



CLEARING PERMIT

Granted under section 51E of the *Environmental Protection Act 1986*

Purpose Permit number:	CPS 1279/3
Permit Holder:	Shire of Toodyay
Purpose of clearing:	Road maintenance, road widening and gravel extraction
Shire:	Shire of Toodyay
Duration of Permit:	23 April 2007 – 23 April 2012

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The Permit Holder is authorised to clear native vegetation for the above stated purposes, subject to the conditions of this Permit.

PART I –CLEARING AUTHORISED

1. Land on which clearing is to be done

- (a) Bowers Road Reserve (10 trees);
- (b) Boyagerring Road Reserve between Goomalling Toodyay Road and Link Road (0.7ha);
- (c) Chitty Road Reserve between SLK 2 from Salt Valley Road intersection and Shire of Toodyay boundary (2.57ha);
- (d) Church Gully Road Reserve between Toodyay Bindi Bindi Road and Leeming Road (1.62ha);
- (e) Cobbler Pool Road Reserve (4.69ha);
- (f) Conostylis Way Road Reserve (0.18ha);
- (g) Cottage Street Road Reserve (0.06ha);
- (h) Dewars Pool-Bindoon Road Reserve between Toodyay Bindi Bindi Road intersection (SLK 0) and SLK 8 (4.05ha);
- (i) Dryandra Road Reserve (0.56ha);
- (j) Dumbarton Road Reserve (3 trees);
- (k) Fargo Way Road Reserve (1 tree);
- (l) Fawell Road Reserve (0.17 ha);
- (m) Fernie Road Reserve between intersection with Salt Valley Road and Shire of Toodyay Boundary (0.1ha);
- (n) Folewood Road Reserve between Pelham Street and Sandplain Road (1.43ha);
- (o) Forrest Road Reserve (1.75ha);
- (p) Grandis Road Reserve (1.11ha);
- (q) Grevillia Place Road Reserve (0.29ha);
- (r) Harders Chitty Road Reserve (13 trees);
- (s) Long Forest Road Reserve (0.98)
- (t) Louisa Close Road Reserve (0.83ha);
- (u) Lovers Lane Road Reserve between Toodyay Road intersection (SLK 0) and SLK 2 (1.28ha);
- (v) Meadow Road Reserve (1 tree);
- (w) Ninth Road Reserve (0.36ha);
- (x) Nunile Road Reserve between Goomalling Toodyay Road and Bejoording Road (2.72ha);
- (y) Old Plains Road Reserve between Telegraph Road and Mount Road (4.15ha);
- (z) Old Plains Road Reserve between Bulligan Road (SLK 12.7) and SLK 17 (3.26ha);
- (aa) Pelham Road Reserve (0.15ha);
- (bb) Picnic Hill Road Reserve between Toodyay Bindi Bindi Road and West Toodyay Road (2.18ha);
- (cc) Racecourse Road Reserve (1.21ha);
- (dd) Railway Road Reserve (38 trees);
- (ee) Range Road Reserve (6 trees);
- (ff) Red Gully Gravel Pit, Lot 1 on Diagram 17302 (2ha);
- (gg) Retford Road Reserve (0.16ha);
- (hh) Ridley Close Road Reserve (0.13ha);
- (ii) River Road Reserve (4.67ha);

- (jj) Rockdale Road Reserve (4.12ha);
- (kk) Sandsprings Road Reserve (0.49ha);
- (ll) Salt Valley Road Reserve between SLK 9.7 and SLK 10.80 (1.13ha)
- (mm) Telegraph Road Reserve (4.66ha);
- (nn) Toodyay Bindi Bindi Rd (1.93ha);
- (oo) Wandoo Close Road Reserve (0.26ha);
- (pp) Wattle Way Road Reserve (0.19ha);
- (qq) Weir Road Reserve (0.23ha);
- (rr) Whitfield Road Reserve (0.15ha);
- (ss) Wilkerson Crescent Road Reserve (0.65ha);

2. Land on which clearing is not authorised

The area shaded in red on Plan 1279/3a.

3. Area of Clearing

Clearing of up to 76 trees and 57.53 hectares of native vegetation.

4. Application

This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

5. Compliance with Assessment Sequence and Management Procedures

Prior to clearing any native vegetation under conditions 1 and 3 of this Permit, the Permit Holder must comply with the Assessment Sequence and the Management Procedures set out in Part II of this Permit.

PART II – ASSESSMENT SEQUENCE AND MANAGEMENT PROCEDURES

6. Communication and consultation

Communication and consultation with the Toodyay Naturalists' Club Inc. must be undertaken prior to carrying out any clearing authorised under this Permit, and includes providing details of all proposed clearing activities and discussing options for road maintenance, that includes alternatives to clearing.

7. Avoid, minimise etc clearing

In determining the amount of native vegetation to be cleared for the purposes of road and bridge upgrades and extractive industry the Permit Holder must have regard to the following principles, set out in order of preference:

- (i) avoid the clearing of native vegetation;
- (ii) minimise the amount of native vegetation to be cleared; and
- (iii) reduce the impact of clearing on any environmental value.

8. Dieback and weed control

- (a) When undertaking any clearing and *revegetation*, or other activity pursuant to this Permit the Permit Holder must take the following steps to minimise the risk of introduction and spread of *dieback*:
 - (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
 - (ii) avoid the movement of soil in wet conditions;
 - (iii) ensure that no *dieback*-affected *road building materials, mulches or fill* are brought into an area that is not affected by *dieback*; and

- (iv) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.
- (b) When undertaking any clearing and *revegetation*, or other activity pursuant to this Permit the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:
 - (i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
 - (ii) ensure that no *weed*-affected *road building materials*, *mulch*, *fill* or other material is brought into the area to be cleared; and
 - (iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.
- (c) At least once in each 12 month period for the *term* of this Permit, the Permit Holder must remove or kill any *weeds* growing within areas cleared and *revegetated* under this Permit.

9. Fauna management

- (a) Prior to clearing within the areas described in Clearing Authorised above, the areas shall be inspected by a *fauna specialist* who shall identify trees that contain hollows suitable to be utilised as habitat by fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice 2008*.
- (b) Prior to clearing, any trees identified by condition 9(a) that contain hollows suitable to be utilised as habitat by fauna listed in the *Wildlife Conservation (Specially Protected Fauna) Notice 2008* shall be inspected by a *fauna specialist*.
- (c) Prior to clearing the Permit Holder shall ensure that any fauna identified in condition 9(b) shall be removed and relocated by a *fauna clearing person*, in accordance with a licence issued by the Department of Environment and Conservation.

10. Flora Management

- (a) Prior to undertaking clearing within the areas described in conditions 1 and 3, the areas shall be inspected by a *flora specialist* who shall identify rare flora and *priority flora taxa*.
- (b) Where rare flora or *priority flora taxa* are identified in relation to condition 10(a) the Permit Holder shall ensure that:
 - (i) all records of rare flora and priority flora are submitted to the CEO
 - (ii) no clearing occurs within 50m of identified rare flora, unless approved by the CEO; and
 - (iii) no clearing occurs with 25m of identified *priority flora taxa*, unless approved by the CEO.

11. Priority Ecological Community

- (a) Prior to undertaking clearing along the Old Plains Road and Dewars Pool Road, the areas proposed to be cleared shall be inspected by an *environmental specialist* who shall identify if the following *priority ecological communities* are present:
 - (i) claypans with shrubs over herbs;
 - (ii) Wandoo woodland over dense sedge of *Mesomelaena*; and
 - (iii) York Gum woodland.
- (b) Prior to clearing, an *environmental specialist* shall document any potential impacts on *priority ecological communities* in the local area including those identified by condition 11(a).
- (c) In relation to requirements of condition 11(a), the Permit Holder shall ensure that no clearing occurs within 250m of identified *priority ecological communities*, unless approved by the CEO.

12. Revegetation and Rehabilitation of Gravel Extraction

The Permit Holder must *revegetate* all areas cleared for the purpose of gravel extraction in accordance with the following.

- (a) The Permit Holder shall retain the vegetative material and topsoil removed by clearing in accordance with this Permit.
- (b) Within one month of the area no longer being required for the purpose of gravel extraction the Permit Holder must *revegetate* the area by:
 - (i) deliberately planting and/or seeding native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area;
 - (ii) ensuring only local provenance seeds and propagating material from within 10km of the area cleared are used to *revegetate* the area; and
 - (iii) laying vegetative material and topsoil retained in accordance with condition 12(a) on the area.
- (c) Within one year of undertaking *revegetation* in accordance with condition 12(b), the Permit Holder must:
 - (i) determine the species composition, structure and density of the area *revegetated*; and
 - (ii) where, in the opinion of an *flora specialist*, the composition structure and density determined under condition 12(c)(i) will not result in a similar species composition, structure and density to pre-clearing vegetation types in that area the Permit Holder must undertake additional planting or seeding of native vegetation in accordance with the requirements of condition 12(b)(i) and (ii).

13. Offsets

- (a) Determination of offsets
 - (i) If part or all of the clearing to be done is or may be at variance with one or more of the clearing *principles*, then the Permit Holder must implement an *offset* in accordance with conditions 13(a) and 13(b) of this Permit with respect to that native vegetation.
 - (ii) In determining the *offset* to be implemented with respect to a particular area of native vegetation proposed to be cleared under this Permit, the Permit Holder must have regard to the offset principles contained in condition 13(b) of this Permit.
 - (iii) Once the Permit Holder has developed an offset proposal, the Permit Holder must provide that offset proposal to the CEO for the CEO's approval prior to undertaking any clearing to which the offset relates, and prior to implementing the offset.
 - (iv) Clearing may not commence until and unless the CEO has approved the offset proposal.
 - (v) The Permit Holder shall implement the offset proposal approved under condition 13(a)(iii).
 - (vi) Each offset proposal shall include a direct offset, timing for implementation of the offset proposal and may additionally include contributing offsets.
- (b) Offset principles
 - (i) *direct offsets* should directly counterbalance the loss of the native vegetation;
 - (ii) *contributing offsets* should complement and enhance the *direct offset*;
 - (iii) *offsets* are implemented only once all avenues to avoid, minimise, rectify or reduce environmental impacts have been exhausted;
 - (iv) the environmental values, habitat, species, ecological community, physical area, ecosystem, landscape, and hydrology of the *offset* should be the same as, or better than, that of the area of native vegetation being *offset*;
 - (v) a ratio greater than 1:1 should be applied to the size of the area of native vegetation that is offset to compensate for the risk that the *offset* may fail;
 - (vi) *offsets* must entail a robust and consistent assessment process;
 - (vii) in determining an appropriate *offset*, consideration should be given to ecosystem function, rarity and type of *ecological community*, vegetation *condition*, habitat quality and area of native vegetation cleared;

- (viii) the *offset* should either result in no net loss of native vegetation, or lead to a net gain in native vegetation and improve the condition of the natural environment;
- (ix) *offsets* must satisfy all statutory requirements;
- (x) *offsets* must be clearly defined, documented and audited;
- (xi) *offsets* must ensure a long-term (10-30 year) benefit; and
- (xii) an *environmental specialist* must be involved in the design, assessment and monitoring of *offsets*.

14. Offsets within the Drummond Catchment

The Permit Holder must offset areas cleared under conditions 1 and 3 of this Permit, within the *Drummond Catchment*, in accordance with condition 13 of this Permit and including a direct offset ratio at 3:1.

PART III – RECORD KEEPING AND REPORTING

15. Records must be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit, as relevant:

- (a) In relation to the clearing of native vegetation undertaken pursuant to conditions 1 and 3:
 - (i) the species composition, structure and density of the cleared area;
 - (ii) the location where the clearing occurred, recorded using Geocentric Datum Australia 1994;
 - (iii) the date that the area was cleared; and
 - (iv) the size of the area cleared (in hectares).
- (b) In relation to fauna management pursuant to condition 9:
 - (i) the location of each habitat tree identified recorded using Geocentric Datum Australia 1994;
 - (ii) the species of each habitat tree identified;
 - (iii) the species of fauna reasonably likely to utilise, or that have been observed utilising the habitat trees;
 - (iv) the species and number of each species relocated; and
 - (v) the location and date where relocated fauna was released, using Geocentric Datum Australia 1994.
- (c) In relation to flora management pursuant to condition 10:
 - (i) the location of each rare flora and *priority flora taxa* recorded using Geocentric Datum Australia 1994; and
 - (ii) the species of each rare flora or *priority flora taxa* identified.
- (d) In relation to *priority ecological community* management pursuant to condition 11:
 - (i) the location of each *priority ecological communities* recorded using Geocentric Datum Australia 1994; and
 - (ii) the species composition of each *priority ecological communities* identified.
- (e) In relation to the *revegetation* of areas pursuant to condition 12:
 - (i) the commencement date of *revegetation*;
 - (ii) the location of any area *revegetated* recorded using Geocentric Datum Australia 1994;
 - (iii) a description of the *revegetation* activities undertaken;
 - (iv) the size of the area *revegetated* (in hectares); and
 - (v) the species, structure and composition of *revegetation* measured.
- (f) In relation to the *offsets* of areas pursuant to condition 13 and 14:
 - (i) the location of any area of *offsets* recorded using Geocentric Datum Australia 1994;
 - (ii) a description of the *offset* activities undertaken; and
 - (iii) the size of the *offset* area (in hectares).

16. Reporting

- (a) The Permit Holder must provide to the CEO, the Toodyay Naturalists' Club Inc. and the local community, on or before 31 December of each year, a written report of records required under condition 15 and activities done by the Permit Holder under this Permit between 1 July and 30 June of the preceding financial year.
- (b) Prior to 23 January 2012, the Permit Holder must provide to the CEO a written report of records required under condition 15 of this Permit where these records have not already been provided under condition 16(a) of this Permit.

Definitions

The following meanings are given to terms used in this Permit:

condition means the rating given to native vegetation using the *Keighery scale* and refers to the degree of change in the structure, density and species present in the particular vegetation in comparison to undisturbed vegetation of the same type;

contributing offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9 Environmental Offsets*, January 2006;

dieback means the effect of *Phytophthora* species on native vegetation;

direct offset/s has the same meaning as is given to that term in the Environmental Protection Authority's *Position Statement No.9 Environmental Offsets*, January 2006;

Drummond Catchment means the area cross-hatched yellow in attach Plan 1279/3b;

ecological community means a naturally occurring biological assemblage that occurs in a particular type of habitat (English and Blythe, 1997; 1999). The scale at which ecological communities are defined will depend on the level of detail in the information source, therefore no particular scale is specified. An ecological community is a naturally occurring biological assemblage that occurs in a particular type of habitat;

environmental specialist means a person who is engaged by the Permit Holder for the purpose of providing environmental advice, who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit;

fauna specialist means a person with training and specific work experience in fauna identification or faunal assemblage surveys of Western Australian fauna;

fauna clearing person means a person who has obtained a licence from the Department of Environment and Conservation, issued pursuant to the *Wildlife Conservation Regulations 1970* (as amended) authorising them to take fauna in order to carry out the approved clearing associated with this Permit;

fill means material used to increase the ground level, or fill a hollow;

flora specialist means a person with specific training and/or experience in the ecology and taxonomy of Western Australian flora;

Keighery scale means the vegetation condition scale described in *Bushland Plant Survey: A Guide to Plant Community Survey for the Community (1994)* as developed by B.J. Keighery and published by the Wildflower Society of WA (Inc). Nedlands, Western Australia;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

offset/s means an offset required to be implemented under conditions 13 and 14 of this Permit;

priority ecological community/ies means a potential threatened ecological community that does not meet survey criteria or that is not adequately defined, is adequately known and rare but not threatened, has recently been removed from the threatened list and requires regular monitoring, or is a conservation dependent ecological community;

priority flora taxa means those plant taxa that described as priority flora classes 1, 2, 3 or 4 in the *Declared Rare and Priority Flora List for Western Australia*, Department of Environment and Conservation, as amended;

revegetate/ed/ion means the re-establishment of a cover of native vegetation in an area such that the species composition, structure and density is similar to pre-clearing vegetation types in that area, and can involve regeneration, direct seeding and/or planting;

riparian vegetation means the distinctive vegetation associated with a wetland or *watercourse*;

road building materials means rock, gravel, soil, stone, timber, boulders and water;

term means the duration of this Permit, including as amended or renewed;

watercourse is a river, stream or creek in which water flows in a natural channel, whether permanently or intermittently; and

weed means a species listed in Appendix 3 of the "Environmental Weed Strategy" published by the Department of Conservation and Land Management (1999), and plants declared under section 37 of the Agriculture and Related Resources Protection Act 1976.

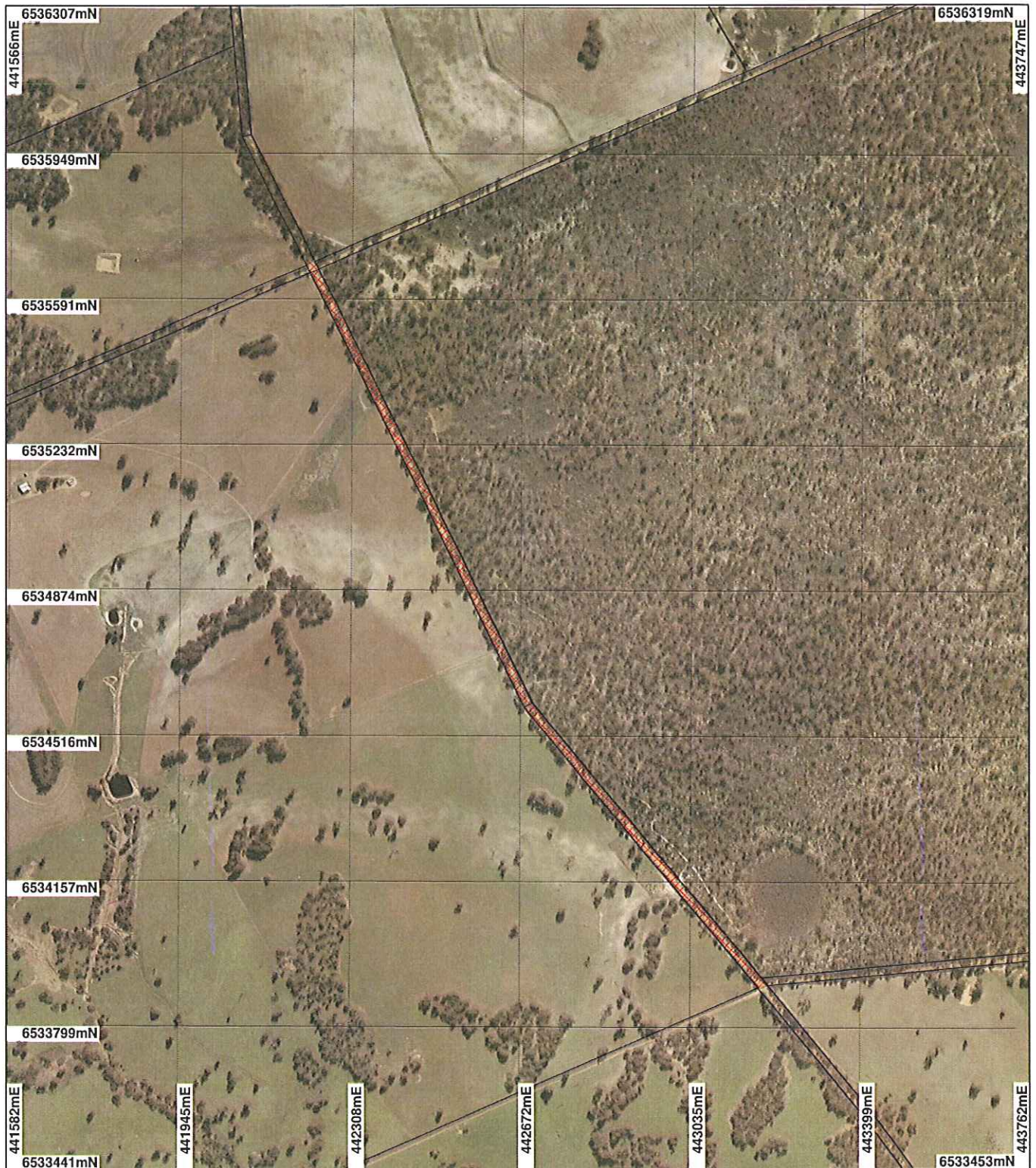


Keith Claymore
A/ DIRECTOR
NATURE CONSERVATION DIVISION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

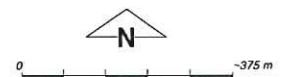
7 January 2010

Plan 1279/3a



LEGEND

- Clearing Instruments
- Areas Subject to Conditions
- Cadastre
- Chittering Goomalling 50cm
- Orthomosaic - Landgate
- 2002



Scale 1:12717

(Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Keith Claymore Date *7/1/10*

Keith Claymore

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

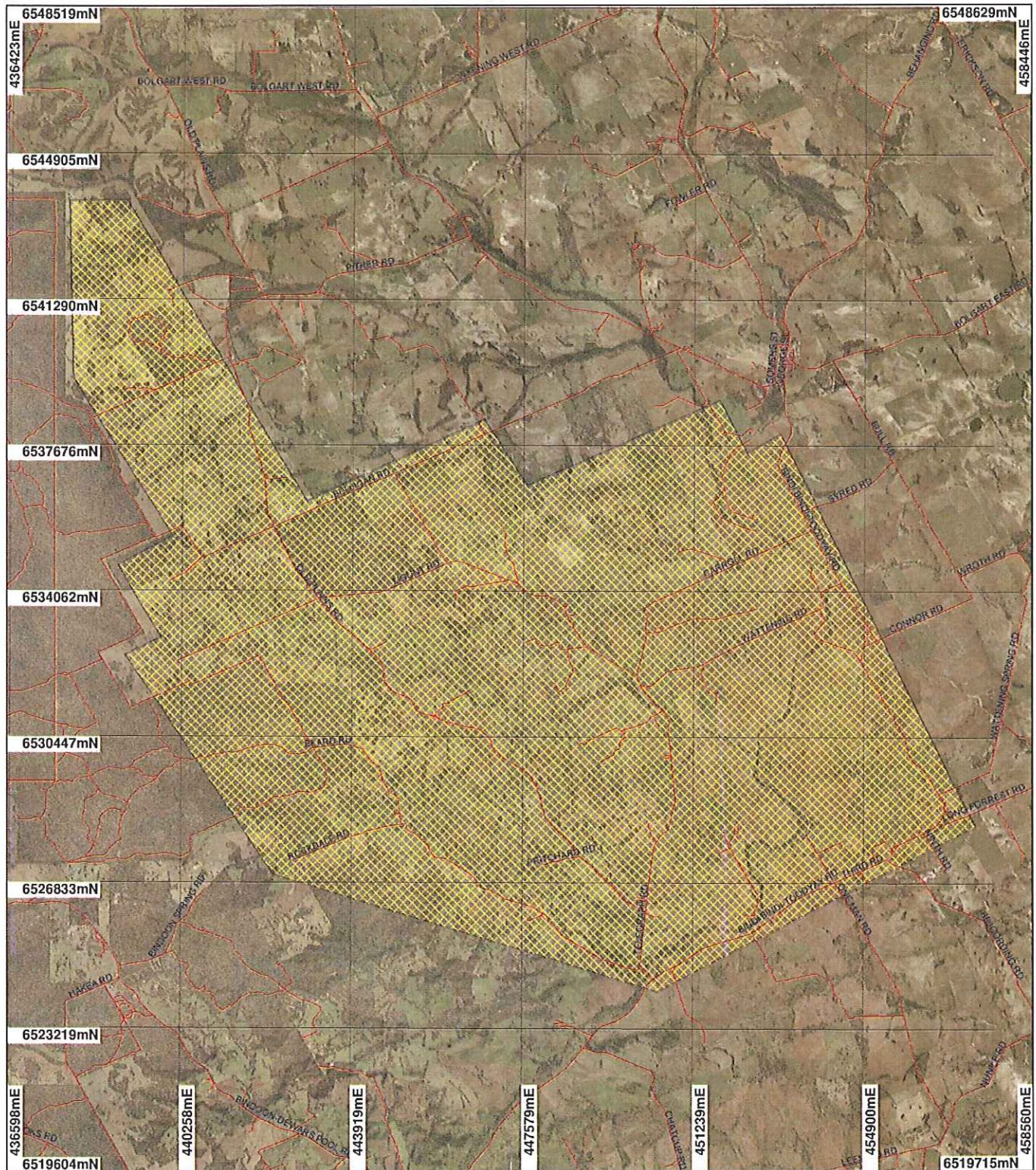
Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



Department of Environment and Conservation

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Plan 1279/3b



LEGEND

Clearing Instruments
 Areas Approved to Clear
 Road Centrelines
 Cadastre

Chittering Goomalling 50cm
 Orthomosaic - Landgate
 2002

Scale 1:128265
 (Approximate when reproduced at A4)

Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Keith Claymore

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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1. Application details

1.1. Permit application details

Permit application No.: 1279/3
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Shire of Toodyay

1.3. Property details

Property: ROAD RESERVE (TOODYAY 6566)
Local Government Area:
Colloquial name:

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
57.53	76	Mechanical Removal	Road construction or maintenance

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard Vegetation Association 4: Medium woodland; marri and wandoo.	The areas under application are located within road reserves, in the Shire of Toodyay. The proposed clearing of predominantly mature eucalypt trees, jams and in a number of roads understorey in various condition is to ensure adequate lateral clearance and widening of selected roads.	Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery 1994)	The condition of the vegetation ranged from completely degraded to excellent but on average would be considered degraded to good. Vegetation description was obtained from numerous site visits conducted by the DEC and information provided by the proponent (TRIM Ref ED1107).
Beard Vegetation Association 352: Medium woodland; York gum.			
Beard Vegetation Association 694: Shrublands; scrub-heath on yellow sandplain banksia-xylomelum alliance in the Geraldton Sandplain and Avon-Wheatbelt Regions.			
Beard Vegetation Association 946: Medium woodland; wandoo.			
Beard Vegetation Association 1006: Medium woodland; jarrah, wandoo and powderbark.			
Beard Vegetation Association 3003: Medium forest; jarrah and marri on laterite with wandoo in valleys, sandy swamps with tea-tree and banksia (Hopkins et al. 2001, Shepherd et al. 2001).			
Heddl Vegetation Complexes:			
Bindoon Complex;			
Cook Complex;			
Coolakin Complex in Low Rainfall;			
Dwellingup and Yalanbee Complex\In Low to Medium Rainfall;			

Dwellingup Yalanbee and Hester Complex\In Low to Medium Rainfall;
 Michibin Complex;
 Murray and Bindoon Complex\In Low to Medium Rainfall;
 Pindalup and Yarragil Complex\In Low to Medium Rainfall;
 Williams-Avon-Brockman-Mumballup Complex; and
 Yalanbee Complex In Low Rainfall. No information available for all of the above Heddl Vegetation Complexes
 (Heddl et al. 1980).

Mattiske Vegetation Complexes

Bindoon Complex:
 Woodland of *Eucalyptus loxophleba* on the slopes, flanked by woodlands of *Eucalyptus wandoo*-*Eucalyptus accedens* on the breakaways and upper slopes in the perarid zone.

Cooke Complex: Mosaic of open forest of *Eucalyptus marginata* subsp. *marginata*-*Corymbia calophylla* (subhumid zone) and open forest of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* (semiarid and arid zones) and on deeper soils adjacent to outcrops, closed heath of *Myrtaceae*-*Proteaceae* species and lithic complex on granite rocks and associated soils in all climate zones, with some *Eucalyptus laeliae* (semiarid), and *Allocasuarina huegeliana* and *Eucalyptus wandoo* (mainly semiarid to perarid zones).

Coolakin Complex:
 Woodland of *Eucalyptus wandoo* with mixtures of *Eucalyptus patens*, *Eucalyptus marginata* subsp. *thalassica* and *Corymbia calophylla* on the valley slopes in arid and perarid zones.

Dwellingup 3 Complex:
 Open forest of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* on lateritic uplands in the arid zone.

Dwellingup 4 Complex:
 Open forest to woodland of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* on

lateritic uplands in semiarid and arid zones.

Michibin Complex: Open woodland of *Eucalyptus wandoo* over *Acacia acuminata* with some *Eucalyptus loxophleba* on valley slopes, with low woodland of *Allocasuarina huegeliana* on or near shallow granite outcrops in arid and perarid zones.

Murray 2 Complex: Open forest of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla*-*Eucalyptus patens* and woodland of *Eucalyptus wandoo* with some *Eucalyptus accedens* on valley slopes to woodland of *Eucalyptus rudis*-*Melaleuca raphiophylla* on the valley floors in semiarid and arid zones.

Pindalup Complex: Open forest of *Eucalyptus marginata* subsp. *thalassica*-*Corymbia calophylla* on slopes and open woodland of *Eucalyptus wandoo* with some *Eucalyptus patens* on the lower slopes in semiarid and arid zones.

Williams Complex: Mixture of woodland of *Eucalyptus rudis*-*Melaleuca raphiophylla*, low forest of *Casuarina obesa* and tall shrubland of *Melaleuca* spp. on major valley systems in arid and perarid zones

Yalanbee Complex: Woodland of *Eucalyptus wandoo*-*Eucalyptus accedens*, less consistently open forest of *Eucalyptus marginata* fs24 subsp. *thalassica*-*Corymbia calophylla* on lateritic uplands and breakaway landscapes in arid and perarid zones.

(Mattiske Consulting 1998).

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is at variance to this Principle

The vegetation under application within the road reserves in Toodyay ranges from completely degraded to excellent with numerous roads with the potential to provide significant habitat for fauna indigenous to Western Australia and may include vegetation necessary for Declared Rare Flora.

The assessment report has identified 52 records of DRF and 40 records of priority flora within the local area and may be found within the areas under application. The indigenous fauna in the local area is not only likely to utilise individual trees and understorey for habitat but certain roads may also be important ecological corridors for fauna and play a role in maintaining the values of the nearby isolated conservation reserves.

Clearing within the Drummond Recovery Catchment is also considered a potential risk for the priority ecological community 'Claypans with shrubs over herbs'. Increase salinity puts at risk this community that is reliant on freshwater and sensitive to changes in salinity levels.

Given the potential effects the proposed level of clearing within the shire may have on DRF, priority flora, fauna and the ecological corridors road reserves can provide and potential impacts on the biodiversity rich 'Claypans with shrubs over herbs' community it is considered that the proposed clearing in its current form is at variance with this principle.

To address this issue a number of conditions will be placed on the permit, with these conditions outlined within principle b, c and d below.

Methodology Biodiversity Coordination Section, DEC (2006)
Site visit 2006
GIS databases:
- Declared Rare and Priority Flora List - CALM 01/07/05
- Threatened Ecological Community Database - CALM 12/04/05

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments Proposal may be at variance to this Principle

During the DEC site visits (2006) a significant number of mature Eucalypts were observed. These mature Eucalypts, most significantly *Eucalyptus wandoo*, showed signs of hollows in a range of sizes that would be considered significant habitat for range of indigenous fauna.

The range of indigenous fauna that may potentially utilise these tree hollows include priority fauna species such as Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*); Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*); Cuditch (*Dasyurus geoffroyi*) and Masked Owl (*Tyto novaehollandiae novaehollandiae*) that are found within 5km of the areas under application in the Toodyay Shire (BCS, 2006).

In addition, the mature trees in the areas under application appear to have hollows of sufficient girth to be utilised by other avian or marsupial fauna. BCS (2006) advised that mature hollow bearing Wandoo or Marri trees present within the application area should be assessed by a fauna specialist to determine if they are being utilised as nesting habitat. If they are found to be occupied by nesting fauna, the fauna specialist shall remove the fauna to the care of a person nominated by DEC, prior to any area around and including the tree is removed.

The vegetation under application is contained within road reserves in a Shire that has been extensively cleared for agriculture, and therefore may be significant in providing ecological corridors for priority fauna species. This is especially important for maintaining the values of the nearby conservation reserve.

Given the potential for the applied vegetation to provide habitat hollows and ecological linkages for fauna, it is considered that it may comprise significant habitat for indigenous fauna. To mitigate any loss of habitat within the areas proposed to be cleared conditions will be placed on the permit to ensure surveys are undertaken by a fauna specialist to identify trees that may be suitable as habitat for specially protected fauna under the Wildlife Conservation Act and, where applicable, translocation of fauna is undertaken.

Methodology Biodiversity Coordination Section, DEC (2006)
Site visit 2006

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments Proposal may be at variance to this Principle

There are 52 records of five species of Declared Rare Flora (DRF), *Grevillea flexuosa* (zig-zag grevillea), *Asterolasia nivea* (Bindoon starbush), *Acacia chapmanii* subsp. *australis*, *Hydatella leptogyne* (few-flowered hydatella) and *Thelymitra stellata* (Star sun orchid), within 5km of the areas under application including:

- 3 occurrences of *Hydatella leptogyne*, *Eleocharis keigheryi* and *Acacia chapmanii* subsp. *australis* 200m east of Old Plains Road in Drummond Nature Reserve,
- 4 occurrences of *Asterolasia nivea* located 1.5km northeast of Bindoon-Dewars Pool Road and 2.6km southwest of Rockdale Road,
- 3 occurrences of *Thelymitra stellata* located 1.2km West of Sand Spring Road,
- 34 occurrences of *Grevillea flexuosa* located within a 2.6km radius of Ridley Circle.

These DRF and the areas under application are found within the same vegetation association. There are also over 50 occurrences of Priority flora within a 5km radius of the proposed clearing, predominantly within lands

vested for conservation purposes. It is therefore considered that the vegetation under application may include, or be necessary for the continued existence of, rare flora.

To ensure all DRF and priority species are identified and managed accordingly, a condition will be placed on the permit to ensure surveys are undertaken by a flora specialist to identify the presence of any DRF or priority species within the areas proposed for clearing. Where DRF species are identified the Shire will be required to submit the records to the Department of Environment and Conservation ensuring no species are removed unless approved by the CEO.

Methodology Biodiversity Coordination Section, DEC (2006)
Site visit 2006
GIS databases:
- Declared Rare and Priority Flora List - CALM 01/07/05

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments Proposal may be at variance to this Principle

There are more than 70 known occurrences of Threatened Ecological Communities (TEC) within a 50km radius of the areas under application, with the closest occurring approximately 20km to the west of Brook Close.

Biodiversity Coordination Section (2007) advise that there are not any mapped threatened ecological communities within the areas under application but there are three Priority Ecological Communities (PEC) that occur within the local area with two communities immediately adjacent to Old plains Road and one community immediately adjacent to Dewars Pool Road.

The Drummond Nature Reserve on Old Plains Road has a number of 'Claypans with shrubs over herbs' communities that although will not likely be directly impacted by the proposed clearing the associated salinity risks on a local level may result in indirect threat to this community.

The other community adjacent to Old Plains Road is the Wandoo Woodland over Dense Sedge of Mesomelaena. This has also been mapped in the Drummonds Nature Reserve and may extend into the Road Reserve along Old Plains Road.

There is a mapped York Gum Woodland immediately adjacent to Dewars Pool Road and is in close proximity to the local Dudley Chitty Reserve.

The areas under application are not likely to impact on any known threatened ecological communities the priority communities adjacent to Old Plains Road and Dewars Pool Road may be impacted by the proposal in its current form.

Given the potential direct and indirect impacts of the two priority ecological communities within the Drummond Nature Reserve that is immediately adjacent to Old Plains Road it is proposed that clearing along this section be limited to maintenance with no widening between Mount and Bulligan Roads.

To ensure clearing along the remainder of Old Plains Road and Dewars Pool Road is not impacting the Priority Wandoo or York Gum communities a condition requiring a flora specialist be engaged to determine what community types are in these road reserve has been placed on the permit. If a priority ecological community is identified then clearing within 250m of that community will not be permitted unless approved by the Departments CEO.

In addition It is recommended that any clearing of vegetation on any road within the Drummond Recovery Catchment should be offset with a 10:1 replanting program that will be placed as a condition to minimise the potential salinity impacts as a result of the proposed clearing impacting the }Claypan} community.

Methodology Biodiversity Coordination Section, DEC (2006)
GIS Databases:
- Threatened Ecological Community Database - CALM 12/04/05
- Environmentally Sensitive Areas - DOE 08/03/05

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments Proposal is at variance to this Principle

The proposed clearing occurs within both the Avon Wheatbelt IBRA Region, where the area of vegetation remaining is 16%, and the Jarrah Forest Region, which has 58.7% remaining. The clearing is also within the Intensive Landuse Zone where the vegetation remaining within this area is 10.3%. The vegetation extent in the Shire of Toodyay is 53.1% (Shepherd et al. 2001) with a strong contrast between the portions of the Shire within the heavily vegetated Jarrah Forest Region and the cleared landscape of the Intensive Landuse Zone.

The areas under application are located within the Intensive Land-use Zone (Shepherd et al. 2001) and located in the area defined in EPA Position Statement No. 2 (EPA 2000). Significant clearing of native vegetation has already occurred in this area and any further reduction through clearing is not generally supported.

The State Government is committed to the National Objectives and Targets for Biodiversity Conservation which includes a target that prevents the clearance of ecological communities with an extent below 30% of that present Pre-European settlement. Several of the vegetation complexes under application are below the minimum threshold of 30% representation.

The majority of roads under application occurring within Beard vegetation associations 352 and 4 of which there remains only 15.2% and 23.5% respectively. The proposal is therefore considered to be at variance to this Principle.

	Pre-European (ha)*	Current extent (ha)*	Remaining (%)*	Conservation**% status	In reserves/CALM managed land
IBRA Bioregions					
- Avon Wheatbelt***	9 578 995	1 536 296	16.0	Vulnerable	
- Jarrah Forrest	4 544 335	2 665 480	58.7	Least Concern	
Shire of Toodyay	173 440	88 082	50.8	Least Concern	
Vegetation type:					
Beard: Unit 4	1 247 834	292 993	23.5	Vulnerable	14.8
Beard: Unit 352	874 652	133 255	15.2	Vulnerable	3.0
Beard: Unit 694	403 915	68 872	17.1	Vulnerable	52.5
Beard: Unit 946	97 259	17 377	17.9	Vulnerable	39.7
Beard: Unit 1006	53 123	26 929	50.7	Least Concern	13.0
Beard: Unit 3003	78 358	51 943	66.3	Least Concern	5.9
Mattiske:					
Bindoon Complex	266 761	78 976	29.6	Vulnerable	
Cooke Complex	353 106	301 544	85.4	Least Concern	
Coolakin Complex	1 338 992	573 908	42.9	Depleted	
Dwellingup 3 Complex	93 848	76 932	82.0	Least Concern	
Dwellingup 4 Complex	1 324 003	1 211 559	91.5	Least Concern	
Michibin Complex	1 345 524	356 512	26.5	Vulnerable	
Murray 2 Complex	593 148	440 381	74.2	Least Concern	
Pindalup Complex	1 666 912	1 343 956	80.6	Least Concern	
Williams Complex	234 849	48 193	20.5	Vulnerable	
Yalanbee Complex	1 583 884	814 609	51.4	Least Concern	

* (Shepherd et al. 2001)

** (Department of Natural Resources and Environment 2002)

*** Within the Intensive Landuse Zone

To mitigate any potential impacts of the clearing on remnant vegetation, while acknowledging the need to maintain and upgrade roads, the proposed clearing will be carried out in accordance with a condition imposed on the permit requiring that clearing of vegetation be avoided, and where this is not possible, minimised. In addition, to address the loss of vegetation within a highly cleared landscape, a condition has been imposed to offset the values of the areas to be cleared.

Methodology Department of Natural Resources and Environment (2002)
EPA (2000)
Hopkins et al. (2001)
Shepherd et al. (2001)
Heddle et al. (1980)
Mattiske Consulting (1998)
GIS Databases:
- Pre-European Vegetation - DA 01/01

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments **Proposal is at variance to this Principle**

The majority of clearing in or near watercourses in the Shire of Toodyay was addressed in a previous clearing application (CPS 1280/1), however not all roads were covered by this permit.

The following watercourses are dissected by roads under application:

- Jimperding Brook - dissected by Salt valley Rd, Cobbler Pool Rd;
- Malkup Brook - dissected by Sand Spring Rd;
- Toodyay Brook - dissected by Picnic Hill Rd, Bindoon Dewars Pool Rd, Telegraph Road;
- Boyagerring Brook - dissected by Boyagerring Rd; and
- Flat Rocks Gully - dissected by Rockdale Road.

Given that a portion of the applied vegetation is associated with watercourses the proposal is considered to be at variance with this Principle. To mitigate any long term loss of vegetation associated with watercourses an offset condition has been imposed to ensure that impact of this clearing directly counterbalance the loss of the native vegetation. It would be expected that the direct offset of this impact would result in the replanting of vegetation along the same watercourse effected by the clearing and will occur within the local area.

Methodology GIS Databases:
Hydrography, linear (hierarchy) - DOW

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments **Proposal may be at variance to this Principle**

The soils identified within the areas under application are mainly hard, neutral or acidic red soils, with some sandy soils, all of which contain ironstone gravels (Western Australia Department of Agriculture 2004). The Department of Agriculture and Food (DAFWA) (2006) advise that there is generally a low risk of eutrophication, wind erosion and waterlogging within the areas under application. DAFWA (2006) also advise that there is generally a low risk of salinity throughout the Shire, however there is a high risk of salinity lower in the landscape. In addition, groundwater monitoring within the Drummond Nature Reserve is showing an increase of salinity in the groundwater, and it is considered that any further clearing within the Drummond Recovery Catchment may result in a further increase in salinity causing land degradation.

The areas under application are adjacent to existing roads, which already include road side infrastructure, such as table drains and culverts, to prevent land degradation in the form of water erosion associated with roads. However, DAFWA (2006) advise that due to the majority of the areas under application being located on steep slopes within a 650mm rainfall zone, much runoff would be expected from roads, and therefore there is a high risk of water erosion associated with the removal of vegetation. It is therefore considered that the proposed clearing may cause appreciable land degradation.

It is recommended that any clearing of vegetation on any road within the Drummond Recovery Catchment should be offset with a 10:1 replanting program that will be placed as a condition to minimise the potential salinity impacts as a result of the proposed clearing.

Methodology Department of Agriculture and Food (2006)
Western Australia Department of Agriculture (2004)
GIS Database: Soils, Statewide - DA 11/99

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments **Proposal may be at variance to this Principle**

There are numerous conservation reserves, being DEC managed lands, within 15km of the areas under application, including Rugged Hills Nature Reserve, an Unnamed (19904) Nature Reserve, Julimar State Forest, Wongamine Nature Reserve, Wattening Nature Reserve, Drummond Nature Reserve, Rock Gully Nature Reserve and Poison Gully Nature Reserve.

A section of Forest Road is adjoining Wongamine Nature Reserve and sections of Old Plains Road are adjoining Drummond Nature Reserve and Bewmalling Nature Reserve. Although the areas under application are thin and linear in nature these road reserves may provide corridors for fauna movement between isolated Nature Reserves including Drummond Nature Reserve.

The areas under application that run parallel to the Nature Reserves also provide a buffer to the actual reserve and limit the effects of weeds. Weed species or dieback may be spread or introduced into areas adjacent to the road reserves by machinery used for vegetation clearing or road construction (BCS 2007). There are serious consequences associated with the spread of such diseases and exotic species into an area reserved for conservation, including the potential local extinction of species.

An additional potential impact relating to the proposed clearing may be an increase in salinity. Groundwater monitoring in the Drummond Nature Reserve has shown an increase in groundwater salinity and any further clearing within the Drummond Recovery Catchment may exacerbate salinity, which may affect vegetation within the Reserve. The Priority Ecological Community found within the Reserve is a freshwater dependant community with the major threat being rising groundwater levels as a result of clearing, and the associated

impact of salinity.

Given that there is the potential for the proposed clearing to directly and indirectly impact the environmental values of conservation reserves adjacent to the applied areas, the proposal may be at variance to this Principle. To prevent the adjacent conservation reserves from being impacted by the clearing, conditions will be placed on the permit to ensure wash down of vehicles and to ensure construction material is weed and dieback free. In addition it is recommended that any clearing of vegetation on any road within the Drummond Recovery Catchment should be offset with a 10:1 replanting program that will be placed as a condition to minimise the potential salinity impacts as a result of the proposed clearing.

Methodology BCS (2007)
DEC site visit
GIS Database: CALM Managed Lands and Waters - CALM 1/07/05

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments Proposal may be at variance to this Principle

Groundwater salinity in the majority of the areas under application ranges from 3000-14000mg/L, with some areas in the north-western extent having groundwater salinity at 14000-35000mg/L. The areas under application are within the Proclaimed Surface Water Area of the Avon River Catchment, but are not located within a Public Drinking Water Source Area.

There are a number of watercourses in the local area, with the roads under application dissecting Jimperding Brook, Boyagerring Brook, Toodyay Brook and Flat Rocks Gully. Areas associated with these watercourses have a high risk of salinity, however the proposed clearing is not likely to regionally alter groundwater levels and have a significant affect on salinity within these watercourses within the Shire.

The Priority Ecological Community of }Claypans with shrubs over herbs} is a fresh water dependant community with a major threat being rising groundwater levels and associated impact of salinity. This community type is under threat due to the salinity issues throughout the wheatbelt and in the Toodyay Shire is restricted to the Drummond Nature Reserve. Groundwater monitoring within the Drummond Nature Reserve adjacent to the claypans is showing an increase of salinity in the groundwater immediately up gradient of this community. This monitoring is in the south east corner of the reserve less than 100 metres for the proposed clearing along Old Plains Road. Although the vegetation to be clearing is in long narrow strips any clearing of vegetation, particularly up gradient of the Claypans and especially clearing in close proximity is considered to provide an unacceptable risk of exacerbating salinity. As such it would be recommended that clearing along Old Plains Road be further revised down to only include maintenance works between Mount Road and Bulligan Road, immediately adjacent to the nature reserve, with any clearing of vegetation on any road within the Drummond Recovery Catchment should be offset with a 10:1 replanting program that will be placed as a condition to minimise potential salinity impact as a result of the proposed clearing.

DAFWA (2006) advise that due to the areas under application being located on steep slopes in a 650mm rainfall zone it is expected that there would be a large amount of runoff from the roads with the potential to cause water erosion in areas where vegetation has been removed. This runoff has the potential to carry high amounts of sediment that could be deposited into receiving waterbodies, thus decreasing the water quality.

It is therefore considered that due to the risk of water runoff carrying sediment and the risk of local salinity impacts, within the Drummond Recovery Catchment, that may impact on the freshwater clay pans in the Drummond Nature Reserve the proposal may be at variance to this Principle.

It is recommended that any clearing of vegetation on any road within the Drummond Recovery Catchment should be offset with a 10:1 replanting program that will be placed as a condition to minimise the potential salinity impacts that may impact local ground and surface water as a result of the proposed clearing.

Methodology DAFWA (2006)
GIS Databases:
Groundwater Salinity, Statewide - 22/02/00
Hydrography, linear (hierarchy) - DOW
Public Drinking Water Source Areas (PDWSAs) - DOE 07/02/06
Salinity Risk LM 25m - DOLA 00

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments Proposal is not likely to be at variance to this Principle

The area under application has an average annual rainfall of approximately 650mm (DAFWA 2006) and an annual evaporation rate of 2,000mm - 2,200mm. DAFWA (2006) advise that the risk of flooding is low and therefore it is not considered likely that the removal of vegetation from site would have an impact on peak flood height or duration of any of the Rivers Creeks or Brooks within the Shire.

Methodology DAFWA (2006)
GIS Databases:
Evaporation Isopleths - BOM 09/98
Rainfall, mean annual - BOM 30/09/01

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

The current amendment is as a result of a review of the Minister for the Environment's appeal determination of October 2007 which identified that the Minister also required that an additional condition requiring communication and consultation with the local community prior to the clearing of roads authorised under the permit and to allow reporting to occur within a calendar year, not a financial year.

The areas under application are within the Proclaimed Surface Water Area of the Avon River Catchment. Therefore any abstraction of surface water would require a licence. However, considering this application is only for road construction or maintenance, no licence will be necessary.

There is no other RIWI Act Licence, Works Approval or EPA Act Licence that affects the area under application.

There are seven Aboriginal Sites of Significance listed within the area under application; Bejoording, Bolgart, Bolgart: Boolegin, Bolgart: Byeen Gate, Moondyne Springs, Swan River and Wattening-Bolgart sites.

The majority of the proposed clearing is within road reserves that are vested with the Shire of Toodyay, with the gravel extraction within a lot owned by the Shire. As the proposed clearing is consistent with the purpose of the vesting and the Shire is exercising a statutory power, the granting of a clearing permit constitutes a secondary approval and is not a future act under the Native Title Act 1993. The lot under this application for to be cleared for gravel extraction is part of a Native Title Claim however, since it is privately owned, the Native Title has been extinguished under the Native Title Act.

In a submission, the Roadside Conservation Committee (RCC) commented that the proposed clearing to 5m from both sides of the road is excessive and that 4m should be sufficient. The RCC comments that the average footprint for a 6m seal with average shoulders, drains and back slopes is 10m, and that taking an extra metre off the remaining vegetation would 'seriously compromise its ability to function due to higher impacts of edge effects' and would also 'reduce the functionality of the vegetation to act as a habitat and corridors for flora and fauna.' The RCC identify Chitty Road, Salt Valley Rd, Forest Rd, Old Plains Rd and Hoddyswell Rd as having a high conservation value along most, if not all, of their length.

The following submissions were received from community members objecting to the proposed clearing, and were considered during the assessment process:

- Many of the road reserves have a high level of biodiversity;
- Declared Rare Flora and Priority flora may be present on the proposed roads;
- A substantial amount of vegetation has been cleared in the Shire, especially in the eastern areas, and protection of remaining vegetation is important. Therefore vegetation is significant as a remnant in an area that has been extensively cleared and a survey should be required to determine the conservation significance of the vegetation proposed for clearing;
- Road reserves are important ecological corridors for pollinators, which are important for retaining biodiversity and the vegetation is likely to provide significant habitat for fauna;
- Significant land degradation would result if the clearing was approved
- the road verge in some instances is steeply sloped and the clearing will result in severe erosion;
- The removal of vegetation would allow invasion of weeds, which will increase the fire risk;
- Several of the roads proposed to be cleared pass by conservation reserves and clearing this roadside vegetation will affect the values of the adjacent conservation areas; and
- The erosion of the steep slopes will result in sedimentation and siltation of nearby creeks and streams;
- Placing of the freshly mulched trees on the ground would result in acidity of soils, killing remnant ground covers, and resulting in further weed invasion; and
- Removal of vegetation from tourist drives would result in a loss of tourism and heritage values;

Following the submissions, recommendations were also made by community members, and were considered during the assessment process:

- That flora surveys be conducted of all proposed roads;
- there is a need for appropriate policy and guidelines for more appropriate road verge management in the Shire, including regular auditing of practices;
- that the Shire adopts the Handbook of Environmental Practice for Road Construction and Maintenance Works (RCC);

- that the Shire adopts a process that will allow for community consultation and comment prior to roadside clearing;
- increased signage to indicate winding roads and to lower speeds; and
- that the Shire be required to replace unlawfully cleared vegetation with understorey species to enable visibility but also help stabilise soils and prevent weed invasion; and
- that the requirements by the DEC on the Shire should be no less than those applied to CPS 703/1, with mitigation/off-set arrangements such as seed collection, plant relocation and mulching.

All submissions received by the Department were reviewed and the comments, objections and recommendations were given careful consideration. Where the assessing officer believed the comments, objection and recommendations were relevant and reasonable these issues were included as part of the assessment and reference when conditions were being drafted.

Methodology GIS databases:

- Aboriginal Sites of Significance - DIA 28/02/03
- Cadastre - DLI 1/12/05
- Native Title Claims - DLI 7/11/05
- RIWI Act, Groundwater Areas - WRC 13/06/00
- RIWI Act, Surface Water Areas - WRC 18/10/02

4. Assessor's comments

Comment

The assessable criteria have been addressed and the clearing as proposed is considered to be at variance with principle (e) and (f) and may be at variance to Principle (a), (b), (c), (d), (g), (h), and (i).

It is recommended to grant a permit to clear 72 trees and 57.53 hectares of native vegetation for road construction or maintenance with conditions addressing the minimisation of clearing, Offsets, Weeds and Dieback prevention, Fauna and Flora survey and avoidance, Recording and Reporting.

5. References

- Biodiversity Coordination Section, DEC (2006) Clearing Assessment Unit's biodiversity advice for land clearing application. Advice to Director General, Department of Environment and Conservation (DEC), Western Australia. TRIM Ref ED1102.
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- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
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- Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) Native Vegetation in Western Australia, Extent, Type and Status. Resource Management Technical Report 249. Department of Agriculture, Western Australia.
- Western Australia Department of Agriculture, 2004, Soil-landscape mapping, Western Australia Department of Agriculture, Date accessed 01/05/04.

6. Glossary

Term	Meaning
BCS	Biodiversity Coordination Section of DEC
CALM	Department of Conservation and Land Management (now BCS)
DAFWA	Department of Agriculture and Food
DEC	Department of Environment and Conservation

DEP	Department of Environmental Protection (now DEC)
DoE	Department of Environment (now DEC)
DMP	Department of Mines and Petroleum (ex DoIR)
DRF	Declared Rare Flora
EPP	Environmental Protection Policy
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
TEC	Threatened Ecological Community
WRC	Water and Rivers Commission (now DEC)