



Environmental Management Plan

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Table of Contents

1.0	INTRODUCTION, PURPOSE AND SCOPE	1
2.0	OVERVIEW	1
3.0	RESPONSIBILITIES	2
4.0	TRAINING	2
4.1	Induction	2
4.2	Toolbox Talks.....	2
5.0	REPORTING	3
5.1	Incident Reporting and Non-Conformance.....	3
5.2	Complaints.....	3
6.0	ENVIRONMENTAL MANAGEMENT MEASURES	4
6.1	Weed Awareness and Prevention.....	4
6.2	Soil Erosion and Sedimentation Control	5
6.3	Waste and Pollution Management.....	6
6.4	Prevention of Potential Import of Exotic Ants.....	8
6.5	Dust and Noise Control.....	9

1.0 INTRODUCTION, PURPOSE AND SCOPE

This East Arnhem Panel Project Environmental Management Plan (EMP) sets out strategies to manage the potential environmental impacts that may occur as a result of construction and maintenance work in the township of Nhulunbuy. This document includes environmental protection and impact minimisation techniques to be implemented during and following construction and maintenance.

This EMP has been designed for direct use by the site manager employed by John Bedwell Management (JBM), which will be the principal contractor on the panel if successful.

The sites have been developed previously, and are relatively well maintained. Due to this existing situation, no site specific recommendations have been made. All recommendations are generic environmental management practices for construction and maintenance in this region designed for implementation by the site manager.

There are activities to be performed prior to mobilisation of any equipment or materials to the township of Nhulunbuy.

2.0 OVERVIEW

The project may involve ground disturbance through loading and unloading materials and containers. The potential for soil erosion and sedimentation problems exists. Various measures will be required to mitigate these potential problems and prevent them from impacting upon nearby residences or services. A number of effective erosion and sedimentation control activities and devices are suggested in this EMP.

The works supervisor for the project will be responsible for determining the locations of, and managing the following elements within the construction/work areas:

- The erosion and sedimentation control actions and devices most practical with respect to construction timelines and activities;
- Plant and vehicle wash-down areas (should they not pass inspection);
- Waste skips and recyclable disposal skips;
- Vehicle refuelling and maintenance areas that minimise potential for hydrocarbons to contaminate soil and enter watercourses; and
- Hazardous material storage areas.

Various construction machinery and materials may be imported into the various communities, requiring basic quarantine checks. Pre mobilisation wash downs and visual inspections of plant, machinery and materials will be required to prevent weeds and exotic ants from being introduced into the listed communities.

Measures will be taken to ensure that any construction waste or other waste materials do not pollute, contaminate, or impact upon the visual amenity of the work area and the community in general.

Steps must be taken to ensure that noise and dust generated through construction work does not adversely impact upon local residents. Construction work should take place during reasonable working, with measures put in place to suppress noise from construction

machinery. Dust that may be emitted as a result of construction works will be controlled via watering where necessary.

3.0 RESPONSIBILITIES

The JBM Project manager will be responsible for the implementation of this EMP.

4.0 TRAINING

The works supervisor is responsible for identifying training and competency requirements for personnel under their control, and for ensuring that personnel have the requisite competencies, skills and training to carry out their assigned tasks. Managers are also responsible for ensuring training records are maintained. On the job training can include Project Induction and regular Toolbox Meetings.

4.1 INDUCTION

All staff, contractors, trainees and consultants will complete a Project Induction. A review of environmental requirements and standards will be one component of the Project Induction. This component will include wash down and cleaning requirements, spill response, protocol for reporting incidents, training in how to utilise erosion and sedimentation control devices, and basic identikits for relevant weeds and exotic ant species.

4.2 TOOLBOX TALKS

The Supervisor will ensure that at least weekly toolbox talks are held with site personnel to discuss potential issues associated with the scheduled work. The toolbox talks will involve highlighting and discussing relevant environmental issues as required and discussion of strategies to be implemented.

5.0 REPORTING

5.1 INCIDENT REPORTING AND NON-CONFORMANCE

Incident reporting will be mandatory, and forms will be provided for on site staff to record safety or environmental non-conformances or incidents. Reported incidents will be investigated and, where relevant, corrective actions nominated and implemented. The site manager will maintain the reporting log and ensure necessary follow-up is completed.

5.2 COMPLAINTS

Complaints from the public or specific project stakeholders must be brought to the attention of the JBM Works Supervisor, who will detail the complaint on a register, and implement any corrective action that may be required or escalate if required.

6.0 ENVIRONMENTAL MANAGEMENT MEASURES

6.1 WEED AWARENESS AND PREVENTION	
Company Policy	To prevent the introduction and spread of weeds.
Performance Objectives	<ul style="list-style-type: none"> • Vehicles, plant and equipment to be clean of organic material prior to entry into communities • Ensure transport contractors comply with washdown requirements. • Check of vehicles, plant and equipment on arrival to be conducted by JBM staff and contractors.
Legislation and Policies	<ul style="list-style-type: none"> • <i>Environmental Protection and Biodiversity Conservation Act 1999.</i> • <i>Territory Parks and Wildlife Commission Act 2013.</i> • <i>Weed Management Act 2013.</i> • <i>Bushfires Act 2013.</i>
Aspects	<ul style="list-style-type: none"> • Introduction of construction machinery and materials.
Management Strategy	<ul style="list-style-type: none"> • All vehicles, plant and equipment will be kept visually clean (as practicable) and will be kept free of grass, weeds and vegetation. • Equipment and vehicles will be checked, and if necessary, cleaned in designated washdown sites before entering listed communities and preferably before departing. • All staff involved in construction to be briefed on weeds present and weeds that could become a threat to the area, such as Mimosa (<i>Mimosa Pigra</i>) and Mission Grass (<i>Pennisetum Polystachion</i>), so that new infestations or increases in infestation size can be reported. • Inductions to include potential invasive weed species, and identikits for these species should be available on site. • Upon discovery of a weed, the site manager is to be alerted and the local rangers informed. • Limit vehicle movement through weed infested areas near communities and surrounding areas. • Personal clothing, including boots, will be cleaned of mud and weed seeds each night.
Performance Indicators	<ul style="list-style-type: none"> • Weeds identified during works properly reported and managed. • No new weed species to be introduced in listed communities.
Monitoring, Reporting and Corrective Actions	<ul style="list-style-type: none"> • JBM staff members to conduct regular visual surveys on the listed communities, including prior to and after works, to check for and record the presence and distribution of weeds. • Any new weed species discovered in the listed communities are to be reported to the local ranger group. • Non compliance and incidents will be reported to, and regulated by, senior management to ensure prompt rectification and change management as required. • Community member complaints will be recorded and appropriately acted upon by the Contractor.

6.2 SOIL EROSION AND SEDIMENTATION CONTROL

Company Policy	To provide effective erosion and sediment control practices relevant to a monsoonal climate to mitigate the potential impacts on local watercourses, land use and the general environment.
Performance Objectives	<ul style="list-style-type: none"> • Minimise soil erosion. • Prevent as far as practical, sediment transport to adjacent creeks and watercourses.
Legislation and Policies	<ul style="list-style-type: none"> • <i>Environmental Protection and Biodiversity Conservation Act 1999.</i> • <i>Soil Conservation and Land Utilization Act 2013.</i> • <i>Water Act 2013.</i> • <i>Waste Management and Pollution Control Act 2013.</i>
Aspects	<ul style="list-style-type: none"> • Slopes and existing landform. • Vegetation clearing and soil disturbance. • Erosion and sediment control structures. • Timing of construction.
Management Strategy	<ul style="list-style-type: none"> • Where possible, establish single site entry and exit points for construction vehicles to minimise area of disturbance. • Minimise the area of soil exposed by clearing and the length of time for which it is exposed. • Locate and secure any soil stockpiles away from concentrated water flow paths. • Minimise vegetation clearing. • Install erosion control measures (E.G. revegetation of bare areas, and creating diversion drains) to minimise the amount of site erosion. • Install sediment collection devices (E.G. silt fences, sediment traps) to prevent the export of sediment from the site. • Establish 'no go' areas on site where extensive vegetation cover exists. • Situate the work compound close to the entry point of the construction project, preferably in an already disturbed area. • Drainage shall be reinstated on completion of the works.
Performance Indicators	<ul style="list-style-type: none"> • No evidence of sediment transfer to watercourses. • Evidence of erosion and sedimentation control measure and inspections and reviews. • Erosion controlled and limited to that consistent with "natural processes".
Monitoring, Reporting and Corrective Actions	<ul style="list-style-type: none"> • Weekly review erosion control measures to determine effectiveness and whether alternate erosion and sedimentation control devices are required. • Non Compliance and Incident Reporting will be reported to the Site Manager for prompt rectification and management changes as required. • Community member complaints will be recorded appropriately acted upon by the JBM site manager.

6.3 WASTE AND POLLUTION MANAGEMENT

Company Policy	To minimise waste generation and dispose of all wastes in an appropriate manner.
Performance Objectives	<ul style="list-style-type: none"> • Minimise impacts related to waste management. • No evidence of litter or refuse generated from construction related activities outside the construction area. • Designated waste skips within the construction area and capacity to separate recyclables such as scrap steel. • Minimise pollution from construction related activities through immediate and effective clean up of chemical or fuel spills.
Legislation and Policies	<ul style="list-style-type: none"> • <i>Public and Environmental Health Act 2013.</i> • <i>Dangerous Goods Act 2012.</i> • <i>Soil Conservation and Land Utilisation Act 2013.</i> • <i>Water Act 2013.</i> • <i>Work Health and Safety (National Uniform Legislation) Act 2011.</i> • <i>Waste Management and Pollution Control Act 2013.</i>
Aspects	<ul style="list-style-type: none"> • General Putrescibles wastes including food and cardboard. • Non-Putrescibles wastes such as plastic and paper and construction materials. • Waste liquids including oils, lubricants and fuels, including spilled substances and clean-up materials. • Handling of hazardous materials (E.G. Fuels). • Wash-out waters from vehicle, plant and equipment wash-downs.
Management Strategy	<p>Solid Wastes</p> <ul style="list-style-type: none"> • Solid wastes must be disposed of to a NT or Local Government approved waste facility. • All solid waste should be recycled where possible. • Refuse containers to be provided on site. A separate container will be provided for recyclable materials (E.G. scrap steel and aluminium cans). <p>Liquid Wastes</p> <ul style="list-style-type: none"> • Transfer drained oil, fuels and lubricants from machinery into clean containers with a lid that screws on tightly. Clearly label the container and keep in a secure on-site storage facility, preferably bunded. • Take used oil to a used oil collection facility. • Maintain accessible spill kits on site for hydrocarbons and relevant chemicals. <p>Hazardous Wastes</p> <ul style="list-style-type: none"> • Dangerous goods will be stored, handled, separated and signed as required by the Dangerous Goods Act AS1940. • Hazardous goods and wastes will, where appropriate (E.G. outside locations) be stored in bunded areas away from watercourses. • Spills of dangerous goods will be rendered harmless and collected for treatment and disposal at a designated site, including cleaning materials, absorbents and contaminated soils. • Absorbent and containment material (E.G. absorbent matting) will be available where hazardous materials are used and stored and personnel trained in correct use. • Protective clothing, appropriate to the materials in use, will be provided.

Performance Indicators	<ul style="list-style-type: none"> • Cleanliness and waste efficiency of the site both during works and upon completion of works.
6.3 WASTE AND POLLUTION MANAGEMENT	
	<ul style="list-style-type: none"> • Amount of litter detected off-site. • No contamination of the environment by hazardous goods. • Reviews and corrections to storage and handling procedures as appropriate. • At designated refuelling and vehicle and plant maintenance areas, the flow path to drains and watercourses should be cut off by sand bags or earthen bunds. • Relevant spill kits accessible and maintained. • All spills reported to the on site manager, and promptly and effectively cleaned up.
Monitoring, Reporting and Corrective Actions	<ul style="list-style-type: none"> • Non Compliance and Incidents will be reported to, and regulated by, on site management to ensure prompt rectification and management changes as required. • Community member complaints will be recorded and appropriately acted upon by the JBM Site Supervisor

6.4 PREVENTION OF POTENTIAL IMPORT OF EXOTIC ANTS

Company Policy	To prevent the introduction of exotic ants into the listed communities for RFT D13-0118
Performance Objectives	<ul style="list-style-type: none"> • Ensure effective control strategies to prevent introduction of exotic ants. • Compliance with washdown inspection requirements (refer to weed management section). • Vehicles, plant and equipment to be clean of organic material prior to entering the listed communities.
Legislation and Policies	<ul style="list-style-type: none"> • <i>Environmental Protection and Biodiversity Conservation Act 1999.</i> • <i>Territory Parks and Wildlife Commission Act 2013.</i>
Aspects	<ul style="list-style-type: none"> • Introduction of construction machinery and materials
Management Strategy	<ul style="list-style-type: none"> • Through inductions, all staff are to be briefed on exotic ants to look out for – namely Yellow Crazy Ant <i>Anoplolepis Gracilipes</i>, Big headed Ant <i>Pheidole Megacephala</i> and Ginger Ant <i>Solenopsis Geminata</i>. • Identikits for the relevant ant species should be available on site. • In consultation with relevant authorities, ant collection kits and ant poisons will be ordered and utilized on site if exotic ants are detected in the Project Area. • All vehicles, plant and equipment (including hand tools such as shovels) will be inspected by nominated JBM personnel prior to entry to the Project Area. • All vehicles, plant and equipment will be kept visually clean (as practicable) and will be kept free of grass and soil. • Should equipment and vehicles be observed to carry organic material, they will be cleaned in designated washdown sites before entering the Project Area. • Personal clothing, including boots, will be cleaned of any grass or soil prior to entry into Project Area. • Vehicles, plant and equipment that fail inspection must be washed down and re-inspected.
Performance Indicators	<ul style="list-style-type: none"> • Exotic ants identified during works properly reported and managed.
Monitoring, Reporting and Corrective Actions	<ul style="list-style-type: none"> • Survey of work areas to be undertaken at regular intervals (including prior to work) during works to check for and record the presence of exotic ants. • Survey of work areas to be undertaken upon completion of construction works to check for presence of exotic ants. • Upon discovery of exotic ant species appropriate poison will be used in order to eradicate the population (consult with relevant authorities). • Non compliance and Incidents will be reported to, and regulated by, on site management to ensure prompt rectification and management changes as required. • Community member complaints will be recorded and appropriately acted upon by the JBM Site Supervisor.

6.5 DUST AND NOISE CONTROL

Company Policy	To complete construction works in a manner that maintains the ambient air and noise quality of the listed communities.
Performance Objectives	<ul style="list-style-type: none"> To maintain acceptable limits of dust and noise during construction. To maintain acceptable limits of vehicular and machinery operation emissions, and to receive zero complaints from local community members regarding dust and noise.
Legislation and Policies	<ul style="list-style-type: none"> <i>AS/NZS 1269-1998 Occupational Noise Management: Overview.</i> <i>AS2436:1981; Guide to Noise Control on Construction, Maintenance, and Demolition Sites.</i> <i>Bushfires Act.</i> <i>National Standard for Occupational Noise (NOHSC:1007(2000)) National Code of Practice for Noise Management and Protection of Hearing at Work (NOHSC:2009(2004)) 3rd Edition July 2004.</i> <i>Occupational Noise will be management in accordance with NT WorkSafe Occupational Noise Management, 2004.</i> <i>Soil Conservation and Land Utilization Act 2013.</i> <i>Waste Management and Pollution Control Act 2013.</i> <i>Water Act 2013.</i> <i>Work Health and Safety (National Uniform Legislation) Act 2013.</i>
Aspects	<ul style="list-style-type: none"> Ground disturbance activities. Power tools. Vehicle and machinery movements. Wind action on cleared and graded areas and on stockpiles.
Management Strategy	<p>Dust Control</p> <ul style="list-style-type: none"> The size and number of spoil stockpiles will be minimised. Stockpiles will be removed as soon as practicable in order to limit the amount of air borne dust produced. During dry windy weather, site surfaces and spoil stockpiles should be wetted down or covered. <p>Noise Control</p> <ul style="list-style-type: none"> Fit all construction equipment with noise suppressors (E.G. silencers on jackhammers). Keep all tools and silencers in good condition. Consult with local residents and Local Government to determine appropriate work hours.
Performance Indicators	<ul style="list-style-type: none"> Supervise workers to ensure silencers are always in place when tools are in use. Receipt of minimal air quality or noise related complaints for neighbouring residential areas. Complaints and issues dealt with promptly and effectively as far as practicable.
Monitoring, Reporting and Corrective Actions	<ul style="list-style-type: none"> Non compliance and Incidents will be reported to, and regulated by on site management to ensure prompt rectification and management changes as required. Community member complaints will be recorded and appropriately acted upon by the JBM's Site Supervisor.