EIS Volume 3 Appendix T

Draft Waste Management and Minimisation Plan

JBS&G

project energy connect

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1. Introduction

This Draft Waste Management and Minimisation Plan (WM&M Plan) has been prepared to accompany the Environment Impact Statement (EIS) for the South Australian (SA) portion of Project EnergyConnect, a proposed high voltage electricity transmission connector between Robertstown in SA and Wagga Wagga in New South Wales (NSW) with an added connection from Buronga in NSW to Red Cliffs in north-west Victoria. The South Australian section of Project EnergyConnect is referred to as 'the Project' for the purposes of the South Australian assessments and approvals processes.

1.1. Purpose of the Draft WM&M Plan

The purpose of the Draft WM&M Plan is to describe the principles and procedures for the management of the waste generated by the Project and outline measures to manage and mitigate waste generation and resource consumption during Project construction and operation. This includes addressing sources of waste from construction and operation the Project and the measures to be implemented to manage, reuse, recycle and safely dispose of the identified waste.

The Draft Waste Management and Minimisation Plan will be updated prior to construction.

2. Legislative Requirements

The *Environment Protection Act 1993* (EP Act) sets out the general environmental duty to take all reasonable and practical steps to prevent or minimise any resulting environmental harm. This requirement includes the management of waste. The EP Act prescribes the waste management hierarchy (refer Figure 1). Under the hierarchy, avoiding waste generation is most preferable and disposal of waste least preferable.

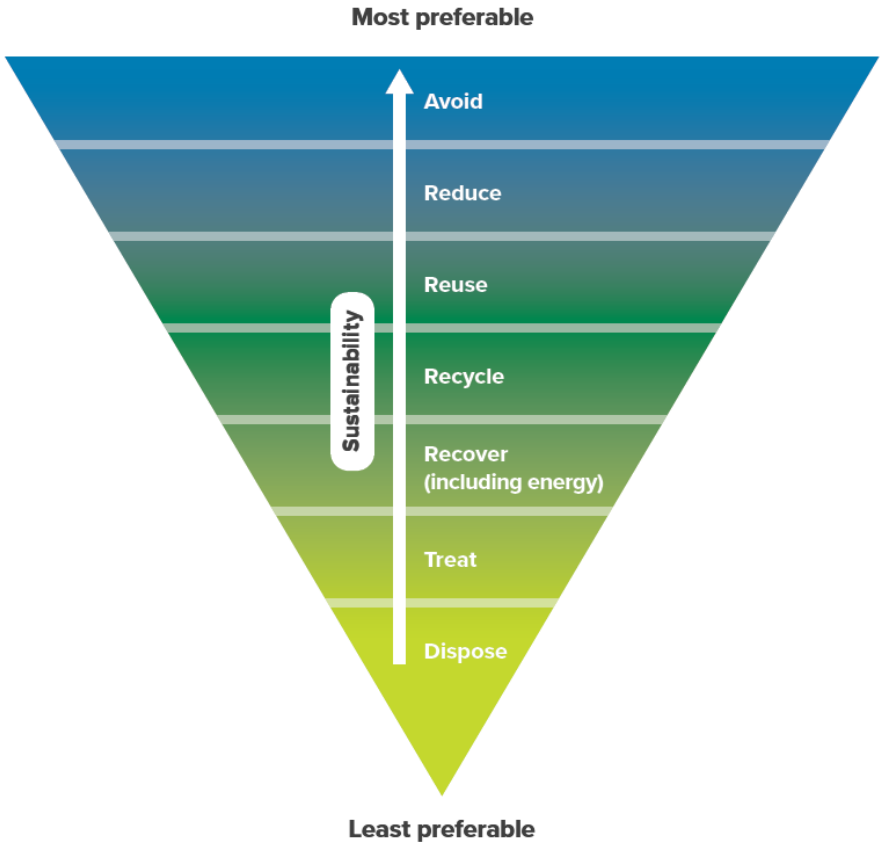


Figure 1: Waste management hierarchy

The EP Act also provides for listed wastes which have specific requirements due to their potentially contaminating nature.

The *Environment Protection (Waste to Resources) Policy 2010* (Waste to Resources EPP) prescribes the general waste management obligations. The primary objective of the Waste to Resources EPP is to achieve sustainable waste management by applying the waste management hierarchy consistently with the principles of ecologically sustainable development. In order to meet the Waste to Resources EPP waste management objective, waste management should:

- promote best practice and accountable waste management
- include effective recording, monitoring and reporting systems for the treatment, transportation and disposal of waste and other matter
- promote environmental responsibility and involvement in waste avoidance, waste minimisation and waste management within the community.

The *Environment Protection (Water Quality) Policy 2015* (Water Quality EPP) aims to achieve the sustainable management of waters, by protecting or enhancing water quality while allowing economic and social development.

The current SA Waste Strategy 2015 – 2020 supports maximising the reuse, recycling and recovery of materials. Its mission is to achieve a resource efficient South Australia, by minimising South Australia's demand on primary resources, and maximising the reuse, recycling and recovery of materials, using the framework of the waste management hierarchy and the principles of ecologically sustainable development. A new waste strategy supporting the principle of circular economy is currently under development.

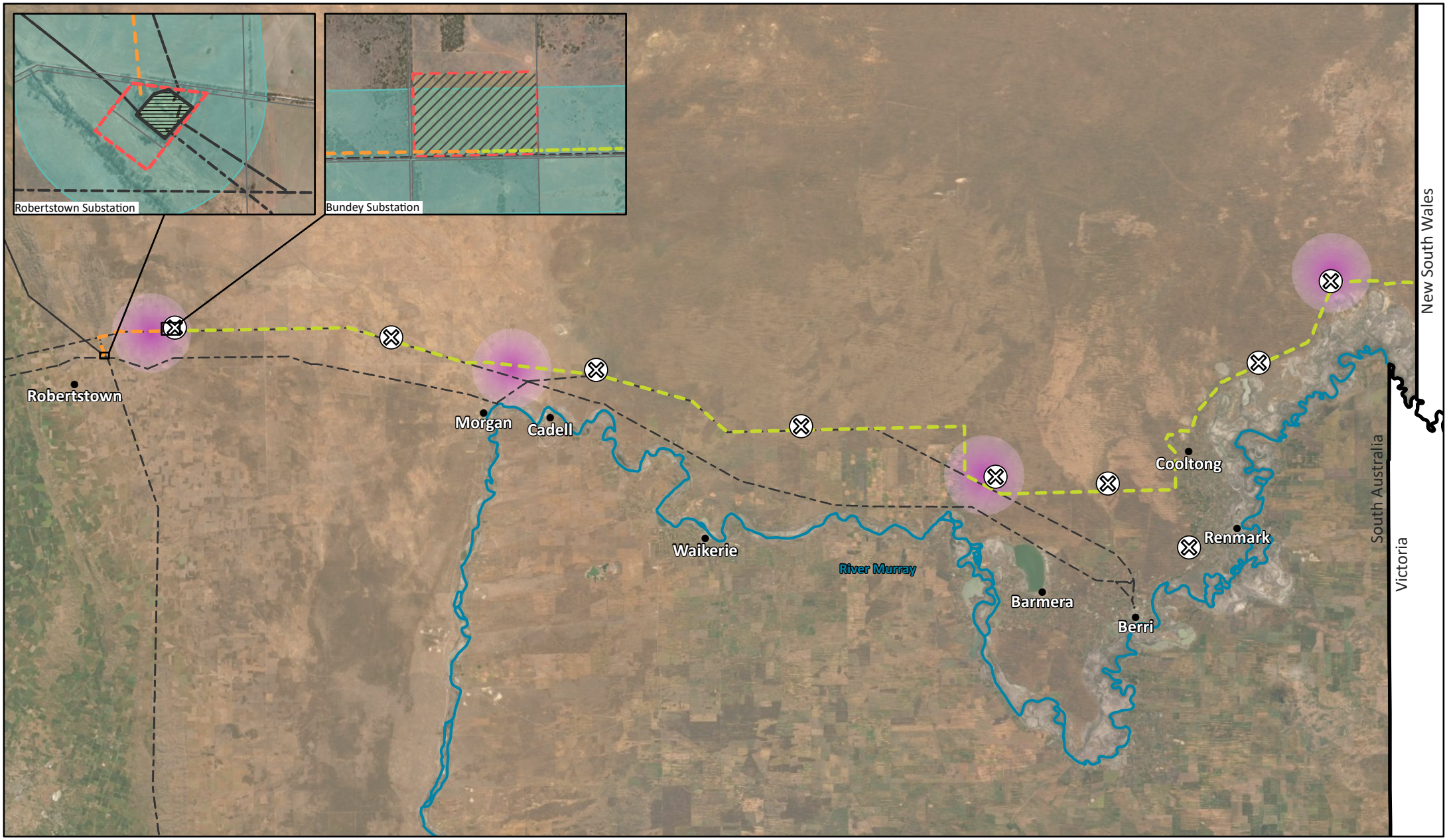
Other relevant legislation, standards and guidelines for waste management include:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013) (NEPM)
- The *South Australian Public Health (Wastewater) Regulations 2013* (SA)
- *Work Health and Safety Regulations 2012* (SA)
- EPA SA Guidelines (EPA 080/16): Bunding and spill management
- Australian Standard AS 1940 The storage and handling of flammable combustible liquids.

3. Project Description

The proposed Project involves the construction and operation of the South Australian portion (Robertstown to SA / NSW border) of Project EnergyConnect (refer Figure 2) which comprises:

- approximately 10 km of 275 kV transmission line supported by steel towers from the existing Robertstown substation to a proposed new substation located towards the western extent of the transmission line at Bundey, near Robertstown
- approximately 195 km of 330 kV transmission line supported by steel towers from the new Bundey substation to the SA / NSW border
- associated telecommunications infrastructure
- associated access tracks
- associated temporary facilities (i.e. temporary construction compounds, site offices, laydown areas and mobile construction camps).



Robertstown substation augmentation
Transmission line corridor
Existing Robertstown substation
Proposed Bundey substation
Potential temporary worker accomodation laydown and staging location

Existing ElectraNet transmission line
Proposed alignment
330 kV
275 kV
River Murray
Potential helicopter staging sites (indicative)

Figure 2
Project location and components

0 20
Kilometres

N

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3.1. Key Project activities

Construction

The key construction activities to be undertaken consist of the following:

- establishment of access tracks
- vegetation clearance and earthworks at tower locations, substation, camps and laydown areas
- temporary stockpiling of topsoils and subsoils
- establishment and operation of associated temporary facilities (e.g. construction camps, concrete batching plants, laydown areas)
- transport of materials and equipment to construction locations
- earthworks, civil and electrical works at Bundey substation
- bore piling and pouring of concrete footings
- installation of towers
- stringing and connection of electrical conductors
- installation of permanent security fencing/gates.
- commissioning
- rehabilitation of temporary areas of disturbance
- clean up of waste materials.

Operation and maintenance

Key operation and maintenance activities to be undertaken include but are not limited to:

- Tower and conductor inspection and maintenance
- Easement access and maintenance
- Routine maintenance at Bundey Substation including:
    - oil sampling and testing
    - routine operation testing of major plant
    - routine operation testing of control and protection systems
    - visual inspections.

4. Potential Project Waste Sources

The construction of the Project requires a range of materials including steel, electrical components, concrete, plastics and timber and waste will be generated from these sources. Waste generated during Project operation is anticipated to be minimal compared to the construction phase.

Potential sources of waste generated during construction and operation of the Project are described in Table 1.

Table 1: Potential sources of waste from the Project

Potential sources of waste	Project element and or activity	Construction	Operation
General construction	• Tower footings, land clearance for access and stringing tracks, substation and ancillary infrastructure, laydown areas, construction camp	✓	
Spoil	• Spoil from excavation materials	✓	

Potential sources of waste	Project element and or activity	Construction	Operation
Potentially contaminated soil	• Tower footings, land clearance for access and stringing tracks, substation and ancillary infrastructure, laydown areas, construction camp	✓	
Clean fill material	• Tower footings, land clearance for access and stringing tracks, substation and ancillary infrastructure, laydown areas, construction camp	✓	
Vegetation and organic material	• Tower footings, land clearance for access and stringing tracks, substation and ancillary infrastructure, laydown areas, construction camp	✓	✓
Wastewater	• Construction camp • Concrete batching	✓	
Waste concrete	• Tower footings, substation and ancillary infrastructure	✓	
Waste concrete	• Tower components, substation and ancillary infrastructure	✓	
Conductor drums	• Tower components, substation and ancillary infrastructure	✓	
Electrical (HV and LV), conductors, insulators	• Tower components, substation and ancillary infrastructure	✓	✓
Steel	• Tower components, tower footings, substation and ancillary infrastructure	✓	
Domestic waste	• Construction camp waste (i.e. kitchen waste, paper, cardboard, plastics glass)	✓	✓
Timber	• Tower footings, land clearance for access tracks and stringing tracks, substation and ancillary infrastructure, laydown areas, construction camp	✓	
Hazardous materials and chemicals	• Tower footings, land clearance for access and stringing tracks, substation and ancillary infrastructure, laydown areas, construction camp	✓	✓

5. Waste Management Hierarchy

Waste management for the Project will be undertaken in accordance with the waste management hierarchy (refer Figure 1) which underpins the objectives of the Waste to Resources EPP and in line with the South Australian Waste Strategy (EPA SA 2015). The waste management hierarchy demonstrates the preferred approaches to waste management in the order of priority as follows:

A) avoidance of the production of waste

B) minimisation of the production of waste

C) reuse of waste

D) recycling of waste

E) recovery of energy and other resources from waste

F) treatment of waste to reduce potentially degrading impacts

G) disposal of waste in an environmentally sound manner.

5.1. Avoidance and Minimisation of Waste

5.1.1. Construction materials

The Project will avoid waste generation and endeavour to reuse waste where practicable. Waste will be avoided through strategic selection of materials during design and purchasing which take into account options which may reduce waste generation for the Project. Careful planning for procurement of the specific types and quantities of materials required for construction activities, including the temporary construction camp will further minimise waste generation.

Measures to achieve avoidance and reduction of waste may include:

- development of a procurement policy which considers waste avoidance measures such as:
  - ordering site specific or prefabricated items where practicable to minimise surplus material
  - consideration of packaging material provided by suppliers during purchasing and reduce this requirement where possible, or consider returnable packaging
  - consideration of recycled items when selecting materials
  - consideration of reusable materials for meal packaging at accommodation camps
- refinement of waste stream estimates to ensure adequate on-site storage and waste segregation to facilitate recycling
- refinement of estimated volumes of materials for construction.

5.1.2. Vegetation clearance

The area of disturbance for towers and other infrastructure will be minimised through detailed design. Where possible, infrastructure will be located in already disturbed areas and groundcover will be retained where possible (e.g. for the stringing access corridor).

Vegetation clearance required for towers and other infrastructure will minimised though detailed design. Vegetation assessments, including canopy height measurement, are used during the detailed engineering phase to design the line profile. Where possible, conductor heights will be set to avoid or minimise the requirement for vegetation clearance both during construction and ongoing maintenance. Where vegetation clearance is unavoidable and to minimise the risk of power outages, damage to transmission lines or fire starts, vegetation management works are undertaken to make sure that clearance distances between vegetation and transmission lines are established and maintained in accordance with the *Electricity (Principles of Vegetation Clearance) Regulations 2010*.

5.2. Reuse and Recycling

Measures to separate waste streams will be implemented to maximise opportunities for reuse of waste materials on site. This includes segregation of wastes into appropriate dedicated bins or areas on site, or transportation to a designated recycling facility. The Project will reuse or recycle waste material where possible including concrete, timber, plastic, and metals (refer Table 2).

Table 2: Construction waste recycling and reuse

Waste source	Recycling options
Waste concrete	• Transport to another Project site for use. • Where this is not possible, waste concrete will be collected in washout bays, solidified and transported to a licensed facility for reuse or disposal.
Excess steel	• Recycle at other sites where applicable, or collect during and after construction and recycle via scrap metal recyclers.

Waste source	Recycling options
Timber e.g. formwork, pallets etc.	• Reuse where applicable or return to supplier for reuse. • If not accepted by supplier, separate and dispose of at waste facility for mulching where applicable.
Conductor drums	• Return to supplier for reuse.
Electrical (HV and LV), conductors, insulators	• Return to supplier for reuse.
Vegetation and organic material	• Stockpile for use in rehabilitation where required.
Spoil from excavation materials	• Reuse in areas that require capping / rehabilitation. • If not required, remove from site using appropriate waste contractor.

5.3. Treatment and Disposal

If waste materials cannot be reused on site, they will be collected by appropriately licensed contractors for off-site reuse, reprocessing, recycling or final disposal. Final disposal of wastes will be to a licensed waste facility that is suitable for the type and quantity of waste. Waste tracking forms will be provided to the waste facility upon arrival.

Measures to manage the treatment and disposal of waste materials during construction and operation may include:

- ensuring wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused
- providing segregated bins for subcontractors to dispose of construction waste (i.e., metal, plastics and cardboard)
- inducting contractors and staff into site waste management practices
- disposing of hazardous materials in accordance with the handling and disposal requirements of the *Work Health and Safety Regulations 2012*
- disposing of general wastes in accordance with local council requirements
- ensuring camp ablutions facilities are installed in accordance with the On-site Wastewater Systems Code and the *South Australian Public Health (Wastewater) Regulations 2013.*

Only appropriately licensed transport contractors will be engaged to transport waste material offsite. The contractors appointed to transport waste will be required to demonstrate and ensure that:

- they are licensed to transport the type of waste they are contracted to receive / handle
- waste is transported to a licensed facility capable of receiving the type of waste and quantity they are carrying waste is adequately covered during transport
- waste data forms are provided to the waste facility upon arrival.

6. Management of Project Generated Waste

Specific waste source management options will be implemented across the Project site to ensure appropriate waste handling and to ensure waste-related impacts to the local and surrounding environment are minimised. Waste source management will be updated based on refinement of Project design. All waste management options for construction and operation phases of the Project, will be in accordance with, and follow best practice of the EP Act waste management hierarchy.

Table 3 describes waste sources for Project construction and operation and associated mitigation and management controls.

Table 3: Waste management during Project construction and operation

Waste source	Mitigation and management controls	Construction	Operation
General construction	• Manage general construction waste in accordance with EP Act waste management hierarchy. • Classify all waste in accordance with the EPA SA 842/19 waste definitions guideline and separated into waste streams. • Classify construction waste material in accordance with the EPA SA 842/19 waste definitions guideline and separate into waste streams for reuse or recycling potential and stockpiled on site. • Clearly label waste in a secure storage area that ensures waste is contained and managed in the most appropriate and efficient manner i.e. reuse, recycled, disposed. • Store electrical waste for collection by an authorised contractor for recycling offsite, where feasible, or dispose at an appropriately licensed facility. • Where offsite disposal is required, dispose to a suitable licensed facility by an appropriately licensed transport contractor in line with EPA SA requirements.	✓	
Spoil from excavation materials	• Use spoil material from excavation works on site where appropriate (e.g. for capping of access roads, spread between tower footings). • Where not suitable for on-site use, use spoil for other purposes such as capping off-site, or classify and take offsite to a licensed waste management facility that is permitted to accept that waste for reuse, recycling or disposal.	✓	
Contaminated soil	• Classify soil by an appropriately qualified environmental practitioner in line with best practice and in accordance with the CEMP. • In the unlikely event that contaminated soils are encountered, segregate soils from the surrounding environment to prevent cross contamination and remove from site for remediation or disposal according to the nature of contamination.	✓	
Stockpiled soil / clean fill material	• Locate temporary topsoil stockpiles in areas clear of vegetation as far as practicable and away from defined watercourses to reduce the potential for surface water erosion impacts to creek lines. • Re-spread stockpiled topsoil following completion of construction activities (as far as practicable and subject to suitability) and leave sites to naturally revegetate. • Manage soil stockpiles in accordance with the EPA Guideline for stockpile management. Size of stockpiles typically below 2 m in height (to be determined by material quantity requirements, space availability, stockpile stability and safety).	✓	
Vegetation and organic material	• Stockpile cleared vegetation for use in rehabilitation where required. • Place cleared vegetation stockpiled during access and clearing over returned topsoil to assist in natural regeneration. • Dispose of noxious weeds in accordance with relevant guidelines / requirements.	✓	✓
Wastewater	• Manage camp wastewater in accordance with health regulations and relevant EPA SA requirements.	✓	

Waste source	Mitigation and management controls	Construction	Operation
	• Alternatively, treat sewage for irrigation over a pre-approved disposal area. • Use licensed contractors where wastewater is removed for offsite treatment or disposal. • Collect wastewater from concrete batching in temporary lined pits for to reuse or disposal at a licensed facility.		
Waste concrete	• Transport waste concrete to other sites for use. • Where this is not possible, waste concrete will be collected in washout bays, solidified and transported to a licensed facility for re-use or disposal.	✓	
Conductor drums	• Return conductor drums to supplier for reuse.	✓	
Electrical (HV and LV), conductors, insulators	• Return all waste electrical material to supplier for reuse.	✓	✓
Steel	• Recycle steel components at other sites where applicable or collect during and after construction for recycling via authorised scrap metal recyclers.	✓	
Domestic waste	• Store waste containing food appropriately (covered), and regularly remove from site for disposal to reduce the likelihood of attracting pests and vermin (including birds) and to prevent the occurrence of windblown rubbish. • Store recyclable materials such as paper, cardboard, plastics, glass, ferrous, and non-ferrous containers at recycling bins for collection by an authorised contractor and recycling off-site. • Where recycling is not feasible, collect waste and store in designated waste storage areas for collection by an authorised contractor for offsite disposal at a licensed waste facility.	✓	✓
Timber (e.g. formwork, pallets etc)	• Re-use excess and / or waste timber material where applicable or return to the supplier for reuse. • If timber is not accepted by the supplier, separate timber and dispose of at waste facility for mulching where applicable.	✓	
Hazardous materials and chemicals	• Dispose of all waste hazardous substances to a suitably licensed facility by an appropriately licensed transport contractor, in line with state legislation and EPA SA requirements. • Collect waste from construction vehicle and plant maintenance activities and store in designated waste storage areas for collection by an authorised contractor for offsite disposal. • Store containers holding oil, grease and lubricants separately for recycling / return to supplier or disposal as hazardous waste. • Store waste oil and oil filters stored in recycling bins for collection by an authorised contractor and recycled offsite (where feasible). • Undertake hydrocarbon and chemical storage in accordance with Australian Standards and EPA bunding guidelines. • Handle fuels in accordance with relevant standards and guidelines. • Bund diesel fuel storages at laydown areas.	✓	✓

Waste source	Mitigation and management controls	Construction	Operation
	• Store chemicals and fuels in appropriate containers suitable for purpose. • Separate hazardous materials and store in accordance with relevant legislation and regulations. • Clean up any spills in accordance with relevant guidelines.		

Final locations of waste management storage and disposal areas will be confirmed during detailed design of the final alignment and easement of the transmission line and locations of temporary construction camps. Locations of the construction camps are likely to be close to the Bundey Substation, North West Bend / Morgan, Hawks Nest Station and Chowilla.

7. Implementation

7.1. Role and Responsibilities

ElectraNet, as the proponent, has primary responsibility for the management and minimisation of waste, and ensuring that all legislative and regulatory requirements are met.

During the construction phase, the construction Contractor will be responsible for undertaking waste management and minimisation in accordance with this plan, ElectraNet specifications and legislative and regulatory requirements.

Licensed waste transport contractors will be employed during construction and operation (as required), and will be responsible for undertaking waste transport and disposal activities in accordance with this plan, ElectraNet specifications, legislative and regulatory requirements and licence conditions.

7.2. Awareness and training

ElectraNet and the construction contractor will develop and implement an awareness and training program that will be delivered to all employees involved in the waste generation activity. The training will include:

- the application of the waste management hierarchy
- common waste sources and waste streams generated from the Project
- dangerous goods segregation and hazard classification codes
- spill Response
- community impacts of poor waste management.

7.3. Monitoring

Regular inspections and monitoring will be undertaken for the Project during construction and operation to ensure the measures put in place to manage waste (e.g. collection and storage areas, licensed contractors) are implemented, maintained and reviewed / updated if required.

Monitoring will include the following:

- records of the type, quantity and locations of waste generated
- regular (timing to be determined) inspection of waste storage containers to ensure that they are maintained in a condition appropriate for their use and containment of the specific waste
- regular (timing to be determined) inspection of skips and / or bins to ensure that cross contamination does not occur

- records of all waste removed from site including products for reuse.

7.3.1. Reporting and compliance

Contractors will report all Safety and Sustainability Events related to waste management (including any notice received from a government agency) to the ElectraNet Project / Program Manager (or their representative) within one hour of the incident occurring, or if not reasonably practicable, as soon as possible. The relevant notification entry will be made into the ElectraNet Incident Management System (IMS) within 24 hours.

The Contractor will also report on wase related matters (frequency to be determined and in accordance with regulatory requirements) including the following:

- results of inspections and formal environmental audits
- report of compliance with approval and licencing conditions
- summary of complaints received during the Project construction and operation.

Non-compliances will be reported to the ElectraNet Project / Program Manager (or their representative) and appropriate corrective actions undertaken in line with ElectraNet's HSEMS.

7.3.2. Review

The Waste Management and Minimisation Plan will undergo periodic review and revision. Review will include a process of adaptive management, whereby the effectiveness and performance of current controls and mitigation measures are assessed and improved to ensure robust environmental performance.

Regular reviews of the waste monitoring will also be undertaken, and updated if required.