

CASSIA DRIVE BUSHLAND, KARNUP

Boundary Definition: bushland (part taken to cadastre)/management boundary (Boundary adjusted in response to a submission to draft *Perth's Bushplan*.)

SECTION 1: LOCATION INFORMATION

Bush Forever Site no. 278

Area (ha): bushland 53.6

Map no. 75

Map sheet series ref. no. 2033-II SW

Other Names: not known

Local Authorities (Suburb): City of Rockingham (Karnup)

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Spearwood Dunes

Sands derived from Tamala Limestone (Qts: S7)

VEGETATION AND FLORA

Vegetation Complexes

Spearwood Dunes

Karrakatta Complex — Central and South

Floristic Community Types: *not sampled, types inferred

Supergroup 3: Uplands centred on Bassendean Dunes and Dandaragan Plateau

*21a Central *Banksia attenuata* — *Eucalyptus marginata* woodlands

Supergroup 4: Uplands centred on Spearwood and Quindalup Dunes

*25 Southern *Eucalyptus gomphocephala* — *Agonis flexuosa* woodlands

WETLANDS

No wetlands mapped

THREATENED ECOLOGICAL COMMUNITIES

Not assessed

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: dune crest, vegetated uplands

Vegetation and Flora: limited survey (DEP 1998 roadside observations, DEP 1999, Mattiske Consulting Pty Ltd 1997)

Structural Units

Uplands: *Eucalyptus gomphocephala* Woodland; *Eucalyptus gomphocephala* and *E. marginata* Open Woodland to Closed Forest; *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* Low Open Woodland to Low Woodland

Scattered Native Plants: *Eucalyptus gomphocephala* and *E. marginata* Low Open Woodland

Vegetation Condition: Very Good, with areas of severe localised disturbance (Mattiske Consulting Pty Ltd 1997)

Total Flora: not known

Significant Flora: not surveyed

Fauna: not known

Linkage: adjacent bushland canopy to the north, south, east and west; part of Greenway 85 (Tingay, Alan & Associates 1998a)

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities

Recommendation: Part A: Rural Complementary Mechanism. Part B: Strategic Negotiated Planning Solution (see Table 3, Volume 1).

CASSIA DRIVE BUSHLAND, KARNUP

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SECTION 1: CADASTRAL INFORMATION

(Lots, locations and derived information to be updated in the public submission period)

Bushplan Site no. 278 **Map no.** 99 **Map sheet series ref. no.** 2033-II SW

Other Names: not known

Area (ha): total 54.2; bushland 53.9

Local Authorities (Suburb)

Zoning

City of Rockingham (Karnup)

MRS: Urban Deferred, Rural, Important Regional Roads

TPS: Special Rural, Landscape

Ownership Categories

Lot/Location/Reserve numbers (Purpose),

Private

Street name

10 Fletcher Rd; 877, 878 Stakehill Rd

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Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities

Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site under TPS Landscape Zoning

Constraints: private land; under MRS Urban Deferred Zoning, MRD regional road requirements

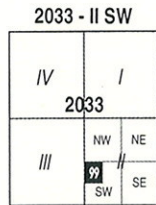
Recommendation: The most appropriate mechanism for the protection of this Bushplan Site be considered through the public comment period in consultation with the land owner(s).



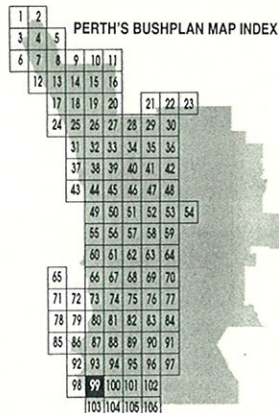


LEGEND

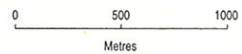
- Bushplan Sites With Regionally Significant Bushland
- Other Native Vegetation
- Conservation Category Wetlands
- Bushplan Sites With Some Existing Protection
- Lot Number, Location Number
- Channel Wetlands
- Local Government Boundary



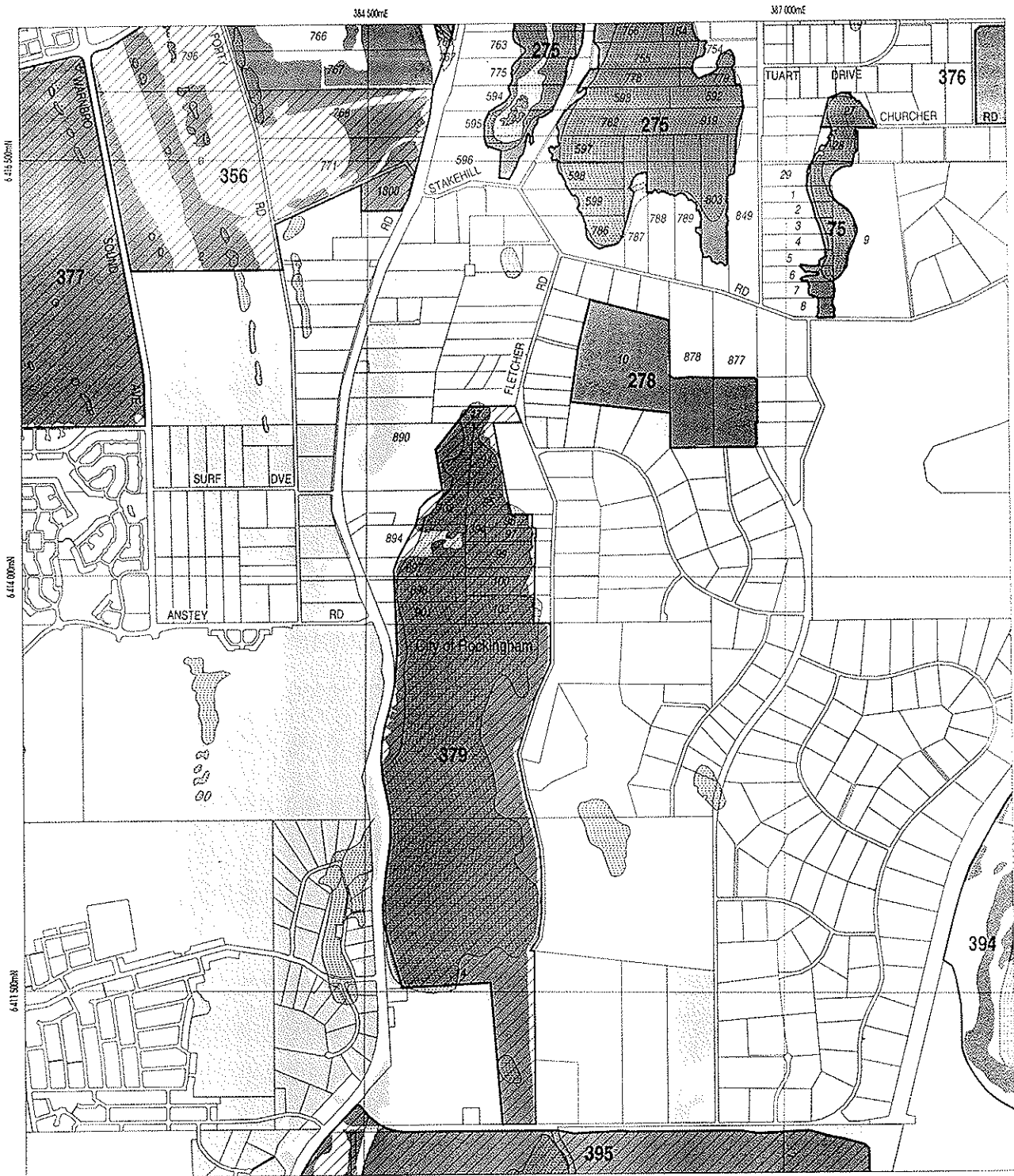
1 : 25 000 AMG Reference Grid showing Perth's Bushplan Map Sheet Breakdown










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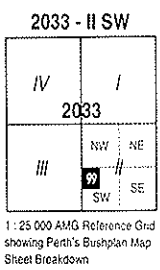


Produced by Project Mapping Section
 Land Information Branch, Ministry for
 Planning, Perth W.A. November 1998
 ntw-map177/environ/bushplan/bushv2_99.dgn
 Cadastral Data supplied by Department
 of Land Administration, W.A.
 Wetlands Data supplied by
 Water and Rivers Commission
 Native Vegetation Extent for Study Area
 supplied by Agriculture Western Australia



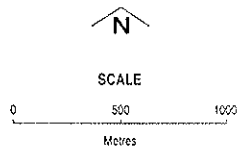
LEGEND

-  Bushplan Sites With Regionally Significant Bushland
-  Other Native Vegetation
-  Conservation Category Wetlands
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-  Lot Number, Location Number
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PERTH'S BUSHPLAN MAP INDEX

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Produced by Project Mapping Section
Land Information Branch, Ministry for
Planning, Perth W.A. November 1998
ntw-map177/environ/bushplan/bushw2_99.dgn
Cadastral Data supplied by Department
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Wetlands Data supplied by
Water and Rivers Commission
Native Vegetation Extent for Study Area
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2/2/01 KC & SC
2 hrs on Site

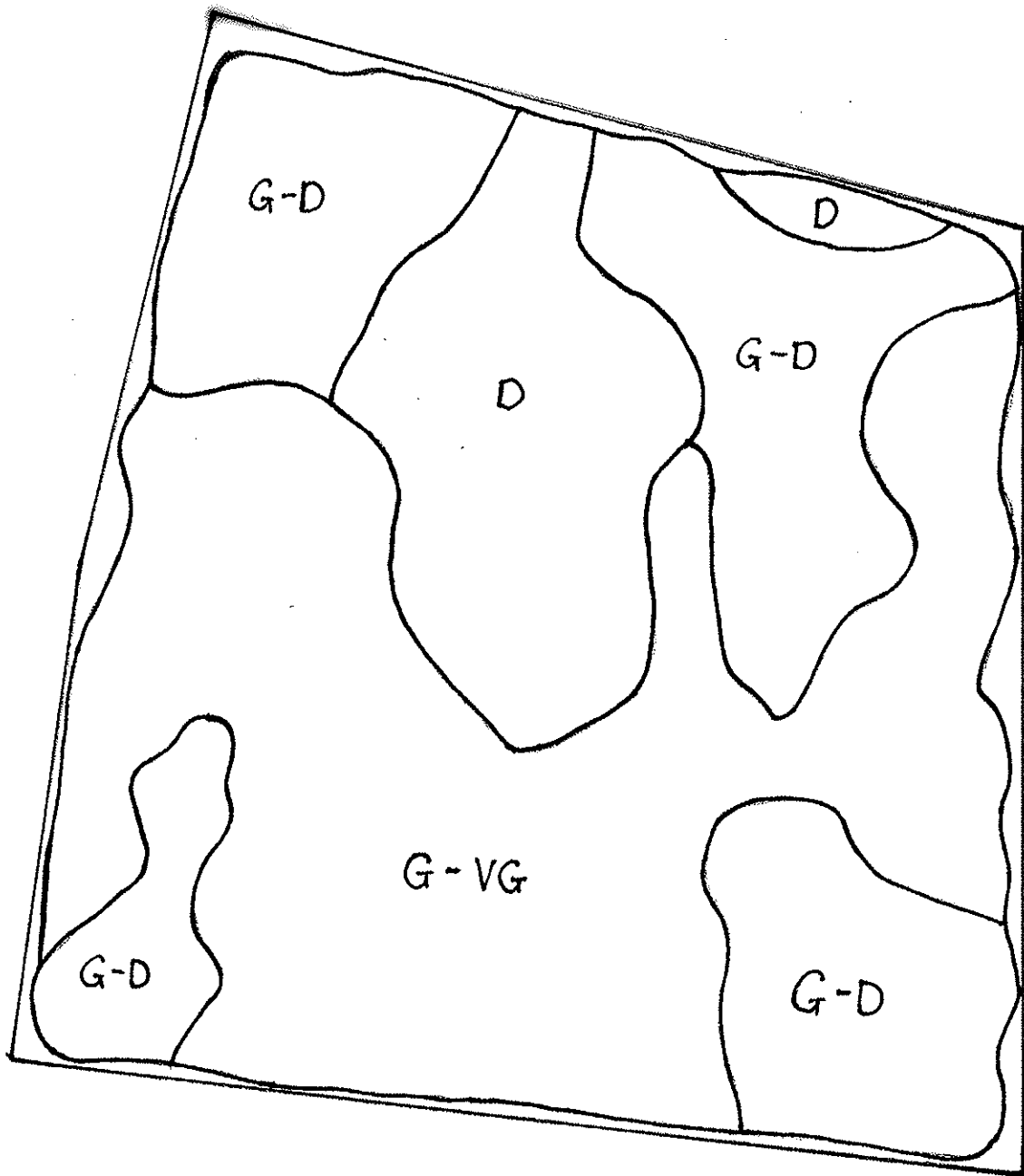


BF 278
Pt Lot 10 Fletcher Rd
Karnup
Aerial 2000

Cadastrre with Lot Numbers Blue - Overlay Images
Contours - 1m (DOLA)
Bush Forever 2000 - Site Boundaries

MFP INTERNAL USE ONLY
Prepared By: Sean Collingwood
Prepared For: SPC
Map Ident: plot010301_1
Date: 01 Mar 2001
Scale 1:4000

Map 1: Bush Forever Site 278 – Vegetation Condition Map for Lot 10 Fletcher Rd, Karnup.



Scale 1:4 000

Vegetation Condition

VG Very Good

G Good

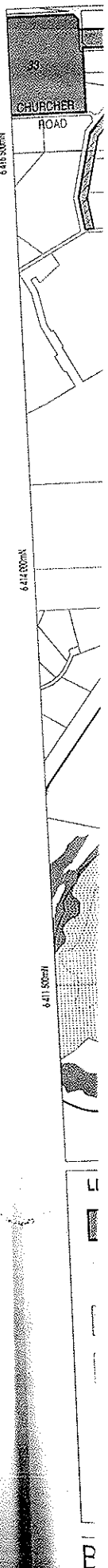
D Degraded

N
↑

BS278 Cassia Dr Bushland, Karnup

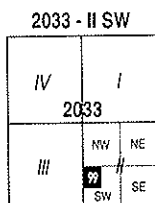
1998





LEGEND

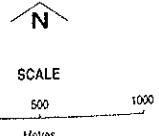
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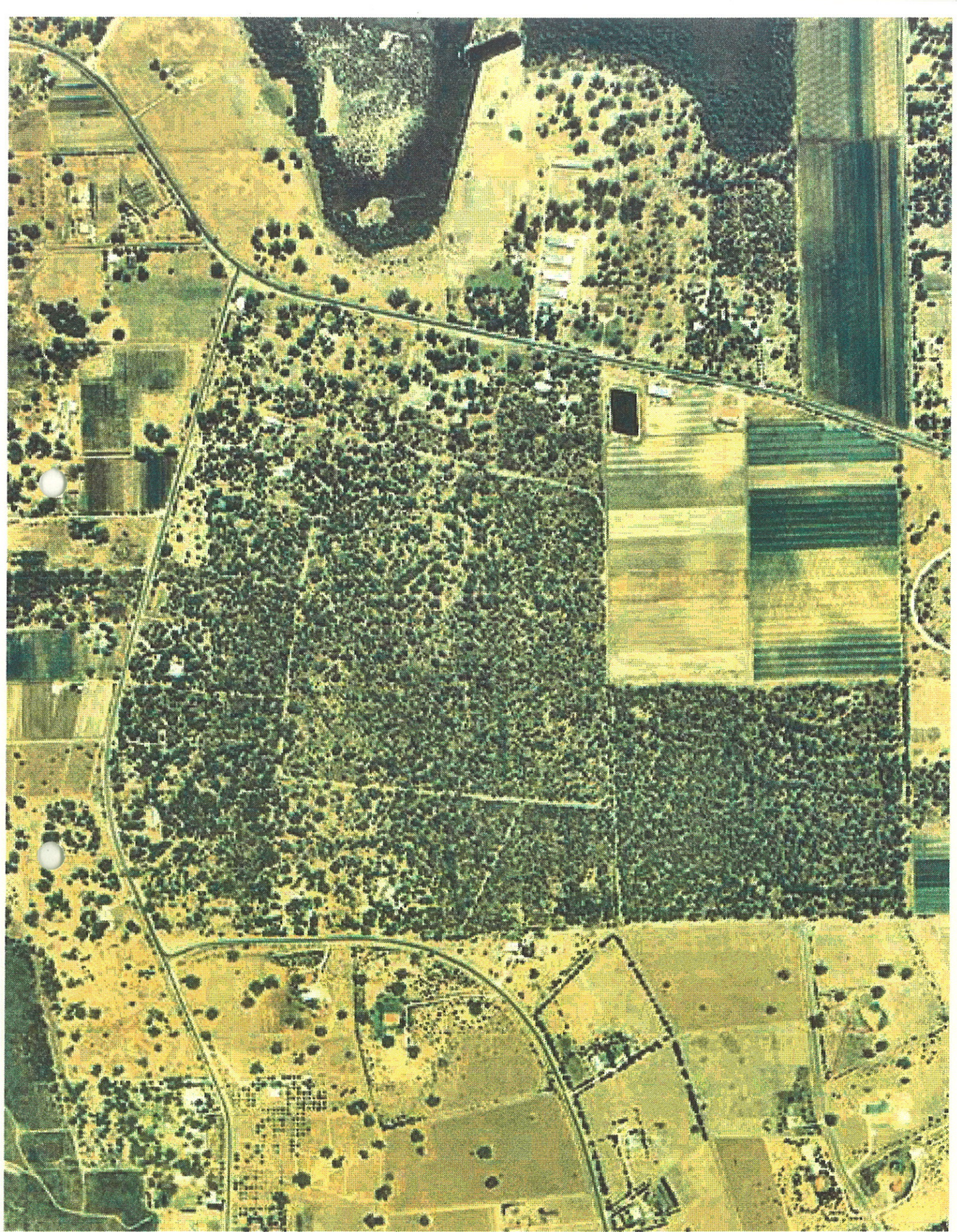


Produced by Project Mapping Section
Land Information Branch, Ministry for
Planning, Perth W.A. November 1998
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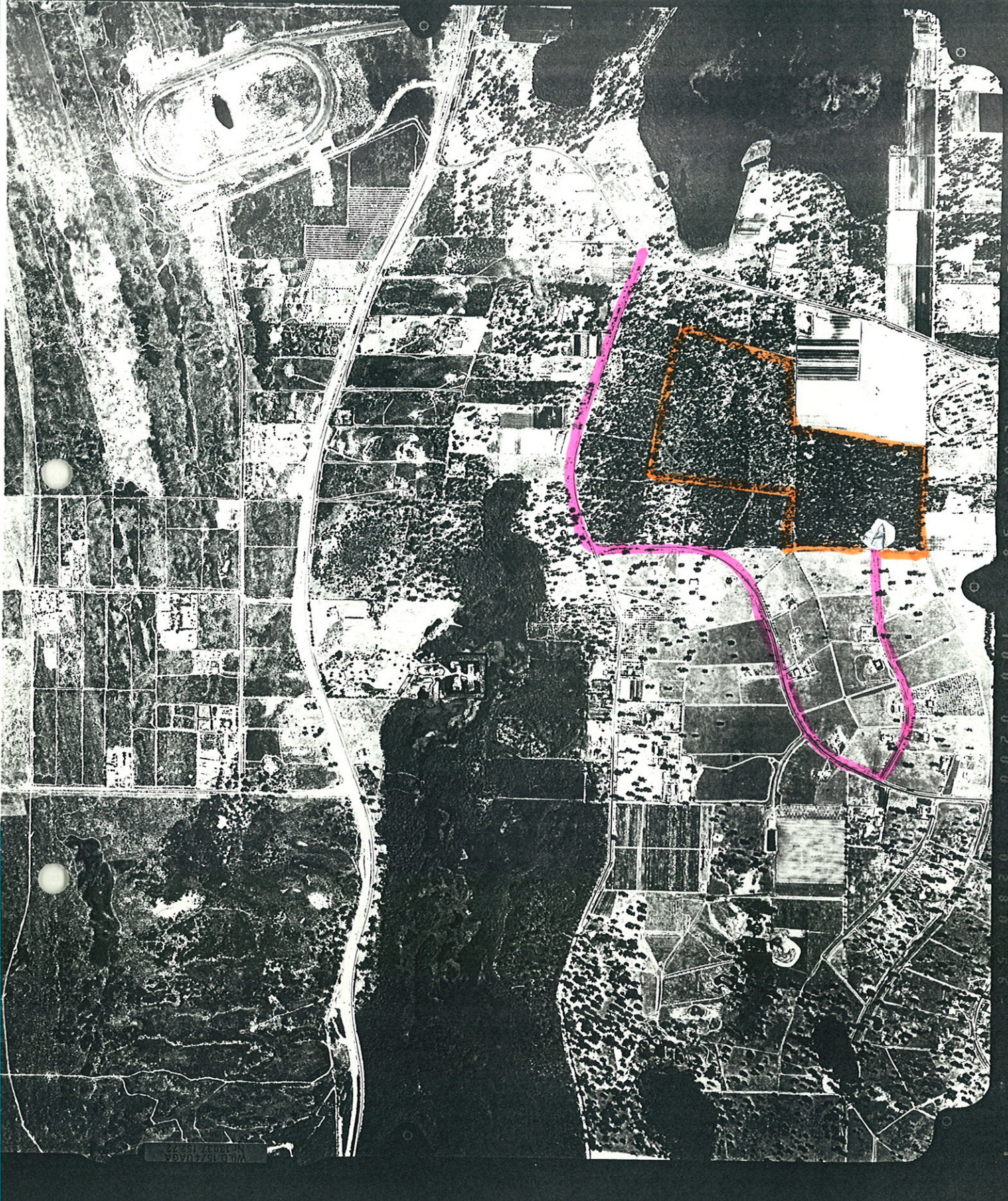
Cadastral Data supplied by Department
of Land Administration, W.A.

Wetlands Data supplied by
Water and Rivers Commission

Native Vegetation Extent for Study Area
supplied by Agriculture Western Australia



1998 Panairama



5022-1268-58-1000200028055

inspection route



boundary BS



Call
OK to include
IRR because
Subject to veg Condition

✓ M/CK
condition
good
29/1/98

278

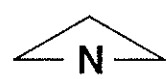
BUSHPLAN SITES CORRECTED



WESTERN
AUSTRALIAN
PLANNING
COMMISSION



CUSTOMER
FOCUS
WESTERN AUSTRALIA



Call

OK to include.
IRR become
Subject to veg Condition

✓ M/CK
condition
good
29/1/98

278

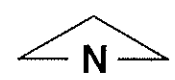
BUSHPLAN SITES CORRECTED



WESTERN AUSTRALIAN PLANNING COMMISSION



B 22/10/98



Spearswood S

vaz DESCRIPTIONS - updated

DEP SYSTEM 6 UPDATE SUBMISSION SURVEY SHEET

B.J. KEIGHERY 9/95

BUSHLAND AREA BS 278 SITES YES/NO

DATE 4/11/97 RECORDERS BJK

Observations edge transects

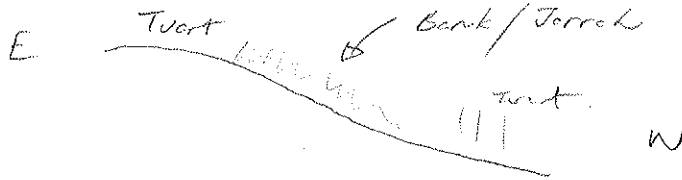
Geographic Location Latitude _____ S Longitude _____ E

Reference Map _____

Photograph _____ Photographer's Name BJK Photo No _____

Transect of landscape units

dunes
dry/wet flats
sumplands
uplands
type



Soil sand Colour brown over yellow
Exposed rock type _____ % area _____

VEGETATION

Eucalypts	<u>E. calophylla</u>	<u>E. wandoo</u>	<u>E. marginata</u>	<u>E. todtianna</u>	<u>E. rudis</u>
	<u>E. decipiens</u>	<u>E. drummondii</u>	<u>E. haematoxylon</u>	<u>E. lanepolei</u>	<u>E. gomphocephala</u>
	<u>E. accedens</u>	<u>E. patens</u>	<u>E. laeliae</u>	<u>E. megacarpa</u>	
Sheoaks	<u>Allocasuarina fraserana</u>		<u>Casuarina obesa</u>		
Banksia	<u>B. attenuata</u>	<u>B. menziesii</u>	<u>B. prionotes</u>	<u>B. illicifolia</u>	<u>B. grandis</u> <u>B. littoralis</u>
Melaleuca	<u>M. preissii</u>	<u>M. raphiophylla</u>	<u>M. lanceolata</u>	<u>M. cuticularis</u>	
Others	<u>Calliris preissii</u>				
Mallees	<u>Eucalypts</u>	<u>E. argutifolia</u>	<u>E. petrensis</u>	<u>E. decurva</u>	<u>E. foecunda</u> <u>E. latens</u>

Xylomet. occid.
Inspection from Kanelme / see dot on photo, access by made road to this point

Vegetation Condition - Keighery 1994 (Trudgen 1993)

- 1 = 'Pristine' (Excellent)
- 2 = Excellent (Very Good)
- 3 = Very Good (Good)
- 4 = Good (Poor)
- 5 = Degraded (Very Poor)
- 6 = Completely Degraded

partial clearing ✓ aerial photo in workin block, not seen, no access.
weeds Ehrh. cely. large, 2-10% over all to patches > 70%

selective removal of species timber cutting mowing % dieback

fire frequency

'enrichment plantings'

animal impact horse foxes rabbits cats dogs goats pigs overgrazing by native mammals

soil movement mining dumping rubbish dumping roadworks

changes in water regimes flooding drainage watering nutrient influx

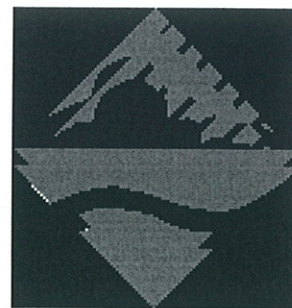
Tracks fire breaks walk trails off road vehicle use animal tracks

Service corridors SEC Main Roads Water Authority Telecom

Other

CONSERVATION BRANCH
DEPARTMENT of ENVIRONMENTAL PROTECTION

Memorandum



ATTENTION: Sean Collingwood/Kieron Beardmore
FROM: Karen Clarke/Bronwen Keighery/Gary Whisson *gwhisson*
DATE: 12 June 2001
SUBJECT: BS 278 - Lot 10 Fletcher Rd, Vegetation Condition Map
FILE NO: PB098/1

Bush Forever Site 278 encompasses regionally significant bushland of the Karrakatta Complex – Central and South vegetation complex on Lot 10 Fletcher Rd and Lots 878 & 877 Stakehill Rd, Karnup. The implementation mechanism for Lot 10 Fletcher Rd is Rural Complementary (Government of Western Australia 2000a) and the landowners of Lot 10 Fletcher Rd want to subdivide this lot. As documented in previous advice (memo dated 20 April 2000), any subdivision proposal for Lot 10 must ensure that lot size is no smaller than the lots already surrounding Lot 10 and that the regionally significant remnant vegetation on Lot 10 is retained as much as possible and protected by a statutory conservation covenant.

To contribute to a subdivision design that maximises retention and protection of the regionally significant vegetation present, a vegetation condition map is required. Therefore, a field inspection was made by Karen Clarke and Sean Collingwood (MfP) on 2 March 2001 to map vegetation condition on Lot 10. Approximately 2 hours were spent traversing the bushland on foot and by vehicle. Being March there were relatively few plants flowering and annually renewed plants were dormant. Therefore, vegetation condition assessments are subject to revision on a mid/late spring inspection.

Lot 10 has been impacted by grazing from horses for many years but a previous site assessment by Bronwen Keighery (DEP) considered that the vegetation is capable of regeneration once grazing pressure is removed and weed control is instigated (DEP 2000). Table 1 details the vegetation condition scale used in assessment of vegetation on the Swan Coastal Plain for Bush Forever (Government of Western Australia 2000b). Map 1 attached shows the condition ratings for the regionally significant vegetation present on Lot 10 based on this scale. While the condition assessment shown in Map 1 is preliminary because it was conducted during March, the map attached is considered sufficient for the purposes of preparing a subdivision design for Lot 10 Fletcher Rd.

Because of the degree of past clearing, intensity of land use and subdivision, Bush Forever proposes to protect less than 10% of the Karrakatta Complex - Central and South and areas supporting this complex are a priority for protection both within and outside the PMR. Areas of vegetation in Good or better condition were considered for inclusion in Bush Forever unless little of that type of vegetation remained in this condition. In which case areas in poorer condition were considered. The Spearwood Dunes have a history of intensive land use (grazing and horticulture) which has had impacts on the general condition of Spearwood Dune vegetation in the Perth

Metropolitan Region (PMR). Much of the Spearwood Dune vegetation in the PMR recognised as being regionally significant, is in Very Good to Good condition.

The overall condition of the vegetation in Lot 10 is Good, that is, the vegetation structure is significantly altered by very obvious signs of multiple disturbances but appears to retain the basic original vegetation structure or ability to regenerate to it. There are areas with patches that appear to be in Very Good condition and other areas with patches in Degraded condition as shown on Map 1. A spring assessment may well indicate that some areas are in better condition than determined during the site inspection of 2 March 2001. Any development on the lot must be restricted to the areas in lesser condition.

Table 1: Vegetation Condition Scale (Government of Western Australia 2000b)

Pristine (1) Pristine or nearly so, no obvious signs of disturbance
Excellent (2) Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good (3) Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good (4) Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing
Degraded (5) Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded (6) The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

REFERENCES

DEP (2000). *Draft Perth's Bushplan – Vegetation Assessment Lot 10, Bushplan Site 278*. Unpublished report prepared for the Ministry for Planning.

Government of Western Australia 2000a. *Bush Forever. Volume 1 Policies, Principles and Processes*. Western Australian Planning Commission, Perth, Western Australia.

Government of Western Australia 2000b. *Bush Forever. Volume 2 - Directory of Bush Forever Sites*. Department of Environmental Protection, Perth, Western Australia.

Appendix 1: Site Description for Bush Forever Site 278 (Government of Western Australia 2000b, for maps see Government of Western Australia 2000a)

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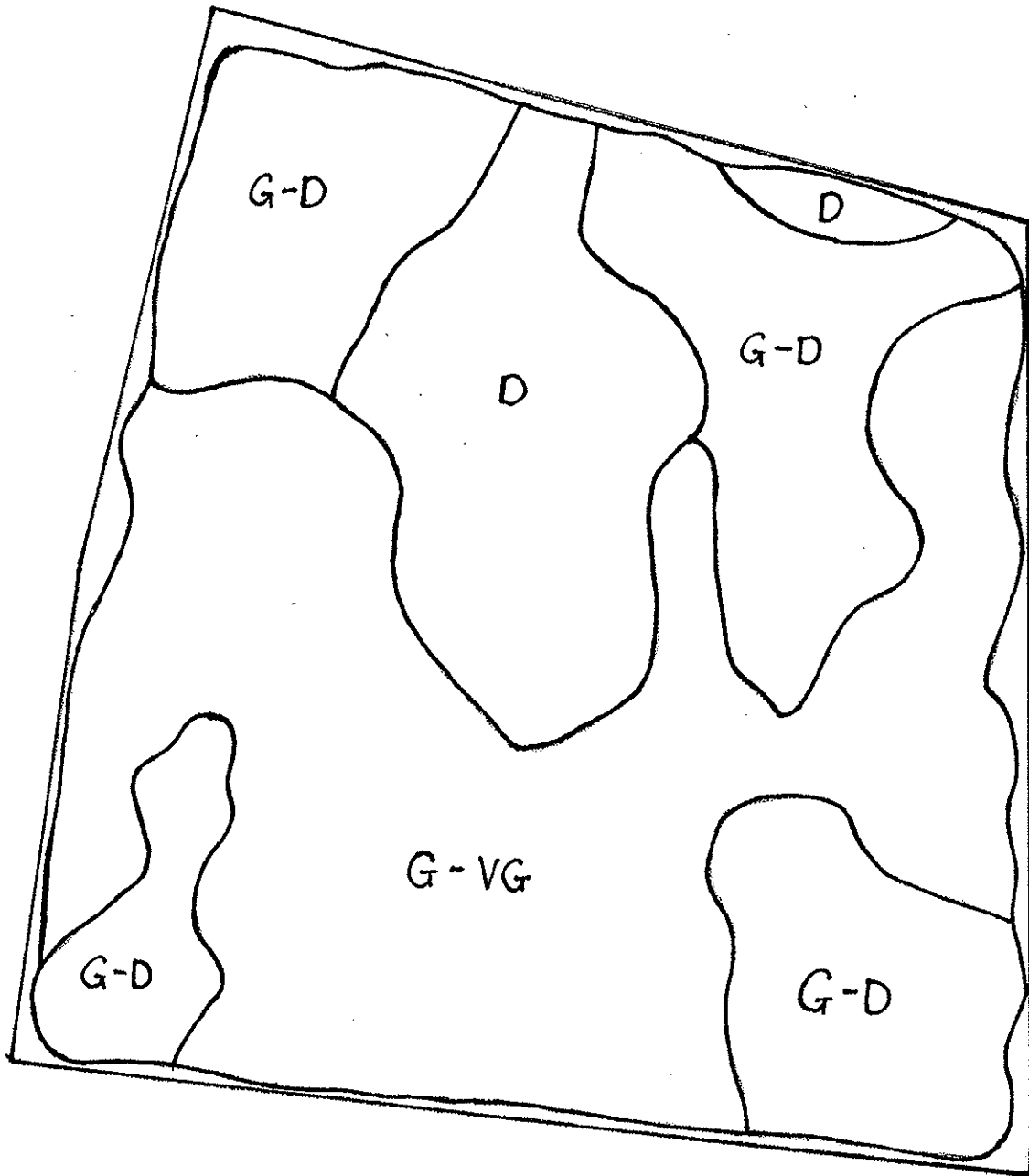
Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities

Recommendation: Part A: Rural Complementary Mechanism. Part B: Strategic Negotiated Planning Solution (see Table 3, Volume 1).

Map 1/a Bush Forever Site 278 – Vegetation Condition Map for Lot 10 Fletcher Rd, Karnup.



Scale 1:4 000

Vegetation Condition




VG Very Good

G Good

D Degraded



MAP 16: BF 278
Pt Lot 10 Fletcher Rd
Karnup
Aerial 2000

-  Cadastrate with Lot Numbers Blue - Overlay Images
-  Contours - 1m (DOLA)
-  Bush Forever 2000 - Site Boundaries

MFP INTERNAL USE ONLY

Prepared By: Sean Collingwood
 Prepared For: SPC
 Map Ident: plot010301_1
 Date: 01 Mar 2001
 Scale 1:4000

DRAFT PERTH'S BUSHPLAN -

VEGETATION ASSESSMENT LOT 10, BUSHPLAN SITE 278

**Department of Environmental Protection
Conservation Branch
October 2000**

NB: This is informal advice and should not be regarded as formal Section 38 advice under the Environmental Protection Act but represents DEP Bushplan advice subject to ratification through Coordination Group sign off.

*Delivered to
MFP 24/10/00*

Background

Bushplan Site 278 encompasses three lots, 10, 878 and 877. In 1997 when the Bushplan Site boundaries were established native vegetation was mapped on the entire area of Lot 10 and the southern half of Lots 878 and 877. The 1998 aerial photography showed that most of the vegetation on Lot 878 was removed for expansion of the existing market garden on the northern halves of Lots 878 and 877. Enquires by MfP established that the clearance of this vegetation had been approved by the Soil and Land Conservation Commissioner (Cliff Lloyd pers comm).

The bushland in Bushplan Site 278 was described from aerial photography and survey by Matiske Consulting (Matiske Consulting Pty Ltd 1997) and an edge inspection of Lot 10 by DEP (DEP 1998) (see Appendix 1 from Perth's Bushplan Vol 2B). As Lot 10 had not been subject to on the ground survey by DEP prior to the release of Draft Perth's Bushplan a field assessment of the vegetation of the areas was required in respect to expected applications for development. A field inspection of the lot was made by Bronwen Keighery (DEP) and Valerie Thompson and Sean Collingwood (MfP) on 12th October 1999. The owner of Lot 10 and his development consultant accompanied DEP and MfP staff on the inspection of Lot 10. Approximately one hour was spent traversing the bushland by vehicle and on foot.

Vegetation in Lot 10

The site visit confirmed that the vegetation units described for the Bushplan Site - *Eucalyptus gomphocephala* (Tuart) Woodland; *Eucalyptus gomphocephala* and *E. marginata* Open Woodland to Closed Forest and *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* Low Open Woodland to Low Woodland was present on the Lot (see Appendix 1 from Perth's Bushplan Vol 2B). This vegetation unit is typical of the Karrakatta Complex - Central and South.

The overall condition of the vegetation in this lot ranges from Good to Degraded with areas in Very Good condition. That is Lot 10 is in a more degraded condition than described for the entire Bushplan Site. Lot 10 is currently lightly grazed by horses and has been for many years (owner pers comm). This grazing has severely impacted the understorey and both vegetation units have a medium dense grass layer dominated by weedy grasses (**Briza maxima* and **Ehrharta calycina*). The removal of the grazing pressure accompanied by weed management would lead to an improvement in condition as there are sufficient native shrubs, herbs and grasses in the understorey to form the basis for regeneration. The tree canopy on Lot 10 was healthy containing many mature Tuart trees.

Comment

The Site as delineated in Perth's Bushplan contains regionally significant vegetation. While there are areas of bushland that have been significantly disturbed this is a feature

NB: This is informal advice and should not be regarded as formal Section 38 advice under the Environmental Protection Act but represents DEP Bushplan advice subject to ratification through Coordination Group sign off.


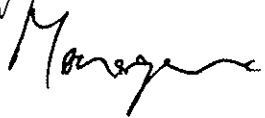
of the vegetation of the Karrakatta Complex - Central and South vegetation. This unit is not well reserved in Bushplan (less than 10% recognised).

The vegetation should be protected as part of any proposed rural subdivision. To retain and improve the condition of the vegetation on Lot 10 the following should be included in any rural subdivision

- covenanting of the native vegetation
- vegetation management
- exclusion of grazing
- a lot size no smaller than the current adjacent lots (see Bushplan Site Map 99)
- strategic fire breaks as part of an overall fire plan and
- clustered development envelopes.

References

See Perth's Bushplan Volume 2B

NB: This is informal advice and should not be regarded as formal Section 38 advice under the Environmental Protection Act but represents DEP Bushplan advice subject to ratification through Coordination Group sign off.

Appendix 1

CASSIA DRIVE BUSHLAND, KARNUP

Boundary Definition: bushland (part taken to cadastre)/management boundary

SECTION 1: CADASTRAL INFORMATION

(Lots, locations and derived information to be updated in the public submission period)

Bushplan Site no. 278

Map no. 99

Map sheet series ref. no. 2033-II SW

Other Names: not known

Area (ha): total 54.2; bushland 53.9

Local Authorities (Suburb)

Zoning

City of Rockingham (Karnup)

MRS: Urban Deferred, Rural, Important Regional Roads

TPS: Special Rural, Landscape

Ownership Categories

Lot/Location/Reserve numbers (Purpose), Street name

Private

10 Fletcher Rd; 877, 878 Stakehill Rd

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Spearwood Dunes

Sands derived from Tamala Limestone (Qts: S7)

VEGETATION AND FLORA

Vegetation Complexes

Spearwood Dunes

Karrakatta Complex — Central and South

Floristic Community Types: *not sampled, types inferred

Supergroup 3: Uplands centred on Bassendean Dunes and Dandaragan Plateau

*21a Central *Banksia attenuata* — *Eucalyptus marginata* woodlands

Supergroup 4: Uplands centred on Spearwood and Quindalup Dunes

*25 Southern *Eucalyptus gomphocephala* — *Agonis flexuosa* woodlands

WETLANDS

No wetlands mapped

THREATENED ECOLOGICAL COMMUNITIES

Not assessed

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: dune crest, vegetated uplands

Vegetation and Flora limited survey (DEP 1998 roadside observations, Mattiske Consulting Pty Ltd 1997)

Structural Units

Uplands: *Eucalyptus gomphocephala* Woodland; *Eucalyptus gomphocephala* and *E. marginata* Open Woodland to Closed Forest; *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* Low Open Woodland to Low Woodland

Scattered Native Plants: *Eucalyptus gomphocephala* and *E. marginata* Low Open Woodland

Vegetation Condition: Very Good, with areas of severe localised disturbance (Mattiske Consulting Pty Ltd 1997)

Total Flora: not known

Significant Flora: not surveyed

Fauna: no known information

Linkage: adjacent bushland canopy to the north, south, east and west

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities

NB: This is informal advice and should not be regarded as formal Section 38 advice under the Environmental Protection Act but represents DEP Bushplan advice subject to ratification through Coordination Group sign off.

Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site under TPS Landscape Zoning

Constraints: private land; under MRS Urban Deferred Zoning, MRD regional road requirements

Recommendation: The most appropriate mechanism for the protection of this Bushplan Site be considered through the public comment period in consultation with the land owner(s).

NB: This is informal advice and should not be regarded as formal Section 38 advice under the Environmental Protection Act but represents DEP Bushplan advice subject to ratification through Coordination Group sign off.

Memorandum



Department of Environmental
Protection

ATTENTION: Sean Collingwood
FROM: Sandra Santich
DATE: May 31, 2000
SUBJECT: Proposed Subdivision Pt Lot 10 Fletcher Rd, Karnup, BS 278,
Cassia Drive Bushland.
FILE NO: PB 098

*M. O'Byrne
A/Manager*

All of the proposed subdivision is within Bushplan Site 278 (Cassia Drive Bushland Karnup). While boundary adjustments are to be made within Lot 877 due to ~~illegal~~ clearing all of Lot 10 will still be included. The clearing of the adjacent land enhances the need for the protection of the remaining bushland rather than providing reason for further clearing of the bushland as implied by the site characteristics given for the subdivision. *wrong.*

Advice concerning the vegetation on this site has been provided previously by Bronwen Keighery and Gary Whisson who stated that the vegetation on Lot 10 is in a more degraded condition than on the rest of this Bushplan Site as it has been grazed by horses for many years but is capable of successful regeneration if the horses are removed.

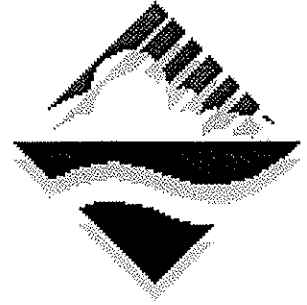
This advice also suggested that in order to retain and improve the condition of the vegetation of Lot 10, grazing must be excluded and the vegetation protected by covenants. A copy of this advice is attached. A proposal to subdivide the land into 15 lots for residential purposes would be unable to protect the conservation values present at this site and is therefore considered inappropriate.

The implementation recommendation for this site is for a Negotiated Planning Solution. It appears from the map provided that the proposed blocks are around half the size of adjacent blocks. It would be expected that the outcome would involve lots of similar size, or larger, than the blocks adjacent to be protected by statutory covenants.

The advice provided in the memo of April 20, 2000 is considered to be an appropriate guide for a Negotiated Outcome.

CONSERVATION BRANCH
DEPARTMENT of ENVIRONMENTAL PROTECTION

Memorandum



ATTENTION: Sean Collingwood/Kieron Beardmore
FROM: Bronwen Keighery/Gary Whisson
DATE: April 20, 2000
SUBJECT: Vegetation assessment for Bushplan Site 278
FILE NO: PB 98/1 Vol. 1

G Whisson
20/4

Background

Bushplan Site 278 encompasses three lots, 10, 878 and 877. In 1997 when the boundaries were established native vegetation was mapped on the entire area of Lot 10 and the southern half of Lots 878 and 877. The 1998 aerial photography showed that most of the vegetation on Lot 878 was removed for expansion of the market garden on the northern halves of Lots 878 and 877. Enquires by MfP established that the clearance of this vegetation had been approved by the Soil and Land Conservation Commissioner (Cliff Llyod pers comm).

The bushland in Bushplan Site 278 was described from aerial photography and survey by Mattiske Consulting (Mattiske Consulting Pty Ltd 1997) and an edge inspection of Lot 10 by DEP (DEP 1998) (see Appendix 1 from Perth's Bushplan Vol 2B). As neither of the currently vegetated lots, Lot 10, and 877 had been subject to on the ground survey by DEP prior to the release of Perth's Bushplan a field assessment of the vegetation of the areas was required in respect to expected applications for development. A field inspection of the two lots was made by Bronwen Keighery (DEP) and Valerie Thompson and Sean Collingwood (MfP) on 12th October 1999. The owners of both lots were met on site and the owner of Lot 10 and his development consultant accompanied DEP and MfP staff on the inspection of Lot 10. Approximately two hours was spent traversing the bushland by vehicle and on foot.

Vegetation in Lot 10

The site visit confirmed that the vegetation units described for the Bushplan Site - *Eucalyptus gomphocephala* (Tuart) Woodland; *Eucalyptus gomphocephala* and *E. marginata* Open Woodland to Closed Forest and *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* Low Open Woodland to Low Woodland was present on the Lot (see Appendix 1 from Perth's Bushplan Vol 2B). This vegetation unit is typical of the Karrakatta Centre-South complex.

The overall condition of the vegetation in this lot ranges from Good to Degraded with areas in Very Good condition. That is Lot 10 is in a more degraded condition than described for the entire Bushplan Site. Lot 10 is currently lightly grazed by horses and has been for many years (owner pers comm). This grazing has severely impacted the understorey and both vegetation units have a medium dense grass layer dominated by weedy grasses (**Briza maxima* and **Ehrharta calycina*). The removal of the grazing

pressure accompanied by weed management would lead to an improvement in condition as there are sufficient native shrubs, herbs and grasses in the understorey to form the basis for a regeneration. The tree canopy on Lot 10 was healthy containing many mature Tuart trees.

Lot 877

The site visit confirmed that a vegetation unit described for the Bushplan Site - *Eucalyptus gomphocephala* Woodland over *Banksia attenuata* and *Allocasuarina fraseriana* Low Open Woodland to Low Woodland was present on the Lot (see Appendix 1 from Perth's Bushplan Vol 2B). This vegetation unit is typical of the Karrakatta Centre-South complex.

The overall condition of the vegetation in Very Good with patches of severe localised disturbance. That is Lot 877 is as described for the entire Bushplan Site. The severe localised disturbance in Lot 877 is the result of use of a partially cleared area for the disposal of excess market garden produce (carrots) which is buried and/or stockpiled. In the long term this would raise nutrient levels in the bushland. If this disturbance ceased and some weed management was practised it is expected that this localised area would regenerate.

Adjacent vegetation

A series of vegetated lots and partially vegetated lots are located on the northern, western and southern boundaries of Lot 10 and are subject to vegetation protection managed by the City of Rockingham (owner Lot 10 pers comm). The condition of this vegetation, as observed from Lot 10, was variable but generally in a comparable or better condition than that in Lot 10. The two most south-western blocks (see A and B Map 1) appeared to be in a less degraded condition (Very Good) and the mid northern block (see C Map 1) had been recently cleared. The clearing is being investigated by the City of Rockingham (owner Lot 10 pers comm).

Comment

The Site as delineated in Perth's Bushplan contains regionally significant vegetation. While there are areas of bushland that have been significantly disturbed this is a feature of the vegetation of the Karrakatta Central and South vegetation. This unit is not well reserved in Bushplan (less than 10% recognised). However, on the basis of this vegetation assessment these lots are not considered a priority for purchase and the vegetation should be protected as part of any proposed rural subdivision.

To retain and improve the condition of the vegetation on Lot 10 the following should be included in any rural subdivision

- covenanting of the native vegetation
- vegetation management
- exclusion of grazing
- a lot size no smaller than the current adjacent lots (as shown on Map 1)
- strategic fire breaks as part of an overall fire plan and
- clustered development envelopes.

Consideration should also be given to the expansion of the Bushplan Site around Lot 10 to include the well vegetated sections of the adjacent lots (see Map 1).

Lot 877 has been isolated from Lot 10 by the clearing of Lot 878 however its generally very good condition and should remain as part of the Bushplan Site.

Appendix 1

CASSIA DRIVE BUSHLAND, KARNUP

Boundary Definition: bushland (part taken to cadastre)/management boundary

SECTION 1: CADASTRAL INFORMATION

(Lots, locations and derived information to be updated in the public submission period)

Bushplan Site no. 278 **Map no.** 99 **Map sheet series ref. no.** 2033-II SW

Other Names: not known

Area (ha): total 54.2; bushland 53.9

Local Authorities (Suburb)

Zoning

City of Rockingham (Karnup)

MRS: Urban Deferred, Rural, Important Regional Roads

TPS: Special Rural, Landscape

Ownership Categories

Lot/Location/Reserve numbers (Purpose),

Private

Street name

10 Fletcher Rd; 877, 878 Stakehill Rd

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Spearwood Dunes

Sands derived from Tamala Limestone (Qts: S7)

VEGETATION AND FLORA

Vegetation Complexes

Spearwood Dunes

Karrakatta Complex — Central and South

Floristic Community Types: *not sampled, types inferred

Supergroup 3: Uplands centred on Bassendean Dunes and Dandaragan Plateau

*21a Central *Banksia attenuata* — *Eucalyptus marginata* woodlands

Supergroup 4: Uplands centred on Spearwood and Quindalup Dunes

*25 Southern *Eucalyptus gomphocephala* — *Agonis flexuosa* woodlands

WETLANDS

No wetlands mapped

THREATENED ECOLOGICAL COMMUNITIES

Not assessed

SECTION 3: SPECIFIC SITE DETAIL

Landscape Features: dune crest, vegetated uplands

Vegetation and Flora limited survey (DEP 1998 roadside observations, Mattiske Consulting Pty Ltd 1997)

Structural Units

Uplands: *Eucalyptus gomphocephala* Woodland; *Eucalyptus gomphocephala* and *E. marginata* Open Woodland to Closed Forest; *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* Low Open Woodland to Low Woodland

Scattered Native Plants: *Eucalyptus gomphocephala* and *E. marginata* Low Open Woodland

Vegetation Condition: Very Good, with areas of severe localised disturbance (Mattiske Consulting Pty Ltd 1997)

Total Flora: not known

Significant Flora: not surveyed

Fauna: no known information

Linkage: adjacent bushland canopy to the north, south, east and west

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

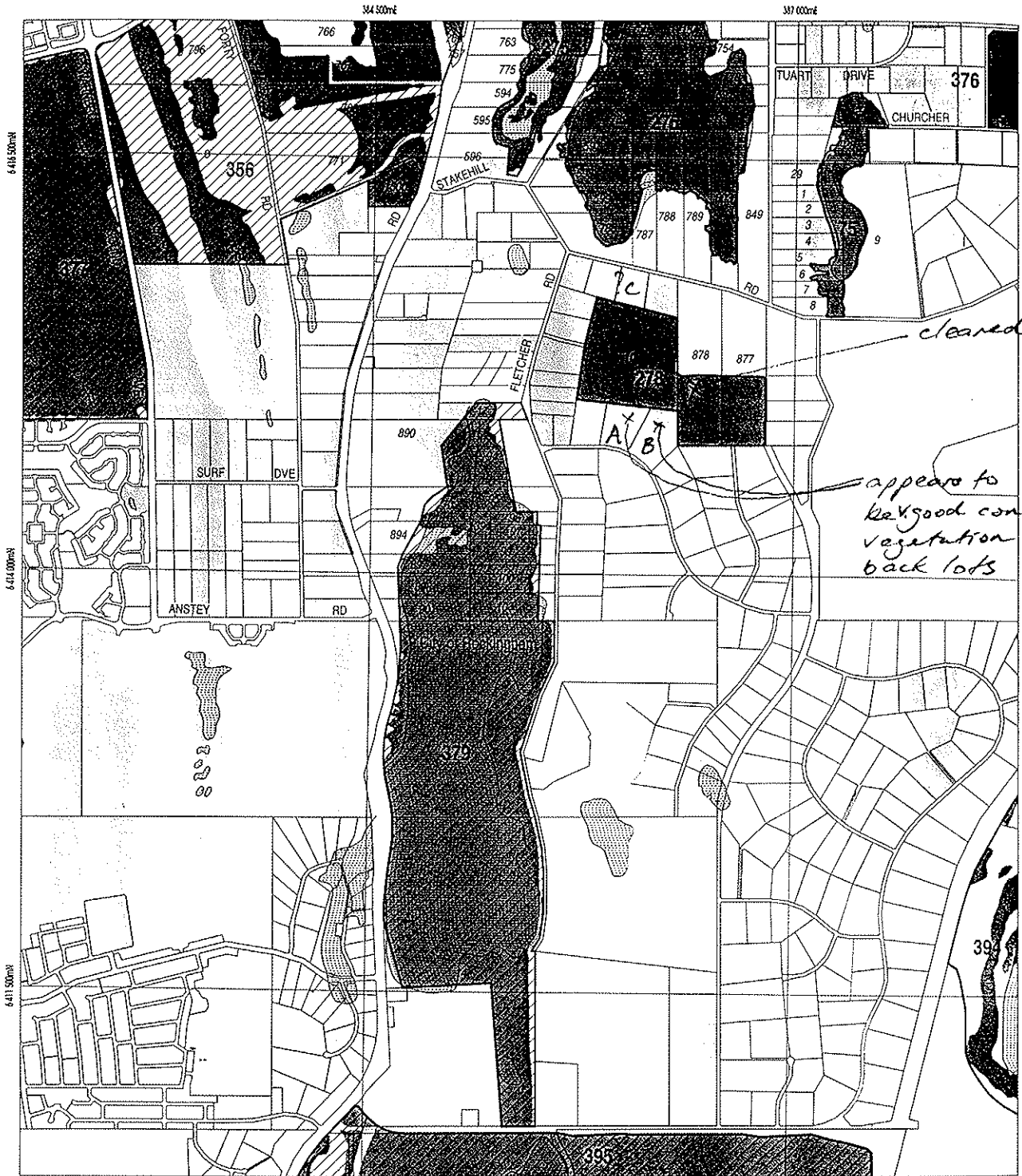
Criteria: Representation of ecological communities

Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site under TPS Landscape Zoning

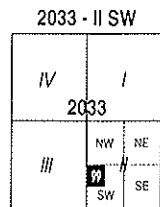
Constraints: private land; under MRS Urban Deferred Zoning, MRD regional road requirements

Recommendation: The most appropriate mechanism for the protection of this Bushplan Site be considered through the public comment period in consultation with the land owner(s).



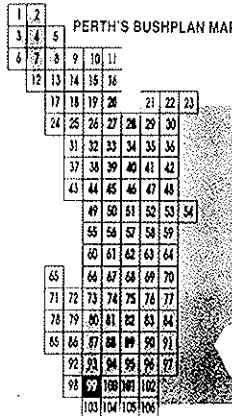
LEGEND

- Bushplan Sites With Regionally Significant Bushland
- Other Native Vegetation
- Conservation Category Wetlands
- Bushplan Sites With Some Existing Protection
- Lot Number, Location Number
- Channel Wetlands
- Local Government Boundary

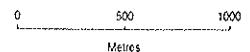


1 : 25 000 AMG Reference Grid showing Perth's Bushplan Map Sheet Breakdown

PERTH'S BUSHPLAN MAP INDEX



SCALE



Produced by Project Mapping Section
Land Information Branch, Ministry for
Planning, Perth W.A. November 1998
ntw-map177/enviro/bushplan/bushv2_99.dgn
Cadastral Data supplied by Department
of Land Administration, W.A.
Wetlands Data supplied by
Water and Rivers Commission
Native Vegetation Extent for Study Area
supplied by Agriculture Western Australia

BUSHLAND PLANT SURVEY RECORDING SHEET 2 - use pencil only

3. VEGETATION STRUCTURE AND COVER

From 'Bushland Plant Survey' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

For each layer record - appropriate life form, cover class (see below) and dominant species in each layer.

Cover Class 2-10% 10-30% 30-70% over 70%

		TREES			MALLEES	
		over 30m	10-30m	under 10m	over 8m	under 8m
LIFE FORM	30m					
	10m					
COVER CLASS (%)						
DOMINANT SPECIES				Bank oak Bank moss Milo-flas		
		SHRUBS			SHRUBS	
		over 2m	2m-1m	2m-1m	under 1m	under 1m
LIFE FORM	2m					
	1m					
COVER CLASS (%)					10-30%	
DOMINANT SPECIES					hibb hyp	
		GRASSES	HERBS	SEDGES	OTHER	
LIFE FORM	1m					
COVER CLASS (%)		30-70%	30-70%			
DOMINANT SPECIES		Horra occ native	Pod ground Vrs Vanth			

4. VEGETATION CONDITION

1	'PRISTINE'	COMMENTS
2	EXCELLENT	
3	VERY GOOD	
4	GOOD	
5	DEGRADED	

Pod cots, Home home, Stripe compressa, Nic slip
 Dusky brown, low brown, lycopid squan, Jack fur
 Dot egl, lib moss, Seven claud

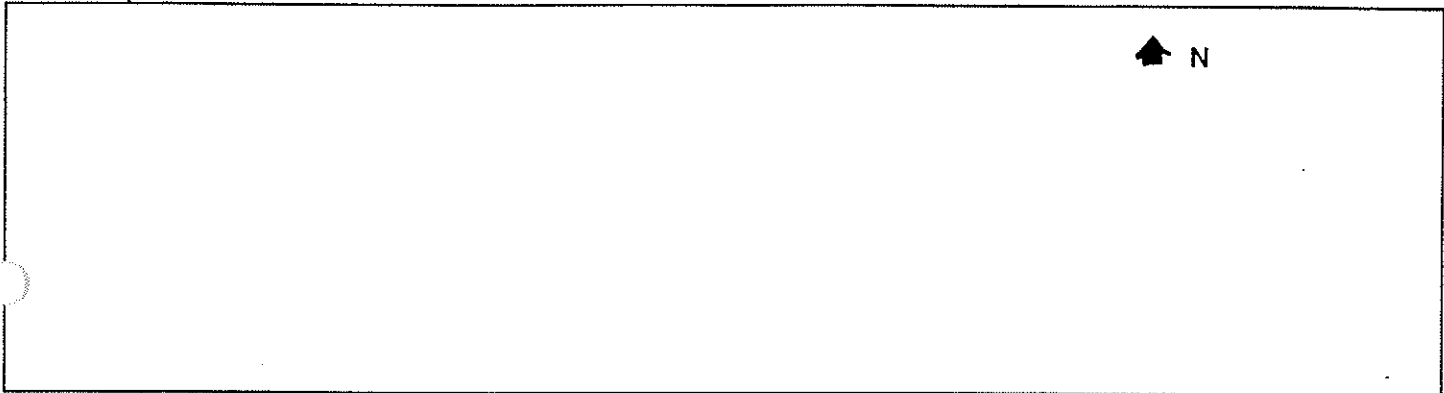
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA BS 278 SITE NUMBER 2 (Lot A)
 DATE TRIP 12/10/99 RECORDERS BJK
 DATE TRIP _____ RECORDERS _____
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

1. LOCATION of the QUADRAT

From 'Bushland Plant Survey' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

Mud Map Draw a sketch of the location of the site below.

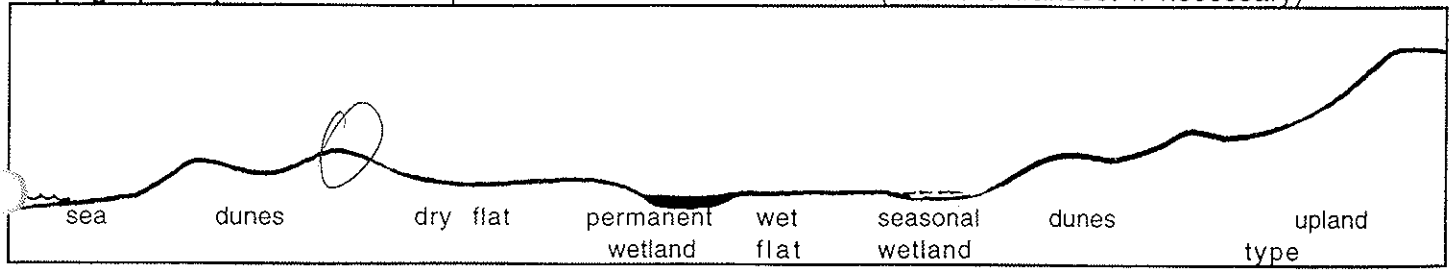


Road Location

Geographic Location Latitude _____ S Longitude _____ E Altitude _____
 Reference Map _____

Photograph Photographer's Name _____ Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep			Aspect N NE E SE S SW W NW							
Surface Soil						Colour				
Exposed rock type			% surface							
Sub-surface Soil						Colour				
Rock type			depth to rock							
Drainage well mod poor			depth water		cm		Wet all year		winter/spring	
Litter			% cover		Bare Ground				%cover	
Depth			cm							













BUSHLAND PLANT SURVEY RECORDING SHEET 2 - use pencil only

From 'Bushland Plant Survey' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

3. VEGETATION STRUCTURE AND COVER

For each layer record - appropriate life form, cover class (see below), and dominant species in each layer.

Cover Class 2-10% 10-30% 30-70% over 70%

		TREES			MALLEES	
		over 30m	10-30m	under 10m	over 8m	under 8m
LIFE FORM	30m		Over patches Banksia aff in places. 	 		
	10m					
COVER CLASS (%)			10-30%			
DOMINANT SPECIES			Euc. group	Jarrah Allo. trees		
		SHRUBS		SHRUBS		
		over 2m	2m-1m	under 1m		
LIFE FORM	2m	patch Jack pine. 				
	1m					
COVER CLASS (%)		10-30	Secondary	10-30%		
DOMINANT SPECIES		Wet post AZ post	Mac reid	Hibb lup		
		GRASSES	HERBS	SEDGES	OTHER	
LIFE FORM	1m		occ Danvers 			
COVER CLASS (%)		20-70%	30-70%			
DOMINANT SPECIES		Weed Bromus Veldt	Weed Urs, Cross grass Hyp glab, Copel Chard			

4. VEGETATION CONDITION

1	'PRISTINE'	COMMENTS long term grazing? clearing. virtually no ground herbs	
2	EXCELLENT		
3	VERY GOOD		
4	GOOD		X
5	DEGRADED		

Phyl edg, Saw lex,
Cul lind, Track pit
Pat. occ, Jack pine

Exposed limestone
over pale brown soil

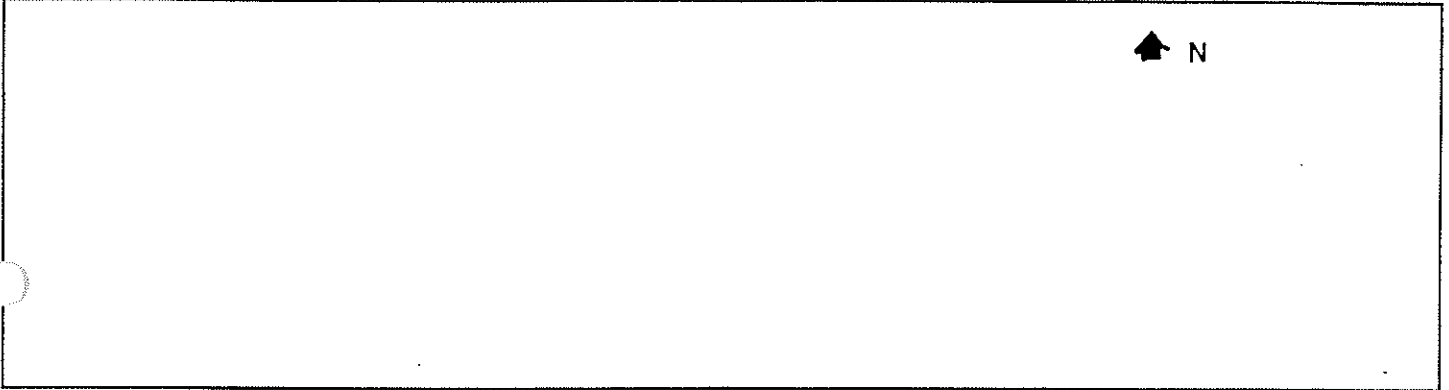
BUSHLAND PLANT SURVEY RECORDING SHEET 1- use pencil only

BUSHLAND AREA BS 278. SITE NUMBER 1. (Lot A)
 DATE TRIP 12/10/99 RECORDERS BJK
 DATE TRIP _____ RECORDERS _____
 DATE TRIP _____ RECORDERS _____
 BOTANIST _____

From 'Bushland Plant Survey' written by B. Keighery (1994) and published by the Wildflower Society of WA (Inc.), PO Box 64 Nedlands WA 6008.

1. LOCATION of the QUADRAT

Mud Map Draw a sketch of the location of the site below.

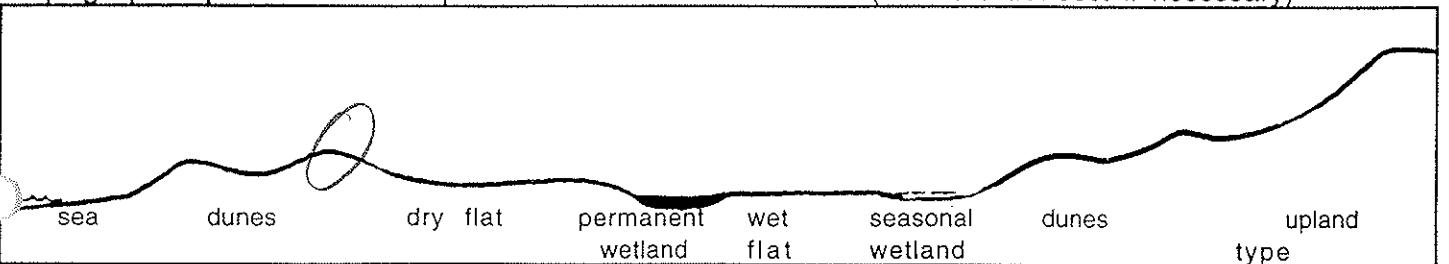


Road Location

Geographic Location Latitude _____ S Longitude _____ E Altitude _____
 Reference Map _____

Photograph Photographer's Name _____ Photo No _____

Topographic position Circle position of site on the transect (alter the transect if necessary)



2. SITE DATA Circle the correct response.

Slope flat gentle steep **Aspect** N NE E SE S SW W NW

Surface Soil _____ **Colour** _____
Exposed rock type _____ % surface _____

Sub-surface Soil _____ **Colour** _____
Rock type _____ depth to rock _____

Drainage well mod poor depth water _____ cm **Wet** all year winter/spring

Litter	% cover	Bare Ground	% cover
Depth	cm		

LIFE FORM/HEIGHT CLASS	CANOPY COVER			
	DENSE 70-100%	MID-DENSE 30-70%	SPARSE 10-30%	VERY SPARSE 2-10%
Trees >30m Trees 15-30m Trees 5-15m Trees <5m	Dense Tall Forest Dense Forest Dense Low Forest A Dense Low Forest B	Tall Forest Forest Low Forest A Low Forest B	Tall Woodland Woodland Low Woodland A Low Woodland B	Open Tall Woodland Open Woodland Open Low Woodland A Open Low Woodland B
Mallee tree form Mallee shrub form	Dense Tree Mallee Dense Shrub Mallee	Tree Mallee Shrub Mallee	Open Tree Mallee Open Shrub Mallee	Very Open Tree Mallee Very Open Shrub Mallee
Shrubs >2m Shrubs 1.5-2.0m Shrubs 1.0-1.5m Shrubs 0.5-1.0m Shrubs 0.0-0.5m	Dense Thicket Dense Heath A Dense Heath B Dense Low Heath C Dense Low Heath D	Thicket Heath A Heath B Low Heath C Low Heath D	Scrub Low Scrub A Low Scrub B Dwarf Scrub C Dwarf Scrub D	Open Scrub Open Low Scrub A Open Low Scrub B Open Dwarf Scrub C Open Dwarf Scrub D
Mat plants Hummock Grass Bunch grass >0.5m Bunch grass <0.5m Herbaceous spp.	Dense Mat Plants Dense Hummock Grass Dense Tall Grass Dense Low Grass Dense Herbs	Mat Plants Mid-Dense Hummock Grass Tall Grass Low Grass Herbs	Open Mat Plants Hummock Grass Open Tall Grass Open Low Grass Open Herbs	Very Open Mat Plants Open Hummock Grass Very Open Tall Grass Very Open Low Grass Very Open Herbs
Sedges >0.5m Sedges <0.5m	Dense Tall Sedges Dense Low Sedges	Tall Sedges Low Sedges	Open Tall Sedges Open Low Sedges	Very Open Tall Sedges Very Open Low Sedges
Ferns Mosses, liverwort	Dense Ferns Dense Mosses	Ferns Mosses	Open Ferns Open Mosses	Very Open Ferns Very Open Mosses

BS 278

A. Euc samples to 30m, 10-30% (petals 30-70% young
10-50m) over 10m 10-30% Bank etc / Bank here
Alto. Euc over Ac pul / Hibb hgd 5m 30-70%
over 10-30% Phleb/ cicutu and 10-30% Euk. cely.

occ Stipa Flavescens

Flora comments

Fauna comments

Adjacent bushland

BUSHLAND AREA _____ SITES _____ YES/NO

DATE _____ RECORDERS _____

Observations edge transects

Geographic Location Latitude S Longitude E

Reference Map

Photograph Photographer's Name Photo No

Transect of landscape units

dunes
dry/wet flats
sumplands
uplands
type

Soil Colouq

Exposed rock type % area

VEGETATION

Eucalypts *E. calophylla* *E. wandoo* *E. marginata* *E. todtianna* *E. rudis*

E. decipiens *E. drummondii* *E. haematoxylon* *E. lanepoolei* *E. gomphocephala*

E. accedens *E. patens* *E. laeliae* *E. megacarpa*

Sheoaks *Allocasuarina fraserana* *Casuarina obesa*

Banksia *B. attenuata* *B. menziesii* *B. prionotes* *B. illicifolia* *B. grandis* *B. littoralis*

Melaleuca *M. preissii* *M. raphiophylla* *M. lanceolata* *M. cuticularis*

Others *Callitris preissii*

Mallees Eucalypts *E. argutifolia* *E. petrensis* *E. decurva* *E. foecunda* *E. latens*

Vegetation Condition - Keighery 1994 (Trudgen 1993)

1 = 'Pristine' (Excellent)

2 = Excellent (Very Good)

3 = Very Good (Good)

4 = Good (Poor)

5 = Degraded (Very Poor)

6 = Completely Degraded

partial clearing

weeds

selective removal of species timber cutting mowing % dieback

fire frequency

'enrichment plantings'

animal impact horse foxes rabbits cats dogs goats pigs overgrazing by native mammals

soil movement mining dumping rubbish dumping roadworks

changes in water regimes flooding drainage watering nutrient influx

Tracks fire breaks walk trails off road vehicle use animal tracks

Service corridors SEC Main Roads Water Authority. Telecom

Other







WILD 1574UAGA
N 13037 152.72

000027

- 5022 - 1 268 - 58 100 0200 0280 56 -

000000 003143 20 01 25 60 1908

WILD 1574 UAGA
Nº 13037 152.72

000028

S. Schmidt
Kamp