Draft Environmental Management Plan

General site management (including waste disposal)

1.1.1 The objective of general site management is to ensure that the site works are generally well managed with regards to potential environmental impacts. The following measures will be put in place:

1.1.2 Disposal of refuse is to be in accordance with the Shire of Coorow and Carnamah by-laws. No refuse is to be deposited within the site. All personal refuse is to be carried and disposed of off site.

1.1.3 All personnel are prohibited from bringing pets, traps, firearms or other projectile weapons into the site.

1.1.4 Speed limits are to be limited to a maximum of 40 km/hr while in the site and according to ground conditions and posted speed limits on other roads.

1.1.5 All vehicles are to use existing roads and access tracks as far as practically possible.

1.1.6 Works are only to occur in the areas shown on detailed site drawings submitted to the contractor. No disturbance outside of these designated areas will be allowed.

1.1.7 The site will be left in a clean and tidy condition at the end of each working day.

1.1.8 Contractual clauses will be implemented with sub-contractors to ensure compliance and impose penalties if necessary.

Construction noise management

1.1.9 The primary risk of noise pollution is during project construction activities. To minimise the impact of construction noise, a noise mitigation plan will be implemented:

- Site activities are to begin no earlier than 7am and where possible are to cease by 7pm Monday to Saturday and 9am to 7pm Sundays and Public Holidays to limit noise impacts.
- Vehicles and equipment are to be properly maintained so as to minimise their noise.

Weed hygiene

1.1.10 Weeds can impede agricultural production, compete with and displace native vegetation, become a visual blight on the landscape and increase fire hazards. Weeds are classed as either “declared” or “pest plants” by regulations and require specific actions to be taken. Transport corridors such as roads are a means of spreading weeds, either by road construction and maintenance activity or by actions of road users.

1.1.11 Echium plantagineum (Paterson's Curse) is a "declared" plant and has been found within the site and is a declared plant P1 and P4 in Proposal Area. Should any infested area be identified, the plant must be managed in such a way that prevents the spread of seed or plant parts within and from the property on or in livestock, fodder, grain, vehicles and/or machinery. Treat to destroy and prevent seed set all plants within 50m of any road or other element of the wind farm.

Flora and fauna

1.1.12 Impacts on flora in the site are to be managed and minimised through the implementation weed hygiene, clearing controls, topsoil management, rehabilitation and fire management.

1.1.13 Local fauna that may inhabit the area will be protected through the implementation of general site management.

1.1.14 The following measures will be implemented specifically in respect of flora and fauna:

- Firearms, pets and feral fauna will not be permitted on the site.
- Uncontrolled burning will be prohibited on the site at all times.
- Disturbance to native vegetation outside of the site to be minimised at all times.
- Clearing outside the site will be strictly prohibited.

Groundwater

1.1.15 Construction activities have the potential to contaminate the ground water through the use of the fuel, oil and other potential contaminants required for construction.

1.1.16 Hydrocarbon contamination is the greatest risk on site given that fuel, oil and other potential contaminants will be required for various activities. As such, all likely contaminants will require appropriate storage and handling procedures to ensure that groundwater contamination does not occur. All Contractors/site personnel are to adopt the following protocol during the works with regards to this issue:

1.1.17 The following measures will be implemented specifically in respect of groundwater:

- Storage of contaminants such as fuel, oil, and other chemicals is to be done off site (preference) or restricted to designated areas. As a minimum, this should comprise a bunded compound, lined with geotextile or other suitable impervious material and/or utilise double skinned tanks.
- Suitable clean-up materials must be retained at these storage areas and with all vehicles where a possibility of leakage may occur. Personnel are to be adequately trained in clean-up procedures.
- All substantial spills greater than 5L are to be reported immediately to the Site Manager.

- In the event of a spill, clean up, including excavation of contaminated soil if required ,is to be affected immediately, with the contaminated material removed within a maximum of 2 hours. Removed contaminated material is to be disposed of in a suitable location. Any contaminated soils from substantial spills are to be collected and may be stored in a mobile bund for disposal.
- Portable plant is to be fitted with internal containment to ensure fuel leaks are contained and prevented from leaking into the ground. Plant is to be inspected regularly for signs of fuel or oil leaks; any leaks are to be rectified immediately.
- The refuelling of mobile plant and other equipment within the site shall be manned during refuelling.
- The Site Manager is to maintain a record of any spillages that occur and subsequent actions taken.

1.1.18 The principle potential risk of ground water contamination from the installed wind turbines is through oil-based liquids. The wind turbine proposed does not require significant quantities of oil-based liquids in their operation or maintenance, limited to the oil required to lubricate moving parts in the nacelle of the wind turbine. Any oil leak during operation would be detected by the control system and a maintenance crew contacted and any oil leak would remain sealed within the wind turbine.

1.1.19 The electrical interconnection of the wind turbines may require pad-mounted transformers which will contain insulating liquid. This type of transformer is sealed and in widespread use throughout Western Power's SWIS. From Western Power and Verve Energys' experience with these types of transformers, significant leaks from a transformer is rare and in nearly all cases where a leak is experienced, the leak is limited to seepage from the transformer bushings. It is proposed to inspect the wind turbines and transformers for any signs of leakage during the routine maintenance program for the wind farm.

Topsoil management and rehabilitation

1.1.20 Any areas that have been disturbed during project construction activities, that are not required for ongoing maintenance, will be rehabilitated by the re-establishment of topsoil adequate for continuing agricultural activites.

1.1.21 Drainage and storm water disposal from the access and service roads and hardstands will be managed to minimise erosion potential. Service roads will be designed with minimum cut and fill to avoid erosion from stormwater run-off, with verge sections subject to erosion potential treated with rock and channel drainage.

1.1.22 The management of cleared vegetation, topsoil and overburden during site activities is important in ensuring that the disturbance area recovers as completely as possible. Topsoil management is to follow the plan below:

- Topsoil is to be recovered to a depth of 150 mm and formed into separate temporary stockpiles or windrows. Topsoil stockpiles are not

to exceed approximately 1.5 m in height to minimise loss of seed viability and microbial activity.

- Any compacted or disturbed area requiring rehabilitation will be deep-ripped to a depth of 150mm to facilitate root and water penetration, and recovered with stored topsoil. This topsoil must then be stabilised using an appropriate means to prevent wind and water erosion.
- If erosion problems have developed as a result of temporary constructions, then appropriate remedial measures are to be implemented to protect against further erosion such as the use of mulch or vegetation or geo-matting.
- At the completion of the works, the Site Manager is to carry out an assessment of the topsoil management actions and identify any additional requirements.
- In the event that un-authorised vegetation disturbance occurs, penalties will apply and rehabilitation will be required.

Dust suppression

1.1.23 Throughout the construction phase, some amount of dust will be generated by moving vehicles and construction plant along unsealed public roads and internal access roads.

1.1.24 Dust suppression will be carried out on the internal access roads and unsealed public roads as required during the drier months of the year to control any excessive generation of dust. To ensure that dust generation is adequately controlled:

Where necessary, ensure unstable construction areas and other point sources are regularly wetted down during construction activities.

Stabilise the surface of any large areas that will be exposed for significant periods. Ensure that applied water for soil wet-down does not generate runoff from any stockpile.

Monitor and review dust management strategies if excessive dust starts to be generated.

Community relations and visitor safety

1.1.25 The proposed Warradarge Wind Farm is to be located entirely within private land. As a result, access to the wind farm site by the general public during construction and operation will be restricted. This is also to maintain security of the private landowner's property, livestock and personal possessions, and to protect the owner from public liability risk. Should any medium sized meetings or presentations with local people be needed to be held offsite the fire brigade meeting room in Warradarge is a close potential location.

1.1.26 During construction, the wind farm is expected to generate local interest during construction. It is envisaged that there may also be media interest.

1.1.27 Verve Energy has developed a Stakeholder list during the feasibility study and will continue to keep people informed of the project during construction.

1.1.28 Measures to manage public safety include:

- Public entry to the site will be strongly discouraged during construction due to the potential safety risks. Measures including safety signage, fencing around the compound and access gates will be implemented.
- All visitors will be required to report to the site office. If visitors are allowed to enter the site, they will need to be inducted to the OHSE plan prior to entering the site, wear personal protective equipment (PPE) and be accompanied at all times.
- Site workers will be inducted to the OHSE plans, which will include measures to ensure that members of the public are not put at risk by construction activities.
- All media interest will be directed to the Site Manager or delegate.

1.1.29 During operation

1.1.30 During operation, public access will continue to be restricted during the operation of the wind farm for the following reasons:

- The wind farm is on private property. The landowners will continue to use the property for agricultural purposes and hence it is not desirable to have public access.
- The presence of high voltage equipment.
- Hazards for members of the public when maintenance is being carried out on wind turbines. Maintenance will occur regularly throughout the year, as maintenance is carried out on a rotational basis.

Aboriginal and Archaeological heritage

1.1.31 Verve Energy has considered the considered the Cultural Heritage Due Diligence (DIA, 2011) guidelines 2011 and has undertaken a risk assessment following these guidelines.

1.1.32 Verve Energy has consulted the Department of Indigenous Affairs (DIA) database and determined that no aboriginal artefacts or aboriginal sites have been recorded the site and heritage surveys are recorded. The likelihood of aboriginal heritage impact is Rare. This combined with a Major land activity due to land excavation, results in a Moderate risk to aboriginal heritage. Therefore no additional surveys or consultation is undertaken in advance of construction.

1.1.33 Verve Energy and its Contractors will meet their obligations under the Aboriginal Heritage Act (1972-1980), and this will form part of the Environmental Management Plan, a draft of which is detailed in Annex 11.

1.1.34 If any personnel identify any material suspected to be of aboriginal or archaeological significance during site activities, works will be suspended immediately near any suspected material and the Site Manager informed. The Site Manager will contact the Department of Indigenous Affairs and will

suspend any further work that could disturb the suspected material until advice from an appropriately qualified consultant or the Department of Indigenous Affairs has been received.

Fire Management

1.1.35 Due to the proposed wind farm site being located in a vegetated farming area, the potential for bushfire in the drier months is a risk. A Bushfire Prevention and Management Plan will be prepared. The plan will include notification of the local bushfire control officer prior to construction. Advice from FESA will be sought as to appropriate further requirements.

1.1.36 To ensure that the risks of fire are minimised during construction site activities and that adequate fire response equipment is available in the event of a fire, the following steps will be implemented:

- No fires to be lit at any time within the works area.
- Contact the Warradarge Fire Brigade prior to carrying out any construction activities involving naked flames.
- Prior to carrying out any construction activities involving naked flames, determine what the current fire danger level is for the area. No naked flames on very high or extreme fire danger days.
- In the event of an uncontrolled fire, call Fire and Emergency Services (000) immediately.
- In the event of any fire, notification must be made immediately to the Site Manager.
- Plant to be made available to assist with fire control in the event of fire.