SWAN RIVER AND JANE BROOK, ASHFIELD TO UPPER SWAN

Boundary Definition: protected area/bushland (part taken to cadastre)/conservation wetland boundary

SECTION 1: LOCATION INFORMATION

Bush Forever Site no. 302 **Area (ha):** bushland 227.3 (Site also includes open water.)
Map no. 37, 38, 43
Map sheet series ref. no. 2034–II NE, 2034–II SE, 2134–III NW
Other Names: not known
Local Authorities (Suburb): Shire of Swan (Herne Hill, Middle Swan, Henley Brook, West Swan, Millendon, Baskerville, Belhus, Upper Swan, Midland, Caversham, Brigadoon, Viveash)
System 6 (1983): Part M19 and part M20 part System area bushland and part scattered native plants (canopy), all vegetation described

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS
Pinjarra Plain
Guildford Formation (Qpa: Mgs1) (Qha: Mc1, Cm2)
Bassendean Dunes
Bassendean Sands (Qpb: S8)
VEGETATION AND FLORA
Vegetation Complex
Pinjarra Plain
Guildford Complex
Swan Complex
Floristic Community Types: not sampled, types not inferred
WETLANDS
Wetland Types: sumpland, floodplain, palusplain, river, creek, artificial channel
Natural Wetland Groups
Darling Plateau
Walyunga (D.1)
Swan Coastal Plain Rivers
Swan River (R.2)
Wetland Management Objectives: Conservation (83.3ha, 4818m), Resource Enhancement, Multiple Use
Swan Coastal Plain Lakes EPP: 2.7ha
THREATENED ECOLOGICAL COMMUNITIES
Not determined

SECTION 3: SPECIFIC SITE DETAIL

Jane Brook (from junction with Swan River eastward)
Landscape Features: open water, vegetated wetland
Vegetation and Flora: limited survey (DEP 1999, Ecoscape 1995a)
Structural Units: mapping (Ecoscape 1995a)
Wetlands (river banks and flats): *Eucalyptus calophylla* and *E. wandoo* occasional *E. marginata* Open Forest to Low Woodland; *Astartea* aff. *fascicularis*, *Trymalium ledifolium* and *Acacia pulchella* Shrubland to Low Shrubland; *Eucalyptus rudis* and *Melaleuca rhaphiophylla* Open Forest to Low Open Forest
Scattered Native Plants: Woodlands to Forests dominated by *Eucalyptus calophylla, E. rudis* less commonly and other scattered native shrubs
Vegetation Condition: Very Good to Good (Ecoscape 1995a)
Total Flora: 20 native taxa, 45 weed taxa (Ecoscape 1995a) (estimated >85% expected flora)
Significant Flora: none recorded
Fauna: limited survey for birds (24 species), native mammals (2 species), reptiles (3 species) and amphibians (1 species) (Ecoscape 1995a). Significant mammal species: Quenda (Friend 1996 D)
Other Special Attributes: National Trust of Australia (WA) Classification; naturally vegetated watercourses have particular conservation value in providing habitat for fauna and linkage between larger more intact areas of bushland; contains open space of regional significance (DCE 1983); contains part of the channel (Jane Brook) recommended for conservation by Semeniuk, V&C Research Group (1992)

Swan River **(West Swan Road to Upper Swan) and** Susannah Brook **(to Railway Parade)**
Landscape Features: vegetated wetland

Vegetation and Flora: limited survey (Chambers and Pen 1985, Connell 1995)

Structural Units: mapping (Chambers and Pen 1985, Connell 1995)

Wetlands (wetflats): *Eucalyptus rudis* and *Melaleuca rhaphiophylla* Open Forest to Low Woodland over *Juncus pallidus*, *Centella cordifolia*, **Paspalum distichum*, **P. dilatatum*, **Typha orientalis*, **Aster subulatus* and combinations of these; *Casuarina obesa* and *Melaleuca rhaphiophylla* Low Open Forest to Low Open Woodland; *Eucalyptus rudis* Woodland; Closed to Very Open Sedgelands containing *Juncus kraussii*, *Bolboschoenus caldwellii*, *Schoenoplectus validus* and combinations of these

Scattered Native Plants: *Eucalyptus rudis* Woodland

Vegetation Condition: Good (Connell 1995)

Total Flora: not known

Significant Flora: none recorded

Fauna: not known

Other Special Attributes: National Trust of Australia (WA) Classification; one of few outcrops of the Guildford Formation, a sequence of conglomerate, grit, sandstone and clay deposited throughout most of the Pleistocene as alluvial fans (Lemmon *et al.* 1979); naturally vegetated watercourses have particular conservation value in providing habitat for fauna and linkage between larger more intact areas of bushland; contains open space of regional significance (DCE 1983); contains part of the channel (Swan River and Susannah Brook) recommended for conservation by Semeniuk, V&C Research Group (1992); contains 8647m of regionally significant river (WRC 1996a GIS)

Linkage: (Swan River and Jane Brook) canopy linkage to the north, east and west; bushland to the south (Site 305); part of Greenways 36, 44, 45, 46 (Tingay, Alan & Associates 1998a); part of a regionally significant contiguous bushland/wetland linkage (Part A, Map 7)

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

Criteria: Representation of ecological communities, Rarity, General criteria for the protection of wetland, streamline and estuarine fringing vegetation and coastal vegetation, Criteria not relevant to determination of regional significance, but which may be applied when evaluating areas having similar values

Recommendation: Regional Creekline Mechanism (with mapped vegetation) (see Table 3, Volume 1).

SWAN RIVER AND JANE BROOK, ASHFIELD TO UPPER SWAN

Boundary Definition: protected area/bushland (part taken to cadastre)/conservation wetland boundary

SECTION 1: CADASTRAL INFORMATION

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

Bushplan Site no. 302 **Map no.** 42, 47, 48, 52 **Map sheet series ref. no.** 2034–II NE, 2034–II SE, 2134–III NW

System 6 (1983): Part M19 and part M20 part System area bushland and part scattered native plants (canopy), all vegetation described

Other Names: not known

Area (ha): total 259.4(includes open water); bushland 227.3

Local Authorities (Suburb)

Shire of Swan (Herne Hill, Middle Swan, Henley Brook, West Swan, Millendon, Baskerville, Belhus, Upper Swan, Midland, Caversham, Brigadoon, Viveash

Zoning

MRS: Urban, Industrial, Rural, Waterways, Parks and Recreation, Railways, Controlled Access Highways, Public Purposes-High School

TPS: Caravan Park, General Industrial, General Rural, Landscape, Local Road, Place of Public Assembly, Public Purposes, Recreation, Residential 1, Special Purpose, Swan Valley Rural

Ownership Categories

Private (including commercial organisation), Local Government, State Government, Not identified

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

(Creekline and riverine lots not identified)

1, 68, 69 Great Northern Hwy; 39 West Swan Rd; 59, 63, 64, River Rd; 97 Barrett St; 1, 3, 4, 30 Swan Rd; 1 Railway Ave; 14 Noack Rd; 43, 1007 Cathedral Ave; 81, 7526 Crosbie Rd; 1, 13, 69, 150, 216 Middle Swan Rd; 8181, 12133 Bernley Dr; 1 Toodyay Rd; 1, 2, 26 Ferguson St; 1, 50 Harris Rd; 2 Caversham Ave; 1007 Copley Rd; 17 street not identified

Crown Reserve

SECTION 2: REGIONAL INFORMATION

LANDFORMS AND SOILS

Pinjarra Plain

Guildford Formation (Qpa: Mgs1) (Qha: Mc1, Cm2)

Bassendean Dunes

Bassendean Sands (Qpb: S8)

VEGETATION AND FLORA

Vegetation Complex

Pinjarra Plain

Guildford Complex

Swan Complex

Floristic Community Types: not sampled, types not inferred.

WETLANDS

Wetland Types: sumpland, floodplain, palusplain, river, creek, artificial channel

Natural Wetland Groups

Darling Plateau

Walyunga (D.1)

Swan Coastal Plain Rivers

Swan River (R.2)

Wetland Management Objectives: Conservation (83.3ha, 4818m), Resource Enhancement, Multiple Use

Swan Coastal Plain Lakes EPP: 2.7 ha

THREATENED ECOLOGICAL COMMUNITIES

Not determined

SECTION 3: SPECIFIC SITE DETAIL

Jane Brook (from junction with Swan River eastward)

Landscape Features: open water, vegetated wetland

Vegetation and Flora: limited survey (Ecoscape 1995a)

Structural Units: mapping (Ecoscape 1995a)

Wetlands (river banks and flats): *Eucalyptus calophylla* and *E. wandoo* occasional *E. marginata* Open Forest to Low Woodland; *Astartea* aff. *fascicularis*, *Trymalium ledifolium* and *Acacia pulchella* Shrubland to Low Shrubland; *Eucalyptus rudis* and *Melaleuca rhaphiophylla* Open Forest to Low Open Forest

Scattered Native Plants: Woodlands to Forests dominated by *Eucalyptus calophylla, E. rudis* less commonly and other scattered native shrubs
Vegetation Condition: Very Good to Good (Ecoscape 1995a)
Total Flora: 20 native taxa, 45 weeds (Ecoscape 1995a) (estimated >85% expected flora)
Significant Flora: none recorded

Fauna: no systematic survey. Opportunistic records (Ecoscape 1995) of birds (24), native mammals (2), reptiles (3) and amphibians (1). Significant mammal species: Quenda (Friend 1996 D)

Other Special Attributes: National Trust of Australia (WA) Classification; naturally vegetated watercourses have particular conservation value in providing habitat for fauna and linkage between larger more intact areas of bushland; contains open space of regional significance (DCE 1983); contains part of the channel (Jane Brook) recommended for conservation by Semeniuk, V&C Research Group (1992)

Swan River (West Swan Road to Upper Swan) and Susannah Brook (to Railway Parade)

Landscape Features: vegetated wetland

Vegetation and Flora: limited survey (Chambers and Pen 1985, Connell 1995)

Structural Units: mapping (Chambers and Pen 1985, Connell 1995)
Wetlands (wetflats): *Eucalyptus rudis* and *Melaleuca rhaphiophylla* Open Forest to Low Woodland over *Juncus pallidus, Centella cordifolia, *Paspalum distichum, *P. dilatatum, *Typha orientalis, *Aster subulatus* and combinations of these; *Casuarina obesa* and *Melaleuca rhaphiophylla* Low Open Forest to Low Open Woodland; *Eucalyptus rudis* Woodland; Closed to Very Open Sedgelands containing *Juncus kraussii, Bolboschoenus caldwellii, Schoenoplectus validus* and combinations of these
Scattered Native Plants: *Eucalyptus rudis* Woodland
Vegetation Condition: Good (Connell 1995)
Total Flora: not known
Significant Flora: none recorded

Fauna: no known information

Other Special Attributes: National Trust of Australia (WA) Classification; One of few outcrops of the Guildford Formation, a sequence of conglomerate, grit, sandstone and clay deposited throughout most of the Pleistocene as alluvial fans (Lemmon *et al.* 1979); naturally vegetated watercourses have particular conservation value in providing habitat for fauna and linkage between larger more intact areas of bushland; contains open space of regional significance (DCE 1983); contains part of the channel (Swan River and Susannah Brook) recommended for conservation by Semeniuk, V&C Research Group (1992); contains 8647m of regionally significant river (WRC 1996a GIS)

Linkage: (Swan River and Jane Brook) canopy linkage to the north; bushland to the south (BS305), east and west; part of proposed Greenways 33, 50, 51, 52, 54, (Tingay, Alan & Associates 1997a); part of a regionally significant contiguous bushland/wetland linkage (Volume 2A, Map 8)

SECTION 4: INTERNATIONAL AND NATIONAL SIGNIFICANCE

Not listed

SECTION 5: SELECTION CRITERIA AND RECOMMENDATIONS

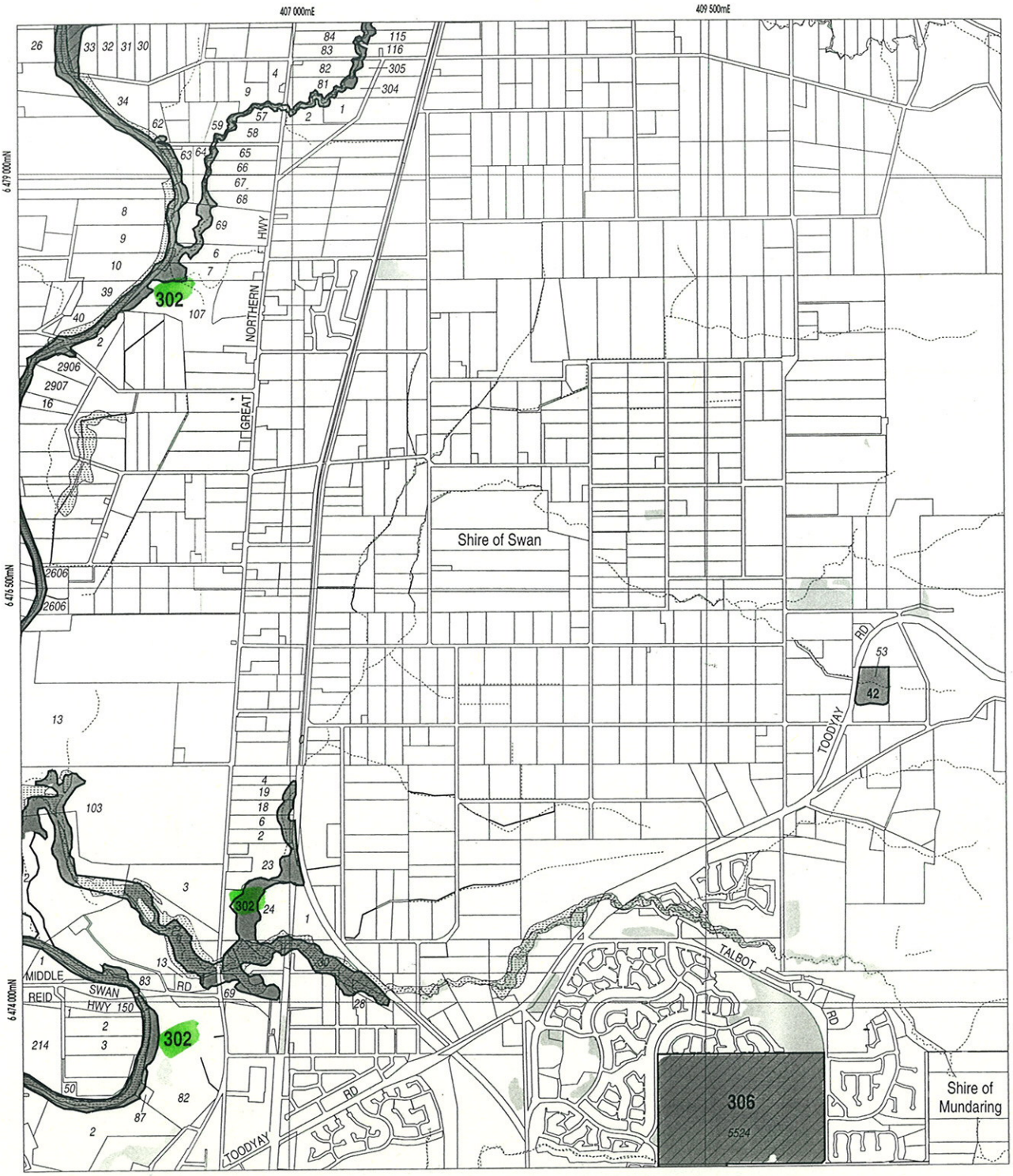
Criteria: Representation of ecological communities, Rarity, General criteria for the protection of wetland, streamline and estuarine fringing and coastal vegetation, Criteria not relevant to determination of conservation value, but which may be applied when evaluating areas having similar values

Opportunities and/or Constraints

Opportunities: Bushplan Site/part Bushplan Site subject to Swan Coastal Plain Lakes EPP, Swan and Canning Rivers EPP; location of conservation category wetlands; under MRS Parks and Recreation Reservation, TPS Landscape Zoning and Recreation Zoning, Crown Reserve

Constraints: private land; under MRS Urban Zoning, MRD regional road requirements, General and Priority Mineral Resource Area (clay)

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

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

2134 - III NW

IV | I
2134
NW | NE
48
III | II
SW | SE

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

PERTH'S BUSHPLAN MAP INDEX

N

SCALE

0 500 1000
Metres

Produced by Project Mapping Section
Land Information Branch, Ministry for Planning, Perth W.A. November 1998

ntw-map11//environ/bushplan//bushv2_48.dgn

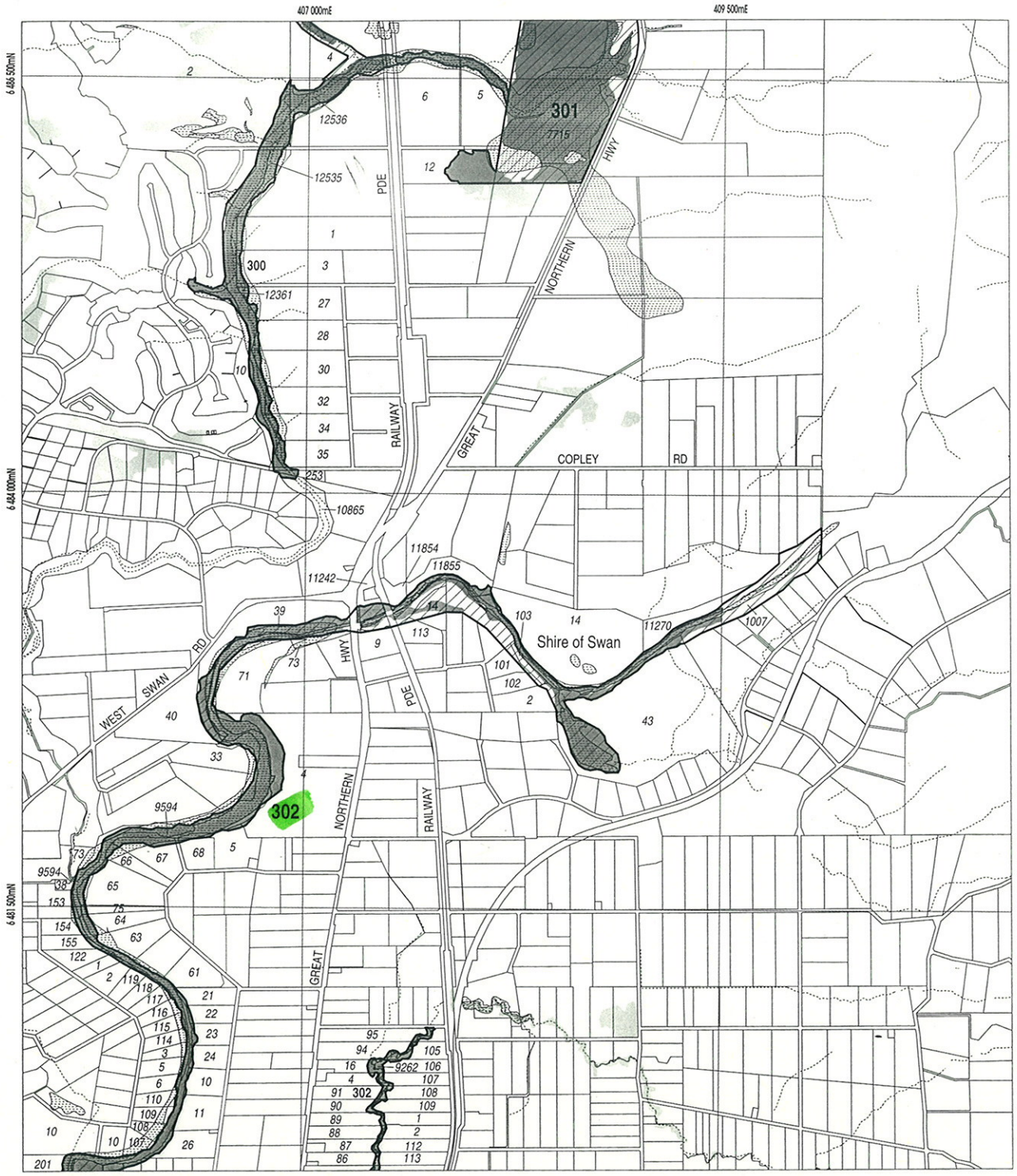
Cadastral Data supplied by Department of Land Administration, W.A.

Wetlands Data supplied by Water and Rivers Commission

Native Vegetation Extent for Study Area supplied by Agriculture Western Australia

Bushplan Site Map

Map 48



LEGEND

- 472 — Bushplan Sites With Regionally Significant Bushland
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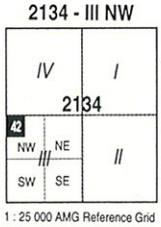
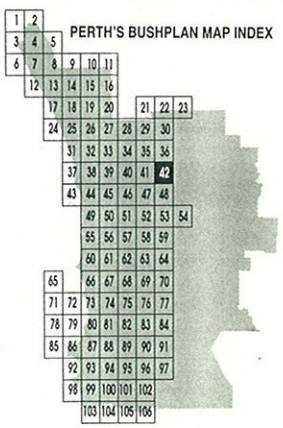
2134 - III NW



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

PERTH'S BUSHPLAN MAP INDEX



N

SCALE

0 — 500 — 1000

Metres

Produced by Project Mapping Section
Land Information Branch, Ministry for Planning, Perth W.A. November 1998

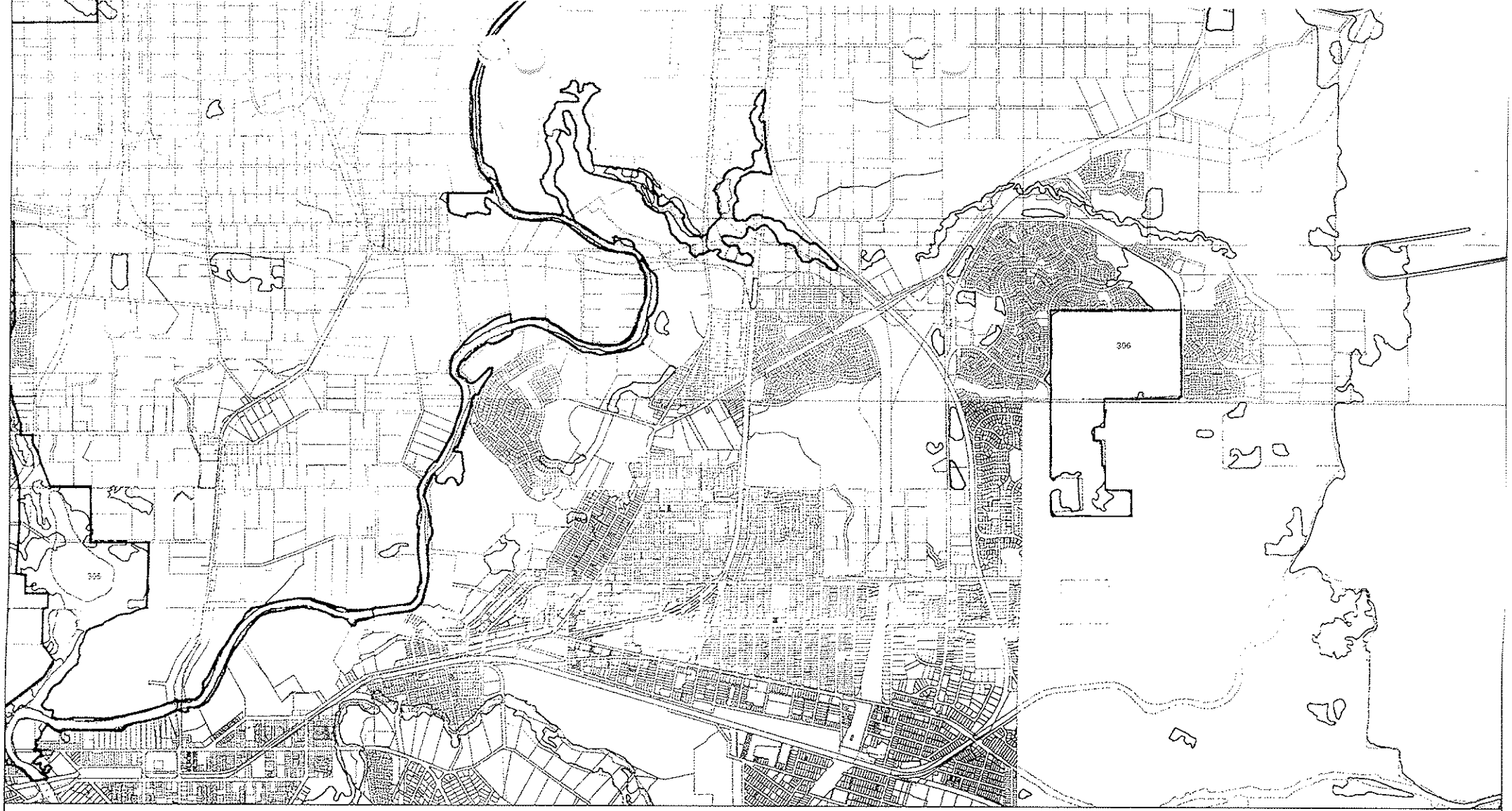
ntw-map11//environ/bushplan//bushv2_42.dgn

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

Bushplan Site Map



BUSHPLAN SITES CORRECTED 302

THE GOVERNMENT OF WESTERN AUSTRALIA

WESTERN AUSTRALIAN PLANNING COMMISSION

CUSTOMER FOCUS WESTERN AUSTRALIA

N

JA/NT/BK 25/9

Savannah Brook
0-75-100 % vegetation
should be protected
but is not PER
evaluate Savannah Brook
park line

PeR stops here

622 623

PeR

624 ✓ include use veg boundary
NT/JA 30/9

627

Check Cadastre

NT/JA include P+R here everywhere else

Why just here.
Subject to ancestral
should be extended to
extent of vegetation

Ag line

DOTTED LINE LINKING

Follow Ag line

633

FOLLOW AG

633

640

within P+R (include)

bp site 302

NT/JA 30/9
veg contiguous but narrow do not use dotted line

BJK 15/7
To general river/creek decision

Map Ident: plot980528_1	DATE: 28 May 98
Prepared By: Andrea Zappacosta	Prepared For:
Scale 1:AUTO	MFP INTERNAL USE ONLY

0 1.25 Km

- AG VEG 1998 BOUNDARY THEME
- Cadastre
- Bushplan sites refno 1-500 SCP BOUNDARY THEME
- cons category wetlands
- Verified CCWs

(i) Northern Scrub follow PeR (some at 622 623 but include 624 ✓ NT/JA 30/9

(ii) For rest follow Ag/VA Mapping Subject to veg condition ✓ NT/JA 30/9

Subm 489

BS 302

PB117

294

4. Bushplan site [redacted]: Reid Hwy Bushland
Recently *Eleocharis sphacelata* was discovered at this site, the most southerly distribution of this species known, with the next population at Gin Gin. Vesting for this area needs to be established so that appropriate management for conservation can occur. The Bennett Brook Catchment group will be active in the eastern end of the reserve in the near future, as the RSPCA are establishing a centre there, and have requested the assistance of the catchment group in implementing a rehabilitation plan.

5. Bushplan site [redacted]: Koondoola Open Space
The area needs to be zoned for conservation, and the local councils need to take an active management role in the reserve

6. Bushplan site [redacted]: Lightning Swamp
A Management Plan was prepared for this area by Murdoch University in 1996, however it is difficult for management to occur until a local council accepts vesting. At present the boundaries of Swan and Bayswater Councils may change, and neither council will accept vesting until this is determined. This needs to be resolved immediately, as the eastern section is not fenced, and four wheel drive vehicles are rapidly degrading the perched wetland.

7. Bushplan site [redacted]: Victoria Rd Bushland
The zoning of this site needs to urgently be changed to conservation, and a management body appointed.

8. Bushplan site [redacted]: Caversham Airbase
A report on vegetation and fauna was published in 1998 Final Report: Henley Brook and West Swan Landcare Project , Bevan Carter. This area is under threat from housing from Homeswest, and requires immediate protection. It contains the priority 3 species *Restio stenostachyus*.

9. Bushplan site [redacted]: Swan River Bassendean to Upper Swan
The catchment group have recently enlarged their boundaries to include this area, and are keen to work with landholders to extend the riparian vegetation buffer

10. Bushplan site [redacted]: Bennett Brook
The catchment group has 3 restoration areas along the brook, which is an extremely important wildlife corridor between Whiteman Park and the Swan River. It is under threat from new subdivisions which are too close to the brook, allowing only a 30m buffer. Often these are opposed by the Shire and won on appeal to the Minister. It is vital that buffers on all wetland systems are increased to 100m. Other pressures include proposed developments at Whiteman Park on the edge of the brook, pumping from the Gnangara mound leading to decreased flow in the headwaters and increased polluted stormwater flow carrying sediment from council and Water Corporation drains into the Brook. Apart from the Quenda, Bennett Brook supports freshwater mussels as well as many species of native fish (Report from Murdoch University 1998)

4

BS 302

123 Millhouse Road,
Belhus WA 6069

PB117

6 January 1999.

anager,
nvironmental Planning Branch,
lbert Facey House
69 Wellington Street,
erth WA 6000

P.N.: 11945

ear Sir,

ef: 805/2/1/32P10 – BushPlan Site No. [redacted] – Lot 30 George Street, West Swan

refer to the advice dated 8 December 1998 advising us that the above property has een identified as being included in "Bushplan".

he property is operated as a vineyard and we are naturally anxious to ensure that no hanges are introduced that will prevent us from continuing to use the land for that urpose.

Our enquiry to the telephone contact indicated on the brochure that we received was ot able to provide us with any specific details about how we might be affected and he person I spoke to suggested that we write to you

Would you please advise in what way will "Bushplan" affect Lot 30 George Street, West Swan and what, if any, restrictions are likely to be introduced that might affect us in continuing to use all of the property as a vineyard.

Yours sincerely,

(Ron Raynor)
for M.W. and B.A. RAYNOR

Ph. 9296 0442

07 JAN 1999

FILE BS-2-1-32P12

PHONED 11/1 + ADVISED CREEKLINE ISSUE.
REFER RECORD OF DISCUSSION.

SUBMISSION NO 004

BS302

13 A

SWAN CHRISTIAN EDUCATION ASSOCIATION
INCORPORATED

9 Sayer Street Midland WA 6056
PO Box 254 Midland WA 6936
Telephone: (08) 9274 6411
Facsimile: (08) 9274 6899

PB117

4 January 1999

Ministry for Planning
Albert Facey House
469 Wellington Street
PERTH WA 6000

ATTENTION: DAVID NUNN
MANAGER
ENVIRONMENTAL PLANNING BRANCH

Dear Sir

PERTH'S BUSHPLAN - BUSHPLAN SITE NO: [redacted]
YOUR REF: 191040

I have received your letter of 8 December advising me that your records show that part of our block at Lot 3 Great Northern Highway, Middle Swan may contain vegetation providing an ecological corridor for habitat.

This Lot was bought by the Association about 15 years ago for the purpose of building a school. At the time of purchase the land was a fully cleared site with no bush or wetland. Over the years extensive planting has taken place around school buildings but I doubt that the block is of little significance to your program.

I do however, appreciate your attempts to preserve significant bushland in the metropolitan area and wish you well in your task.

Yours faithfully

Alan J Campbell
GENERAL SECREARY

MINISTRY FOR PLANNING
12 JAN 1999
FILE 805-2-1-32 P12

SUBMISSION NO [redacted] 011

117

BS 302

PB17

UPPER REACH

VINEYARD

77 Memorial Avenue, Baskerville,
Western Australia, 6056.
Telephone: (08) 9296 0078
Facsimile: (08) 9296 0278

David Nunn
Environmental Planning Branch
Albert Facey House
469 Wellington St
Perth WA 6000

Your Ref: 805/2/1/32P10

15/03/99

Dear Mr. Nunn,

Re: The Proposal for Perth's Bushplan -Bushplan Site No [redacted]

After a telephone discussion with Clydie Smith she indicated that the Bushplan refers to a strip of my property, which abuts the Swan River, this strip is 20 metres wide at the northern end and 38 metres wide at the southern end.

In regard to the proposed area of my property in question the suggested area will need to be readjusted to a 20 metre strip along the entire boundary. Of the 38 metres that you have proposed on the North side of my property, 18 metres are under development as a vineyard.

I understand the immense value of the Swan River and the impact that some land use can have. I accept the value of preserving a 20 metre wide strip of bushland along my boundary with the Swan River.

I feel that winegrape viticulture offers a more environmentally sustainable system than any other rural land use.

I operate my vineyard in accordance with current best practice, using minimal fertilisation, supported by soil nutrition monitoring and testing, minimal tillage and regulated deficit irrigation. Regulated deficit irrigation uses a very low level of groundwater.

I look forward to hearing from you.

Yours sincerely,

Derek Pearse
Director

SUBMISSION NO 271

MINISTRY FOR PLANNING
25 MAR 1999
805-2-1-32pt2
FILE

0000000000000

BS302
PB117

13

Stoneground Vineyard
73 Nolan Ave
UPPER SWAN WA 6056
25th March 1999.

Your ref: 805/2/1/32P10

Mr David Nunn
Environmental Planning Branch
Ministry for Planning
469 Wellington St
PERTH WA 6000

Dear Mr Nunn,

SUBMISSION ON BUSHPLAN SITE NO. 302 Lot 101

Please note that the property referred to above is no longer owned by Jumbunna Nominees, due to a subdivision which was allowed on compassionate grounds and completed during 1998.

We wish to make the following points:

1) When the takeover of the river flat was first proposed, a detailed submission was prepared and presented to the Ministry for Planning. We re-submit that as part of the present submission as it contains many relevant points which still remain unresolved. Please consider this submission an addendum to the previous one.

2) Besides the first visit by Planning officials to our property to take photographs and prepare the "line on a map" as it was put to us, no further negotiation or assistance with the management of the river frontage has ever been received.

3) Our family has continued to manage the river frontage since 1929 when the property was first purchased. Costs to slash the

SUBMISSION NO. 330

MINISTRY FOR PLANNING
26 MAR 1999
805-2-1-32pt12
FILE

kikuyu and maintain firebreaks and remove pampas grass have been in the region of $500.00 annually at a conservative estimate.

4) Several plantings of local native tree species have been carried out to prevent the erosion of the riverbank. This area is now part of the land ceded upon subdivision, however we continue to maintain the young trees. My cousin carried out significant planting of the riverflat to the south during the mid 1980's and these trees are now growing to maturity.

5) Beside the letter and glossy brochure which accompanied it, there has been no attempt to contact us to negotiate about either the management or the boundary. In fact other than the survey which we paid for as part of the subdivision, we have no firm idea where the proposed "line" occurs.

6) Our understanding from the previous process with the Ministry for Planning (mentioned above) was that the land was not to be taken over for twenty to thirty years. I read with alarm in the minutes of the Helena River Cathment Group that the process is now to be completed by July 1999.

7) Are landowners to be consulted at all or will the process be carried out with the lack of regard which occurred when the Darling Range National Park legislation was imposed?

8) We are willing to work on a management plan and are eager to return native vegetation and river protection measures but need assistance with this process as the work of maintaining the vineyard while working full-time is no easy task. Until we have some co-operation rather than ultimatums and lack of consultation this process is jeopardised.

9) The previous submission process caused a great deal of emotional suffering to the entire family due to the lack of consideration of issues of attachment to a property which has

been part of the family for almost a century. The expectation that it was acceptable to sit in an office in Perth drawing lines across other people's land and then "talk" them into it caused great distress. My mother who is now over eighty was shaken by the experience. She now lives here and I am concerned that if the previous lack of respect to her commitment to the property is repeated that it will have very serious effects on her health.

10) The issues of public access and safety for my mother have not been addressed.

I anticipate that there will be some reply to this submission and that we may begin the process of consultation upon the proposed changes.

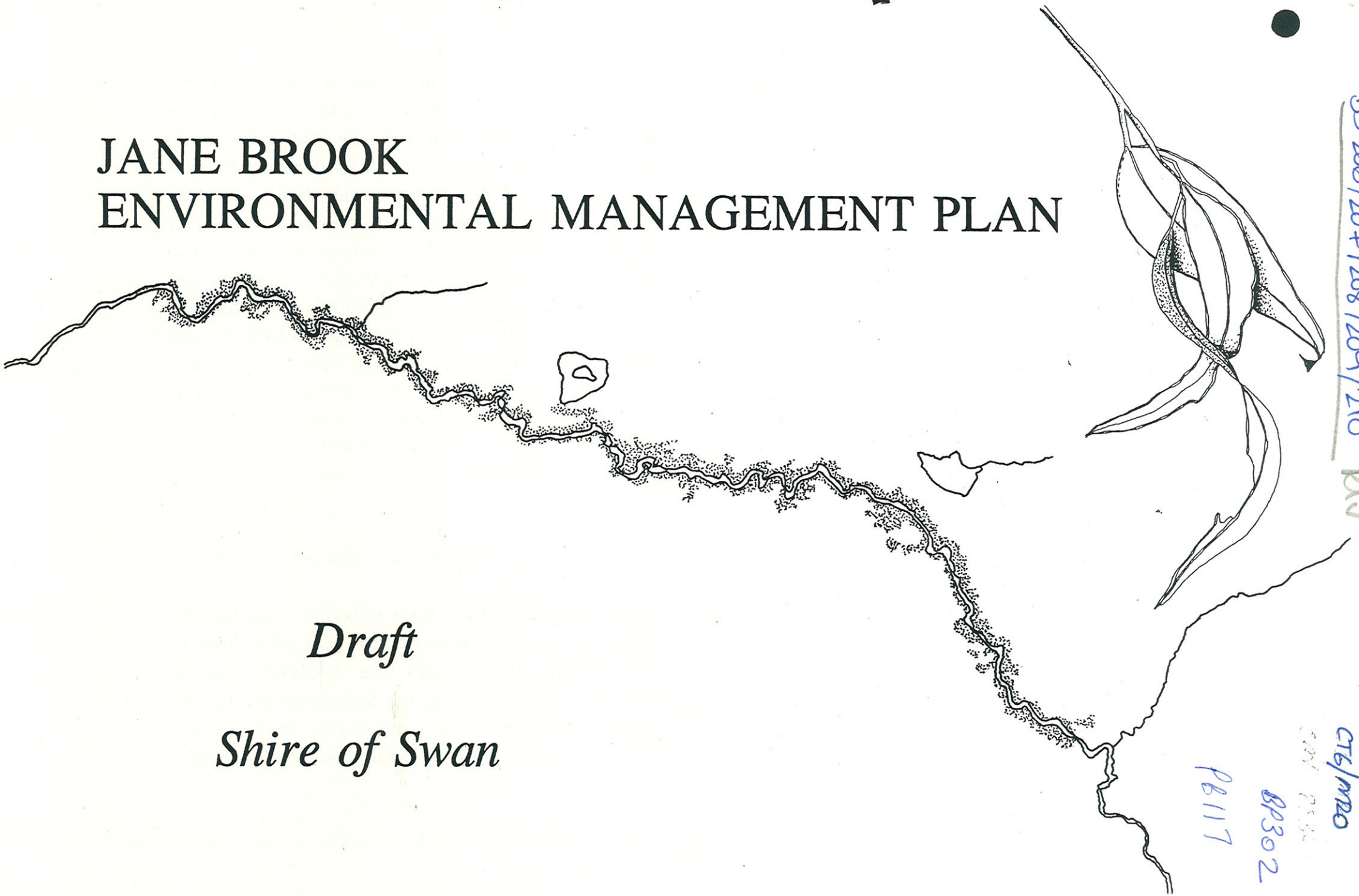
Yours faithfully

Molloy. for P. & M.A. MOLLOY

Patsy Molloy

for Stoneground Vineyard

JANE BROOK
ENVIRONMENTAL MANAGEMENT PLAN



Draft

Shire of Swan

4. *Watercourse and Dam*

The watercourse including Jane Brook itself and dams within the study area support various waterbird species. Some, including the Pacific Black Duck and Wood Duck, breed in vegetation along the watercourses, while others, e.g. White Faced Heron and Mountain Duck, utilise the areas as food resources. There may be other waterbird species that utilise the habitats within the area that have not been recorded to date.

Usage of the Study Area by Birds

Although a relatively small number of bird species use Jane Brook study area through the year, due to the proximity of relatively large bushland areas such as the John Forrest National Park and Talbot Road Reserve, many bird species pass through the study area. As such it is an important ecological corridor for dispersion both of migratory species and also of species which have bred within these larger bushland reserves and are dispersing to new habitats.

Mammals

Only one species of native mammal, the Western Grey Kangaroo, has been positively identified from the study area. During field visits kangaroo tracks and scats were observed along the firebreak adjacent to the Brook. Tracks were also observed in soft sand or mud alongside the stream bed or permanent pools.

Several individual kangaroos were also seen in farmland to the north and west of Jane Brook. Several species of bats may also inhabit the study area, though none were observed during field work. Two species, the Brush-tailed possums (*Trichosaurus vulpecula*) and Southern Brown Bandicoots (*Isoodon obesulus*) may make transient use of the riparian vegetation as a corridor between areas of remnant habitat. Records held by the Western Australian Museum for the area indicate that a broad range of species would have used the Brook and its hinterland prior to European settlement and clearing of native vegetation adjacent to the Brook (Appendix 5).

Amphibians

One species of amphibian, the small frog *Crinia insignifera* has been observed within the study area. It

was found amongst extensive *Watsonia* growing near where Talbot Road will cross the Brook. It is expected that at least two other frog species including *Limnodynastes dorsalis* and *Heleioporus eyrei* will inhabit the area (See Appendix 4). To date a total of 7 amphibian species have been recorded from the nearby Talbot Road Reserve (See Appendix 4), though this area has differences in soils and vegetation compared to Jane Brook.

Reptiles

To date a total of only three reptile species have been recorded from the study area. These are the Dugite, Bobtail and Fence Skink (See Appendix 4). The remnant habitats along the Brook provide shelter and food and several additional species of reptile can be expected to occur in the study area. The adjoining Talbot Road Reserve supports twelve species (See Appendix 4).

Invertebrates

Little is known about the original or currently surviving invertebrate fauna of the study area. The terrestrial faunal assemblage of the Jane Brook study area is substantially affected by changes in the habitats available through clearing of the vegetation for pasture, and by the close proximity of the site to residential areas. The WA Museum does have some data available from invertebrate pit fall trapping in the adjoining Talbot Road Reserve, however since the study site has different soils and vegetation few comparisons can be made. Species of note identified during the field survey include the Freshwater Mussel.

Aquatic Invertebrates

The aquatic invertebrate fauna of the lower reaches of Jane Brook has not be subject to specific study, though some general comments can be made regarding the type of community likely to be present and its ecological value.

Jane Brook is a heterotrophic waterway, which means that there is little primary production (algal growth) in the stream itself, partly due to its low nutrient status, and partly due to the fringing trees which shade the water and limit plant growth. Most of the energy entering the system and supporting the faunal community is from organic debris falling into the stream from the fringing vegetation and entering the stream from surface water runoff. Thus the faunal community is based on a detrivore food chain rather than a herbivore food chain. Coarse particulate organic matter, such as leaves and bark enters the stream from the riparian zone and is utilised as

a food source by larger crustaceans and insect larvae, such as yabbies or gilgies, caddisfly and mayfly larvae. Fine particulate organic matter, such as algal cells, microbial material, shredded coarse particulate material and frass, provides food for smaller detritivores such as copepods and midge larvae. Due to the low nutrient status of the brook, midge are not likely to occur at high population densities and are not expected to constitute a nuisance to residents in the housing estates adjacent to the brook.

Salinity in Jane Brook is currently too low to support breeding of salt-water mosquito species associated with the spread of Ross River Virus, however freshwater pools available as the brook dries out each spring will provide habitat for nuisance species from the genera *Coquillettidia*, *Culex* and *Aedes*.

Fauna in flowing waters are adapted to live with a unidirectional stream flow. Some species have developed anatomical features or behaviours which prevent or minimise the likelihood of being swept downstream. Others take advantage of the flow and gradually move downstream throughout their life cycles. These species often have an adult stage of the life cycle which enables them to return to the headwaters to lay their eggs. Some species require permanent water and would persist through the summer in pools. Others are adapted to the seasonal nature of many wetlands and survive by having an adult phase which is independent of water, ie, dragonflies, be able to survive the summer in burrows, ie some freshwater crayfish and frogs, or lay desiccation resistant eggs in the dry bed which will hatch during the winter wet, ie copepods.

5.4 Ecological Linkages (Corridors)

A corridor is a linear feature of vegetation, which differs from the surrounding vegetation and connects at least two remnant patches, which were connected in historical times (Saunders & Hobbs, 1991). Debate on the value and importance of corridors has been considerable within scientific and conservation circles.

Some of the advantages include:

- conduits for migration;
- provide habitat value;
- windbreak shelter belt value;
- aesthetic value;
- help to mitigate ecological isolation of populations in fragmented landscapes.

IMPORTANT GEOLOGICAL SITES IN THE PERTH AND SOUTHWESTERN AREA OF WESTERN AUSTRALIA

A Report on their Scientific Significance and Future Protection.

by *T. C. Lemmon*

R. D. Gee

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