GPG
Naturgy Group

Sediment, Erosion & Water Quality Management Plan

Berrybank Wind Farm Offsite Infrastructure

31 May 2019Project No.: 0124589

PLANNING AND ENVIRONMENT ACT 1987
PLANNING SCHEME Golden Plains
PERMIT NO. PA1700309
ENDORSED PLAN
SHEET 1 OF 26
SIGNED _____ FOR
MINISTER FOR PLANNING
DATE: 28 / 6 / 19

ENDORSED TO COMPLY
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PA1700309
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Signature page

31 May 2019

Sediment, Erosion & Water Quality Management Plan

Berrybank Wind Farm Offsite Infrastructure

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Acronyms, Abbreviations and Definitions

The Project	Berrybank Wind Farm
Off-Site Substation	Includes immediately adjacent 220kV transmission tower
SEWQMP	Sediment, Erosion and Water Quality Management Plan
The Permit	Planning Permit PA1700309
GPGA	Global Power Generation Australia Pty Ltd
EPAV	Environment Protection Authority Victoria
ESO2	Environmental Significance Overlay Schedule 2 'Watercourse Protection'
VVG	Visualising Victoria's Groundwater
SEPP	State Environment Protection Policies
ARI	Average recurrence interval
MSDS	Material Safety Data Sheets
OH&S	Occupational Health and Safety

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1. INTRODUCTION

Berrybank Wind Farm (the Project) is to be located in the Western District of Victoria, approximately 14 kilometres (km) to the east of Lismore and 16 km to the west of Cressy. The Project extends across two Shires – Golden Plains Shire and Corangamite Shire.

Berrybank Wind Farm was approved by the Minister for Planning under Planning Permits 2009/2820 (Golden Plains Shire) and 2009/2821 (Corangamite Shire) on 24 August 2010. Off-site utility installations (Off-site Infrastructure) associated with the Project were approved by the Minister for Planning under Planning Permit PA1700309 (Golden Plains Shire) to include:

- An Off-Site Substation to be located north west of the Project;
- A 220kV Transmission Tower to be located adjacent to the Off-Site Substation; and
- A 220 kV Powerline Alignment to extend from the Project's on-site substation to the Off-Site Substation.

For the purpose of this document, reference to the Off-Site Substation includes the immediately adjacent 220kV Transmission Tower. The construction footprint of the Off-site Infrastructure is hereon referred to as the Site. The locality of the Off-site Infrastructure in relation to the Project is provided in *Figure 1.1*. Refer to *Figure 1.2* for the Off-site Infrastructure layout plan.

Figure 1.1 Off-Site Utility Installation Locality

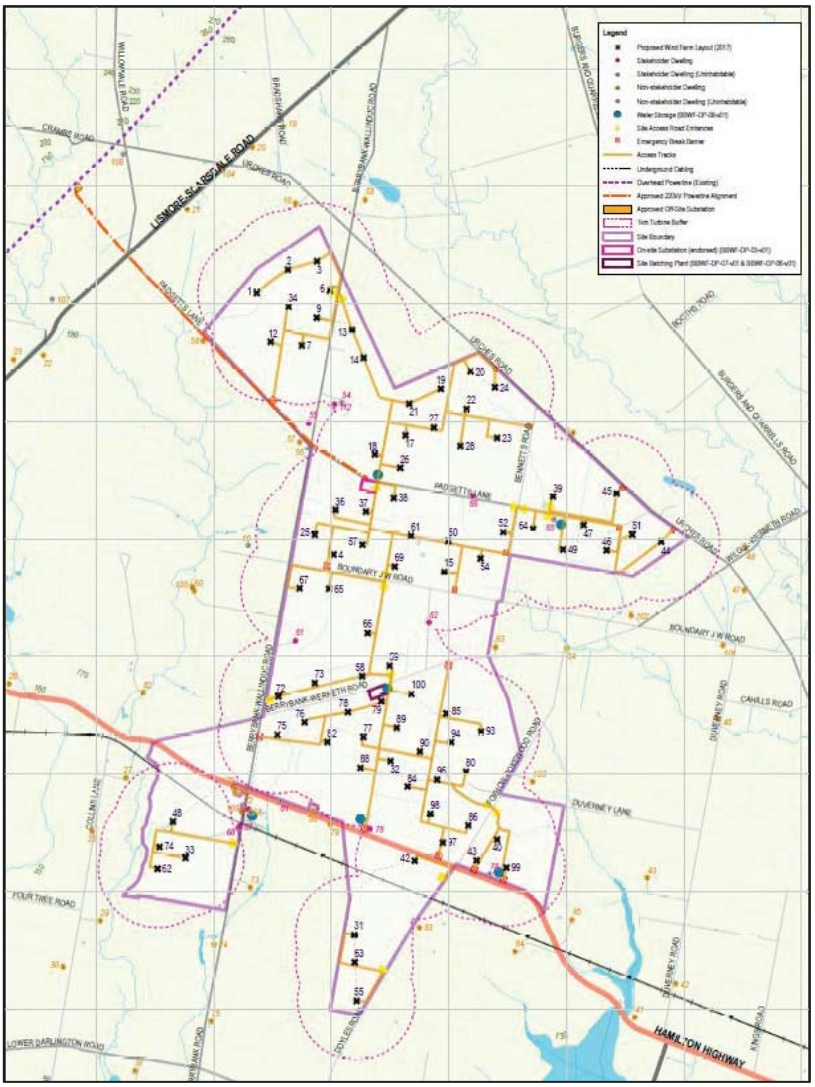

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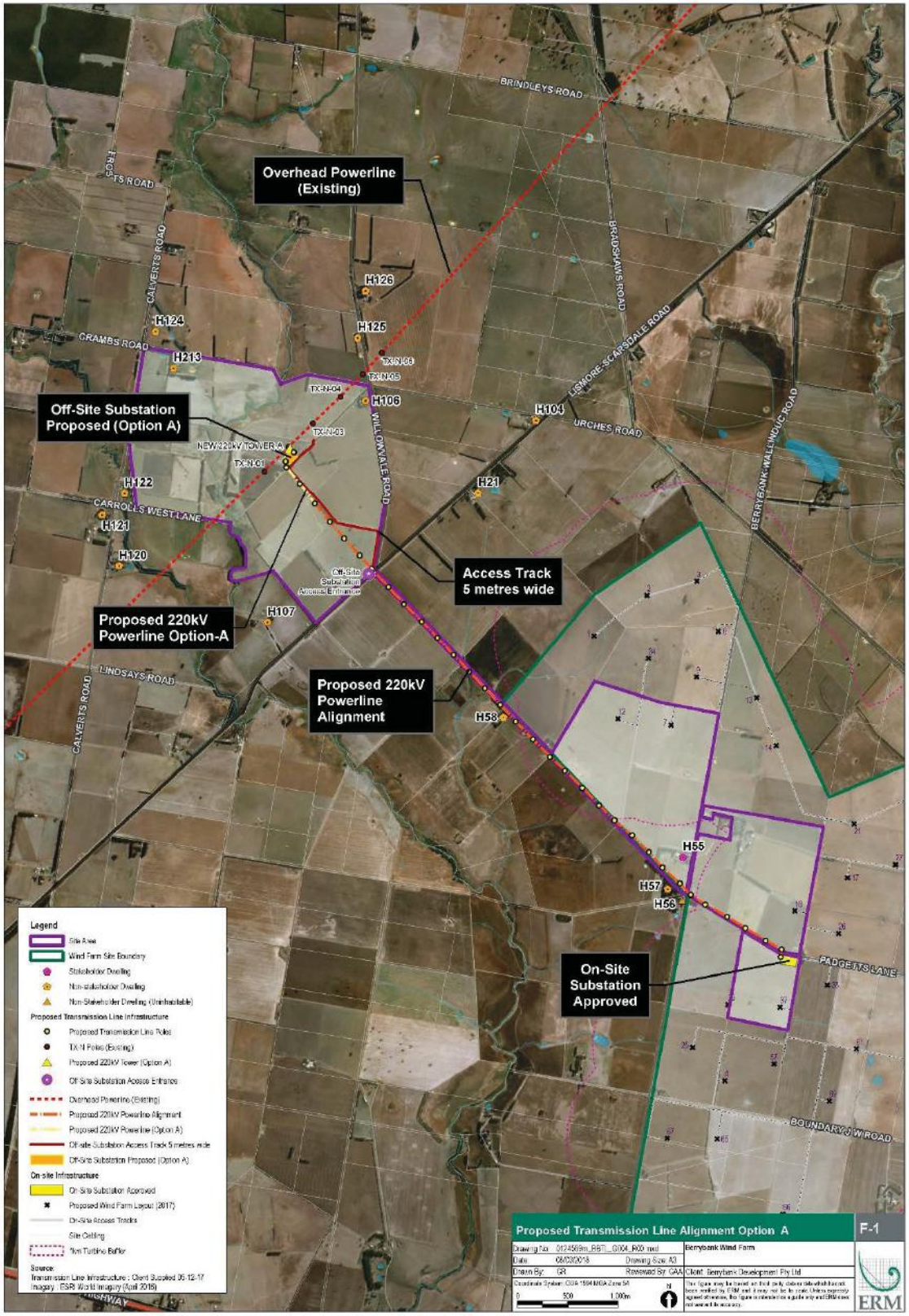
Figure 1.2 Offsite Utility Installation Layout



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1.1 Purpose and Implementation

The purpose of this document is to satisfy the requirement of Condition 9 of Planning Permit PA1700309 (the Permit) to prepare a Sediment, Erosion and Water Quality Management Plan (SEWQMP) for the installation and operation of the Off-site Infrastructure. This document establishes procedures to manage and control sediment, erosion and water quality risks associated with the installation and operation of the approved Off-site Infrastructure for the Project, ensures compliance with relevant legislation, as well as defines roles and responsibilities for the application of this SEWQMP.

This SEWQMP has been developed in consultation with the Corangamite Catchment Management Authority as required by the Permit (see attached confirmation letter from the Corangamite Catchment Management Authority provided in Appendix A, which refers to this document as *Berrybank Wind Farm Offsite Infrastructure - Sediment Erosion and Water Quality Management Plan (GPG Naturgy Group Dec 2018*)) and will be submitted to the Minister for Planning for review and endorsement to form part of the Permit. Once endorsed, this SEWQMP will not be altered or modified without the consent of the Minister for Planning.

This document will be implemented during construction and operation of the Off-site Infrastructure associated with the Project.

1.2 Scope

The scope of this SEWQMP addresses sediment, erosion and water quality during construction and operation of the Off-site Infrastructure associated with the Project, consistent with relevant state environmental policies and guidelines.

1.3 Berrybank Development Pty Ltd Environmental Policy

Berrybank Development Pty Ltd, as a wholly owned Special Purpose Vehicle of Global Power Generation Australia Pty Ltd (GPGA), is aware of the environmental impact of its activities in the areas where it operates and as such, is sensitive to environmental protection and goes beyond its legal and regulatory requirements to achieve the following goals as included in the *Corporate Responsibility Policy of Gas Natural Fenosa*:

- *'Contribute to sustainable development through eco-efficiency and sensible use of natural and energy resources to minimise environmental impact, boosting innovation and making use of the best available technologies and processes;*
- *Help to mitigate and adapt to climate change by using renewable and low-carbon energies, promoting energy saving and efficiency, applying new technologies;*
- *Integrating environmental criteria in business processes, new projects, activities, products and services, and selecting and evaluating processes;*
- *Minimise adverse effects on ecosystems and foster conservation of biodiversity;*
- *Promote efficient, responsible use of water, establishing activities to foster a better understanding of this resource and improve its management; and*
- *Guarantee the prevention of contamination through continuous improvement, the use of best available techniques and analysis, control and minimisation of environmental risks'.*

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2. SITE SETTING

The Project is located in the Western District of Victoria, approximately 130 km to the west of the Melbourne CBD, encompassing over 5,000 ha. Refer to Figure 3.1 for a locality map. The surrounding land comprises cleared farmland with some native vegetation. The approved 220 kV Powerline Alignment portion of the Off-Site Infrastructure extends from the centre of the Project site to the north-west approximately 6 km, to the approved Off-Site Substation which is located within the Environmental Significance Overlay Schedule 2 'Watercourse Protection' (ESO2) pursuant to the Golden Plains Planning Scheme. ESO2 focuses on two key considerations with regard to potential surface water impacts; maintenance of water quality and water quantity.

Figure 2.1 Locality Map of Berrybank Wind Farm

2.1 Surface Water Receptors

A small number of surface water bodies are present within 1 km of the approved Off-site Infrastructure as shown in Figure 2.2 below. In addition to a number of farm dams, a total of three water bodies have been identified to include:

- The Gnarkeet Chain of Ponds located approximately 0.8 km to the west of the Off-Site Substation, and passing again beneath the 220 kV Powerline Alignment approximately 3.0 km from the substation along the alignment;
- A short drainage line located 1.0 km south-east of the Off-Site Substation passing beneath the 220 kV Powerline Alignment; and
- A short drainage line located 0.5 km south of the alignment at the entry point to the Project.,

Gnarkeet Chain of Ponds is a tributary of Lake Corangamite, which is located approximately 17 km to the south of the approved Off-site Infrastructure.

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A review of the Visualising Victoria's Groundwater (VVG) portal (accessed 15 November 2018) did not identify any groundwater and surface-water dependant ecosystems or water supply protection areas within the approved Off-site Infrastructure footprint.

Figure 2.2 Surface Water Bodies within 1km of the Site

Surface water quality can be potentially impacted by construction and operation activities on the Site should fuel, oil or chemical spills occur. Other potential impacts to surface water quality as a result of

activities on the Site include waterlogging leading to erosion and eventually siltation of surface water bodies due to the increased sediment load.

2.2 Local Hydrology

The Site is positioned in a relatively flat area of land (VVG, accessed 15 November 2018), with surface water runoff (i,e, overland flows) within the area of the approved off-site Infrastructure anticipated to flow along the slight topographical gradient to the south towards the Gnarkeet Chain of Ponds and Lake Corangamite.

Construction and operation of the approved off-site Infrastructure may pose potential risks for surface water quality and quantity with the introduction of buildings and hardstand (i.e. less-permeable materials than the current surface), however the impact during operation is expected to be minimal as works are located a considerable distance from surface water bodies or along existing roads and tracks; the extent of the hardstand only covers a small area and roads are not to be sealed (and therefore neither will significantly alter the runoff). In addition, measures are proposed in *Section 4* below which are anticipated to address potential risks posed to surface water quality and quantity by construction and operation activities.

2.3 Local Climate

Annual rainfall data (from 1877 to 2011) collected at the nearest weather station to the Project (Berrybank weather station) indicates a range of annual rainfall between 287.7 mm and 849.5 mm, with an average annual rainfall of 548.0 mm.

While potential exists for flooding to occur at the off-Site Substation during storm events, the typically low average annual rainfall (548.0 mm) and distance from surface water bodies (approximately 1 km) suggests the likelihood of significant impact as a result of flooding is low.

2.4 Erosion

The site has a ‘moderate’ rating for sheet and rill erosion susceptibility, however this susceptibility rating increases to ‘high’ alongside the surface water locations identified in *Figure 2.2* above.

Due to the relatively flat topography of the land, the potential for erosion is low however surface water runoff could concentrate alongside access roads and hardstand areas which may lead to erosion, damaging site infrastructure and potentially causing sediment-laden surface water runoff to discharge from the site. Measures are proposed in *Section 4* below which aim to mitigate these risks.

2.5 Dust

The construction (and to a lesser extent, operation) of this off-site Infrastructure has the potential to generate dust through any earthworks activities and vegetation planting, as well as vehicle and plant movement. It is likely this dust may settle on the Site, and could therefore be collected by surface water runoff (overland flows) to potentially be discharged off-site, leading to impacts on surface water quality or possible sedimentation and/or siltation.

3. LEGISLATIVE FRAMEWORK

Environmental legislation in Victoria originated with the *Environment Protection Act 1970*. The Act operates in association with Victorian and national statutes, for example *National Environment Protection Council (Victoria) Act 1995* and the *Planning and Environment Act 1987*, to detail environmental protection regulations for all operational activities. At a minimum, compliance with the legislation as summarised below shall be achieved.

3.1 Environment Protection Act 1970

The Environment Protection Act (1970) (EP Act) provides a framework for environmental protection in Victoria and prohibits the pollution of the atmosphere, land and waters and alteration of conditions of the environment that make it:

- noxious or poisonous;
- harmful or potentially harmful to the health, welfare, safety or property of humans;
- poisonous, harmful or potentially harmful to water, animals, birds, and aquatic life;
- poisonous, harmful or potentially harmful to plants; and
- detrimental to any beneficial use of a specific segment of the environment.

The EP Act defines the power and functions of Environment Protection Authority of Victoria (EPAV) and details the means by which EPAV may minimise or prevent pollution, waste and environmental risk as stated in the following Sections.

3.2 State Environment Protection Policies

State Environment Protection Policies (SEPPs) provide detailed requirements and guidance for the application of the EP Act. The SEPPs establish the legal basis for maintaining environmental quality and are legally enforceable through the EP Act. The SEPPs express the needs, expectations and priorities of the community with regard to environmental protection and maintenance, and improvement of environmental quality objectives.

3.2.1 Air Quality Management

The relevant SEPP for air quality in Victoria is:

- State Environment Protection Policy (Air Quality Management).

3.2.2 Waters

The relevant SEPP for groundwater and surface water in Victoria is:

- State Environment Protection Policy (Waters) October 2018.

3.2.3 Contaminated Land

The relevant SEPP for the prevention and management of land contamination in Victoria is:

- State Environment Protection Policy (Prevention and Management of Contaminated Land), July 2002.

3.3 Asbestos

Exposure to asbestos is controlled and managed through the *Occupational Health and Safety (Asbestos) Regulations 2017*. The regulations require that asbestos be identified and assessed and risks from asbestos, asbestos containing materials (ACM) and asbestos contaminated soil and dust

be prevented or controlled. WorkSafe has also published a guidance note on asbestos contaminated soils, *Asbestos-contaminated soil, October 2010*.

3.4 Industrial Waste Management Policies

The management of industrial wastes are regulated through the *Environment Protection (Industrial Waste Resource) Regulations 2009*. The regulations set out requirements for assessing, categorising and classifying industrial waste, as well as prescribing requirements for the management and transport of prescribed industrial waste.

3.5 Planning and Environment Act 1987

The purpose of the Planning and Environment Act is to establish framework for planning the use, development and protection of land in Victoria in the present and in the long-term. The construction and operation of the development is to be in accordance with the Permit.

3.6 Water Act 1989

The Water Act provides enforcement powers to Water Authorities and outlines obligations for people and organisations to not interfere with assets of Water Authorities, waterways and water.

The Corangamite Catchment Management Authority (Corangamite CMA) is the relevant Water Authority for the Project site. It is a requirement of the Water Act that prior to any works in, on, or over any waterways, a 'Works on Waterways' application is submitted to the relevant Water Authority (Corangamite CMA) for assessment.

3.7 Relevant EPAV Guidance

The EPAV has published guidance on best practice environmental management during construction works, as follows:

- Environment Protection Authority of Victoria, "*Construction Techniques for Sediment Pollution Control*", Publication No. 275, May 1991;
- Environment Protection Authority of Victoria, "*Best Practice Environmental Management - Environmental Guidelines for Major Construction Sites*", Publication No. 460, dated February 1996 (which superseded the above Publication 275);
- Environment Protection Authority of Victoria, "*Guideline for Environmental Management - Doing It Right on Subdivisions*", Publication No. 960, September 2004 and;
- Environment Protection Authority of Victoria, "*Reducing Stormwater Pollution from Construction Sites*", Publication No. 981, dated May 2005.

ERM has taken into account such guidance in the development of this management plan.

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4. MITIGATION MEASURES

The mitigation measures listed in the table below will be utilised to control sediment, erosion and water quality impacts during construction and operation of the approved off-site installation.

Table 4.1 Mitigation Measures for Sediment, Erosion and Water Quality Management

Impact Management	Management and Mitigation Measure	Responsibility
Pre-Construction		
Sediment and Erosion Management	■ Access roads and laydown areas are to incorporate existing roads and farm tracks where possible to minimise earthworks and alteration of surface water runoff regime; ■ Stormwater drainage for construction and operation is to divert runoff away from disturbed areas of land, and slow flow rates: - Stormwater drainage shall be designed for a 1 in 10 year average recurrence interval (ARI) storm event; - Stormwater drainage from proposed buildings and impervious surfaces is to be directed to on-site storage (i.e. rainwater tanks) or bunded areas to be retained on site. ■ Structures for erosion and sediment control shall be designed for a 1 in 2 year ARI, and must retain sediment; ■ Recommended stormwater drainage and erosion/sediment controls include; - Vegetated swales; - Vegetation buffers; - Check dams; - Culverts; - Silt fences; and - Sedimentation basins. ■ Transmission poles must not be positioned within 5 m of an identified or observed surface water body.	Site Health, Safety and Environment Officer
Water Quality Management	■ A 'Works on Waterways' application is to be submitted to the Corangamite CMA for all works in, on or over waterways; ■ Proposed waterway crossing designs are to consider the typical design conditions attached	Site Health, Safety and Environment Officer

	to the Corangamite CMA letter (*Attachment A*) to protect the waterway; ■ Lay down areas are to be designed to comply with all regulatory and non-regulatory requirements for transport, storage and use of hazardous substances (e.g. bunding for fuels, washbays and chemicals).	
Dust Management	■ Access roads and laydown areas are to incorporate existing roads and farm tracks where possible, and if not sealed, covered with at least 150 mm of crushed rock, to minimise dust generation.	Site Health, Safety and Environment Officer
Construction Phase		
Sediment and Erosion Management	■ Earthworks and land disturbance are to be kept to as minimal an area as practical; ■ Access roads are to be constructed using non-erodible surfacing such as crushed rock; ■ Drainage lines are to be constructed to divert incoming surface water (i.e. overland flows) and clean stormwater away from construction areas to minimise sediment load in runoff; ■ Vehicle and plant are to be limited to designated site entry/exit points and access roads (once constructed) where possible; ■ Wash down areas, rumble strips and/or cattle grids are to be utilised to ensure mud is removed from vehicles and plant prior to leaving the site; ■ Storage of plant, equipment, construction materials and waste must be limited to established laydown areas; ■ Silt fences are to be installed on all constructed drainage lines from the site which will receive sediment-laden runoff from overland flows in construction areas; ■ Sedimentation basins are to be installed on drainage lines where appropriate; and ■ Regular inspections and maintenance of stormwater and sediment control structures.	Site Health, Safety and Environment Officer
Water Quality Management	■ Quantities of chemicals, fuels and oils used and stored during construction must be minimised where possible; ■ Chemicals, fuels and oils must be stored in appropriately bunded areas;	Site Health, Safety and Environment Officer

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	■ Chemicals to be used that provide the least possible risk to human health and the environment are to be considered; ■ Maintain a dangerous goods and hazardous materials register which contains Material Safety Data Sheets (MSDS) and locations for all chemicals and hazardous materials stored on site; ■ Spill kits are to be positioned around work areas to ensure quick and efficient response to spills. Waste from any spill clean-up must be disposed of via licenced waste contractor; ■ Waste (and litter) must be collected/removed from site at a frequency that does not allow significant buildup of stockpiles through which surface water quality may be impacted should they come in contact; ■ Refuelling and washing down of vehicles, equipment and plant must only be undertaken in designated areas that have been appropriately bunded; ■ Undertaking maintenance of equipment on site is to be avoided where possible (it is preferred that maintenance be undertaken off-site); and ■ Portable toilets, if utilised, are to be maintained by a specialist contractor to minimise leaks and spills.	
Dust Management	■ Access roads are to be constructed using surfacing such as crushed rock to minimise dust generation; ■ Vehicle and plant are to be limited to designated site entry/exit points and access roads (once constructed) where possible; ■ All community complaints are to be promptly investigated and responded to, with corrective actions implemented if required; ■ Water is to be applied to exposed soils and soil stockpiles, as well as access roads to suppress unnecessary dust, with care taken to prevent any dust suppression runoff; and ■ Any excavated areas are to be reinstated and/or revegetated as soon as possible and practical.	Site Health, Safety and Environment Officer
Operation Phase		
Sediment and Erosion Management	■ Any necessary land disturbances must be kept to as minimal an area as practical;	Site Health, Safety and Environment Officer

	■ Vehicle traffic is to be limited to access roads and designated site entry/exit points; ■ Storage of equipment must be restricted to hardstand areas (including areas inside buildings); ■ Rumble strips and/or cattle grids are to be utilised to ensure dirt and mud is removed from vehicles and plant prior to leaving the site; ■ All community complaints are to be promptly investigated and responded to, with corrective actions implemented if required; ■ Stormwater drainage from proposed buildings and impervious surfaces is to be directed to on-site storage (i.e. rainwater tanks) or bunded areas to be retained on site. ■ Silt fences are to be retained on all constructed drainage lines from the site which will receive sediment-laden runoff; ■ Sedimentation basins are to be retained on drainage lines where appropriate; and ■ Regular inspections and maintenance of stormwater and sediment control structures.	APPROVED FOR THE MINISTER FOR PLANNING SHEET 16 OF 26
Water Quality Management	■ Quantities of chemicals, fuels and oils used and stored during operation must be minimised where possible; ■ Chemicals, fuels and oils must be stored in appropriately bunded areas; ■ Chemicals to be used that provide the least possible risk to human health and the environment are to be considered; ■ Maintain a dangerous goods and hazardous materials register which contains Material Safety Data Sheets (MSDS) and locations for all chemicals and hazardous materials stored on site; ■ Spill kits are to be positioned around work areas to ensure quick and efficient response to spills. Waste from any spill clean-up must be disposed of via licenced waste contractor; ■ If a septic system is to be utilised for the substation, the septic system is to be the end point for the domestic wastewater on site. The septic system must be managed in accordance with appropriate EPA permits and requirements.	Site Health, Safety and Environment Officer

Dust Management	■ Access roads are to be watered (for example, with a water cart) to mitigate dust generation by vehicle movement; ■ Vehicle movement is to be limited to access roads and designated entry/exit points; ■ Storage of equipment must be restricted to hardstand areas (including areas inside buildings); ■ All community complaints are to be promptly investigated and responded to, with corrective actions implemented if required.	Site Health, Safety and Environment Officer

*Note that no impervious surfaces (aside from proposed buildings) are proposed to be constructed on site. Should impervious surfaces (i.e. concrete/asphalt) be constructed, the Pre-Construction and Operation Phase 'Sediment and Erosion Management' mitigation measures shall apply.

5. MONITORING AND REPORTING

Table 5.1 Monitoring and Reporting Tasks and Responsibilities

Impact Management	Monitoring and Reporting Task	Responsibility
Construction Phase		
Sediment and Erosion Management	■ Daily inspections of designated site entry/exit points for erosion; ■ Weekly inspections of access roads (daily if rainfall on site) and base of transmission line poles for erosion; ■ Weekly inspections of constructed drainage lines (daily if rainfall on site) for sediment build-up and erosion; ■ Weekly inspections of laydown areas to ensure plant, equipment, construction materials and waste are limited to these areas; ■ Weekly inspections of silt fences (daily if rainfall on site) for sediment build-up; and ■ Weekly inspections of sedimentation basins (daily if rainfall on site) for sediment build-up.	Site Health, Safety and Environment Officer APPROVED FOR THE MINISTER FOR PLANNING SHEET 18 OF 26
Water Quality Management	■ Weekly inventory of chemicals, fuels and oils used and stored during construction (including inspection of appropriate bunding measures); ■ Weekly check of dangerous goods and hazardous materials register which contains MSDS and locations for all chemicals and hazardous materials stored on site; ■ Weekly inspection of spill kits and positioning; ■ Weekly inspections of waste (and litter) storage to ensure it is collected/removed from site at a frequency that does not allow significant build-up of stockpiles; and ■ Weekly inspections of designated refuelling and wash-down areas (including inspection of appropriate bunding measures).	Site Health, Safety and Environment Officer
Dust Management	■ Daily inspections of designated site entry/exit points for dust; ■ Daily inspections of soil stockpiles and excavated areas for dust; ■ Weekly inspections of access roads (daily if rainfall on site) for dust;	Site Health, Safety and Environment Officer

	■ Weekly audit of community complaints register to ensure investigations are prompt, and corrective actions implemented if required.	
Operation Phase		
Sediment and Erosion Management	■ Fortnightly inspections of designated site entry/exit points for erosion; ■ Monthly inspections of access roads (weekly if rainfall on site) and base of transmission line poles for erosion; ■ Monthly inspection of equipment to ensure all external storage of equipment limited to hardstand areas; ■ Weekly inspections of stormwater drainage and silt fences (daily if rainfall on site) for sediment build-up; and ■ Weekly inspections of sedimentation basins (daily if rainfall on site) for sediment build-up.	Site Health, Safety and Environment Officer
Water Quality Management	■ Monthly inventory of chemicals, fuels and oils used and stored during operation (including inspection of appropriate bunding measures); ■ Monthly check of dangerous goods and hazardous materials register which contains Material Safety Data Sheets (MSDS) and locations for all chemicals and hazardous materials stored on site; ■ Monthly inspection of spill kits and positioning; and ■ Organise routine inspections of septic system (if utilised for the substation).	Site Health, Safety and Environment Officer
Dust Management	■ Fortnightly inspections of designated site entry/exit points for dust; ■ Monthly inspections of access roads for dust; ■ Monthly inspection of equipment to ensure all external storage of equipment limited to hardstand areas; ■ Monthly audit of community complaints register to ensure investigations are prompt, and corrective actions implemented if required.	Site Health, Safety and Environment Officer

6. NON-CONFORMANCE AND COMPLAINTS

A non-conformance with respect to environmental management is defined as any:

- inspection/test result which does not meet the standards of legislation identified in Section 3;
- issue that arises out of a justifiable complaint;
- non-compliance with relevant environmental legislation; and
- notice by any regulatory body with environmental or OH&S jurisdiction (e.g. EPAV).

All environmental non-conformances and any complaints received in relation to sediment erosion and water quality, are to be established within a register and reviewed regularly to identify any recurring trends. Any non-conformance must be addressed as soon as practicable. It is the responsibility of the Site Health, Safety and Environment Officer to act on any observed non-conformances and escalate as required.

7. CONCLUSION

Construction and operation of the Berrybank Wind Farm Off-site Infrastructure (comprising of the off-Site Substation and the 220 kV Powerline Alignment) poses a potential risk of sediment, erosion and water quality impacts to the environment.

This Sediment, Erosion & Water Quality Management Plan (SEWQMP) has been prepared to satisfy Condition 9 of Planning Permit PA1700309 through identifying potential risks to the environment with respect to sediment, erosion and water quality, and proposing relevant mitigation measures to be implemented during construction and operation of the off-site Infrastructure. The main risks assessed in the SEWQMP relate to:

- Surface water quality and quantity of local hydrology;
- Flooding during storm events;
- Erosion; and
- Dust.

The mitigation measures included in this SEWQMP relate to the management of the abovementioned risks during the pre-construction, construction and operation stages of the Off-site Infrastructure.

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APPENDIX A CORANGAMITE CATCHMENT MANAGEMENT AUTHORITY LETTER OF APPROVAL

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CORANGAMITE CMA

CMA Reference No:	W-2010-0028
Document No:	01
File No:	STP02/0009
Date:	20 March 2019

Ms Grace Abdallah
ERM (Aust) Pty Ltd
Level 6, 99 King Street
Melbourne VIC 3000

grace.abouabdallah@erm.com

Dear Grace,

CMA Reference Number:	W-2010-0028
Works:	Sediment Erosion & Water Quality Management Plans
Location:Street:	101 Boundary Road Berrybank Vic 3323
Cadastral:	Allotment 1, Section A, Parish Of Poliah North
Waterway Name:	Various

The CCMA has reviewed two documents for the Berrybank Wind Farm as part of Planning Scheme permit conditions relating to the Environmental Management Plan for the project. The documents are:

1. Berrybank Wind Farm - Sediment Erosion and Water Quality Management Plan (AECOM Feb 2019)
2. Berrybank Wind Farm Offsite Infrastructure - Sediment Erosion and Water Quality Management Plan (GPG Naturgy Group Dec 2018)

These documents detail the potential impacts, management procedures during construction and monitoring procedures during and after the construction of the Wind Farm. The Corangamite CMA has no objection for these documents being endorsed and becoming part of the planning permits issued.

The Corangamite CMA believe there are up to 7 to 9 designated waterways crossed by the proposed road network for the Wind Farm. Prior to any works in, on, or over these waterways, a works on waterways application under the *Water Act 1989* must be submitted to Corangamite CMA for assessment. These crossings are expected to be low fords with low flow culverts and must be designed to protect the waterway from scour and erosion of bed and banks. I have included some general works on waterway conditions that may be considered during the design of these waterway crossings.

Should you have any queries, please do not hesitate to contact Tony Jones on 5232 9100. To assist the Authority in handling any enquiries please quote W-2010-0028 in your correspondence with us.

Yours sincerely,

Dr Geoff Taylor

Floodplain Statutory Manager

Corangamite Catchment Management Authority ABN: 60 355 974 029
PO Box 159, 64 Dennis Street, Colac, Victoria, 3250
t: 03 5232 9100 f: 03 5232 2759
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CORANGAMITE CMA

Typical PERMIT CONDITIONS
Culvert Crossings

Water Act, 1989 - By-law No. 4 Waterways Protection 2014

1. All pipes and box culverts must be installed parallel to the alignment of the banks of the waterway.

2. All pipes and box culverts must be laid with their inverts placed at the existing bed of the waterway, with at least one pipe or box culvert being placed at least a minimum of 150 mm below the lowest portion of the bed to provide unrestricted passage of low flows and to maintain fish passage.

3. The bed of the waterway, downstream of all pipes or box culverts, must be lined with rockfill for a minimum distance of 4 times the maximum pipe diameter or 4 times the maximum height of the culverts. The width of the lining should extend a minimum of one metre, either side of all pipes or box culverts.

   The rock used shall be tough and durable and the mix shall be evenly graded from fines to a minimum size of 300 mm effective diameter. The lining thickness shall be a minimum of 450 mm with the surface of the rockfill finished flush with the bed of the waterway.

   This condition shall not apply if the bed material is composed of rock.

4. The side slopes of any cut excavated into the bank of the waterway, to obtain access to the crossing, must be no steeper than 2 horizontal to 1 vertical. All side slopes must be top soiled and planted with locally occurring native grasses and shrubs.

5. Runoff from access tracks leading to the crossing, other than from access ramps excavated into the banks of the waterway, must not be allowed to flow directly to the waterway. All such runoff must be diverted away from the waterway or, if this is not possible, into the vegetated verges adjacent to the waterway.

   In the case of access ramps cut into the bank, where runoff from the ramp will flow directly into the waterway, the access ramp must be surfaced with compacted gravel to prevent scour of the track. Side drains must be protected from scour with rockfill evenly graded from fines to 150 mm diameter.

General

1. The Corangamite Catchment Management Authority accepts no responsibility for any claims, suits or actions, arising from injury, loss, damage or death, to any person or property, which may arise from the construction, maintenance, existence or use of the works.
2. The extent of the review by the Corangamite Catchment Management Authority of the proposed works has been confined to a limited evaluation of the effect of the works on erosion in the waterway and flooding of adjacent lands and in particular has not included an evaluation of the structural soundness of the works.
3. Corangamite Catchment Management Authority requires that close supervision be exercised at the works location to ensure that contractors observe Permit requirements, which are aimed at protecting the bed and banks of the waterway.

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Engineering and Design

4. The works must be constructed in accordance with the plans submitted with the application unless varied by any of the following conditions

5. All pipes and box culverts must be installed parallel to the alignment of the banks of the waterway

6. All pipes and box culverts must be laid with their inverts placed at the existing bed of the waterway, with at least one pipe or box culvert being placed at least a minimum of 150 mm below the lowest portion of the bed to provide unrestricted passage of low flows and to maintain fish passage

7. The bed of the waterway, downstream of all pipes or box culverts, must be lined with rockfill for a minimum distance of 4 times the maximum pipe diameter or 4 times the maximum height of the culverts. The width of the lining should extend a minimum of one metre, either side of all pipes or box culverts.

   The rock used must be tough and durable and the mix must be evenly graded from fines to a minimum size of 300 mm effective diameter. The lining thickness must be a minimum of 450 mm with the surface of the rockfill finished flush with the bed of the waterway.

   This condition must not apply if the bed material is composed of rock.

8. Where the crossing consists of an embankment (within the waterway) and pipes or box culverts:

   a. The crest of the embankment must be surfaced with bitumen, compacted rockfill or concrete capped;

   b. The slope of the embankment on the downstream side must be no steeper than 4 horizontal to 1 vertical and must be lined with tough and durable rockfill, evenly graded from fines to a minimum of 450 mm diameter. The thickness of the rockfill lining must be a minimum of 700 mm.

   c. The slope of the embankment on the upstream side must be no steeper than 2 horizontal to 1 vertical and, where practicable, this upstream face must be top soiled and planted with locally occurring native grasses.

9. The side slopes of any cut excavated into the bank of the waterway, to obtain access to the crossing, must be no steeper than 2 horizontal to 1 vertical. All side slopes must be top soiled and planted with locally occurring native grasses and shrubs.

10. Any side rails attached to the crossing must be designed to minimise the trapping of flood debris.

Water Quality

11. Runoff from access tracks leading to the crossing, other than from access ramps excavated into the banks of the waterway, must not be allowed to flow directly to the waterway. All such runoff must be diverted away from the waterway or, if this is not possible, into the vegetated verges adjacent to the waterway

12. In the case of access ramps cut into the bank, where runoff from the ramp will flow directly into the waterway, the access ramp must be surfaced with compacted gravel to prevent scour of the track. Side drains must be protected from scour with rockfill evenly graded from fines to 150 mm diameter.

13. Disturbance of the bed and banks of the waterway and the use of construction plant and equipment is to be kept to a minimum during construction. Suitable conservation measures are to be implemented to prevent vegetation, silt, chemicals and spillage from construction activities either entering the waterway or moving downstream. No discharge/dumping of wastewater or other materials to the waterway is permitted, unless specifically authorised by the Authority.

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Vegetation Management

14. All disturbed bank areas must be graded to remove humps and hollows and top soiled and planted with locally occurring native species of grasses and shrubs.

15. Removal, destruction or lopping of native vegetation is also to be kept to a minimum. Vegetation that has been cleared for construction purposes and any heaps of excavated soil remaining after the completion of the works must be removed from site. No material of any sort must be pushed into the waterway or left in a manner where it can slip or be moved by floodwaters, into the waterway.

Other

16. The waterway must not be deviated in any manner for construction purposes, except with the specific approval of the Authority. If necessary, the flow must be pumped around the construction site or construction undertaken in stages with flow confined to one portion of the waterway.

17. Any works in the bed of the waterway should be designed and constructed so as not to impede fish passage and to minimise the entrapment of flood debris.

18. Logs and boulders removed from the waterway, as a result of construction activity, should be returned to the waterway and randomly distributed.

Maintenance

19. It is the responsibility of the permit holder and their successors to always ensure the works are maintained in good order.

Other legislation

20. The permit holder must carry out the works in accordance with all applicable laws, including obtaining all necessary approvals and complying with the conditions of those approvals.

APPROVED FOR THE MINISTER FOR PLANNING

SHEET 26 OF 26

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