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Environmental Protection Authority

EPA Service Unit
Environmental Impact Assessment Division

INTRA-DEPARTMENTAL REQUEST FOR INFORMATION/ADVICE REGARDING A POTENTIAL REFERRAL UNDER SECTION 38A(1) OF THE *ENVIRONMENTAL PROTECTION ACT 1986*

TO: Val English (Principal Ecologist, Species and Communities Branch, DEC)
(cc: Greg Keighery, Principal Research Scientist, DEC

FROM: Alice O'Connor, Planning & Infrastructure, EPA Service Unit 6467 5434

DATE OF REQUEST: 8 January 2009

DATE ADVICE REQUIRED: Within a month, if possible, because has been with us such a long time.

REFERENCE: 426/01

PROPOSAL: KEMERTON TO BUNBURY RAIL ALIGNMENT

Context and Background
In April 2000 the Western Australian Planning Commission released the final *Industry 2030: Greater Bunbury Industrial Land and Port Access Planning* (Figures 1 and 6 enclosed). State Cabinet endorsed it as the preferred strategic planning framework for addressing the area's industrial land and port access needs. There were several components, including the expansion of the Kemerton Industrial Park and the Bunbury-Kemerton Transport (Rail) alignment.

This request for information relates only to the rail alignment (the EPA Service Unit provided separate comments on the draft strategy for the Industrial Park on 27 March 2008). As a consequence of your advice dated 2 April 2001 (copy enclosed) relating to GHD's Flora and Fauna assessment (October 2000) for the **widening** of the line, the EPA requested further information from the Department of Transport (30 May 2001; you were cc'd). Department for Planning and Infrastructure then sought support for construction of a **second** rail line within the current rail reserve for the section you identified as being affected by presence of the TECs, namely between Burekup and Martin Palusey Road. DEP did not support this, and suggested consideration of a second line **outside** the rail reserve (correspondence 20 April 2002).

Landcorp submitted a third study (*Kemerton Bunbury Rail Alignment: Minimising Loss of Threatened Ecological Communities*, GHD, October 2004, copy enclosed) assessing the possibility of **winding** the new rail line between Burekup and Martin Pelusey Road. We have not yet provided them with advice regarding this study (see correspondence 4 May 2005, enclosed).

Stage in the Process
Pre EPA referral, but LandCorp advises that the project is still alive, as the Rail Corridor is a fundamental infrastructure platform within the Kemerton Industrial Park Strategy Plan.

For your information, an officer who was briefly with the EPA Service Unit found that the third study (October 2004) contained further detail on condition/type of TEC and the extent to be affected, but made the following preliminary comments:

- there is no written justification for not being able to use an alternative easement (although there was earlier comment about the increased impact on private landholders);
- there is no reference to relevant EPA documents, such as Position Statement No. 9 on offsets [my comment: PS9 was only preliminary at that time and was not finalised until February 2006]; and
- the proposed offsets do not seem to be adequate; they are based on the assumption that a vegetation complex can in fact be rehabilitated, and no funding is discussed.

Key Issues
Threatened Ecological Communities: types 3c, 8 and 9.

Advice Requested
Would you please consider the enclosed GHD report of October 2004 and advise whether or not the suggestion to wind the rail line would adequately protect/conserve the three TECs.

PLEASE CAN YOU FORWARD YOUR REPLY TO ME BY:

9 February 2009

If you cannot respond within the time provided in this request, or if you need further information, please contact Alice O'Connor on 6467 5434 as soon as possible.

THANK YOU

Many thanks in anticipation, Val!

Alice :-

SCANNED

LANDCORP

Enquiries: Peter Tesoriero

CPD 213684

Mr Kim Taylor
Director – Environmental Impact Assessment
Department of Environment
Level 8
141 St Georges Terrace
PERTH WA 6000

Dear Kim

KEMERTON BUNBURY RAIL ALIGNMENT
MINIMISING LOSS OF THREATENED ECOLOGICAL COMMUNITIES

In early 2000, a Steering Committee (comprising representatives from LandCorp, the Department of Industry and Resources and the Department for Planning and Infrastructure) was established to secure planning for the duplication of the South West Main Rail Line, from the line adjacent to the Kemerton Industrial Park to Picton Junction.

In Spring 2000, GHD Pty Ltd carried out a flora and fauna survey in order to assist in identification of a detailed alignment for construction of the section rail line. Three types of Threatened Ecological Communities (TECs) were identified during this survey.

Following advice from the (then) Department of Environmental Protection (DEP), the Steering Committee commissioned GHD to undertake a second study to:

- Identify and assess the type and condition of TECs between Burekup and Martin-Pelusey Road; and
- Determine if it was possible to construct a second line within the existing rail corridor without major TEC disturbance.

The key finding of the study was that it was not possible to construct the second line without TEC disturbance.

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Following subsequent advice from the DEP that it would not grant in-principle approval to develop the rail within the existing corridor, the Steering Committee looked at options to place sections of the railway outside of the existing rail reserve in order to reduce the impact on TECs. The outcomes of those deliberations resulted in a third study (attached) being undertaken by GHD to look at the possibility of 'winding' the new rail line between Burekup and Martin Pelusey Road. Oct 2004

The Steering Committee identified six sub-sections, each with different alignment options. The attached study has considered those options, assessed the precise impacts on TECs in terms of the significance of the TEC and the amount of vegetation being removed, and further refined the options in order to minimise the impacts on TECs while considering the engineering feasibility of the railway design.

In addition, the study discusses other options considered and the possibility of trade-offs.

Michelle Kember-Imrie (on behalf of LandCorp) and Tony Whittaker (Department of Industry and Resources) have been working with the Department of Environment (DoE) to fine tune this report and in November 2004, met with Mark Jefferies to provide a final draft and to seek advice on the next step toward obtaining 'in principle' environmental approval of its recommendations.

Unfortunately to date, no advice has been received from DoE.

As this report may be required to go through both State and Commonwealth approval processes, it would be greatly appreciated if DoE could provide advice to LandCorp on the best way forward as soon as possible.

Thanks for your assistance.

Yours sincerely

John Hackett
BUSINESS MANAGER – OPERATIONS

4 May 2005

DEPARTMENT OF
Conservation
AND LAND MANAGEMENT
Conserving the nature of WA

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Gary Williams
Department of Environmental Protection
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Re: Kemerton to Bunbury Rail Corridor

Dear Gary

Following a brief site inspection on the 29 of March 2001 by staff of CALMScience and CALM's Western Australian Threatened Species and Communities Unit, accompanied by yourself, staff of Department of Transport, Southwest Development Commission, and Department of Resources Development, we offer the following advice.

The consultants report correctly identified the presence of plant communities that are on CALM's threatened community database along the proposed rail alignment. In particular, the section of the alignment that occurs between Waterloo-Dardanup Rd and Burekup contains a mosaic of community types '*Eucalyptus calophylla – Xanthorrhoea preissii* woodlands and shrublands' (Gibson *et al.* 1994 community type 3c) 'herb rich shrublands in clay pans' (Gibson *et al.* 1994 community type 8) and ' dense shrublands on clay flats (Gibson *et al.* 1994 community type 9). Type 3c is Critically Endangered, and types 8 and 9 are listed as Vulnerable by CALM. Community 3c is also listed by the Commonwealth as Endangered under the EPBC Act.

Following examination of data held in the consultants report, and other existing knowledge of areas outside of Waterloo-Dardanup Rd to Burekup, it was considered that other portions of the proposed alignment - north of Burekup and south of the Waterloo reserve areas (see map 1 – Waterloo reserve areas contain community type 3c, and need to be avoided) and extending to Bunbury, would not contain significant areas of the above mentioned threatened communities.

Parts of the area between Waterloo-Dardanup Rd and Burekup (see map 2) are disturbed, and weed invasion has occurred. However, the components and general character of the plant communities are maintained, and regeneration is of a standard that the area can be considered to contain occurrences of Threatened Ecological Communities (TECs), and as regionally significant. There are few other known occurrences of type 3c TEC, in particular and total area is very limited, and the protection and proper management of this site is considered to be of significant value.

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Further information would allow assessment of whether the proposed rail alignment could be placed without significant disturbance of the conservation values, in particular, TECs and rare flora. For vegetation along the proposed alignment between Waterloo Rd and Burrekup, assessment of the relative conservation value of portions of the area should be undertaken, with regard for the following:

- The community type present, and the category of threat.
- The width of the remnant on either side of the current rail alignment.
- The level of historical disturbance, and the current level of weed infestation.
- The presence of declared rare and priority flora (with due regard to the comparative category of threat. Note: this would require survey in spring, to positively identify flowering individuals and annuals.)

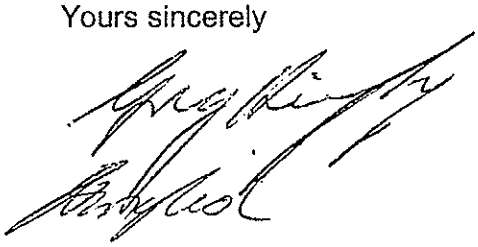
A very accurate map should be produced to differentiate these features. From this, a suitable alignment may be identified that avoids areas of the more threatened TEC, in particular, that are in good condition, and also avoids Declared Rare Flora.

If you wish to discuss this matter any further please contact Val English or Greg Keighery at CALM's Woodvale office on 9405 5100.

Reference

Gibson, N., Keighery, B., Keighery, G., Burbidge, A and Lyons, M. (1994). *A floristic survey of the Southern Swan Coastal Plain.* Unpublished report for the Australian Heritage Commission prepared by Department of Conservation and Land Management and the Conservation Council of Western Australia (Inc.).

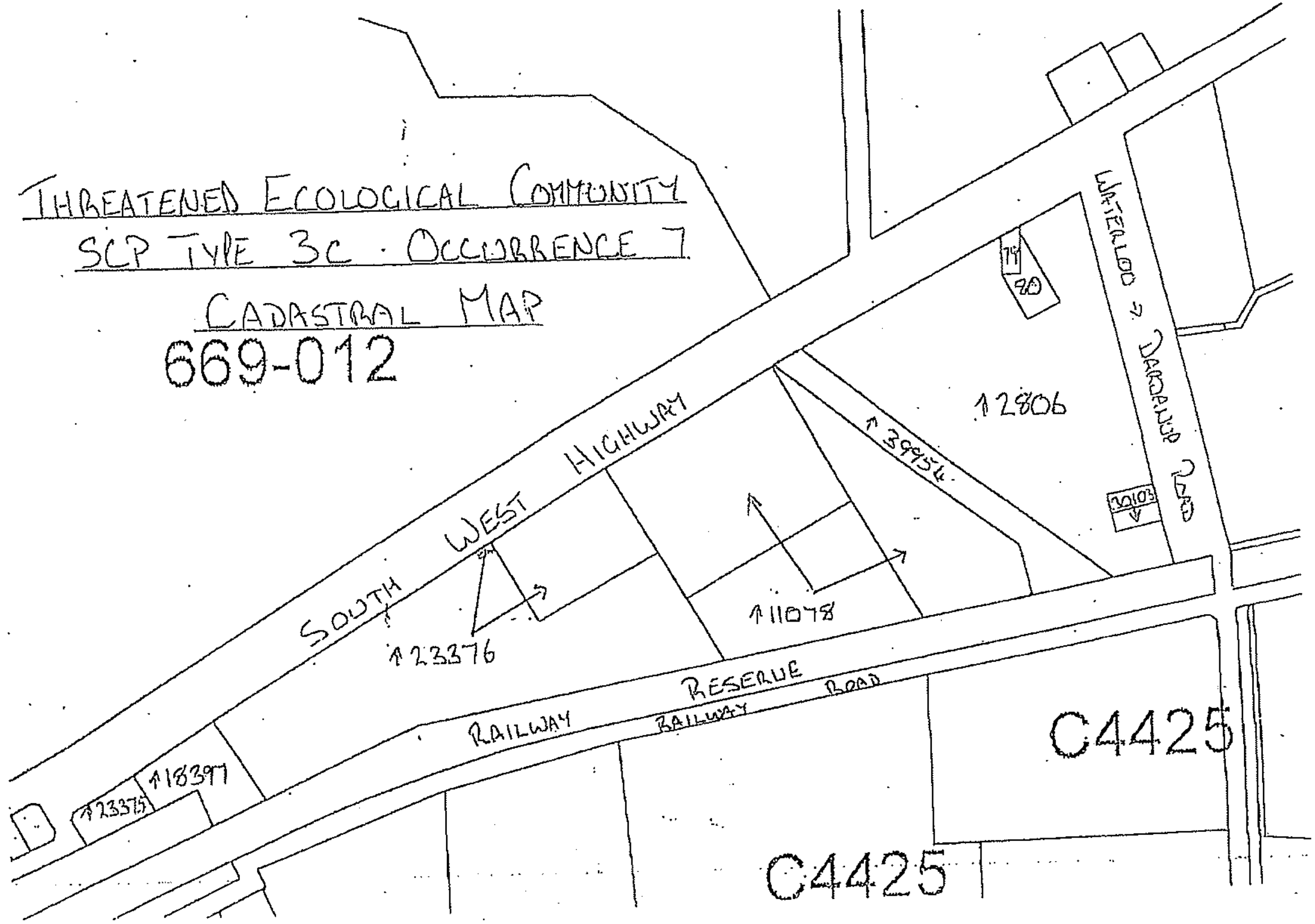
Yours sincerely



Greg Keighery and Val English

2 April 2001

THREATENED ECOLOGICAL COMMUNITY
SCP TYPE 3c · OCCURRENCE 7
CADASTRAL MAP
669-012



MAP ①

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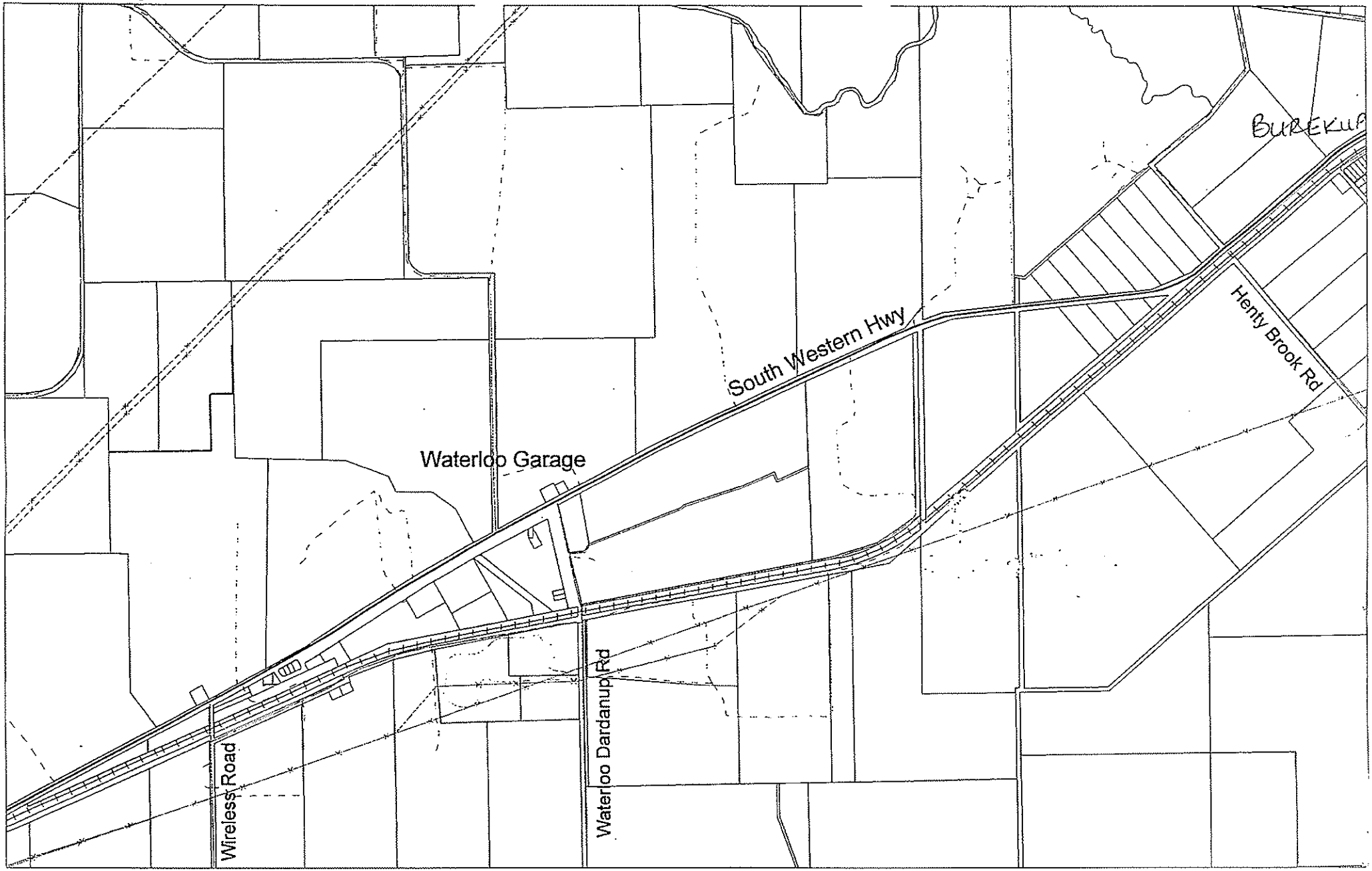

MAP (2)

Department of Industry and Resources

Kemerton Bunbury Rail Alignment

Minimising Loss of Threatened Ecological Communities

Report

October 2004

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Appendices

1. Introduction

1.1 Background

The Kemerton-Bunbury Corridor Steering Committee was established to secure planning for the construction of a railway linking the Kemerton Industrial Estate and the existing South West Main Line and the duplication of the main line from the Kemerton spur line intersection to Picton Junction (Figure 1, Appendix A).

In Spring 2000 GHD Pty Ltd carried out a detailed flora and fauna survey of the section of the preferred rail corridor between Kemerton and Picton Junction in order to assist in identification of a detailed alignment for construction of the section rail line. Three types of Threatened Ecological Community (TEC) are known to occur in the general area adjoining the rail corridor and were identified during the initial survey. Mapping also included the locations of Priority listed plant species found within the rail reserve.

Following advice from the (then) Department of Environmental Protection, the Steering Committee commissioned GHD to undertake a further study to:

- identify and assess the type and condition of TECs between Burekup and Martin-Pelusey Road, and
- determine if it was possible to construct a second line within the existing rail corridor without major TEC disturbance.

The key finding of the study was that it was not possible to construct the second line without TEC disturbance. The report also stated that if construction of the second line was pursued within the existing rail corridor, then the option of constructing the line as close as possible to the south of the existing line would offer the least TEC disturbance.

Following subsequent advice from the DEP that it would not grant in-principle approval to develop the rail within the existing corridor the Steering Committee looked at options to place sections of the railway outside of the existing rail reserve in order to reduce the impact on TECs. The outcomes of those deliberations have resulted in the requirement for this current study.

1.2 Scope of this Study

GHD has been commissioned to look at the possibility of 'winding' the new rail line between Burekup and Martin Pelusey Road. The Steering Committee has identified six sub-sections, each with different alignment options. This study has considered those options, assessed the precise impacts on TECs in terms of the significance of the TEC and the amount of vegetation being removed, and further refined the options in order to minimise the impacts on TECs while considering the engineering feasibility of the railway design.

The six sub-sections suggested by the Steering Committee are as follows and are shown at Figures 1a to 3 in Appendix A.

1. Burekup-Henty Road: Second line constructed as close as possible to the southern side of the existing line in the rail reserve.
2. Henty Road-Dowdell Road: Second line constructed in the road reserve on the southern side of the rail reserve.
3. Dowdell Road-main curve: Second line constructed in the road reserve on the southern side of the rail reserve.
4. Main curve – Waterloo Road: Second line constructed as close as possible to the northern side of the existing line in the rail reserve or in the road reserve on the northern side of the rail reserve.
5. Waterloo Road- Wireless Road: Second line constructed as close as possible to the southern side of the existing line in the rail reserve.
6. Wireless Road- Martin Pelusey Road: Second line constructed in the road reserve on the southern side of the rail reserve and then in the southern portion of the rail reserve as the line approaches the Martin-Pelusey rail crossing.

1.3 Methodology

This study has involved:

- a review of all previous biological field work for the railway between Burekup and Martin-Pelusey Road and the mapping of the TECs;
- a field visit to examine the options put forward by the Steering Committee and their impact on the TECs;
- input by a railway engineer into the feasibility of line construction on bends and crossovers;
- a detailed assessment of the amount of TEC being impacted and recommendations for the most suitable options when taking the vegetation condition and engineering feasibility into account;
- a consideration of offset possibilities.

1.3.1 Threatened Ecological Community Descriptions and Condition Ratings

In GHD previous report (November 2001), a description of the TECs and the condition rating used to assist in giving them a priority was described. This information is provided again below in order to explain the significance of the areas.

Threatened Ecological Community Types

CALM has listed Threatened Ecological Communities (TECs) which are recognised as having particular conservation importance. The most threatened of these communities (called Critically Endangered) are protected under the Federal Environmental Protection and Biodiversity Conservation Act (1999). The communities are given a categorisation, based on both State and Federal requirements for 'rarity'. These

categories are shown below at Table 1 for the communities known to occur in the Burekup to Picton area.

One of these recognised areas occurs at Waterloo, immediately adjoining the South Western rail reserve and is made up of community types 3c and 8 shown below. These types of vegetation also occur in a mosaic on the eastern side of the existing rail line. The TEC vegetation types can be found from just south of Burekup to Martin Pelusey Road near Picton along the rail reserve.

The section of rail reserve between Burekup and Picton includes numerous, very small seasonal wetlands. Many of these have been created by the rail embankment, tracks and soil extraction areas and although somewhat artificial contain a fairly complete range of pre-existing wetland species. Many have similar vegetation to the claypan Threatened Ecological Community registered at Waterloo but none are indicated as wetlands on the mapping for the Wetlands of the Swan Coastal Plain (Hill *et al.*, 1996).

TEC types 8 and 9 are somewhat similar but are generally delineated by the landform being either a claypan or a clay flat. Due to the alteration of landform along the rail reserve it is difficult to differentiate the two and for the purposes of this report the wetland communities are recorded only as Type 9. As both have a similar categorisation this has little impact on the outcome of the study.

Figures at Appendix A show the locations of the individual sections of TEC as mapped by GHD in 2001. There is a mosaic of types, particularly between Henty Road south of Burekup and Wireless Road. The wetland type, TEC 9, is found in a number of small clay pans along the railway reserve as well as part of a larger, clay flat near Waterloo. In addition, a similar vegetation type occurs close to the rail embankment in many sections of the reserve where water has been artificially ponded.

TEC 3c, which is listed as Critically Endangered in Western Australia, occurs along approximately 59% of the rail reserve but is fairly degraded over some sections. It is generally seen as a thin strip close to the reserve boundary fence where the ground has been least disturbed but is also found across the reserve in some areas where it occurs as regrowth woodland of about 20 years old. Despite it being regrowth, it retains a good selection of representative understorey species in some sections. TEC type 3c may contain marri and/or Wandoo as an overstorey species.

Table 1 : Vegetation Community Types Identified (English and Blythe, 1997)

Community Type	Description	Reservation/Conservation Status	
		WA Criteria	*EPBC* Act
3c	*Eucalyptus calophylla-Xanthorrhoea preissii* woodland and shrublands, Swan Coastal Plain	Poorly reserved Critically endangered; Category B ii	Endangered
8	Herb rich shrublands in claypans	Vulnerable Category B	Not listed

9	Dense shrublands on clay flats	Vulnerable Category B	Not listed

Occurrence of Type 3C in the South West

Only about 100 ha of Type 3c, the Marri-Xanthorrhoea woodland, remains in Western Australia. Of this 4 ha occurs at the Waterloo reserve and about 30% of the total is in poor condition. Only 0.03% is preserved in conservation reserves.

Condition Rating of TECs

All of the sections of varying vegetation were rated using a condition scale after Keighery (1994). This scale recognises a level of intactness of vegetation which is defined by the following :

- completeness of structural levels;
- extent of weed invasion;
- historical disturbance from tracks and other clearing or dumping;
- the potential for natural or assisted regeneration.

The scale therefore consists of six rating levels as below :

1. Pristine or nearly so.
2. Almost pristine. Vegetation structure intact, disturbance affecting individual species, and weeds are non-aggressive species.
3. Minor disturbance. Vegetation structure altered, obvious signs of disturbance.
4. Moderate disturbance. Vegetation structure significantly altered by very obvious signs of multiple disturbance, retains basic vegetation structure or ability to regenerate it.
5. Major disturbance. Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
6. Totally degraded. The structure of the vegetation is no longer intact and the area is completely or almost without native species.

2. Outcomes

2.1 Results of Further Field Investigation

The field investigation to consider the impact of the proposed options on TECs was undertaken by botanist, Anna Napier, on June 1st in company with Tony Whittaker of the Department of Industry and Resources.

The proposed options were assessed on foot or by vehicle and considered with regard to the previously mapped TEC sections and Priority flora locations. Sections are discussed below with reference to the six options put forward by the Steering Committee.

An estimate of the construction width requirements for the new rail alongside the existing rail was made in order to calculate the requirements for vegetation clearing. The construction width includes the rail embankment (when butted up against the existing rail) and a 3 m wide construction access track. The total width used for the calculations is 10m (see also Section 2.2).

2.1.1 Burekup to Henty Road (~960 m)

- The alternative option recommended by the Steering Committee in this section is to locate the second rail line within the road reserve immediately to the south of the rail reserve.

This area has degraded marri/wandoo woodland on both sides of the existing railway line. There is little understorey remaining in any areas, except for small portions on and adjoining rail embankments with the Burekup townsite. There are dense areas of regrowth trees along the railway reserve and at the creek crossing but none of the vegetation is in good condition with regard to its structure or biodiversity..

An alternative is to build the second rail line immediately to the north of the existing rail line. This area is largely cleared, containing a few regrowth marri, *Eucalyptus rudis* (flooded gums) and *Melaleuca* trees with no native understorey. Based upon a 10m construction zone width it is likely that little native vegetation would be required to be removed (Figure 14).

In either case, no areas of TEC with a condition rating better than 5 would be removed.

2.1.2 Henty Road to Dowdell Road (~1320 m)

- The alternative option recommended by the Steering Committee is to place the second rail within the road reserve to the south of the rail reserve.

Although relatively clear for much of the road reserve there is a short, but very high quality section of TEC 3c (Critically Endangered) immediately north of Dowdells Road. This section is approximately 150m long in total with 80m of the section being in excellent condition, and including the understorey layers of native grasses and sedges. The remaining 70m of vegetation section is in moderate condition with patches of the sedge and herb understorey replaced with introduced grasses.

The rest of the road reserve is either cleared pasture or scattered Wandoo, Marri or *Melaleuca rhaphiophylla* trees over pasture with occasional patches of sedges.

In total about 0.2 ha of moderate to excellent quality Critically endangered TEC 3c would be lost if this option was taken up.

Another alternative is to build the new rail line immediately to the north of the existing line. As with the suggestion for this for the Burekup to Henty Road section, there is approximately 15m of cleared strip within the rail reserve before moderately conserved vegetation of TEC 3c and TEC 9 occurs to the north. This should be sufficient room in which to build the additional rail line, if it is carefully managed, without any significant loss of vegetation (Figures 12 and 13).

2.1.3 Dowdells Road to Main Curve (~600m)

- The alternative option recommended by the Steering Committee is that the second rail line be constructed in the road reserve south of the rail reserve.

This section of road and rail reserve is similar to that north of Dowdells Road in that it has a mixture of wetlands and marri/wandoo woodland within the rail reserve (TECs 3c and 9) with a fairly degraded, unused road reserve adjoining. The road reserve vegetation is primarily pasture with scattered wandoo and marri with *Melaleuca rhaphiophylla* in the damper areas. However, many of the trees are large and mature and provide a significant visual impact within the general area. The southern side of the rail reserve contains known populations of Priority flora *Chamaescilla gibsoni* and *Craspedia argillicola* Keighery ms. (Note: This species was previously listed as *Craspedia* sp. Waterloo and is now a Priority 2 species).

Within the rail reserve the TECs are rated as being condition 3 to 4, but again, there is a reasonably wide (10-12 m), cleared strip on the northern side of the existing railway which could be used for rail construction (Figure 11). With careful management very little TEC should be removed or damaged.

2.1.4 Main Curve to Waterloo Road (~1640 m)

- The alternative option recommended by the Steering Committee is that the second rail line be constructed in the northern portion of the rail reserve.

The section of railway reserve contains primarily wetland vegetation with approximately 50% being TEC 9, and 15% being TEC 3c. The remainder is wetland vegetation which is not considered to resemble any TEC types. The vegetation is in poor to moderately good vegetation with the best vegetation being in patches near to Waterloo Road. The new railway could be placed either side of the existing railway but, following the field investigation the preferred option with regard to vegetation loss is for it to remain on the north side until the end of the curve and then cross to the south side (Figures 9 and 10) .

This would result in a loss of approximately 0.29 ha of TEC 9 (condition rating 3 to 5) and a negligible amount of TEC 3c (condition rating 5) if the construction process is carefully managed.

There would be a further loss of approximately 0.22 ha of other, non-TEC, vegetation of condition rating 4.

These estimates are based on clearing a strip of width 4m, which is adjacent to the existing cleared zone alongside the railway.

2.1.5 Waterloo Road to Wireless Road (~1760 m)

- The Steering Committee recommends that the second line be constructed in the southern portion of the rail reserve.

The vegetation within the rail reserve along this section is of moderately good to relatively poor quality and consists completely of TEC vegetation types, with the majority being the critically endangered TEC 3c. Due to the presence of the Waterloo Nature Reserve on the northern side of the railway reserve there is little option but to put the second rail line immediately to the south of the existing line. This will have variable impacts due to the patchiness of the vegetation on this side.

This option will result in the loss of approximately 0.52 ha of TEC 3c of condition rating 3 to 5 and 0.36 ha of TEC 9 of condition rating 3 to 5.

Again, the relative loss of vegetation will depend upon how carefully the construction can be managed. This estimate is based on clearing a strip of 5m width, which is adjacent the area already cleared alongside the railway (Figures 6, 7 and 8).

2.1.6 Wireless Road to Martin-Pelusey Road (~1880 m)

- The Steering Committee recommends that the second line be constructed primarily in the unused road reserve south of the rail reserve but grading back into the rail reserve before getting to the crossing at Martin-Pelusey Road.

The rail reserve in this area contains primarily vegetation of TEC types 3c and 9 with a small section of other wetland vegetation. If the railway was placed to the south of the existing railway, within the rail reserve, a considerable amount of TEC 3c would be lost. By placing the new railway within an unused road reserve to the south for most of its length, only remnant patches of marri trees over pasture, and some planted, non-local trees, will be removed (Figures 5 and 6). Although some of these patches contain mature trees, there will be a less significant impact on vegetation in general. Construction of the new rail line with the unused road reserve is, however, slightly constrained by the presence of a deep drain within the area.

Where the railway must curve back into the existing rail reserve prior to the Martin-Pelusey Road crossing, it is estimated that 0.1 ha of TEC 9 (condition rating 3-5) will be removed.

West of Martin-Pelusey Road the vegetation changes quite suddenly into the Southern River complex and is generally fairly degraded.

2.2 Wetland Classification

The entire railway area, except for a small strip near Henty Brook, is classified as palusplain wetland in the Wetlands of the Swan Coastal Plain (Hill *et al.* 1966). There is no differentiation of any other wetlands within the railway reserve or adjoining, at Waterloo Reserve.

The wetlands mentioned in Section 1.3.1 and 2.1.4 are not given any specific classification in Hill *et al.* as they are either very small and/or artificially created as a result of the original railway embankment construction works. Most exist as linear patches parallel to the railway line where soil has been taken for the rail embankment and the resulting lower area subsequently floods in Winter. Within some of these patches, natural vegetation has re-established.

2.3 Landuse and Zoning

This section of the railway is within the Greater Bunbury Region Scheme, and in the Shire of Dardanup. The entire area is zoned rural except for an area containing, and adjoining, the brickworks at Waterloo Road (see Figures 8 and 9). The Waterloo townsite reserve, on the northern side of the railway between Waterloo Road and Martin Pelussey Road is also zoned rural, and due to its TEC status is never likely to be developed.

A road reserve vested in the Shire exists along the southern boundary of the rail reserve, with the road being built from Wireless Road east to almost the main curve. All other areas of the road reserve do not contain a road and in some cases are not fenced off from the adjacent farmland. The railway reserve abuts the South Western Highway reserve for approximately 1100m from Martin Pelussey Road to the north east.

A narrow drain reserve exists along the northern boundary of the rail reserve between Waterloo Road and a point east of the main curve. This reserve is fully cleared but not wide enough for a second rail line.

Apart from these areas, the remainder of the adjoining land is used for grazing and hay production. Some of the paddocks have been laser levelled for irrigation and represent high-value agricultural land.

2.4 Railway Construction Feasibility and Options

2.4.1 Construction Feasibility

A qualified and experienced rail engineer (Mr Don Pearce) has considered the feasibility of the recommended new rail track options and estimated the distances required for crossing between the rail reserve and the road reserve and the curve possibility where the old track and the new track would intersect.

An estimate for the width required for construction of the new rail track has also been made. Where the new rail line can be constructed immediately adjacent to the existing line, the track centres can be a minimum of 5m apart. This provides cost savings in

earthworks and ballast due to the angles of the embankments and the reduced amount of fill required and also causes less removal of vegetation along the railway reserve due the decreased total embankment. It has been assumed that the new track will be at the same height as the existing track, at least where it is built in conjunction with it. Estimates of removal of TEC vegetation have been based on construction width figures as follows: 7 m for new track formation immediately abutting existing track; 3 m for construction access track.

- Track Crossover – Main Curve. No extra clearing will be required other than that needed for the new track.
- Crossing from rail reserve to road reserve – Wireless Road. Approximately 180 m will be required to alter the course of the new rail from close to the existing rail into the road reserve.
- Crossing from road reserve back to rail reserve – Martin Pelusey Road. Approximately 100m will be required to angle the new track from the road reserve alignment back to the southern side of the existing rail.

2.4.2 Options Considered

A number of options for construction of the second rail line have been considered. Due to the engineering restrictions in regard to 'winding' the track over short distances, and the preference to keep the rail lines together wherever possible, there are few other feasible options. The recommended alignment minimises clearing and impact to the remaining TEC areas by using cleared areas where possible and by constructing the new rail immediately adjacent to the existing rail in other areas. By abutting the new rail line up against the existing line there is considerably less clearing than by constructing a separate line within the rail reserve. This is because the formation for the new line uses part of the formation of the existing line – saving around 3m in clearing width. In addition, keeping the rail lines together limits further changes to drainage and water ponding. Where rail lines are separate, there are risks that water is ponded between them, causing impacts on remaining vegetation.

Options of constructing a new rail line outside of the rail reserve and adjacent road reserve were considered. Such options would require purchase of private, high value agricultural land, some of which is under irrigation. Some of the irrigated land adjacent to the road/rail reserves has been laser levelled (as evidenced by aerial photographs) and is therefore of high value from the landowners perspective. Laser levelling allows more even and accurate dispersal of irrigation water and produces quality fodder for use over summer.

2.5 Summary of Recommendations

As a result of the consideration of the Steering Committee preferred options and alternative recommendations with regard to the protection of TEC communities the following recommendations are made. The alignments are also shown on the TEC maps at Appendix A.

1. Burekup-Henty Road: Second line constructed as close as possible to the **southern or northern** side of the existing line in the rail reserve.
2. Henty Road-Dowdell Road: Second line constructed as close as possible to the **northern** side of the existing line in the rail reserve.
3. Dowdell Road-main curve: Second line constructed as close as possible to the **northern** side of the existing line in the rail reserve.
4. Main curve – Waterloo Road: Second line constructed as close as possible to the **northern** side of the existing line in the rail reserve and then crossing over to be constructed as close as possible to the railway on the **southern** side.
5. Waterloo Road- Wireless Road: Second line constructed as close as possible to the **southern** side of the existing line in the rail reserve.
6. Wireless Road- Martin Pelusey Road: Second line constructed in the **road reserve** on the southern side of the rail reserve and then in the **southern** portion of the rail reserve as the line approaches the Martin-Pelusey rail crossing.

These recommendations will minimise the amount of TEC vegetation that will need to be removed, and also retain many of the mature trees existing in some parts of the unused road reserve to the south of the rail reserve. The minimisation of loss of TEC vegetation will be dependent upon the careful management of railway works within the rail reserve and the ongoing management of access tracks. Where the alignment of the new rail has been recommended for the northern side of the existing rail there is a cleared strip up to 15m wide which could be used for the purpose.

A summary of the amount of TEC which will be removed as a result of the above recommendations is at Table 1.

Table 2 Summary of Threatened Ecological Community Loss

Railway Section	TEC Type	Area Required to be Removed/Condition
Burekup to Henty Road	3c	None
Henty Road to Dowdells Road	3c/9	None
Dowdells Road to main curve	3c/9	None
Main curve to Waterloo Road	3c	0.29 ha (condition 3 to 5)
Waterloo Road to Wireless Road	3c	0.52 ha (condition 3 to 5)
	9	0.36 ha (condition 3 to 5)
Wireless Road to Martin-Pelusey Road	9	0.1 ha (condition 3 to 5)

2.6 Possibilities for Offsets

A total of 0.81 ha of TEC 3c and 0.37 ha of TEC 9 would be cleared as a result of the recommended alignment. These TEC types are of limited distribution and, apart from the Waterloo reserve and the adjacent road reserves are not present locally. It is considered that the best opportunities for providing an offset are with purchase and rehabilitation of the shire-vested road reserve to the south of the rail reserve. The best area for this to occur is in the road reserve which runs east from the main curve to Burekup (Figures 11 to 14). This area has no road within it and has been degraded by use for grazing. The 20m wide road reserve covers 2400m in length and less than 20% of it has native vegetation remaining. Therefore, there is an opportunity to rehabilitate an area of approximately 3.9 ha of mixed TEC 3c and TEC 9 vegetation.

It is acknowledged that rehabilitation of vegetation communities is difficult, especially when areas have been totally degraded. However, even if only some of the pre-existing native vegetation can be replaced, the rehabilitated zone would provide a buffer to the remaining TEC vegetation. In addition, weed control and infill work could be undertaken within the remaining TEC vegetation in the rail reserve, enhancing the existing vegetation and reducing the risk of further degradation.

3. References

Conservation and Land Management (2003). Declared Rare and Priority Flora Lists for Western Australia. Perth, Western Australia.

English, V and Blythe, J. (1997). *Identifying and Conserving Threatened Ecological Communities in the South West Botanical Province.* Unpublished report for the Department of Conservation and Land Management to Environment Australia.

GHD Pty. Ltd. (2001). *Kemerton to Bunbury Rail Corridor. Report on Threatened Ecological Communities Mapping and Rail Alignment Study.* Unpublished report for Department for Planning and Infrastructure, November 2001.

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Hill, A.L.. Semeniuk, C.A., Seneniuk, V. and del Marco, A. (1996). *Wetlands of the Swan Coastal Plain. Volume 2 : Wetland Mapping, Classification and Evaluation – Wetland Atlas.* Prepared for the Water and Rivers Commission and the Department of Environmental Protection, Perth, Western Australia.

Keighery, B.J. (1994). *Bushland Plant Survey.* A Guide to Plant Community Survey for the Community. Wildflower Society of W.A. Inc. Nedlands.

Appendix A

TEC Mapping and Condition Rating

Figure 1:	Location Map, Proposed Kemerton to Bunbury Railway
Figures 1a to 3:	Threatened Ecological Community Mapping and Recommended New Rail Line Location
Figures 4 to 14:	TEC mapping and proposed clearing zone (1:2000 scale mapping)

BILLS David

From: Guise, Neil [nguise@agric.wa.gov.au]
Sent: Thursday, 26 September 2002 12:21
To: BILLS David
Subject: FW: Colin Piarcentini's land clearing

Importance: High


Piarcentini fax.doc

Hi David,

I've just confirmed with the Commissioner's office that I can pass this on to you. Andrew has discussed this with Ben von Perger and told him what was in the fax. However, if it looks like this may save officer time in checking this out further, then please have your Officer who reported the activity to see if what they saw is likely to coincide with what is on this fax.

Please notify me of the outcome. If it looks like there has been additional clearing activity then we will need to arrange for a Land Conservation Officer to inspect the site. Unfortunately, Nick Cox is on leave so I would have to organise someone else to inspect.

cheers,

Neil Guise
Acting SW Regional ARM Manager
Department of Agriculture
WAROONA
ph 9733 7777 fax 9733 2377

> ----------
> From: Holyoake, Kelly
> Sent: Thursday, 26 September 2002 11:40 AM
> To: Guise, Neil; Watson, Andrew
> Subject: RE: Colin Piarcentini's land clearing
>
> Neil
>
> To assist, I have attached a copy of Nick's fax to Colin Piacentini, dated
> 11 Sept, that sets out what is not notifiable.
>
> cheers
>
> Kelly
> <<Piarcentini fax.doc>>
>
> ----------
> From: Watson, Andrew
> Sent: Thursday, 26 September 2002 11:33 AM
> To: Guise, Neil
> Cc: Holyoake, Kelly
> Subject: Colin Piarcentini's land clearing
>
> Neil

DEPARTMENT OF
Agriculture

Fax

Department of Agriculture
South Western Highway BUNBURY 6230

To: Colin Piarcentini **From:** Nick M Cox

Fax number: 97 254 736 **Telephone number:** 97 806 269

Date: 11 September 2002 **Number of pages including this page:** 2

If any part of this transmission failed, was misdirected or is illegible please
Telephone (08) 9780 6100 or fax (08) 9780 6136
International 61 8 9780 6100 61 8 9780 6136

Dear Colin,

RE: PROPERTY DEVELOPMENT, Wellington Locations Pt 313, 314, 315, 316, & 317

At the request of Mr Ted Johnson we have revisited your Capel property to discuss a number of issues relating to the ongoing development and clearing of native vegetation. We have been informed that the main reasons for undertaking this development relates to:

1) Fire control,
2) Preventing illegal access,
3) Reducing the incidence of rubbish (old cars) dumping.

In order to achieve this it is your intention to:

1) Establish adequate fire breaks,
2) Provide a boundary fence of acceptable standard,
3) Introduce a small number of livestock (cattle),
4) Visit the property on a more regular basis to manage the cattle.

In order to allow this to be achieved, a number of land clearing issues were discussed. These included:

1) The clearing of a 10 m wide firebreak around the inside boundary of the property to also assist with the construction of a new boundary fence. This clearing was the subject of a previous fax (Aug 2002) and as stated, was not objected to on the basis that it was outside of the scope of the land clearing regulations (under the Soil and Land Conservation Act).
2) The clearing of the boundary fence alignments along each side of the Minninnup Road reserve that bisects the property from south to north. This will involve mainly the clearing of isolated trees and shrubs from pastured land.
3) The clearing of re-grown acacia and sedge type vegetation that has encroached onto pastureland from the eastern side of the swamp on the property. This clearing may occur to the extent that it can be demonstrated that it was previously cleared, i.e. the presence of pasture plants amongst most of the vegetation to be cleared. The clearing will not encroach into areas of inundation as identified by reed beds.
4) A 160 m (approx.) 4 m wide firebreak/access to provide a link between existing access and the SW property boundary.

5) The removal of isolated trees, shrubs and sedges contained within the pastured area, located between the swamp and stand of vegetation to the east.
6) The removal of previously felled vegetation from the periphery of standing vegetation and paddock areas.

It is also noted that the vegetation within the swamp (sedges) may be burned over the next few weeks in order to reduce the fuel load. It is understood that this will not be associated with any attempt to clear this or increase access by livestock.

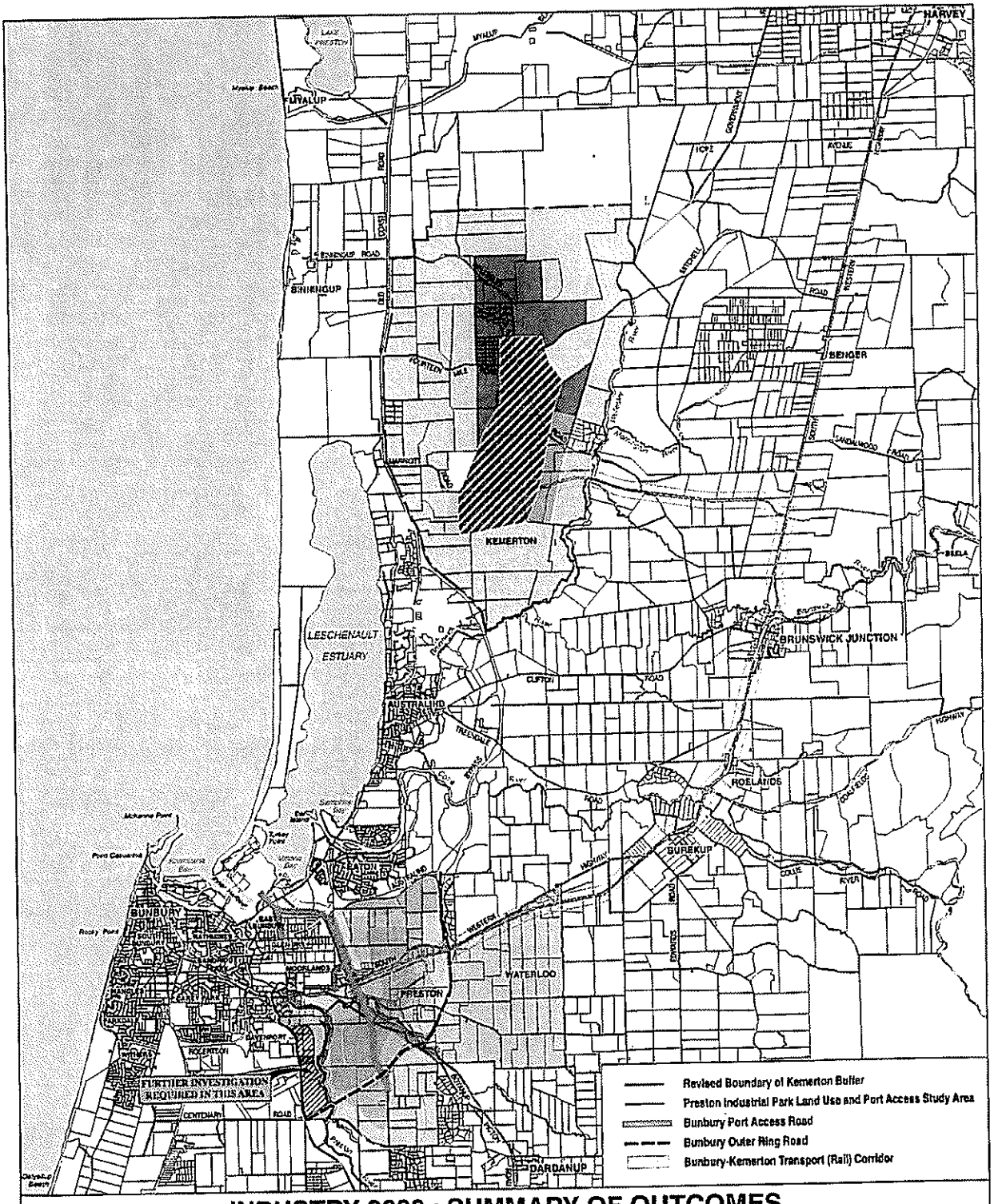
It is considered that the development activities as discussed above, involve the clearing of native vegetation that is considered 'normal management practices' under the Soil and Land Conservation Act, clearing regulations. This clearing does not therefore require the lodgement of a Notice of Intent to Clear. However, the property may be subject to special provisions imposed by the Local Government Authority. You are encouraged to liase with the Capel Shire before proceeding.

If you have any further queries regarding the above, please do not hesitate to contact me

Regards,

Nick M Cox
Land Conservation Officer

> THis morning I received a complaint from the DEP that illelgal land
> clearing was now occurring on this properrty.
> I explained to the DEP officer (Perth) that Nic Cox had recently been on
> site and set out in writing what may be cleared (ie non notifiable.)
> The clearing that fell into this category was fire breaks and boundary
> fence lines. An area of regrowth around a swamp area was also identified
> as being non notifiable.
> This advice has been given to the DEP. I suspect they are reacting to
> complaints from a neighbour of Piarcentini's who is opposed to this
> clearing.
> Given the lengths taken by Piarcentini to ensure that the work under taken
> is lawful, I would be surprised if he is in fact now in breech of the
> regulation.
> If you could easily arrange it, it may pay to have someone check it out
> today, as I suspect that this may become a bit messy.
> Andrew
>
>



INDUSTRY 2030 : SUMMARY OF OUTCOMES

WESTERN AUSTRALIAN PLANNING COMMISSION

N

April 2000

0 1 2 3

Kilometres

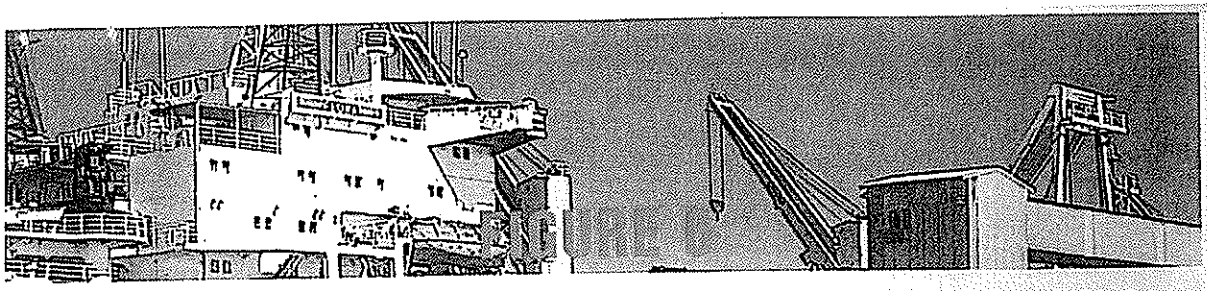
Produced by Cartographic Section, Bunbury Office, Ministry for Planning

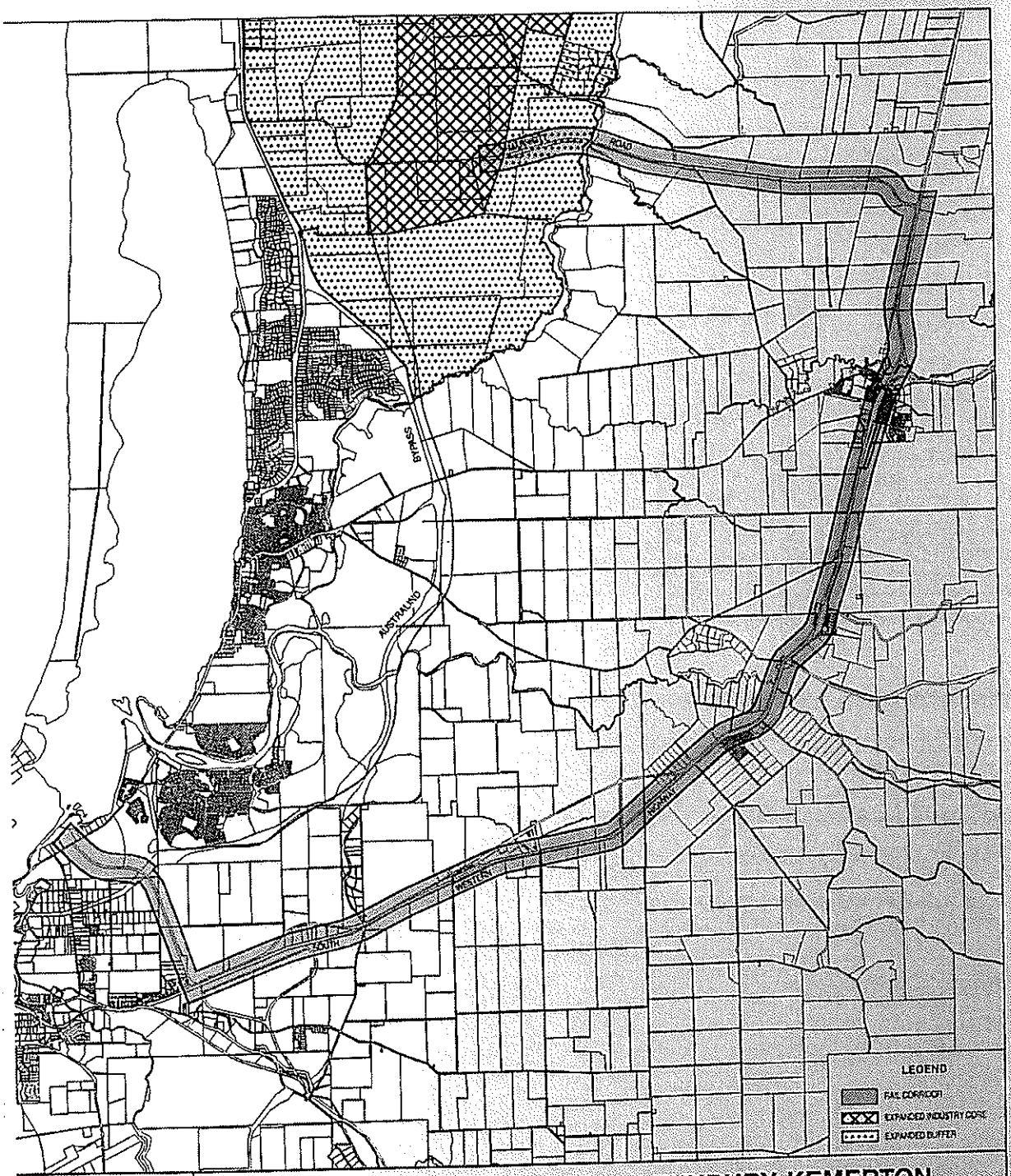
For detailed mapping see the following reports:
- Kemerton Expansion Study - Final Draft Report
- Preston Industrial Park Land Use & Port Access Study (August 1997)
- Bunbury-Kemerton Transport Corridor (Phase 1) Final Draft Report
- Bunbury Port Access Study

LEGEND

PRESTON INDUSTRIAL PARK
- Core General Industry Precinct
- Secondary General Industry Precinct
- Transitional Industry Precinct
- Mixed Use Precinct
- Service Corridor
- Conservation Reserve
- Landscape Buffer
- Rural
- Small Holding Development Area
- Airport Runway Extension

KEMERTON EXPANSION STUDY
- Existing Industry Core
- Expanded Industry Core
- Buffer
- Existing Support Industry
- Existing Inter Industry Buffer
- Public Utility
- Investigation Area For Public Utility





BSD CONSULTANTS

Original plan prepared by BSD Consultants for Bunbury-Kemerton Transport Corridor (Phase 1) Final Draft Report

WESTERN AUSTRALIAN PLANNING COMMISSION

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April 2000

Produced by Cartographic Section, Survey Office, Ministry for Planning

BUNBURY-KEMERTON TRANSPORT (RAIL) CORRIDOR

RAIL TRANSPORT CORRIDOR