

Roadside Vegetation Management Guidelines for
Tweed Shire Council - 2013



Cover photo: Bryens Road, Nobbys Creek

These Guidelines supplement the Tweed Roadside Vegetation Management Plan (2013) and the Vegetation database (2012). They are designed to be used by road maintenance staff, or others involved in roadside management.

Acknowledgement is due to:

John Turnbull, Steve Paff, Tony Clarke (Tweed Shire Council) for the provision of data, general direction and discussions on the content of this document.

RTA and Greening Australia for the precursor *Roadside Management Guidelines Book 1 Main Road 55 Lithgow-Mudgee-Dunedoo* (1996) designed and written by Venita Kulinskis and the Model Guidelines, The NSW Roadside Environment Committee (REC), funded by the RTA and Vic Roads *An Environmental Guide for Road Construction and Maintenance 2006*.

Tweed Shire Council (2008) Draft Standard Operating Procedure

Applied Ecology (2011) Mid-Western Regional Council Roadside Management Guidelines prepared for Mid-Western Regional Council.

Maps produced by

Peter Hall

This report was prepared by



BUSHLAND RESTORATION SERVICES PTY LTD

5/11 Buchanan Street, Murwillumbah 2484

PO Box 5198, South Murwillumbah 2484

Phone 02 66722220

Email goorambil2@bigpond.com.au



Landmark Ecological Services Pty Ltd

PO Box 100, Suffolk Park 2481

Phone, 6684 0378, 66854430

Email landmark@landmarkonline.com.au

for



Disclaimer

This report is prepared by Bushland Restoration Services Pty Ltd and Landmark Ecological Services for Tweed Shire Council purposes only. No responsibility is accepted for the use of or reliance upon this report in whole or in part by any third party.

This report is prepared with information supplied by the client and on information obtained using accepted survey and assessment methodology as described in the report.

While due care was taken during field survey and report preparation, no responsibility is accepted for information that is withheld, incorrect or that is inaccurate. This report has been compiled at the level of detail specified in the report and no responsibility is accepted for interpretations made at more detailed levels than so indicated.

Table of Contents



- Introduction..... 1
- Best Practice Guidelines 2
 - Protect Native Vegetation and Natural Regeneration2
 - Avoid Native Vegetation When Mowing.....2
 - Avoid ‘Tidying Up’.....5
 - Remove and Prune Native Trees Carefully.....5
 - Avoid Spreading Weeds 6
- How to Use these Guidelines 8
- Roadside Management Zones..... 9
 - 1. High Conservation Value Zone10
 - 2. Medium Conservation Value Zone13
 - 3. Low Conservation Value Vegetation Zone16
 - Threatened Species and Endangered Ecological Communities19
- Site Management Environmental Checklist 21
- Maps..... 22



Introduction

Under the *Roads Act 1993*, Tweed Shire Council (TSC) is responsible for maintaining the local road network, including the roadside vegetation. Accordingly, TSC has arranged roadside surveys (2012) to document and map the conservation values of roadside vegetation and to guide its management. These Guidelines include Shire-wide mapping illustrating the ecological values of roadside vegetation (see Maps page 23). Other values and management issues are available in digital format.

The goal of roadside vegetation management is to conserve existing vegetation communities while providing adequate clear zones along roadsides and enable routine road construction and maintenance activities. Management may also include the control of non-native species, particularly noxious weeds which are controlled by Far North Coast Weeds (FNCW).

Achieving this goal requires skill and caution. Management of roadside vegetation, including removal, cutting back and disturbance is often necessary; but so is protection of the native vegetation in the road reserve.

Roadsides occupied by native vegetation are valuable assets because they:

- Often contain some of the few remaining areas of small but significant remnant habitat;
- Shade out weeds and reduce the need for maintenance (freeing up resources for other roadside vegetation management activities);
- Act as wildlife corridors, allowing animals to move between patches of isolated bushland;
- Are often home to small but significant populations of rare or threatened plants and animals, e.g. Durobby, Crystal Creek Walnut, Fine-leaved Tuckeroo;
- Provide a store for important genetic flora and fauna resources and are a source of seeds for revegetation projects;
- Can provide effective wind-breaks and shelter belts for adjoining properties; and
- Assist in erosion control and influence water quality of nearby streams.

Apart from conservation values, roadsides have scenic, cultural, social and economic value. Roadsides provide scenic drives and rest stops for tourists, contain Aboriginal and other cultural heritage items, and provide space for public utilities including water, electricity, gas and telecommunications.

Where resources permit, vegetation management may include restoration and enhancement activities, pursuing medium and long term objectives such as:

- Establishment of viable habitat corridors for native fauna through habitat creation and revegetation;
- Revegetation of cleared areas; and
- Maintenance and enhancement of species richness of both flora and fauna.

This document guides vegetation management in relation to ongoing and essential roadside infrastructure installation and maintenance works and should be read in conjunction with the Tweed Shire Roadside Vegetation Management Plan (BRS and Landmark December 2012).

Best Practice Guidelines

Protect Native Vegetation and Natural Regeneration

Natural regeneration is the unaided establishment of native plants from seed-fall or suckering.

- Do not disturb native vegetation. Disturbance encourages weed growth which competes with native plants.
- Regenerating areas may not be obvious due to small stature of regeneration or plantings.

Avoid Native Vegetation When Mowing

Regular mowing removes young plants and causes soil compaction. When young trees, shrubs and groundcovers become established, they will shade out grasses and reduce the need for mowing.

- Mow only what is necessary for road maintenance and fire safety.
- Where mowing is essential avoid damaging groups of young trees and shrubs.
- Refer to Figures 1 & 2 for best practice clearance zones management to limit damage to natural vegetation.
- Mow only up to the back of the table drain in most situations, as shown in Figs. 1 & 2.
- Clear to a maximum of 5.5m in height from edge of road shoulder, see Figs. 1 & 2.

Native grasses and shrubs can be mown where they occur within the table drain (see Figs 1 & 2).



Ferny bank, McAuleys Road



Endangered Ecological Community bushland adjacent to mown roadside on Reserve Creek Road

Exposed earth and drain spoil is ideal for weed establishment and can contribute to sedimentation in adjoining waterways.

- When removing drain spoil, collect it in an area that will not cause a weed or sediment problem prior to removal from site.
- When grading roads avoid pushing excess soil around base of trees or over embankments.

Avoid 'Tidying Up'

Shrubs, logs, old or dead trees and small native plants are valuable for wildlife and should be retained wherever possible unless they are a threat to safety or services.



Spotted-tailed Quoll *Dasyurus maculatus* sheltering in hollow log

Remove and Prune Native Trees Carefully

Native trees and other plants on roadsides should be preserved wherever possible. Careful pruning of over-hanging branches can often reduce the need for tree removal. Use the three-cut method (see Fig. 3).

Consider the following points before any action is taken:

- The environmental significance of native trees (see page 20).
- Safety of staff, property and road users.
- The potential damage to surrounding vegetation.
- The effect of the tree removal on the appearance of the roadside.

When pruning overhanging trees, the correct three-cut method should be used on all but the smallest branches. The three-cut method will reduce the frequency of future pruning and allow the tree to heal. Incorrect pruning can result in problems such as disease or borer attack and lead to a hazardous tree and further maintenance.

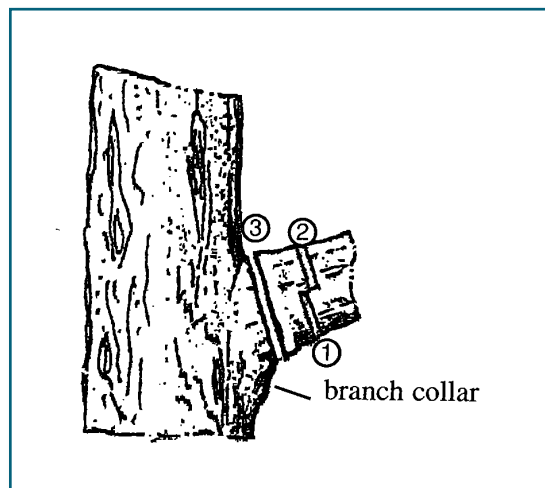


Figure 3 - The Three-cut Method for pruning trees

1. **The undercut:** - Make a cut on the underside of the branch being removed. This reduces the risk of the branch breaking off and damaging the bark and wood.
2. **The upper cut:** - To remove the branch.
3. **The final cut:** - Cut close to but not flush with the main trunk or limb. Always cut on the outside of the branch collar – this assists the tree in wound healing (callusing) and provides a protective barrier against decay.

Avoid Spreading Weeds

Strategies for preventing spread of weeds during roadside management should be complemented by control programs that will contain or locally eradicate problematic weed species.

Particular attention to be paid to “significant weeds” identified in the Tweed Shire Roadside Vegetation Management Plan 2012 (TSRVMP 2012) which includes declared noxious weeds and environmental weeds commonly spread by machinery.

Records were compiled for 32 significant weed species (Table 17, TSRVMP 2012) during roadside surveys. The most abundant significant weeds were Giant Devil’s Fig *Solanum chrysotrichum*, Singapore Daisy (*Sphagneticola trilobata*), Coral Tree (*Erythrina X sykesii*), Madeira Vine (*Anredera cordifolia*), exotic gingers *Hedychium* species and Morning Glory (*Ipomoea* species), (see page 21 for photographs).

Weed management to be conducted as follows:

- Noxious weeds to be notified to and controlled by Far North Coast Weeds (FNCW).
- Be familiar with locations of significant weeds along roadsides. Report to supervisor if notifiable noxious weeds such as Parramatta Grass, Giant Rats Tail Grass or Coolatai Grass are observed. Supervisor to notify FNCW.
- If noxious weeds identified avoid slashing area until controlled.
- Carry out a visual inspection of the machinery at regular intervals and remove any seeds/cuttings or soil.

- Remove material from vehicles and machinery away from creeks and drainage lines and preferably on grassy areas or identified clean down sites.
- If material cleaned off machinery contains noxious weeds notify supervisor, supervisor to notify FNCW.
- Create conditions that favour native vegetation instead of introduced species by preserving a healthy cover of native vegetation and avoiding excessive disturbance.

How to Use these Guidelines

The Guidelines have been created to assist Tweed Shire Council personnel in making informed decisions when planning and undertaking works in council's road reserves.

Prior to undertaking works that may impact on roadside vegetation there are three steps that need to be followed.

Step 1

Use the maps to identify management zones, high, medium or low conservation value (HCV, MCV and LCV) and the locations of any threatened species or Endangered Ecological Communities (EECs).



Example of map segment showing multiple zones, threatened species and EEC

Step 2

Check the recommended activities within the management zone identified where you are working by referring to pages 10 to 20 in these Guidelines.

Seek advice from council's environmental scientist before proceeding if proposed works require pruning of threatened species or tree removal or tree removal within an EEC. Such works may require a scientific licence issued by the Department of Environment and Heritage.

See page 19 for added information regarding roadside threatened species in the Tweed Shire.

Step 3

Consult with the council supervisor to determine if there are any additional specific requirements for the area to be worked.

The location of other specific management areas is available in Council's GIS, including:

- "No spray" zones as recorded on the Council register;
- community plantings and restoration areas;
- heritage sites; and
- Significant weed locations (includes noxious weeds).

Complete the Site Management Environmental Checklist on page 21 before commencing works.

Roadside Management Zones

Signage will alert roadside maintenance workers to the status of the vegetation along the section of roadside.

Standard signs at boundaries of HCV and MCV management zones (colour-coded to indicate level of management zones) will be installed. Signposts will be placed at the start and end of HCV and MCV management zones.



Figure 4 - HCV roadside marker post



Figure 5 - MCV roadside marker post

1. High Conservation Value Zone

Characteristics

HCV roadsides include native vegetation in a near-natural state or in lower condition with additional values such as low weed components, high levels of regeneration and connectivity. All vegetation that is predominantly an EEC vegetation type is included in this category. Variation within an HCV road segment is inevitable due to the mapping scale and these roadsides may include small sections of lower value vegetation.



Example of HCV location on maps- indicated in **red**

A HCV zone will usually have:

- Healthy mature trees.
- Low abundance of weeds (most remnants contain some weeds).
- Tree and shrub regeneration present (seedlings and saplings).
- Connected to or in close proximity to other remnant vegetation.
- Fallen timber and logs left on the ground.
- No obvious signs of erosion.

HCV - Maintenance Guidelines

Roadside management of HCV vegetation is detailed below:

Slashing and Slope mowing

- Limited use of slope mower. No flailing or mowing of branches of native trees and shrubs. Do not mow beyond the clearing zone limits behind the table drain as shown in Figs. 1 & 2. Do not damage roots and main trunks of native trees.
- Slashing to be limited to one slasher width or to table drain limit in grassed areas where necessary, subject to road safety and bushfire management requirements.

Spraying and weed management

- Spot spraying restricted to roadside guideposts, guardrails, pipe inlets and outlets and grasses extending on to road surface or kerb and gutter.
- No over spraying, to avoid off target damage to native vegetation.
- Where possible, maintain groundcover vegetation within table drains.

Stockpiling and Parking

- No stockpiles, compounds or machinery parking.
- Remove any existing stockpiles.

Road works and Drain maintenance

- No pushing graded material onto vegetation or over embankment.
- No damage to roots and trunks of native trees.
- Dispose of spoil off site

Tree works

- Removal of native trees only on advice of ecologist.
- Pruning of marked threatened species only on advice of ecologist.
- Pruning must follow best practice guidelines (See Figure 3).
- In areas where native vegetation needs to be pruned or felled, any hollow logs or limbs should be left on site as fauna habitat, where possible.

General works

- Do not “tidy up”; retain natural features such as logs, leaf litter, fallen timber and rocks outside the clearing zones in Figures 1 & 2.

HCV category roads to be signposted in Red



HCV vegetation, Couchy Creek

SUMMARY OF MANAGEMENT ACTIONS WITHIN HCV ZONES

ACTIVITY	1. HCV
Slope mower	Yes - Limited to table drain as per Figs 1 & 2
Slasher	Yes - limited to gaps in vegetation; one slasher width; avoid native vegetation
Weed spray	Yes - Spray only directed at table drain; roadside markers, guardrails, culverts, header walls, etc
Stockpiles, Parking, Road works and Drain maintenance	No stockpiles or parking; No pushing spoil onto native vegetation or over embankments; No tree trunk or root damage
Tree prune	Within 'clearing' zones only as per Figs 1, 2 & 3
Tree prune - Threatened species	Consult Council ecologist
Tree removal	Consult Council ecologist



HCV along Richards Deviation



HCV Cudgera Creek Road

2. Medium Conservation Value Zone

Characteristics

MCV zones provide a good opportunity for revegetation and to create linkages to HCV zones. These areas can usually be returned to a near-natural state, which will, in the long-term, decrease the need for maintenance and suppress weed growth.

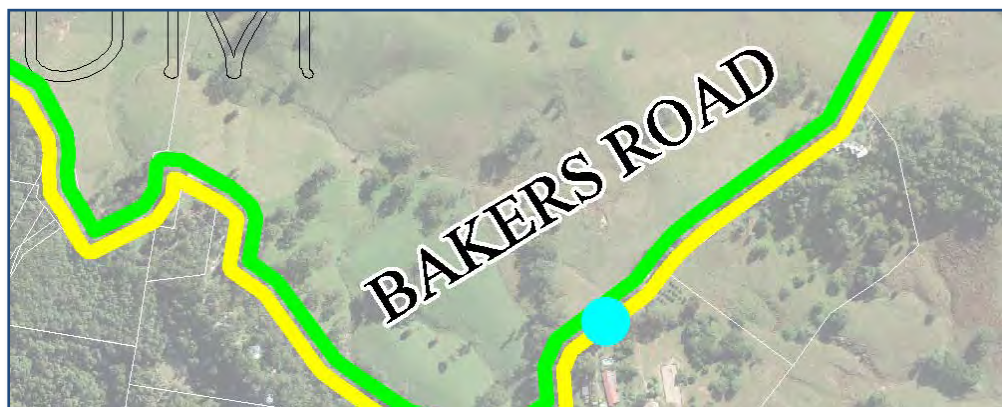
A MCV zone will usually:-

- Contain areas of intact native vegetation.
- Have been modified, by weed incursion and loss of one or more layers of vegetation.
- Contain trees that are often scattered or in clumps; and limited native seedling recruitment.
- Have areas lacking vegetation and limited habitat diversity such as logs, rocks and leaf litter.

MCV vegetation may contain small areas of EECs.



MCV vegetation, Bakers Road



Example of MCV location on maps – indicated in **yellow**.

MCV –Maintenance Guidelines

Roadside management of MCV vegetation is detailed below:

Slashing and Slope mowing

- Limited use of slope mower. No flailing or mowing of branches of native trees and shrubs. Do not mow beyond the clearing zone limits behind the table drain as shown in Figs. 1 & 2. Do not damage roots and main trunks of native trees.
- Slashing to be limited to one slasher width or to table drain limit in grassed areas where necessary, subject to road safety and bushfire management requirements.

Spraying and weed management

- Spot spraying restricted to roadside guideposts, guardrails, pipe inlets and outlets and grasses extending on to road surface or kerb and gutter.
- No over spraying, to avoid off target damage to native vegetation.
- Where possible, maintain groundcover vegetation within table drains.

Stockpiles and Parking

- Stockpiles or machinery parking permissible only in open areas away from native vegetation.
- No new stockpiles; establish and maintain sediment control around existing stockpile sites.
- Remove existing stockpiles from the root zones of trees and manage weeds in these areas.

Road works and Drain maintenance

- Avoid pushing graded material onto vegetation, over embankments or onto formation edge.
- Dispose of excess spoil away from vegetation, avoid soil compaction and disturbance.
- Avoid tree trunk and root damage.

Tree works

- Removal of native trees only on advice of ecologist.
- Pruning of marked threatened species only on advice of ecologist.
- Pruning must follow best practice guidelines (see Figure 3).
- In areas where native vegetation needs to be pruned or felled, any hollow logs or limbs should be left on site as fauna habitat, where possible.

General works

- Do not “tidy up”; retain natural features such as logs, leaf litter, fallen timber and rocks outside the clearing zones (see Figures 1 & 2).

MCV category roads will be signposted in Yellow



MCV roadside, (right hand side) Bryens Road, Nobby's Creek

SUMMARY OF MANAGEMENT ACTIONS WITHIN MCV ZONES

ACTIVITY	2. MCV
Slope mower	Yes - Limited to table drain as per Figs 1 & 2
Slasher	Yes - avoid native vegetation
Weed spray	Yes - Spray only directed at table drain; roadside markers, guardrails, culverts, header walls, etc
Stockpiles and Parking	Parking and stockpiles restricted to cleared gaps lacking native vegetation;
Road works and Drain maintenance	Avoid pushing spoil onto vegetation, over embankments or windrowing onto formation edge. Dispose of excess spoil away from vegetation, avoid soil compaction and disturbance. Avoid tree trunk and root damage.
Tree prune - General	Within 'clearing' zones only as per Figs 1, 2 & 3
Tree prune - Threatened species	Consult Council ecologist
Tree removal	Consult Council ecologist



MCV roadside, Sleepy Hollow

3. Low Conservation Value Vegetation Zone

Characteristics

LCV zones are highly altered from their natural state. The vegetation is generally degraded, but may include sections of higher value vegetation and threatened plant species. Canopy species, if present, are on average widely spaced and large sections of the zone are substantially cleared. There are generally moderate or high levels of weeds, particularly grasses, low or no recruitment of native plant seedlings and with low connectivity to bushland areas. They rarely contain habitat elements such as rocks and logs.

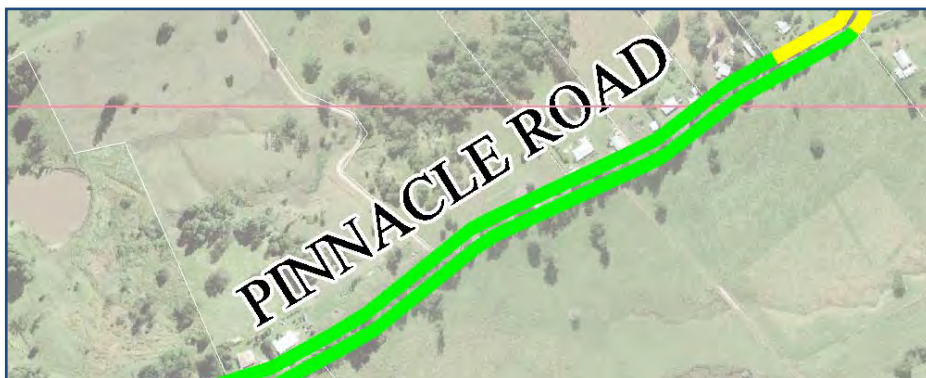
Much of this vegetation will be maintained by slashing. Active management for restoration will not usually be conducted and targeted weed management will generally be of low priority.

A LCV zone will usually include:-

- Widely spaced native trees.
- Significant lengths of substantially cleared roadside.
- Open areas of exotic grasses, herbaceous and woody weeds.



LCV vegetation, Pinnacle Road



Example of LCV location on maps – indicated in **green**.

Low Conservation Value Vegetation - Maintenance guidelines

Roadside management of LCV vegetation is detailed below:

Slashing and Slope mowing

- Slope mowing and slashing permissible; avoid any native trees and shrubs or regeneration where possible.
- Threatened species may be present.

Spraying and weed management

- Spot spray and over spray where necessary; avoid native vegetation.
- Report Noxious weeds to supervisor if identified
- Supervisor to notify FNCW if Noxious weeds are identified.

Stockpiles and Parking

- Stockpiles or machinery parking permissible where necessary; locate away from native vegetation.
- Use these zones for activities which are not appropriate in HCV and MCV zones, for example stockpiles, compounds, spoil dumps and machinery parking.

Road works and Drain maintenance

- Avoid damage to native vegetation.

Tree works

- Removal of native trees only on advice of ecologist.
- Pruning of marked threatened species only on advice of ecologist.
- Pruning must follow best practice guidelines (see Figure 3).

General works

- Do not “tidy up”; retain natural features such as logs, leaf litter, fallen timber and rocks outside the clearing zones (see Figures 1 & 2).

LCV category roads will not be signposted



Camphor Laurel (*Cinnamomum camphora*) line this LCV zone on Smiths Creek Road

SUMMARY OF MANAGEMENT ACTIONS WITHIN LCV ZONES

ACTION	3. LCV
Slope mower	Yes - Limited to table drain as per Figs 1 & 2
Slasher	Yes - avoid native vegetation
Weed spray	Yes - Spray only directed at table drain; roadside markers, guardrails, culverts, header walls, etc.
Stockpiles and Parking	Stockpiling and parking permitted away from native vegetation
Road works and Drain maintenance	Avoid damage to native vegetation
Tree prune - General	Yes - as per Figs 1, 2 & 3
Tree prune - Threatened species	Consult Council ecologist
Tree Removal	Consult Council ecologist



Substantially cleared vegetation in a LCV zone on Cane Road, Murwillumbah

Threatened Species and Endangered Ecological Communities

A high proportion of road reserves in Tweed Shire contain threatened plant species and EECs. Points indicating threatened species and EECs are found in all management zones.

A coloured marker will be used to identify the location of threatened species and point locations of EECs.

The survey effort for this plan identified **585** records of **30** species that are threatened were recorded in 2012 roadside surveys, illustrating the high biodiversity values of the Tweed native vegetation. **Fine-leaved Tuckeroo** *Lepiderema pulchella*, **Queensland Nut** *Macadamia tetraphylla* and **Durobby** *Syzygium moorei* were the most frequently recorded.

EECs occupy **184 km** of roadside vegetation with an additional **568** EEC point locations recorded.

These locations will be managed as for HCV zones.



Fine-leaved Tuckeroo *Lepiderema pulchella*



Queensland Nut *Macadamia tetraphylla*



Durobby *Syzygium moorei* flowering



Durobby *Syzygium moorei* fruiting

Examples of significant weeds



Singapore Daisy *Sphagneticola trilobata*



Madeira Vine *Anredera cordifolia*



Coral Tree *Erythrina X sykesii*



Kahili Ginger *Hedychium gardnerianum*



Climbing cactus *Hylocereus undata*



Giant Devil's Fig *Solanum chrysotrichum*



Coastal Morning Glory *Ipomoea cairica*



Giant Rat's Tail Grass *Sporobolus pyramidalis*

Site Management Environmental Checklist

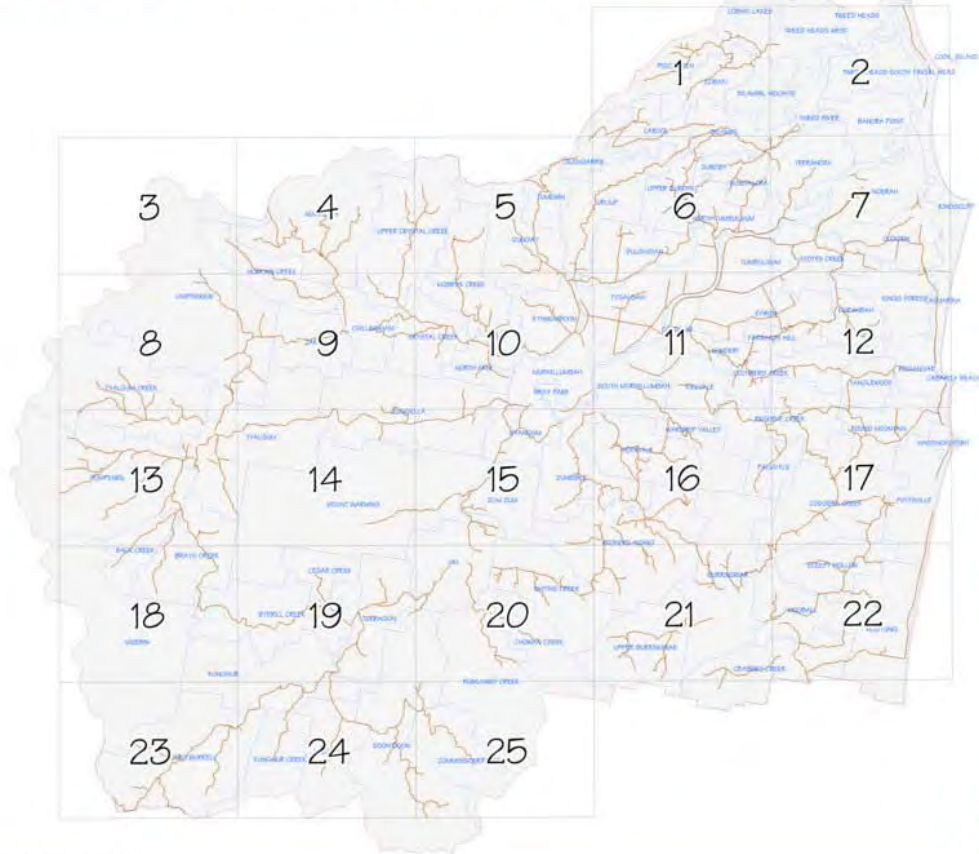
Prior to works commencing:

- ✓ Check the management zone(s) of the roadside sites you will be working on.
- ✓ Read specific management zones guideline sections as they relate to machinery use or work activities to be undertaken in each proposed work area different.
- ✓ Consult with the supervisor in regard to management zone constraints, presence of threatened species or EECs or other specific management requirements and/or licence issues.
- ✓ Determine if supervisor needs to consult with Council's ecologist regarding removal of native trees or pruning of threatened flora or other activities which may impact on native vegetation.
- ✓ Assess the location prior to works to determine suitable parking areas, site storage of materials or other activities which could impact on native vegetation.
- ✓ Clean machinery of all soil and plant debris from any previous job.

Maps

Tweed Shire Council - Roadside Vegetation Management Plan 2013

Map Index



- Legend**
- Council maintained rural roads
 - Tweed Shire Council boundary
 - Suburban and locality boundaries
 - Maps in this series (25 sheets)



The background imagery displayed in this map series was captured on 20-21 May 2012



TWEED
SHIRE COUNCIL

Customer Service | 1300 292 872 | (02) 6670 2400

tsc@tweed.nsw.gov.au
www.tweed.nsw.gov.au

Fax (02) 6670 2429
POBox 816
Murwillumbah NSW2484