new hazards or changed activities. This updated risk assessment would be undertaken as part of EWMS/SWMS developed for each specific work activity and area.

The key environmental risks requiring management to prevent impacts associated with construction are:

- Construction soil and water quality management
- Construction biodiversity management, including rehabilitation and weed management
- Construction traffic and access management
- Construction noise and vibration management
- Construction waste management
- Heritage management
- Bushfire risk management

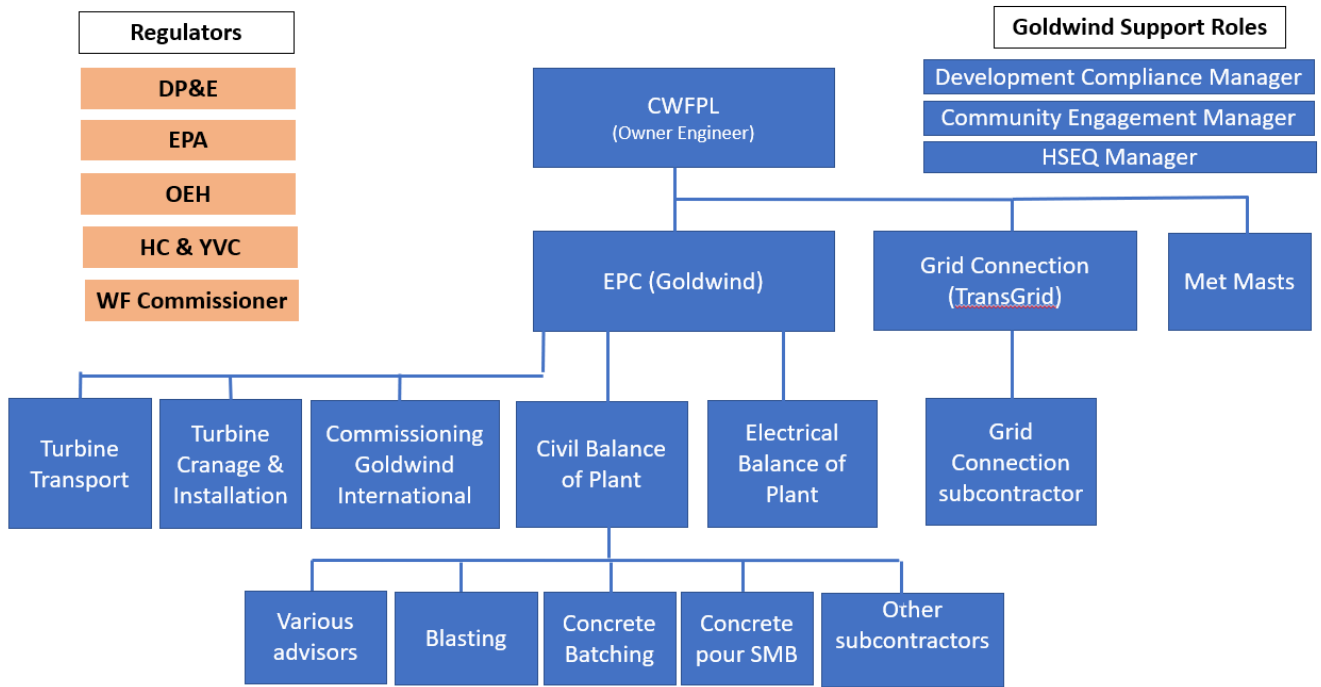
The key environmental risks associated with operations include:

- Soil and water quality management / maintenance
- Bushfire risk management
- Noise and vibration management
- Biodiversity management, particularly birds and bats.

A preliminary environmental risk assessment is provided at Appendix D.

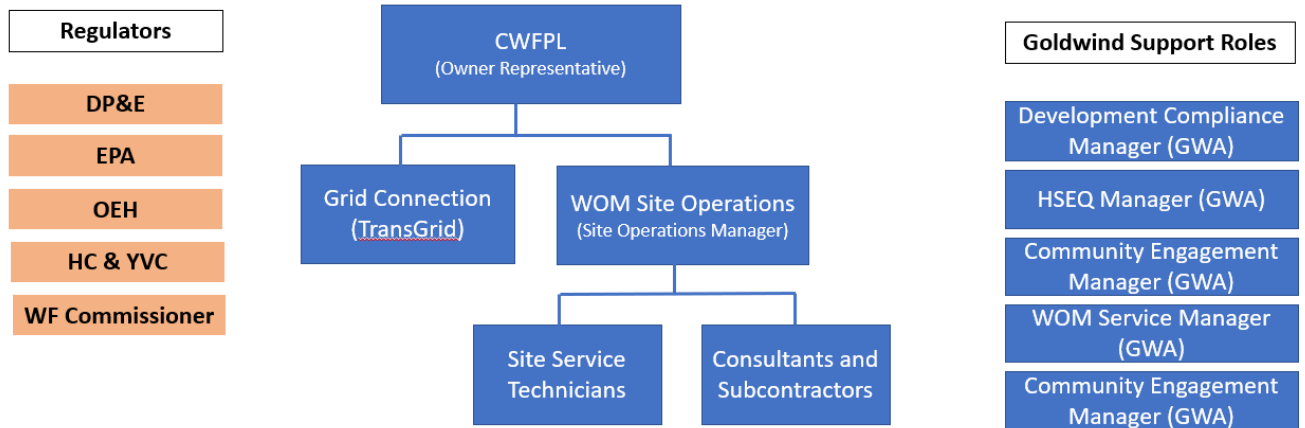
3.4 Management Structure

The organisational structure during the construction and the operation of CWF is provided in Figure 3-2 and Figure 3-3 respectively.



CWF Construction Organisation Chart

Figure 3-2 CWF Organisational Structure for Construction



CWF Operations – Organisation Chart

Figure 3-3 CWF Organisational Structure for Operations

3.5 Roles and Responsibilities

Environmental compliance is the responsibility of all Project and site personnel.

For clarity and effective coordination of the EMS, specific roles and responsibilities for environmental performance and compliance during construction of the CWF have been allocated as indicated in the Tables below. An outline of each of the organisational roles is given in Table 6 and an outline of the positions with environmental responsibilities is given in Table 7.

Table 6 – Organisational roles relevant to this EMS

Project Role(s)	Project Scope
<p>Project Developer (Owner: Coppabella Wind Farm Pty Ltd (CWFPL)) Holder of Approval and EPBC Approval Holds agreements with landowners for project implementation.</p>	<ul style="list-style-type: none"> • Secure project approvals, seek variations if required, oversee compliance • Approve WF design and layout addressing relevant constraints • Arrange Community Engagement and Consultation • Oversee development of environmental management plans • Ensure contractor training and inductions are implemented and adequate • Arrange compliance reporting • Ensure monitoring and supervision of works is integrated in the project
<p>EPC Contractor (Principal Contractor) Reports to Project Owner</p>	<ul style="list-style-type: none"> • Implementation of project in accordance with all approvals • Oversee the Site works ensuring compliance and performance requirements • Ensure implementation of this EMS and associated management plans • Implement compliance monitoring and supervision
<p>Civil Balance of Plant (CBoP) Contractors Engaged by the EPC Contractor (All subcontractors under the BoP must be effectively managed by the BoP contractor – see Figure 3-2)</p>	<ul style="list-style-type: none"> • Construction of internal access tracks, hardstands and other civil works for project • Manage works consistent with the approved EMS • Construction of wind turbine foundations • Establishment of temporary site facilities • Establishment and operation of concrete batching and rock crushing plant • Progressive rehabilitation of all disturbed areas prior to project completion • Manage works consistent with the approved EMS
<p>Electrical BoP Contractor (EBoP) Engaged by EPC Contractor</p>	<ul style="list-style-type: none"> • Construction of onsite substation (33/132kV), installation of electrical reticulation and commissioning • Manage works consistent with the approved EMS
<p>Turbine supply and Commissioning Contractor Engaged by EPC</p>	<ul style="list-style-type: none"> • Arrange the logistics for turbine transport to site, receipt of turbine equipment at site, unload and check • Oversee erection of wind turbines • Manages the commissioning of the installed wind turbines
<p>Turbine Component Delivery & Logistics Contractor. Engaged by EPC</p>	<ul style="list-style-type: none"> • Transport and delivery of turbine components from Port to site • Manage works consistent with the approved EMS and TMP
<p>Turbine Installation Contractor Engaged by EPC Turbine installation and commissioning contractor</p>	<ul style="list-style-type: none"> • Installation and commissioning of turbines, including crange services • Manage works consistent with the approved EMS

Project Role(s)	Project Scope
Grid Contractor (TransGrid) Contracted by Owner to establish the 132kV transmission line and grid connection	<ul style="list-style-type: none"> For works within the project area to join existing 99M: Manage works consistent with the approved EMS and the MCoC For upgrade works to 99M and connection works at Yass substation: Manage works consistent with separate Part 5 approval (obtained by TransGrid) Commission substation
Warranty, Operations and Maintenance (WOM) Contractor Reports to Owner	<ul style="list-style-type: none"> Responsible for operations and maintenance activities once the project has been commissioned and handed to WOM Manage works consistent with the approved EMS for operations activities

Table 7 – Positions with environmental responsibilities relevant to this EMS

Project role	Description of Responsibility
CWFPL (Owner)	
Owner's Representative	<p>The Owner's Representative will have overall responsibility for the implementation of the CWF EMS. The Owner's Representative is the principal client for the Principal Contractor and other Contractors directly engaged by CWFPL. The Owner's Representative will ensure environmental commitments are integrated into the construction activities and work processes for the implementation of environmental management measures. Specific responsibilities include:</p> <ul style="list-style-type: none"> ensure adequate resourcing to enable compliance to be achieved and insist on work practices that reduce the risk of environmental harm at all times review appropriateness of responses to environmental related complaints from the public and external stakeholders, in conjunction with the Corporate Community Engagement Manager ensuring complaints are investigated for effective resolution and that effectiveness is monitored undertake periodic site inspections and review records of audits to ensure works are proceeding in compliance with project environmental obligations participate in environmental meetings and programs as required provide regular project updates to the project investors and steering committee provide leadership in relation to responsible environmental management and behaviours Engages Owners Engineer to review key documents and undertake Quality inspections
Owner's Site Representative	<p>The Owner's Site Representative (OSR) reports to the Owner's Representative. The Owner's Site Representative will have the following specific responsibilities:</p> <ul style="list-style-type: none"> day to day landowner and neighbouring stakeholder liaison regular inspection and observations of environmental compliance supervision of the Owner's responsibilities onsite.
Principal Contractor (EPC)	

Project role	Description of Responsibility
EPC Project Manager	<p>The EPC Project Manager is responsible for ensuring that appropriate resources are made available and deployed to implement the EMS and to support required systems, procedures and environmental objectives. Some specific responsibilities include:</p> <ul style="list-style-type: none"> • promoting the development of an appropriate culture to support environmental objectives and environmental management measures • implementation of work practices that reduce the risk of environmental harm; effective management of all operations, employees and contractors • facilitating arrangements for support to environmental audits and signing off on findings and corrective actions of audits • as required participate in inspections and initiate actions to rectify non-conformances • liaises with EPC Engineer for design review and quality inspections • participate/support significant environmental incident investigations • participate in environmental meetings and programs as required • assist in resolving disputes which may arise in respect to environmental management (if required) • liaison with community in conjunction with Community Engagement Manager
EPC Site Construction Manager	<p>The CWF Site Construction Manager will be responsible for:</p> <ul style="list-style-type: none"> • implementing and ensuring compliance with the provisions of the approved EMS for all workers, Contractors and subcontractors during construction • management of site environmental controls • coordination of Site Contractors including BOP Contractor and Turbine Installation Contractor • ensuring all workers and sub-contractors are properly inducted to the relevant requirements of this EMS • providing adequate resources (personnel, financial and technological) to ensure effective implementation and maintenance of the EMS and to ensure that work undertaken complies with legal and contractual requirements • ensuring that suppliers are made aware of the environmental requirements pertaining to them through conditions of contract as applicable • working closely with and supporting the Site HSE Representative • participating in inspections and initiating actions to rectify non-conformances • ensuring that environmental protection measures identified in the EMS are in place prior to commencement of construction activities
EPC Health, Safety & Environment Representative (EPC HSE Rep)	<p>To ensure compliance with the EMS, the Principal Contractor will employ a EPC HSE Representative with appropriate qualifications and experience in the management of environmental matters. The Site HSE Representative will be responsible for ensuring the project achieves the intended environmental objectives and maintains environmental compliance requirements, as detailed in this EMS.</p> <p>The EPC HSE Representative will be responsible for monitoring and inspecting the implementation of the EMS and sub-plans by the various contractors and sub-contractors. Their role will include:</p> <ul style="list-style-type: none"> • reviewing and approving EWMS and ESCP plans • prior to clearing review constraints and environmental risks • reviewing planned works and controls, notifying contractors of unsatisfactory controls and required corrective action • undertaking site environmental inspections (weekly or more regularly, as required) • supporting project audits through provision of required information and availability for audit interviews • following up on contractor responses to corrective action instructions and requests • responsibility for completion of environmental incidents and complaints investigations as required and reporting to the EPC Construction Manager • conducting or arranging for required environmental monitoring

Project role	Description of Responsibility
	<ul style="list-style-type: none"> provide onsite support to and collaborate with the Corporate Development Compliance Manager
Service Manager – Operations	<p>Once construction is completed, the operational site will be handed over to the Warranty, Operations, Maintenance (WOM) team, led by the Service Manager. The Service Manager will be responsible for:</p> <ul style="list-style-type: none"> implementing and ensuring compliance with the provisions of the approved EMS for all workers, Contractors and subcontractors during operations ensuring all workers and sub-contractors are properly inducted to the relevant requirements of this EMS providing adequate resources (personnel, financial and technological) to ensure effective implementation and maintenance of the EMS and to ensure that work undertaken complies with legal and contractual requirements working closely with and supporting the HSE Representative participating in inspections and initiating actions to rectify non-conformances
Balance of Plant Contractor	
BoP Construction Manager	<p>The BoP Construction Manager will ensure that the activities it undertakes are within the approved footprint and comply with the requirements of the project approvals and this EMS. Responsible for rehabilitation of site and provision of adequate resources to fulfil BoP environmental responsibilities. Reports to the Principal Contractor.</p>
BoP Environmental Representative	<p>The BOP Contractors Environmental Representative is a site-based role requiring appropriate qualifications and experience in the management of environmental matters. The BOP Environmental Representative is responsible for:</p> <ul style="list-style-type: none"> ensuring that construction activities are undertaken in accordance with the project approvals, this EMS and other requirements development and maintenance of the relevant EMS documents, such as EWMSs and ESCPs; liaising and responding to any requests from the Principal Contractor weekly environmental inspections are undertaken ensuring that accurate records are kept of all environmental monitoring and inspections ensuring that environmental issues and incidents are recorded, reported and appropriately addressed identifying, recommending and initiating solutions to problems or deficiencies with the EMS ensuring complaints are investigated and effective resolution achieved ensuring all workers and subcontractors under the control of the BoP Contractor are properly inducted into the requirements of the EMS pertaining to their project scope, signed onto the respective EWMS and that they undertake their work in accordance with these requirements.
All project employees and contractors	
All personnel	<p>All employees, Contractors and Sub-Contractors will be responsible for complying with the requirements of the Project Approval, other regulatory approvals and the contents of this EMS.</p>
Goldwind Corporate	
Development Compliance Manager	<p>Support the project with specialist environmental advice and services. Role includes:</p> <ul style="list-style-type: none"> assistance with regulatory authority interactions assistance with engagement and management of environmental consultants arrange and coordinate program of audits as required participate in inspections and recommend actions to rectify non-conformances participate/support significant environmental incident investigations participate in environmental meetings and programs as required assist in resolving disputes which may arise in respect to environmental management matters (if required). provide supporting advice on adequacy of EWMS

Project role	Description of Responsibility
	<ul style="list-style-type: none"> review environmental induction and training materials to ensure consistency with project environmental obligations manage compliance reporting including regulatory approval conditions.
Community Engagement Manager	<p>The Community Engagement Manager shall be responsible for interfacing with the local community and coordinating responses to community, as necessary (and as delegated). Status of construction works will be communicated through newsletters, advertising and website updates. The Community Engagement Manager will liaise with the construction management team to ensure timely and effective engagement with the objective of maintaining strong community relations and open communications. The Community Engagement Manager will also be the interface between the Community engagement initiatives and the construction team.</p>

3.6 Consultation with Agencies

Consultation with various organisations has been undertaken throughout the development of this EMS and supporting management plans as summarised in Table 8.

Table 8 – Summary of Consultation with regulators and agencies

Organisation	Action	Date Sent	Reply Date	Response Summary
OEH (now named BCD)	Sent draft HMP and salvage methodology	1/2/19	29/3/19	<ul style="list-style-type: none"> No comments to HMP Minor comments to salvage methodology
DPIE	Sent updated HMP and salvage methodology	10/5/19	12/6/19	<ul style="list-style-type: none"> Comments received and addressed
DPIE	Submission of updated HMP	20/6/19	21/6/19	<ul style="list-style-type: none"> HMP endorsed
BCD	Sent draft BMP	16/7/19	12/8/19	<ul style="list-style-type: none"> Range of comments
YVC	Sent RVMLP	16/4/19	6/5/19	<ul style="list-style-type: none"> No objections
YVC	Sent TMP	29/6/19	19/9/19	<ul style="list-style-type: none"> No objections
Hilltops Council	Sent TMP	29/6/19	6/9/19	<ul style="list-style-type: none"> Comments received and addressed
RMS / TfNSW	Sent TMP	29/6/19	9/8/19	<ul style="list-style-type: none"> Comments received and addressed.
RMS / TfNSW	Sent updated TMP	4/10/19	29/10/19	<ul style="list-style-type: none"> TMP endorsed by RMS
DPIE	Sent TMP	1/11/19 29/1/20		<ul style="list-style-type: none"> DPIE comments received and updated. DPIE additional comments
DoEE	Sent RVMLP	16/4/19	13/5/19	<ul style="list-style-type: none"> Minor comments addressed Approval dated 10/8/19
DPIE	Sent RVMLP	8/7/19	30/7/19	<ul style="list-style-type: none"> Minor comments addressed Approval dated 1/8/19
DoEE	Sent BMP	16/4/19	1/8/19	<ul style="list-style-type: none"> Preliminary comments
RFS Southern Tablelands FCC	Sent Bushfire Chapter of EMS and draft ERP	3/09/19	18/10/19	<ul style="list-style-type: none"> Comments received. Site contacts to be provided once confirmed.
RFS Southwest Slopes FCC	Sent Bushfire Chapter of EMS and draft ERP	3/09/19	2/11/19	<ul style="list-style-type: none"> Comments received. Site contacts to be provided once confirmed.

3.7 Project Hold Points

Environmental project hold points are described in Table 9.

Table 9 – Project Hold Points (relevant to EMS)

Hold Point	Source of Requirement	Responsibility for Release of Hold Point action
General		
EWMS: Relevant EWMS shall be approved prior to construction activity commencing at each new work area / activity	Section 3.8 of EMS	EPC HSE Representative / EPC Construction Manager
Out of Hours Work (OOHW): Approval must be obtained prior to undertaking out of hours work (refer to Appendix I)	MCoC Sch.3, C.8	Site Construction Manager (or DPIE Secretary as applicable)
Cultural Heritage Discovery: Following the discovery of an item of cultural heritage significance or human remains, no work is to recommence in the vicinity of the find until approval is given by the regulator	Refer to Section 4.4	BCD, Heritage
Pre-construction		
Construction shall not commence until the pre-construction commitments of the State Approval have been satisfied.	MCoC, including: <ul style="list-style-type: none"> Sch. 2, C.10 Sch. 2, C.11 Sch.3, C.1 Sch.3, C.19A Sch.3, C.21 Sch.3, C.25 Sch.3, C.27-29 Sch.3, C.32 Sch.3, C.38 Sch4, C.1 	Goldwind Development Compliance Manager
Construction shall not commence until CWFPL enters into VPAs with the Councils	MCoC (Sch. 2, C.18)	Goldwind Engagement Manager
Construction shall not commence until the pre-construction commitments of the EPBC Approval have been satisfied	EPBC Conditions C.4, C.5, C.15,	Goldwind Development Compliance Manager
The offsite road upgrades shall not commence until the following conditions are satisfied	MCoC Sch.3, C.27 EPBC C.8	Goldwind Development Compliance Manager
Pre-commissioning		
Commissioning of turbines shall not commence until the following conditions are satisfied	MCoC Sch.3, C.22 EPBC C.6	Goldwind Development Compliance Manager

3.8 Environmental Work Method Statements (EWMS)

Prior to work commencing at a specific location, the BOP Contractors (and other Contractors where relevant) shall prepare an Environmental Work Method Statement (EWMS) for each new work area and activity, ensuring the EWMS is a location- and activity-specific document.

The Activity-specific EWMSs will contain information including:

- Full scope of work activities covered by the EWMS and equipment involved.
- Identification of activities that may impact on the environment, the type of impacts. This may include identification of potential sources of contamination and receptors.
- Identification of initial potential environmental risk associated with the activity, covering all segments of the environment.
- Details of proposed controls and management measures (e.g. Erosion Sediment Control Plan for activities involving earthworks).
- A residual risk assessment to ensure compliance and achievement of required environmental performance.
- Identification of hold/witness points.
- Approval, monitoring, maintenance and reporting requirements.
- Toolbox talk / EWMS induction content
- Sign off page

Activities for which an Activity-specific EWMS shall be prepared include (but not limited to) Clearing and Grubbing; Earthworks / Establishment of Access Tracks and Hardstands; Batching Plant Installation and Operation; Establishment of Turbine footings; Construction Compound Installation and Operation; Substation and Transmission Line Works; Refuelling; and Rehabilitation.

The Location-specific EWMSs will contain location-specific information and mapping regarding environmental sensitivities, constraints and management measures of the location. This shall include all relevant environmental information such as heritage and ecological constraints, weed mapping and management measures (e.g. ESCP).

The responsible contractor may elect to group components into manageable areas such that a group of turbines and connecting access tracks are included in the one location-specific EWMS.

Each EWMS must be reviewed and approved by the EPC HSE Representative before works can commence in each new area of the project.

All relevant construction personnel shall be inducted to the approved EWMS before commencing works.

A register of signed EWMS must be kept.

3.9 Objectives and targets of EMS

Environmental objectives and targets have been established as a means of reviewing the environmental performance of the wind farm and to provide a basis for assessing the adequacy of performance. The performance of the project against the objectives and targets will be documented in the project construction compliance reports. Environmental objectives and targets for the project are documented in Table 10.

Table 10 - EMS Environmental Objectives and Targets

Item	Objective	Target	Documentation
Environmental compliance	Project to be undertaken in accordance with the permits/approvals.	<ul style="list-style-type: none"> 100% compliance with project approvals, permits and licences 	<ul style="list-style-type: none"> Project inspections and audits Compliance Tracking Program
Legal compliance	Compliance with all environmental legislative requirements.	<ul style="list-style-type: none"> 100% compliance. Zero reportable incidents. 	<ul style="list-style-type: none"> Project inspections and audits EWMS review and approval process Compliance Tracking Program
Layout and usage consistency	Full compliance with layout and design shown in the Project Approval and detailed design	<ul style="list-style-type: none"> 100% compliance 	<ul style="list-style-type: none"> Consistency reviews Survey records
Environmental training and inductions	All staff to be aware of their environmental obligations and be competent in relation to their environmental responsibilities.	<ul style="list-style-type: none"> 100% staff to be appropriately inducted prior to commencing works on-site and have relevant competencies. 	<ul style="list-style-type: none"> Induction records EWMS induction, training, pre-start meeting and toolbox meeting records Non-conformance reporting
Good environmental practice	Effective implementation of the EMS and sub-plans.	<ul style="list-style-type: none"> 100% compliance with approved management measures, monitoring and reporting requirements. Prompt investigation of incidents and implementation of corrective actions. 	<ul style="list-style-type: none"> EWMS records Project inspections and audits Compliance Tracking Program Environmental Incident register
Environmental complaints	Minimise environmental complaints and respond to all in a timely and appropriate manner.	<ul style="list-style-type: none"> 100% compliance with complaints response timeframes. 100% compliance with complaints investigation and close-out. 	<ul style="list-style-type: none"> Established process to address complaints Complaints database Community meeting minutes
Incidents	Avoid, minimise and/or appropriately manage all environmental incidents.	<ul style="list-style-type: none"> 100% compliance with incident reporting, investigation, implementation of corrective actions and close out requirements. 	<ul style="list-style-type: none"> Environmental Incident Register Environmental Incident Reports
Non-conformances	Avoid, minimise and/or appropriately manage all environmental non-conformances.	<ul style="list-style-type: none"> Implementation of compliance tracking program. 100% compliance with timeframes for investigation and implementation of corrective actions. 	<ul style="list-style-type: none"> Site inspection records Audit records Non-conformance reporting Compliance Tracking Program
Inspections and Audits	Undertake environmental inspections and audits in a timely and effective manner	<ul style="list-style-type: none"> 100% compliance with timeframes and coverage of inspections and audits. 100% completion of follow-up actions to address identified issues. 	<ul style="list-style-type: none"> Weekly inspection records Audit records and of corrective actions

3.10 Inspections, Monitoring and Reporting

Environmental inspections, monitoring and reporting will be carried out routinely throughout the construction and operations program. Table 11 provides details of environmental inspection objectives, frequency and timing.

Table 11 – Environmental inspection and performance monitoring schedule

Inspection	Objectives	Responsibility for Implementation	Output	Timing
Site inspections	Review status of environmental controls and general environmental performance.	BOP Contractor EPC Contractor	Weekly Environmental Inspections. Incident Records.	Weekly (minimum) and post significant rainfall during construction.
Noise and Vibration	Undertake noise and vibration monitoring to ensure compliance with noise levels	BOP Contractor EPC Contractor	Plant and equipment inspections / Daily pre-starts	Daily during construction
			Noise checks Blasting reports	As required
			Attended Noise Measurements.	If complaints arise or, as needed
Traffic and Access	Review status of traffic and access controls for Project to ensure compliance with standard industry practice and project mitigation and management measures.	BOP Contractor EPC Contractor	Pre-start and pre-closedown inspections of traffic control devices, signage and the condition of external access roads.	Daily. When oversize or over mass movements occurring
			Visual inspections of traffic control devices, signage and road condition.	Weekly during construction.
			Visual inspections to assess vehicle movement and traffic flows to and from the Project site, as well as adequacy of parking on-site	Daily during construction.
Erosion and Sedimentation (ERSED)	Review status of ERSED controls for Project to ensure compliance with standard industry guidelines and mitigation and management measures in EMS.	BOP Enviro Rep EPC HSE Rep.	Inspection and review of ERSED controls (part of weekly inspections)	Weekly in dry weather during construction. Within 24 hours of significant rainfall events (nominated as ≥20 mm in any 24-hour period).
Flora and Fauna	No impact of EEC beyond approved project footprint and designated work areas.	BOP Contractor EPC Contractor	Consistency reviews of construction footprint. Incident Records. Survey and physical delineations prior to clearing and	Ongoing throughout construction. BOP to provide monthly updates.

Inspection	Objectives	Responsibility for Implementation	Output	Timing
			earthworks. Includes on-site GPS and surveyors analysis, aerial surveys, etc.	
	All trenches and pit checked for trapped wildlife	BOP Contractor	Incident Records. EWMS	Daily in morning for trenches that have been left open overnight
	Woodpiles managed in the manner described in BMP	BOP	Incident Records. EWMS Inspection reports	Throughout construction and operation. BOP to provide monthly updates.
	Implementation of BMP	BOP	Pre-clearance surveys HBT Removal Protocol	Prior to vegetation clearing
	Monitoring of rehabilitation areas	BOP Enviro Rep EPC HSE REP	Rehabilitation inspection reports / weekly inspection reports	As part of weekly inspections. Monthly checks in areas where ground disturbance activities have ceased (until rehabilitation has met completion criteria).
Weed management	Identification and management of priority weeds and diseases on site	BOP Enviro Rep EPC HSE REP	Pre-construction weed surveys. Seasonal weed surveys during construction. Equipment washdown log. Weed treatment reports	Review requirements weekly during construction. Weed spray on as-needs basis (and prior to commencing work in infested areas)
Operations	Monitor environmental performance to identify any rectification requirements (e.g. effectiveness of drainage and erosion controls & weed management)	WOM Service Team	Site Inspection forms.	Quarterly or more regularly on events basis (e.g. after significant weather event nominated as >50mm within any 24 hour period during operations; bushfire or pollution incident)
Bird and Bat Monitoring	Implementation of BBAMP, including monthly carcass searches for first two years of operation	Bird and Bat Consultant WOM personnel required to report incidental finds	Monthly and annual reports Incidental find reports	Monthly and as required by BBAMP during operations.

3.11 Training, Awareness and Competence

The Principal Contractor will ensure that all personnel entering and working on the site, completes the project induction.

The environmental training content will be designed and implemented to ensure all persons entering and working on site are inducted into all relevant environmental requirements and aware of their responsibilities while working on the project (e.g. EWMS process and key site constraints).

The Principal Contractor and BOP Contractor will develop the training content as a collaborative process.

The training for workforce members will be delivered following consultation between the Principal and BOP contractor including the content, the key messages, and the means and style of training to be provided. The induction program is to be reviewed and endorsed by Goldwind (HSEQ Manager) prior to its implementation. All contractors must maintain records of all persons receiving training and the date and scope of the training provided.

Likely content and training methods are shown in Table 12.

Table 12 – Environmental Training Scope and Coverage

Description of training requirements	Required Attendees	Timing
Site Inductions		
General introduction to the Project, safety and environmental requirements. Roles and responsibilities will be communicated to ensure compliance through a general site induction training. This will include a presentation of the key environmental issues, management measures and constraints mapping.	All workers prior to entering construction site for the first time	Prior to site establishment
Construction Personnel Training – General Requirements		
Details on control procedures to be adhered to as a part of the EMS to be incorporated into more detailed construction personnel training. It will include information on: <ul style="list-style-type: none"> • Environmental Policies and approvals • Key environmental sensitivities at CWF • Environmental Work Method Statements • How to report incidents and near misses • Complaints investigation, response, and reporting • Key stakeholders and community engagement activities and protocols • Non-conformance, monitoring, and auditing 	All construction personnel prior to first shift	Prior to site establishment
Prestart briefings and Tool box talks		
Prestart briefings will occur on a daily basis and Tool box talks will occur on a minimum weekly basis (and on an as-required basis to discuss issues as the need arises). These talks will reinforce environmental controls detailed in this EMS and may include: <ul style="list-style-type: none"> • Procedures and inspections • Current site-specific issues, environmental conditions, and environmental or social sensitivities • Noise and vibration management • Wastewater management, concrete washout procedures • Flora and fauna protection and management, clearing and grubbing • Protecting waterways and riparian zones • Erosion and sediment controls • Dust control • Identification/protection of indigenous/non-indigenous heritage • Vehicle hygiene and pest plant/weed management protocols • Hazardous substances and waste management • Emergency response procedures including spill response • Legislation updates. 	All construction personnel and CWF representatives	During construction, pre-start briefings shall occur daily. Toolbox talks shall occur weekly during construction and during operations (or more regularly as the need arises)

3.12 Documentation and Record Keeping

All site personnel will be inducted to the requirements of this EMS and any associated documentation. Records of these inductions, inspections and audits will be kept onsite, either in hardcopy form in the office, or electronically (on a company-accessible platform with accessible records upon request).

3.13 Incident and Emergency Management

The Project Emergency Response Plan (ERP) is provided on the project website (www.coppabellawindfarm.com) and at Appendix J of the EMS. Copies will be available at the construction/operation compound notice boards and at the site entrance manifest box. All environmental incidents shall be managed in accordance with the ERP.

All pollution incidents or any incident where material harm to the environment is caused or threatened shall be reported immediately (and without delay) to the WRWFPL Project Manager and the relevant authorities in accordance with the *Protection of the Environment Operations Act 1997* and the project approvals (e.g. EPA hotline, DPIE and DoE). Key agency contacts are provided at Table 13.

Table 13 – Emergency Contacts

Agency	Responsibility	Contact Details
Environment Line	24 hr EPA and BCD hotline	131 555
EPA (Regional EPA Office - Queanbeyan)	EPL compliance	02 6229 7002
NSW Fire Brigade – Yass/Harden (Fire and Emergency)	NSW Fire and Rescue	000
Ambulance	Accident and emergency	000
Police	Emergency	000
Rural Fire Service		000
State Emergency Service – Glen Innes	Flood, Storm	000
Yass District Hospital	Medical Assistance	02 6220 2000
Murrumburrah-Harden District Hospital	Medical Assistance	02 6386 2200
NSW Poisons Information	Health	13 11 26
Roads and Maritime Services	Response	13 22 13
Bureau of Meteorology	Weather	www.bom.gov.au
Yass Valley Council	General enquiries	02 6226 1477
Hilltops Council	General enquiries	Boorowa 02 6380 2000 Harden 02 6386 0100
Safe Work NSW	Work Health and Safety	13 10 50
Essential Energy	Electrical matters (local network)	13 23 91
TransGrid	Electrical matters (transmission)	1800 027 253

3.14 Communications

3.14.1 Internal Communications

The Principal Contractor and BOP Contractor will ensure internal forms of communication are documented and trackable, such as risk registers, tool box meeting notes, monthly progress report, monitoring and inspections records, corrective actions and audit outcomes. These may be subject to audit.

3.14.2 External Communications

The local community will be kept informed of progress during construction of the CWF project via a variety of communication mechanisms including, newsletters published on the website and newspaper advertorials. The Community Engagement Manager will review and must approve external communications.

The Principal Contractor will liaise with government bodies and agencies in accordance with the reporting requirements, complaint handling procedures detailed in this EMS and related CWF management plans, including the Stakeholder and Community Engagement Strategy, and the Enquiries and Complaints Handling Plan.

All approved strategies, plans or programs and other project information will be publicly available and kept up to date on the project website (www.coppabellawindfarm.com) as required by the project MCoC (Sch4, C.10).

3.14.3 Complaints Handling and Dispute Resolution

Management of community enquiries or complaints will be in accordance with the 'Goldwind Policy Statement on Handling Enquiries and Complaints' and the project specific 'Procedure for Handling Enquires and Complaints', which together form CWF's Complaints Management System managed by the Principal Contractor.

The Complaints Management System meets the requirements of the AS/NZS 10002:2014 Standard – Guidelines for Complaint Management in Organisations.

The Complaints Management System outlines:

- Process for encouraging enquiries and gathering complaints, including details of 24 hour telephone number, postal address and email address through which complaints and enquiries can be made
- Registration of information on all enquiries and complaints received. The community engagement team for the project will typically liaises with the complainant and follows up the issues raised with the relevant person/s within the project team to ensure the complaint is addressed and resolved as appropriate.
- Means by which complaints are addressed
- Whether a satisfactory resolution was reached
- Whether mediation is required. Mediation via an independent mediator may be triggered if the complaint is not resolved internally within 30 days. If mediation is not successful, the independent mediator will report this to Goldwind Senior Management and the complainant will be advised of their rights to pursue the matter further.

Further detail on dispute resolution is contained within the Coppabella Wind Farm Enquiries and Complaints Handling Plan.

All information gathered will be registered in an Enquiries and Complaints Register. The System will be regularly reviewed.

3.14.4 CWF Contact Details and Website

The contact details available to the public for the CWF project are provided in Table 14.

Table 14 – Proponent contact and website details

Communication Method	Details
24-hour telephone number	1800 884 689
Postal address	Coppabella Wind Farm, Level 25, Tower 1, Barangaroo Sydney, NSW 2000
Email	info@coppabellawindfarm.com
Website	www.coppabellawindfarm.com
Local Information Centre	30-32 Fitzroy St, Binalong NSW 2584 Opening Hours: <ul style="list-style-type: none"> • Friday 3:30pm – 5:30pm • Saturday 9am – 12noon • By appointment

3.15 Stakeholder Engagement

The Stakeholder and Community Engagement Plan (SaCEP) outlines the approach to engaging with the local and broader community for the project. All engagement with the community shall be managed in accordance with the SaCEP.

The SaCEP outlines the engagement tools and techniques that will be used to inform the community and relevant agencies about the operation and environmental performance of the project, these include:

- operation of the Community Consultative Committee
- regular project updates through newsletters, media releases, advertorials and the project website
- engaging with near neighbours of the project, local councils and government agencies, and
- establishment of a project information centre in the local area.

3.16 Access to Information

The following project documentation is publicly available from the project website (www.coppabellawindfarm.com):

- the Environmental Assessment
- the final layout plans for the development
- current statutory approvals for the development
- approved strategies, plans, programs and monitoring/reporting required under the project approvals
- how complaints about the development can be made
- a complaints register, which is updated monthly
- minutes of CCC meetings
- any independent environmental audit and CWFPL’s responses
- any other information required by the Secretary.

The website will be updated as new information becomes available.

3.17 Audit and Review

3.17.1 Environmental Performance Review and Compliance Audits

An internal compliance tracking program will provide systematic review of the status of compliance with conditions

of approval and the commitments for the project. This will be documented in a compliance tracking matrix prior to commencement and be regularly updated during construction and operations.

The Corporate Development Compliance Manager will conduct, or arrange for an experienced person to conduct audits of the project on a regular basis. The audit program during construction and operation is provided at Table 15. The timing of internal audits may be adjusted slightly during construction. During construction, these internal audits will generally occur quarterly, noting that the primary review mechanism for this project is through inspections (refer to Table 11). The first internal audit will occur within the first month of site works commencing. The scope of the audits will focus on compliance with the project approval and the effectiveness of the EMS implementation including sub-plans. The internal audit report will be submitted to CWFPL and EPC Contractor to address the audit findings. The EPC Contractor may initiate its' own internal audit regime.

Table 15 – Environmental Audit Program

Audit Timing	Audit Scope/Objective
1 month after start of construction	Internal audit to review compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance.
4 months after start of construction	Internal audit to review compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance. Ensure any prior non-conformance addressed.
Within 6 months of commencement of construction, and every 3 years thereafter	Independent Environmental Audit in accordance with Schedule 4, C.8 of the State Approval.
8 months after start of construction	Internal audit to review compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance. Ensure any prior non-conformance addressed.
12 months after start of construction	Internal audit to review compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance. Ensure any prior non-conformance addressed.
15 months after start of construction	Internal audit to review compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance. Ensure any prior non-conformance addressed.
18 months after start of construction and every 4 months thereafter (during construction period)	Internal audit to review compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance. Ensure any prior non-conformance addressed. Review commissioning and rehabilitation activities as they are required.
Annually upon commencement of Operations	Determine compliance with the project Approval and secondary approvals. Review effectiveness of the EMS implementation and environmental performance during operations. Ensure any prior non-conformance addressed (as relevant).

3.17.2 Non-conformance Corrective Actions

Non-conformances may be identified through routine Weekly Site Inspections, impromptu site inspections, via the EMS Review or Audit process or be incident or complaint based.

Environmental non-conformance includes:

- non-compliance with environmental management controls or mitigation measures
- environmental incidents not threatening material harm to the environment
- non-compliance with MCoC
- environmental emergencies threatening material harm to the environment.

Corrective actions may be triggered by any of the above and will include immediate steps taken to control the non-conformance and immediate reporting, investigation of the non-conformance and development of additional controls to prevent re-occurrence. Corrective actions will be developed in consultation with relevant stakeholders (e.g. BOP Environmental Representative) and will be assigned to the appropriate personnel for close out. Records will be kept of all corrective actions.

All environmental incidents and non-conformances will be reported in accordance the Emergency Response Plan.

3.17.3 Revision of Strategies and Plans

The EMS (and other plans and strategies required by the consent) is a working document that requires review and, if necessary, amendment during the life of the project. This forms part of continuous improvement of the EMS. The Development Compliance Manager shall undertake a review of the EMS (and other plans):

- where there is a significant change to the construction schedule, the site layout or a change in the construction methodology
- site based conditions require a change to the environmental controls and procedures identified within the EMS
- within 3 months of the submission of an independent audit
- within 3 months of a reportable environmental incident.
- within 3 months of any modification to the conditions of consent.

Any revised Strategy or Plans must be submitted to the Secretary within 4 weeks of the document review (refer to Schedule 4, MCoC4). EPBC Conditions (C.20 – C.23C) relating to the modification of plans must also be adhered should any relevant plans be modified.

The EMS review shall consider the environmental controls and procedures to ensure these remain applicable to the activities being carried out.

Any recommendations from the review will be reported to the Site Project Manager and EPC HSE Representative and (following adoption) be communicated to relevant stakeholders.

Changes to the EMS will be communicated through pre-start meetings and to existing onsite personnel and be incorporated into environmental induction material.

4 Key Environmental Issues and their Management

4.1 Soil and Water Management

4.1.1 Project Context

A standalone Soil and Water Management Plan (SWMP) is provided at Appendix E to this EMS. The SWMP identifies the key soil and water quality risks for the project and outlines fundamental principles to be followed in the planning and implementation of erosion and sediment control measures predominantly during the construction of the Project but also during operations. The SWMP also provides contextual information regarding environmental, geographical and geological conditions associated with CWF.

The SWMP is required to be fully implemented and should be referred to when considering the management of soil and water.

4.1.2 Objectives and Targets

The primary **objective** of the SWMP is to minimise erosion, manage sediment and minimise impacts on water quality consistent with relevant State policies and guidelines.

Targets for soil and water quality management issues associated with the Project are provided below:

- 100% compliance with all applicable legislation, regulations, standards, codes and licenses that relate to the Project;
- no significant degradation to the environment, including existing drainage lines and watercourses as a result of construction activities or construction
- no elevated levels of sediment entrained in water leaving the site compared to the surrounding background
- standard industry environmental management practices implemented for protecting soil and water quality
- implementation of measures listed in the Statement of Commitments.

4.1.3 Mitigation Measures

The SWMP at Appendix E includes reasonable and feasible measures to manage potential soil and water quality, including spoil, soil contamination and waste management impacts arising from the construction and operation of CWF.

The SWMP is required to be fully implemented and should be referred to when preparing EWMS for all construction activities involving soil disturbance or when considering the need to discharge water into the environment. Key requirements for CWF include:

- preparation of progressive ESCPs detailing individual control measures in association with the development of area specific EWMS documentations (as per Section 3.8 of EMS)
- construction to be undertaken such that all earthworks, including waterways/drains/spillways and their outlets, will be stable in at least a 20-year ARI, time of concentration storm event
- implementation of the erosion and stormwater control measures presented in the SWMP
- implementation of measures to prevent potentially contaminating materials from entering the groundwater or surface water systems
- waterway crossings are designed constructed in accordance with the relevant guidelines outlined in the consent
- implementation of dewatering measures as identified in the SWMP
- progressive stabilization and rehabilitation of the site in accordance with the management measures presented in the SWMP and Biodiversity Management Plan
- all spoil and fill generated as a result of the Project will be managed in accordance with the Spoil and Fill Management Procedure within the SWMP.

4.2 Biodiversity Management

4.2.1 Project Context

A standalone Biodiversity Management Plan (BMP) is provided at Appendix F to this EMS. The BMP

- provides contextual information regarding the ecological environment associated with CWF
- identifies the key biodiversity risks for the project
- describes management measures to avoid, minimise or manage potential biodiversity impacts from the project, including weed and biosecurity management measures.

The BMP shall be fully implemented and should be referred to when considering the management of flora and fauna.

A Bird and Bat Adaptive Management Plan (BBAMP) has also been prepared for CWF to manage bird and bat related risks associated primarily with the operational wind farm. The BBAMP must be approved prior to the commissioning of any wind turbine. Once approved the BBAMP will be available on the project website.

4.2.2 Objectives and Targets

The primary **objectives** of the BMP are to:

- minimise and mitigate impacts to flora and fauna throughout the construction of the CWF
- ensure compliance with all relevant Project Approval Conditions and legislative requirements

Targets for biodiversity management issues associated with the CWF are provided below:

- 100% compliance with all applicable legislation, Project conditions, guidelines and standards applicable to the BMP
- No exceedance of required clearing limits for EEC, that is:
 - ensure that no more than 179.8 hectares (ha) of EEC is cleared for the development, including:
 - 31.4 ha of Blakely's Red Gum – Yellow Box Gum Woodland (MR528)
 - 148.1 ha of Blakely's Red Gum – Yellow Box Gum Woodland – Derived Grassland (MR528); and
 - 0.3 ha Yellow Box – River Red Gum and Riparian Woodland (MR616)

Unless the Secretary agrees otherwise;

- remove no more than 4 hollow-bearing trees along Whitefield's Road, unless the Secretary agrees otherwise
- Minimise removal of fauna habitat, particularly hollow-bearing trees
- No injury or loss of threatened fauna
- No introduction of new weed species, and effective management of priority weed species within the disturbance footprint
- Successful progressive stabilisation of disturbed areas and rehabilitation of the disturbance footprint following construction
- Implementation of relevant measures listed in the BMP.

4.2.3 Mitigation Measures

The BMP at Appendix F includes reasonable and feasible measures to manage potential biodiversity and biosecurity impacts arising from the construction and operation of CWF. These include protocols related to vegetation clearing and protection; fauna protection; weed and pest management; and rehabilitation.

4.3 Rehabilitation

4.3.1 Project Context

Progressive rehabilitation is an important component of construction and post-construction activities for CWF. Rehabilitation is essential to ensure that ground that is disturbed through project construction activities is stabilised and protected from degrading the surrounding environment through erosion and the transfer of sediment. Successful rehabilitation also helps ensure project infrastructure such as turbine hardstand batters are not undermined by erosion and retain their integrity for the life of the project.

Rehabilitation is applicable for areas that are not required to be maintained in the altered form for the operational phase of the project. Rehabilitation may be in vegetative or non-vegetative form.

Details regarding rehabilitation are found in the BMP (Appendix F) and also in Section 6.11 of the SWMP (Appendix E).

4.3.2 Objectives and Targets

The **objective** of rehabilitation is to progressively stabilise ground surfaces disturbed by the project in a manner that is resistant to erosion and sediment loss.

Practical and feasible **targets** for rehabilitation are set out in the BMP, including success criteria for revegetated areas.

4.3.3 Mitigation Measures

Landcom (2004) provides guidance on site stabilisation and rehabilitation. These requirements are summarised in the Rehabilitation Protocol of the BMP and Section 6.11 of the SWMP (Appendix E of EMS) for details. The implementation of these measures will minimise the occurrence of soil erosion and the loss of sediment from the project site. The vegetative rehabilitation measures employed will also promote the re-establishment of native species, where appropriate.

4.4 Heritage Management

4.4.1 Project Context

Human occupation of south-east NSW has been evidenced to date from at least 20,000 years ago. Prior to European settlement, the vegetation on hill slopes was open forest dominated by *Eucalyptus* spp.; valley floors contained extensive grasslands and swamps. However, the project area is now mainly cleared with scattered trees. The hills would have possessed limited biodiversity and a general lack of water; consequently they are likely to have been utilised by Aboriginal people for a limited range of activities which may have included hunting and gathering, travel through country and possibly ceremonial. By comparison the valleys between the hills are likely to have possessed greater levels of biodiversity given the likely presence of chains of ponds and possibly also swamp features along drainage lines. In addition, a more reliable source of water is likely to have been present in valleys for much of the year. Such areas are likely to have been utilised more frequently and possibly by greater numbers of individuals at any one time; the valleys are likely to have been the favoured camp locations while people occupied the broader local area. As such, the number of artefacts is expected to be greater in the valleys than on the hills.

Land clearance commenced in the region with its occupation by early settlers during the early to mid 1800s. The Project Aboriginal Cultural Heritage Assessment Report (ACHAR) (Dibden, 2017) provides additional information on the history of Aboriginal people and European settlement in the region. Following land clearance, the arable land was utilised for grazing and various cultivation endeavors including pasture improvement and cropping, while hilly land has been used exclusively for grazing. As a result of the long history of grazing and cultivation, the area is located within a highly degraded landscape with increased runoff and erosion, both on hill slopes and valley floors.

An ACHAR and a Heritage Management Plan (HMP) has been prepared for the CWF by New South Wales Archaeology Pty Ltd. The HMP is provided at Appendix G. The Registered Aboriginal Parties (RAPs) involved with the project are: Buru Ngunawal Aboriginal Corporation, Ngunawal Heritage Aboriginal Corporation and Onerwal

Local Aboriginal Land Council.

A total of 82 Aboriginal Heritage Locale and one scar tree have been identified across the project area which mainly consist of low or very low density stone artefact distributions, assessed to be of low archaeological significance. However, a certain number have been assessed to be of low/moderate or moderate archaeological significance. Of these Aboriginal Heritage Locales, 49 are located within the project development corridor and may be impacted by the project. The detailed design of the project layout will seek to avoid heritage sites where feasible.

The HMP outlines the salvage program that will be implemented prior to construction for those Aboriginal Heritage Locales that cannot be avoided. Section 4.4.3 describes measures implemented to avoid, minimise and/or appropriately manage potential impacts to Aboriginal heritage.

There are no items of historic (non-Aboriginal) heritage significance that have been identified within the approved development corridor, though one area is located close to the development corridor and would be avoided (refer to Appendix G). Precautionary measures are nonetheless provided in Section 4.4.3 should an item of potential heritage value be discovered during the works.

4.4.2 Objectives and Targets

Objectives for the management of heritage are:

- to avoid, minimise and/or mitigate impacts to heritage throughout the CWF project
- to ensure compliance with all relevant MCoC and legislative requirements
- consult with relevant Aboriginal parties regarding the management of Aboriginal Heritage items throughout the CWF project.

Targets for the management of heritage include:

- 100% compliance with applicable legislation, MCoC, guidelines and standards applicable to the HMP
- compliance with 100% of the commitments detailed in the EMS.

4.4.3 Mitigation Measures

Mitigation measures relating to heritage management are provided in

Table 16. Further details regarding the management of heritage is provided in the project Heritage Management Plan which is available on the project website: <http://www.coppabellawindfarm.com/the-project/managing-impacts/>

Table 16. Management measures / commitments regarding Heritage Management

Timing	Activity	Mitigation	Responsibility
All	Induction	Prior to commencing work at CWF, all workers shall complete project induction which addresses Aboriginal heritage, including information about the unexpected finds protocol.	EPC Manager
All	Unexpected Find Protocol	Should unexpected Aboriginal (or non-Aboriginal) objects or values be encountered, the EPC HSE Representative and project archaeologist, should be notified. Thereafter, the NSW DPIE, BCD and RAPs should be consulted. Works shall not recommence until approved to do so by the relevant stakeholders. Should suspected ancestral human remains be encountered, the following process should be adhered to: <ul style="list-style-type: none"> ○ Do not further disturb or move the remains; ○ Immediately cease work in the vicinity and cordon area off; ○ Notify the NSW Police; ○ Notify the project archaeologist and the NSW BCD Environment Line on 131 555, and DPIE within 24 hours and provide available details of the remains and their location; and 	All

		<ul style="list-style-type: none"> o Do not re-commence work in the area unless authorised in writing by NSW BCD. 	
Pre-construction	Design	Seek to optimise detailed design to avoid impacts to as many Aboriginal artefact locales as feasible.	Owner
Pre-construction	Salvage	Aboriginal artefact locales that cannot be avoided shall be salvaged prior to construction commencing in that area in accordance with approved Salvage Methodology (refer to Appendix 4 of HMP)	EPC Manager
Pre-construction	Demarcation	No-go zones to be established by project heritage specialist around Aboriginal object locales where impacts are not proposed but are close to the final disturbance footprint (i.e. within 30m).	EPC Manager BOP Manager
Construction	Assessment	If any changes/modifications occur to the project footprint location, new impact areas must be adequately assessed for heritage prior to works commencing.	Owner
Construction	Inspections	Undertake regular inspections of heritage no-go area demarcation as part of weekly inspections (and audits) to ensure protection measures are maintained and not compromised	EPC HSE REP
Operation	Inspections	Annual inspection as part of environmental auditing program	Operations Manager
Decommissioning	All activities	Review decommissioning plan with respect to potential for impact to heritage sites and ensure appropriate protection measures are employed as relevant. Undertake 3-monthly inspections during decommissioning.	Owner

4.5 Dangerous Goods and Hazardous Substances Management

4.5.1 Project Context

Non-trivial amounts of hydrocarbons and hazardous substances are required to enable the construction of wind farms. The most common hydrocarbons and hazardous substances on site include:

- Diesel for the operation of plant, machinery, generators and site vehicles
- Insulating oil in substation transformers and in each of the turbine kiosk transformers
- Gear oil and lubricating oil
- Waste oil
- Cement, lime and concrete admixtures at the batching plants and construction compounds
- Pesticides for weed management
- Sewage effluent from onsite amenities

Hydrocarbons and hazardous substances have the potential to cause environmental harm (e.g. soil and water contamination, biodiversity impacts) if not appropriately managed or if appropriate contingency measures are not in place in the event of a spill or leak.

4.5.2 Objectives and Targets

Objectives for the management of dangerous goods and hazardous substances during construction are:

- ensure the storage of dangerous goods and hazardous substances are in accordance with relevant standards and industry best practice
- minimise the potential for environmental harm as a result of inappropriate storage and handling of dangerous goods and hazardous substances

Targets for the safe storage and handling of dangerous goods and hazardous substances during the construction of are:

- 100% compliance with AS1940 The Storage and Handling of Flammable and Combustible Liquids
- zero reportable spills (with actual or potential for material impacts)
- same day clean-up of minor spills and appropriate storage and disposal
- all spills to be correctly reported in the project incident register

4.5.3 Mitigation Measures

Table 17 summarises the management measures and commitments for dangerous goods and hazardous substances at CWF.

Table 17 – Management measures / commitments for dangerous goods and hazardous substances

Issue	Control Measure
Design	The design of oil containing infrastructure (e.g. substation transformer and turbine kiosk transformers) shall comply with the requirements of AS 1940 and other relevant requirements to ensure adequate containment measures are provided
Storage of dangerous goods and substances	All fuels and dangerous goods stored on site shall be stored in accordance with: <ul style="list-style-type: none"> • a manner to prevent and contain spills • AS1940 - The Storage and Handling of Flammable and Combustible Liquids • appropriate bunding (110% of the volume or as dictated by AS1940) • other relevant legislation, policies, standards and guidance material
	Storage and handling of Dangerous Goods to be undertaken at least 50m away from watercourses, drainage line or permanent water sources;
	A mobile spill kit shall be located near the fuel storage area and all other relevant areas to deal with any spill outside of the bunded area
Handling of dangerous goods and substances	A register of all Dangerous goods and substances and applicable Safety Data Sheets (SDS) will be maintained on site
	All leaks and spills will be managed and cleaned up in accordance with good environmental practices and protocols outlined in the project Emergency Response Plan
	Employees using dangerous or hazardous substances shall be given information, instruction, supervision or training by their employer in the proper storage, handling, application and clean up of the relevant substances; correct use and fitting of PPE and spill kits; and emergency procedures in case of leak, spill, fire or explosion.
Refuelling controls	Refueling to be undertaken at least 50m away from watercourses, drainage line or permanent water sources
	Funnels or extended nozzles shall be used to minimise fuel spillage when fuelling equipment
	Drip trays will be used when filling machinery outside of bunded areas
	Suitable spill kits will be available during refueling activities.
Monitoring and reporting	Regular monitoring and inspections will be undertaken during construction;
	Audits will be undertaken of dangerous goods / hazardous substances stores to ensure they are complying with relevant licences and legislation.

	Reporting on dangerous goods and hazardous substances will be limited to completion of weekly inspections, incident reports and investigations, and/or complaint investigation if required.
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4.6 Waste Management

4.6.1 Project Context

A range of wastes will be generated on site during the construction of the wind farm including surplus excavated material, vegetation debris from clearing and earthworks, a wide range of packaging materials, wood waste from pallets and other packaging, steel frames for turbine components, concrete waste, general construction waste and minor domestic wastes. Minor amounts of controlled wastes such as tyres, glue, waste oils and paint containers may also be generated. During operations, waste generation will be significantly reduced and would be mainly limited to minor amounts of waste oils/greases and other minor quantities of hazardous substances associated with maintenance activities, packaging materials associated with spare parts and consumables, and minor quantities of domestic wastes.

Appropriate management methods are required to manage these wastes to avoid impacts to the surrounding environment.

4.6.2 Objectives and Targets

Objectives for waste management are:

- work in accordance with the waste hierarchy
- ensure appropriate containment, classification and disposal of wastes

Targets for waste management for the CWF project are:

- avoid the unnecessary production of waste
- dispose of waste materials in accordance with legislative requirements
- minimise / reduce the quantities of resources to be used
- maximise the amount of waste that is reused or recycled
- compliance with 100% of the commitments detailed in this EMS

4.6.3 Mitigation Measures

Mitigation measures relating to waste management are provided in Table 18.

Table 18 – Management measures / commitments for waste management

Issue	Control Measure
Storage and Handling	Skip bins will be provided on site and will be emptied as required. Covered skip bins shall be used for wastes that can be wind blown. Separate covered skip bin (recycling and general waste) shall be provided at each turbine hardstand when each respective turbine is being erected and fitted out.
	General waste and recyclable bins will be provided at strategic locations. These wastes are to be segregated, securely covered and clearly labelled to inform personnel of the recycling arrangements.
	Waste management for the project shall be undertaken in accordance with the waste hierarchy comprising avoidance of unnecessary resource consumption, recovery of resources through the reuse and recycling of waste, and disposal of waste as a last resort. Recycling arrangements will be confirmed prior to the respective wastes being generated (e.g. steel, plastics, wood, cardboard,

	comingled).
	Wind blown waste originating from the project shall be collected and appropriately disposed of by the relevant Contractor.
Waste Disposal	All waste which cannot be reused shall be classified in accordance with the Waste Classification Guidelines (DECCW, 2009), removed from the site and disposed of at place that can lawfully accept the waste in accordance with the POEO Act and POEO Waste Reg.
	Any oil / oil bearing equipment shall be disposed of by an appropriately licensed contractor to a licensed facility.
	The Contractor shall ensure that all necessary waste licenses are obtained, waste tracking documentation is maintained and disposal is to appropriately licensed facilities.
	Waste chemicals and contaminated wastes are to be segregated on site and stored appropriately until collection by a licensed Controlled Waste Contractor for appropriate offsite recycling/disposal.
	No waste is to be burned or buried on-site
	Toilet facilities would be provided for on-site workers and sewage from contractor's pump-out toilet facilities would be disposed of by a licensed contractor at local sewage treatment plants or other facility that can lawfully accept the waste.
Monitoring and Reporting	All waste leaving the site will be entered into a site waste register to track the waste type, quantity, transporter and destination of the waste removed from site using a licensed contractor. Waste transport dockets shall be retained as part of waste tracking documents.
	All receipts for recycling and waste disposal shall be managed by the EPC Contractor Site Manager and produced for inspection on request.
	Site inspections and audits will include review of waste facilities and their management

4.7 Traffic and Access Management

4.7.1 Project Context

The site is bordered to the north by Garryowen Road, to the east by Illalong Road, to the south by Whitefields Road (and Hume Highway) and to the west by Coppabella Road.

The primary access to the project area will be from Whitefields Road in the south eastern part of the project area (refer to Figure 2-2) and involve approximately 1.2km of Whitefields Road from the Hume Highway intersection. Both the intersection and the 1.2km section of Whitefields Road will be prior to the commencement of construction.

Emergency site access / evacuation from the north of the project area is possible via Coppabella Road. Secondary access from Coppabella Road is only envisaged to include vehicles associated with the establishment of the 132kV transmission line (by TransGrid). No other construction traffic is currently proposed for Coppabella Road although workers and limited materials originating from local areas to the north of the project area could access CWF via Coppabella Road in latter stages of construction, subject to agreement with Hilltops Council.

A Traffic Management Plan (TMP) has been prepared further detailing the traffic routes, traffic volumes, dilapidation and road maintenance arrangements, a drivers code of conduct, and other mitigation measures to be implemented to minimise traffic safety issues and disruption to local road users. The TMP is provided at Appendix H.

4.7.2 Objectives and Targets

Objectives for traffic management of the CWF include:

- to minimise disruption to local traffic and maximise safety of all road users
- identify all relevant obligations and legislative requirements to be addressed during the construction phase of the Project
- to describe the specific traffic management requirements and identify the best practice methods to be implemented

Targets for traffic and access management issues associated with the Project comprise:

- 100% compliance with all applicable legislation, regulations, standards, codes and licenses that relate to the Project
- 100% compliance with the TMP
- no significant degradation to the environment or existing roadways as a result of project traffic movements
- no significant safety incidents for construction vehicles
- maximise the safety of all road users and construction staff
- no significant unreasonable traffic delays caused by the Project activities
- standard industry environmental management practices implemented for traffic management.

4.7.3 Mitigation Measures

The management and mitigation measures implemented for CWF are detailed in the TMP (Appendix H). These include:

- Upgrading the Hume Highway / Whitefields Road intersection and the 1.2km of Whitefields Road prior to the commencement of construction
- Obtaining all relevant permits and secondary approvals from the relevant road authorities, including haulage arrangements for the over-dimensional turbine components
- Undertaking relevant dilapidation surveys and maintenance of Whitefields Road during construction
- Undertaking effective on-going consultation with relevant stakeholders including, road authorities, local landholders and emergency services throughout the project
- Project personnel to undertake project induction, which incorporates key information on traffic and access such as the Drivers Code of Conduct
- Developing appropriate documentation (e.g. traffic control plans, vehicle movement plans) that is implemented
- Regularly review the road and traffic conditions and be prepared to promptly amend arrangements as appropriate for the revised conditions

The TMP should be referred to for more information regarding traffic and access.

4.8 Air Quality Management

4.8.1 Project Context

The site is distant from major industry and accordingly air quality in the region is not likely to be significantly affected by industrial air emissions. Occasional bushfires, certain agricultural activities and dust clouds in the region may have a temporary effect on air quality particularly during dry periods. Traffic from the Hume Highway to the south of the project area and farming equipment/machinery are expected to be the primary source of vehicle emissions in the area. Wind in the area is predominantly from the southwest during winter, and from the east during summer.

The CWF has the potential to have the following impacts to air quality:

- Generation of dust from earthworks and excavations, rock crushing, movement of plant and machinery and windblown dust from exposed surfaces during construction
- Generation of dust from maintenance activities and from exposed surfaces during operation
- Exhaust emissions from vehicles, plant and equipment used during construction and operation

4.8.2 Objectives and Targets

Objectives for air quality management are:

- minimise and prevent negative impacts from construction activities on air quality
- ensure construction related dust and emissions do not cause harm or environmental nuisance
- ensure compliance with the project MCoC.

Targets for air quality management for the CWF project are:

- zero visual emissions of dust leaving the site

- zero dust related complaints received attributable to the project

4.8.3 Mitigation Measures

Measures to minimise air quality impacts arising from dust and other emissions are provided in Table 19.

Table 19. Mitigation and management measures for air quality

Issue	Control Measure
General Air Quality Measure	Minimise areas of ground disturbance during construction (and during operation) to a minimum and undertake progressive rehabilitation commencing as soon as feasible following the completion of the ground disturbance works
	Dust generated by the project shall be minimised. Water carts (or other equivalent means) will be used to wet access roads and exposed earth surfaces including stockpiles and other materials that visually exhibit significant dust lift off. Weather conditions should be regularly monitored to determine frequency of application.
	Rock crushing facilities will be equipped with appropriate dust minimisation measures such as spray bars
	No waste will be burnt on site
	Prompt first responder action will be taken to extinguish fires in accordance with the project Emergency Response Plan
	Soil stockpiles will be managed in accordance with the SWMP (Appendix E) to avoid or minimise dust generation
Vehicle Movement Control Measures	Selection of access road surface materials and/or treatment will consider dust management in addition to track safety and durability requirements in wet weather with a preference for low maintenance/low dust generating materials in high traffic areas
	All site personnel will be advised of the requirement to minimise dust generation via environmental inductions, environmental training and pre-start meetings (e.g. vehicles to remain on formed tracks, do not exceed speed limits – limits reduced if elevated risk of dust generation)
	Site entry points will be stabilised/finished to prevent mud and dirt tracking onto public roads
Vehicle Emission Control Measures	All site personnel will be advised of the requirement to operate plant and equipment in a proper and efficient manner to minimise unnecessary emissions as part of the environmental induction (e.g. turn off vehicles/machinery when not in use)
	Vehicles and on-site plant will be maintained in a proper and efficient condition to ensure exhaust emissions comply with the <i>NSW Clean Air Regulation 2010</i>
	Routine pre-start checks will be used to record any excessively smoky vehicles
Monitoring and reporting	No air quality monitoring is required beyond visual observations relating to dust emissions. Works causing the dust generation will be identified and managed. Dust generating activities will cease immediately where emissions are leaving the site until additional measures can be taken to control emissions
	Air quality reporting will be limited to completion of weekly inspections, audits and incident or complaint investigation if required

4.9 Construction Noise and Vibration Management

4.9.1 Project Context

Coppabella is bounded to the west by Berremangra Settlement Road, to the south by Whitefields Road (followed by the Hume Highway), to the east by Bookham Illalong Road and to the north by Cumbamurra, Coppabella and Garryowen Roads. The township of Binalong is located some 10km to the north-east.

The site is in a rural area characterised by numerous hills including Jerusalem, Bushrangers and Dales Hills in addition to a distinct ridgeline running continuously for approximately 8km in a south-east direction.

There are 57 receiver locations within 5km of CWF of which 51 are non-associated residences and 6 are associated residences. The Figure at Appendix I shows the locations of the nearby receiver locations in relation to the CWF.

Noise generating activities during the construction of the CWF are summarised in Table 20.

Table 20. Summary of noise generating activities during construction

Construction Component	Potential Noise and Vibration Generating Activities
Site establishment, laydown areas and offices	Transport trucks, dozer, grader, excavator, loader, cranes, pouring footings, install offices and amenities.
Bulk earthworks, hardstands, access tracks and drainage works	Dozers, graders, scrapers, rollers/compactors, loaders, tipper trucks, gravel trucks, drainage and batters works. Potential limited blasting.
Excavation of footings and formwork installation	Excavation in soil and rock to depth of about 3m. Dozer rippers and rock breakers, excavator, loader, tipper trucks, vacuum trucks.
Concrete production, deliver and pouring at turbine sites	Batch plant operation, delivery of materials, loader, movement of agitator trucks, truck mounted pumps and pouring, generator and lighting. Concrete pours for each footing will occur over much of the day and must be poured in a single event for structural integrity. Concrete pours may start early or extend into the evening (outside standard hours) to complete the pour in a single event.
Underground cabling	Trenching machine for excavation in soil and rock, tipper trucks, sand trucks, cable drum carriers, backfill plant, grader, excavator
Oversize transport loads – plant delivery	Oversize trucks and support vehicles for steep grades. Escort vehicles, cranes for unloading, cutters to disassemble packing frames
Large cranes, turbine erection and transport of parts	Large cranes to erect turbines, assembly and disassembly on-site, operation during lifts, generator for tools and lighting, hand tools, support light vehicles and telehandler. Turbine erection work with large cranes is highly dependent on suitable weather conditions and may on occasion need to extend outside standard hours when wind conditions are favourable. The movement and relocation of the large cranes may also occur at night to avoid interference with other work activities during the day (subject to OOHW approval).
Turbine fit-out and commissioning	Mostly internal works but including work at kiosk transformers and coolers. Commissioning can involve resolution of any abnormal noise characteristics of spinning turbines.
Overhead transmission line	Dozers for tracks and hardstand areas, excavators and auger for pole footings, potential percussion drill rig to prepare pole excavations in rock, cranes to lift and install poles, cable brake and winch to draw conductors into place. Potential use of helicopter to string cables.
Substation	Dozer, grader, excavator, crane(s), rock breaker if need, tipper trucks, concrete agitator truck and pumps, drilling rig, generator(s).
Site restoration works	Backhoe/excavator, grader, trucks to move topsoil and rock to line drains,

Construction Component	Potential Noise and Vibration Generating Activities
	hydromulcher truck.
Other activities	Light vehicles, minivans for personnel transport, trucks for material delivery and other generally lower noise activities.

4.9.2 Objectives and Targets

The **objectives** of noise management are:

- to avoid or minimise noise impacts to surrounding receptors from the project
- to avoid or minimise noise complaints and if any complaints do arise, to ensure that they are responded to in a timely and appropriate manner

The project noise **targets** are:

- Zero noise nuisance complaints
- 100% compliance with complaints response timeframes
- 100% compliance with complaints investigation and close-out
- Zero noise-related actions taken by Regulators

4.9.3 Mitigation Measures

Measures to minimise construction noise and vibration impacts are provided in Table 21 .

Table 21. Construction measures and commitments for noise and vibration

Environmental Aspect	Construction Management Measures/Commitments
Scheduling	<p>The approved project construction hours are:</p> <p>(a) 7 am to 6 pm Monday to Friday;</p> <p>(b) 8 am to 1 pm Saturdays; and</p> <p>(c) at no time on Sundays and NSW public holidays.</p> <p>The following construction activities may be undertaken outside these hours without the approval of the Secretary:</p> <ul style="list-style-type: none"> • activities that are inaudible at non-associated residences; • the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons; or • emergency work to avoid the loss of life, property and/or material harm to the environment. <p>Any works other than the above that are proposed to be undertaken outside the approved hours must be approved by the Secretary prior to those works proceeding. Specific temporary construction activities that are required outside the defined working hours will be assessed by the out-of-hours work (OOHW) protocol provided at Appendix I to determine whether the anticipated impacts of the works, their justification, and the level of approval required to complete the OOHW.</p>
Maintenance	Plant, equipment and machinery are to be serviced and maintained according to, as a minimum, the manufacturer specification. Where manufacturer's requirements are not available then industry best practice maintenance will be applied.
Control	Where possible equipment will be procured with Original Equipment Manufacturer mufflers installed. Additional noise attenuation of fixed and mobile plant will be considered. For high

Environmental Aspect	Construction Management Measures/Commitments
	noise generating items proprietary acoustic enclosures will be considered.
Management	<p>The following site management measures will be implemented:</p> <ul style="list-style-type: none"> • ensure silencers, noise control devices and enclosures are intact, rotating parts are balanced, loose bolts are tightened, frictional noise is reduced through lubrication and cutting noise reduced by keeping equipment sharp • only necessary power to complete the tasks will be used • care will be taken not to drop materials such as rock, to cause peak noise events, including materials from a height into a truck. Site personnel should be directed as part of an off-site training regime to place material rather than drop it • plant known to emit noise strongly in one direction, such as the exhaust outlet of an attenuated generator set, will be orientated so that the noise is directed away from noise sensitive areas as appropriate • machines that are used intermittently shall be shut down in the intervening periods between works or throttled down to a minimum • worksite induction training and educating staff on correct noise management practices will be implemented
	Transport activities to site (and through site) will typically occur during the daytime. Night time transport is expected to be restricted to oversize and overmass vehicles, where required for traffic safety reasons, and strict speed limits and noise minimising measures will be applied through rural and residential areas. The onsite relocation of large cranes may also occur at night to avoid interference with other work activities during the day (subject to OOHW approval).
	Blasting carried out during construction must not exceed the blasting criteria stipulated at Table 2 of the MCoC (Sch.3, C.10).
Consultation	Prior to commencement of construction, surrounding residents will be informed of the date of commencement of construction works, the nature and duration of components of the construction phase, the potential impacts and contact details for registering complaints or enquiries. Regular updates will be provided to the community regarding the construction program.
Complaints management	If construction-noise related complaints are received the matter(s) will be investigated by the construction contractor and, where practicable, measures will be implemented to reduce the impact. A response will be provided to the complainant(s) as to the findings and any modifications undertaken to reduce the impact.
	Complaints management will be undertaken in accordance with the CHWF Complaints Management System.
	In the event that a noise complaint is received in relation to the project, the complaint must be reported to the EPC Project Director within 24 hours.

4.9.4 Assessment Process for Out of Hours Work

During construction, a range of activities may need to occur outside the standard work hours, including:

- concrete pours of foundations (which must be poured in one extended pouring event)
- delivery of oversize components
- installation/erection of turbine components using large cranes (as the work is highly weather dependent, and once commenced needs to be completed to ensure the safety of the installed components)
- limited earthworks and other activities
- commissioning activities.

An Out of Hours Work (OOHW) Protocol will be used to assess the audibility of any works proposed to occur outside of standard hours. The OOHW Protocol is provided at Appendix I. In line with the project approval (MCoC Sch.3, C.8). OOHW works that are expected to be audible at any non-associated residences will require DPIE

Secretary approval (aside from the exceptions listed in that condition).

4.10 Operational Noise Management

4.10.1 Project Context

The project is associated with noise emissions during its operation and during maintenance activities that need to be monitored and managed to ensure compliance with the relevant conditions of consent and the project EPL.

MCoC Schedule C includes conditions relating to operational noise and its management. Additionally, the project EPL will have conditions relating to noise and its management.

4.10.2 Objectives and Targets

Objectives for operational noise management are:

- Operate the Project in a manner consistent with the MCoC, which do not adversely impact the amenity of neighbouring residences due to noise emissions beyond what has been agreed
- Ensure compliance with relevant MCoC and EPL conditions.

Targets for operational noise management are:

- 100% compliance with MCoC and EPL
- Zero noise complaints associated with operation and maintenance activities
- Prompt investigation and resolution of noise complaints.

4.10.3 Legal and Other Requirements

Schedule 3, Condition 11 of the MCoC relates to operational noise criteria for the wind turbines:

The Applicant shall ensure that the noise generated by the operation of wind turbines does not exceed the relevant criteria in Table 3 at any non-associated residence.

Residence	Criteria (dB(A)) with Reference to Hub Height Wind Speed (m/s)											
	3	4	5	6	7	8	9	10	11	12	13	14
C04	35	35	35	35	35	35	35	35	36	37	38	38
C74	35	35	35	35	35	35	36	38	39	41	43	44
All other non-associated residences	The higher of 35 dB(A) or the existing background noise level (LA90 (10-minute)) plus 5 dB(A)											

Note: To identify the residences referred to in Table 3, see the applicable figures in Appendix 2 of MCoC

Noise generated by the operation of the wind turbines is to be measured in accordance with the relevant requirements of the Department's Wind Energy: Noise Assessment Bulletin (2016) (or its latest version).

However, these criteria do not apply if the Applicant has an agreement with the relevant owner/s of these residences to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

Schedule 3, Condition 12 of the MCoC relates to operational noise criteria for ancillary infrastructure:

The Applicant shall ensure that the noise generated by the operation of ancillary infrastructure does not exceed 35 dB(A) LAeq(15 minute) at any non-associated residence.

Noise generated by the operation of ancillary infrastructure is to be measured in accordance with the relevant requirements of the NSW Noise Policy for Industry (or its equivalent).

Schedule 3, Condition 13 of the MCoC relates to noise monitoring:

Within 3 months of the commencement of operations (or the commencement of operation of a cluster of turbines, if the development is to be staged), unless the Secretary agrees otherwise, the Applicant shall:

(a) undertake noise monitoring to determine whether the development is complying with the relevant conditions of this consent; and

(b) submit a copy of the monitoring results to the Department and the EPA.

Schedule 3, Condition 14 of the MCoC requires that:

The Applicant shall undertake further noise monitoring of the development if required by the Secretary.

EPL Requirements

The project EPL will include conditions relating to noise.

4.10.4 Assessment Process of Out of Hours Work

During operations, the following activities have the potential to occur outside the standard work hours on an exceptions basis:

- deliveries of replacement parts or plant and equipment
- crane activities at turbine or substation sites to effect repairs in a timely manner during suitable weather conditions
- onsite activities required to respond to an emergency situation or unscheduled maintenance events
- Activities that are non-audible at non-associated residences (e.g. office work, instrument adjustments, equipment inspections, etc.).

In the event that these activities are necessary outside the standard work hours and have the potential to impact on the amenity at non-associated residences, then an internal risk assessment process would be undertaken to assess and manage those activities (refer to Appendix I). Mitigation and management measures may include scheduling, control, planning, landowner consultation and noise monitoring measures.

4.10.5 Compliance Monitoring and Reporting

In accordance with Schedule 3, Condition 13 of the MCoC and EPL conditions, noise monitoring will be undertaken within three (3) months of the commencement of operations, or other timing as may be agreed with the Secretary, to determine whether the project is complying with the relevant conditions of this approval.

CWFPL may also undertake monitoring before the wind farm is fully operational to assess performance, prior to the compliance assessment for the fully operating wind farm.

4.10.6 Corrective Actions to Achieve Compliance

In the event that the analysis of the monitoring indicates exceedance of criteria at any of the monitoring locations then the assessment will be reviewed for the location and if confirmed as non-compliance, then corrective actions will be applied to achieve compliance at the relevant monitoring location(s) and for the wind farm overall.

Where corrective action is required, the corrective actions could include one or more of the following:

- Treatments to turbine blades to reduce sound power for certain turbines that may contribute to non-compliance
- Consideration to providing building acoustic treatments and mechanical ventilation at relevant residences
- Moderate the operation of specific turbines to achieve compliance including utilising 'sector management'. Sector management involves curtailing the operation of one or more specific turbines in response to specific site conditions that could result in the operation of respective turbine(s) contributing to non-compliance. The affecting site conditions may involve a combination of particular wind speeds, atmospheric or weather conditions and wind directions (noise will tend to carry further in a downward direction). The sector management process involves the operation of the turbine(s) being varied (reduced power and hence noise), with the degree of variation to operation being programmed based on the conditions occurring at the time. The turbines operation software can be programmed to respond to

defined circumstances. This has been successfully undertaken at another NSW site where Goldwind turbines were used. The turbine operational details are retained in the WRWF SCADA system and that can be reviewed/interrogated to confirm that sector management is occurring (where it is required)

- Offer mitigation measures and/or neighbour agreement at the relevant residence locations
- If necessary, implement other measures to be determined if the above are not effective in achieving compliance.

4.11 Bushfire Risk Management

IN THE EVENT OF A BUSHFIRE, REFER TO THE PROJECT EMERGENCY RESPONSE PLAN (ERP) LOCATED ON THE PROJECT WEBSITE www.copabellawindfarm.com AND AT EACH SITE NOTICEBOARD

The ERP is also provided at Appendix J to the EMS and provides specific details regarding emergency response, procedures and contact details in the event of a fire or other emergency.

4.11.1 Project Context

The CWF is primarily located on private property within and adjacent to agricultural areas used for sheep grazing and scattered areas of cropping. In general, the CWF project locality can be characterised as grassland ridges with scattered woodland patches on hillslopes and in valleys. Elevations across the site range from approximately 450-810m. Prior to the project development access was not readily available across the project area due to the steep terrain with no formed access tracks.

The project provides access tracks that will enable safe and direct access between the parts of the project and across a range of properties. Figure 2-3 shows the properties where the project is located.

Access to the CWF Project Area are shown in Figure 2-2.

Key activities that have the potential to ignite/initiate a fire are outlined in Table 22.

Table 22. Project activities with a potential to start fires

Activity phases and fire risks
<p>Construction activities including vegetation clearing, establishment of access tracks and hardstands, turbine foundations, turbine delivery and installation, cabling works, substation and transmission line works, progressive site rehabilitation and other ancillary activities.</p> <ul style="list-style-type: none"> • Sparks from earthworks • Hot works including welding, grinding etc • Worker behaviour (eg smoking)
<p>Commissioning of turbines and substation</p> <ul style="list-style-type: none"> • Electrical faults from testing and commissioning
<p>Operation</p> <ul style="list-style-type: none"> • Routine maintenance works involving hot works, earthworks (for road maintenance), fencing, use of generators and other machinery, etc • Non-routine maintenance and retrofit works may involve repairs to underground cables including hot works for cable joins; repair or replacement of turbine components which could involve use of cranes • Electrical faults
<p>Decommissioning temporary facilities</p> <ul style="list-style-type: none"> • Sparks from earthworks • Hot works including welding, grinding etc

Activity phases and fire risks

All phases

- Worker behaviour (eg smoking)
- Vandalism

4.11.2 Objectives and Targets

The **objectives** of bushfire risk management are:

- to avoid or minimise the risk of bushfires originating from project-related activities
- to ensure that an appropriate and timely response is planned for and initiated in the event of a fire occurring within the project area (regardless of origin)
- to prevent harm to life and property in the event of a fire occurring within the project area

The project bushfire risk management **targets** are:

- Zero bushfires originating from project-related activities
- 100% compliance with the aims and objectives of the Planning for Bushfire Protection, 2006
- Consultation and coordination with Emergency Services throughout project construction, operation and decommissioning

4.11.3 Mitigation Measures

Asset Protection Zones

In accordance with the Planning for Bushfire Protection (RFS 2006), the infrastructure to be installed during construction and operation fall into Building Code of Australia (BCA) Building Classes 5 to 8 and 10. The BCA does not provide for any bush fire specific performance requirements. As such, asset protection zones are not formally required to be defined for planning purposes. The gravel-capped access tracks and hardstands around turbines and other project infrastructure however do provide effective asset protection buffers and separation distance between the project assets and the surrounding vegetation.

Measures to minimise the risk of fires being ignited and also measures to minimise the risk of impacts arising from bushfires are provided in Table 23. The key source of information regarding procedures, emergency response and contact details in the event of a fire are provided in the project Emergency Management Plan (Appendix J).

Table 23. Mitigation measures for fires and bushfires

Mitigation Measure	Responsibility	Timing/Comment
Ongoing consultation to occur with NSW RFS and Local Emergency Management Committee (LEMC) during construction and operations to ensure familiarity with the project and its environment.	EPC HSE Rep (construction) Site Operations Manager (operations)	Construction – minimum annually. Operations – within 6 months of operations commencement.
Conduct regular emergency preparation/response drills. The RFS and LEMC will be invited to be involved in site emergency drills during construction and during operations (at a minimum every 3 years). Greater attention to awareness and readiness will be given at the start of the 'Bush Fire Danger Period' and prior to Bush Fire Risk increasing.	EPC HSE Rep (construction) Site Operations Manager (operation)	Construction – 6 monthly Operations - annually

Mitigation Measure	Responsibility	Timing/Comment
<p>Awareness regarding fire risks and mitigations provided to all staff through mandatory inductions and training of select number of staff in the use of fire-fighting equipment. Rules regarding smoking onsite only at designated hardstand areas and appropriate disposal of cigarette butts. Adequate site communications to ensure a fire event is communicated quickly. Measures would include:</p> <ul style="list-style-type: none"> • Use of mobile phones • Use of two-way radios • Toolbox talks, especially during very high or above fire danger periods <p>These are detailed in the Project Emergency Response Plan (ERP)</p>	<p>Site HS&E Rep (construction)</p> <p>Site Operations Manager (operation)</p>	<p>Induction involves review of the ERP.</p> <p>Toolbox talks during construction</p> <p>Additional training provided on as needs basis.</p>
<p>Appropriate fire-fighting equipment would be held on site for initial response to any fires that may occur at the site during project construction and during operation. Fire extinguishers in vehicles and at compound areas would be available during construction in addition to water carts.</p> <p>Fire extinguishers and a dedicated portable spray unit will be retained on site as a precautionary measure during operations, and would be on standby during higher risk activities. Equipment lists would be detailed in SWMS's.</p>	<p>EPC HSE Rep (construction)</p> <p>Site Operations Manager (operation)</p>	<p>Ongoing</p>
<p>All access and egress tracks on the site would be maintained to enable rapid response for firefighting crews and to avoid entrapment of staff in the case of bush fire emergencies. Temporary blockages may be required during turbine construction. In such cases, alternative access arrangements would be identified and all staff working on site would be notified via the coordination meetings and toolbox talk procedures.</p>	<p>EPC HSE Rep / Construction Manager (construction)</p> <p>Site Operations Manager (operation)</p>	<p>Ongoing</p>
<p>Surrounding Static Water Supplies (e.g. farm dams) are identified in the Project ERP for use as potential water sources by emergency in the event of a bushfire.</p>		<p>Completed. Refer to Project ERP</p>
<p>For hot works (e.g. welding, use of oxy-acetylene cutting torches, angle-grinding, use of explosive power tools etc.)</p> <ul style="list-style-type: none"> • Implement a Hot Works Permit system and SWMS/JSEAs to ensure risks are considered and a number of pre-requisites are satisfied prior to works commencing • Regular monitoring of fire danger rating by Site HSE Rep. Activities to be considered and re-evaluated accordingly • Only qualified personnel to use welding equipment • All hot works require a hot works permit • To ensure any risk of fire or explosion resulting from the hot works is eliminated, an area within a radius of two metres (standard exclusion zone) around the point where the hot works are being undertaken, including space above and below that area, would be clear of flammable debris including vegetation • Presence of portable water spray units (and water carts) during construction and spray unit retained on site during operations. 	<p>EPC HSE Rep (construction)</p> <p>Site Operations Manager (operation)</p>	<p>Required for all relevant activities</p>
<p>No petrol vehicles in the construction area and then only to be used on formed roads. No driving or parking off access tracks or hardstand areas.</p>	<p>EPC HSE Rep (construction)</p>	<p>Throughout construction as relevant</p>
<p>Appropriate firefighting equipment would be on standby if blasting is required during construction.</p>	<p>EPC HSE Rep in liaison with specialist blast contractor</p>	<p>As required</p>

Mitigation Measure	Responsibility	Timing/Comment
Shut down of turbines would occur automatically if components overheat. Relevant turbines would be shutdown where directed by emergency services in the event of a fire emergency on site.	Commissioning Manager (construction) Site Operations Manager (operation)	As required
Asset protection buffers would be maintained during operations around key project infrastructure (e.g. around operations compound/s, turbines, substation, overhead transmission line)	Site Operations Manager TransGrid for relevant assets	As required. Minimum annual inspections.

4.12 Aviation Safety Management

4.12.1 Project Context

The installation of tall structures, wind turbines and monitoring masts has potential to present hazards for some aircraft and aviation radar equipment. This section sets out requirements to address this issue and provides the Coppabella Wind Farm context.

An Aviation Impact Management Plan (AIMP) was prepared (Aviation Projects, 2017a) to the satisfaction of Airservices Australia. The AIMP is provided on the project website and is summarised in this chapter. The AIMP identified several potential aviation-related impacts associated primarily with the operation of the Majura Primary Secondary Radar / Secondary Surveillance Radar (PSR/SSR) Air Traffic Control radar and the Mt Bobbara SSR Air Traffic Control radar. Various potential mitigation measures are presented in the AIMP. In late 2017, Airservices Australia commissioned a new Automatic Dependent Surveillance-Broadcast (ADS-B) facility at Mt Dederang in Victoria during 2017 with surveillance system measures incorporated which resolved the issues initially identified for the Coppabella Wind Farm. Airservices Australia has since confirmed that the new ADS-B facility at Dederang is functioning as required and that no additional requirements are currently necessary for the wind farm in relation to the operation of the Mt Majura PSR/SSR Air Traffic Control radar, Mt Bobbara SSR Air Traffic Control radar, and any other Airservices Australia infrastructure or facilities. However, any residual deficiency as a result of the construction of the CWF will only become evident once construction of wind turbines commences. In the event that such residual deficiencies are identified, then additional mitigation in the form of an additional ADS-B would be required. Airservices also advised that they are planning on installing additional ADS-B facilities across the country including one which would further improve the coverage in the vicinity of the CWF although timing for this project remained unclear.

An Aviation Safety Assessment (ASA) has also been prepared for the CWF (Aviation Projects, 2017b).

Aircraft in the vicinity of the Project site operate under the Instrument Flight Rules and Visual Flight Rules. Operations conducted in the vicinity include private, aerial application, firefighting and emergency operations. The ASA found that the turbine arrangement proposed at CWF resulted in one potential aviation safety impact associated with WTG9, which is the wind turbine with the maximum height at 980 m AHD (3216 ft AMSL). WTG9 was found to infringe the 1000 ft minimum obstacle clearance (MOC) for the 25 nm minimum safe altitude (MSA) of (4200 ft AMSL) at Cootamundra Airport by 4.6 m (16 ft). This impact will be mitigated through micro-siting of that turbine or through the detailed design of the site levels at that location to ensure it does not exceed the MOC.

With respect to Manual of Standards (MOS) 139 9.4.1.2 (b), the wind turbines will need to be lit if they are higher than 110 m AGL, unless an aeronautical study assesses they are of no operational significance. Aviation Projects assessed that there will be an acceptable level of aviation safety risk associated with the potential for an aircraft collision without obstacle lighting on the turbines of the Project.

The management measures associated with air safety are provided at Section 4.12.3.

4.12.2 Objectives and Targets

Objectives for air safety risk management are:

- To comply with the aviation safety requirements and to comply with the notification and consultation with the various aviation stakeholders to identify and mitigate potential aviation safety risks.

Targets for risk management for the construction of Coppabella Wind Farm are:

- provide all necessary consultation with relevant aviation safety regulators and aerodrome operators;
- achieve 100% project notification requirements to the relevant aviation safety regulators utilising the correct process;
- compliance with 100% of the commitments for air safety risks.

4.12.3 Mitigation Measures

Micro-siting

1. The overall blade tip height shall be limited to a maximum of 975.4 m AHD (3200 ft AMSL) so that the PANS-OPS surface associated with the 25 nm MSA at Cootamundra Airport is not infringed. Turbine WTG9 shall be microsited to remain within the acceptable limits.

Notification and reporting

2. Final (approved) wind turbine coordinates and elevations (after micrositing) shall be provided to:
 - a. vod@airservicesaustralia.com with the following completed form (<http://www.airservicesaustralia.com/wp-content/uploads/ATS-FORM-0085-ObstacleNotificationForm.pdf>)
 - b. RAAF AIS in accordance with AC 139-08(0) Reporting of Tall Structures. Note the form above satisfies this requirement.
 - c. Airspace.Protection@casa.gov.au
3. Any obstacles above 110 m AGL (including temporary construction equipment) should be reported to Airservices Australia NOTAM office until they are incorporated in published operational documents (i.e. utilise method identified in (1) above).
4. The location of wind turbines, monitoring towers and powerlines should be made available to RFS, Royal Flying Doctors Service (RFDS), aerial agriculture operators and land owners so they are able to provide this information to aerial application pilots when requested for flight planning purposes.

Marking of turbines and meteorological masts

5. The rotor blades, nacelle and the supporting mast of the wind turbines should be painted white.
6. Meteorological masts and their guy wires will be marked to improve their visibility and reduce risks to any low flying aircraft (e.g. aerial agricultural operations).

Lighting of turbines

7. The ASA has assessed that the Project will not require obstacle lighting to maintain an acceptable level of aviation safety. Should the project be required to install aviation hazard lighting, then an aircraft detection lighting system will need to be installed (unless otherwise agreed by CASA). This is consistent with the project consent (Schedule 3, Condition 4(b)).
8. If LED obstacle lighting is proposed to be installed, the frequency range of the LED light emitted should be within the range of wavelengths 665 to 930 nanometres.

Radar Interference Review

1. Once all the turbines have been installed, the developer shall liaise with Airservices to review if there is any residual deficiency associated with the Mt Bobbara SSR Air Traffic Control radar as a result of the construction of the CWF. If an unacceptable residual deficiency as a result of the windfarm is identified, then the issue would need to be resolved at the windfarm's cost. A legally binding agreement has been established formalising this arrangement in accordance with the project consent (Schedule 3, Condition 34 (c)).

4.13 Visual Amenity

4.13.1 Project Context

The areas surrounding CWF are predominantly cleared hilly farm land used for sheep grazing. Scattered trees remain on various hill slopes and valleys. The topography within the CWF viewshed can be described as rolling

hills, often creating enclosed visual corridors.

There are 57 receiver locations within 5km of CWF of which 51 are non-associated residences and 6 are associated residences. The Figure at Appendix I shows the locations of the nearby receiver locations in relation to the CWF.

4.13.2 Objectives and Targets

Objectives for visual amenity are:

- Minimise the visual impact of the project during all stages

Targets for visual amenity are:

- achieve 100% project landscape notification requirements
- compliance with 100% of the MCoC
- 100% response rate regarding any visual and landscape complaints.

4.13.3 Mitigation Measures

Measures to minimise visual amenity impacts are provided in Table 24.

Table 24 Mitigation measures to minimise visual amenity impacts

Environmental Aspect	Construction Management Measures/Commitments
Visual Appearance	CWF shall: <ul style="list-style-type: none"> (a) implement all reasonable and feasible measures to minimise the off-site visual impacts of the development; (b) ensure the wind turbines are: <ul style="list-style-type: none"> • painted off white/grey; and • finished with a surface treatment that minimizes the potential for glare and reflection (c) ensure the visual appearance of all ancillary infrastructure (including paint colours, specifications and screening) blends in as far as possible with the surrounding landscape; and (d) not mount any advertising signs or logos on wind turbines or ancillary infrastructure.
Lighting	CWF shall: <ul style="list-style-type: none"> (a) implement all reasonable and feasible measures to minimise the off-site lighting impacts of the development. Any temporary night lighting during construction shall be minimised and, if necessary, use low lux (intensity) lighting designed to be mounted with the light projecting inwards to the Project site to minimise glare; (b) ensure that any aviation hazard lighting installed utilises an aircraft detection lighting system, unless otherwise agreed by CASA; (c) ensure that all external lighting associated with the development (apart from any aviation hazard lighting): <ul style="list-style-type: none"> • is installed as low intensity lighting (except where required for safety or emergency purposes); • does not shine above the horizontal; • uses best management practice for bat deterrence; and • complies with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version.
Shadow Flicker	CWF shall ensure that shadow flicker associated with wind turbines does not exceed 30 hours per annum at any non-associated residence. This has been confirmed through the modelling of the approved turbine locations, but shall be reviewed during the turbine micro-siting process.
Offsite Landscaping	The owners of the relevant residences shall be notified of their landscaping entitlements and relevant visual impact mitigation measures implemented as detailed in Sch.3, C.1 and C.2 of the MCoC.
Visual Amenity	Enforce safeguards to control and minimise dust emissions during all relevant stages of the project (refer to Section 4.8).
	Enforce safeguards to control and minimise the generation of wind blown or other uncontrolled waste during all relevant stages of the project (refer to Section 4.6).

Environmental Aspect	Construction Management Measures/Commitments
Monitoring	Regular monitoring and inspections (refer to Section 3.10) will be undertaken during construction to check that the required mitigation measures are appropriately implemented.
Reporting	Visual impact reporting will be limited to completion of weekly inspections and incident or complaint investigation if required.
Complaints management	If construction related visual complaints are received the matter(s) will be investigated by the construction contractor and, where practicable, measures will be implemented to reduce the impact. A response will be provided to the complainant(s) as to the findings and any changes made to reduce the impact.
	Complaints management will be undertaken in accordance with the CWF Complaints Management System.

5 References

Aviation Projects. 2017a. Aviation Impact Management Plan – Coppabella Wind Farm. Prepared for Goldwind Australia Pty Ltd by Aviation Projects Pty Ltd

Aviation Projects. 2017b. Aviation Safety Assessment – Coppabella Wind Farm. Prepared for Goldwind Australia Pty Ltd by Aviation Projects Pty Ltd

Dibden. 2017. Aboriginal Cultural Heritage Assessment Report, Revised Yass Valley Wind Farm – The Coppabella Hills. Prepared by Julie Dibden of New South Wales Archaeology Pty Ltd for Goldwind Australia Pty Ltd, report dated 2 August 2017.

Golder Associates. 2017. Geotechnical Investigation Report – Coppabella Wind Farm, Southern Tablelands NSW. Prepared by Golder Associates for Goldwind Australia (22 December 2017)

Appendix A Turbine and Met Mast Coordinates

TURBINE AND METEOROLOGICAL MAST COORDINATES

Turbine No.	Easting	Northing
1	641135	6156615
2	642183	6155309
3	641934	6155584
4	641683	6155973
5	641228	6156306
6	644704	6153528
7	643949	6154128
8	643690	6154400
9	642410	6155033
10	642697	6154767
11	644507	6153820
12	645386	6153102
13	645920	6153005
14	645844	6152689
15	643186	6154579
16	640374	6156085
17	640731	6155502
18	640494	6155780
19	641174	6155340
25	639997	6154114
29	641753	6154245
30	640070	6154676
31	640038	6155010
32	639618	6154648
33	639464	6153582
34	638607	6154188
35	638391	6153940
37	638704	6154914
38	639088	6155044
39	638176	6153691
40	637724	6153002
41	637724	6152676
42	637890	6153483
43	638123	6153103
44	637501	6153978
45	637821	6154164
46	638091	6154423
47	639088	6152412

Turbine No.	Easting	Northing
48	639374	6152965
49	639508	6153251
50	639733	6152377
51	639315	6152655
52	637982	6155133
53	637955	6154807
54	637553	6154697
55	637558	6155411
56	638814	6155310
57	638692	6155728
58	638239	6155953
59	638546	6156147
60	637143	6155777
61	636904	6155521
62	636707	6155235
63	636604	6154848
64	637973	6156390
65	638118	6156671
66	638884	6156320
67	639241	6156706
68	638060	6157008
69	635163	6156152
70	635540	6156654
71	635509	6156422
72	635867	6156842
73	646131	6150401
74	646521	6150162
78	644751	6150491
79	644514	6150205
80	644204	6150650
81	643496	6151799
82	643622	6152119
126	636929	6157657
127	637065	6157311
128	637560	6157324
129	637674	6157619
130	635896	6156000
PMM1	644257	6154029.8
PMM2	641483	6153890

Appendix B Layout Plans

LAYOUT PLANS

Appendix C Minister's Conditions of Approval

MINISTER'S CONDITIONS OF CONSENT

Appendix D Environmental Risk Assessment

ENVIRONMENTAL RISK ASSESSMENT

Appendix E Soil and Water Management Plan

SOIL AND WATER MANAGEMENT PLAN

Appendix F Biodiversity Management Plan

BIODIVERSITY MANAGEMENT PLAN

Appendix G Heritage Management Plan

HERITAGE MANAGEMENT PLAN

Appendix H Traffic Management Plan

TRAFFIC MANAGEMENT PLAN

Appendix I Out of Hours Work Protocol

OUT OF HOURS WORK PROTOCOL

Coppabella Wind Farm – Out of Hours Work (OOHW) Protocol

The following steps will be taken to assess and approve any out of hours work:

The OOHW application and assessment process is documented in FORM OOHW1, with the steps further described below. Please consult with the EPC Construction Manager and EPC HSE REP as early as possible if OOHW are required by your organisation. Further direction on the OOHW Protocol can be provided by the EPC HSE REP upon request. OOHW will be assessed on a case by case basis and subject to the discretion of the EPC Construction Manager.

STEP 1 - REASON for OOHW - Identify the reason why the proposed out of hours work needs to be completed outside the approved hours of construction. If the OOHW are essential for the safe and efficient delivery of the project, or are required due to exceptional circumstances, prepare and document a justification for the works.

STEP 2 – NATURE OF OOHW - Prepare and document a description of the works, the expected duration, a list of all noise generating plant, equipment and machinery in use, or activities to be undertaken, a list of all potential mitigation and management measures. The sound power level (SPL) of each plant/activity needs to be recorded (e.g. manufacturers guaranteed data or actual data of plant to be used).

STEP 3 – INTENSITY OF OOHW - Determine the intensity of the works. To do this calculate the combined SPL of all proposed noise generating plant, equipment and machinery in use, or activities to be undertaken. For all noise generating sources operating together, use the following hierarchy:

- **High Intensity Works** – an overall construction fleet Sound Power Level (L_w) of 125 dB(A);
- **High / Medium** – an overall construction fleet L_w of 120 dB(A);
- **Medium** – an overall construction fleet L_w of 115 dB(A);
- **Low / Medium** – an overall construction fleet L_w of 110 dB(A); and
- **Low** – an overall construction fleet L_w of 105 dB(A).

Account for potentially annoying (tonal, low frequency content or impulsive) work activities: apply a 5 dB(A) penalty to the values above for annoying works.

Account for all potential noise mitigation and management measures (e.g. intervening topography or structures, or shielding provided as part of noise mitigation measures, that will reduce noise levels at receptors): where relevant, apply a 3 dB(A) deduction to the values above for the noise reducing measures that will be implemented.

STEP 4 – SENSITIVE RECEPTORS - Identify the closest and/or potentially most affected non-associated receptors situated within the potential area of influence of the works. As a minimum, the potential area of influence should consider all receptors within 3 kilometres (km) of the works.

STEP 5 – IMPACT OF OOHW FOR NON-ASSOCIATED RESIDENCES - Once the intensity of works has been qualified, complete a noise level screening test to determine the estimated construction L_{Aeq} , 15 minute noise levels at the closest and/or potentially most affected non-associated residence situated within the potential area of influence of the works.

The distances, intensity of works and estimated noise level values presented in *Table OOHW1* should be used.

STEP 6 – APPROVAL MAY BE GRANTED WHERE INAUDIBLE AT NON-ASSOCIATED RESIDENCES – once noise levels have been determined, use *Table OOHW2* to determine if the works are expected to be inaudible. Where works are expected to be inaudible at the nearest non-associated residence, the EPC Project Manager and

HSE REP may approve the OOHW works. Noise checks will be required where there is a possibility that the works may be audible at a non-associated residence (refer to Table OOWH2). **Where the works are expected to be audible at any non-associated residences, the OOHW will require DPIE Secretary approval.** No OOHW shall commence prior to approval being obtained.

STEP 7 – following approval and documentation, works may proceed. All identified mitigation and management measures shall be implemented. Consideration should also be made to notifying relevant receptors of the OOHW.

Table OOWH1. Distance, intensity of works and estimated noise level values

Distance (metres, m)	High Intensity Works	High/Medium Intensity Works	Medium Intensity Works	Low/Medium Intensity Works	Low Intensity Works
	Estimated LAeq, 15minute	Estimated LAeq, 15minute	Estimated LAeq, 15minute	Estimated LAeq, 15minute	Estimated LAeq, 15minute
100	73	68	63	58	53
200	68	63	58	53	48
300	64	59	54	49	44
400	61	56	51	46	41
500	59	54	49	44	39
600	57	52	47	42	37
700	55	50	45	40	35
800	53	48	43	38	33
900	52	47	42	37	32
1000	51	46	41	36	31
1100	50	45	40	35	30
1200	49	44	39	34	29
1300	48	43	38	33	28
1400	47	42	37	32	27
1500	46	41	36	31	26
1600	45	40	35	30	25
1700	44	39	34	29	24
1800	44	39	34	29	24
1900	43	38	33	28	23
2000	42	37	32	27	22
2100	42	37	32	27	22
2200	41	36	31	26	21
2300	40	35	30	25	20
2400	40	35	30	25	20
2500	39	34	29	24	19
2600	39	34	29	24	19
2700	38	33	28	23	18
2800	38	33	28	23	18
2900	37	32	27	22	17
3000	37	32	27	22	17

1. These noise levels have been estimated via calculation (noise modelling) using ISO9613 methods and conservative inputs parameters. More details noise modelling may be undertaken if necessary to inform this Protocol.

Table OOHW2. Audibility of OOHW at non-associated residences

Estimated L_{Aeq, 15min}	Audibility Status	Action
<20 dB(A)	Very unlikely that construction noise will be audible	EPC PM & EPC HSE REP Approve
20 to 25 dB(A)	Unlikely that construction noise will be audible	EPC PM & EPC HSE REP Approve
25 to 30 dB(A)	Unlikely (but possible) that construction noise will be audible	EPC PM & EPC HSE REP Approve* (noise checks required).
>30 dB(A)	Construction noise will likely be audible	DPIE Secretary Approval

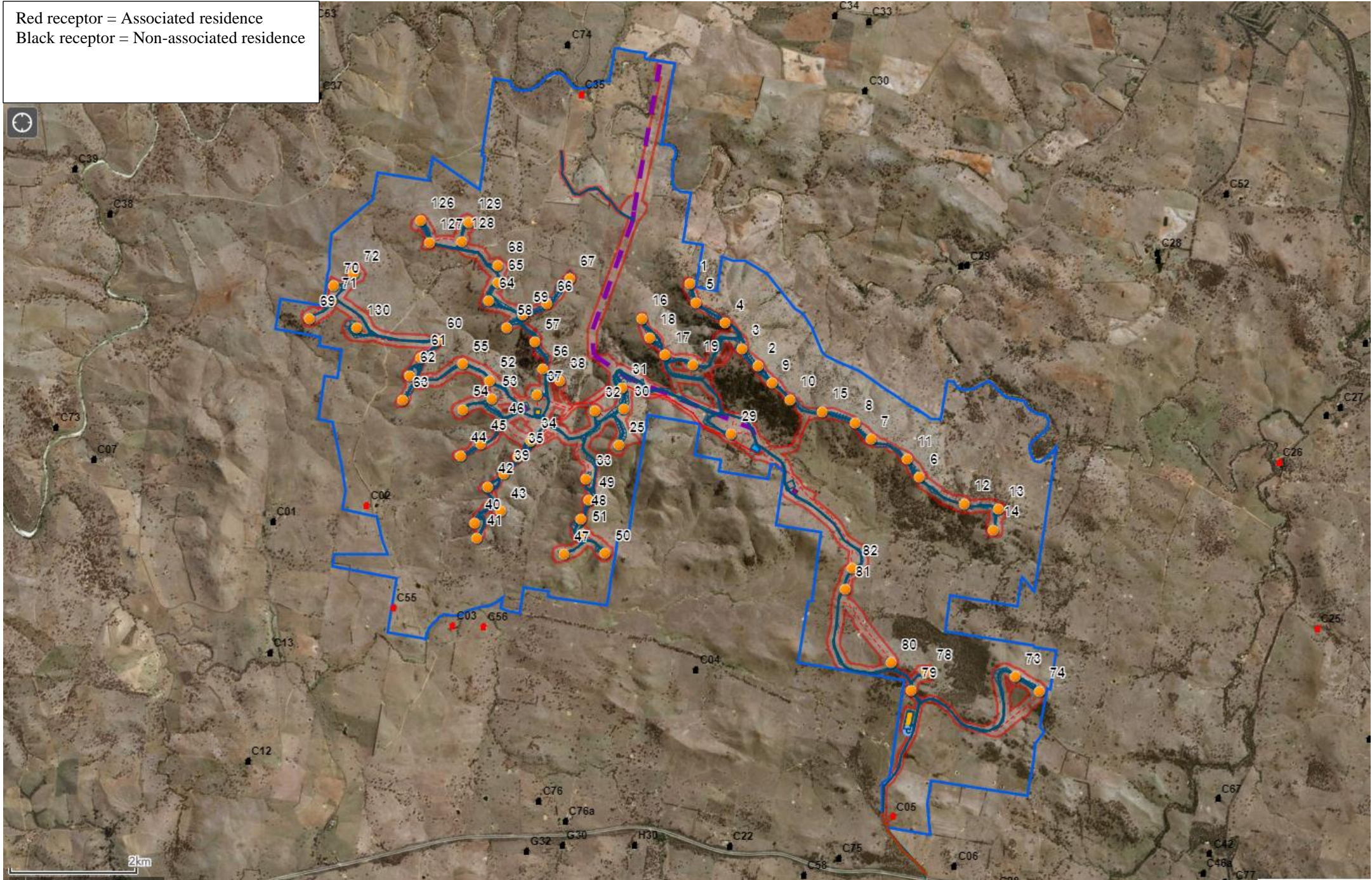
* The EPC Project Manager & EPC HSE REP may refer the OOHW Application to the DPIE Secretary for Approval depending on the extent and duration of the proposed OOHW activity

FORM OOHW1 – Assessment and Approvals

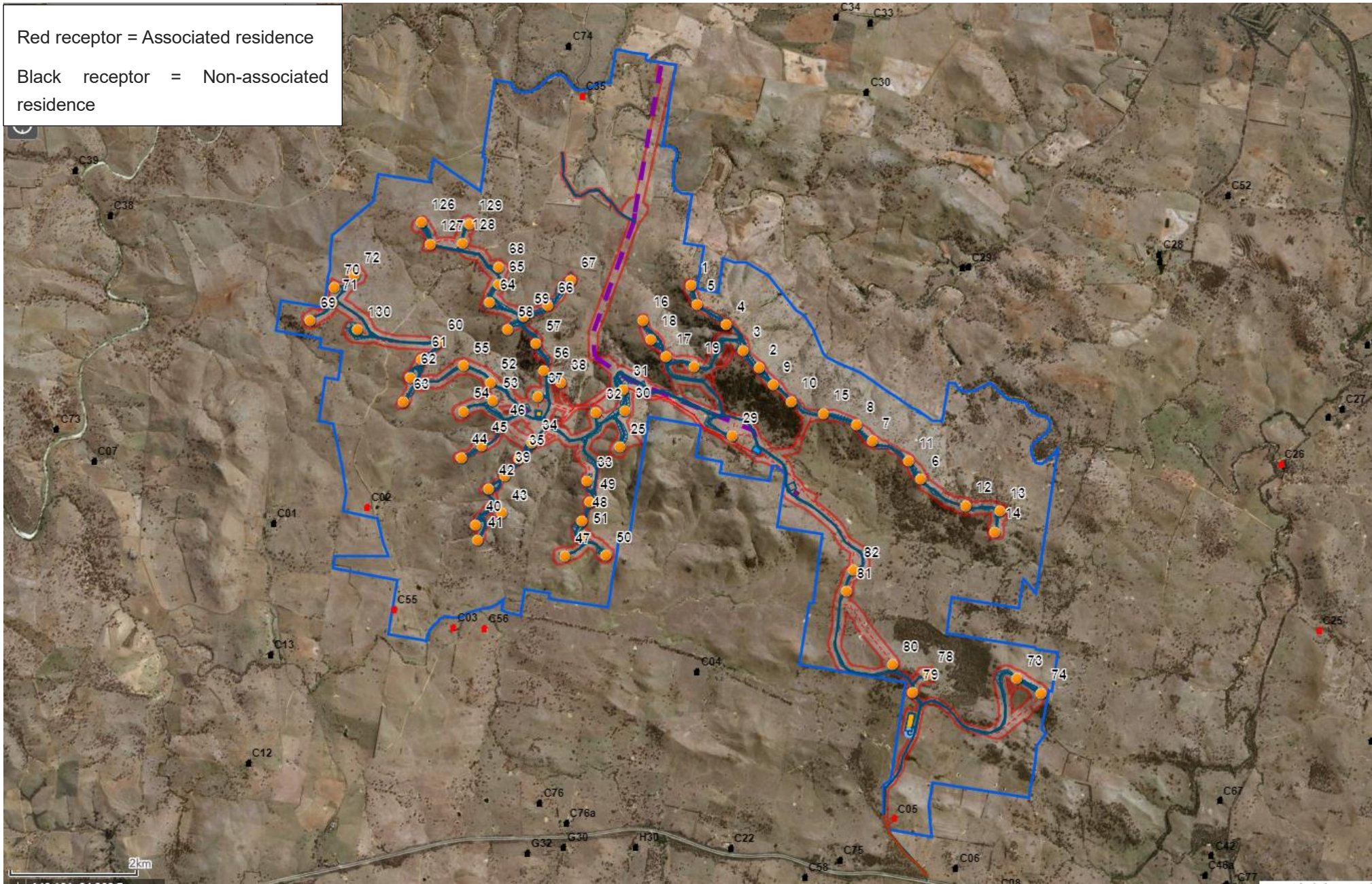
Description of OOHW	Location			
	Proposed Time / Date			
	Duration			
	Justification for OOHW			
Noise generating plant, equipment and machinery in use, or activities to be undertaken (specify sound power level of each item of plant)				
Potential mitigation and management measures				
Intensity of OOHW				
Sound Power Level (Lw) in dB(A)	Starting combined LW Value			LAeq, 15minute
	Penalty for Annoying Works			
	Reduction due to Mitigation			
	Reduction due to topography, structures or shielding			
	Final LW Value			
Most affected receptors situated within the potential area of influence of the OOHW, or within 3km (refer to map attached)	Receptor ID	Distance to Works, m	Status (Associated / Non-Associated)	Estimated Noise Level at receptor LAeq, 15 minute
What actions are to be taken for OOHW	Notification			
	Additional Mitigation			
	Monitoring			
	Consultation			
	Stop OOHW threshold			
		Signature + Details of approval or rejection of application	Date	
Approval EPC SECO & EPC PM				
Referral to Secretary				
Approval by Secretary				
Not approved				

REFER TO MAP OVERSLEAF TO SHOWING PROPOSED LOCATION OF OOHW AND DISTANCE TO RECEPTORS

Red receptor = Associated residence
Black receptor = Non-associated residence



Red receptor = Associated residence
Black receptor = Non-associated residence



Appendix J Emergency Response Plan

EMERGENCY RESPONSE PLAN

Appendix K Environmental Policy

GOLDWIND AUSTRALIA
ENVIRONMENTAL POLICY

Goldwind Australia

GWA-CO-POL-0008 Environmental Policy

Environmental Policy statement

Goldwind Australia (GWA) is committed to incorporating continual improvement across its business practices and activities for the protection of the natural environment and actively demonstrate leadership throughout the organisation to reduce the impact of GWA activities on the environment.

There is recognition of the diverse range of potential aspects and impacts that may be affected by the business stream including project development, commissioning and ongoing operations of facilities along with the community and social settings integration.

This Environmental Policy is applicable to Managers, Supervisors and workers at GWA and will be implemented across all business practices to deliver the outcomes established in this Policy. The Environmental Policy is to be read in conjunction with the GWA Management System Manual (GWA-CO-MAN-0001).

Actions in support of this policy and intended outcomes

In order to achieve this outcome GWA shall;

- Ensure compliance with statutory, regulatory, contractual and other environmental obligations
- Establish, implement, maintain and regularly review an effective, structured Environmental Management System consistent with the framework of ISO 14001:2015
- Promote efficient and responsible use of resources, effective waste management, pollution prevention and protection of the natural environment, heritage and biodiversity
- Establish a framework with annual objectives and targets to measure environmental performance and identify opportunities for improvement to reduce the organisations' environmental footprint
- Deliver relevant and consistent training to staff, suppliers and contractors to educate and strengthen their awareness for their respective environmental obligations and responsibilities whilst under the management and control of GWA
- Undertake environmental risk assessments prior to undertaking activities that may cause harm to the environment and integrate appropriate mitigation measures relative to the identified risk
- Investigate environmental incidents to determine practical corrective actions and the sharing of learnings to minimise the risk of recurrences
- Assess and adopt where appropriate the available technology and innovations that reduce the overall impact of our services across all business streams
- Review annually this Environmental Policy to ensure its alignment and ongoing implementation is consistent with the strategic direction of GWA

Signature:



J Titchen
Managing Director

Effective Date: 4th October 2017