Forest Wind

Preliminary Construction Management Plan

23 September 2019

CleanSight

Prepared by CleanSight on behalf of Forest Wind Holding Pty Limited
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R011-0.01	13/09/2019	Prepared for application or development approval	M.Page	I. Robb/ J.Pennay
R011-0.02	23/09/2019	Prepared for application or development approval, minor edits.	M.Page	I. Robb/ J.Pennay

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1. Introduction

1.1 Introduction

This Preliminary Construction Management Plan (CMP) has been prepared to provide a conceptual framework for the management of construction related impacts during the construction phase of the Forest Wind project. The CMP forms part of a development approval application submitted to the Department of State Development, Manufacturing, Infrastructure and Planning for a Material Change of Use for Forest Wind.

1.2 Objective

The objective of this CMP is to outline the proposed control measures to be implemented during the construction phase of the project to minimise the impact to the environment, the Plantation Licensee, the public, adjoining landowners and other relevant stakeholders.

1.3 The Proposed Development

1.3.1 The Project

Forest Wind Holdings Pty Ltd (FWH) proposes to develop and construct a wind farm called Forest Wind (Forest Wind) (the Project) located within an actively managed and operational exotic pine plantation in Queensland Government owned Toolara, Tuan and Neerdie State Forests, situated between Gympie and Maryborough in the Wide Bay Region of Queensland. Specifically, the Project comprises a wind farm with up to 226 wind turbines and related infrastructure including a 60m wide Overhead Transmission Corridor (OTC) in which a high voltage transmission line (the Transmission Line) will be located to transfer the generated electricity to an existing Powerlink Queensland (Powerlink) substation located at Woolooga to the west of Gympie. The Project will be located within the Gympie Regional Council and Fraser Coast Regional Council Local Government Areas.

In addition to transmitting generated electricity to the Woolooga Substation, individual supplies may also be provided to a timber processing plant located to the south of the wind farm near Tin Can Bay Road, and to a timber mill at Tuan located to the north on Maryborough Tuan Forest Road, Tuan Forest.

FWH has identified nominal locations for 226 wind turbines with alternative wind turbine locations every 100-200m (herein referred to as the Wind Turbine Area (WTA)) located along turbine strings.

1.3.2 The Site

The Project Area (the Site) is defined as the land that includes the WTA. The OTC is approximately 65km in length of which approximately 37 km is located within the WTA and the remaining section is within a Connection Corridor extending from the boundary of the WTA (Plantation License Area) to the Woolooga Substation. The Connection Corridor does not form part of this CMP.

2. Construction Phase

Details relating to the construction phase of the Project are provided in Section 4 of the Planning Report.

3. Site Management Plan

3.1 Access

The construction phase will result in an increase in traffic at certain locations within the WTA. Throughout the construction phase access also needs to be maintained for the Planation Licensee and the general public. In order to ensure a safe Work Site, access needs to be managed. A Site Access Management Plan will be prepared for the Project. The purpose of the Forest Wind Site Access Management Plan will be to ensure that persons entering the construction and operations sites are not exposed to safety hazards and that the security of Forest Wind assts are not exposed to damage or loss.

The Site Access Management Plan will include the following:

- a process for access to Project construction work sites
- control measures to ensure that forest industry operations continue with minimum disruption
- control measures to ensure that visitors and the public are not exposed to worksite hazards, and
- outlines the induction and site pass verification process for site access.

Work areas will include laydown areas, road construction corridors, turbine construction sites and electrical infrastructure construction. There will be a set of controls and procedures for entry to the Site. Each internal work site will have its own controls based on risk exposure. These could range from an entry gate and sign-on at major laydown-administration centres to temporary security exclusion fencing at a crossing construction. The procedures to be followed at each of the work sites are documented in the Site Access Management Plan.

3.2 Site Security

The Construction Contractor will utilise an accredited security service.

Security tasks include:

- ensuring all team members have current site passes
- ensuring all FW vehicles are clearly marked and have an in-vehicle tracking device
- live tracking vehicles in the field
- providing security work teams for entry point control
- monitoring site construction asset security, and
- providing directional guidance to suppliers and the public.

3.2.1 Site pass

All Construction and Operations team members will hold a Site Pass. The Site Pass will be a personal identifier and for site entry authorisation.

A Site Pass will be issued by Security:

- after a person's competency and any contractual documentation requirements are submitted
- after the FW induction is completed
- for a three (3) month period for construction team members, subject to renewal, and
- for a 12month period for operations team members, subject to renewal.

A Site Pass will always need to be carried on person.

3.2.2 Visitor site access

Visitors will be directed to Site Security.

A Visitor Site Pass will be issued to people visiting site on a temporary basis following completion of a Visitor Site Induction. Visitors entering the field will not be permitted to drive and will be accompanied by a FW Site Pass holder.

3.3 Health and Safety

The construction contractor will develop and implement a Site Safety Management Plan (SSMP) during all construction works in accordance with all relevant regulatory requirements and guidelines. The SSMP will outline methods and procedures to ensure safe practices for workers and the public. The SSMP will conform to the *Workplace Health and Safety Act 1995* and all relevant construction practice standards.

3.4 Hours of work

Given the remote nature of the WTA in a pine plantation, the construction activities will be undertaken 24 hours a day, 7 days a week within the plantation.

3.5 Site induction

Site inductions will be undertaken prior to the commencement of work on the Site and ongoing as required.

4. Construction Traffic Management

4.1 Construction Site Traffic Management Plan

A preliminary Traffic Management Plan (TMP) has been for prepared for the Project and is provided as Appendix A.8 of the Planning Report. This plan will be used to prepare a Construction Site Traffic Management Plan (CSTMP) by the Construction Contractor for all traffic movements within the WTA in consultation with the Plantation Licensee. The purpose of the CSTMP will be to ensure:

- the timely, safe flow of construction vehicles, transport and plant to worksites
- forest industry log flows are not disrupted by construction traffic, and
- private landowners have access to property and business.

The internal plantation road network does not interface with any public infrastructures such as schools, hospitals or recreation areas. While there are several gazetted roads that enter the plantation there are no gazetted public roads that pass-through the WTA.

Primary entry points will be sign-posted to:

- indicate the entry point identity (e.g. FW001-RoadName)
- indicate the road operational status ("Open to all traffic", "Open to FW construction traffic only", "Closed from date-time to date-time"), and
- provide directional advice to construction traffic (e.g. FW Compound 5 km).

Directional road signage and construction vehicle speed limits will be installed on internal plantation roads to ensure road users are aware of site speed limits and reach their destination.

Speed limit signage will comply with uniform traffic control designs.

4.2 Traffic types and movements

A Traffic Management Plan and Traffic Impact Assessment have been prepared as part of the application for the development approval for the Project and are provided as Appendix A.8 of the Planning Report. The plans provide details of construction traffic and traffic movements and will be considered in the development of the CSTMP.

4.3 Traffic staging plans

Prior to construction commencing Traffic Staging Plans (TSP's) will be prepared for specific construction works such as turbine strings. TSP's will form part of the CSTMP and will detail:

- worksite location
- nature of construction activity
- timing of works
- service roads in use / closures
- anticipated closure period
- signage and controls layout
- intersection layouts and position of temporary traffic controls, signs, security
- Plantation Licensee and Forest Wind vehicle interactions.

4.4 Driver and vehicle compliance

The Construction Contractor will ensure that people working on or travelling through the Project work areas comply with road traffic standards and operate safely.

Any person who drives a vehicle or works on a Project worksite or ancillary road will be required to:

- comply with National Heavy Vehicle Regulations
- complete a project induction
- hold a current Site Pass
- submit details of all vehicles and their unique identity
- submit current insurances for each vehicle
- provide brake test certificates for each vehicle
- apply a site compliance brake test sticker to each vehicle, and
- apply vehicle identity stickers.

5. Bushfire Management Plan

A preliminary Bushfire Management Plan has been prepared for Forest Wind and has been provided in Appendix A.1 of this CMP. The Construction Contractor will be required to prepare a Bushfire Management in consultation with the Plantation Licensee prior to construction commencing.

6. Preliminary Construction Environment Management Plan

6.1 General

This Construction Environment Management Plan (CEMP) is preliminary only. The Construction Contractor will be required to prepare a CEMP prior to construction commencing. The CEMP will be required to ensure all activities comply with all relevant environmental approvals and legislative requirements and will be reviewed regularly. The CEMP shall include the following:

- approvals and legislative requirements
- control measures for all identified environmental aspects and impacts
- reporting requirements
- monitoring, inspection and audit requirements
- incident management
- roles and responsibilities

Preliminary details have been provided below.

6.2 Statutory and policy requirements

The Project has to comply with the 'General Environmental Duty' in accordance with Section 319 of the *Environmental Protection Act 1994*. It is an offence under the EP Act to carry out any activity that causes, or is likely to cause, environmental harm unless all reasonable and practical measures have been taken to prevent or minimise the potential harm.

In addition to the EP Act the Project must comply with the relevant provisions of Commonwealth and State Legislation including but not limited to:

- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth)
- *Planning Act 2016*
- *Nature Conservation Act 1992* (NC Act)
- *Vegetation Management Act 1999* (VM Act)
- *Water Act 2000*
- *Queensland Heritage Act 1992*
- *Aboriginal Cultural Heritage Act 2003*

Forest Wind will also comply with several statutory instruments including State Planning Policies, State government policies and local government planning schemes.

6.3 Environmental aspects and impacts

The following potential environmental impacts have been identified during the construction phase of the Project:

- erosion of soils during the earthworks phase and widening of access tracks,
- impact to water quality as a result of sedimentation during the earthworks activities, including but not limited to the following:
    - construction of compounds and associated facilities including car parking, amenities
    - construction of the footings for the wind turbines,
    - crane hardstands
    - widening of access tracks,
- impact to fauna during vegetation clearing and movement of construction vehicles and machinery around the Site,
- impact to flora during vegetation clearing,

- generation and disposal of waste including construction material, office waste and wastewater,
- air pollution from dust generation during construction activities in particular during earthworks
- noise from the operation from the movement of vehicles, earthworks, assembly and other associated construction activities,
- weed infestation from movement of vehicles on the Site,
- cultural heritage, and
- impacts from uncontrolled discharges of fuel and chemicals.

Preliminary control measures to manage each impact have been provided below.

6.4 Management measures

6.4.1 Soil and water

An assessment of soil types and slopes has been undertaken of the WTA to determine the low, medium high-risk areas and to inform the erosion and sediment control requirements during the construction phase. The assessment has been included in the Stormwater and Erosion and Sediment Control Plan Strategy (refer to Appendix A.9 of the Planning Report).

The construction contractor will be required to prepare an overarching or standard erosion and sediment control plan (ESCP) for the Project, as well as specific ESCPs for the transmission towers on the transmission line, wind turbine sites and associated hardstand areas and access tracks as necessary. The ESCPs will be required to be prepared in accordance with the current International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control manual and the Plantation Licensee requirements and certified by a suitably qualified person. The ESCPs will be updated as required for each individual location to include site specific controls.

Table 1 Soil and water management plan		
Purpose: Management of erosion and sedimentation of soil to protect downstream water quality.		
Performance Objective: — Minimise potential impacts on water quality of adjacent waterways and surface waters. — Minimise erosion of soils during construction works. — Minimise loss of sediment from site during construction works.		
Potential Impact	**Management Measure**	**Monitoring requirement**
Soil erosion Contamination of waterways	— An ESCP is to be prepared by a suitably qualified person in accordance with Best Practice Erosion and Sediment Control prior to works commencing — ESCs to be installed in accordance with approved ESCP — No-go zone areas to be established where required — Minimise the extent of clearing — Minimise the extent and duration of soil exposure — Divert clean water from areas of disturbance — Minimise erosion of soils during construction works — Minimise loss of sediment from site during construction works — Stabilise and revegetate areas as soon as reasonably practical — Following completion of works the site shall be rehabilitated to stabilise exposed areas — Consider weather conditions prior to undertaking high-risk activities. — Storage and use of hazardous substances to be in accordance with this EMP. — All wastes to be securely stored and protected from rain and stormwater contact.	— Daily weather checks — Daily checks to ensure no-go fencing is in place and being adhered to. — Weekly inspections of ESC to ensure they are cleaned out and are properly maintained
Reporting	— Contractor to maintain a log of inspections and maintenance actions. — Records are to be kept for verification of compliance on an as needs basis.	
Incidents	— Contamination of watercourse or stormwater drain — Turbid water discharged from site — Spill of fuel — No-go zones are breached — ESC's are not working effectively.	
Corrective Actions	— Undertake an investigation to identify possible source of contaminants. — Take all necessary measures to prevent any further discharges of contaminants to waters. — Review ESCP — Review maintenance regime — Toolbox talks	

6.4.2 Flora

A Vegetation Management Plan has been provided in the Ecological Assessment Report in Appendix A.7 of the Planning Report and has been provided below. Vegetation clearing will be minimised as far as

reasonably practical. Notwithstanding, some clearing will be required for the upgrade of the access tracks, construction of the turbine hardstand areas, construction of towers for the transmission line and operational and temporary construction compounds. Clearing will not be permitted in no-go zone areas to ensure the protection of remnant vegetation. A procedure for vegetation clearing including preclearing inspections will be included within the CEMP.

Table 2 Flora management plan

Purpose: To minimise the disturbance to vegetation (and its habitat values) to the greatest extent possible.

Performance Objective:

- Clearing kept to that absolutely required for the project and within the conditions of project environmental approvals.
- Protect conservation significant communities and species
- No vegetation to be cleared outside the marked boundary of construction disturbance area.
- Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities within the mosaic of remnant vegetation within the WTA
- Maintain the integrity, functions and environmental values of wetlands and waterways through protecting riparian vegetation

Potential Impact	Management Measure	Monitoring requirement
Loss of native vegetation	— No clearing of remnant vegetation, will be undertaken in the WTA without authorisations. — Prior to any clearing or disturbance works being undertaken, all necessary permits for clearing of any native vegetation will be received from relevant regulatory authorities. — Ensure all necessary permits and approvals are communicated to site personnel prior to commencing vegetation clearing activities. — The vegetation clearing area will be clearly identified and marked on all construction plans. — Trees containing stags or hollows to be retained wherever possible — All vegetation to be removed will be clearly identified as such. — Highly visible barriers (i.e. hi-viz tape or temporary fencing) will be used to establish 'no-go zones' in which EH and/or areas containing conservation significant species to be retained is located. — If minor clearing/ trimming is required to upgrade existing waterway crossings, trees / vegetation shall be cut near or at ground level and the root mass shall be retained in the ground, where possible, to ensure bank stability. — Ensure vehicles stay on designated tracks and roads where possible — Ensure vehicles are washed down at appropriate wash down areas prior to moving into an area and after travelling through known weed infestations before entering any new area — Ensure all personnel are trained in weed management procedures — Ensure Project specific fire management plans are implemented in accordance with the systems developed by the Plantation Licensee. — Disturbed areas shall be stabilised progressively.	Weekly inspections will be carried out to check: — Works are only occurring within designated area and no-go fencing is in place. — No disturbance is occurring outside designated construction zone.

Reporting	— Log of inspections, maintenance actions.
Incidents	— Vegetation outside construction zone is cleared.
Corrective Actions	— Reinstate no-go fencing. — Survey of disturbed area to be undertaken and liaison with relevant authorities regarding permits. — Notify the Regulator and undertake an Investigation into unauthorised clearing. — Re-educate personnel on importance of protecting existing marine vegetation and habitat. — Rehabilitate disturbed areas.

6.4.3 Fauna

A Fauna Management Plan has been prepared as part of the Ecological Assessment Report in Appendix A.7 of the Planning Report and has been provided below.

<table>
<tr><th colspan="3">Table 3 Fauna management plan</th></tr>
<tr><td colspan="3">Purpose: To protect fauna</td></tr>
<tr><td colspan="3">Performance Objective:
— Protect existing terrestrial and aquatic fauna and habitat on the site.
— Minimise impacts on adjacent fauna and habitat.</td></tr>
<tr><th>Potential Impact</th><th>Management Measure</th><th>Monitoring requirement</th></tr>
<tr><td>Harm to native fauna</td><td>Prior to the commencement of works, the construction zone must be clearly delineated with flagging tape to identify areas to be cleared and “no-go” zones.
— Trees and stags containing hollows to be retained wherever possible
— Any herbicides shall be used in accordance with manufacturers and Australian Pesticides and Veterinary Management Authority (APVMA) standards.
— A fauna spotter will be on site during any clearing of native vegetation required for the upgrade of existing forestry access tracks
— Herbicides used near waterways shall be registered for aquatic use.
— Disturbed areas shall be stabilised progressively
— Any permanent fencing required on site shall be fauna friendly design.
— Measures to comply with Bird and Bat Management Plan (BBMP) during construction
— Report any injured fauna to wildlife career and DES as relevant
— Comply with the requirements of all relevant approvals including Species Management Plan if in place</td><td>Weekly inspections will be carried out to check:
— Pre and post operational monitoring in accordance with adaptive BBMP
— Works are only occurring within designated area and no-go fencing is in place
— No disturbance is occurring outside designated construction zone
— Temporary barriers are not causing problems with fauna or fish movements
— Fauna movement through the site
— Monitor Grey-headed flying fox camp activity</td></tr>
<tr><td>Reporting</td><td colspan="2">— Monthly monitoring reports are to be prepared.
— Reporting to be completed in accordance with the relevant approvals.</td></tr>
<tr><td>Incidents</td><td colspan="2">— Vegetation outside construction zone is cleared.
— Fauna injuries / deaths occur.</td></tr>
<tr><td>Corrective Actions</td><td colspan="2">— Survey of disturbed area to be undertaken and liaison with relevant authorities regarding permits.
— Investigation into unauthorised clearing of impacts on fauna.
— Re-educate personnel on importance of protecting existing vegetation and habitat.
— Rehabilitate disturbed area and review compensatory habitat requirements.
— As per BBMP</td></tr>
</table>

6.4.4 Waste

Prior to construction commencing, the Contractor will prepare a Waste Management Plan which addresses the collection, handling and disposal of all wastes. The Waste Management Plan will identify the opportunities to avoid, reduce, reuse and recycle waste material together with their use in the construction of the Project. Where practical, wastes will be segregated and reused/recycled (e.g. scrap metal and cable off cuts). The Waste Management Plan will also establish a preferred waste management hierarchy and develop principles for achieving good waste management in accordance with the *Environment Protection (Waste Management) Policy 2000.* The plan will identify waste removal service providers for the removal of waste produced as part of the construction process.

Table 4 Waste management plan		
Purpose: Minimise waste produced on site		
Performance Objective: — All waste to be reused, recycled where possible — Minimal waste to be generated during the construction phase		
Potential Impact	**Management Measure**	**Monitoring requirement**
Excessive generation of waste and/ or disposal of waste to landfill	— Identify sources and types of waste on site. — Waste collection by licensed waste contractor. — Suitable waste collection facilities provided on site to enable segregation of waste. — Recycling facilities provided at construction compounds. — Concrete wash out bays to be provided as appropriate. — Adopt principles of waste hierarchy on site — Segregate waste materials by type — Waste to be collected and disposed of by licensed contractors	— Monthly waste generation to be recorded in a waste tracker
Reporting	— Monthly monitoring reports are to be prepared. — Copies of all waste transport and disposal dockets are to be kept	
Incidents	— Waste not disposed of in appropriate bins	
Corrective Actions	— Employee and contractor training — Provide bins where necessary — Ensure suitable labelling is in place	

6.4.5 Air

The following activities could potentially give rise to impacts on air quality:

- mobilisation, including construction of laydown areas for off-loading materials and components and to accommodate site offices and welfare facilities
- upgrade of access tracks by civil engineering plant and other vehicles
- excavation of cable trenches and laying of electricity and communications cables
- construction of turbine foundations
- the delivery and erection of turbine towers and installation of nacelles and blades
- construction of the compounds, and
- vehicle movements to the WTA.

The impact to sensitive land uses is likely to be negligible due to the distance of the WTA from the nearest residents. Notwithstanding, the CEMP will include mitigation measures to reduce air quality impacts from construction operations.

Table 5 Air quality management plan		
Purpose: Manage air quality on site		
Performance Objective: — No air quality complaints		
Potential Impact	**Management Measure**	**Monitoring requirement**
Dust from vehicle movements on forestry access tracks, earthworks activities. Impact to air quality from exhaust emissions.	— Loads are to be covered where appropriate. — Traffic to comply with speed limit — Use of water or a proprietary product to dampen access tracks — Avoid idling	— Visual observations — Records of water use
Reporting	— Site inspections	
Incidents	— Dust complaints	
Corrective Actions	— Review dust control measures — Increase frequency of water carts	

6.4.6 Noise

The main source of noise during the construction phase if from traffic entering and exiting the Project Area and from construction activities for wind turbines near Maryborough Cooloola Road.

Table 6 Noise management plan		
Purpose: Minimal noise complaints		
Performance Objective: — The Plantation Licensee field teams, forest Industry and adjoining neighbours are not impacted by noise emitted from WT — WT are engineered to mitigate noise generation from blade rotation		
Potential Impact	**Management Measure**	**Monitoring requirement**
Noise impacts to sensitive receptors including forestry workers	— Engineering design to mitigate noise generation — Prepare a noise complaint register. — Investigate noise complaints in accordance with the CEMP and Consultation Engagement Plan — Consultation with relevant stakeholders	Noise monitoring is not proposed.
Reporting	— Record consultation and any noise complaints	
Incidents	— Noise complaints received — Establish monitoring to quantify persistent noise, if required — Actions taken to mitigate persistent noise for resident landowners	
Corrective Actions	— Review construction processes — Keep abreast of noise attenuation technologies and implement as necessary	

6.4.7 Weeds and pests

The Ecological Assessment identified twenty-one weed species across the WTA during surveys. Two species are invasive plants (lantana (*Lantana camara)* and groundsel bush (*Baccharis halimifolia*)) under Queensland's *Biosecurity Act 2014.*

Table 7 Weed and pest management plan		
Purpose: To manage weeds on site		
Performance Objective: — Prevent the spread of weeds — Prevent the spread of Fire Ants from declared areas — Comply with the General Biosecurity Obligation		
Potential Impact	**Management Measure**	**Monitoring requirement**
Spread of weeds and pests	— The construction contractor, in consultation with the Plantation Licensee, will develop a protocol for the management of vehicles entering and exiting the site. — All invasive weed species will be controlled or removed from the construction areas at initial clearing stages and also at the end of construction works. — Weed control - removal shall occur prior to clearing to ensure that retained topsoil is not further contaminated with weed material. — Herbicides shall be used in accordance with manufacturers and APVMA standards. — Herbicides used near waterways shall be registered for aquatic use — Pest vectors such as Fire Ants (*Solenopsis invicta)* present a significant risk to agriculture and community. While the risk is low for engineered, materials leaving Port of Brisbane will be checked for any insect presence. — The Construction Contractor will engage a skilled weed management team for periodic maintenance of invasive and environmental weeds within the Wind farm development area — Where prohibited invasive plants are found on the wind farm they will be reported to DAF and the Plantation Licensee and controlled immediately.	— Pre-construction monitoring — Regular monitoring as part of the environmental site inspection
Reporting	— Contractor to maintain a log of inspections, maintenance treatment actions. — Records are to be logged and kept for verification of compliance on a as need basis. — Keep records of MSDS's for pesticides and herbicides	
Incidents	— Spread of established site weeds — Import of foreign pests or plant material on goods	
Corrective Actions	— Review management procedure and frequency and effectiveness of controls and amend as necessary — Develop and implement a weeds and pest control plan — Engage a site weed and pest management team — Review frequency of site inspections — Ensure weed hygiene protocols are being adopted — Inspect for bio-risks (seeds, plant material) on receipt of goods	

6.4.8 Cultural Heritage

Table 8 Cultural heritage		
Purpose: No harm to cultural heritage		
Potential Impact	**Management Measure**	**Monitoring requirement**
Harm to cultural heritage	Works will be undertaken in accordance with the Cultural Heritage Management Plans prepared for the Project.	In accordance with the Cultural Heritage Management Plans prepared for the Project.

6.4.9 Fuel and Chemicals

Table 9 Fuel and chemical management plan		
Purpose: Prevent contamination of water or land		
Performance Objective: — No uncontrolled spills on site — Comply with the hazardous substances and dangerous goods storage and use requirements specified in relevant legislation, Australian Standards, SDS and Codes of Practice		
Potential Impact	**Management Measure**	**Monitoring requirement**
	— Spill kits to be located on site in locations available for immediate use — All hazardous substances and dangerous goods shall be stored, used and handled in accordance with relevant legislation, Australian Standards, SDS and Codes of Practice. — All storage areas shall be located in flat areas away from waterways and derange paths. — SDS for each hazardous material used on site should be available on site at all times. — All hazardous substances must be stored on a suitably sized bunded pallet or similar capable of retaining at least 120% of the volume being stored and provided with a cover for deployment prior to adverse weather conditions. — All equipment is to be well maintained, inspected frequently and free from fuel, oil, grease leaks — Machine maintenance or refuelling shall not occur within 30m of waterways or drainage lines	— Regular inspections of all spill kits and bunded storage areas.
Reporting	— Weekly inspection log — SDS register to be kept on site	
Incidents	— Spill on site	
Corrective Actions	— In the case of a spill of any potential environmental contaminants take immediate action to stop, contain and clean up the spill. This can be achieved through the use of a purpose built chemical or hydrocarbon spill kit or other absorbent material. For containment use sandbags, sand or earth bunds and floating booms for oil / fuel in waterways. — Safety Data Sheets give advice on suitable clean-up materials and methods. — The health and safety of staff or community members should not be compromised for the sake of spill containment or clean up. If it cannot be done safely, don't do it. — Always try and prevent the movement of a spill into environmentally sensitive areas such as waterways or wetlands as a priority.	

6.5 Environmental monitoring

Environmental monitoring will be required during the pre-construction, construction and operation stages in accordance with the relevant approvals and management plans. Details of all environmental monitoring will be documented in the CEMP prepared by the Construction Contractor.

The Construction Contractor will establish an environmental compliance group within the construction management team.

6.6 Environmental inspections and audits

Environmental inspections and audits will be undertaken during the construction phase of the project.

6.7 Environmental non-conformances and incidents

The CEMP prepared by the Construction Contractor shall include a procedure for the management of all environmental incidents, non-conformances and complaints.

6.8 Roles and responsibilities

The organisational structure of the proposed works will be determined by the Construction Contractor. The roles and responsibilities assigned to individuals are outlined in Table 10 are general only and will be determined by the Construction Contractor.

Table 10 Roles and responsibilities

Proposed role	Responsibilities
Project Manager	— Ensure all relevant approvals / permits are obtained prior to works. — Ensure that relevant legislation, codes and policies are complied with. — Liaising with, and reporting to the client — Ensure CEMP is reviewed for effectiveness and continuous improvement as required — Reporting to relevant authorities — Respond to internal and external audit results and implement corrective actions
Project Engineer	— Ensure conditions of all approvals / permits are carried out — Ensure that construction works are in accordance with design drawings. — Immediate notification to the Project Manager and Administrator of incidents — Investigation of environmental incidents and reporting to the Project Manager — Implement appropriate corrective actions to arrest or mitigate the cause of the environmental incident, near miss, complaint and non-conformance in consultation with the Project Manager and Environmental Representative
Environmental Manager	— Scheduled inspections and audits of all environmental protection measures and their efficiency. — Unscheduled inspections of the site following instances of increased environmental risk (eg. heavy rainfall) or reported non-compliance. — Review monitoring reports, corrective actions, incident register and complaint logs as required. — Reporting as required — Compliance with and update/ review of CEMP

Construction Foreman	— Ensuring project operations are performed in accordance with CEMP requirements. — Ensure all personnel on site have undertaken site induction. — Ensuring non-compliances are reported and corrective actions are taken. — Ensuring subcontractors fulfil their environmental obligations. — Reviewing environmental procedures. — Undertake monitoring and reporting requirements. — Establish and maintain the incident register, complaints register and compliance checklists and report this information to the Project Manager. — Direct all works for machinery and truck operators. — Arranging and attending inspections and meetings. — Schedule periodic meetings with operational staff to discuss and record improvement opportunities, keeping up-to-date with industry guidelines. — Perform regular inspections of the site works to identify areas that require improvements
All Staff	— To undertake site works as instructed by the Site Foreman. — To ensure all equipment used and works undertaken are in compliance with the CEMP. — To report all incidents, spills or non-conformances with the CEMP to the Construction Foreman. — To undertake site works with a duty of care under the EP Act.

A.1 Bushfire Management Plan

Forest Wind

Bushfire Management Plan

23 September 2019

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Contents

Revision	Date	Description	Author	Approved
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Glossary of Terms

Terms	
AIIMS	Australasian Inter-Service Incident Management System
BMP	Bushfire Management Plan
FW	Forest Wind
GPS	Global Positioning Systems
ICS	Incident Control System
IMT	Incident Management Team
MFZ	Modified Fuel Zones
QFES	Queensland Fire and Emergency Services
RFS	Rural Fire Service
RPEQ	Registered Professional Engineer Queensland
WF	Wind Farm

Units	
ha	hectare
km	kilometre
kW	kilowatt
L	litre
m	metre
MW	megawatt

1. Purpose

This preliminary Bushfire Management Plan (BMP) for Forest Wind (FW):

- Details draft response procedures and preparedness levels for a Wind Farm (WF) asset fire or a plantation wildfire that threatens a wind farm asset
- Details potential communications and the hierarchy of control for wildfire management
- Provides control measures that can be adopted to ensure hazards posed by an uncontrolled fire event are mitigated to the extent that there is:
  - no threat to life
  - minimal impact on WF assets
  - minimal impact on the Plantation Licensee's resource.

The procedures provided in the plan are preliminary only and are to be reviewed and amended as necessary by Forest Wind in consultation with the Plantation Licensee prior to construction commencing.

2. Scope

2.1 Scope of plan

This BMP has been prepared as a preliminary plan for the Forest Wind Project. Forest Wind will be required to prepare a detailed BMP in consultation with the Plantation Licensee prior to construction commencing.

Fires have irregularly occurred in wind turbine generation equipment on other wind farm sites. While learnings and design improvements have significantly reduced fire risk there remains a chance that a fire event could damage WF infrastructure and impact on the plantation area and potentially surrounds.

Conversely, plantation fires can have impacts on harvesting and wood flow to industry and pose a potential hazard to WF infrastructure.

All fires present a serious safety risk for people in the fire's vicinity, including workers in the wind farm and plantation industry, general public, other commercial users of the plantation area, plus surrounding communities potentially.

A WF or plantation fire could have an impact on the other party and third parties. FW and the Plantation Licensee have a mutual interest in wildfire prevention and mitigation.

This BMP will provide preliminary details for the following:

- a fire season daily preparedness procedure for the FW project
- a fire response activation procedure
- how to integrate with the Plantation Licensee's emergent fire response procedure
- identify the fire suppression equipment that may be installed into WF assets
- identify field resources and equipment available to the proponent
- detail the training and required skills level for all FW related personnel to respond to a fire event, and
- outline links to Queensland Fire and Emergency Services (QFES) and the Rural Fire Service (RFS) division.

2.2 Area of application

The BMP:

- Applies to all FW personnel and their construction and operations contractors and sub-contractors personnel.
- Provides guidance for FW fire management interactions with the Plantation Licensee and QFES.

3. Legislation

The *Queensland Fire and Emergency Services Act (1990)* and the *Forestry Act (1959)* provide guidance on fire management obligations.

Table 1 details the relevant legislation and areas for Project compliance.

Table 1 Legislation

Legislation	Relevant section
Fire and Emergency Services Act (1990)	S62 Offence to light unauthorised fire S66 Fires on State Forest S67 Occupier to extinguish fire S73 Liability of person for fire lit by employee or agent S74 Liability for damage caused by certain fires S96 Occupier to provide information regarding dangerous goods

Legislation	Relevant section
	Part 9A Building Fire Safety
Forestry Act (1959)	Part 7: Fires on State Forests, timber reserves, forest entitlement areas and licence areas
Environmental Protection Act (1994)	S319 General environmental duty

4. Stakeholders

Table 2 details stakeholders who may have an interest in the development of the BMP.

Table 2 Stakeholder interests

Stakeholder	Interest
Plantation Licensee	Plantation owner and asset protection Fire mitigation and management responsibilities Controller in a plantation wildfire
Department of Environment and Science (DES)	State Forest Land Custodian
QFES and RFS	Responders in a wildfire event Controller in a multi tenure wildfire Primary protection of life and property on private rural lands AIIMS ICS co-ordination
Fraser Coast Regional Council	Interest in rural fire management on behalf of rural landholders and Council owned assets such as roads and bridges, communications assets and water quality
Gympie Regional Council	Interest in rural fire management on behalf of rural landholders and Council owned assets such as roads and bridges, communications assets and water quality
Queensland Police	Responsible for public safety in wildfire events and emergency co-ordination
Neighbours	Department of Defence (Commonwealth) Wide Bay Training Area QPWS Potential risk exposure to private assets, stock, pasture, from wildfire

5. Fire weather

5.1 Fire season

The fire season runs from September to December each year and may extend into January in drought years. Seasonal fire weather severity is affected by the extent of drought, storm incidence, rain events and humidity. Proximity to the coast and maritime winds influence daily fire weather conditions.

5.2 Fire weather

A Fraser Coast plantation fire weather pattern is typically a hot low humidity land breeze that builds through the morning, often from the northern and westerly segments that may swing around to north to north-easterly sea breeze through the afternoon. Sea breeze wind strength abates at sunset allowing fire response teams to arrest the fires rate of spread as humidity increases. No major fire has run into a second day. (*pers comm Manager Plantation Licensee Fraser Coast*).

5.3 Drought index

Drought Index (DI) measures the change in fuel curing over time. DI is calculated daily based on the relative humidity and elapsed days since rain. A cumulative risk score is generated. A DI greater than 100 is considered a concern.

5.4 Fire danger rating

Daily Fire Danger Rating (FDR) informs preparedness levels and is calculated every half hour by the Plantation Licensee. FDR combines the daily DI with temperature, relative humidity and wind speed. FDR ratings greater than 15 are a concern for the Plantation Licensee. Forest operations will progressively be limited as FDR increases.

The WF operator will need to track the FDR ratings and collaborate with the Plantation Licensee as ratings escalate. The WF may provider the Plantation Licensee with hub height wind speed and direction information across the area to increase FDR certainty.

As a point of reference an FDR of 47 was recorded for a major 1991 Fraser Coast wildfire that burnt over 1,200 hectares of plantation.

Table 3 aligns the FDR with public advice levels.

Table 3 Fire danger rating

FDR range	1-11.99	12-23.99	24-49.99	50-99.99	100+
Advice level	Low-moderate	High	Very high	Extreme	Catastrophic

Aligned to McArthur's Forest Fire Danger Meter Mk5.

6. Wind Farm fire hazards

This section summarises the likely fire hazards that may be encountered by FW, its construction contractors and operator.

FW fire hazards can be separated into generation assets or land-vegetation.

Generation asset fires include electrical, hydro-carbons and materials and often occur in confined spaces requiring specific skills and equipment.

Fire hazards are detailed in Table 4.

Table 4 Wind Farm fire hazards

Wind Farm task / event	Fire hazard / source
Early works	
Land clearing: — Establish compound lay down areas — Establish turbine and substation pads — Clearway for Transmission Line — Materials delivery for site set up — Clearing and grubbing	Human error (matches, cigarettes) Heavy plant faulty exhausts, carbon emissions Heavy plant accumulated, vegetation debris result in fire ignition Machinery / equipment electrical fault
Construction	
Vehicle, heavy plant movements and fabrication on: — Lay down areas — Turbine tower and nacelle units — Transformer installs — Step-up Substation — Main Substation and transformer units install — Medium voltage distribution line network install — High voltage Transmission Line network install	Human error (matches, cigarettes) Welding / grinding sparks from fabrication tasks migrate to plantation fuels Mechanical / electrical failure Heavy plant faulty exhausts, carbon emissions Heavy plant accumulated, vegetation debris results in fire ignition
Operations	
Turbine operation	Nacelle fault, gearbox, bearing failure Transformer fault Electrical conduit fault Hydraulic oil fire Lightning strike
Welding / grinding at WF field sites	Welding / grinding sparks ignite plantation fuels Slashing operations – sparks ignite plantation fuels
Medium voltage cables	Overheating
Substation	Transformer fault
High voltage overhead cables	Line clash arcs to ground Smoke from local fire event triggers arc to ground Lightning strike ignites vegetation
Land vegetation management	Plant operations Faulty vehicle exhausts, litter accumulation Slasher sparks

7. Plantation fire hazards

Table 5 summarises the fire hazards arising from forest and plantation operations.

Table 5 Plantation fire hazards

Plantation task / event	Fire hazard / source
Plantation operations	
Plant and equipment use for: — Silviculture — Roading — Harvesting	Human error (matches, cigarettes) Litter reduction – burning hardwood heaps in re-plant compartments Heavy plant faulty exhausts, carbon emissions Heavy plant accumulated, vegetation debris Machinery / equipment electrical fault
Prescribed burning	Plantation fuel reduction burns Native vegetation fuel reduction burns Habitat burns
Aviation / helicopter operations	Strikes Transmission Line tower / line or wind turbine tower during prescribed fire event, damages lines, helicopter and extends fire Pilot injury/fatality
Storm events	
Lightning strike	Dry storms occur in the Fraser Coast Plantations
Public and neighbours	
Public access	Arson risk (low)
Fires from neighbouring properties	Fires have entered the Fraser Coast Plantations from adjoining properties

8. Preliminary Forest Wind Fire Action Plan

8.1 Fire season daily preparedness

While the risk is low a mechanical failure or electrical fire could occur at any time of year however, the risk of consequential damage increases during the fire season.

Commencing 1st September each year, personnel for a WF Incident Management Team (IMT) will be rostered each week (Monday-Sunday). The roster will be drafted by 30th June each year and continue until seasonal rain moderates the fire danger. This is to be reviewed by FW and the Construction Contractor and amended as necessary.

The IMT is responsible for any fire event detected on a FW site.

Nominated FW 4WD vehicles will carry fire mop up units (400 L tank, pump) and additional dry powder extinguishers. Vehicles will be driven by FW field technicians with fire crew accreditation.

As Fire Danger Rating increases the actions detailed in Table 6 may be put in place by the IMT.

Table 6 Fire preparedness

FDR rating	1-11.99	12-23.99	24-49.99	50-99.99	100+
Action / FDR level	Low-moderate	High	Very high	Extreme	Catastrophic
IMT	Rostered	Rostered	Meet weekly	Meet daily Establish incident room	Meet daily Establish incident room
Vehicles with 400 L mop-up units & additional dry powder extinguishers	On nominated vehicles	On nominated vehicles	Daily run and check fire mop up units. Crew x 2 available for deployment	Daily run and check fire mop up units. Crew x 2 on standby	Daily run and check fire mop up units. Crew x 2 on standby
Field welding, cutting, grinding		Protective screens, Spotter, 4WD mop up	Suspended	Suspended	Suspended
Cigarette smoking in field	In dedicated areas	In dedicated areas	Suspended	Suspended	Suspended
4 x 5,000 L pillow tanks (joint with the Plantation Licensee as relevant)			3 x Filled on trailer / 200 turbines 1 x Hooked to prime mover - tested	4 x Hooked to prime / 200 turbines mover - tested	4 x Hooked to prime mover / 200 turbines – tested
Tractor or mulcher-based vegetation management	With guards in place	With guards and 400l water onsite	Suspend	Suspend	Suspend
FW contracted machinery				On standby	On standby
Aviation support on standby (joint with the Plantation Licensee as relevant)				On standby	On standby
Preparedness chart to be reviewed annually					

8.2 Responsibilities

The responsibilities provided below are provisional only and are to be confirmed by the FW and the Construction Contractor in consultation with the Plantation Licensee.

8.2.1 First response

The key to control is early detection and timely response.

The Construction Contractor or Operator will have suitable first response equipment and trained team members to dispatch to any alarm event, as required and agreed with the Plantation Licensee. Detection to inspection elapsed time should not be more than 10 minutes to any point in the WF on Extreme and Catastrophic periods.

The field team member will inspect and advise the Incident Controller of the alarm/fire status and any escalation requirements.

Irrespective of tenure (State Forest, plantation licence, road easement or FW tenement) the first responder will be equipped to initiate fire control if it is safe to do so or report the incident and escalate the response.

8.2.2 Fire escalation

Establish the fire IMT at the earliest opportunity.

The FW construction and operations teams will form one IMT.

The team structure will follow the Australian Inter-service Incident Management System (AIIMS) approach. The team structure recognises that other agencies such as QFES, RFS, the Plantation Licensee and Police bring skilled incident management capabilities and can join the response in a seamless manner as a fire event escalates.

Incident management roles include:

- Incident Controller
- Operations
- Planning
- Logistics.

Potential IMT roles and responsibilities are detailed in **Error! Reference source not found.**.

The positions may be taken by any skilled experienced person in the management team and multiple people need to be skilled in the roles to facilitate any shift changes.

The roles expand into divisional teams as a fire event escalates.

The IMT group builds to reflect the severity of the event. The Construction Contractor or Operator may find that major asset fire incident control defers to an agency such as QFES.

Having a universally accepted emergency response structure increases the likelihood of early control.

Figure 1 outlines a possible structure for the IMT.

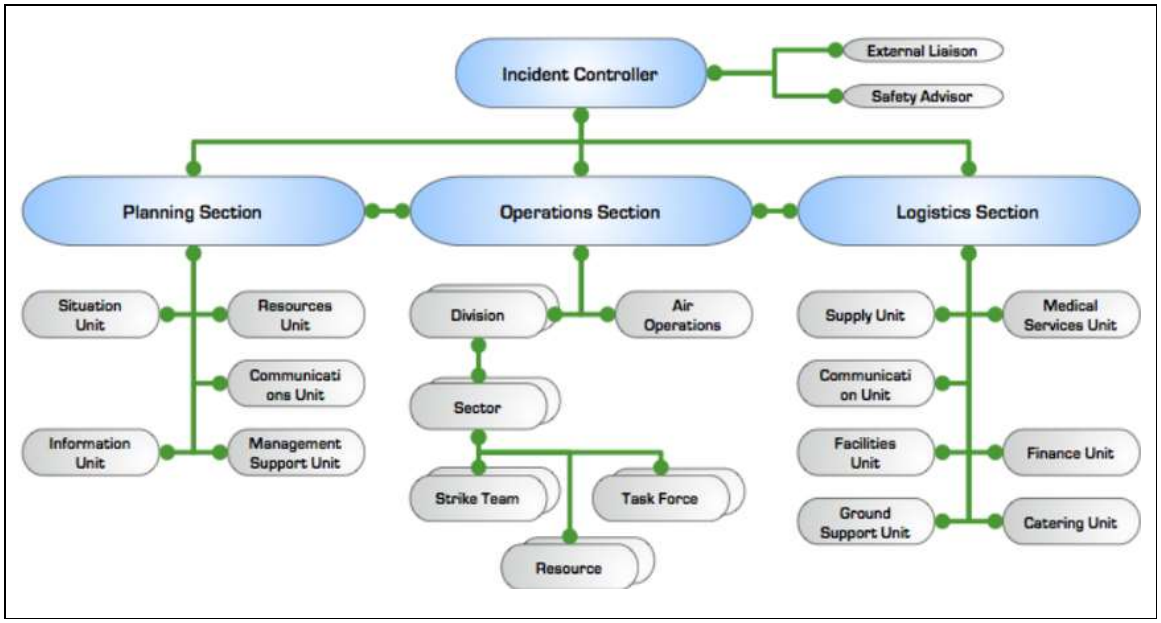

Figure 1 Incident control structure
Extract Renato L et al 2007.

8.3 Scenarios

Irrespective of fire ignition responsibility there are four possible fire scenarios:

- fire in WF asset
- fire migrates to plantation from WF asset
- fire in plantation challenges a WF asset, and
- fire threatens wider community assets and public outside the plantation.

8.3.1 Potential options for the management of each scenario are provided below. Wind Farm Asset Fire

A fire in a WF asset may involve electrical, hydrocarbons and materials which require a specialist response.

FW or their nominated representative (including the Construction Contractor) is responsible for establishing the incident response team.

The Plantation Licensee and QFES will be notified of the event and request that a Plantation Licensee/ QFES person be embedded in the WF incident team.

The QFES person will activate any QFES resources and will take incident control responsibility if other public / private people or assets are at risk.

The nominated representative(s) of the Plantation Licensee will activate any Plantation Licensee resources.

8.3.2 Fire migrates from Wind Farm Asset to Plantation

When a fire migrates from a WF asset to the plantation the embedded Plantation Licensee officer will activate the Plantation Licensee's fire crews and establish a plantation incident control division under the main IMT.

There is only one incident controller. QFES would assume control (Handover) of the event at this stage allowing the WF team to focus on assets and the Plantation Licensee to focus on plantations.

8.3.3 Plantation fire challenges a Wind Farm asset

When a fire starts in a plantation, the roles are reversed.

The Plantation Licensee would trigger an initial control response and form an IMT if the event escalated.

If the fire was a potential threat to WF assets the Plantation Licensee would notify the WF Operator who would dispatch an AIIMS accredited person to the Plantation Licensee's Incident Management Team. The WF Operator would secure WF assets by deploying crews and collaborating with the Plantation Licensee's IMT via resource and equipment support to control the fire.

8.3.4 Fire threatens wider community

Where a plantation or wind farm asset fire threatens other assets or communities, QFES would assume the incident control responsibility with the WF Operator and the Plantation Licensee operating as divisions, focusing on their respective assets, providing input into the incident management team to control the event.

FW understands the technical and financial risks associated with its assets and the Plantation Licensee understands the fire risk and potential value loss to its assets. This knowledge adds value to the IMT, protecting life and minimising loss.

8.3.5 Turbine control in plantation fire event

For a wind turbine heat alarm or fire the asset will be shutdown to facilitate suppression control action.

In a plantation fire the wind turbine network removes energy from the wind and may provide a positive impact on fire performance (intensity and rate of spread).

Where plantation aerial attack is underway it may be necessary to temporarily shut a wind turbine down to reduce hazards for the pilot.

Turbines can be started and stopped at short notice. The WF Operator and the Plantation Licensee will establish a protocol for a directed outage in emergent conditions. While the WF Operator's preference is to keep turbines operating to minimise rotor blade convected and radiated heat exposure during a passing fire front, life preservation is the first priority.

8.4 Wind Farm controls

8.4.1 Wind Farm asset fire controls

To minimise the risk of WF asset fires FW may implement the controls detailed in Table 7 Wind Farm asset fire controls

Table 7 Wind Farm asset fire controls

Asset	Control
Nacelle / hub units	Engineering design reflects on lessons learnt from previous WT fire events Asset alarm, remote monitoring, control Auto heat/ smoke/ vibration/ gas detection plant shutdown Fire suppression equipment activated (CO_2 / Dry powder) Selected video monitoring on towers Earthed equipment
Turbine tower	Construction materials, shape Sealed towers Isolation seals, protected vents ~25m diameter concrete foundation Earthed tower structure
Rotor blades	Protective fire-resistant coating. Movement reducing fire residency time.
Medium voltage cable network	Buried Heat resistant sheathing Sector isolation Earthed
Substations	Asset alarm, remote monitoring, control Auto heat/ smoke/ vibration/ gas detection plant shutdown Fire suppression equipment activated (CO_2 / Dry powder) Selected video monitoring Cleared hardened compounds Equipment earthed
High voltage overhead cables	Line separators Tower earthing

8.4.2 Wind Farm land fire controls

Table 8 summarises the fire controls for land, vegetation and adjoining plantations.

Table 8 Fire controls

Asset	Control
Land	Cleared hardened sites Set back distances Overhead Transmission Corridor clearway maintenance Fire breaks installed around assets Trained field teams, contractors
Vegetation	FW Land fuels actively managed Established FW land maintenance schedule
Adjoining plantations	Develop Modified Fuel Zones (MFZ) Install accessible fire breaks around WF assets

8.5 Resources

This section details the people, equipment and skill sets that may be required for fire response during the operations phase. Resources may be held in-house or contracted services such as aerial surveillance and attack.

Table 9 details the minimum resource required for effective WF fire response.

Table 9 Fire resources

Resource	Operations
Personnel	**Forest Wind** — Trained experienced AIIMS incident controller/s — Construction and FW Operations staff — People who have completed basic fire training can attend a fire event — Accredited fire responders, firefighters and crew leaders **Service agreements with** — The Plantation Licensee — Skilled contractor services as required: — Mechanics — Welders — Electricians
Plant	**Forest Wind** — Light 4WD diesel vehicles **Contract services** — Dozers, graders, excavators, flat bed transporters — Crane and fire-fighting capacity — Water tankers 10,000 L, 20,000 L capacity with monitors and pumps — Aviation services with fire response equipment. (Aircrane) — UAV aerial services with infrared (hotspot) and photography linked to control centre
Equipment	**All field service vehicles equipped with**

Resource	Operations
	— Real time “Global Positioning Systems” (GPS) and emergency distress function linked to office map interface — Extinguishers min 4kg — UHF radios in all FW and Contractor vehicles **Selected Field service vehicles** — 400 L mop up units — Common pumps and fittings — Compatible with Plantation Licensee units **Water availability** — 4 x 5,000 L water capacity in portable pillow tank/s, pumps and hoses to suit flat-bed or semi-trailer **Fire monitoring** — Remote weather monitoring
Suppliers	**Contract arrangements** — Food — Fuel — Bulk dry fire retardant

8.6 Communication

8.6.1 Pre-season

A Fire Action Plan cannot be established in isolation from other response industries and agencies.

The structure of an incident team and skills needs to be established well in advance of an event.

The triggers for elevating incident response and who takes control also needs to be established.

The Forest Wind operator will meet in the pre-season each year, prior to 30 June with local and regional fire response agencies to ensure that all agencies (the Plantation Licensee, QFES, Police, RFS) have a common approach to fire control.

8.6.2 During fire event

When a fire event is detected the Incident Controller will call for radio silence except for fire related transmissions. The Incident Controller / Operations manager will establish a time-log of communications and events including fire status reports, resource deployments, weather conditions, changes to the fire behaviour and asset impacts.

The Incident Controller has overall communication responsibility and may delegate to incident team members to ensure that radio traffic is controlled and agencies, the Plantation Licensee are informed.

The media may have an interest in the event. Media management (External Liaison) will be kept separate to the IMT and report to the Incident Controller.

8.7 Incident investigation

Every FW asset or land tenement fire will be subject to an incident investigation root cause analysis.

The analysis will:

- establish causal factors
- review systems and maintenance schedules to ensure procedures mitigate the cause
- review the incident control response, structure, timing

- establish gaps, non-conformance and lessons learnt
- update procedures and implement lessons learnt
- consider innovations for change management including engineering the causal factors out of the WF.

8.8 Induction

Fire management awareness and individual responsibilities will be included in the FW induction package.

Key messages include:

- fire hazards in WF and plantations
- personal responsibilities to minimise fire hazard (welding, smoking, vehicles)
- reporting incidents and Incident management
- muster points and wildfire response procedures.

9. References

Australian Fire Authority Council (AFAC) (June 2017)

The Australian Interservice Incident Management System

McArthur

McArthur's Forest Fire Danger Meter Mk5, CSIRO

Renato R and Henricksen K (2007)

Managing information in the disaster coordination centre: lessons and opportunities.
https://www.researchgate.net/figure/AIIMS-structure_fig1_228591077

A.1 Fire Management Roles

Incident Controller

Function:

The management of all activities necessary for the resolution of an incident.

Role:

- Establish the IMT, take overall responsibility and control
- Establish the management structure, appoint Operations, Planner and Logistics as required
- Establish a control facility (dedicated IM room or field facility)
- Setting and achieving objectives through the Incident Action Plan
- Establishing procedures to identify risks and manage safety
- Maintain communication with the IMT group through regular updates, minutes and actions
- Establish an external liaison role to keep all relevant people informed and aware of incident progress
- Conduct incident management review and debrief with IMT.

Planning

Function:

The collection analysis and dissemination of information and the development of plans for the resolution of an incident.

Role:

- Take a briefing from the Incident Controller
- Establish and manage a planning section, if necessary, given the size and complexity f the incident
- Collate information on the current and projected incident situation
- Monitor and report weather current and forecast.
- Develop possible escalation scenarios
- Develop and document a response strategy
- Conduct IMT planning meetings to deliver the plan
- Maintain a resource register and identify the location and deployment of all resources
- Regularly update the Incident Controller
- Keep a log of the incident events, decisions, records, maps of the incident
- Develop the incident demobilisation plan.

Operations

Function:

The tasking and application of resources to achieve resolution of an incident

Role:

- Take a briefing from the Incident Controller
- Exchange information with the Planning and Logistics sections on a regular basis
- Develop the Operations portion of the Incident Action Plan
- Establish an operations section as directed by the Incident Controller that meets the size and complexity of the incident
- Brief and allocate Operations team in accord with the Incident Action Plan
- Manage operations at the incident and monitor progress
- Update the Planner and Incident Controller of progress, changed circumstances, risks

- Determine need for any additional resources, logistical support
- Assemble and deploy fire crews, and sector commanders as required
- Reallocate resources as situation changes including stand down
- Maintain a log of activities and decisions.

Logistics

Function:

The acquisition and provision of human and physical resources, facilities, services, and materials to support achievement of incident objectives.

Role:

Take a briefing from the Incident Controller

- Develop the Logistics portion of the Incident Action Plan
- Establish the logistics section team and allocate tasks
- Support control of the incident through the procurement and maintenance of human and physical resources, facilities services and materials
- Liaise with the Operations as required to determine incident resource demand
- Predict future resource demand and pre-plan availability based on Planning briefings and Operation's advice.