

# **Environmental Protection Measures**



Environmental protection measures must be specific to each project. Delete what is not applicable to your project; add new protection measures if required; and then delete this prompt box. Note that rows in blue text are instructions to follow; once is done select and delete the rows with blue text.

## Project:

Date:

# **Environmental Protection Measures**

## **Access and Traffic Management**

Identify construction activities and site access requirements that are likely to interfere with traffic flow and pedestrian thoroughfare through and adjacent to the site, or interfere with access to nearby properties. Prepare Traffic Control Plan and vehicle movement plan if required.

#### Pre-works phase

Where possible, all works shall be programmed and undertaken in a manner least disruptive to local businesses and access ways shall not be blocked at any time.

All landowners potentially impacted by construction works or associated activities shall be consulted regarding any practicable and cost-effective measures to minimise impacts which may be beneficially implemented prior to the commencement of construction or within such time frame as agreed with the relevant landowner.

Local residents shall be notified in advance of potential disruption to property accesses and traffic flows.

The works site shall be appropriately fenced to prevent unauthorised access.

#### Works phase

Care should be taken to ensure access is not affected. If work is near roads warning signs should be erected.

Warning signs need to be erected to alert road users of the change in conditions. Any council conditions will be followed. Nearby residents will be advised by mail of the changes.

Warning signs need to be erected to alert road users of the change in conditions. For major road closures signs should be erected a few days before the works commence. Any council or Roads Authority conditions will be followed. Nearby residents will be advised by mail of the changes.

#### Post-works phase

All temporary traffic signs will be removed and, where appropriate, new permanent signs erected.

## **Air Quality**

#### Pre-works phase

All construction facilities erected on site must be designed and operated to minimise the emission of smoke, dust, cement dust and other substances into the atmosphere.

#### Works phase

Indicate here how you are going to control of dust or odours would be eliminated or controlled Best practice controls are listed below; review, add or delete controls not applicable to your situation

Vehicular access will be kept to sealed roads wherever possible or to designated site access points

A 25km/hr speed limit shall be imposed on all vehicles within the construction site, including haul roads.

A garden water hose for spraying to reduce dust generation from exposed surfaces will be available at all times.

A water cart shall be available at all times for spraying all exposed areas to reduce dust generation.

The area to be disturbed for excavations will be minimised

Stockpiles, access roads and work areas will be watered down or covered

Excess spoil will be placed in skip bins or covered stockpiles, reused on-site or disposed off-site.

Materials transported in open trucks will be covered to prevent generation of dust. The tailgates of all vehicles transporting material from the construction site will be securely fixed prior to loading and immediately after unloading.

Complete landscaping and revegetation as soon as possible following building activities

Ensure that no disturbance of the nature strip occurs between the site and the roadway Machinery will be well maintained with no noxious emissions and not left idling when not in use.

Exhaust systems and engines for plant/equipment will be maintained according to the manufacturers' specifications and regularly monitored to ensure that exhaust emissions are satisfactory (smoke for no longer than 10 seconds). Periodic visual checks will be made on exhaust system emissions

The burning of timber and other combustible materials is not permitted on site at any time.

If winds are high and the works are creating high levels of dust that are likely to cause discomfort to local residents or a safety hazard to traffic or work personnel, the works shall be modified or stopped until the dust hazard is eliminated or is reduced to an acceptable level.

## Post-works phase

Include any post-work dust control measures included in the Specification. If there are none, delete all the contents of this cell and write "Not required".

All exposed soil areas shall be stabilised and revegetated as soon as possible on completion of works to prevent the generation of dust.

## **Fire Prevention**

## Works phase

Indicate here details of the equipment you have on site and in vehicles to control fire like fire extinguishers

Write here how you will let staff know that it is a total fire ban day and that these activities are not to be undertaken e.g. a toolbox talk on total-fire-ban days, cutting, welding, grinding and other activities likely to start fires are not allowed in the open

Burning off is not usually allowed on site. However, sometimes it is allowed for disposal of cleared and grubbed vegetation. If burning is permitted then you must get a permit from the Fire Control Officer (FCO) and approval from the Superintendent.

If burning off are carried out write below how you will protect vegetation e.g. providing a cleared buffer zone before burning the cleared material and how you will ensure fences, buildings and other property are not damaged for example: "A *n*-metre buffer zone will be mowed before burning off, to act as a fire break

Best practice controls are listed below; review, add or delete controls not applicable to your situation

No cutting, welding, grinding or other activities likely to generate fires should be undertaken on "total fire ban" days. Total fire ban declarations and resultant work restrictions will be timely communicated to staff.

One general-purpose fire extinguisher and one fire extinguisher suitable for control of

oil/petrol fire will be available on site at all times.

A minimum of one person on site will be familiar or trained in the use of fire-fighting equipment.

All flammable materials will be kept in a locked area within the site working area.

All personnel involved in welding, grinding, thermal or oxygen cutting, heating or other fire or spark-producing operations will be trained in fire prevention, safety and basic fire-fighting skills.

Burning off is not permitted under this contract. There must be no burning off on site.

## Fuels and Chemicals

#### Pre-works phase

All staff will be made aware of the Site Emergency Plan. A copy of the Spill Response procedure will be displayed at the site compound and provided in each field-services vehicle.

#### Works phase

State here where your storage areas will be. They must be more than 20m from natural or built drainage lines or flood prone areas, they must not be on slopes steeper than 1:10 or near vegetated areas. You should show the storage area on the site map, and state that it is situated as shown on the site map

An impervious bund of sufficient capacity to contain at least 120% of the volume of the largest stored container is in place around the storage area. This bunded area is monitored weekly and drained when required, to ensure that bund capacity is maintained, by pumping out to an oil–water separator

Best practice controls are listed below; review, add or delete controls not applicable to your situation

Where fuel, oil or other chemicals are to be stored on site, a secure, lockable and floored area will be provided before any of these substances are accepted on site. This area will be imperviously bunded with a capacity to contain not less than 110% of the volume of the largest container. This bunded area is monitored weekly and drained when required; to ensure that bund capacity is maintained, by pumping out to an oil–water separator. Ensure relevant Material Safety Data Sheets (MSDSs) are available on-site for all chemicals used or stored on site.

All chemicals are stored in accordance with the manufacturer's instructions and the MSDS

In the event of spillage of hydrocarbon products such as fuels and/or chemicals, on-site spill containment equipment/kits will be used to contain spills and cleaned in accordance with the MSDS requirements.

Fuel, oil and chemicals will be used in a bunded area.

A 50-litre container of spill absorbent will be retained within the site working area to be used for emergency spills of fuel, oil or other chemicals.

Ensure that any spills or accidents on site that are likely to cause pollution are managed as per this plan

If stormwater discharges from bunded fuel or hazardous storage areas are required, records are kept of water quality checks, discharges and remedial actions.

If drums of chemicals and fuels must be used outside a bunded area, a spill kit will be readily available nearby, the drums will not be left unattended, and they will be returned to the bunded area for storage overnight.

If an Environmental Incident occurs on site, the Incident Report form 302 will be completed and forwarded to the Client.

If refuelling or maintenance cannot take place at this site, temporary bunding will be provided and adequate spill kits kept readily available.

Refuelling operations will not be left unattended while in progress.

**Post-works phase** 

Nil

## **Aboriginal heritage**

#### **Pre-works phase**

Information about any aboriginal heritage items on site must be provided here. Refer to the REF, Decision Report or contract specifications for details. Include details of the location of the sites (if allowed to be known), and the protection requirements

Provide details of protection mechanisms e.g. "erecting a human-proof fence as shown on the Site Plan" If there are no known aboriginal heritage items on site, delete the contents of this cell and write "No requirements"

No requirements

#### Works phase

Any evidence of Heritage relics or sites discovered during construction will be reported immediately to the Works Supervisor. Work in the immediate area of the relic/site will be halted until advice is received from the Project Manager

#### Post-works Phase

If there are no requirements post works delete the contents of this cell and write "Not required"

## Non-aboriginal heritage

#### Pre-works phase

Information about any Non-aboriginal heritage items on site must be provided here. Refer to the REF, Decision Report or contract specifications for details. Include details of the location of the sites (if allowed to be known), and the protection requirements

Provide details of protection mechanisms e.g. "erecting a human-proof fence as shown on the Site Plan" If there are no known Non-aboriginal heritage items on site, delete the contents of this cell and write "No requirements"

Non-aboriginal heritage items are located on site at ... Describe the location of the item

#### Works phase

If any potential archaeological relic is unexpectedly encountered during the works, all construction work in the vicinity that might affect that relic will stop immediately and the relic protected from damage or disturbance with exclusion fencing.

The Principal will be notified immediately and access will be provided to the site for a heritage specialist assessment as required.

#### Post-works phase

Delete this section if there are no requirements at the completion of works

## Noise control

List here what your noisy activities are, and the measures that you are going to put in place to minimise the noise. For example:

"Jackhammers must only be used between 10:00am and 5:00pm, Monday to Friday"

"The site compound will be located at the south-eastern corner of the site, the furthest distance from adjacent residences."

"Smart reversing alarms have been fitted to all vehicles to be used."

#### **Pre-works phase**

If you are to work outside of normal hours include the following text, otherwise delete it

Work will be undertaken outside of normal working hours on this project during the following times:

#### Insert times and days here.

Residents potentially affected by night works will be notified by letter, 5 days before works commence.

The letter will include details of the works, timing, potential disruptions to traffic and a contact name and number. An after-hours number will also be provided.

#### Works phase

If construction involves the use of heavy equipment and significantly noisy activities, you must prepare a Noise Management Plan. This section may comprise your Noise Management Plan or you can prepare a separate plan.

The Noise Management Plan must cover all noisy activities and show how you intend to minimise the impact of noise on adjacent properties. This plan should include operational controls such as:

- using an alternative process
- limiting the amount of equipment on site and using the lowest power equipment suitable for the job
- using manually-adjustable or ambient-noise sensitive type (smart) reversing alarms
- implementing worksite induction training on reducing staff noise on site
- restricting times when very noisy work is carried out
- siting work compounds, parking areas, equipment and material stockpiles away from noise-sensitive locations
- if noise barriers are to be constructed, program this as early as possible to reduce noise impacts from other construction work on neighbouring residents
- using screening or enclosures
- consultation with affected residents
- scheduling work to avoid major student exam periods.
- scheduling work, where possible, to not take place over two consecutive nights, or more than six nights per calendar month, outside a single dwelling or group of dwellings, units, flats or other places of residence.

Best practice controls are listed below; review, add or delete controls not applicable to your situation

Construction noise is to be confined to 7am to 6 pm Monday to Friday and 7am to 1pm on Saturdays. No work will be undertaken on Sundays or Public Holidays unless approved by Client.

No blasting will be permitted during construction

Jackhammers must only be used between 10:00am and 5:00pm, Monday to Friday

All plant and equipment used on this job is operated by appropriately trained staff in accordance with regulations and is regularly maintained and serviced by qualified staff.

All plant and equipment used on site will comply with EPA Guidelines.

Smart reversing alarms have been fitted to all vehicles to be used

Equipment not in use will not be left idling.

All stationary and mobile equipment will be fitted with residential type silencers.

#### Post-works phase

Include any post work requirements e.g. post-construction monitoring. If there are none, delete the contents of this cell and write "Not required"

Not required

## **Ground Vibration and air blast**

#### **Pre-works phase**

If construction activities include blasting, pile driving, excavation by hammering or ripping, dynamic compaction or demolition of structures that may cause damage through vibration or air blast to nearby public utilities, structures, buildings and their contents, or if the items are located within the distance from the construction activity specified in contract specifications, you must arrange a Building Condition Inspection of these items. You must submit a written report of the inspection supported by photos and a list of any existing defects in the items to the owner of each item and the client before construction commences.

If this applies to your project, include the following, otherwise delete all the contents of this cell and write "Not required"

A Building Condition Inspection report will be undertaken on the following structures: Insert names of structures

The report will be provided to the client and the owner of the structure before

construction commences.

#### Works phase

If the works include blasting you must prepare a Vibration and Air Blast Management Plan. The Vibration and Air Blast Management Plan must detail how construction vibration and air blast will be managed for various plant items working adjacent to buildings. Records must be kept as evidence of compliance with these construction vibration and air blast restrictions. This section comprises your Vibration and Air Blast Management Plan.

Write here the measures you will use to prevent damage to buildings and annoyance to noise sensitive receptors. The list below has some ideas:

If you are not doing any blasting or vibratory works delete all the contents of this cell and write "Not required"

Vibration and air blast will be managed using the following strategies and operational controls:

Choosing the appropriate blast charge configurations (state what they are),

Ensuring appropriate blast hole preparation (state what that is),

Optimising blast design, location, orientation and spacing (clearly set this out – a drawing would show this easily),

Selecting appropriate blasting times (state what these times will be),

Applying knowledge of prevailing meteorological conditions (e.g. if the wind usually dies down in the afternoon use this knowledge to aid in noise reduction during blasting. State how the knowledge has been used here).

Restricting work times.

Use of screening or enclosures.

Use of non vibratory rollers

Consultation with affected residents

#### Post-works

Is a post construction building inspection required? (If no, delete) If yes, include:

A post construction building report will be prepared and provided to the client and owner of the structure.

## Plant and Equipment

#### Works phase

All plant/equipment operators and employees will be instructed to confine operations to within the clearly marked area of site operations.

All machinery will be secured against vandalism outside working hours.

All plant/equipment will be inspected daily to avoid leakage of fuel, oil or hydraulic fluid to the worksite. Machinery found to be leaking should be repaired or replaced.

Maintenance and cleaning of mechanical plant and equipment is not permitted on site to prevent pollution of existing drains.

#### Post-works phase

Nil

#### Waste Management

Waste avoidance is a priority on this project, followed by reuse of waste products, then recycling, with disposal of waste as a last resort

If you are going to dispose of VENM on private property (the landholder requires a DA from Council for this to be permitted) you must include the following section:

A completed Notice Under Section 143 of the POEO Act (NSW) will be obtained from the landholder prior to disposing of virgin excavated natural material (VENM) on private property. For the purposes of a Notice Under Section 143, VENM includes clay, gravel, sand, rock or soil that is not contaminated or mixed with any other type of waste

#### Pre-works phase

Waste avoidance is a priority on this project, followed by reuse of waste products, and then recycling, with disposal of waste as a last resort.

This section constitutes the waste minimisation and management plan

A Waste disposal register Form 301 has been established which identifies:

waste streams and their classification

reuse, recycling and disposal options

waste transporters.

The waste register records amounts generated and transported and by who. The Waste Register is part of the project waste management plan.

Any subcontractors on this project must maintain a Waste Register if their waste is not being recorded by the principal contractor. A copy will be provided as part of the subcontract documents.

#### Works phase

The implementation of waste management actions on this project is monitored weekly. Wastes will be stored in a manner that does not pose harm to the environment.

A completed Notice Under Section 143 of the POEO Act (NSW) will be obtained from the landholder prior to disposing of any material to an area that is not a licensed facility. Check with EPA if this is required with other states.

Any contaminated soil will be classified and disposed off to legally operating waste management facility. Records of disposed waste will be kept in project records.

Waste material generated by the works will be minimised or recycled where feasible and cost effective.

Spoil material that cannot be reused on site, will be disposed of through an appropriate waste management facility.

All waste material that cannot be recycled will be collected and removed from the site to be disposed of in a legal manner, ie. at a legally operating waste management facility. A register of disposed waste will be kept on site

Bins with heavy lids will be provided within the site compound for personal litter.

Bin lids will be kept closed at all times, and all bins will be emptied when they are threequarters full.

All site sewage will be collected and disposed of off-site in accordance with relevant regulations.

A daily inspection will be carried out to ensure the worksite is left in a rubbish free state.

All loads of rubbish will be securely covered to prevent spillage during removal.

Only compatible wastes will be transported together

No waste is to be burnt or buried on site.

The site will contain separate bins for recyclable and non-recyclable material; these will be disposed of appropriately.

Skip bins will be provided to contain waste materials and spoil.

#### **Post-works phase**

The worksite will be left in a tidy and rubbish free state upon completion of the project.

## Stockpile management

You must include here where your stockpiles will be located. Use the following points as a guide: Temporary stockpiles must be located at least 5 m from the base of retained trees in the area disturbed by construction activities.

Existing permanent stockpile sites should be used wherever possible

Write here how stockpiles will be protected e.g.: "Stockpiles must be protected by having a sediment fence installed on the downhill slope or by being covered with black plastic etc." Water must be diverted away from stockpile sites and appropriate temporary sediment control structures

placed on the downslope side of the area

#### Pre-works phase

You must include here where your stockpiles will be located. Use the following points as a guide:

- Temporary stockpiles must be located at least 5 m from the base of retained trees in the area disturbed by construction activities.
- Stockpiles must be located within the road reserve, unless prior approval has been granted.
- Existing permanent stockpile sites should be used wherever possible.

Stockpiles will be located ...

#### Works phase

Stockpiles will be protected by having a sediment fence installed on the downhill slope or by being covered with black plastic.

Sediment control structures for stockpiles are shown on the Erosion and sedimentation control plan.

Stockpiled materials must not be placed inside vegetation protection areas or within 5 m of trees to be retained.

Topsoil material is stockpiled separately from other soil materials. Topsoil stockpiles must be no greater than 1.5 m in height.

Stockpiles will be maintained to prevent the growth of weeds.

**Post-works phase** 

All temporary stockpile sites will be restored to a standard at least similar to their original condition.

## Waste water management – water quality management

#### Pre-works phase

Controls will be implemented on site to ensure that all water leaving the site complies with EPA water quality criteria

#### Works phase

List the on-site activities that could potentially cause water pollution e.g.: dewatering, surface washing, grit blasting, saw cutting, drilling, washing vehicles and plant, batching plants, concrete truck or mixer washout, refuelling plant and handling hazardous chemicals. These activities must not take place less than 50 m from a waterway and must have adequate protection e.g. bunding, street sweeping, wheel washing.

Write here what measures will be put in place to control possible wastewater discharges from your site. State exactly where the activity will take place and list the protection to be put in place. Include only whatever is relevant to your job.

Example – concrete-truck washout:

"A concrete-truck washout area is provided at xx (give exact location). Concrete trucks must only be washed out at this location."

Example – drainage inlets:

"Drainage inlets are blocked using absorbent socks to prevent entry of discharge from saw cutting. Discharge water is then suctioned into a truck for disposal at the depot."

If there are no activities that could produce wastewater discharge, delete all the contents of this cell and write "Not required"

Best practice controls are listed below; review, add or delete controls not applicable to your situation

All chemicals, fuels and wastes will be kept in sealed containers or bunded. Inappropriate containment of chemicals, fuels and wastes can lead to water pollution and soil contamination

All chlorinated waters will be tested to ensure that the chlorine residual level is not more than 0.5 mg/L and that pH is between 6.5 and 9. If these conditions are not met the

chlorinated water will not be released into the environment. Instead the water will be irrigated, discharged into the stormwater or sewerage system or tankered away

Ensure there is no cross connections made between the stormwater and public sewerage system. Spillage of any sewage at connection or from sewer overflow can pollute nearby waterways and present a public health risk.

All water collected during construction, which is likely to be contaminated, shall be tested, treated, handled and disposed of to the satisfaction of the EPA so that it does not pollute receiving waters.

In areas of contaminated material not previously identified, all work in the vicinity of these areas shall cease and not recommence work until the extent of contamination has been assessed and if necessary, remediation shall be implemented.

Chemicals, particularly flammable liquids shall be stored in appropriately bunded facilities with an impervious floor to prevent leaching or spillage to the environment.

Drainage catchment shall be provided for the works compound and materials storage areas.

Diversion banks shall be created at the upstream boundary of construction activities to ensure upstream run-off is diverted around any areas to be exposed. Catch drains at the downstream boundary of construction activities shall be created wherever possible, to ensure any sediment laden run-off is contained and directed toward treatment areas and not permitted to flow onto downstream undisturbed areas. Diversion banks shall be constructed approximately along contours to minimise scour along drains.

Staked hay bales, covered in a geotextile material shall be placed along catch drains to slow flow, reduce scour and capture some sediment from run-off. Silt fences and sand bags shall also be used.

Buffer strips shall be designated and delineated adjacent to waterways, where practicable. These buffer strips shall remain vegetated and shall filter sediment from construction site run-off. The area shall be roped off and no plant or operations shall occur within this buffer zone.

Sediment fences shall be constructed on the upstream edges of the designated buffer areas.

Designated areas for plant and construction material storage shall be located as far as possible from waterways, and run-off shall be directed to a holding pond in case of spillages.

All site topsoil shall be retained and protected where practicable

Disturbed areas shall be promptly revegetated or mulched.

All access to the site shall be limited to well defined haul roads.

## Post-works phase

Include any post-work requirements for wastewater discharge control. If there are none, delete all the contents of this cell and write "Not required".

Not required

## **Erosion and sedimentation control** - soil management

The work must be planned and carried out to avoid erosion and sedimentation of the site, surrounding areas and waterways. Prepare an Erosion and Sedimentation Control Plan (ESCP) to help you do this. The ESCP could be a site map with water flows indicated and controls drawn on to it. Usually an ESCP will be prepared or updated for each different phase of the works. The site must be subdivided into appropriate sections based on the separate catchment areas that will be affected by the work. The sections you could include are:

- area bounded by the road reserve

- access and haulage tracks
- borrow pits
- stockpile and storage areas
- temporary work areas

- materials processing areas

- compound areas

- concrete and asphalt batching plant areas.

Use whatever sections are appropriate to your site.

#### **Pre-works phase**

An Erosion and Sediment Control Plan will be prepared and kept on site to show the layout of the erosion and sediment control structures to be installed prior to any construction commencing.

Temporary erosion and sediment controls shall be installed prior to the commencement of any works with the potential to cause soil erosion, including stockpiling.

All site personnel shall receive training in matters pertaining to the control of soil erosion and sediment for the site.

#### Works phase

Existing drainage lines likely to be affected by the worksite will be identified and protected using siltation barriers, placed such that they intercept run-off from exposed surfaces

Mud deposited on the current road network due to truck movements to and from the site works is to be cleaned immediately. Street sweeper may be used for the purpose

Erosion and sedimentation controls are inspected weekly, and after rainfall greater than 10 mm in a 24 hr period to ensure they are maintained in a fully functional condition. Inspections are carried out using *Form 306 Environmental inspection checklists.* 

All erosion and sediment controls will be checked daily and after rain

Any sediment that accumulates behind the silt fences or straw bales will be cleaned out and used during rehabilitation

Cleaning of concrete mixing trucks is not allowed on site

Guttering will be connected to the stormwater system or the rainwater tank as soon as practicable

Surface water entering the site will be limited as it increases erosion and the potential for sediment-laden water to leave the site. Overburden will be placed in the form of a bund upslope of the site to reduce surface water entering the site (only where safe to do so).

Sediment laden water will be prevented from entering the stormwater system by placing geotextile fabric over the grate; the fabric will be secured with sandbags.

Sandbags, haybales wrapped in geotextile fabric etc. will be used to slow water flow and trap sediment

Linear silt stop fencing will be installed downslope of all affected areas and stockpiles

The work area will be kept to the smallest possible size. The work area will be rehabilitated as soon as work is finished in an area

All sediment control measures will be left in place until the site has been stabilised.

Landscaping and revegetation will be completed as soon as possible following building activities

Do not locate stockpiles within 2 metres of hazard areas such as spoon drains or areas of high flow

Once no longer required, reinstate ground level around the works, fill spoon drains and sediment basins, level banks and remove surplus soil

Connect guttering and downpipes to the stormwater system as soon as the roof is completed

Fill in service trenches as soon as work is completed to minimise erosion

Cover service trenches with plastic sheeting or another suitable cover if filling cannot be immediately completed

All discharges will be monitored to prevent erosion. If discharges are causing erosion

flow will be slowed or energy dissipaters used.

#### Post-works phase

All construction sediment retention structures will be removed once all upstream areas have been revegetated or otherwise stabilised

All areas disturbed by the construction, or the removal of construction sediment retention structures will be restored to a standard at least similar to that previously existing.

All exposed soil areas shall be stabilised and revegetated as soon as possible on completion of works to prevent potential erosion.

## **Contaminated land**

#### Pre-works phase

If contaminated land has been identified as an issue in the REF, Decision Report or Contract documents, you must engage a specialist to prepare a Contaminated Land Management Plan, which should be attached to the EMP. The requirements of the plan must be communicated to site staff. Ensure that you transfer any checking requirements from the plan into the Environmental Inspection Checklist. Include the following statement:

A Contaminated Land Management Plan has been prepared for the site and is provided in the EMP. All staff will be made aware of the contamination issues and the control measures detailed in this plan.

If there are no contamination problems on site delete all the contents of this cell and write "Not required"

#### Works phase

The client will be notified immediately of any suspected or potentially contaminated ground exposed during construction activities. All work will cease within the vicinity of the actual or suspected contaminated land and the area will be fenced off.

If contaminated ground is discovered, surface runoff will be diverted away from the contaminated area.

Surface runoff water contaminated by exposure to the contaminated ground will be contained and treated prior to discharge.

If not provided by the Principal, a Remediation Action Plan will be prepared for the unexpected contamination find and submitted to the Principal. This will be prepared in accordance with EPA Guidelines on contaminated land and will include testing, validation and removal and disposal.

#### Post-works phase

If there are no requirements post works then delete the contents of this cell and write "Not required"

## Fauna management

#### **Pre-works phase**

The following wildlife carers will assist with any animal injuries or relocations on this project:

Insert the contact number for local wildlife rescue service/ vet etc Contact number:

A wildlife carer/ecologist must be present on site during all habitat removal activities to capture and relocate fauna that may be encountered.

The works require the removal of possible fauna habitat. The following area has been identified as pre-determined habitat for fauna release:

Include details of fauna release area and show on site maps

Non-habitat vegetation will be removed first. Identified habitat will be left for at least 24 hours after removing non-habitat vegetation to allow fauna to escape. Habitat removal will take place in the presence of an experienced wildlife carer/ecologist, who will inspect

the area following removal. Any wildlife found will be relocated to the release area. Any changes required to the sequence of clearing will be communicated to staff undertaking the clearing.

A Register will be kept of details of fauna capture and relocation.

If native fauna habitat is not being removed delete all the contents of this cell and write, "Not required".

All reasonable measures shall be undertaken to ensure that no native fauna is harmed or placed at risk during the course of the clearing activities.

## Works phase

Where practicable, a qualified ecologist shall capture and relocate any fauna (eg. Snakes) that are displaced towards residential areas.

All native wildlife must be protected. No firearms are allowed on site except for security purposes permitted by law.

Any injuries to protected wildlife caused through or because of construction activity must be reported to wildlife care service.

Should a threatened species (additional to those already identified) be identified onsite during works, work will be stopped in the immediate vicinity and the Environment officer will be notified. Protective fencing will be installed around the area while the likely impact of the works on the threatened species and further management actions are determined. When trees are to be removed from site, the following three phase folling process is

When trees are to be removed from site, the following three phase felling process is used:

1. Clear small trees.

2. Knock larger trees (that potentially contain habitat) with machinery to scare off animals.

3. Fell large trees at least 24 hours later.

### Post-works phase

The following measures will be put in place when work is completed:

Post work requirements might include the erection of nesting boxes and monitoring of fauna use.

If there are no post construction requirements delete all the contents of this cell and write "Not required".

## Vegetation management

#### Pre-works phase

All site staff must be made aware of the limits of clearing. Existing vegetation that is to remain in or adjacent to the works must be protected as an Exclusion Zone. In order to do this, procedures must be implemented for monitoring clearing and grubbing to ensure that trees and other vegetation are not unnecessarily cleared or disturbed. Write here what you will do to control and monitor clearing and grubbing operations. There will often be requirements from the REF or Specification that you must include here.

You must erect Limit of Work fencing and Exclusion Zones around areas to be retained before any work starts. You must state exactly where these trees or areas are and where the fencing will go. Any trees that are outside the limit of clearing that are unsound and likely to fall on the roadway or private property must also be identified in this document for either pruning or removal, as determined by an ecologist. It can often be useful to include a map showing the sensitive areas and where protective fencing will be installed.

Mature trees that occur in close proximity to the construction zone shall be assessed on an individual basis to determine if it is possible to retain these within the project's design.

At least 24 hours prior to commencement of clearing the limits of clearing will be clearly delineated using paraweb fencing.

Large woody debris and bush rock on site shall be re-used where possible for habitat improvement and erosion protection, under the guidance of an ecologist.

Small woody debris will be mulched and reused on site.

#### Works phase

Any excavation under the drip line of trees will be done by hand, thrust boring or something similar.

No equipment or stockpiles will be placed under the canopy of any vegetation.

Trees that are to be removed will be clearly marked. Any vegetation adjacent to the work area will be protected with exclusion fencing.

Any noxious weeds within the work area will be removed and stored in sealed containers and disposed appropriately.

Weed infested topsoil shall not be re-used in the rehabilitation works unless it is sterilised.

Measures shall be implemented to control weed re-invasion during the works such as cleaning of tyres of plant and trucks coming to and going from the site and the use of clean, sterile topsoil in rehabilitation works. Topsoil to be reused at the site shall only be supplied from local sandstone-based materials.

Cleared vegetation shall not be bulldozed into adjacent bushland, and mulched vegetation shall not be dumped into adjacent areas.

Newly exposed surface areas shall be mulched and replanted as soon as possible in order to reduce the potential for erosion.

All vehicle movements or other construction activities shall be restricted to the delineated construction zone, the existing road network or previously disturbed areas. Construction vehicles, personnel and machinery shall not enter fenced off areas or areas beyond the delineated construction zone.

Vehicles and machinery shall not be parked or stored in the vicinity of trees or any areas of natural vegetation to be retained, nor in proximity to any ephemeral drainage lines.

The condition of the construction zone boundary fencing and any other exclusion fencing shall be regularly checked to ensure its effectiveness.

To prevent soil compaction, no stockpiles or other materials shall be stored, and no vehicles shall be parked under, the canopy of trees to be retained in the construction zone.

#### Post-works phase

Any bare areas of the site shall be rehabilitated and revegetated with native vegetation where appropriate.

The site will be restored to a condition similar to the original condition on completion of the works

## Site facilities

#### Pre-works phase

Using the points below as guidance, describe in writing exactly where the site compound is to be located and/or provide the location on your EMP. Remember that the REF or specification may have identified a location for the site compound, so refer to these documents also. Write here what controls will be in place at the site compound

The location of the site compound is shown on the site plan included in this EMP

The site compound will include amenity sheds, portable toilets, and plant and equipment storage areas.

The site compound and working area will be protected from theft and vandalism using security fencing.

#### Works phase

Write here what controls will be in place at the compound. Include the controls you are putting in place in your Environmental Inspection Checklist

Environmental protection measures will be established at the site compound as outlined

in previous sections.

Controls are inspected weekly and within 24 hrs of more than 10 mm rain. The site compound will be left in a tidy and rubbish free state upon completion of the project

## Restoration of the site

#### **Post-works phase**

On completion of the works, all areas disturbed by construction activities (including the site compound, materials storage, access and haul roads) must be reinstated and restored to conditions similar to the original condition.