

APPENDIX 21

Boco Rock Wind Farm Qualitative Air Quality Assessment

Heggies Pty Ltd



HEGGIES

REPORT 40-1738-R2

Revision 0

Boco Rock Wind Farm Qualitative Air Quality Assessment

PREPARED FOR

Wind Prospect CWP Pty Ltd
45 Hunter Street
Newcastle NSW 2300

3 AUGUST 2009

HEGGIES PTY LTD
ABN 29 001 584 612



Boco Rock Wind Farm

Qualitative Air Quality Assessment

PREPARED BY:

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Appendix A Construction Dust Management Plan

Appendix B Typical Resource Site Emission Inventory



1 INTRODUCTION

Heggies Pty Ltd (Heggies) has been commissioned by Wind Prospect CWP Pty Ltd to conduct a qualitative air quality assessment for the construction of the Boco Rock Wind Farm development near Bombala in Southern NSW.

This assessment considers the Director General Requirements for Application Reference 08_0188 and Department of Environment and Climate Change (DECC) recommendations.

2 SCOPE OF WORK

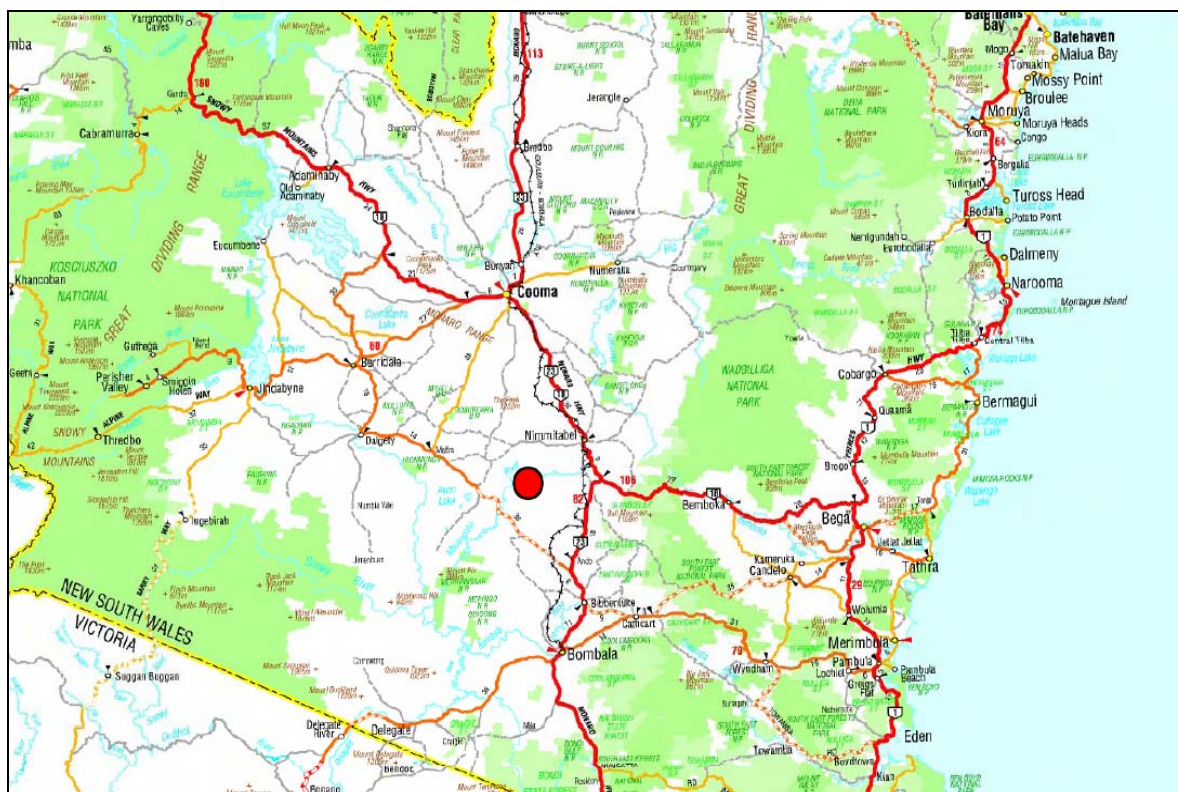
The scale of the project, when assessing dust emissions and impact upon nearby sensitive receivers is regarded as being relatively minor. Therefore a qualitative assessment of the potential dust sources has been conducted and a Construction Dust Management Plan prepared to manage any potential dust issues.

3 PROJECT OVERVIEW

The Boco Rock Wind Farm is located approximately 6-8 km southwest of Nimmitabel in the southern tablelands of NSW. The proposed wind farm covers approximately 140 hectares and is situated along the high altitude plateau of the Monaro Plains and is to the west of the Monaro Highway.

The locations of the Boco Rock Wind Farm is shown in **Figure 1**.

Figure 1 Boco Rock Wind farm Location



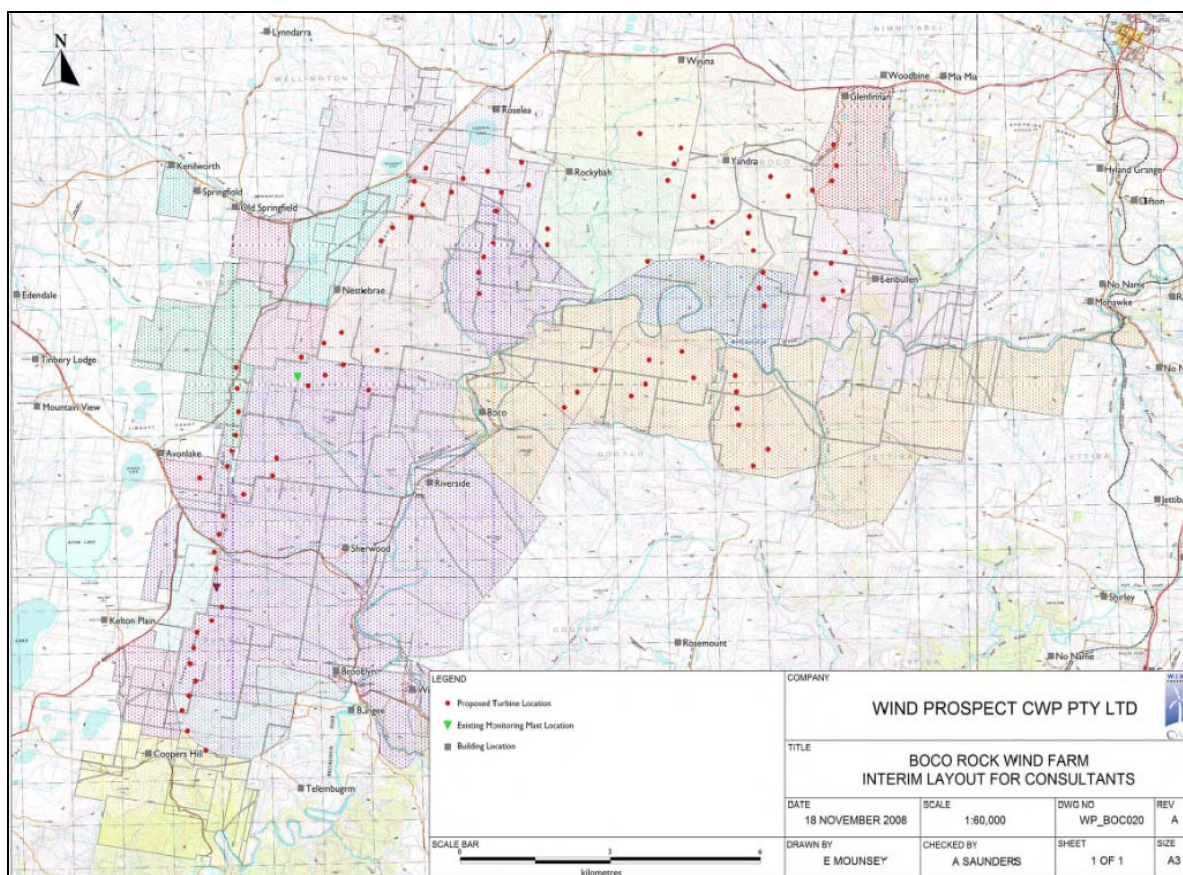


3.1 Receivers

The proposed site incorporates the farming properties Yandra, Riverside, Springfield, Roselea, Windella, Rockybah, Benbullen, Brooklyn, Sherwood, Coopers Hill, Glennfinnan, Old Springfield, Boco, Wyuna, Nestlebrae, Telembrm, Avonlake and Kelton Plain.

Properties surrounding and including the proposed site to the north and northwest are generally located along or accessed from Springfield Road and Avonlake Road. Properties surrounding and including the proposed site to the south and southeast are generally located along or accessed from Ando Road. The sensitive receivers located within 6 km of a proposed wind turbine generator (WTG), are indicated on the map in **Figure 2**.

Figure 2 Boco Rock Wind Farm Layout and Receiver Locations



3.2 Project Description

The Boco Rock Wind Farm will comprise one of two potential design layouts; one (1) consisting of 125 wind turbines and the other 107 wind turbines, both spread over 17 different properties. The output from the wind farm is limited by the rating of the transmission lines in the area, thereby constraining output to approximately 270 MW.

The wind farm will connect into two (2) Country Energy owned lines located east of the project via a new 132 kV double-circuit line, which is subject to a separate approvals process.

The proponent requests that consideration is given to a micro-siting allowance during the detailed design phase, and that the project, if necessary, can be built and commissioned in stages.



Pre-construction works involve final site surveys (for heritage and ecology), geotechnical investigations and preparation activities. Construction works involve the grading and surfacing of access tracks and turbine footprints, and the installation of the wind farm and connection infrastructure as well as temporary works facilities, including storage areas. Land that is disturbed, that is not part of the land-take for the life of the wind farm, will be reinstated.

Operation of the wind farm is controlled remotely; with the majority of site visits required being that by maintenance staff. At the end of the term of the wind farm the facility may either be refurbished or decommissioned. Decommissioning will involve the removal of all above ground infrastructure and land reinstated.

To harness the energy produced by the wind farm, a new transmission line is required to connect it to the existing electricity grid. To meet this requirement the construction of a new double-circuit 132 kV overhead transmission line would be required to connect the wind farm with two existing Country Energy lines located approximately 25 km east of the wind farm site.

4 QUALITATIVE AIR QUALITY ASSESSMENT

4.1 Emission Sources

It is proposed that dust sources are separated into two (2) categories. These are:

- Mobile Resource Sites.
- General construction activities.

The dust sources associated with the above are detailed in **Figure 3**.

Figure 3 Dust Sources

Mobile Resource Sites	General Construction Activities
Mobile Concrete Plants	Open areas
Rock crushing for use as road base.	Excavation
Material processing, handing and transfer	Stockpiles
	Construction of roads
	Clearing of vegetation
	Hauling activities along unsealed roads

Dust from “General Construction Activities” can be managed using Best Management Practises. Presented in **Appendix A** is a Construction Dust Management Plan. It is proposed that this plan be adopted for the management of dust across all turbine construction sites. The Mobile Resource Sites are qualitatively assessed below.

4.2 Mobile Resource Sites

The proposal includes five (5) mobile concrete batching plants, rock crushing facilities and temporary construction facilities including site office, parking and materials storage areas. It is proposed that only one site be operational at any given time.

The closest receivers to a wind turbine construction site and a mobile rock crushing facility are approximately 0.94 km and 0.91 km respectively.



Air quality impacts associated with the operation of the mobile resource sites include the following:

- Particulate emissions associated with the transfer of sand and aggregate to the concrete batch plant hoppers.
- Particulate emissions associated with the unloading of cement to elevated storage silos, via pneumatic transfer.
- Weigh hopper loading.
- Fugitive dust emissions from trucks on the site.
- Particulate emissions associated with the primary and secondary rock crushing.

To provide an estimate of dust emissions from the above activities and based on previous experience on other similar sites, the following assumptions have been made:

- Hours of operation during construction are 7:00am to 5:00pm weekdays and 7:00am to 1:00pm on Saturdays.
- A crushing rate of 50 tonnes per hour.
- Maximum concrete production of 66 tonnes per day/hour. It is understood that the foundations for one turbine per day will be constructed. It is assumed that each foundation is composed of approximately 66 tonnes of concrete (5 trucks per day).

To provide an indication of the dust emissions for both a mobile concrete batch plant and rock crushing activities, **Appendix B** describes the total emissions anticipated from a mobile resource site. The emissions data was sourced from the following:

- For concrete plant operations, emission factors have been used as contained in Table 11.12-1 of the US EPA document "AP-42 Compilation of Air Pollutant Emission Factors, Fifth Edition, Chapter 11.12 Concrete Batching".
- For primary and secondary crushing, default emission factors have been used as contained in Table 1 of the *Emission Estimation Technique Manual for Mining and Processing of non-Metallic Minerals, Version 2.0*, (Environment Australia, 2000).

It is noted that the crushing emission rate is based on "high moisture content material". It is proposed that if material arrives on-site very dry, that it has the moisture content increased prior to crushing.

As described in **Appendix B**, the estimated daily emissions associated with a Mobile Resource Site are in the order of:

- PM₁₀ – 10 kilograms.
- Total Dust – 35 kilograms.

These emissions present a scenario where the site has no dust mitigation controls employed. It can be seen that the Truck Loading activity associated with the Concrete Plant is the most significant source (94% for total dust and 92% for PM₁₀).

Given the distance to the nearest sensitive receiver (0.91 km), it is anticipated that these particulate quantities will either fall out or be diluted prior to reaching the receiver.



5 CONCLUSION

Heggies has been commissioned by Wind Prospect CWP Pty Ltd to conduct a qualitative air quality assessment for the construction of the Boco Rock Wind Farm development near Bombala in Southern NSW.

It is proposed that dust sources are separated into two (2) categories. These are:

- Mobile Resource Sites.
- General construction activities.

Dust from “General Construction Activities” can be managed using Best Management Practises. Presented in **Appendix A** is a Construction Dust Management Plan. It is proposed that this plan be adopted for the management of dust across all turbine construction sites.

Emissions associated with Mobile Resource Sites were assessed qualitatively. As described in **Appendix B**, the estimated daily emissions associated with a Mobile Resource Site are in the order of:

- PM₁₀ – 10 kilograms.
- Total Dust – 35 kilograms.

These emissions present a scenario where the site has no dust mitigation controls employed. It can be seen that the Truck Loading associated with the Concrete Plant is the most significant source (94% for total dust and 92% for PM₁₀). Given the distance to the nearest sensitive receiver (0.91 km), it is anticipated that these particulate quantities will either fall out or be diluted prior to reaching the receiver.

As described within the Construction Dust Management Plan, it is proposed that Dust Deposition Gauges be installed near Mobile Resource sites to ensure the concentrations do not exceed the adopted project goal (4 g/m²/mth). This data can also be used to ensure emissions from Truck loading activities are not impacting upon the nearest sensitive receivers, which is unlikely.

The construction company employed to undertake the project has the option of employing a variety of mitigation options across the Resource Sites if dust monitoring results indicate it is necessary.

Appendix A

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CONSTRUCTION DUST MANAGEMENT PLAN



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1 INTRODUCTION

Heggies Pty Ltd (Heggies) has been commissioned by Wind Prospect CWP Pty Ltd to produce a Construction Dust Management Plan (CDMP) for the activities associated with the Boco Rock Wind Farm development near Bombala in Southern NSW.

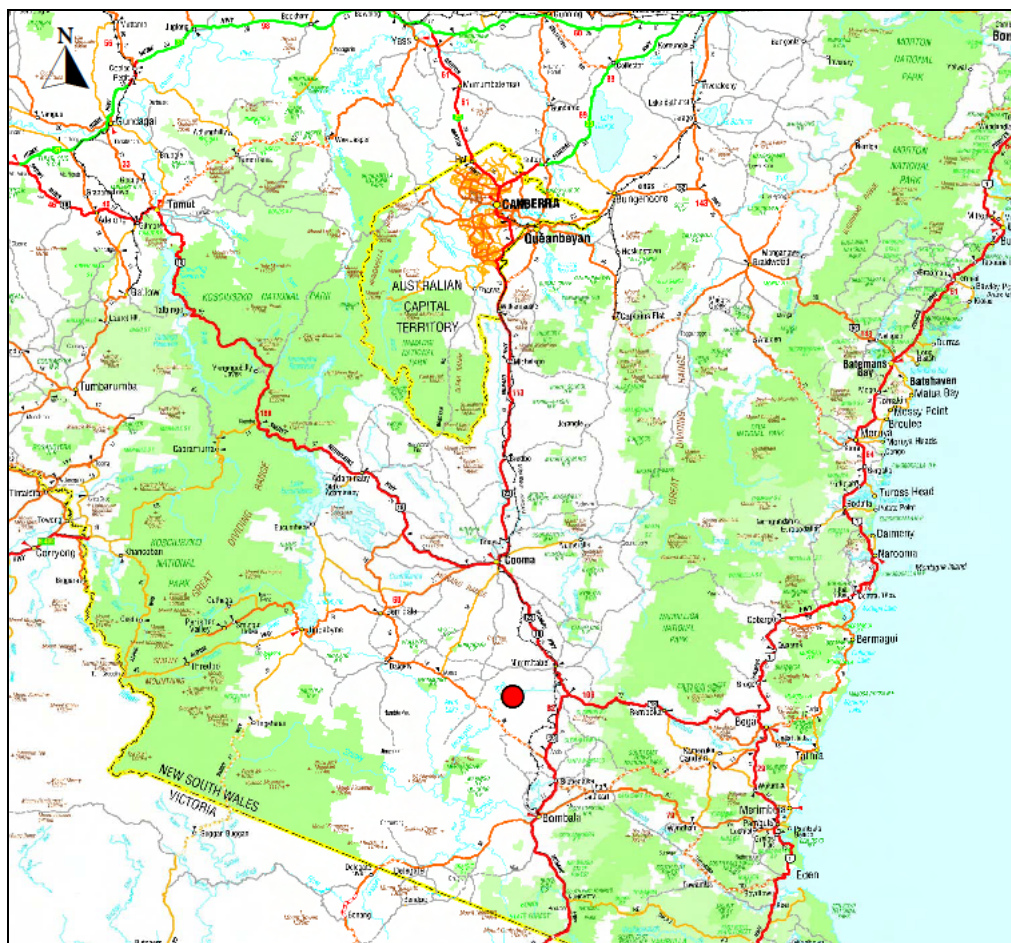
The Boco Rock Wind Farm development proposal comprises of a wind farm with two (2) potential design layouts; one consisting of 125 wind turbines and the other consisting of 107 wind turbines spread over 17 different properties. The proposal includes five (5) mobile concrete batching plants, rock crushing facilities and temporary construction facilities including site office, parking and materials storage areas.

1.1 Site Description

The Boco Rock Wind Farm is located approximately 6-8 km southwest of Nimmitabel in the southern tablelands of NSW. The proposed wind farm covers approximately 140 hectares, is situated along the high altitude plateau of the Monaro Plains and is to the west of the Monaro Highway.

The locations of the Boco Rock Wind Farm is shown in **Figure 1**.

Figure 1 Location of proposed Boco Rock Wind Farm





1.2 Receivers

The proposed site incorporates the farming properties Yandra, Riverside, Springfield, Roselea, Windella, Rockybah, Benbullen, Brooklyn, Sherwood, Coopers Hill, Glennfinnan, Old Springfield, Boco, Wyuna, Nestlebrae, Telembrgm, Avonlake and Kelton Plain.

Properties surrounding and including the proposed site to the north and northwest are generally located along or accessed from Springfield Road and Avonlake Road. Properties surrounding and including the proposed site to the south and southeast are generally located along or accessed from Ando Road. The sensitive receivers located within 6 km of a proposed wind turbine generator (WTG), are indicated on the map in **Figure 2**



Figure 2 Sensitive Receiver

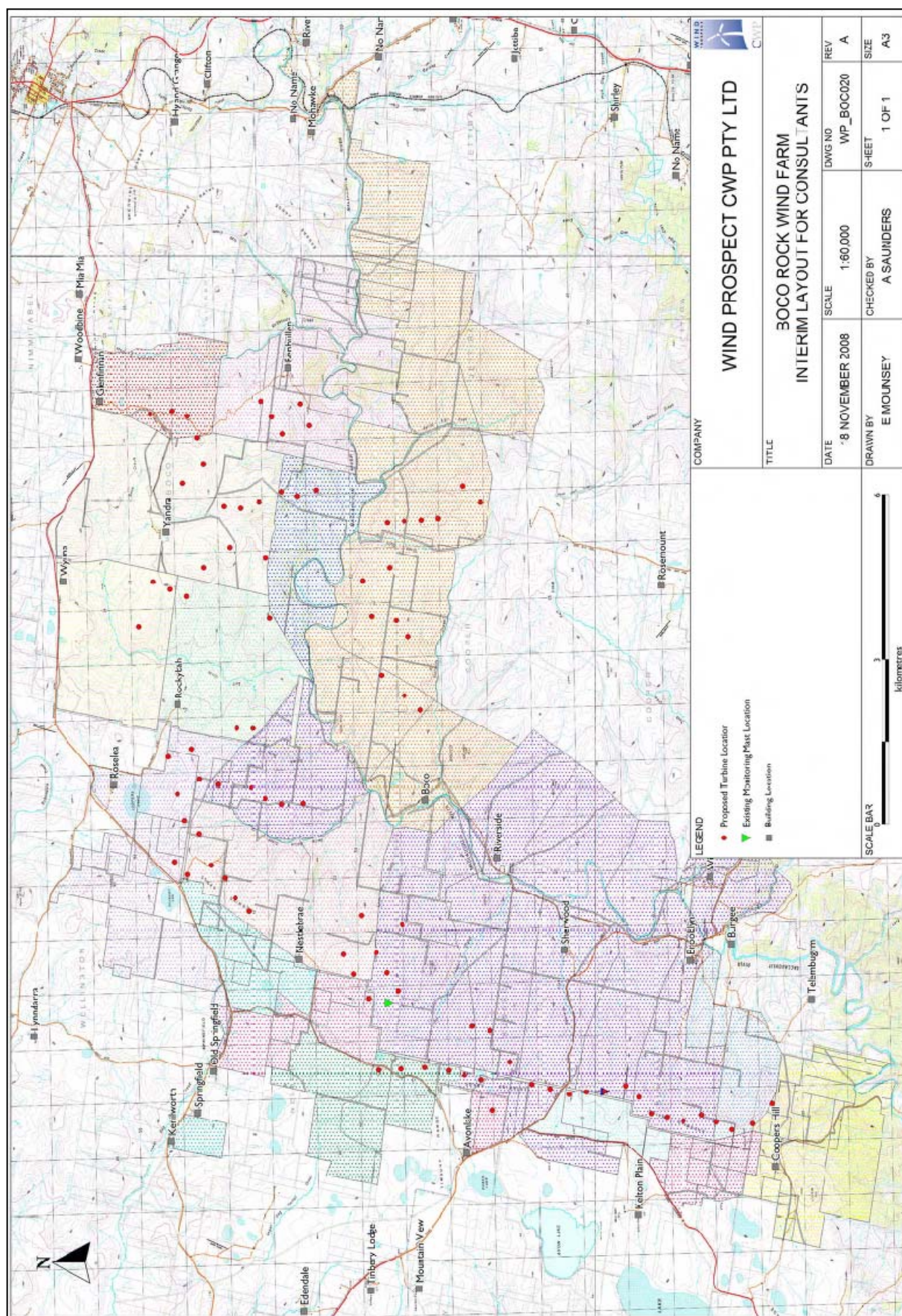




Table 1 lists the on-site and off-site receiver locations and their position. Other dwellings located beyond 6 km of a proposed WTG have not been included.

Table 1 Surrounding Receivers

Location	East (m)	North (m)
Avonlake*	684924	5947624
Belmore	680461	5941821
Benbullen*	699314	5951354
Boco*	691374	5948433
Brooklyn*	688326	5942494
Bungee	688606	5941567
Clifton	704525	5953058
Coombala	685402	5937496
Coopers Hill*	684531	5940643
Curry Flat	699524	5957935
Edendale	682127	5951369
Glenfinnan*	698804	5955622
H1	680925	5942328
H2	688457	5935512
H3	703854	5951128
Hyland Grange	703866	5953807
Kangaroo Camp Retreat	689115	5936116
Kanoute	691256	5939524
Kelton Plain*	683714	5943770
Kenilworth	685288	5954313
Lofty Vale	689125	5959604
Lynndarra	687266	5957378
Mia Mia	700779	5956037
Mohawke	703603	5950719
monastery	683155	5935393
Mountain View	682479	5948755
Nestlebrae*	688537	5951337
Old Curry Flat	696738	5957694
Old Springfield*	686537	5953315
Peters Park	680341	5941115
Riverside*	690289	5946823
Rockybah*	693247	5953985
Roselea*	691826	5955463
Rosemount	695166	5942991
Roslyn	680312	5938990
Sherwood*	688579	5945345
Springfield*	685789	5953700
Telembugrm*	687560	5939773



Location	East (m)	North (m)
Tinbery Lodge	682470	5949856
Windella*	689840	5942014
Wodburn	680399	5942869
Woodbine	699584	5956091
Wyuna*	695544	5956531
Xenmor	683772	5936565
Yandra*	696387	5954178

Note: * Denotes the location is involved with the project



2 OBJECTIVES

The specific objectives of this CDMP are as follows:

- To assist in ensuring that standards of air quality during the construction works comply with all relevant statutory guidelines.
- To minimise the air quality impacts on surrounding sensitive receivers.
- To maintain reasonable levels of amenity for surrounding residences, in terms of nuisance dust impacts.
- To define the roles, responsibilities, and the tasks to be performed, in regard to the control and monitoring of emissions effecting air quality, and
- To assist in responding quickly and effectively to issues and complaints.



3 DESCRIPTION OF CONSTRUCTION ACTIVITIES

The anticipated pre-construction period is anticipated to be six (6) months, with civil works expected to span approximately two (2) years.

Construction activities include;

- Construction of access roads.
- Establishment of turbine tower foundations and electrical substation.
- Digging of trenches to accommodate underground power cables.
- Erection of turbine towers, wind monitoring masts and assembly of WTG's.
- Construction of temporary facilities including site office, parking and materials storage areas.
- Construction of mobile concrete batching plant (s) and rock crushing facilities.
- Construction of site operations facilities and services building.
- Production of concrete at an estimated rate of 66 tonnes per day/hour up approximately 200 tonnes per week.
- Rock crushing at an estimated rate of 50 tonnes per day/hour up to approximately 400 tonnes per week

The equipment required to complete the above tasks will typically include;

- Excavator/grader, bulldozer, dump trucks, roller
- Bucket loader, rock breaker, drill rig, excavator/grader, bulldozer, trucks (dump, flat beds, concrete)
- Excavator, flat bed trucks
- Cranes, fork lift, and various 4WD and service vehicles.



4 DUST MANAGEMENT AND MITIGATION

4.1 Management

This management plan for Wind Prospect CWP Pty Ltd address the project requirements outlined in the Director Generals requirements (Application No.: 08_0188). The recommendations and mitigation measures contained within each plan shall be implemented during each construction phase.

The generation of dust is of concern during construction. The following procedures and requirements will be followed during the life of each project to minimise the dust generated by the project:

- Watering of unsealed roads.
- Trucks entering and leaving the site will be well maintained in accordance with the manufacturers specification to comply with all relevant regulations. Fines may be imposed on vehicles which do not comply with smoke emission standards. Truck movement should be controlled on site and restricted to designated roadways. Truck wheel washes or other dust removal procedures will be installed to minimise transport of dust offsite.
- If necessary suspending construction activities during periods of high winds and covering/watering/revegetating of stockpiles and exposed areas.

The following are basic procedures which will be adopted on site to control dust and other emissions from construction operations and on-site equipment. The aim of these procedures is to minimise off-site dust nuisance and air quality impacts.

- Activities carried out on site will be such as to ensure that all equipment used and all facilities erected are designed and operated to control the emission of smoke, dust, fume and other objectionable matter into the atmosphere.
- Precautions to be taken include spraying of earthworks, roads and other surfaces as necessary with water or other suitable liquids, providing dust suppression equipment to any onsite materials batching plant, sealing of temporary haul roads and the modification of operations during high or unfavourable wind conditions.
- Working areas and access roads will be stabilised as soon as practicable to prevent or minimise wind blown dust.
- All disturbed areas will be stabilised as soon as practicable to prevent or minimise wind blown dust.
- All unsealed trafficable areas be kept sufficiently damp during working hours to minimise wind blown or traffic generated dust emissions. Continued use of water on dirt roads helps the formation of a crust so that dust is not as easily generated.
- Water sprays, sprinklers and water carts may be employed if needed to adequately dampen stockpiles, work areas and exposed soils to prevent the emissions of dust from the site. Water carts and other equipment will be available to enable watering at least at an hourly rate of 2 litres per square metre.
- Stockpiles and handling areas will be maintained in a condition which minimises wind blown or traffic generated dust. Areas that may be inaccessible by water carts will be kept in a condition which minimises wind blown or traffic generated dust using other means.
- All equipment for dust control will be kept in good operating condition. The equipment will be operable at all times with the exception of shutdowns required for maintenance. Construction equipment will be properly maintained to ensure exhaust emissions comply with the Protection of Environmental Operations (POEO) Act.



- If visible smoke can be seen from any equipment (while working on a construction site) for longer than 10 seconds duration, the equipment will be taken out of service and adequately repaired or tuned so that smoke is no longer visible for periods longer than 10 seconds.
- Cleared vegetation, demolition materials and other combustible waste material will not be burnt on site.
- Silt will be removed from behind filter fences and other erosion control structures on a regular basis, so that collected silt does not become a source of dust.
- No dust, soil or mud shall be deposited from any vehicle on public roads. Where wheel washing facilities are provided on construction works area, all drivers of construction vehicles shall utilise the wheel wash prior to leaving the works area and entering public roads.
- Any dust soil or mud deposited on public roads by sub contractors construction activities and vehicle movements shall be removed immediately and disposed of appropriately
- Hire agreements will contain provisions to stand down equipment which has excessively smoky exhaust.

4.2 Dust Mitigation

The Department of Environment and Climate Change (DECC) has reviewed the environmental hazards associated with construction sites and prepared a general document containing safeguards to protect the environment during such activities. Many of these safeguards relate to controlling water pollution and run-off, however these procedures frequently help in control of air pollution. The recommendations by the DECC are those which will, in general, need to be implemented at the various sites of construction and include:

- Watering of roads and sealing of roads where possible.
- Wind breaks composed of earth banks and other screens to protect areas by reducing capacity of the wind to raise dust.
- Trucks entering and leaving the site should be well maintained in accordance with the manufacturer's specification to comply with all relevant regulations. All trucks entering and leaving the construction site should have their loads covered. Fines may be imposed (by the DEC) on vehicles which do not comply with smoke emission standards. Truck movement should be controlled on site and restricted to designated roadways. Truck wheel washes or other dust removal procedures should be installed to minimise transport of dust offsite onto public roads.
- If necessary amending of construction during periods of high wind.
- Covering/watering/revegetating of stockpiles and exposed areas.

The following headings outline specific controls and approaches to minimise impacts from wind erosion, spoil stockpiles and vehicle emissions.

Wind Erosion

- Watering of exposed surfaces/application of a crusting agent will be carried out during dry weather, if necessary.
- When winds reach (or exceed) a velocity of 2.5 metres per second, the frequency of water shall increase. When winds exceed 10 metres / second for 10 minutes, work will cease.
- Progressive rehabilitation of exposed sites on completion of different work stages to be undertaken where practical.

Spoil Stockpiles

- Minimising of spoil stockpiling on site.



- Minimising the number of work faces on stockpiles.
- Stockpiles to be temporarily covered (if short term) or sprayed with water/crusting agent (Polo Dust Bind) (long-term) to keep dust to a minimum.
- When conditions are excessively dusty such that the project air quality goals are anticipated to be exceeded, then all dust generating activities shall cease until conditions improve/dust suppression can be adequately carried out.

4.2.1 General

- Sites and surrounding public roads to be cleaned, as required, with street sweepers.
- Under no circumstances will any material be burnt on site.
- Silt and other materials will be removed from around erosion control structures following any significant rain event (>10mm) to ensure deposits do not become a dust source. The SM shall be responsible for ensuring this task is undertaken.
- Water spraying to be conducted during the loading of trucks, as required.
- Visual monitoring would be undertaken by the Site Manager (SM) to assess the impacts of dust generation upon air quality. If the dust generated as a result of construction work proves to be a nuisance and cannot be controlled through water spraying, works would be reviewed considering dust monitoring results undertaken in accordance with the criteria noted previously.
- During work on siliceous materials, if visual dust is observed, additional water sprays will be used at the workplace to suppress dust. This will include the use of a hand held hoses.

4.2.2 Non-Compliance and Corrective Action

Where the air quality monitoring identifies non-compliance with the relevant criteria, the SM will plan and carry out corrective action.

If monitoring indicates that the air quality objectives are being significantly exceeded on multiple occasions the SM will:

- Identify the activities that were occurring at the time of the exceedance.
- Determine the activities that were most likely contributing to the exceedance (employing continuous monitoring techniques outlined in earlier).
- Review construction process and environmental controls in place for this activity.
- Implement an agreed alternative to more adequately control dust generation.

The corrective action may involve supplementary monitoring to identify the source of the non-conformance, and/or may involve modification of construction techniques or programme to avoid any recurrence or minimise its adverse effects.



5 AIR QUALITY STANDARDS

Air Quality

In accordance with DECC requirements “*Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, 2005*”, the following monitoring and reporting program has been devised for construction associated with the Boco Rock Wind Farm development site.

Table 2 Air quality standards / goals for particulate matter

Pollutant	Standard / Goal	Agency
Particulate matter < 10 µm (PM ₁₀)	50 µg/m ³ (24hr maximum)	NSW DEC, NEPM Criteria
	30 µg/m ³ (annual mean)	NSW DEC long-term reporting goal

Table 3 NSW DECC Criteria for dust fallout

Pollutant	Averaging periods	Maximum increase in deposited dust level ^{1, 2}	Maximum total deposited dust level ^{1, 2}
Deposited Dust	Annual	2 g.m ² /mth	4 g/m ² /mth

Note 1: Source: NSW DECC “Approved Methods & Guidance for the Modelling and Assessment of Air Pollutants in NSW”, 2005.

Note 2: Dust is assessed as Insoluble Solids as defined by AS 3580.10.1-1991.

Table 4 Monitoring Requirements

Pollutant	Method ¹	Frequency
Particulates (Deposited Matter)	AM-1, AM-19	Continuous

Note 1: NSW DECC “Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales”, 2005.

The following requirements shall be adhered to for the above monitoring procedures:

- Analyses shall be carried out by a laboratory accredited to perform them by an independent body acceptable to the DECC, such as the National Association of Testing Authorities (NATA).
- The results of any monitoring must be provided as a summary report signed by the person required to provide the report. The report must contain at least the following information:
 - Name and address of reporting organisation or individual.
 - Date of issue of report.
 - The test method used and details of any deviation from the method.
 - Period of monitoring (start and end dates).
 - Location of monitoring points (normal address and Australian map grid reference, height above nominal ground level, and a description of the terrain features).
 - The air pollutants measured, the monitoring instruments used, and the description of the air sampling system.
 - Appropriate long term averages.
 - Any factors that may have affected the monitoring results.
 - The precision of the results.



5.1.1 Dust Deposition Monitoring

Dust Deposition Gauges (DDGs) are to be used to assess deposited matter on a continuous basis. To gain representative data of the immediate air quality environment, it is recommended that up to six (6) gauges are installed adjacent the proposed mobile concrete batching plants and rock crushing facilities nearest the sensitive receivers.

Gauges shall be located following discussion and agreement with adjacent receivers and will be installed following liaison with the proponent. Gauges will be exposed for 30 days (+/- 2 days) and will be analysed for Insoluble Solids, Ash Residue and Combustible Matter.

Equipment and methods will comply with “AS 3580.10.1-1991 *Determination of particulates – Deposited Matter – Gravimetric method*”.

Locations shall be determined following consideration of AS 2922-1987 “*Guide for Siting of Sampling Units*”.

5.1.2 Supplementary Air Quality Monitoring

Supplementary monitoring will also be carried out in response to complaints or exceedances. Monitoring would assess ambient 24-hour average PM₁₀ concentrations using the TSI DustTrak.

5.1.3 Reporting

All air quality monitoring results as stipulated earlier will be reported within 15 days of collection to the Site Manager (SM) so that dust control and operational procedures can be reviewed and modified, if required.

Results of construction monitoring will be reported through monthly Environmental Monitoring Reports. These reports shall cover the preceding month’s activities.

This report will be forwarded by the Project Manager, and be made available to representatives of the relevant Authorities and shall include a record of air quality complaints.

Monitoring results and sample locations would be made available to the relevant authorities so that an on-going sampling program is developed to the satisfaction of the regulatory authorities.

5.1.4 Non Compliance and Corrective Action

Where site inspections or monitoring results indicate non-compliance with the relevant monitoring criteria, the proponent will plan and carry out corrective action.

If a non-compliance occurs on multiple occasions the SM will:

- Identify the activities that were occurring at the time of the non-compliance.
- Determine the activities that were most likely contributing to the non-compliance.
- Review construction process and environmental controls.



6 CONTINGENCY RELATING TO NON-COMPLIANCE AND COMPLAINTS HANDLING

The non-compliance/complaints handling procedure will be as follows.

6.1 Community Information and Complaints Handling

In order to effectively manage any requests for information or respond to any public concerns in relation to the proposed construction activities and site operation, it is recommended that the following systems be maintained:

- The Company will supply the DECC and/or department of Planning with the names and appropriate contact numbers for the site construction manager during the construction period and one other senior staff member.
- An **Environmental Hotline Phone Number** will be put in place to allow contact with the Company in relation to any environmental matter including those concerned with dust issues.
- The Company will use a complaint handling system to monitor environmental dust complaints. All information relating to dust complaints will be kept in a register. The register will include but not be restricted to the following information:
 - Date and Time of complaint
 - Complainant details (ie full name and contact details)
 - Nature and source of complaint
 - Action taken
 - Follow-up with complainant

The Company will endeavour to respond to any complaint within one working day of its receipt.

Appendix B

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TYPICAL RESOURCE SITE EMISSION INVENTORY

Estimated Dust Emissions							
Activity	Dust Emission Factor	PM ₁₀ Emission Factor	Emission Factor Units	Throughput	Daily Hours of operation	Maximum daily dust total (kg)	Maximum daily PM ₁₀ total (kg)
Sand Transfer	0.0011	0.0005	Kg/t	20	2	0.02	0.01
Aggregate transfer	0.0035	0.0017	Kg/t	26	2	0.09	0.044
Unloading of cement to elevated storage silos (pneumatic transfer)	0.0005	0.0002	Kg/t	30	2	0.02	0.006
Weigh Hopper Loading	0.003	0.001	Kg/t	53	2	0.16	0.05
Truck Loading (truck mix)	0.498	0.139	Kg/t	66		32.8	9.2
Wind erosion from sand and aggregate storage bins	0.40	0.200	Kg/ha/hr	0.03	n/a	0.012	0.006
Primary Crusher	0.01	0.004	Kg/t	50	4	0.5	0.2
Secondary Crusher	0.03	0.012	Kg/t	50	4	1.5	0.6
TOTAL						35	10