COMPLETE TREE MANAGEMENT

ABN 61 066 720 107

ENVIRONMENTAL MANAGEMENT PLAN

87 Beaconsfield Road
MACKAY QLD 4740
PO Box 1841, MACKAY QLD 4740
Ph. 07 4942 4788
Fax. 07 4942 4744

TABLE OF CONTENTS

ENVIRONMENTAL POLICY

Aim

COMPLETE TREE MANAGEMENT is committed to conducting our business in an environmentally aware and responsible manner. We seek the co-operation of our relevant workers and business partners in ensuring our organisational practices are conducted with minimal environmental impact.

Objective

To work with relevant workers, contractors, visitors and business partners to achieve compatibility between economic development and the maintenance of the environment to minimise harm.

Policy

COMPLETE TREE MANAGEMENT will endeavour to minimise impact on the following:

- Atmospheric emissions
- Site contamination and spills
- Noise Emission and Vibration impacts
- Damage to flora and fauna
- Storm water management
- Unnecessary energy consumption

To fulfil this commitment, COMPLETE TREE MANAGEMENT, will observe all environment laws and promote environmental awareness among all staff and contractors, to increase understanding of environmental matters.
COMPLETE TREE MANAGEMENT will actively take part in the following:

- Assess Eco-footprint to identify environmental impacts and move towards more sustainable practices
- Identify waste streams and options for effective waste management
- Improve purchasing (buy recycled materials, reduce waste, use less harmful/volatile chemicals)
- Improve storage (reduce quantity, waste and spills, Reduce odours by keeping containers closed)
- Conserve energy (eco-friendly lights, turn lights off, emergency efficient equipment, greener fuel sources –such as LPG and methane).
- Conserve water (install water saving accessories, repair leaks)
- Preserve water ways (clearly mark and protect storm water drains)
- Emergency planning and spill response
- Seek appropriate licenses/permits from State Environmental Protection Agencies and other relevant Authorities.
- Improve education/awareness
- Notify relevant authority in the event of a major environmental impact.

Managing Director: _____ **Date:** ____/____/____

References
EPA Victoria – ECO footprint – Managing Impact on the Environment
EPA Victoria – Sustainable Business and Industry

STATEMENT OF COMMITTMENT

COMPLETE TREE MANAGEMENT recognises its moral and legal responsibility to minimise damage to the environment caused by work activities. This commitment extends to ensuring that operations do not unnecessarily endanger flora, fauna, sensitive areas, sites of heritage importance or present concerns to members of the public and community.

The objective of this EMP is to actively work towards elimination and reduction of negative effects to the environment by ensuring environmental impacts are incorporated into all levels of the organisation, from planning to project delivery, and utilising best practice techniques wherever possible.

Responsibilities

Management are committed to:

- Integrating EMP into all aspects of COMPLETE TREE MANAGEMENT operations
- Compliance with all relevant legislative requirements and co-operation with Regulatory bodies.
- Measurable targets to ensure continued improvement reflected in accountability/key performance indicators at all levels.
- Consultation with relevant workers and other parties to improve decision-making on environmental matters.
- Identification of environmental issues, assessment of risks and implementation of best practice controls to limit negative impacts to the environment
- Development, implementation and review of written work procedures
- Distribution and communication of information and work procedures
- Training and supervision to relevant workers, contractors, clients and visitors to ensure EMP and written procedures to minimise environmental impacts are followed.
- Review and assessment of the EMP, including persons who are responsible for the management, update and review of EMP

Relevant workers are expected to:

- Take reasonable care, and consideration, of environmental impacts while at work;
- Co-operate with COMPLETE TREE MANAGEMENT to enable compliance with legal obligations
- Participate in consultative arrangements in relation to environmental matters
- Assist management to meet environmental targets/key performance indicators

Managing Director: _____ **Date:** ____/____/____

RISK ASSESSMENT

Risk assessments form the basis of selecting risk controls. A risk matrix helps to characterise the nature and magnitude of risk to human receptors (residents, workers, visitors) and environmental receptors (flora, fauna, land/water, ecological communities etc).

COMPLETE TREE MANAGEMENT will use the risk matrix below to assess the likely impact proposed work activities will have on both human and environmental receptors. Information will be used to guide the assessment process, such as:

- Toxicological, Epidemiological and chemical data
- Ecological data
- Previous incidents and industry experience
- Land/water usage
- Type of populations (human and flora/fauna)
- Community feedback
- Legislation requirements

Risk Assessment Matrix (adapted from AS/NZS 4360)

LIKELIHOOD	**CONSEQUENCE**		
	High	**Medium**	**Low**
High	**HH**	**HM**	HL
Medium	MH	MM	ML
Low	LH	LM	LL

HH = Extreme Risk	Serious human health impacts, long term environmental impacts/significant prosecutions and fines
HM = High Risk	Human health impacts, long term impact / major breach of legislation
MH, MM, HL = **Moderate** Risk	Short-term, minor human health and environmental impact / investigation or report to regulatory body
ML, LH, LM, LL = **Low** Risk	Minor Environmental impact. Minimal, if any, human health impacts

PROPOSED ACTIVITIES SUMMARY

Provide a brief summary of the proposed activities:

……

……

……

……

……

……

……

WORK ELEMENTS	DESCRIPTION
Name of Project	
Duration of Project	
Total work site area	
Area of disturbance (including access/egress)	
Operating hours at site (indicate am, pm)	
Water table depth	
Geotechnical sampling results (if applicable)	
Chemicals, fuels, volume and storages	
Etc….	

SUMMARY OF SITE AND SURROUNDING AREA

Provide a description of the proposed work site. Include all features (natural and man-made, residential communities, schools, hospitals, wetland etc).

Describe how this project can affect or impact the surrounding areas in reference to those features.

Describe how this project fits in with the overall company and the company's activities

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

SITE PLAN

Provide accurate scaled map clearly showing location of proposed activities, plant, amenities, buildings, access/egress, fuel storage, stockpile areas, waste disposal, treatment areas etc, as relevant. Include sensitive areas, such as wetlands, native flora/fauna, residential areas etc, as required (overlay maps are recommended)

Include North arrow, scale bar, legend, grid co-ordinates, source of data, title and dates of any aerial photographs.

SITE MAP – DESIGN OF PROPOSED ACTIVITES AND LOCATION OF SENSITIVE OR IMPACTED AREAS

ENVIRONMENTAL FACTORS RISK ASSESSMENT AND CONTROL SUMMARY

To be completed for site and job-specific EMP.

FACTOR (Examples)	RISK ASSESSMENT OUTCOME				CONTROL MEASURES SUMMARY
	Extreme	High	Moderate	Low	
Air quality – dust from stockpile				✓	1. Stockpile to remain under 1.5m high 2. Provide wind erosion shields 3. Seed long term pile 4. Dust suppression system 5. etc

1. AIR QUALITY MANAGEMENT:

The purpose of this control measure is to address the environmental impacts associated with potential air contamination, including fumes, vapours, aerosols, dusts, mists, particulates, smoke and odour.

Objectives:

1. Identify possible sources of air contamination and likely exposed receptors, conduct risk assessments and apply best practice techniques to eliminate or reduce their environmental impact
2. Ensure COMPLETE TREE MANAGEMENT is not responsible for community complaints regarding dusts, odours or other likely air contaminants.
3. Ensure legislated air emission standards are not exceeded.

The objectives will be met by implementing the following as required for task:

- Develop and implement an Air Quality program and allocate responsible persons to monitor, review and update the program as required
- Liaise with sensitive communities/affected receptors and monitor community feedback
- Use non-toxic or the least toxic (human and ecological) chemicals where possible
- Liaise with State Environmental department and seek permits/licenses as required
- Comply with permits/licenses and their restrictions.
- Conduct regular monitoring as instructed on permit/license
- Provide adequate resources for required equipment. Examples:

    - Air emission monitoring equipment
    - Dust deposition gauges
    - Plant and equipment maintained and only operated within manufacturer's guidelines
    - Dust suppression agents
    - Distribution systems (sprinklers etc)
    - Wind erosion barriers
    - Regular preventative maintenance for vehicles. No unnecessary engine idling
    - Local exhaust systems with suitable charcoal filters to control fume emission
    - Low volume spray nozzles
    - No incineration or burning of green waste or other wastes
    - Use of practical dust suppression techniques
    - Visual observation and smell detection
    - Cover all loads
    - Regularly wash vehicles to avoid tracking mud/dirt into public roads
    - Monitor weather and ensure work is undertaken in suitable weather conditions only (avoid high winds, weather inversion systems etc)

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:

Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
NSW Office of Environmental and Heritage: (2010) PEOA (Clean Air) Regulations
EPA SA: (1993) EPA Act
EPA SA (2007) Guidelines: Odour assessment using odour source modelling
EPA SA (2006) EPA Monitoring manual, Volume 1: Air Quality
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA ACT
Clean Air Society of Australia and New Zealand (2009): Air Quality Regulation and Odour Management in Australia and New Zealand

Table 1.1 Risk Assessment and Controls in relation to Air Quality Management

Task	Potential Impact	Risk Assessment				Controls
		Extreme	High	Mod	Low	
Example:						
Transporting stripped topsoil to spoil pile	Nuisance dust to residential community along roadside.				✓	Cover all loads Inspect cover before take-off Moisten dust if required

2. CHEMICALS MANAGEMENT:

COMPLETE TREE MANAGEMENT is aware of the damage that can be caused not only to sensitive ecological communities, but to birds, fish, flora and fauna in general and as such, are committed to reducing the environmental impact of chemicals that are required for work tasks.

Objectives:

- To ensure negative environmental impacts arising from the use, transport and disposal of chemicals, including fuel and oil are eliminated or reduced as far as possible.
- To ensure that exposure standards (where relevant) are not exceeded

The objectives will be achieved by the following:

- Develop a chemical management program including:
    - Purchasing procedure to include environmentally friendly products, and chemicals that are the least toxic to the environment and to humans as possible, while still performing its intended purpose.
    - Ensuring only minimal volumes ordered as required
    - Allocate responsible persons to monitor, review and update the program as required
    - Development of comprehensive emergency response procedures where flammable or toxic materials are stored or handled. This will include a 24/7 emergency contact person, responsible person, and detailed instructions for emergency response as relevant for type of materials stored
- Obtain Material Safety Data Sheets (MSDS) and other relevant ecological data for any chemicals used
- Conduct risk assessment for human and environmental impacts
- Use non-toxic or the least toxic (human and ecological) chemicals where possible
- Ensure correct disposal, including collection of run-off, waste water from clean-up as required
- Ensure conditions are safe to use (not used in high winds or close proximity to waterways or storm water drains, etc)
- Liaise with State Environmental department
- Provide adequate resources. Examples:
    - Local Exhaust systems
    - HEPA / adequate charcoal filters where required
    - Low volume spray nozzles
    - Spill containment and bunding equipment
    - Water re-containment equipment

- Protective covers and /or screens
- Suitable storage areas and containers
- Suitable transport vehicles, containers and loading/unloading procedures and equipment
- Licenses, permits and training as required
- Personal Protective Equipment (PPE)
- Atmospheric monitoring where required

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:
Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
NSW Office of Environmental and Heritage: (2010) PEOA (Clean Air) Regulations
EPA SA: (1993) EPA Act
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA Act
NSW Chemical Control Orders (CCO)
NSW Office of Environment and Heritage (1985): Environmentally Hazardous Chemicals Act
NSW Office of Environment and Heritage (1997) Contaminated Land Management Act
NSW Office of Environment and Heritage (2005) PEOA (Waste) Regulations
NSW Dangerous Goods (Road and Rail Transport) Act 2008
EPA WA (2004) Environmental Protection (Controlled Waste) Regulations
WA (2004) Dangerous Goods Safety Act
AS 3833 – 2007: The Storage and Handling of mixed classes of dangerous goods, in packages and intermediate bulk containers
AS 3780 – 2008: The storage and handling of corrosive substances
AS 1940 – 2004: The storage and handling of flammable and combustible liquids

Table 2.1 Risk Assessment and Controls in relation to Chemicals Management

Chem Name	Volume (kg/L)	Health and environment impacts	Risk Assessment				Controls
			Extreme	High	Mod	Low	
Example:							
Unleaded Petrol	80 L	Highly Flammable Toxic to aquatic organisms Can cause long-term adverse effects to aquatic environment Harmful if inhaled, ingested. Irritating to eyes and skin Carcinogenic			✓		Containers provided by manufacturer, or suitable for transport of flammables No bulk storages Earthing for liquid transfer to prevent sparks No ignition sources within 6m of storage or refuelling Provide suitable fire fighting equipment Provide bunded pallets for container storage Ensure containers closed No storage or refuelling close to waterways Do not allow to enter drains, storm water drains, rivers, waterways etc Provide training on spill containment Dispose of according to Local Authority instructions Ensure adequate ventilation when refuelling

3. FLORA AND FAUNA MANAGEMENT:

COMPLETE TREE MANAGEMENT will endeavour to ensure minimal adverse impacts on local and adjoining ecosystems, in relation to terrestrial and aquatic flora and fauna resulting from work tasks.

COMPLETE TREE MANAGEMENT is committed to limiting environmental impact from the following:

- Loss of habitat and biodiversity
- Weeds or noxious species infestation
- Erosion from vegetation clearing
- Spills and leaks
- Damage or death to individual trees from direct damage or changes to water availability
- Pollution of waterways allowing aquatic weeds, toxic alga blossoms, and loss of water quality from excess sediment entering waterways

Objectives:

- Reduce/ prevent degradation of water and land habitats for native species
- Re-vegetate affected areas with appropriate indigenous species if required
- Provide habitat restoration if required

COMPLETE TREE MANAGEMENT will meet these objectives by:

- Development of flora and fauna management program specific to job. Including:
    - Review of flora and fauna components in planning documentation
    - Liaison with ecological experts, community groups and State Environmental Authority to determine type of species likely to be impacted
    - Ensure no activities are undertaken that place threatened species at risk (advice will be sought from relevant Authority)
    - Development of “Threatened Species Monitoring Program” where relevant
    - Establishment of re-vegetation / habitat restoration programs
    - Allocate responsible persons to monitor, determine non-compliance, review and update the program as required
- Providing clear information (including markings on a site map) to indicate limits of vegetation clearing and disturbances
- Ensuring spoil piles with weeds will be maintained at least 25m from water courses and native vegetation
- Obtaining the services of suitably qualified persons to inspect tree hollows for fauna and provide advice on appropriate re-housing / habitat restoration

- Provide training for staff, including contractors on work practices to minimise potential damage to native flora/fauna, minimise soil disruption, and appropriate weed management practices.

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:
NSW Office of Environment and Heritage: (1995) Threatened Species Act
NSW Office of Environment and Heritage: (1997) Fisheries Management Amendment Act
NSW Office of Environment and Heritage: (1979) Environmental Planning and Assessment Act
NSW Office of Environment and Heritage: (1974) National Parks and Wildlife Acts
NSW Office of Environment and Heritage (1993) Noxious Weeds Act
NSW Office of Environment and Heritage: (2003) Native Vegetation Act
EPA SA: (1089) Soil Conservation and Land care Act
EPA SA (1992): Endangered Species Protection Act
EPA SA: (1975): National Parks and Wildlife Conservation Act
AS 1940 – 2004: The storage and handling of flammable and combustible liquids
Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
EPA SA: (1993) EPA Act
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA ACT

Table 3.1 Risk Assessment and Controls in relation to Flora and Fauna Management

Species	Threatened? Y/N	Location (exact location, grid reference etc)	Risk Assessment for Likely Impact				Controls
			Extreme	High	Mod	Low	
Example:							
Eucalypt trees: E. blakelyi	Y	See map reference G15 – North-western boundary of work site				✓	This area will be protected from contact with relevant workers/machinery and will form part of the Threatened Species Monitoring Program Earthworks will remain a significant distance from this area and as such, will not directly impact trees. Observations will be undertaken regularly as part of trenching operations to ensure water table levels are not affected

4. NOISE / VIBRATION MANAGEMENT:

COMPLETE TREE MANAGEMENT is committed to ensuring noise/vibration from work activities does not adversely effect the community, buildings and structures

Objectives:

- Minimise the impact of noise / vibration to protect the amenity of sensitive receptors, such as local residents and prevent damage to buildings and structures.
- Identify possible sources of noise / vibration and likely exposed receptors, conduct risk assessments and apply best practice techniques to eliminate or reduce the environmental impact of noise / vibration
- Ensure COMPLETE TREE MANAGEMENT is not responsible for community complaints regarding noise or vibration
- Ensure noise/ vibration legislation standards are not exceeded.

The objectives will be met by implementing the following as required for task:

- Develop and implement a Noise and Vibration program and allocate responsible persons to monitor, review and update the programs as required
- Liaise with sensitive communities/affected receptors and monitor community feedback. Provide a contact source for residents
- Liaise with State Environmental department
- Obtain the services of suitably qualified persons to conduct noise/vibration assessments to identify sources of noise/vibration and impacted areas
- Use assessment information to indentify noise sources, clearly indicate these on a map (such as a contour map) and assess risk to receptors
- Prepare Noise /Vibration Impact Statements as required. Include the following:
    - All activities and schedules of work
    - Activities that have the potential to produce substantial noise/vibration or exceed legislated standards
    - Environmental and human impacts
    - Receptors likely to be affected
    - Intended controls and how these will be monitored
    - Ensure copies are provided to relevant parties, such as property owners
- Seek permits from State Authorities as required
- Where noise levels exceed background L_{A90} noise level by 5 decibels, when measured at the most sensitive receptor, control measures to mitigate the impact will be implemented
- Provide adequate resources as required. Examples:
    - Suitable timing of works in line with permits and approvals

- Erection of noise barriers
- Engineering controls fitted to equipment (silencers etc)
- Regular maintenance of all equipment
- Machinery operated within manufacturer's recommendations
- Provision of PPE for relevant workers and contractors
- Caution signage to indicate hearing protectors must be worn on site.
- Implement Restricted Zones, where no vibration-inducing works will be undertaken in close proximity to buildings or structures as described in the table below:

Operations	Distance in Metres
Examples:	
Blasting	500
Pile Driving	200
7 tonne + machinery operation	50
Less than 7 tonne machinery operation	25

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:
Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
NSW Office of Environmental and Heritage: (2010) PEOA (Clean Air) Regulations
EPA SA: (1993) EPA Act
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA Act

Provide accurate scaled map clearly showing location of activities that may give rise to noise /vibration risks. Include locations of all receptors.

Include North arrow, scale bar, legend, grid co-ordinates, source of data, title and dates of any aerial photographs.

(Consider use of overlays on existing detailed maps).

SITE MAP – SHOW NOISE/ VIBRATION SOURCES, DECIBEL RANGES AND LOCATION OF SENSITIVE OR IMPACTED AREAS

Table 4.1 Risk Assessment and Controls in relation to Noise/ Vibration Management

Task	Type of noise or vibration	Potential Impact	Risk Assessment				Controls
			Extreme	High	Mod	Low	
Example: Excavation	Ground vibration	**Nuisance**				✓	Inform identified sensitive receptors of excavation works Ensure excavation works are undertaken only during specified times
		Environment				✓	
		Health & Safety				✓	
		Structural				✓	
Example: Excavation	Airborne noise	**Nuisance**			✓		Liaise with sensitive receptors in relation to noise generation activities Ensure excavation works undertaken only during specified times Provide contact details for community concerns and liaison Ensure regular preventative maintenance of machinery Ensure machinery is not defective and operated within manufacturer's specifications Provide PPE (Hearing protectors) to staff
		Environment			✓		
		Health & Safety			✓		
		Structural				✓	

5. GROUNDWATER MANAGEMENT:

COMPLETE TREE MANAGEMENT understands the importance of groundwater management and the role groundwater plays in supporting ecosystems. Disturbance to groundwater can affect buildings, soil condition, tree and vegetation growth and public/private roadways.

Objectives:

- Minimise the impact to groundwater from work activities
- Identify possible sources of groundwater disturbance, conduct risk assessments and apply best practice techniques to eliminate or reduce the environmental impact.
- Conduct testing and monitor groundwater as required.

The objectives will be met by implementing the following as required for task:

- Develop and implement a Groundwater Management Program and allocate responsible persons to monitor, review and update the program as required
- Obtain services of suitably qualified persons to conduct geological surveys and groundwater baseline testing prior to works being conducted.
- Determine extent of groundwater disturbance as a result of work activities and apply best practice techniques to reduce impact to groundwater and the surrounding environment. Include:
    - Impacts on nearby structures from potential settlement
    - Impacts on existing authorised groundwater users
    - Impacts on salinity
    - Groundwater inflow control
    - Protocol to handle, treat and dispose of contaminated groundwater
- Conduct regular testing for relevant impacts throughout works. Include:
    - Groundwater levels
    - Salinity
    - Contaminants
- Licenses/permits will be obtained for any groundwater monitoring well and abstraction bores as per State legislative requirements.
- Exposed groundwater will be diverted, collected, tested and re-used in an environmentally sustainable way, such as for dust suppression as required.
- Contaminated water will be disposed of by a licensed contractor.

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:
Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
NSW Office of Environmental and Heritage: (2010) PEOA (Clean Air) Regulations
EPA SA: (1993) EPA Act
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA Act
NSW Office of Environment and Heritage: (1995) Fisheries Management Act
NSW Office of Environment and Heritage: Water Management Act 2000
ANZECC and ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Table 5.1 Risk Assessment and Controls in relation to Groundwater Management

Task	Potential Impact	Risk Assessment				Controls
		Extreme	High	Mod	Low	
Example:						
Excavation for trench 2m deep	Groundwater inflow Possible contamination from machinery fuel, oils etc		✓			Ensure all machinery maintained and serviced. Inspect all machinery before operation for fuel, oil or hydraulic fluid leaks. No refuelling within 15m of trench Refuelling area to be bunded Groundwater inflow to be pumped out of trench, tested for contamination and disposed of as required. Weekly inspections will be undertaken to assess groundwater levels and affects on surrounding environment.

6. SURFACE WATER AND SOIL MANAGEMENT:

COMPLETE TREE MANAGEMENT will endeavour to reduce the occurrence of salinity, reduction in water and soil quality and erosion as a result of work activities.

Objectives:

- To ensure efficient controls are implemented to control erosion, sedimentation and impacts on water quality.

The objectives will be met by implementing the following:

- Identify work practices that may negatively impact soil or water quality, assess the risk and implement controls using best practice technologies.
- Identify likely receptors (nearby waterways, stormwater drains, wetlands, sensitive ecosystems)
- Obtain the services of suitably qualified persons (such as a Soil Conservationalist), to advise on appropriate controls.
- Liaise with relevant communities and State Environmental agencies
- Divert undisturbed (uncontaminated) surface run-off in a manner to prevent erosion
- Test before work commences for baseline measures in relevant waterways (pH, oil/grease etc)
- Test regularly at agreed intervals and locations for changes in baseline readings that may be contributable to work activities.
- Prevent surface water from disturbed areas from entering waterways by use of sediment fences, straw bales sediment traps or other controls as required.
- Ensure all controls are in place before work commences
- Reclaim or recycle water wherever possible
- Create temporary or permanent sediment basins/traps if required and implement a program for regular inspection and cleaning
- Support existing drainage systems and provide extra draining systems if required
- Ensure on-site detention systems are sufficient capacity
- Implement re-vegetation with indigenous species as required
- Replace topsoil as close to its source location as possible
- Replace topsoil in sensitive areas as soon as possible
- Implement suitable weed control program (wash down of vehicles etc)
- All waste materials (drums, chemical containers, etc) to be stored in protected, bunded area well away from waterways
- Ensure all spills and leaks are cleaned up immediately and waste disposed of

  Ensure all contaminated soil/water removed by licensed contractor

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:
Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
EPA SA: (1993) EPA Act
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA Act
NSW Office of Environment and Heritage: (1995) Fisheries Management Act
NSW Office of Environment and Heritage: Water Management Act 2000
ANZECC and ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality
NSW Office of Environment and Heritage: (1997) Fisheries Management Amendment Act
NSW Office of Environment and Heritage: (1979) Environmental Planning and Assessment Act
NSW Office of Environment and Heritage: (1974) National Parks and Wildlife Acts
NSW Office of Environment and Heritage (1993) Noxious Weeds Act
NSW Office of Environment and Heritage: (2003) Native Vegetation Act
EPA SA: (1089) Soil Conservation and Land care Act
EPA SA: (1975): National Parks and Wildlife Conservation Act
AS 1940 – 2004: The storage and handling of flammable and combustible liquids
EPA SA: (1999) Stormwater pollution prevention Code of Practice for the building and construction industry
EPA SA: (1997) Water Resources Act
EPA SA: (1987) Pollution of Waters by Oil and Noxious Substances Act

Table 6.1 Risk Assessment and Controls in relation to Surface Water and Soil Management

Task	Potential Impact	Risk Assessment				Controls
		Extreme	High	Mod	Low	
Example:						
Excavation	Possible contamination of surface water from machinery fuel, oils etc		✓			Ensure all machinery maintained and serviced. Inspect all machinery before operation for fuel, oil or hydraulic fluid leaks. No refuelling within 25m of waterway Refuelling area to be bunded Spills/leaks to be cleaned up and contaminated water/soil to be disposed of by licensed contractor. Weekly tests to be undertaken to determine grease/oil levels adjacent waterway.

7. WASTE MANAGEMENT:

COMPLETE TREE MANAGEMENT is committed to successfully conserving natural resources and is aware of the importance of waste management and reducing waste to landfill.

Objectives:

- To ensure the overall amount of waste is kept to a minimum.
- To ensure the handling, stockpiling and disposal of waste does not adversely impact the environment or community
- To ensure waste is disposed of meeting local, State and Federal requirements

COMPLETE TREE MANAGEMENT will meet these objectives by the following:

- Implementing the waste hierarchy:
    - Avoid
    - Reuse
    - Recycle/Re-process
    - Dispose
- Use of biodegradable and recycled/reprocessed substances and materials wherever possible
- Reuse materials wherever possible
- Development of purchasing procedures to ensure:
    - Number of items with expiry dates are kept to a minimum
    - Items have minimal packaging
    - Less hazardous products selected wherever possible
- Identify waste sources/ streams and develop a “Waste Management Register”
- Provide appropriate receptacles for each waste stream. Ensure these are labelled
- Conduct regular inspections/audits to ensure waste is separated as required
- Waste receptacles will not be stored in close proximity to sensitive areas such as waterways or stormwater drains.
- Follow manufacturer’s instructions for disposal of chemicals (Material Safety Data Sheet) along with local waste disposal facility directions
- Chemicals waste will be stored in bunded areas
- Ensure green waste is re-processed (compost etc)
- Waste is not mixed with spoil
- Weeds and unhealthy plants removed as a result of earthworks will be separated from the spoil, labelled as waste and taken off-site for disposal

- Site toilets will be serviced regularly
- No Littering policy will be implemented. All litter will be picked up immediately and disposed of in appropriate receptacle
- Materials contaminated by leaks (such as fuel or oils) will be stored in a sealed container and transported to a suitable waste facility
- Incompatible wastes are kept separate
- Waste water collection and treatment system will be implanted as required. Contaminated water will be disposed of following State Authority requirements
- Water use will be minimised with the use of aerated taps, trigger action hoses, low flow nozzles, repairs of leaks. Water will be re-used where possible.
- Waste collection will be arranged at regular intervals to ensure no adverse impacts on the environment and community (such as overfilling of receptacles and subsequent littering, odour, pests or other disturbances)

RESPONSIBILITIES		
Name	**Job Title**	**Reporting to:**

References:
Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)
NSW Office of Environment and Heritage: (1997) Protection of Environmental Operations Act (PEOA)
EPA SA: (1993) EPA Act
EPA Victoria: EPA Act 1970
EPA Tasmania (2007) Environmental Management and Pollution Control Amendment Act
EPA Australian Capital Territory (1997) EPA Act
EPA Western Australia (1986) EPA Act
EPA Northern Territory (2010) EPA Act
NSW Dangerous Goods (Road and Rail Transport) Act 2008
EPA WA (2004) Environmental Protection (Controlled Waste) Regulations
WA (2004) Dangerous Goods Safety Act
AS 3833 – 2007: The Storage and Handling of mixed classes of dangerous goods, in packages and intermediate bulk containers
AS 3780 – 2008: The storage and handling of corrosive substances
AS 1940 – 2004: The storage and handling of flammable and combustible liquids

Table 7.1: Waste Stream Management Register

Waste Management Register	
Waste stream	**Disposal Method**

8. CONTRACTOR MANAGEMENT:

All contractors and sub-contractors engaged to perform work on COMPLETE TREE MANAGEMENT premises or other nominated locations, are required to comply with relevant Legislation, Standards, Codes of Practice and COMPLETE TREE MANAGEMENT's Environmental management plans and programs.

Objective:

To incorporate EMP requirements into every stage of contractor selection, approval, work processes and completion.

Policy:
COMPLETE TREE MANAGEMENT will allocate responsibilities as follows:

- COMPLETE TREE MANAGEMENT Contract Managers:
  - Review environmental impacts for job
  - Review contract to ensure environmental impacts are controlled
- COMPLETE TREE MANAGEMENT Site Management:
  - Induction for contractors
  - Permits to work
  - Licenses, competencies
  - Risk assessment and EMP implementation
  - Supervision
- Contractor:
  - Evidence of EMP in place
  - Evidence of licenses, training and competency to perform work
  - Development and implementation of risk assessments, risk controls and EMP
  - Compliance with above
  - Compliance with Environmental legislation,
  - Participate in site meetings and site consultative arrangements

References:
Environmental Legislation in all States

9. LEGISLATIVE CHANGE MANAGEMENT:

COMPLETE TREE MANAGEMENT embraces opportunities to improve knowledge about new legislation and best practice solutions and technologies to reduce environmental impacts from work activities.

Objective

COMPLETE TREE MANAGEMENT will pro-actively seek out advice, education and industrial knowledge to foster continual improvement in environmental management systems and updates of relevant legislation.

Policy

COMPLETE TREE MANAGEMENT will endeavour to manage legislative change by:

- Assigning responsibilities for researching legislative changes with State and Federal Authorities
- Participate in learning opportunities such as information sessions provided by Industry Stakeholder Groups, Local Community Groups, and relevant Authorities.
- Seek advice from suitably qualified persons where required
- Attending conferences, trade shows etc where possible.
- Ensuring refresher training is undertaken where required
- Liaising with local Authorities as required

References:
Environmental Legislation in all States

10. ROLES, RESPONSIBILITIES & ACCOUNTABILITIES:

Successfully managing environmental impacts relies on commitment, consultation and co-operation. Everyone needs to understand the need for mitigation controls, what their role is in reducing environmental impacts, and how they can fulfill their responsibilities and duties

COMPLETE TREE MANAGEMENT allocates the following responsibilities:

Managing Director:

- Approval of EMP's and environmental protection policies
- Communication of EMP and policies
- Leadership
- Allocating sufficient resources
- Reviewing performance
- Providing direction for increasing performance
- Establishing and promoting an environmentally aware culture

Management:

- Integration of environmental considerations into all decision making
- Consult with relevant workers and contractors
- Planning, developing, implementing, monitoring and reviewing EMP and environmental policies and programs
- Control risks
- Communication in relation to environmental plans, policies, programs
- Identify training needs and enable training as required
- Reporting and recording
- Liaise with relevant State Authorities
- Meet legislative requirements

All relevant workers (including sub-contractors and relevant workers of sub-contractors):

- Comply with EMP, environmental policies, procedures and programs
- Work in a manner that does not create unnecessary risks to the environment
- Report and assist to rectify hazards/non-conformances
- Participate in consultative arrangements

Relevant persons:

- Develop, monitor and review EMP, environmental policies and procedures
- Monitor and report on environmental performance
- Monitor changes in legislation
- Review Corrective Actions/Non-conformances
- Provide environmental information to relevant workers

References:
Environmental Legislation in all States

11. TRAINING, COMPETENCY AND AWARENESS:

Training is vital to assist relevant workers to perform their work. COMPLETE TREE MANAGEMENT will arrange training which covers environmental impacts related to tasks being performed, as well as training in the overall approach to environmental protection taken by our organisation.

Objective

To provide training to all relevant workers and contractors to ensure they have the skills and competencies for work in a manner that does not create unnecessary risks to the environment.

Policy

COMPLETE TREE MANAGEMENT will:

- Conduct training needs analysis across the organisation
- Develop formal training needs and competencies for position requirements at all levels, including management.
- Develop a training schedule to manage the training needs and frequency of training
- Provide formal induction programs for new and transferred relevant workers and contractors
- Use Registered Training Organisations (RTO) and appropriately accredited and approved courses/trainers
- Ensure training is competency based
- Record all training
- Review effectiveness of training
- Provide training for languages other than English and other relevant learning barriers

Training will include:

- All environmental policies, EMP and procedures for the organisation
- Licenses and competencies to perform tasks
- Specific hazards risk controls
- Consultation and communication arrangements
- Corrective actions and non-conformances
- Emergency Response (spill containment etc)

All managers and supervisors will be provided with additional training to ensure that they are aware of their responsibilities under the EMP and environmental management systems. This training includes legislative responsibilities for managers and supervisors.

References:
Environmental Legislation in all States

12. RELEVANT WORKER AGREEMENT:

I have read and agree to abide by COMPLETE TREE MANAGEMENT EMP. I have raised any questions or issues that required clarification with my Person Conducting a Business or Undertaking (PCBU). I am aware that breaches of the EMP will be subject to disciplinary action.

Relevant worker Sign-off Register	
Name	**Date**

13. CONTRACTOR AGREEMENT:

I have read and agree to abide by COMPLETE TREE MANAGEMENT EMP. I have raised any questions or issues that required clarification with my COMPLETE TREE MANAGEMENT. I am aware that breaches of the EMP will be subject to disciplinary action.

Contractor Sign-off Register		
Name	**Company**	**Date**

GLOSSARY

Act
A law (legislation) passed and enacted by a state or territory parliament, also commonly known as an Act of Parliament. Acts are the principal pieces of law covering, in this case, environmental protection.

Bunding
A retaining system designed to contain the contents of a tank or chemical storage in the event of a rupture/spill or leak

Contractor
A contractor is any person (other than an COMPLETE TREE MANAGEMENT relevant worker) or a company performing work for, or on behalf of COMPLETE TREE MANAGEMENT

Decibel
A unit used to measure the intensity of a sound or the power level of an electrical signal by comparing it with a given level on a logarithmic scale.

Eco-footprint
The amount of productive land appropriated on average by each person (in the world, a country, etc) for food, water, transport, housing, waste management, and other purposes

Ecological
The science of the relationships between organisms and their environments

Epidemiological:
The branch of medicine, that deals with the study of the causes, distribution, and control of disease in populations.

Geotechnical sampling:
Principles of soil mechanics and rock mechanics to investigate subsurface conditions and materials; determine the relevant physical/mechanical and chemical properties of these materials; evaluate stability of natural slopes and man-made soil deposits; assess risks posed by site conditions; design earthworks and structure foundations; and monitor site conditions, earthwork and foundation construction

Green Waste
Biodegradable waste that can be composed of garden or park waste, such as grass or flower cuttings and hedge trimmings, as well as domestic and commercial food waste.

Hazard
A hazard is a source or a situation with a potential for harm in terms of human injury or illness, damage to property, damage to the environment, or a combination of these

HEPA Filter:
A High Efficiency Particulate Absorbing filter is a type of high-efficiency air filter that can effectively trap pollutants.

L_{A90} noise levels
Those noise levels that are exceeded for 90% of each sample period

Safety Data Sheet (SDS)
Information containing data regarding the properties and effects of a particular substance that must be provided, by the manufacturer, supplier or importer of the hazardous substance/dangerous goods. SDS must be current – within 5 years of the issue date and meet specific legislated format requirements

Particulates:
Fine liquid or solid particles, such as dust, smoke, mist, fumes or smog, found in air or emissions.

Regulations
Regulations are law that is created under the authority of an Act. Regulations are subordinate to an Act and are the secondary level of law covering, in this case, environmental protection.

Risk
Risk is a combination of the likelihood and consequences of any incident or impact occurring.

Toxicological

The study of the nature, effects, and detection of poisons and the treatment of poisoning.

Water table:
Underground - the upper limit of the portion of the ground wholly saturated with water. The water table may be within a few inches of the surface or many feet below it

Weather Inversion

A temperature inversion is a thin layer of the atmosphere where the normal decrease in temperature with height switches to the temperature increasing with height. An inversion acts like a lid, trapping the atmosphere, including pollutants, below the inversion, allowing them to build up.

APPENDIX 1: MONITORING SCHEDULE

Use the following to record who is responsible for monitoring compliance with each aspect of the EMP and to ensure non-compliances, where detected, are rectified in a timely manner.

Task	Responsible person	Corrective Actions	Timeframe for corrective action	Completed (Y/N)

APPENDIX 2: COPIES OF LICENSES/PERMITS APPROVALS, CONSENT REQUIREMENTS

Include copies of all licenses, permits, approvals, consent requirements etc for this project and for the company as a whole, as it relates to this project.