Shire of
Dundas

Vegetation Management Plan

Introduction

Principles from the *Environmental Protection Act 1986*

Principles

The following principles are included under Schedule 5 of the *Environmental Protection Act 1986* and guide the decision making process about clearing of native vegetation.

Native vegetation should not be cleared if:

(a) It comprises a high level of biological diversity;
(b) It comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;
(c) It includes, or is necessary for the continued existence of, rare flora;
(d) It comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community;
(e) It is significant as a remnant of native vegetation in an area that has been extensively cleared;
(f) It is growing in, or in association with, an environment associated with a watercourse or wetland;
(g) The clearing of the vegetation is likely to cause appreciable land degradation;
(h) The clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area; and,
(i) The clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Purposes for which the permit applies

Clearing of native vegetation for:

- New roads;
- Road widening;
- Clearing for gravel and sand pits; and,
- New infrastructure (car parks, crossovers, playgrounds, buildings etc)

Other activities on crown or freehold land.

The framework for the Shire of Dundas Vegetation Management Plan has been generated primarily from the Vegetation Management Plan template produced by the West Australian Department of Environment.

1 Vegetation Management Plan

1.1 Purpose Permit

Objectives

The objectives of the Vegetation Management Plan are to:

- Prevent loss of biodiversity; and,
- Prevent damage to the environment.

That could be caused by works carried out by the Shire of Dundas

Goals

These goals can be used to meet the objectives:

- Maintaining the natural values present on the Shire of Dundas controlled land, by considering issues during the design, implementation, rehabilitation and maintenance phases of works;

- Minimising the adverse environmental impacts of developments and works by establishing an environmental impact assessment and compliance process; and,
- Carrying out work practices consistent with Vegetation Management Plan objectives.

1.1.1 Vegetation Management Strategies

The Shire of Dundas is the responsible agency for the care and management of all land under its control.

The Shire will minimise the environmental impacts of works on Council controlled land, including roadsides under its control and management by:

- Ensuring that all proposals for works or undertakings have regard to the Shire of Dundas Vegetation Management Plan and other adopted policies and strategies directed at environmental or land management.
- Requiring that all works or undertakings be subject to a simple environmental assessment process.
- Ensuring that works are conducted in compliance with legislative and statutory requirements (including State Government legislation and Policies) and that any approvals required are in place prior to the commencement of works (see Appendix 2 & 3).
- Increasing the knowledge of staff, contractors and contract administrators of environmental management techniques through appropriate training.
- Monitoring compliance with this Vegetation Management Plan and conditions set in the Purpose Permit; and,
- Reviewing and where appropriate modify the Vegetation Management Plan; and the assessment checklists (Appendix 2 & 3) to meet requirements of the Purpose Permit.

1.2 Environmental Compliance Process

The environmental compliance process outlined in this section of the Shire of Dundas Vegetation Management Plan applies to all construction and maintenance activities to which the purpose permit applies on Council controlled land.

1.2.1 Emergency Situations

This compliance process does not apply to works arising because of the need for an immediate emergency response.

Where works are carried out in response to Emergency Situation a review of Council actions will occur at an appropriate time. This review and evaluation process will identify and ensure that any remedial actions required to address adverse environmental or other impacts are carried out.

1.2.2 Compliance Process

Council is responsible for ensuring that:

- An Assessment process is developed for all works or undertakings proposed to be carried out on Council controlled land, including roadsides;
- Prior to the approval of any works or undertakings, the proponent (whether it be Council or external contractor) documents the Assessment carried out for those works or undertakings. This documentation will take the form of a Statement of Compliance (and attachments) and will be to a detail relevant to the nature and impact of the works proposed.
- All works and undertakings carried out by the Shire of Dundas on land and roadsides controlled by it, minimize any environmental (or other adverse) impacts and provide for appropriate rehabilitation of any land disturbed during those works; and,
- Unless otherwise required by the Shire of Dundas, or the needs of the special landscape character of an area, the revegetation of works disturbance areas should use indigenous vegetation species derived from the local district.

1.3 How to use the Operating Principles

The Operating Principles include guidelines and an Assessment Process that will ensure appropriate work practices are used to minimise environmental damage in road construction and maintenance activities.

All uses, works or activities carried out on Shire of Dundas controlled land, will adhere to these operating principles, guidelines and processes. If it is not deemed possible to do so, contact will be made to the appropriate Department of Environment office see Appendix 1 for contact details.

Identified environmental issues or activities requiring active management have been identified and addressed by developing:

- An objective (explaining what is to be achieved);
- A simple and effective environmental assessment process; and,
- Recommended guidelines to be used when carrying out any use, works or activity.

As part of the process to plan, implement and undertake projects, an assessment process as outlined in Appendix 2 and Appendix 3 will be used to identify the specific issues and operating principles to be followed for any use, works or activity.

The Environmental Impact Assessment Process as outlined in Appendix 2 and Appendix 3 states how environmental impacts will be managed. This process also indicates the Shire of Dundas commitment to minimising environmental damage from any use, works or activity.

In using this document due regard should also be given to other policies and strategies.

1.4 Operating Principles

The Vegetation Management Plan Operating Principles are:

- Preserve and enhance biodiversity values;
- Protect significant habitat;
- Protect significant ecological communities;
- Minimise the loss of vegetation in areas that have been extensively cleared;
- Protect land and water resources;
- Protect watercourses and wetlands;
- Minimise the risk of land degradation;
- Protect neighbouring resources, including conservation areas;
- Minimise the risk of surface and groundwater;
- Prevent flooding through removal of vegetation;
- Protect declared rare flora and protected fauna;
- Maintain wildlife habitat and corridors for indigenous fauna; and,
- Minimise the spread of weeds and soil borne diseases.
- Rehabilitation of areas denuded by road works and gravel extraction

2 Conservation Value

2.1 Flora

Native vegetation is described by the *Environmental Protection Act (1986)* as:
- Indigenous aquatic or terrestrial vegetation; and,
- Dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from the definition.

It includes trees, shrubs groundcovers i.e. grasses, creepers, and herbs, and wetland plants such as reeds and rushes.

Native vegetation on the roadside is valuable because it:
- Provides a habitat for native wildlife;
- Provides wildlife corridors linking other areas of indigenous vegetation;
- Supports threatened or significant plants and animals;
- Provides a vital source of local seed for replanting;
- Is easier to maintain than introduced vegetation;
- Enhances visual amenity and landscape value; and
- Provides microclimates for example windbreaks.

Importantly native vegetation found within road reserves may represent the only remaining example of the original vegetation. These areas have the potential to provide to the local community an appreciation of what stands of vegetation occurred prior to clearing.

Protecting roadside vegetation is more than just planting and protecting trees. The smaller plants are often crucial in suppressing weeds and stabilising soils

All vegetation plays an important role within the ecosystem. Dead and mature trees are particularly important providing valuable habitats for native animals. Dead and decaying vegetation releases nutrients back into the soil and enables them to be recycled by the growing vegetation.

2.2 Vegetation Management

2.2.1 Site Specific Management

Whilst general policy and planning guidelines relate to all roadside areas, site specific assessment and planning is required on an individual basis, because of the need to achieve integrated outcomes.

Objective
To promote the preservation and enhancement of indigenous vegetation and strategic environmental corridors

Guidelines:
- Acknowledge the conservation value of road reserves when undertaking works;
- Site inspection and identification of relevant stakeholders;
- Consultation with relevant stakeholders; and,
- Where appropriate prepare specific site management plans.

2.2.2 Remnant Vegetation

Objective
The Shire of Dundas will endeavour to protect and enhance existing indigenous vegetation

Guidelines:
- Where appropriate prepare site specific management plans;
- Employ minimal disturbance techniques;
- Utilise the Department of Conservation and Land Management's Road Marker System;
- Weed control;
- As applicable seek approval from the *Commonwealth Environmental Protection and Biodiversity Act 1999*; and,
- Identify, map and assess stands of native vegetation for conservation value occurring on Roadsides within the Shire of Dundas.

2.2.3 Rare, Vulnerable and Significant Flora Sites

Road reserves may contain entire populations of certain flora species. Some of these species are classified as being of particular conservation significance owing to their declining or isolated occurrences, either on a local regional, state of national basis. It is important that such species are located and that appropriate management prescriptions are prepared to ensure the biodiversity of the flora and fauna is maintained.

Objective
To maximise the retention of all species of flora listed under the Wildlife Conservation Act 1950, and all sites of natural significance in the Shire of Dundas.

Guidelines:
- Shire of Dundas to map identified locations of declared rare flora (DRF) or significant species supported on roadsides throughout the district;
- Consult the Department of Conservation and Land Management (CALM) to determine the location of rare or priority species;
- Ensure that appropriate staff involved in works on roadsides, such as weed maintenance programs are aware of the location and importance of any rare, threatened and significant flora species and the need for special care.
- All sites supporting DRF should be marked using CALM's roadside marker system;
- Development and regular deliver of environmental training;
- Refer to database for records of DRF prior to works being carried out, or to establish the appropriate action when operating near an identified site;
- Where a 'DRF' marker is displayed, do not commence any activity at these sites until the relevant Council Officer has contacted CALM;
- Protect any identified site by minimising disturbance to the site and to the area surrounding the site;

- When DRF is located or known to occur on a roadside, CALM must be contacted for advice to determine appropriate action; and,
- When working in an area where signs identify a site of significance, contact the relevant Council Officer to determine the significance of the location.

2.3 Fauna

Roadside vegetation provides habitats for native fauna, links remnant stands of native vegetation and acts as corridors for the movement of animals in a highly modified environment.

Native fauna is dependant on native vegetation as it provides sources of food, shelter, protection from predator species and breeding grounds. Loss of habitat through clearing across the landscape is threatening the survival of many of our native animals.

Fauna likely to be affected includes soil organisms, insects, mammals, birds and reptiles.

2.3.1 Wildlife Habitat

Objective
To retain the composition and quality of habitat components within remnant vegetation

Guidelines:

- Limit works to the construction and maintenance zone;
- Keep machinery movement in vegetation to a minimum;
- Limbs on dead trees that pose a significant hazard as specified by an appropriate Council Officer should be removed. The rest of the trees shall where appropriate be retained on the roadside;
- Where appropriate, dead trees and limbs containing hollows, that have been felled as part of risk management or construction/maintenance needs shall be retained on site or moved to another site; and,
- Where practicable retain all habitat components, that is leaf litter, rocks and crevices, trees with hollows, naturally fallen limbs and dead vegetation at various stages of decay, standing pools and marshy land, unless they pose a significant fire hazard (as specified by the relevant Council Officer/*Bushfires Act 1954*) or other safety hazard as identified by a relevant Council Officer.

2.3.2 Wildlife Corridors

Objective
To protect and enhance areas of indigenous vegetation (particularly on roadsides) that provide for wildlife corridors

Guidelines:

- Liaise with CALM for the identification of potential corridors linking two or more larger tracts of wildlife habitat;
- Protect identified wildlife corridors for habitat and the movement of fauna;

- Look for opportunities to enhance wildlife corridors for example linking with the South Coast Macro Corridor Project;
- The Shire of Dundas will endeavour to promote regeneration of indigenous vegetation on roadsides that form wildlife corridors, or have been identified as a high priority in revegetation rehabilitation programs; and,
- All proposals for restoration or revegetation projects along any roadside must first be referred to the appropriate Council Officer.

2.4 Environmentally Sensitive Areas & Significant Sites of Environmental Value

Road reserves may traverse through declared environmentally sensitive areas as prescribed under the *Environmental Protection Act 1986*, or significant sites that is, those which have an identified environmental value. The use of the Environmental Impact Assessment process as outlined in Appendix 1 & Appendix 2 will identify potentially environmentally concerning activities during the design, construction, operation and maintenance of road infrastructure and outline management strategies to address these concerns.

An area may be identified as an Environmentally Sensitive Area or Significant Site of Environmental Value for any of the following reasons:

- Vegetation;
- Fauna;
- Declared or assigned as Public Drinking Water Source Area;
- Waters with specific quality requirements used to support commercial or industrial activities;
- Aquatic ecosystems – pristine of conservation valued (not highly disturbed, unless subject to active management to restore historic environmental values) and detailed as follows:
  - Policy areas covering water features as defined via the *Environmental Protection Act 1986*
  - Waterways managed under the *Waterways Conservation Act 1976*;
  - Wetlands of regional, national, and international ecological importance, including: Conservation Category Wetlands (CCWs) and Resource Enhancement Wetlands (REW) as defined by the Department of Environment. Environmental *Protection (Swan Coastal Plain Lakes) Policy 1992*, RAMSAR convention listed, and via *A Directory of Important Wetlands in Australia* (ANCA, 1996);
  - Unconfined groundwater that sustains any ecological function;
- Locations where surface water or water drawn from the groundwater table, may directly contact people and affect their health or well being.

- Surface water bodies meeting significant and publicly recognised cultural or social needs, eg waters used for community swimming, fishing or valued for their visual appeal.

Objective
Environmentally sensitive areas and significant sites that require special consideration be identified and recorded on a related database

Guidelines:

- Identify environmentally sensitive areas and significant sites through liaison with relevant stakeholders;
- Develop and maintain database for recording site information and protective actions;
- Update and distribute information;

- Where an environmentally sensitive area or significant site has been identified, do not commence any activity at these sites until the relevant stakeholders have been contacted.
- Protect any identified site by minimising disturbance to the site and to the area surrounding the site;
- When a rare or significant flora or fauna species is located or known to occur on at a site, the relevant Council Officer must be contacted for advice to determine appropriate action;
- Review and where appropriate update information on all sites on a regular basis; and,
- Provide training for relevant staff and other stakeholders in the management of environmentally sensitive areas or significant sites.

2.5 Unused Road Reserves

Unused road reserves can provide some of the best examples of remnant vegetation. Where these areas have potential as wildlife corridors or contain significant flora they should be retained as reserves whenever there is an opportunity to do so.

Some unused road reserves may be unsuitable sites because of drainage, erosion or some other reason, for establishing a future road and this should be investigated prior to any works being undertaken.

Council is the responsible authority for unused road reserves.

Objective
To protect unused road reserves of High Conservation Value or that may contain rare, threatened and significant flora or fauna species, or act as a strategic environmental corridor

As appropriate seek approval from the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

Guidelines:
- Identify unused road reserves;
- Assess values of unused road reserves and map;
- Identify unused road reserves that may comprise a significant site, environmentally sensitive area and potential corridor value;
- Review arrangements on undeveloped road reserves of high conservation value;
- Where unused road reserves are of high conservation value or of potential significance as a wildlife corridor Council will work to have these areas recognised by relevant stakeholders and measures devised to ensure they are protected or restored;
- Pursue funding to fence these areas;
- Develop landowner/community/council partnerships for management;
- Ensure undeveloped road reserve use complies with the requirements of the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*;
- Unleased, unused road reserves that are of high conservation value or of potential significance as a wildlife corridor should not be made available for future lease or sold;
- Unused road reserves of high conservation value or of potential significance as a wildlife corridor should not be developed;

- New roads will not be built on unused road reserves of high conservation value or of potential significance as a wildlife corridor unless there is no ***practicable*** alternative; and,
- Where there is no ***practicable*** alternative but to construct a new road on an unused road

reserve of high conservation value or of potential significance as a wildlife corridor it shall be constructed in such a way as to minimise impact to flora and fauna.

3 Landcare

The Shire of Dundas when undertaking revegetation and rehabilitation programmes will utilise an ecosystem approach to:

- Restore visual amenity and enhance the landscape quality of the roadside;
- Provide the natural source of food for native animals;
- Restore fauna habitat and extend corridor linkages;
- Reduce the risk of weed introduction; and
- Prevent erosion following construction works.

3.1 Site Revegetation and Rehabilitation

Rehabilitation of a disturbed site where indigenous vegetation has been removed will require careful planning and advice well in advance of works being undertaken.

Objective
To re-establish indigenous vegetation through natural regeneration, restoration and revegetation

Guidelines:

- Assess specific sites involving appropriate organisations to plan for appropriate revegetation or rehabilitation;
- Program environmental awareness training for all appropriate staff;
- Inspection of site including those sites deemed to be degraded to prevent damage to existing remnant vegetation prior to undertaking revegetation work; and,
- Where practicable use minimum disturbance techniques as the preferred approach to site rehabilitation.

3.2 Site Revegetation

In areas of severe disturbance natural regeneration cannot occur and active intervention is required for these areas to be improved.

Objective
To ensure there is no nett-loss of indigenous vegetation area through artificial revegetation

Guidelines:

- Assess degraded sites to plan for appropriate revegetation activity;
- Where appropriate site specific assessment is to be carried out for a nominated site prior to undertaking any proposed revegetation project;
- Relevant Council Officer to be contacted prior to any restoration or revegetation projects being implemented;
- As far as possible all restoration or revegetation projects should be planned one year in advance to allow for a range of seeds to be collected from the upper, middle and lower layers of vegetation;
- All restoration or revegetation projects shall be carried out to take advantage of weather conditions i.e., either late autumn or late winter – early spring;

- All restoration or revegetation projects will include an outline of the long term maintenance of the site;
- Active revegetation may involve:
  - Removal of excess material;
  - Removal or treatment of weeds;
  - Restoration of contours consistent with surrounding land;
  - Where required ripping shall occur parallel to contours;
  - Where practicable local flora species shall be used;
  - Where possible materials from the site shall be used to protect soils from erosion and reduce evaporation;
  - Determination of erosion control measures; and,
  - Revegetated areas should be clearly marked on site to protect newly planted vegetation from damage and aid in the assessment and evaluation of the planting programme;
- Where works are likely to modify the existing indigenous vegetation, a management plan for the rehabilitation of that vegetation must form part of any works proposal and must ensure that revegetation replaces and enhances the vegetation cover and species diversity that exists at the works site;
- Responsibility for rehabilitation after disturbance to a site rests with the organisation undertaking the works;
- Maintenance of rehabilitated sites will be undertaken by the Shire of Dundas as required;

- Prior to undertaking any rehabilitation or revegetation work consultation with the relevant Council Officer and any other responsible agency with a direct interest, to determine appropriate treatments should be undertaken;
- Encourage natural regeneration as much as possible. Utilise stockpiled topsoil and mulched vegetation to promote regrowth of species that are indigenous to the area;
- Where practicable use propagules of local provenance for direct seeding or tube stock planting; and,
- Plant vegetation in accordance with best horticultural practices.

3.3 Seed Collecting

Roadsides can provide a source of seed stock. Indigenous vegetation on roadsides provides a source of native seed stock that is adapted to local environmental conditions.

Objective
To ensure the conservation and sustainability of local indigenous seed stocks, and to extend local provenance vegetation

Guidelines:
- Develop and implement a permit system to monitor and regulate seed collection activity of indigenous vegetation from road reserves;
- Seed collection activity or the removal of native vegetation requires a permit from relevant government authorities that includes CALM, Department of Environment (DoE). Seed collection activity on road reserves also requires permission from the Shire of Dundas;
- Always source propagating material from the nearest suitable location;
- Observe the principles as described in the Code of Practice for Seed Collection contained in Appendix 4.

3.4 Weed Management

The National Weeds Strategy defines a weed as a plant which has, or has the potential to have, a detrimental effect on economic, social, or conservation values (ARMCANZ, ANZECC and Forestry Ministers, 1997) Indigenous vegetation will inhibit the spread of weeds. Established indigenous vegetation can out compete with the introduced weed species and inhibit their growth.

Roadsides are particularly vulnerable to disturbance as they tend to have a large perimeter (edge) to area ratio. Edges are more susceptible to degradation processes, the greater the length of the edge, the greater the opportunities for degradation. Road reserve edges may be subject to high levels of disturbance, and the spread of weeds is encouraged by any disturbance i.e. burning, clearing, grazing, ploughing of firebreaks and service installations.

Roadside weeds cause problems by:

- Displacing native plants , thus degrading the roads conservation and tourist value;
- Rapidly choking drainage structures;
- Annually produces a crop of easily ignitable and highly flammable material; and,
- Requires frequent pruning or control to maintain road safety, thus increasing maintenance costs.

3.4.1 Education and Awareness

Objective
To identify particular weed threats where activity is to be undertaken

Guidelines:

- Prior to the commencement of any activity, identify existing noxious Declared Plants and environmental weeds at the site.

- Report existing noxious Declared Plants and environmental weeds at the site to the relevant Council Officer;
- Ensure weed management is incorporated in works proposals; and,
- Provide appropriate training for relevant staff and other stakeholders in the management of weeds that may address issues such as weed identification, appropriate timing/application of herbicide, certification training, and sleeper/environmental weeds.

3.4.2 Weed Management

Objective
To increase the coverage of indigenous vegetation on roadsides by controlling existing problem weeds and the prevention of weed outbreaks

Guidelines:

- Observe practicable equipment hygiene to avoid the transfer of weeds;
- Undertake environmental awareness training for construction and maintenance staff;
- Liaise with utilities about minimal disturbance techniques, hygiene and weed management for their activities in road reserves;
- Budget for the control of environmental/community weeds on roadside and reserves;

- Commit to follow up and monitoring of sites disturbed through works or unforseen damage; and,
- Undertake joint weed control programme with landholder adjacent sites.

PREVENT NEW OUTBREAKS

- Where practicable identify areas of weed and soil pathogen infestations prior to commencing any works;
- Avoid disturbance to native vegetation;

- Avoid working from weed infested areas into weed free areas;
- Identify weed species in works areas, establish weed regeneration mechanisms in order to develop appropriate management techniques;
- Slashing to control exotic grasses should be carried out at a time specified by the relevant Council Officer;
- Avoid areas of regenerating indigenous vegetation during slashing operations unless this conflicts with Fire Prevention Strategies;
- Blades on slashers to be set no lower than 100mm above the ground;
- Monitor sites of recent works for any regrowth of weeds and undertake follow up control as appropriate; and,
- Plants known to be environmental weeds must not be used in any landscape project.

CONTROL EXISTING PROBLEMS

- Weed control by ploughing, cultivation or broad acre herbicide use, is prohibited on all roadsides without prior approval from the Council.
- Where practicable grading at sufficient depth to prevent regrowth from plants
- Undertake follow up control activity to achieve better results i.e. spray/grading of re-emerging weed seedlings
- Give priority to the control of environmental weeds on High Conservation roadsides in any weed control program on roadsides.
- Undertake weed control programs jointly with adjacent landholders when weeds are also a problem on private land.
- Do not remove weeds in seed if possible.
- Dispose of noxious weeds at a designated dumpsite, or burn on site in a cleared area, or destroy and leave on site (Only if re-shooting cannot occur); and,
- Monitor designated weed dumpsites and implement management strategies to mitigate against the spread of weeds.

3.4.3 **Rehabilitation**

Plan the rehabilitation of any disturbed site resulting from weed removal.
(Refer: Section 3.2 Site Rehabilitation)

3.5 Pest Animal Management

Objective

To effectively control pest animals and insects in a manner that causes least disturbance to indigenous vegetation.

Guidelines:

- Identify pest animal impacts;
- Liaise with Agricultural Protection Board to prepare and undertake works as deemed necessary using minimum disturbance techniques;
- Liaise with appropriate agency should extensive insect pest damage occur;
- Pest control activities will be conducted in a manner that causes the least disturbance to the vegetation; and,
- Contact the relevant agencies for alternative control methods.

3.6 Disease Management

Objective
To regulate activities on roadside for the protection of roadside vegetation, and to minimise soil erosion and improve water quality

Guidelines:

- To identify potentially illegal activities occurring within road reserves;
- Develop strategies in consultation with all stakeholders to provide practical alternatives; and,
- Inform landholders and general community of State Government legislation with information to be issued via newspapers, council communications, rates and to be readily available to Council Officers.

4 Functional Value

Roadways perform a variety of functions. They are established to provide an access network throughout the Shire of Dundas. They also have value for other purposes, including:

Service Corridors

Roadsides have traditionally provided an ideal site for the location of services such as electricity, water, drainage, sewage and communication. Service provides have recognised the importance of indigenous vegetation and have placed a greater emphasis on locating these utilities on cleared private property, however many still are located in road reserves.

Bushfire prevention

Strategic firebreaks are frequently located on roadsides for a number of reasons. They can help restrict fire that is started on the roadside, act as breaks to fires spreading across country, and provide property access and a safe route of exit in times of fire. These breaks can usually be established without the need to damage indigenous vegetation.

Road Safety

We rely on roadways as an integral part of daily life. Provision of a safe and efficient network of maintained carriageways is essential to sustain our way of life

Roadside Vegetation and Road Safety

Roadside vegetation plays an important role in maintaining a safe road network. Indigenous roadside vegetation contributes to reducing headlight glare and dust blown across the road. By binding the soil and helping to prevent erosion it contribute to the protection of the road formation.

Fire suppression

Indigenous vegetation on roadsides can act as a windbreak to a fire front, reducing the rate of spread of fire, and may offer strategic opportunities for brigades to combat fires

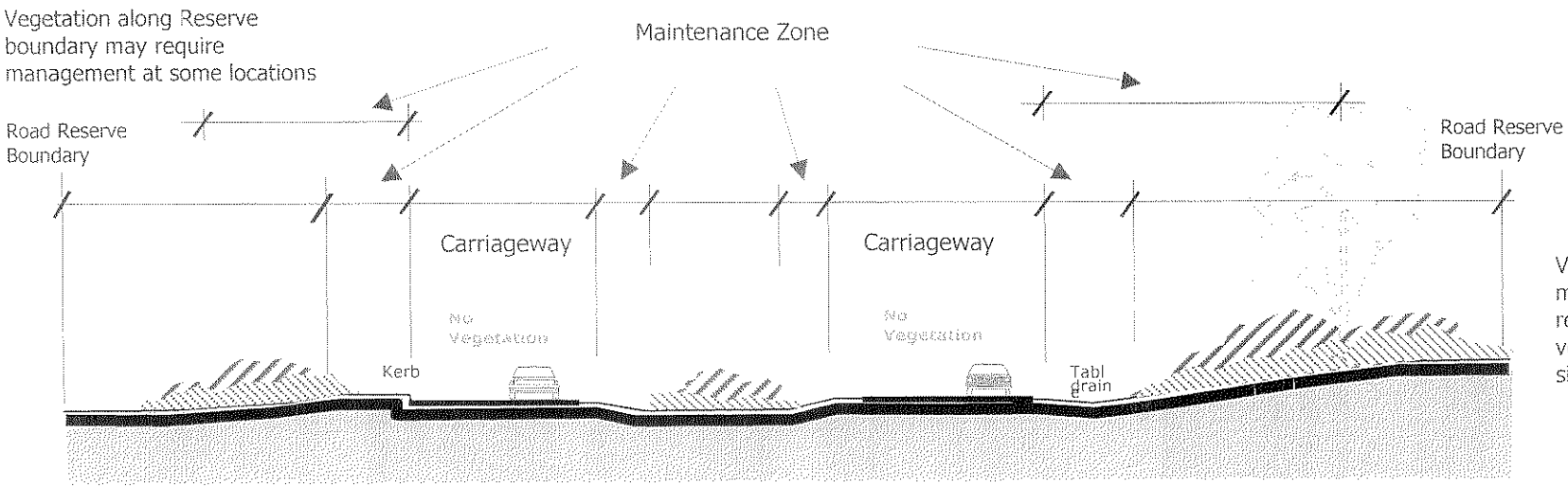
Roadside vegetation can also act to carry and aid fires, especially when degrading and consisting of exotic species of grasses.

Construction and Maintenance Activities

To achieve maximum conservation of indigenous vegetation during road construction or road widening activities, it is essential to plan carefully before any works are undertaken.

Wherever possible new roads should be constructed on land free of remnant vegetation. When existing roads are widened and vegetation threatened, careful planning for rehabilitation combined with innovative thinking, can help to maximise the conservation of existing roadside vegetation.

Road Reserve – Vegetation Management Objectives



Carriageway
No Vegetation

Width as required to meet operational needs

Pavement/surface stability
Driver visibility
Placement of road furniture
Maintained free of debris
Maintain and enhance visual quality

Maintenance Zone
Vegetation Managed

Width varied by location and height of vegetation is controlled to meet operational needs

Vehicle recovery area
Maintain clear sight distances at curves intersections and driveways
Ensure effective surface drainage
Prevent erosion
Control weeds
Reduce fire hazard
Maintain clearances to utilities and around road furniture
Maintain and enhance visual quality

Road Reserve
Vegetation Conserved

Width to road reserve boundary varies by location.
Vegetation type and condition varies by location. Vegetation is managed to:
Maintain safety clear zone (or recovery zone)
Remove hazards (overhanging branches)
Maintain clearances to utilities and roadside furniture
Control fires
Control weeds
Prevent land degradation ie erosion
Maintain and enhance visual quality
Conserve and enhance biodiversity
Preserve heritage and cultural values

4.1 Concept Planning and Design

Objective
To limit the environmental impact of any proposal at the earliest part of the conceptual, planning and design stage, prior to any activity being undertaken

Guidelines:

- Thoroughly investigate and assess site for potential impacts of activity prior to issuing approval;
- Where practicable all personnel involved in planning, design and construction (or maintenance) of works on Council controlled land, must have completed a Shire approved "Code of Operating Principles" induction;
- Apply the Compliance Process of the Code of Operating Principles at the earliest opportunity for any activity, use or development;
- Plan all activities to reduce impact on the environment; and,
- Consider alternatives to minimise impact on the environment.
- Contain all road works in a corridor of 200m measured 100m each side of the road centre line

Where vegetation is threatened, plans will be designed in a manner that has the least impact to existing remnant vegetation and minimises vegetation loss. Any information about the flora and fauna existing on roadsides or private land likely to be modified by the road works, should be obtained prior the site inspection. Adjacent landholders and any local people or groups with specialist knowledge of flora and fauna should be consulted and where necessary, included in the site inspection.

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4.2 Road Maintenance

Objective
To provide a safe and efficient road network whilst having due regard to environmental value of road reserves

Guidelines:

- Categorise all roads according to use;
- Define appropriate maintenance and construction standards for each category;
- Determine an efficient transport network;
- Arrange environmental induction training of all personnel involved in road construction and maintenance;
- Liaise with relevant stakeholders in the development of work plans to minimise environmental impacts;
- All vegetation to be removed as part of road maintenance works will be done so according to the Guidelines listed in Section 4.7 Vegetation Removal;

- Where appropriate utilise resource materials salvaged from other sites for other rehabilitation projects;
- All works should be kept to the minimum necessary to maintain a safe road according to the classification and function of the road;
- On High – Medium High conservation road reserves roadsides work areas or zones should be identified on the ground and where necessary appropriately marked prior to road maintenance works commencing. Vegetation beyond the road formation will not be disturbed, during road maintenance works, except where necessary to carry out required works. In such cases the Guidelines listed in Section 4.7 Vegetation Removal will be followed;
- Ensure that appropriate staff involved on maintenance works are instructed in vegetation management;
- Topsoil should be removed and stored separately prior to works being undertaken and spread over the area at the completion of works; (See Section 3.2 Site Rehabilitation)
- When carrying out works on the road formation care must be taken to avoid the roots of trees and shrubs. Anywhere inside the drip line of the tree should be avoided. Fencing, barricades or suitable marking should be erected to minimise root damage and soil compaction;
- Where possible changing the ground level around vegetation should be avoided;
- Where appropriate sealed surfaces should not be placed hard against vegetation. Guard rails could be used to protect larger significant vegetation growing close to the road shoulder that may be considered a hazard;
- Materials needed for road works on a daily basis should, wherever safe, be temporarily piled on the road formation, not the roadside, or on a cleared area in close proximity to the work site. (Check for native grasses); and,
- Sight distances will be maintained according to the classification and function of the road as specified by the relevant Council Officer.

4.3 Vegetation Removal Associated With Road Construction & Maintenance

Objective
To minimise the disturbance to indigenous vegetation from road construction and maintenance activities

Guidelines:

- Road shoulders and gravel roads will be graded to the minimum required to maintain the road formation and the condition of the road as specified by the relevant Council Officer;
- *On High and Medium High roadsides where it is not practicable to collect spoil, any windrowing of spoil; will not extend beyond the maintenance zone; Where possible windrowing spoil onto roadside vegetation beyond the maintenance zone should be avoided;*
- Table drains will be designed to minimise the concentration and velocity of water runoff and to maintain the natural drainage line. Best practice table drain design shall be actively sought;
- Table drains will be maintained in a condition that will under normal circumstances, (except at times of high rainfall) prevent water flooding the road and the roadside. Works where possible will be kept to a minimum to meet these requirements;
- Where vegetation growing within the effective part of a table drain interferes with the working of the drain or is a safety hazard it will be removed;
- All roadside vegetation outside the effective part of the table drain will not be disturbed when drains are maintained;
- Materials used for road works should be taken from disease free and weed free areas. No material will be taken for use from areas known to be affected by Phytophthora; and,
- Work zones shall be devised to isolate high conservation areas, in order to restrict movement of vehicles in and out these areas. More rigorous hygiene measures maybe necessary in these areas.

4.4 Worksite Rehabilitation

Objective
To re-establish indigenous vegetation and preserve habitat components during rehabilitation of roadsides

Guidelines:

- Plan rehabilitation works in planning stage of project to allow for:
  - Site assessment;
  - Flora survey if appropriate;
  - Seed collection; and,
  - Weed identification and where necessary control.
- Limit works to the construction and maintenance zones;
- Where possible retain on site habitat source such as dead trees/limbs containing hollows, rocks/boulders;
- Identify weed species and if possible pathogen infestation prior to commencement of work activity;
- **Code of Practice for Road crews**
  1) Clearly mark the limits of stripping and all other construction zones;
  2) Always stay within the "construction zone";
  3) Keep machinery and stockpiles on cleared land;
  4) Only use the appropriate type and minimum size of machine for the job;

5) Plan vegetation removal;
6) If there is no alternative to burning, do not burn under or near desirable vegetation;
7) Strip and stockpile topsoil from areas of good native vegetation. Re-use as soon as possible (when it is necessary to remove soil for construction or maintenance work);
8) Control erosion:
   a) minimise vegetation removal and encourage the growth of vegetation on batters;
   b) leave batters rough so as to hold the topsoil;
   c) limit access and earthworks to the area required for construction; and
   d) Establish adequate drainage systems.
9) Do not "tidy up" roadside vegetation after construction; and,
10) Where practicable clean down machinery before moving to another site.

4.4.1 'Walk the Route'

Guidelines:

- 'Walk the Route', inspecting the works or project site before planning, design and construction begins, to confirm and mark the limit of all construction activities (the construction zone). This shall involve relevant Council Officers who have appropriate environmental training;
- Minimise the impact of construction on vegetation by identifying and marking with stakes, tape, webbing or other suitable identifiers:
  - The limits of vegetation removal. (Tape is to be used to mark Significant Trees for removal);
  - Significant or protected vegetation, habitat areas and environmentally sensitive areas that should be protected from disturbance;
  - Exact locations of proposed stockpiles, plant compounds and access roads.

4.4.2 Stay Within The Construction And Maintenance Zones

Guidelines:

- Stay within the defined Construction and Maintenance Zones and access tracks during construction and routine maintenance works;
- Do not work beyond the Construction and Maintenance Zones without authorisation from the relevant Council Officer;

4.4.3 Vegetation Canopy Clearance Above Roads

Guidelines:

- Where appropriate retain a minimum height of 5 metres clearance height from the established road formation (road surface and shoulders) to the vegetation overhang;
- Remove only those limbs necessary to obtain the minimum clearance; and,
- Vegetation to be removed with minimal disturbance to the roadside vegetation.

4.4.4 Minimising Disturbance To Vegetation

The preservation of native roadside vegetation is the simplest and most cost effective method of managing road reserves. The Shire of Dundas will in undertaking works endeavour to ensure the survival of all levels of vegetation, from trees through to ground covers. Different levels of vegetation provide niche habitats for different fauna.

Road reserves are highly susceptible to disturbance. The disturbance of soil and vegetation creates conditions favourable for weed species to colonisation new areas. The management of road reserves is therefore based on the principle of minimum disturbance and weed control programmes.

Guidelines:

- Minimising disturbance to vegetation shall be incorporated into the process of selection of machinery used to undertake task;
- Machinery to be parked in a cleared area, in a designated wayside stop, car park or on private land (where permission has been granted);
- Site machinery compounds clear of indigenous trees, shrubs and ground covers. Where practicable no vegetation shall be removed to provide for the siting of machinery compounds or storage of materials;
- Servicing of vehicles and machinery shall occur on the roadside at a designated location only when it is not possible to move to a more appropriate site. Care will be taken to ensure that no spillage results from any servicing operation;
- Machinery shall be confined to existing road formation (including table drains), proposed alignment, access tracks or designated construction zone unless otherwise directed by the site supervisor;
- Vehicles and machinery to be turned within the Construction Zone or on cleared sites or sites that have minimal indigenous vegetation;
- Where possible drip lines of trees shall be avoided to minimise root damage and soil compaction around tree root systems from machinery;
- Where appropriate trees removed from outside of the Construction and Maintenance Zone must be felled by cutting off at ground level to minimise disturbance to the surrounding vegetation. Removal of trees complete with root systems causes unnecessary soil and vegetation disturbance;
- Leave vegetation undisturbed wherever possible during construction;
- Do not grade or excavate beyond construction maintenance zone;
- Do not spread top soil into native vegetation; and,
- Do not grade or excavate beyond the Construction or Maintenance Zone or spread topsoil into native vegetation.

4.4.5 Avoid Working Under Tree Canopy

Healthy vegetation is an asset. It is more cost effective and easier to protect existing trees, shrubs and groundcovers than it is to replant them.

Activity within a drip line of a tree increases the potential for damage to tree roots, trunk and limbs. Tree root systems generally have feeder roots within the top 30cm of soil, and deeper root systems to anchor the tree.

Guidelines:
- Confine vehicle movements to old or new alignments where practicable;
- Only disturb areas that must be disturbed;
- Placement of site depots, equipment compounds and stockpile shall be on areas previously cleared away from trees bushes and native ground covers;
- If cleared land is not available for the above mentioned infrastructure, application will be made to the owner of nearest cleared land where practicable;
- Where practicable store fill, materials and equipment away from trees; and,
- Where possible keep soil cuts and trenching away from the drip line of trees.

4.4.6 Soil Compaction And Its Impact On Vegetation

Soil compaction is caused by the weight of vehicles or machinery moving over soil. Some soil types are more susceptible to soil compaction than others. It has the effective of significantly reducing the pore space between soil particles. The pores are vital in plant health as they allow for the transportation of oxygen, water and other minerals to the root system. Soil compaction will reduce the flow of these vital elements to root systems of plants.

Guidelines:
- Avoidance of storing vehicles and machinery underneath trees or on vegetation;
- Minimize vehicle movement in vegetation and under trees;
- Avoid moving vehicles and machinery on undisturbed soil wherever possible;
- Do not stockpile material on vegetation or underneath trees; and,
- Rip and loosen compacted soil prior to rehabilitation.

4.4.7 Strip And Stockpile Topsoil

Guidelines:
- Strip and stockpile topsoil (100-200mm) before starting any works;
- Locate stockpiles in cleared areas away from existing drainage lines, trees, shrubs and native grasses;
- Undertake appropriate weed control;
- Topsoil to be used as soon as practicable to ensure seed remains viable; and,
- Imported topsoil only to be used if authorised by relevant Council Officer.

4.5 Soil Erosion, Land Stability and Sedimentation Control

4.5.1 Soil Erosion

Soil erosion can be caused by either wind or water. Environments tend to become effected by erosion when either of these elements travel at speeds greater than the surface (with or without vegetative cover) can withstand.

Areas affected erosion has the potential to:

- Pollute watercourses and wetlands;
- Contribute to the loss of indigenous vegetation;
- Decrease the environmental quality and hence visual amenity of area; and,
- Detrimentally affect road and create safety hazard.

Objective
To prevent soil erosion and sedimentation, and minimise the risk of landslip or land instability during all Council works

Guidelines:

- Before commencing the planning or carrying out of any works, check whether the soils and land from are at a high risk from erosion;
- If the soils are highly erodable a strategy should be developed to minimise damage;
- Soil erosion and sedimentation control procedures are included in the planning and design stage of any proposed use of a road;
- Any activity in areas of known landslip or land instability risk should be planned and managed so as to:
  - Minimise earthworks;
  - Protect and maintain vegetative cover on areas adjacent to works areas; and,
  - Pay particular attention to drainage and erosion control measures during and after construction.
- Erosion to be minimised by:
  - Protecting existing vegetation;
  - Minimising soil disturbance; and
  - Stabilising disturbed areas as works proceed.
- Make provision for stormwater runoff before commencement of works;
- Divert all stormwater away from loose or exposed soil;
- Avoid steep drainage lines where possible;
- Avoid steep batter slopes;
- Dissipate flows by use of wetland ponds or energy dissipating devices where appropriate;
- Capture silt by use of silt traps or sumps;
- Establish an adequate inspection, maintenance and cleaning program for all stormwater drainage systems; and,
- Do not alter the direction of stormwater from construction sites into areas supporting high quality indigenous vegetation including watercourses.

Note:

The Shire of Dundas shall not use exotic pasture grasses to stabilise exposed soil in areas that support indigenous vegetation.

4.5.2 Stormwater Drainage and Management of Runoff

Objective
To design, construct and maintain stormwater systems to protect the natural environment

Guidelines:

- Design, construct and maintain table drains/cut off drains anticipating environmental consequences of stormwater runoff;
- Drainage systems including piped, open and cut-off drains to be designed to avoid native vegetation where practicable, or, to minimise disturbance to native vegetation, or to minimise the potential for erosion and sedimentation;
- Keep excavations for pipes open for minimum time periods;
- Avoid the concentration of runoff flows onto adjoining land;
- Design, construct and maintain table drains and cut-off mitre drains:
  - To follow natural drainage lines;
  - To reduce water velocity and runoff;
  - To prevent water from flooding the road and roadside (except at times of flash downpours);
  - To cause minimum disturbance to surrounding vegetation; and,
  - To minimise siltation.
- Design, construct and maintain table drains to reduce soil erosion and siltation of watercourses;
- Establish and maintain open stabilised roadside table drains;
- During repair operations excess water from pumping activity as much as possible will be dispersed evenly across ground;
- Excess materials and debris to be appropriately disposed/managed at the end of works;
- Spoil from drains requiring cleaning to be directed towards the road pavement and removed to a designated dumpsite unless it can be safely retained on the road shoulder. Where spoil is spread over the road shoulder it must be maintained to prevent weed establishment;
- Windrowing drain material onto roadside vegetation where possible should be avoided; and,
- Remove vegetation growing within the effective part of a table drain (from edge of road shoulder to the top of bank on the outer edge of the drain) which interferes with the working of the drain or is a safety hazard and is not likely to lead to erosion.

4.6 Stripping, Stockpiles and Dump Sites

4.6.1 Location and Management

Objective
To manage the location of stockpiles and dumpsites to limit invasion of materials into native vegetation, the spread of weeds and for the protection of the areas amenity

Guidelines:

- Identify and survey suitable stockpile sites within works area;
- Locate stockpile/dump areas on relevant database and map showing locations;
- Make the maps available to all personnel involved in roadside construction and maintenance;
- Include these maps in all tender documents and plans for construction;
- Develop and implement weed and vermin management plans in conjunction with Agricultural Protection Board;

- Where practicable, locate stockpiles on established stockpile sites, cleared land or unused road pavement;
- New stockpile or dumpsites may only be approved by the relevant Council Officer and are not to be located on roadsides with medium high to high conservation values, drainage lines, flood ways, culvert areas or on roadsides adjacent to forest areas;
- Vegetation shall not be removed to provide for the siting stockpiles or the storage of materials (including dumpsites for excess soils/ materials) unless absolutely necessary;
- Process to determine the location of new stockpile/dump sites shall include the visual amenity and landscape values of the site;
- Monitor the stockpile/dump site for weed growth and pathogens and implement necessary controls to reduce weed growth and further colonisation;
- Use minimum space necessary to store materials and to gain access to the stockpile/dump site;
- Stockpile/dump site boundaries to be clearly defined e.g. fencing, fallen logs;
- Control run-off and drainage around stockpiles of material and stored topsoil, to prevent the spread of weeds;
- Locate soil stockpiles in cleared areas, away from existing drainage lines, trees, shrubs and native grasses;
- Stockpile sites should be weed free prior to use;
- Topsoil should ideally be stockpiled for less than 12 months to make sure that the native plant seed in the soil remains viable;
- Remove any weeds before stockpiling by spraying or scalping; and,
- Equipment shall be cleaned regularly to minimise the risk of introducing weeds to the stockpile of maintenance sites.

4.7 Vegetation Removal

The Shire of Dundas needs to remove and prune vegetation for a number of reasons the foremost being to provide for the safe travel of vehicles on all roads. Vegetation removal usually falls into one of the following categories:

Maintenance:
- To maintain clear envelope above and along roadway for safe passage of vehicles;
- To ensure that vegetation near the road is not posing immediate/potential danger to life or property of road users. Eg trees/limbs fall onto roads, large trees close to carriageway;
- Maintain sight distance to junctions, signs and around curves; and,
- To ensure adequate drainage including waterway clearance.

Construction:
- To allow for the construction, reconstruction or upgrading of a road structure. Some vegetation may need to be removed or pruned.

Care must be taken to ensure that only the minimum vegetation is removed to achieve the aims of the job according to the requirements of the road. All other vegetation should be disturbed as little as possible. It is important also that the method used when removing vegetation minimises impact to the plant and the surrounding vegetation. Trees in particular require correct pruning to enhance the natural callusing process and maintain shape and form.

Objective
To limit the extent of clearing or pruning of vegetation to the specific functional requirements of the road and to ensure only the minimum vegetation is removed.

Guidelines:

- Develop relevant prescriptions for vegetation removal for each clearance envelope

- Adopt processes for assessing vegetation hazard rating;
- Develop site specific operational guidelines for works undertaken on High and Medium High roadsides;
- The prime responsibility of Council as a road authority is to ensure safe and convenient routes of travel. The assessment of roadside vegetation for removal must embody this responsibility;
- All plans to remove, destroy or lop any indigenous vegetation...not exempt by the Act, be referred to the relevant Council Officer. Where the relevant Council Officer has concerns with the level of clearance proposed, Council will consult with the relevant stakeholders to ensure compliance with the Act;
- When approval has been given to remove, destroy or lop any vegetation (indigenous or otherwise), the responsible authority should ensure that no vegetation, other than that specified in the approval is removed, destroyed or lopped and that especially indigenous vegetation beyond the working zone;
- An agreement be reached by relevant Council Officers as to the need for tree removal; such reasons being root invasion, sight vision, public safety and the safety of road users, visual amenity, etc.;
- Consultation occurs with all relevant stakeholders;
- That nomination of a tree or trees for removal is not influenced by financial profit;
- That suitable replacement vegetation for the site or suitable alternative locations be considered;
- That where trees proposed for removal are of high amenity value, form part of Main Street landscapes, or are likely to become emotional issues, a report be given to Council or appropriate Council Committee seeking resolution.

4.7.1 **Hazardous Vegetation**

Vegetation may be deemed a hazard if:

- A tree or major limbs have been damaged or diseased, and are likely to fall on the carriageway or cause damage to property adjacent the carriageway;
- A tree or limbs are discovered to have been struck by vehicles and are likely to fall on the carriageway or cause damage to property adjacent the carriageway; and,
- A tree and major limbs have become structurally unstable, as determined by suitably experienced person, and are likely to fall on the carriageway or cause damage to property adjacent the carriageway.

Excluding emergencies where all contingencies cannot be met, it is expected that all operations will be undertaken in accordance with the provisions of these Vegetation Removal Guidelines.

4.7.2 **Disposal of Material**

Shrubs, logs, old 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. Dead trees and naturally fallen limbs will be retained on the roadside to provide habitat for wildlife, unless they pose a significant hazard as specified by the relevant Council Officer.

Guidelines:

- When planning for non-indigenous vegetation removal approved as part of works, consider a range of uses for the resource of the felled material;
- The responsible authority will ensure that appropriate staff involved in vegetation removal is instructed in the correct pruning techniques;
- As financial resources permits or where a relevant Council Officer gives direction pruning works will be carried out using the three cut method or a variation of the three cut method, so as to minimise the extent of wounding and enhance the natural healing process and callus formation, meeting Australian standards for best arboriculture practice;
- Vegetation to be removed will be felled in the direction that minimises damage to surrounding vegetation, preferably onto the road formation or cleared area;
- Felled indigenous vegetation removed during works will be chipped and either:
- returned to the site with minimal disturbance to surrounding vegetation;
- used in rehabilitation works; ***and,***
- Relocated for use in other reserves; or made available for specific community projects.
- Environmental weeds and declared plants will not be chipped for mulch;
- Larger felled vegetation where practicable shall be retained on site to provide habitat, or moved to another site such as a strategic wildlife corridor or wildlife area where they can continue to provide habitat;
- All attempts to carry out sawing, splitting and chipping of felled vegetation should be done with due regard to the understorey;
- Tree stumps left after pruning or vegetation removal works will be cut as close as possible to the ground;
- On High and Medium High roadsides vehicles and machinery used during vegetation removal works will, unless impossible, remain on the road formation, or in a designated site or on cleared, private land adjacent to the roadside, negotiated for that use;
- On High and Medium High roadsides where there is no alternative for machines but to work on the roadside, equipment will be chosen to ensure that disturbance to the vegetation is kept to the minimum;
- Works planning should incorporate opportunities to liaise/negotiate with adjacent landholders where appropriate, to achieve best outcomes and minimise work-site impacts, e.g. using private property to access the work site to avoid trampling roadside understorey vegetation, store plant and equipment and stockpile prunings;
- Shire of Dundas shall endeavour to look for opportunities to coordinate activities related to vegetation removal, to minimise disturbance to vegetation with other agencies; and,
- All authorities/agencies should develop a standard system for marking vegetation to be removed.
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4.8 Firewood Collecting, Timber Removal

Objective
To protect important habitat material and preserve and enhance vital ecosystem components

Guidelines:

- Permits may only be issued for firewood collection or timber harvesting where works necessitate the removal of significant trees or indigenous vegetation; and,
- Fallen timber on roadsides should be left untouched unless it constitutes a safety or fire risk or threatens the health of existing vegetation.

4.9 Bushfire Prevention Firewood Collecting, Timber Removal

Objective
To manage roadside vegetation in order that fire threat to life and property is minimised, and for the conservation of flora and fauna

Guidelines:

- Map location of High and Medium vegetation and Rare, Threatened and Significant species to be considered in the preparation of any local and regional Bushfire Prevention Plans;
- That Council give priority to produce and maintain a Bushfire Prevention Plan/Disaster Management Plan as soon as possible;
- Undertake all fire prevention works in accordance with Shire of Esperance Bushfire Prevention Plan/Disaster Management Plan currently under development;
- That Fire Management plans are to be prepared taking into consideration the Fire Prevention Plan, Environmental Weed Strategy (to be developed) and the Code of Operating Principles;
- Fire Management Plans must take into account the conservation values of Council land or roadsides that have been designated as firebreaks;
- Fuel reduction burns on roadsides of medium to high conservation values must be planned in consultation with the Council, Fire and Emergency Services Authority and Local Fire Brigades. The Department of Conservation and Land Management should also be consulted when a roadside is adjacent to conservation reserves. Prior to any fuel reduction burn occurring on roadsides, or other land, with vegetation identified as being of medium high to high conservation value, the effects of that proposed burning on the long term viability of remnant native vegetation, wildlife habitat and water quality must be assessed. Where that assessment finds that there will be adverse impacts on any of those environmental values, alternate fuel reduction measures should be implemented;
- Sites of threatened or significant flora or fauna, or other values, to be recorded using mechanisms outlined in the Fire Prevention Plan and clearly identified and protected on the ground by the responsible authority prior to any works being carried out;
- Evaluate and monitor annual fire prevention works in consultation between the Department of Conservation and Land Management, Fire and Emergency Services Authority and local Bush Fire Brigades to determine the effect of works on both conservation values and fire management; and,
- Where a management program conflicts with identified conservation objectives, a site management plan must be prepared and agreed to.

Cultural and Heritage Value

5.1 Wayside Stops

Wayside stops include service centres, rest areas, scenic lookouts, truck parking areas information bays and bus turnaround areas. These associated road infrastructures are important for the function of the road and safety of commuters.

Objective
To ensure that wayside stops will have minimum environmental impact on roadside vegetation.

Guidelines:

- Incorporate assessment of potential impact on roadside vegetation during the planning phase for development of associated roadside infrastructure;
- Select suitable locations for a wayside stop on roadsides after a site inspection and consultation with the Council, the facility designer and any other relevant authority;
- Locate the facility to complement any natural, scenic, cultural or historic features on the roadside and the distance from one stop to another;
- Determine the type of facility suitable for the area after considering a number of factors including impact on flora and fauna, environmental issues, fire risk and road safety; and,
- Design the facility in a manner to have the least impact on remnant vegetation and to minimise vegetation loss.

5.2 Planting On Roadsides

Inappropriate roadside plantings have the potential to conflict for conservation of indigenous vegetation, risk management, sight paths, bushfire prevention, service provision, and cultural and visual amenity.

Such plantings may for a variety of reasons include:

- extension of the front garden;
- screening for noise and privacy;
- windbreaks and shelter belts; and,
- Buffers and revegetation.

Objective
To prevent inappropriate plantings being undertaken on road reserves

Guidelines:

- Where appropriate use local media and Council publications to advise the community of the need to seek authorisation for any plantings on road reserves;
- Advice will be sought so that approved plantings meet the requirements of other bodies eg. Western Power, Telstra .Department of Conservation and Land Management; and,
- Vehicle sight lines must be maintained to appropriate Australian Standards.

5.3 Visual Amenity And Landscape Values

Vegetation on roadsides plays an important role in contributing to visual amenity and landscape values. Landscape character of an area can contribute to its appeal as a tourist destination. Roadside vegetation can define this character, and often is the districts "front garden" for visitors.

Maintaining and upgrading the visual amenity and landscape value of roadsides is an important aspect of roadside management within the different districts of the Shire.

Objective
To maintain and restore the visual amenity and landscape value of roadsides

Guidelines:

- As appropriate seek approval from the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*;
- Identify and record sites of significant vegetation e.g. plantings of honour, amenity plantings, significant species, significant vegetation areas and communities, rare, vulnerable or threatened species;
- Identify record and promote recognised tourist routes;
- Implement Roadside Marker Scheme for identified sites;
- Council as required develop maintenance, restoration or enhancement projects for roadsides that help define desired or site-specific visual amenity and landscape requirements;
- Council to develop a program for restoring or revegetating Medium Category roadsides on a priority basis, where the roadside is neither a Strategic Wildlife Corridor or in conflict with the recommendations of Fire and Emergency Services as funds permit;
- Main roads and entrances into townships or communities should be given highest priority. Any opportunities to provide vista, should be considered at the planning stage and incorporated into the landscape design; (See Section ***3.1 Site Revegetation and Rehabilitation***)
- Avenues of Honour or plantings of exotic species recognised as culturally significant, even at a local level, will be recorded and protected and replaced if losses are incurred, as approved by the Relevant Council Officer/s;
- Landscapes recognised as significant, even at a local level, will be recorded and preserved;
- Roads should be designed to blend into the surrounding land*scape whenever this is possible;*
- Rubbish to be cleaned up from roadsides on a regular basis when funding permits; and,
- Investigate ways of reducing the incidence of domestic rubbish dumping.

5.4 Cultural And Heritage Values

As well as significant vegetation, roadsides may contain items of national regional and local cultural or heritage significance.

Objective
To ensure the protection of roadside sites that have been identified as having cultural or heritage values.

Guidelines:

- Identify and record sites of cultural and heritage significance;
- Undertake local heritage survey and create a local heritage register;

- Implement roadside marker scheme for identified sites;
- Refer to Roadside Marker System;
- Any sites of cultural or heritage value existing on roadsides throughout the district are formally recognised and protected;
- The WA Museum be contacted to determine if and where any archaeological sites exist on roadsides throughout the district, so that these areas can be identified and protected;
- The WA Museum be contacted when any new archaeological sites are found or thought to be found on roadsides throughout the district; and,
- The appropriate traditional landowner be contacted and Department of Indigenous Affairs website consulted to determine if any culturally significant sites are within the proposed work areas.

5.5 Streetscapes

Vegetation along urban streetscapes contributes to the visual amenity, heritages and landscape values of our townships. The accepted streetscape character of an area can contribute to its appeal as a tourist destination. Both local indigenous vegetation and European-style vegetation can define this streetscape character. Tree lined avenues are of particular value to modified urban landscapes.

Maintaining and upgrading the visual amenity, heritage and landscape values of our urban streetscapes is an important aspect of overall roadside management in the District.

It is important that the next generation of residents within and around our District's townships, is provided with streetscapes that have been enjoyed by the current generation.

Objective
To maintain and restore the visual amenity, heritage and landscape value of urban streetscapes.

Guidelines:
- Identify and record sites of significant streetscape precincts including isolated locations of ornamental or remnant vegetation;
- Identify and record sites of significant trees within and around out townships; and along rural roadsides;
- Identify and record recognised tourist routes, walk trails and bike paths;
- *Implement Roadside Marker Scheme for identified sites;*
- The National Trust of Western Australia (NTWA) has in the past kept a register of classified and recorded landscapes and significant trees. The responsibility for adapting National Trust data, and developing and maintaining a local register lies with Council. Landscapes or trees thought to be of significance can be nominated for inclusion in the district register;
- Nominated or assessed sites throughout the district, of visual amenity, heritage and landscape value forming urban streetscapes, be formally recognised and protected;
- Development, maintenance and replacement programs for streetscapes must consider the appropriateness of plant species. General project activities and the selection of species will entail:
  - An assessment of the existing visual amenity, landscape and heritage character of a given precinct, i.e. landscape theme;
  - Limitations created by road safety requirements; Western Power overhead wires; invasive roots; level of hazardous material which drops from trees, such as berries or woody capsules; resource requirements for the establishment and maintenance of vegetation eg

aspect, light levels, soils, additional nutrients, drainage and water, catchment management issues such as seasonal leaf litter, bushfire prevention, pedestrian access; for example; and,

- Consultation with local residents, neighbours and the wider community about proposals and works programs is essential.

Glossary of Terms

Aboriginal Sites and Objects	Land or objects which are of significance to Aboriginal tradition or history, or have been declared under the Aboriginal Heritage Act 1972
Agricultural Chemicals	Substances used for the prevention or promotion of growth of any vegetation, or protecting vegetation against attack from insects, animals, fungi and destroying rodents or pests
Amenities Planting	Planting of trees, shrubs and groundcovers to visually improve the appearance of an area
Clean Fill	Excavated material; consisting of clay, soil, crushed rock, and rubble upto a maximum size of 200mm. Clean fill shall not contain organic material such as timber and/or vegetation, or any other waste material such as papers, plastics and containers
Clearing Native Vegetation	causing substantial damage to native vegetation and includes a) The killing or removing of native vegetation b) The severing or ringbarking of trunks and stems c) The draining or flooding of the land d) The burning of vegetation e) The grazing of stock; and, f) Any other activity that kills or damages native vegetation
Construction Zone	is the area clearly marked where all construction activities take place (such as the area stripped for road construction, stockpile areas, compounds, access routes, etc.)
	(a) declared to be flora pursuant to subsection 4 of the Wildlife Conservation Act 1950
Defined Wetland	(a) a wetland included in the List of Wetlands of International Importance kept under the RAMSAR Convention
	(b) a nationally important wetland as defined in 'A Directory of Important Wetlands in Australia' (2001) 3rd edition, Commonwealth Department of Environment and Heritage, Canberra
	(c) a wetland designated as a conservation category wetland in the geomorphic wetland maps help by and available from the Waters and Rivers Commission
	(d) a wetland mapped in Pem, L. "A systematic Overview of Environmental Values of the Wetlands and Estuaries of the Busselton-Walpole Region", (1997), Waters and Rivers Commission, Perth
	(e) a wetland mapped in V&C Semuniuk Research Group "Mapping and Classification of Wetlands from Augusta to

Walpole in the South West of Western Australia (1997), Waters and Rivers Commission, Perth

Disposal Sites Those areas for the disposal of non re-usable materials as specified by Council.

Ecosystem A naturally occurring number of living and non-living components which interact with each other to form a stable system

Ecological Community means a naturally occurring biological assemblage that occurs in particular type of habitat

Environment is all living things, their biological, physical and social surroundings and the interactions between all these

Environmental Value Particular values or uses of the environment that are conducive to public benefit, welfare, safety or health and that require protection from the effects of pollution, waste discharges and deposits (e.g. Public drinking water supply, industrial water, irrigation supply or ecosystem maintenance). Several environmental values may be designated for a specific waterbody.

Environmental Weed Any plant that invades natural vegetation including indigenous vegetation, usually adversely affecting regeneration and the survival of indigenous flora and fauna.

Environmentally Sensitive Area A locale that has an identified environmental value, which may be one of:

(a) Declared World Heritage property as defined in section 13 of the Environmental Protection and Biodiversity Conservation Act 1999 of the Commonwealth.

(b) (b) an area that is registered on the Register of the National Estate, because of its natural values, under the Australian Heritage Commission Act 1975 of the Commonwealth

(c) A defined wetland and the area within 50m of the wetland

(d) The area covered by vegetation within 50m of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the flora is located

(e) The area covered by a threatened ecological community

(f) A bush forever site listed in "Bush Forever" Volumes 1 and 2 (2000), published by the Western Australia Planning Commission, except to the extent to which the site maybe cleared under a decision of the Western Australia Planning Commission

(g) Protected wetlands as defined in the Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998

Exotic Vegetation	Vegetation which does not occur naturally in Australia and has been introduced to the Shire of Dundas
Flora	means any plant (including any wildflower, palm, shrub, tree fern, creeper or vine)
Grazing	The eating of plants
Groundcovers	Includes creepers, grasses and herbs.
Habitat	The home of a plant or animal
Indigenous Vegetation	Native vegetation which occurs naturally in the Shire of Dundas
Maintenance Zone	is the area within the outside of the drain or toe of batter on each side of the road. This generally correlates to the limits of any routine maintenance works. (There are some exceptions, e.g. cut-off drains).
	(f) native to Western Australia
Native Vegetation	Vegetation which occurs naturally in Australia but has been introduced to the Shire of Dundas
Noxious Weed	Any plant declared under the Agriculture and Related Resources Protection Act (1976) as noxious to the State of Western Australia. Noxious weeds degrade agricultural land but may also be environmental weeds.
Open Drains	Non-paved roadside drains on which vegetation has been established to protect the drain from scouring or erosion
Polluting	Includes discharges, emitting, depositing or disturbing pollutants and failing to prevent the discharge, emittance, deposition, disturbance and escaping of pollutants
Project	Includes any activity which will involve a physical change to the environment.
Protected Flora	means any flora belonging to the classes of flora declared by the Minister under Section 6 of the Wildlife Conservation Act 1950 to be protected by notice
Rare Flora	means flora that is declared to be rare flora under section 23F of the *Wildlife Conservation Act 1950*
Regeneration	Natural occurring growth of grasses, shrubs and trees from root stock or soil borne seeds
Remnant Vegetation	Indigenous vegetation remaining in uncleared parts of the Shire of Dundas
Revegetation	Vegetation established by hand planting tube stock or by direct seeding.
Rip	Process of cultivation used to break up compacted soil layers which encourages revegetation. Deep ripping involves cultivation to a depth of at least 500mm
Road Verge	the area of land between a road edge and the adjacent property boundary Urban areas
Roadside Zone	is the area from the edge of the construction or maintenance zone to the fence line on each side of the road. This zone is where the habitat value occurs

Routine Maintenance	Is that work which is of an ongoing regular nature, with each work event being generally relatively minor in nature. E.g. grading road shoulders, cleaning drains, patching potholes
Significant Species	Flora, fauna, fish and invertebrates that are of Regional or local significance which may also be listed as rare or threatened under the Wildlife Conservation Act
Significant Tree	Trees of butt diameter >150mm measured at 1.4m above the ground or more stems greater than 100mm (g) specified in Schedule 1, being taxa that are extant and considered likely to become extinct or rare and therefore in need of special protection; and, (h) specified in Schedule 2, being taxa that are presumed to be extinct in the wild and therefore in need of special protection,
Stockpile	A site for storage of short-term re-usable materials only as specified by Council.
Threatened Species	Indigenous flora, fauna, fish and invertebrates listed as rare under the Wildlife Conservation Act
Threatened Ecological Community	An ecological community that (a) Has been determined by the Minister of Environment to be a threatened ecologica community (b) Is referred to in the list of threatened ecological communities maintained by the Chief Executive Officer of the Department principally assisting in the administration of the Conservation and Land Management Act 1984
Vegetation	Includes the killing, removing or burning or native vegetation, the severing of branches or ringbarking of trunks, limbs, stems, draining or flooding of land that causes any other substantial damage to native vegetation
Waste	any matter discharged or left over in the course of industrial, commercial, domestic or other activity and includes excavated material not classified as clean fill. Waste is defined as any solid, liquid, or gas or combination of these that is left over, surplus or unwanted by-product from any business or domestic activity, whether the substance is of value or not
Watercourse	(a) Any river, creek, stream in which water flows; (2) For the purpose of the definition in subsection (1) – (a) A flow or collection of water comes within that definition even though it is only intermittent or occasional (b) a river creek, stream or brook includes a conduit that wholly or partially diverts it from it's natural course and forms part of the river, creek, stream or brook; and, (b) Any collection of water (including a reservoir) into, through or out of which any thing coming within paragraph (a) flows (c) Any place where water flows that is prescribed be local by-

	laws to be a water course (c) It is immaterial that a river, creek, stream or brook or natural collection of water may have been artificially improved or altered
Weed	a plant which has, or has the potential to have a detrimental effect on economic social or conservation values.
Wetland	means an area of seasonally, intermittently or permanently waterlogged or inundated land, whether natural or otherwise, and includes a lake, swamp, marsh, spring, dampland, tidal flat or estuary
Wildlife Corridor	A strip which has the potential to facilitate the movement flora and fauna between stands..... Acts as habitat of indigenous, remnant vegetation which provides habitat for wildlife
Wildlife	Fauna Species native to Australia and indigenous to the Shire of Dundas
Windrow	Ridge formed along edge of road work when grading
Works	Includes the actions of conceptual development, planning, design, construction and maintenance of any project.

Appendix 1 - Department of Environment Contact Details

South Coast Region
5 Bevan Street
Albany, WA 6330
(PO Box 525,
Albany, WA 6331)
Tel: +61-8-9842 5760
Fax: +61-8-9842 1204

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Perth WA 6842)
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For more information on the procedures, exemptions and other issues visit the Department of Environments Website at www.environment.wa.gov.au or freecall 1800 061 025.

Appendix 2 Checklist – Low Impact Environmental Screening

The Low Impact Environmental Screening Checklist is part of the environmental assessment and approval process.

All projects are to be screened to identify those that are Low Impact, i.e. that will have a low impact on the environment and that can be adequately managed through standard workplace practices.

Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Impact Assessment Report (Appendix 3).

Tick "Yes" or "No" for every item. Circle the relevant part of the item.

Project Name .....

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.		
2	Existing road, works will impact upon indigenous vegetation beyond that in the maintenance zone.		
3	Existing road, works require clearing and there is:		
	• Declared rare flora or priority flora or other significant stand of vegetation.		
4	Existing road, works require ground disturbance outside maintenance clearance zone.		
5	Road works will require the construction of new, or expansion of existing, pits or quarries and hence clearing of native vegetation (non-commercial sources)		
6	Adjoining sensitive land use:		
	• Residential or hospital or education centre		
	• Environmentally Sensitive Areas or Environmentally Significant Sites		
	• Identified Wildlife Corridor		
	• Passes over, adjoins or drains directly into a wetland or watercourse.		
8	Local natural drainage regime / hydrology will be affected.		
9	Within/immediately adjacent to surface/underground Public Drinking Water Source Area.		
10	Dewatering, or groundwater use required.		
11	Known potential source of hazardous materials (contaminated site) within or adjoining the road reserve.		
	Former / existing: petrol station or industrial site or waste disposal site (landfill)		
12	Buildings will require demolition.		

Completed By: *Signature* _____ *Date* _____

Name _____ *Title* _____

Reviewed By: *Signature* _____ *Date* _____

Name _____ *Title* _____

(Main Roads, 2005b)

Appendix 3- Environmental Impact Assessment Report

An Environmental Impact Assessment Report is required for all Shire of Dundas works that have been identified to impact on the environment through the Low Impact Environmental Screening Checklist as described in Appendix 1.

Where the project has been identified to require an Environmental Impact Assessment Report, contact the relevant Council Officer for preliminary environmental advice and to determine the level of assessment required before proceeding.

To be attached:

- Project Details including locality plan and project plan
- Photos of project area

Identify impacts by ticking "Yes"/ "No" and indicate how they are to be addressed or mitigated (where appropriate attach additional information)

Parameter	Impact		Operational Practice Section	Comment
	Yes	No		
Physical Environment				
Land				
❖ Materials (Access tracks, rehabilitation			Section 4.6	
❖ Soil Compaction			Section 4.10	
❖ Cuts & Fills			Section 4.12	
❖ Slope and Stability			Section 4.12	
❖ Erosion and Depositition			Section 4.12	
Water				
❖ Drainage			Section 4.12	
❖ Runoff/flooding			Section 4.12	
❖ Pollution			Section 4.12	
❖ Siltation			Section 4.12	
Air				
❖ Dust			*Environmental Protection (Unauthorised Discharges) Regulations 2004*, Shire of Esperance Health Local Laws 2002	
❖ Plant Emissions			*Environmental Protection (Noise) Regulations 1997*	
Biological Environment				
Flora				
❖ Removal			Sections 2 , 4.3, 4.14	
❖ Revegetation			Section 3,	
❖ Visual Impact			Section 2	
❖ Declared Rare Flora			Sections 2.1 & 2.2	
❖ Weeds			Section 3.4	
❖ Dieback			Section 3.6	
Fauna				
❖ Habitat Destruction			Section 2	
❖ Declared Fauna			Section 2	
❖ Corridors			Section 2	
❖ Pest Fauna			Section 2	
Social Environment				
Land Use Type				
❖ Primary Production				
❖ Commerce/Industry				

Parameter	Impact		Operational Practice	Comment
	Yes	No		
Land Use Type (cont)				
❖ Residential				
❖ Park/Reserve				
❖ Recreation/ Sporting				
❖ Contaminated Site				
❖ Other				
Access				
❖ Accessibility				
❖ Travel patterns				
❖ Severance				
❖ Parking				
Amenity				
❖ Noise				
❖ Vibration				
❖ Privacy				
❖ Visual, Landscape				
Community				
❖ Acquisition				
❖ Relocation				
❖ Equity				
❖ Community Concern				
Cultural				
❖ Indigenous Heritage				
❖ Native Title				
Significant Site				
❖ National				
❖ State				
❖ Local				
Transport – Utilities				
❖ Public Transport				
❖ Pedestrian				
❖ Cyclists				
❖ Public Utility				

Appendix 4 - Seed Collection Code of Practice

- The Council permission document and CALM permit to be carried at all times whilst collecting and must be shown upon request;
- Any threatened plant which is protected (listed specifically in regulations) under the *Wildlife Conservation Act 1950* will also require a separate permit from the CALM. Threatened species or habitats are not to be collected from without express permission;
- Details of the local project, target species, estimated quantities of propagating material, and collection sites must be provided prior to permission being granted by Council;
- Collectors should conform with the requirements of the *Occupational Safety and Health Act 1984* (including the wearing of relevant safety gear such as safety vests and sun hats; and maintaining a current and accessible first aid kit at all times), the *Environmental Protection Act 1986* and *Wildlife Conservation Act 1950* and shall ensure non-interference with safe movement of road traffic. Use adequate signage and safety vests, when working adjacent to an open public roadway. Collectors are responsible for implementing their own OH&S standards;
- Council accepts no liability / responsibility for any loss, damage or accident incurred by collectors;
- No plant material may be collected from sites marked as defined by the Roadside Marker System without Council and the CALM approval;
- When collecting, act in a responsible and professional manner and only collect what has been approved and is needed for your designated project;
- Plant material is only to be collected from plants positively identified. If unsure no collection is to take place. Plant recognition and identification aids are to be carried in vehicles to confirm species identification;
- Ensure that fruits are mature and pods are ripe when collecting seed. Many pods change from green to a brown-grey or they may split when ripe. Where seed is retained on a plant it should be at least twelve months old before collection. Observe when shrubs and trees are in flower to better prepare your collection timetable;
- Do not over nor repeatedly collect from any site or population;
- Collection from solitary plants will not take place;
- Collection will only be from healthy plants (having neighbours within 20 metres); and from a spread of at least five (5) plants of the same species spread at least 100m apart over each site nominated;
- Do not take all cutting or seed material from one plant. Move between plants of the same species;
- Collect from all sections of the plant, not just a few side or low branches;
- All cuts shall be sensible and not too injurious to the plant. No limbs greater than 10mm diameter will be removed. Capsules and fruit shall be cut as close as possible to itself. No more than 20% (or 1% of above-ground biomass) of the propagating material shall be removed from any one plant;
- Adequate precautions will be taken to ensure minimal track damage from vehicles. Vehicles shall not be driven off existing tracks or roads. Gates will be left as found;
- Take due care to collect in the most environmentally sensitive manner to avoid trampling adjacent plants including understorey: low shrubs, herbs and ground covers such as grasses, reeds, ferns, moss and lichens. Use appropriate equipment to avoid damage to plants, adequately supervise groups and use judicious cuts;
- Avoid collection on fire ban days and under strong windy conditions;
- All nesting sites, tree hollows and other habitat is to be left undisturbed;
- Minimise the spread of known weeds, diseased plant material and pathogens such as *Phytophthora cinnamomi* when moving between plant populations. No material shall be collected in known *P.cinnamomi* areas;

- Material harvested in excess of requirements shall be dispersed on site or along road reserves nearby;
- Packets of seeds shall be labelled with collector name, species, location, weight and a grid reference or other clear reference denoting the location of the collection site; and,
- Keep all seed collected in a cool, dark and dry location in sealed containers.