

**EDWARD RIVER COUNCIL  
ROADSIDE VEGETATION MANAGEMENT PLAN**



**CODE OF PRACTICE HANDBOOK**

## 1. Introduction

### 1.1. Handbook

This handbook is designed to provide some general information to help local government staff and contractors involved in the construction, management and maintenance of roads and roadside areas to be more aware of the range of issues relevant to roadside management within the Edward River Council area. This publication is intended to be of assistance to all people involved in management of roadsides and comes under the overarching *Edward River Council Roadside Vegetation Management Strategy*.

This handbook seeks to encourage best practice which:

- Avoids damage to remnant vegetation through adherence to improved road maintenance and construction works practices.
- Protects and enhances the environmental, amenity and cultural values of roadsides.
- Accommodates functional values of road safety, fire management and utility provision.
- Enhances awareness and knowledge of roadside issues.
- Promotes minimum disturbance techniques.
- Minimises pest plant and animal invasion and spread.
- Minimises land degradation and enhances water quality.

### 1.2. Edward River Council Landscape

The Edward River Council area falls into the Riverina Biogeographic region. Prior to European settlement a diverse range of native vegetation types existed across these bioregions. The original vegetation was diverse with shrubs, wildflowers and native grasses present. These woodlands and grassy areas have been extensively cleared for agriculture and this has led to a significantly modified landscape contributing to a significant decline of some native vegetation types. Some of these are now officially listed as being Threatened Species and Endangered Ecological Communities. Many remnants now only remain on road reserves, which represent the few remaining examples of ecosystems where the remnant vegetation provides fauna habitat corridors and connections between isolated areas of bushland. The Federal Government has developed 'Australia's Biodiversity Conservation Strategy 2010-2030' to address this decline in biodiversity, while the NSW government similarly has the *Threatened Species Conservation Act 1995*, *Environmental Planning and Assessment Act 1979*, *Local Land Services Act 2013* and the *Biodiversity Conservation Act 2016* to address these issues. Local government is a key player in the conservation and management of biodiversity and threatened species in NSW, as Councils manage large areas of public land, much of which contains important biodiversity values.

## 2. Road Reserves

### 2.1. Roadside values

Road reserves were established to provide a safe and effective network for vehicle movement. They also provide a route for stock movement, access for utility services and fire management. Recently roadsides have also been recognised as being very valuable for the conservation of native plants and animals. Roadsides also provide amenity value for both the local community and tourists who visit the area and contain sites of cultural heritage. As remnant vegetation on roadsides

tends to be narrow and linear, it is usually more susceptible to threats – including clearing and fragmentation of native vegetation, pest plants and animals, firewood collection, fire prevention activities, agricultural activities and roadworks.

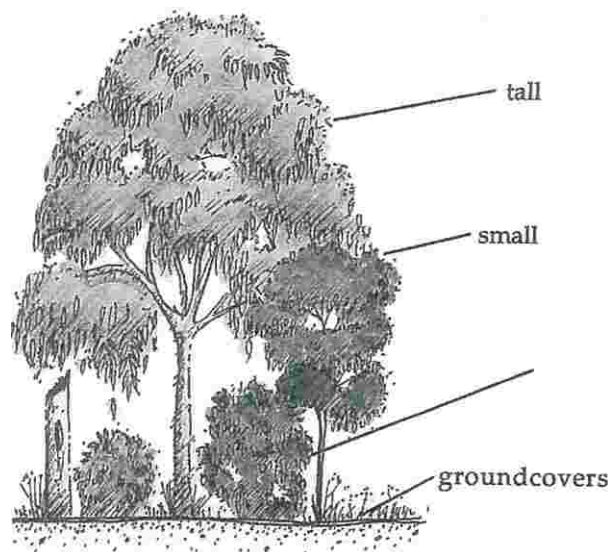
Native vegetation that occurs on roadsides is valuable and important to protect because:

- It provides food and shelter for native wildlife.
- It is often easier to maintain than introduced vegetation.
- It reduces the impacts of erosion and salinity.
- It provides a seed source for revegetation.
- Roadsides now contain some of the last remnants of the vegetation that was originally widespread throughout the Murray region.
- Roadsides often contain endangered native plants and animals.
- Roadsides with native vegetation are important wildlife corridors, linking other areas of native vegetation.
- Native grasses have lower fuel loads and fire risk than introduced species.

### 3. General Principles

#### 3.1. Native Vegetation Values

Native vegetation includes trees, shrubs, grasses and groundcovers. In some cases, not all of these types of plants are present. For example, native grasslands that contain no shrubs or trees are still very important as habitat. In the Murray region, high priority should be given to the protection of native grasses due to their rarity.



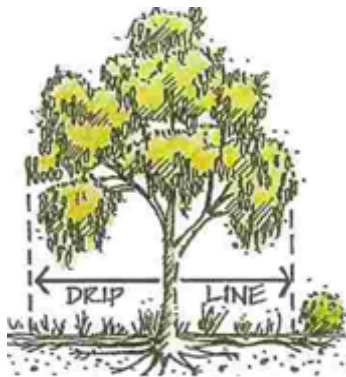
*Native Vegetation is made up of several vegetation layers including groundcovers, grasses, shrubs and trees.*

Protection of native vegetation and fauna is a key goal of roadside management. It is also a legislative and planning requirement. The *Threatened Species Conservation Act 1995* gives special protection to rare species. Roadsides contain rare or threatened flora species and communities. The Murray Local Land Services (LLS) should be consulted to provide management advice if a rare species is known to be on a site. It is an offence to disturb or destroy species listed under the *Threatened Species Conservation Act 1995* and *Environment Protection and Biodiversity Conservation (EPBC) Act, 1999*. Heavy penalties apply for breaches of the EPBC Act.

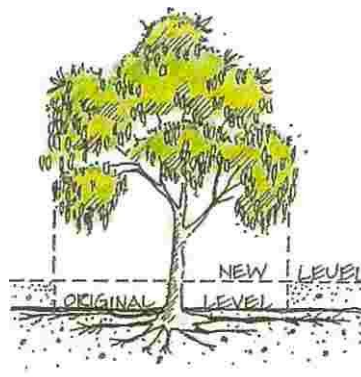
The best way to protect native vegetation is to minimise disturbance. This includes minimising soil disturbance and damage to all native plants, including native grasses and groundcover plants, which are particularly easy to damage. Native vegetation reduces weed infestation. Following disturbance weeds will invade a site. Weeds compete with native plants, increase maintenance costs and can lead to higher fire risk. Disturbance can also significantly increase the risk of soil erosion.

Most of the damage to vegetation occurs by inappropriately locating materials stockpiles, windrows, machinery turning or parking areas, inadequately defining the limit of works or clearing of vegetation beyond the minimum extent necessary. The location and marking of these areas need to be completed before works commence to ensure minimum disturbance is achieved. In areas of significant vegetation, machinery parking areas are best located on cleared private land.

### 3.2. Avoid or Minimise Impacts on Existing Trees



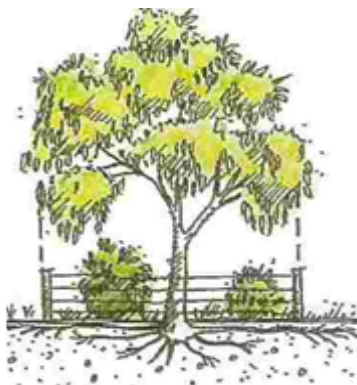
Avoid working within the drip line of trees



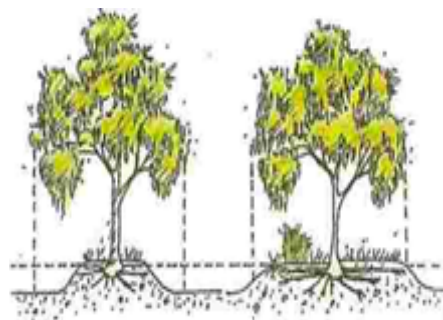
Keep fill material clear of drip line and prevent soil from accumulating against tree trunks

Incorrect

Correct



Fence trees and avoid storing materials or equipment under trees



Avoid undercutting (soil removal) within the drip line of a tree

It is advantageous to minimise impacts on trees by keeping activities further away than the minimum of the drip line.



### 3.3. Significant Roadside Environmental Areas

Roadside vegetation signage is used to highlight significant vegetation and prevent unnecessary damage. If working at a signed area, contact the relevant Council for advice on appropriate management before commencing any works.



#### Significant Roadside Environment Area

Alerts road workers, travellers, and local communities to the conservation value of the reserve

These markers are an initiative of the NSW Roadside Environment Committee (REC) which was established in 1994 to promote and coordinate leading practice in roadside environmental management. The committee can be contacted at:

<http://www.rms.nsw.gov.au/environment/roadsideenvironcommittee/>

### 3.4. Conservation Value of Roadside Native Vegetation

All councils in the Murray region have Roadside Management Plans to assist in the management of their roadside areas. Roadsides have been identified as having high, medium or low conservation value.

#### High Conservation Value

Fairly undisturbed native vegetation with most expected vegetation layers present and low levels of weed invasion. Supports a range of habitats.



### Medium Conservation Value

Moderately disturbed native vegetation with one or more vegetation layers absent or modified. Moderate levels of weed invasion.



### Low Conservation Value

Highly disturbed native vegetation. High levels of weed invasion. Also includes scattered or clumps of trees and shrubs over an exotic (introduced) understorey.



### 3.5. Protect Native Fauna and Wildlife Habitat

Roadsides contain habitat for a range of native fauna. In particular, scattered large old remnant trees contain hollows that are vital habitat for many species including gliders, possums, birds and bats. Other elements such as fallen timber, coarse woody debris, leaf litter and native understorey form equally important habitat for other species including lizards, insects, etc. Minimise or, where possible, avoid any impacts on native fauna and habitat for native fauna.

#### **Bush Stone Curlew (*Burhinus grallarius*)**

The Bush Stone-curlew (*Burhinus grallarius*) is a large, ground-dwelling bird. Over the last century the species has become rare in many locations due to clearing of habitat and predation from foxes. Current populations are scattered. Roadside areas are of significant importance in maintaining this species within the Edward River Council area and farmer-government based programs are in place.



The most suitable habitat for Bush Stone Curlews occurs along roadsides and on private land with healthy tree stands and fallen timber. Threats to the species include replacement of understorey with pasture grasses, clearing, removal of logs for firewood, habitat modification e.g. 'tidying-up', ploughing of firebreaks and predation by feral pests. Management of habitat includes minimising disturbance of understorey on roadsides, revegetation to provide additional habitat, and leaving fallen timber.

### 3.6. Threatened Fauna

In addition to the Bush Stone-curlew, a sample of other species under threat includes:

Plains-wanderer  
Squirrel Glider  
Superb Parrot  
Swift Parrot

*Pedionomus torquatus*  
*Petaurus norfolcensis*  
*Polytelis swainsonii*  
*Lathamus discolor*

Many of these fauna species rely on roadside habitat for their survival. Appropriate roadside management will assist in reducing species decline.





### 3.7. Threatened Flora

An example is the Buloke Woodlands in the Riverina bioregion which are listed as Endangered under both the Federal *Environment Protection and Biodiversity Conservation Act 1999* and the State *Threatened Species Conservation Act 1995*. The listing for this vegetation type includes some 76 species many of which are ground layer plants which are particularly susceptible to damage if occurring on roadsides.



*Buloke Woodlands on a council roadside*

#### Guidelines:

- Leave native vegetation undisturbed, except for regrowth that must be removed within the road shoulder, verge or table drain
- When signage indicates significant flora, species are present on a roadside, contact the council for appropriate management advice before undertaking any activities or works
- Check for nests or other fauna habitat, and avoid disturbance to those areas
- Retain all habitat such as rocks, dead standing trees, fallen timber and leaf litter unless they pose an identifiable risk in terms of road safety
- Ensure that large old trees are protected from activities such as firewood collection, agricultural activities, and fire prevention measures
- Do not slash or disturb regeneration



- Encourage regeneration by weed and rabbit control, and fencing
- Do not 'tidy up' areas of native vegetation on roadsides

### 3.8. Avoid the Spread of Weeds

Council's key responsibility in weed control is to avoid contributing to the spread of weeds. During road construction and maintenance works, weeds can be easily spread within a site and between different sites. Noxious weeds are declared under the *Noxious Weeds Act 1993*. Weeds may be declared all over the state or in a particular Local government area. A complete list of declared weeds is available at: [www.dpi.nsw.gov.au/noxweed](http://www.dpi.nsw.gov.au/noxweed) .

The *Weeds of the Riverina Identification and Control Guide* is an excellent resource for identifying weeds from photographs with descriptions. This publication can be sourced at: [www.riverinaweeds.org.au](http://www.riverinaweeds.org.au) .

Some of the weeds of concern in the region are:

Parthenium weed

African Boxthorn

Chilean Needle Grass

Paterson's Curse

Bathurst Burr

Silver Leaf Nightshade

St. John's Wort

Spiny Burr grass

*Parthenium hvsterophorus*

*Lvcium ferocissimum*

*Nassella neesiana*

*Echium plantagineum*

*Xanthium spinosum*

*Solanum elaeagnifolium*

*Hypericum perforatum*

*Cenchrus incertus*

Red guideposts are being installed along roadsides throughout NSW to identify known locations of noxious weeds that have a high risk for further spread. By installing the red guideposts, it alerts road users and council staff to avoid these areas so we can help prevent the spread of noxious weeds.

What can Council do?

- Avoid pulling over in these areas
- Inspect and clean clothing, vehicles and equipment if you enter these areas
- Report suspicious plants



Red guideposts to identify locations of noxious weeds



Tractor driven slasher – radiator loaded with weed seeds

### Guidelines

- Ensure weed management is included in the works program Minimise disturbance.
- Learn to identify weeds of the region.
- Schedule works to move from the least weed infested areas to the most weed infested areas.
- Practice vehicle hygiene to avoid spread of weeds especially following works in weed contaminated areas. A person needs to ensure they maintain vehicle hygiene when moving any equipment or machinery onto or along a roadway. Transport of weeds or weed seeds is an offence.
- Clean vehicles and machinery of all material capable of spreading weeds before undertaking activities on or near high or medium conservation sites or weed free sites.
- Drain spoil is generally rich in weed seeds and should be removed offsite in areas of significant vegetation. Approval is required to dispose of noxious weeds capable of germinating, or to deposit on land noxious weeds or weed seeds, other than in landfill.
- Obtain soil and gravel from weed free sites. Approval is required to use soil, sand or gravel which could result in the transfer of noxious weeds.
- Dispose of any weeds likely to set seed or re-shoot by burning on site (subject to fire prevention) or at a designated dump site (cover during transport).

### 3.9. Protect Wetlands and Waterways

#### Guidelines:

- Wetlands and waterways should be protected by appropriate works practices, including minimising the use of herbicides.
- Roadside drainage systems should ensure that water levels of wetlands are not altered.
- Ensure that runoff is not directed into wetlands.
- Road discharge should be filtered through native vegetation to reduce erosion and potential pollution problems.

### 3.10. Permit Requirements

The NSW Department of Planning, Industry and Environment (DPIE) administers the Native Vegetation Act 2003 and Native Vegetation Regulation 2013 which have the objective of prevention of broadscale clearing unless environmental outcomes are improved or maintained. Local councils have a range of development, assessment and planning functions under the Environmental Planning and Assessment Act 1979, which includes in its objectives the proper management of natural resources, and the promotion of orderly and economic development of land. These Acts and regulations have an interdependence for clearing proposals. Council staff need to ensure that proposals are subject to appropriate scrutiny to ensure compliance before any roadside clearing proceeds.

### 3.11. Protect Cultural Heritage

Indigenous and non-indigenous cultural heritage provides a sense of community identity. New South Wales' heritage includes archaeological sites, buildings and structures, created landscapes and community values and beliefs. As activities on roadsides have the potential to impact on

heritage sites, it is important to identify heritage issues to enable impacts to be avoided, minimised or mitigated. All Aboriginal archaeological sites are protected by the State National Parks and Wildlife (NPW) Act 1974, the Heritage Act 1977, The Environmental Planning and Assessment Act 1979, and the Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984. These Acts prohibit the wilful destruction or disturbance of any cultural heritage site, place or object, whether on private or public land.

DPIE works in partnership with other government agencies and communities to identify, care for and promote the cultures and the heritage of NSW. Under the NPW Act, it is an offence to do any of the following things without an exemption or defence:

- A person must not knowingly harm or desecrate an Aboriginal object
- A person must not harm or desecrate an Aboriginal object or Aboriginal place

An important aspect of the legislation is what is known as 'due diligence'. Before commencing works on a roadside conduct an Aboriginal Heritage Information Management System search to help identify any registered sites. If someone is planning an activity, they must show that they have taken steps to avoid damaging or harming any Aboriginal site. Refer to the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.

Not all sites are recorded so care must always be taken when undertaking the site assessment to look for possible Aboriginal cultural heritage sites. Roadside workers and contractors would benefit from training to increase awareness of heritage issues and to increase recognition skills of indigenous artefacts such as mounds, middens, surface scatters, tools, stone quarries, burial sites and scar trees to assist in the identification and subsequent protection of new sites.



*Aboriginal Scar Trees and middens. Scarred trees are often found on roadsides. Roads closer to waterways and wetlands have a higher chance of containing sites of Aboriginal cultural heritage such as middens.*



### 4. Environmental Issues

#### 4.1. Minimise disturbance to soil and vegetation

The best way to protect native vegetation is to minimise disturbance. This includes minimising soil disturbance and damage to all native plants, including shrub species, native grasses and groundcover plants, which are particularly easy to damage. Shrub species are often the most depleted element of the ecosystem on a roadside. Shrubs provide habitat for a number of smaller bird species and also provide a valuable source of native seed for collection and use in revegetation activities. Avoiding their removal is of great benefit to the overall health of the roadside environment.

Disturbance results in:

- Weeds invading a site, which compete with native plants, increase maintenance costs and lead to a higher potential fire risk.
- Damage and death of native plants.
- Reduced natural regeneration of native plants.
- Increased risk of soil erosion.



*Extensive disturbance of native vegetation*

#### 4.2. Restrict Machinery to Cleared Areas at all Times

Machinery can cause a lot of damage to native vegetation in a very short period of time. When undertaking maintenance works operate machinery from the road surface or other cleared areas wherever possible. Once the locations of material stockpiles, windrows, turning and parking areas for machinery and the limit of works have been nominated, ensure that operators are aware of site limitations through a job site induction program. For contracts, ensure rectification of any environmental damage is undertaken at the contractor's expense within the defect liability period.

### 4.3. Use the Most Suitable Machinery for the Job

Choose the appropriate type and minimum size of machinery to do the job:

- Smaller machinery is more manoeuvrable, thereby minimising potential disturbance to native vegetation. It also causes less compaction and damage to roots of trees.
- A backhoe operating from the shoulder of the road will cause far less disturbance to vegetation than a machine operating within the roadside vegetation.

### 4.4. Clean Down Machinery before Moving to Another Site

Dirty machinery can spread weeds and soil borne diseases. Before transporting any machinery and vehicles to a new site remove all soil and seed from machinery.

This is best achieved with high-pressure water hoses. However, where these hoses are unavailable, blowing off with compressed air, scraping and brushing off soil will suffice as a short-term measure. Wash machinery away from creeks and native vegetation, preferable on non-native grassy areas.

### 4.5. Locate Stockpiles in Areas with no Native Vegetation

Stockpiles can damage native vegetation if placed inappropriately and act as a source of weeds.

#### Guidelines:

- Only place stockpiles at Council designated locations. These should have safe traffic access, but not affect visual amenity.
- Only locate stockpiles on areas of low conservation value, and not on roadsides adjacent to public land.
- No materials should be stored within the driplines of existing trees, or within drainage lines.
- Stockpiles are to be regularly monitored for weeds.
- Weeds are to be controlled before they flower and set seed.
- The limits of each site are to be defined by stakes, coloured tape or fencing to avoid encroachment.
- A list of Council designated sites should be made available to staff and contractors.
- The use of stockpiles should be minimised by utilising best works practices and avoiding double-handling of materials.

### 4.6. Maintain Water Quality, Minimise Siltation and Control Erosion

Roadworks can result in erosion and increased siltation of local waterways. Drainage from roads is often high in sediment and pollutants such as oil and fuel residues. High water velocities and bare ground are the principal causes of erosion, especially in combination with dispersive soils. Design of projects should aim at minimising water velocities by dissipating flows; minimising areas of disturbed ground and retaining vegetation cover where possible.

### Guidelines:

- Drains should follow natural drainage lines
- Table drains, culverts and mitre/cutoff drains should retain some vegetation cover to maximise filtering of runoff water.
- Concentrated flows onto adjacent areas should be avoided as these increase the likelihood of erosion and poor filtration.
- Minimise soil disturbance.
- Avoid scalping of the ground during slashing operations.
- Herbicides should not be used to maintain drain lines, as this bares soil and increases the erosion risk.
- Cleaning of drains should expose the least soil necessary to maintain effective water flow.
- When forming drains disturb and expose the minimum area of soil necessary to maintain effective water flow.
- Minimise areas of disturbed ground, retain vegetative cover where possible.
- Plant disturbed/exposed areas with cover crops such as sterile rye grass to provide interim vegetation cover or rehabilitate disturbed areas with native plants as works proceed.
- Contain water flows using pipe or kerb/channel structures.
- Use energy dissipating devices at outfalls.
- Capture silt by use of silt traps, silt fencing, barriers, sedimentation ponds or retarding basins.
- Avoid steep batters and steep drainage lines
- Use riprap (i.e. rock) lining of drainage lines where necessary.
- Increase the number of mitre drains.
- Broaden drain profiles to reduce water velocities.
- Create artificial wetland areas to dissipate flow where practicable.
- Divert stormwater away from loose or exposed soil.
- Avoid blocking drainage lines with soil or vegetation stockpiles or windrows.
- Prepare contingency plans for large storms (e.g. retention basins).
- Best practice includes anticipating potential risk and being prepared for abnormal circumstances.
- Drainage water should be directed away from wetland areas to avoid contamination and alteration to water levels.

## 5. Construction Specific Issues

### 5.1. Walk the Route Before Construction Commences

'Walking the route' involves assessing the construction alignment before construction begins in order to:

- Clearly mark the construction zone.
- Avoid unnecessary removal of vegetation and disturbance.
- Assess vegetation and protect significant vegetation or other sensitive areas from disturbance - tape off areas to be protected.



- Plan vegetation removal and clearly mark any vegetation to be removed.
- Locate stockpiles, access roads, machinery parking and turning areas.

A checklist sheet has been developed to assist this process (See Appendix A). This should be undertaken by Council staff and suitable induction given to construction workers.

### 5.2. Minimise Vegetation Removal

Mark and remove only the minimum extent necessary of native vegetation. Consider alternatives to vegetation removal, such as barriers and road re-alignment. Avoid areas of natural regeneration.

When vegetation needs to be removed the following techniques will minimise damage:

#### Guidelines:

- Obtain appropriate planning permits prior to vegetation removal.
- Choose appropriate equipment to perform the work.
- Fell trees onto the road surface, or in the direction that minimises damage to surrounding vegetation.
- Dispose of felled material by leaving for habitat. Larger quantities can be mulched or made available for firewood. Practice correct arboreal tree pruning techniques to minimise damage and regrowth towards road.
- Collect seed from any vegetation being removed where possible.
- Any tree stumps that are left should be cut flush to ground or left at least 1.2 metres high to ensure they are visible.
- Canopy clearance activities shall comply with roadside flowcharts.
- Canopy clearance activities should be scheduled to coincide with Councils grading, resheet and reseal program.
- Trimming to the clearance template prior to road grading prevents unnecessary damage to vegetation.



*Unnecessary bark scarring of a roadside tree*

### 5.3. Stay within the construction Zone

The construction zone is the area marked out with pegs and coloured tape where all construction activities take place, including stockpiles, turning and parking areas. The limit of works should be clearly defined. Stay within the marked construction zone during construction and confine machinery to well-defined tracks. Always attempt to minimise machinery movement and restrict to cleared areas.

### 5.4. Strip Stockpile Topsoil

Topsoil from areas of native vegetation contains seeds of local native plants and organic matter. Stockpiling of this topsoil for later use can enhance natural regeneration of a site. Where weeds are present or close to a site, weed seed will also exist in topsoil. Only spread topsoil that is likely to contain little or no weed seed.

#### Guidelines

- Before starting works strip the top 150-200mm of topsoil.
- Locate soil stockpiles on cleared areas, away from existing drainage lines and native vegetation. Remove weeds where the stockpile is to be placed by scalping or spraying.
- Ideally topsoil should be stockpiled for less than six months to ensure seed in the soil remains viable.
- Do not mix weed free and weedy topsoil.

### 5.5. Rehabilitate the Site Following Works

#### Guidelines:

Where sites require rehabilitation following works:

- Utilise fallen timber as habitat where possible.
- Larger quantities of felled vegetation can be mulched for later use and stockpiled in an area with no native vegetation.
- Do not dump mulch on roadsides.
- Do not chip any weeds that are going to seed.
- Natural regeneration should be encouraged where possible through guarding, weed control and using stockpiled topsoil that contains an indigenous plant seedbank.
- Where topsoil is to be removed from weed free areas, stockpile for spreading back over the site at the completion of works.
- Do not re-spread topsoil that contains weeds and weed seed.
- Do not mix weed free and weedy topsoil.
- Where sub-soil is heavily compacted, rip to a minimum depth of 300mm prior to spreading topsoil, except under trees.
- Weed contaminated soil should be deep buried on site as part of the project.
- Do not build up any soil around tree trunks or under tree driplines.
- Following spreading, water topsoil if wind erosion is likely.
- Try to follow original contours.

## Guidelines

### For revegetation along roadsides

- Use indigenous native species grown from local seed.
- Undertake suitable site preparation and ongoing maintenance.
- Depending on the site, this may include ripping, weed control, tree guards, fencing, rabbit control and watering.
- Plantings must take account of road safety and sight distances.
- Plantings should consider the requirements of the Bushfire Risk Management Plan in each Local Government Area.
- Plantings should aim for a natural appearance (avoid rows) and should not be continuous to provide fuse breaks for fire).
- Plant shrubs and understorey species in dense clumps.
- Species planted under powerlines should be low growing (not higher than 3m) and not interfere with services.
- Planting should be set back 3 metres from fences.
- Trees and shrubs should not be planted in native grasslands.
- Batter slopes should be seeded with a mix of sterile rye grass to provide immediate cover. This mix should also include native grass seeds for long term establishment.

## 6. Maintenance Specific Issues

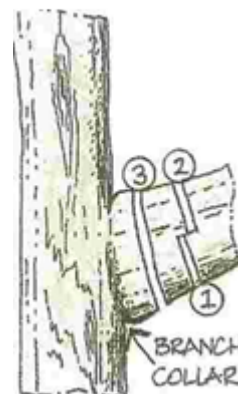
### 6.1. Remove and Prune Vegetation Carefully

Native vegetation should be protected, and removal minimised wherever possible. Careful pruning of over-hanging branches may reduce the need for tree removal. Consider the following before any pruning or removal of vegetation is undertaken:

- The safety of staff and road users
- Legislative requirements
- The effect of removal on the appearance of the roadside
- Any historical significance of the tree or vegetation

When removing larger branches use the three-cut method outlined below to avoid bark injury.

1. The under cut
2. The upper cut to remove the branch
3. The final trim cut (always cut on the outside of the branch collar close to, but not flush with the main trunk or limb, to assist with wound healing).



If one side of a forked tree is to be removed, ensure cut is angled to shed water.



### 6.2. Remove and Prune Vegetation Carefully

Leave native vegetation undisturbed where possible during maintenance. Do not 'tidy up' areas of native vegetation after works by grading the roadside. Avoid smothering native vegetation with spoil from grading works, especially windrows at tops of batter slopes and parallel to roadworks. Remove excess grading spoil off site. Logs, rocks and leaf litter provide habitat for native fauna and should be left undisturbed.



*Excessive clearing of high-quality understorey vegetation*

### 6.3. Remove Drain Spoil and Dispose of in Suitable Location

Exposed earth and drain spoil usually contain weed seed, so do not place the spoil on roadside native vegetation. Direct spoil from drains towards the road pavement for collection. Remove spoil and dispose in an area that will not cause a weed problem.



*Extensive weed growth in a stockpile of dumped drain spoil*

### 6.4. Minimise Herbicide Usage

Herbicide usage can result in:

- Resistance developing in target weeds, which are then immune to herbicide
- Damage to native plants from drift and off-target application

#### Guidelines:

- Herbicides should only be used to control weeds when other alternatives are not suitable.
- Ensure appropriate qualifications are held by operators.
- Ensure weed control is undertaken in accordance with manufacturer's instructions.
- Only non-residual herbicides such as 'glyphosate' should be used to control weeds along roadsides, unless approval is obtained to use other herbicides.
- Reduce the use of broad-scale application of herbicides, to decrease the potential of herbicide resistance.
- Rotation of herbicides may reduce the risk of resistance.
- Minimise any off-target damage to native vegetation and ensure drift is minimised when spraying road verges adjacent to grasslands.
- Use herbicides sparingly to spot spray targeted, isolated or localised aggressive infestations, especially in native grasslands.
- Application of herbicides using a rope-wick applicator or back-pack spot spraying is preferred.
- Alternative application methods such as stem injection or cut and paint, reduce chemical usage and off-target damage.
- Do not use herbicides near wetlands or waterways, or if unavoidable, use frog friendly products.
- Record all herbicide use and regularly monitor effects on target weed species and native vegetation.

## 6.5. Protect Native Vegetation and Prevent Weed Spread when Grass Slashing and Spraying

### Guidelines:

- Slash roadsides from native vegetation areas towards weed infested areas to minimise spread of weed seed.
- Clean contaminated machinery after working in known weed areas, by broom, air blast, washing, or steam cleaning. Select appropriate site for washdown to avoid further spread of weeds.
- Generally slashing shall be to one slasher width behind guideposts or two metres from pavement edge, unless otherwise specified in the Bushfire Risk Management Plan.
- Native grass areas shall not be slashed lower than 150-200mm.
- Scalping of the ground during slashing operations is to be avoided as it encourages colonisation by weed species.
- Slash native grasses in late summer/autumn to allow seed set.
- Slash weeds before they set seed.
- Mow around regenerating trees and shrubs unless these are in unsuitable locations.
- Spraying may be used around guideposts and roadside furniture.
- Only herbicides with the active ingredient 'glyphosate' should be used to control weeds along roadsides, unless approval from the authorised Council Officer is obtained to use other herbicides. Rotation of herbicides may reduce the risk of resistance.
- Ensure operators have current NSW Department of Primary Industries qualifications.
- Minimise fire risk from roadside ignition sources.



**7. Guideline Summary**

LOW CONSERVATION VALUE	MEDIUM CONSERVATION VALUE	HIGH CONSERVATION VALUE
<p>Confine machinery operations to existing road formation or designated construction zone</p> <p>Spoil from grading and drain clearing must not be placed or spread on the roadside. If suitable, the spoil may be graded onto, and confined to, the road verges, otherwise it is to be removed to a recognised dump site. Do not spread spoil into native vegetation on roadsides.</p>	<p>Confine machinery operations to existing road formation or designated construction zone</p> <p>Spoil from grading and drain clearing must not be placed or spread on the roadside. If suitable, the spoil may be graded onto, and confined to, the road verges, otherwise it is to be removed to a recognised dump site. Do not spread spoil into native vegetation on roadsides.</p>	<p>Confine machinery operations to existing road formation or designated construction zone</p> <p>Spoil from grading and drain clearing must not be placed or spread on the roadside. If suitable, the spoil may be graded onto, and confined to, the road verges, otherwise it is to be removed to a recognised dump site. Do not spread spoil into native vegetation on roadsides.</p>
<p>Remove all stripping from widening and reconstruction works to a recognised dump site.</p>	<p>Remove all stripping from widening and reconstruction works to a recognised dump site.</p>	<p>Remove any topsoil (where approved in contract) prior to works and store in a designated area free from weeds. Re-use as soon as practical.</p>
<p>Clean table drains regularly so they do not become clogged with silt or vegetation. Avoid native vegetation when locating or maintaining drain cut-off points.</p>	<p>Clean table drains regularly so they do not become clogged with silt or vegetation. Avoid native vegetation when locating or maintaining drain cut-off points.</p>	<p>Clean table drains regularly so they do not become clogged with silt or vegetation. Avoid native vegetation when locating or maintaining drain cut-off points.</p>

LOW CONSERVATION VALUE	MEDIUM CONSERVATION VALUE	HIGH CONSERVATION VALUE
<p>Avoid regenerating native vegetation during slashing and spraying operations except within the road shoulder, verge or table drain.</p>	<p>Avoid regenerating native vegetation during slashing and spraying operations except within the road shoulder, verge or table drain. Time slashing before seed set of exotic grasses and after seed set of indigenous grasses and understorey.</p>	<p>If slashing is required for fire prevention or to retain sight lines, carry out work before seed set of exotic grasses and after seed set of indigenous grasses and understorey. Slash only within table drain and direct roadside and maintain 150-200 mm slashing height.</p>
<p>Remove weeds before stockpiling materials on a new stockpile site.</p>	<p>Existing stockpile sites are to be kept tidy and free of weeds. Clearly mark the construction zone prior to the commencement of works. The construction is to be approved in contract documents. Plant and equipment should be kept within this zone to avoid damage to outside areas.</p>	<p>Relocate existing stockpile sites and no new stockpiles should be established on roadside. Clearly mark the construction zone prior to the commencement of works. The construction is to be approved in contract documents. Plant and equipment should be kept within this zone to avoid damage to outside areas.</p>
<p>Clean all machinery and equipment before moving onto or off a roadside to ensure all noxious weed seeds are removed. Incorporate stringent hygiene procedures before moving to other sites of higher conservation value.</p>	<p>Clean all machinery and equipment before moving onto or off a roadside to ensure all noxious weed seeds are removed. Incorporate stringent hygiene procedures.</p>	<p>Clean all machinery and equipment before moving onto or off a roadside to ensure all noxious weed seeds are removed. Incorporate stringent hygiene procedures.</p>

**Appendix A. Checklist form for Council roadworks**

Job # and Works:	DP Number:
Road:	Contractor:

**Pre-commencement**

Item	Responsibility	Completed/Date
Conservation significance assessed		
Significant flora and fauna assessed		
Ecological Vegetation Class (EVC) identified		
Cultural heritage issues assessed		
Weed infestations known/noted		
Planning/other permits obtained		
Entire site photographed		
Limit of works marked		
Wetlands/Waterways marked		
Stockpile and storage areas marked		
Vegetation pruning and removal marked		
Vehicle hygiene requirements stipulated		
Erosion/Siltation devices specified		
Site Induction and site walk performed		
Seed for revegetation collected		

**Works in Progress**

Item	Responsibility	Completed/Date
Planning/other permit conditions satisfied		
Vehicle hygiene undertaken		
Weed free material imported		
Vegetation protection intact/adequate		
No works within tree driplines		
Defined limits of works observed		
Vegetation removal techniques appropriate		
Weeds monitored and removed		
Site litter removed		
Erosion/Siltation structures cleaned/monitored		

Water quality monitored		
EPA requirements (noise, dust suppression) met		

**Post Completion**

Item	Responsibility	Completed/Date
Planning/other permits satisfied		
Vegetation debris disposal adequate		
Item	Responsibility	Completed/Date
Vegetation monitored for defect liability period		
Vehicles Cleaned down		
Site litter removed		
Erosion/Siltation structures removed/monitored		
Entire site photographed		