Proposal to construct a road across Vasse Estuary (Ford Road), Shire of Busselton

Shire of Busselton

Advice to the Minister for the Environment from the Environmental Protection Authority under Section 44 of the Environmental Protection Act 1986

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Summary and recommendations

The Shire of Busselton proposes to construct a road, known as Ford Road, across the Vasse Estuary. The EPA has previously reported on the environmental acceptability of this proposal to the Minister for the Environment in June 1999 (Bulletin 940). In this report, the EPA recommended that the proposal not be implemented as the proposal would not meet the EPA's objective in relation to waterbirds. An appeal was subsequently received against the EPA's report and recommendations on the proposal. Following consideration of this appeal, the Minister for the Environment has referred the proposal back to the EPA under Section 43 of the *Environmental Protection Act (1986)*, for further assessment.

This report provides the Environmental Protection Authority's (EPA's) further advice and recommendations to the Minister for the Environment on the environmental factors relevant to the proposal.

Relevant environmental factors

In the EPA's opinion, the following are the environmental factors relevant to the proposal, which require detailed evaluation in the report:

(a) Waterbirds - potential impacts on waterbirds and their habitat from road and bridge construction, traffic movement and potential water quality degradation;

(b) wetland vegetation - potential direct impacts on waterbird habitat from road and bridge construction;

(c) protected fauna - potential impacts on fauna movement;

(d) flood management - potential impacts on waterbird habitat from water level changes; and

(e) estuarine water quality - potential water quality degradation from road drainage and spills.

Conclusion

The EPA has considered the proposal by the Shire of Busselton to construct a road across the Vasse Estuary further to its Bulletin 940.

The EPA notes that the Shire of Busselton commissioned environmental consultants to provide an indication of environmental protection needs associated with the upgrading of Ford Road, and that the consultant's report (LeProvost Dames and Moore, 1997) considered the environmental factors listed above, with the exception of estuarine water quality.

The EPA recognises that the proposal to build Ford Road is consistent with the Busselton Shire's long term management plan and is within a gazetted road reserve. However, over time the importance of the adjoining area as a significant wetland has been recognised, and the area to the east of the proposed road alignment is now listed as a Ramsar site because of its international importance as a waterbird habitat.

The wetlands to the west of the proposed road are similarly important, and the Ramsar site should be extended to include this area.

In summary, the proposed road, if built would be at the western boundary of a Ramsar site which should be extended further west to include additional wetlands of importance as a waterbird habitat. Contracting parties to the Ramsar Convention on Wetlands of International Importance are required to formulate and implement planning in a manner which promotes the conservation of wetlands included in the Ramsar list of sites.

The EPA acknowledges that the proposed road could be designed to minimise direct impacts and on-going risks to waterbirds, wetland vegetation and terrestrial fauna. However, even with best design, the proposal would still present a degree of risk to waterbirds, particularly from traffic movement and potential for water quality degradation. The EPA considers that subjecting a Ramsar listed wetland to such risks would be inappropriate.

The EPA therefore considers the proposal to construct a road across the Vasse Estuary as proposed is environmentally unacceptable as it cannot be managed to meet the EPA's objective in relation to waterbirds.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister considers the report on the relevant environmental factors of waterbirds, wetland vegetation, protected fauna, flood management and estuarine water quality, as set out in Section 3, provided further to Bulletin 940.
2. That the Minister notes that the EPA has concluded that the proposal cannot meet the EPA's environmental objective for waterbirds.
3. That the Minister notes that the EPA has not included in this Bulletin "conditions and procedures to which the proposal should be subject, if implemented", because the EPA holds the view that even the design which minimises environmental risk would still present a degree of risk which is considered inappropriate for a Ramsar listed wetland.
4. That the Minister not issue a statement that the proposal may be implemented.
5. That the Minister notes the EPA's other advice presented in Section 4 in relation to the proposed Commonwealth *Environment Protection and Biodiversity Conservation Act (1999)*.
6. That the Minister notes the EPA's other advice presented Section 4 of Bulletin 940, and reiterated in Section 3.2 of this report, in relation to previous deposition of fill along the proposed alignment, and the EPA's view that the Shire of Busselton should remove the fill and prepare and implement a weed control and wetland vegetation rehabilitation plan for the area affected by the fill deposition.

Contents

1. Introduction and background

The Shire of Busselton proposes to build a road, known as Ford Road, across the Vasse Estuary. The road is currently an unsealed road (track) at the location indicated in Figure 1.

The Environmental Protection Authority (EPA) has previously reported on the environmental acceptability of constructing the road (EPA Bulletin 940). In Bulletin 940, the EPA recommended that the proposal not be implemented as the proposal would not meet the EPA's objective in relation to waterbirds.

The Shire of Busselton, as proponent, appealed to the Minister for the Environment against the findings of Bulletin 940. Following consideration of this appeal, the Minister referred the proposal back to the EPA for further environmental assessment under the provisions of Section 43 of the *Environmental Protection Act (1986)*. The EPA has subsequently undertaken further, more detailed assessment of the factors relevant to this proposal.

This report outlines the outcome of the additional assessment undertaken by the EPA on the relevant environmental factors, and provides the advice and recommendations of the EPA to the Minister for the Environment on the proposal by the Shire of Busselton to construct a road across the Vasse Estuary.

Further details of the proposal are presented in Section 2 of this report. Section 3 discusses environmental factors relevant to the proposal. Section 4 provides Other Advice by the EPA, Section 5 presents the EPA's conclusions and Section 6, the EPA's Recommendations.

Appendix 1 provides a list of references used on the report, and Appendices 2 and 3 a summary of the identification and assessment of relevant environmental factors.

2. The proposal

The proponent seeks to construct a sealed road, known as Ford Road, along the alignment indicated in Figure 1. Construction of the road would be in accordance with the Shire's long term traffic management plans (Shire of Busselton, 1993). The sealed road is intended to cater for two lanes of traffic and link Peel Terrace to the north and Bussell Highway to the south.

The road is currently a track within a gazetted road reserve, and crosses the western (upper) end of the Vasse Estuary. This portion of the Estuary is usually dry during summer months, and is used at present by two-wheel vehicles. In winter the alignment becomes inundated. The remainder of the track crosses a swampy estuarine area and some pasture at the south end. Prior to 1992, some fill was placed at the north east end of the proposed road alignment, presumably in anticipation of the road being constructed.

Due to the location of the road across the Vasse Estuary, the Shire of Busselton engaged environmental consultants to undertake an environmental study of the proposed road alignment. The study objectives were to provide the Shire with adequate documentation on the immediate environment of Ford Road, to provide an indication of the environmental protection needs associated with the upgrading of the road, and recommendations on appropriate engineering, resource management and landscape design for the road.

The consultant's report 'Ford Road Environmental Study' (LeProvost Dames & Moore, 1997) recommended a number of design guidelines to address environmental issues associated with the proposed road. These were:

" • the estuary crossing is undertaken in such a way that the structure(s) employed is of sufficient height and width that:

  (i) there is no restriction on estuary flow as a result of the structure(s), compared with current conditions;

  (ii) fringing, riparian vegetation along the edge of the estuary is retained, and where removed because of construction is able to re-establish;

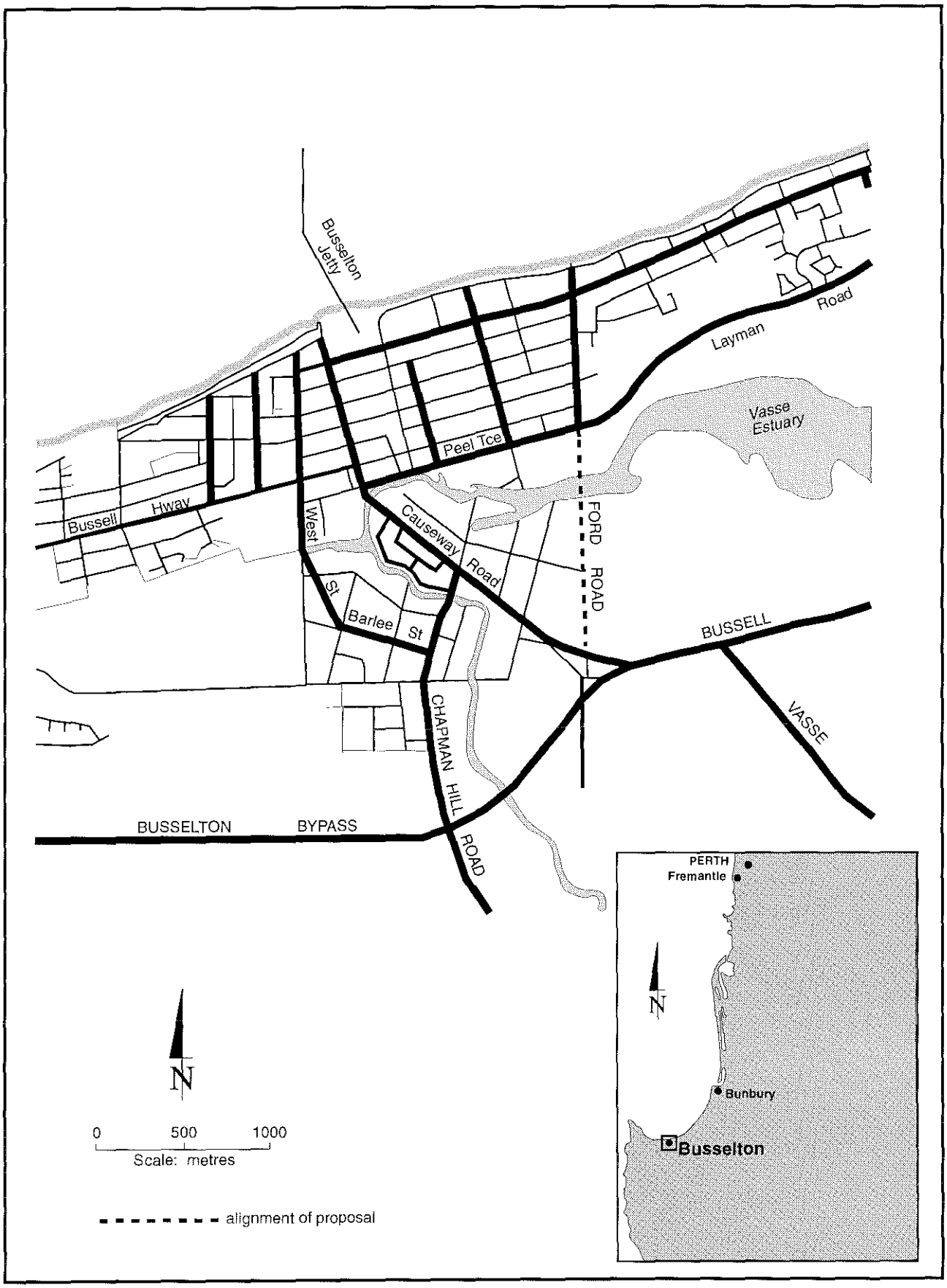


Figure 1. Map indicating location of Ford Road.

(iii) there is no 'bare-ground surface zone' associated with the constructed crossing of Ford Road;

(iv) narrow or enclosed pathways under or around the structure, which provide effective capture/killing zones for predators (especially foxes and cats), are avoided; and

(v) the height of the structure, from the surface of the water to the underside of the bridge, is sufficient to allow the unimpeded movement of larger waterbirds (e.g. swans and egrets) and allow adequate light to reach the water beneath the bridge, such that it does not present a barrier to movement. A minimum height of 2.0 metres above Australian Height Datum (AHD) would be recommended.

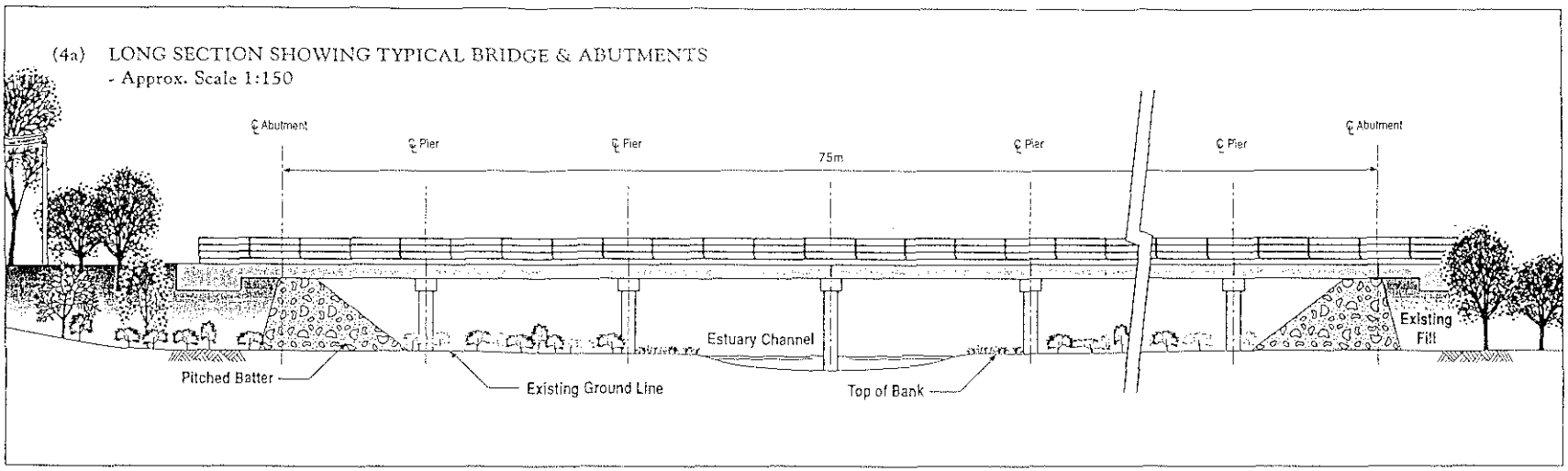
- the design qualities of the structure(s) employed for the road crossing add to the landscape quality of the estuary environment rather than detract from it. In this context, it is considered that a high bridge would impinge unduly on the visual character of the landscape; and
- above ground structure(s) are positioned and landscaped in such a way that they do not present an unnecessary obstacle or hazard to low flying waterbirds. This would include placing the existing 22 kilovolt powerline underground (or in conduits within a bridge structure) where it passes over the estuary. It is recommended that this should encompass the area defined by the Busselton Regional Flood Study's Limit to Development, a length of approximately 300 metres."

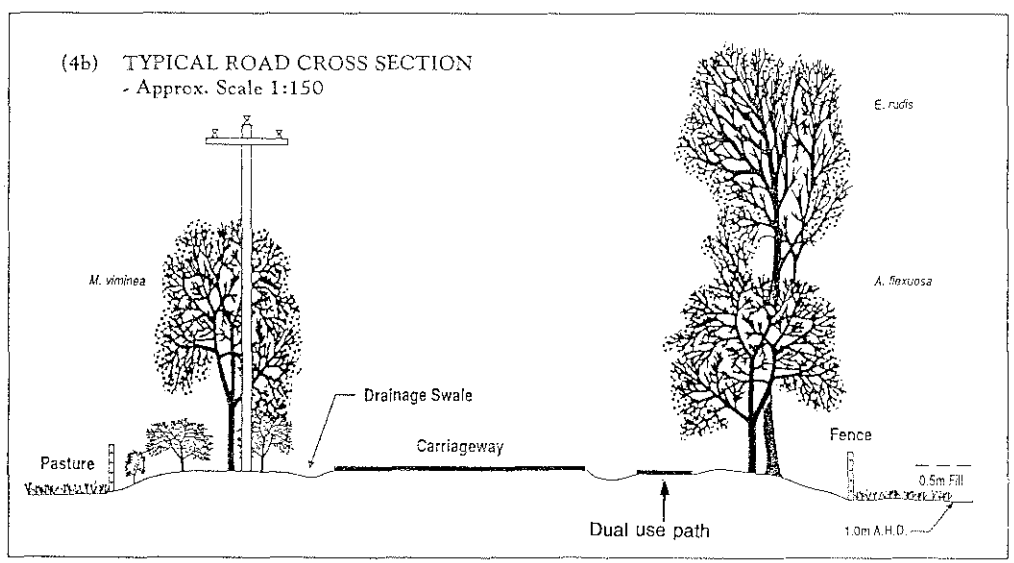
Based on the consultant's report, the Shire has indicated its intention to design and construct the road in accordance with design guidelines recommended in the report. This would include construction of a bridge across the Vasse Estuary waterway, to minimise restriction to the flow of water within the Estuary, to reduce impact on fringing riparian vegetation adjacent to the Estuary, and to allow for unimpeded movement of waterbirds within the Estuary east and west of the proposed road. Based on information presented in the consultant's report, the Shire has indicated its preferred span for the bridge is 75 metres. A conceptual design for the bridge is illustrated in Figure 2 (reproduced from LeProvost Dames and Moore, 1997).

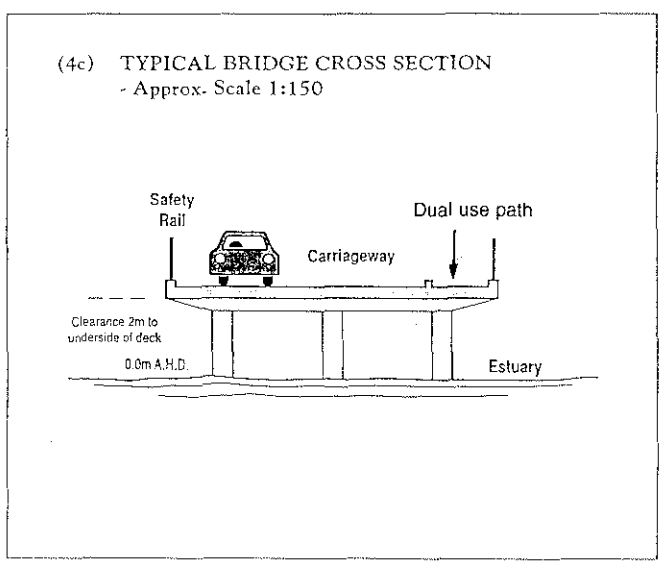
The main characteristics of the proposal are summarised in Table 1 below.

Table 1 - Summary of key proposal characteristics

Element	Description
Length of road	1200 metres
Width of road	7.5 metres
Length of Bridge	75 metres
Clearance to underside of bridge deck	2 metres
Power lines	Underground (or in conduits within the bridge structure) where it passes over the estuary (a length of approximately 300 metres as defined by the Busselton Regional Flood Study's Limit of development).
Area of disturbance (for road construction and swales for stormwater retention)	up to 20 metres wide







Job No.	27651-004-367		Busselton Shire Council FORD ROAD ENVIRONMENTAL STUDY ROAD AND BRIDGE SECTIONS
Prep. By	PC	21 Apr.'97	
Chk'd By	PC	07 May '97	
P. Mgr	PC	07 May '97	

Figure 4

Revision Indicator 1

LEPROVOST DAMES & MOORE

Figure 2. Design details of proposed bridge to be incorporated within the revised Ford Road proposal.

3. Relevant environmental factors

Section 44 of the *Environmental Protection Act (1986)* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

The identification process for the relevant factors is summarised in Appendix 2.

It is the EPA's opinion that the following are the environmental factors relevant to the proposal which require detailed evaluation in this report:

(a) Waterbirds - potential impacts on waterbirds and their habitat from road and bridge construction, traffic movement and potential water quality degradation;

(b) wetland vegetation - potential direct impacts on waterbird habitat from road and bridge construction;

(c) protected fauna - potential impacts on fauna movement;

(d) flood management - potential impacts on waterbird habitat from water level changes; and

(e) estuarine water quality - potential water quality degradation from road drainage and spills.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors (preliminary factors) generated from the proposal characteristics.

Details on the relevant environmental factors and their assessment is contained in Sections 3.1-3.5. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. In assessing each factor, the EPA decides whether or not a proposal meets the environmental objective set for that factor.

A summary of the assessment of the environmental factors is presented in Appendix 3.

In undertaking the assessment of the following environmental factors, the EPA has taken into consideration of information provided within the Shire of Busselton's environmental report 'Ford Road Environmental Study' (LeProvost Dames and Moore, 1997).

3.1 Waterbirds

Description

The proposed road crosses a portion of the Vasse Estuary which is part of the Vasse Wonnerup wetland system. Wetland areas east and west of the proposed road alignment are known to be significant areas for waterbird use.

Assessment

The area considered for the assessment of this factor is the Vasse Estuary waterway in the vicinity of the proposed road.

The EPA's environmental objective for this factor is to:

- comply with the intent of international waterbird treaties to which Australia is a signatory. These include the *'Japan Australia Migratory Bird Agreement'* (JAMBA) and the *'China Australia Migratory Bird Agreement'* (CAMBA);

- comply with the intent of the *Environmental Protection (Swan Coastal Plain Lakes) Policy (1992),* (Lakes EPP) including protecting the beneficial use of the area as designated under the Lakes EPP, that is, use of lakes as a refuge for many rare and endangered species of flora and fauna including birds which migrate from the northern hemisphere, that are protected under international treaties; and

- comply with the intent of the Ramsar 'Convention on Wetlands of International Importance'. Article 3 of the Convention states that *'the contracting parties shall formulate and implement their planning so as to promote the conservation of wetlands included in the list'*.

In assessing this factor, the EPA has taken into consideration information presented in LeProvost Dames and Moore (1997) and advice from the Department of Conservation and Land Management (CALM) and the Department of Environmental Protection (DEP).

LeProvost Dames and Moore (1997) included information obtained through desk-top studies and winter, spring and summer field studies of waterbirds. The report recognised the high habitat value of paperbark communities immediately west of the proposed road alignment for waterbird nesting, and importance of fringing estuarine vegetation for foraging and feeding young birds due to the low, dense vegetation cover and enclosed nature of the Estuary at this location.

In view of the significance of the Vasse Estuary as a waterbird habitat, the LeProvost Dames and Moore report recommended that a bridge with a span of 50 - 75 metres be constructed, to span the Vasse Estuary waterway and fringing estuarine vegetation, to protect waterbird habitat areas from direct impact of road construction and flooding associated with the road construction. The report also recommended that bird mortality as a result of road construction could be minimised by fencing both sides of the road, screen planting of local species of tall shrubs to encourage waterbirds to fly over the height of traffic, and placing all powerlines underground.

The EPA notes the above advice, and the proponent's intention to comply with the recommendations contained within LeProvost Dames and Moore (1997). However, the EPA also notes advice provided by CALM which emphasises the conservation significance of the Vasse Estuary in the vicinity of the proposed road. Verbal advice received from CALM officers indicates that it is CALM's intention to progressively include wetland areas to the west of the proposed road (up to the Butter Factory Folk Museum and old railway alignment), which are currently under crown control, within the conservation and reserve system (K McNamara pers. com). Once this land is within conservation reserves, it would be CALM's intention to recommend to Government nomination of this land for inclusion within the Ramsar site. This would add to and complement the existing Ramsar site, which extends from the eastern side of the road alignment to include the Vasse Wonnerup wetlands, as indicated in Figure 3.

CALM has also advised the EPA that the best option for protection of the conservation values of the Vasse-Wonnerup wetland system is that the road not proceed and the existing unsealed road be closed, and fill at the north east end of the proposed road alignment be removed.

The DEP has also advised that the Vasse Wonnerup wetlands, including the Vasse Estuary in the vicinity of the proposed road alignment, are protected by the Lakes EPP. The construction of the proposed road is contrary to the intent of the Lakes EPP, which requires protection of the beneficial uses of the area.

The EPA has considered the above advice, and concluded that while it may be technically possible to construct a bridge that has minimal direct impact on waterbird habitat, there remains a risk of continual waterbird disturbance and deaths as a result of the road, and that this is contrary to the intent of the Ramsar agreement. The proposed road is also contrary to the intent of the Lakes EPP.

Summary

Having particular regard to:

a) advice received from CALM in relation to the conservation significance of the Vasse Wonnerup wetland system, which is a Ramsar listed wetland of international significance, and which adjoins the road alignment;

b) advice received from the DEP which states that construction of the proposed road is contrary to the intent of the Lakes EPP, which requires protection of the beneficial uses of the area;

c) the recognised conservation value of the wetland area on the western side of the road alignment, which has been acknowledged within LeProvost Dames and Moore (1997). While this area is not included within the Ramsar site, it is considered that the area substantially adds to and complements the values of the Ramsar listed wetland to the east; and

d) the intention of CALM to either progressively purchase wetland areas west of the proposed road, or include those wetland areas to the west of the proposed road which are currently vested in the crown within the conservation and reserve system, with the intention of nominating it for inclusion within the Ramsar site,

it is the EPA's opinion that the proposal is likely to present a risk of continual disturbance to waterbirds, and possible waterbird deaths as a result of collisions with vehicles travelling along Ford Road. This risk is contrary to the intent of the Ramsar agreement and the intent of the Lakes EPP, and thus does not meet the EPA's objective for waterbirds.

3.2 Wetland vegetation

Description

The proposed road crosses the Vasse Estuary waterway. The Estuary foreshore is heavily vegetated at this location, and construction of the road has the potential to disturb this vegetation. The EPA also notes that an area of samphire to the north east of the proposed road alignment has already had fill placed upon it, presumably in anticipation of the road being constructed. The location and extent of this fill are indicated in Figure 3.

Assessment

The area considered for assessment of this factor is the fringing estuarine vegetation on either side of the Vasse Estuary along the proposed road alignment.

The EPA's environmental objective for this factor is to:

- maintain integrity, functions and environmental values of wetlands;

- comply with the intent of the Lakes EPP, including protecting the beneficial use of the area as designated under the Lakes EPP, that is, use of lakes as a refuge for many rare and endangered species of flora and fauna; and

- comply with the intent of the Ramsar 'Convention on Wetlands of International Importance'. Article 3 of the Convention states that *'the contracting parties shall formulate and implement their planning so as to promote the conservation of wetlands included in the list'.*

In undertaking the assessment of this factor, the EPA has taken into consideration advice provided within LeProvost Dames and Moore (1997), and advice from CALM and the DEP.

LeProvost Dames and Moore (1997) acknowledges that the fringing wetland vegetation in the vicinity of the proposed road alignment is important for feeding, foraging, and nesting for waterbirds (see factor 3.1 above). However, it also states that no rare, priority or threatened flora were found in the vicinity of the proposed road alignment. Further, it states that the proposal is unlikely to result in any major impacts on the fringing wetland vegetation as the bridge is proposed to be constructed to span the waterway and fringing vegetation. The Shire of Busselton has indicated its preferred span for the bridge is 75 metres to meet this objective.

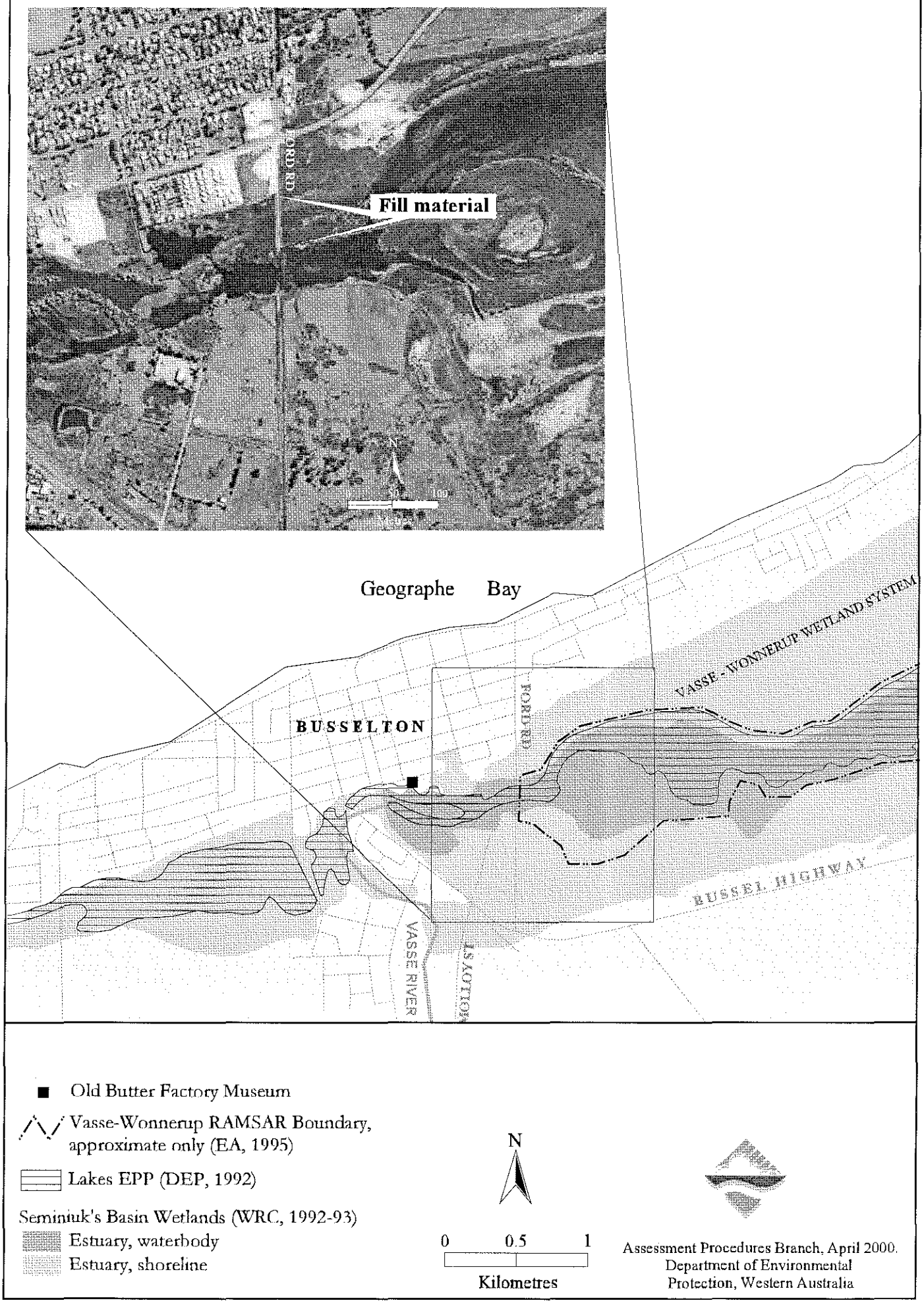


Figure 3: Extent of fill dumped along Ford Rd alignment.

LeProvost Dames and Moore (1997) also acknowledges that the proposal will contribute to the incremental loss of samphire community in the Busselton area, and that these areas provide important night time feeding areas for waterbirds. The report also acknowledges that fill has been placed at the north eastern end of the proposed road alignment, and that this has contributed to the death of some samphire.

The EPA has also considered advice provided by the DEP that the Vasse Estuary is within the boundaries of the Lakes EPP and that any removal of vegetation as a result of construction of the proposed road may impact on the ecological functions of the wetland. Further, the fill placed at the north east end of the proposed road alignment is inconsistent with the intent of the Lakes EPP. CALM reiterate that the fill has changed the local hydrological conditions, and that the proponent should be required to either remove the fill if the proposal does not proceed, and if it does proceed that culverts be installed to restore water flow patterns.

CALM and DEP also advise that the fringing wetland vegetation in the vicinity provides a valuable waterbird habitat, and is adjacent to a Ramsar listed wetland of international significance (see factor 3.1 above). CALM advises that if the proposal does proceed, that a bridge 'of adequate width' should be constructed across the Estuary waterway so that dry shoreline vegetation is maintained on either side of the bridge. To achieve this, CALM considers the bridge span should be 130 metres.

The EPA considers that it is important to ensure that the fringing wetland vegetation is not disturbed as a result of construction of the proposed road. If the bridge did proceed it would need to be designed so that there was minimal impact on wetland vegetation. The EPA also considers that the proponent should restore the local hydrological characteristics at the north east end of the proposed road alignment which has been disturbed as a result of the previous placement of fill.

Summary

Having particular regard to:

a) the fact that the wetland vegetation in the vicinity of the proposed road is part of the Vasse Wonnerup wetland system, that it is included within the Lakes EPP, and is adjacent to a Ramsar listed wetland of international significance;

b) the fill located at the north east end of the proposed road alignment, as indicated in Figure 3, has led to the death of some samphire; and

c) the proponent's intention to construct a bridge to span the Vasse Estuary waterway and adjacent fringing wetland vegetation,

it is the EPA's opinion that the proposal could be modified to meet the EPA's environmental objective for this factor by:

- designing a bridge of adequate span to ensure that there is minimal impact on fringing estuarine wetland vegetation; and

- the proponent taking action to restore the local hydrological characteristics at the north east end of the proposed road alignment.

This may require a bridge span of 130 metres, and this would need to be subject to survey work to determine an acceptable span.

3.3 Protected Fauna

Description

Native terrestrial fauna such as the Western Ringtail Possum and the Southern Brown Bandicoot are known to live in the vicinity of the Vasse Wonnerup Estuary. These native mammals are likely to use the fringing estuarine vegetation along the edge of the Vasse Estuary

as a dryland faunal corridor. The Southern Brown Bandicoot is protected under the provisions of the *Wildlife Conservation Act (1950)* as amended, and the Western Ringtail Possum has been listed as rare and likely to become extinct.

Assessment

The area considered for assessment of this factor is the fringing estuarine vegetation on either side of the Vasse Estuary in the vicinity of the proposed road alignment.

The EPA's environmental objective for this factor is to protect native fauna consistent with the provisions of the *Wildlife Conservation Act (1950)* as amended.

In undertaking the assessment of this factor, the EPA has taken into consideration advice provided within LeProvost Dames and Moore (1997), and advice from CALM and the Water and Rivers Commission (WRC):-

- LeProvost Dames and Moore (1997) state that no native mammals were observed during the field studies of the area, however, it acknowledges that native fauna, including the Southern Brown Bandicoot and the Western Ringtail Possum are likely to be present in the area. It also acknowledges that the fringing estuarine vegetation is likely to provide a protected faunal corridor for the movement of these animals. The importance of retaining an uninterrupted dryland foreshore buffer under the proposed bridge across the Vasse Estuary is recognised in the report.

- CALM concurs with the view that native mammals, including the Southern Brown Bandicoot and the Western Ringtail Possum are likely to use the fringing estuarine vegetation as a faunal corridor. CALM considers that if the proposal does proceed, that a bridge with a minimum span of 130 metres should be constructed to allow for the retention of a dry shoreline on either side of the Estuary during typical high water levels.

The WRC has advised that if an area of dry shoreline (e.g. 0.5 metres AHD) was retained on both sides of the Vasse River, then a bridge with a span of 130 metres or greater would likely be required, but that detailed survey work would be needed to confirm the bridge length to meet this requirement.

The EPA considers that it is important to ensure that a foreshore area be retained on both sides of the Vasse Estuary in the vicinity of the proposed road for faunal movement in most flow conditions, and notes the advice received from the WRC which indicates that a bridge with a span greater than 130 metres may be required to ensure that dry foreshore is retained during high water levels. Therefore, if the bridge proceeded, further hydrological review and survey work should be undertaken to determine the optimum bridge span to adequately provide for faunal corridors during high water levels.

Summary

Having particular regard to:

a) the fact that native mammals including the Southern Brown Bandicoot and the Western Ringtail Possum are likely to use the fringing estuarine vegetation in the vicinity of the proposed road as a faunal corridor along the edge of the Estuary;

b) the need to retain a dry foreshore corridor on either side of the Estuary, to allow for faunal movement during periods of high water level; and

c) the fact that a bridge with a span greater than 130 metres may be required to ensure that a dry foreshore buffer is retained on either side of the Estuary during typical high water level conditions,

it is the EPA's opinion that the proposal could be modified to meet the EPA's environmental objective for this factor, provided that further hydrological review and survey work was

undertaken to determine the optimum bridge span to adequately provide for fauna corridors during high water level conditions.

3.4 Flood Management

Description

The proposed road crosses the Vasse Estuary. Land in the vicinity is low lying and prone to flooding. Any impedance in water flow in the Estuary through construction of the road and bridge may impact on water levels upstream and therefore affect waterbird habitat.

Assessment

The area considered for assessment of this factor is the proposed bridge across the Vasse Estuary.

The EPA's environmental objective for this factor is to ensure that the hydrological regime is maintained such that it does not compromise the integrity, functions and environmental values of the wetlands.

In undertaking the assessment of this factor, the EPA has taken into consideration advice provided in LeProvost Dames and Moore (1997), and advice from the WRC:-

- LeProvost Dames and Moore (1997) acknowledges that the flow of water into and out of the Vasse Wonnerup Estuary is controlled by man-made structures, to regulate water levels and avoid flooding of low lying areas. Notwithstanding this fact, it is recognised that the construction of a bridge at this location has the potential to cause water to back-up upstream of the bridge during flood events. A bridge with a span of 75 metres is therefore proposed to be constructed, to ensure that there are no hydrological impacts on the Vasse Estuary upstream or downstream of the proposed road, and to provide scour protection.
- The EPA notes advice provided by the WRC which indicates that a bridge with a span of 75 metres would have an insignificant effect on water levels upstream of the proposed bridge.

Summary

Having particular regard to:

a) the fact that construction of a bridge across the Vasse Estuary has the potential to cause water back-up upstream of the bridge;

b) the proposal to construct a bridge with a span of 75 metres across the Vasse Estuary waterway; and

c) advice that a bridge with a span of 75 metres would have an insignificant effect on water levels upstream of the proposed bridge,

it is the EPA's opinion that the proposal could be managed to meet the EPA's environmental objective for this factor provided that a bridge with a minimum span of 75 metres is constructed.

3.5 Estuarine Water Quality

Description

The road is proposed to cross the Vasse Estuary. Contaminated surface water run-off from the road and bridge pavement, and possible spills of fuels or chemicals from vehicles travelling along Ford Road, may drain into the sensitive estuarine environment and so impact on water quality.

Assessment

The area considered for assessment of this factor is the proposed road and bridge across the Vasse Estuary.

The EPA's environmental objective for this factor is to maintain or improve the quality of the existing estuary water quality to ensure that existing or potential uses, including ecosystem maintenance, are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993).

In undertaking the assessment of this factor the EPA has taken into consideration information presented in Figure 4 of the LeProvost Dames and Moore (1997) (reproduced as Figure 2 in this report), and advice from CALM:-

- The EPA notes that Figure 4 of the LeProvost Dames and Moore report indicates the need to construct a drainage swale adjacent to the proposed road alignment to direct stormwater run-off from the road. However, no detailed discussion has been submitted to EPA which details how water run-off will be managed.

- CALM advise that the proponent has not addressed the issue of how stormwater run-off and contaminants from road and bridge pavement would be managed. CALM considers that detailed road design would need to include an evaluation of likely volumes to be contained as well as disposal systems for emptying containment basins, to ensure there was no possibility of release of contaminants into the Vasse Estuary during peak flow or flood events.

- The EPA considers that as the proposed road crosses a Ramsar wetland of international significance, if it proceeds, it would be extremely important that the issue of contaminated water run-off from the road, and the risk of spills (from vehicles travelling along the proposed road) was addressed in detail in final design.

However, while the EPA acknowledges that this issue could possibly be addressed with appropriate engineering design, there would remain an increased risk of pollutants finding their way into the Vasse Wonnerup wetlands. The EPA considers that subjecting a Ramsar wetland to such risk would be inappropriate.

Summary

Having particular regard to:

a) the fact that the proposed road crosses the Vasse Estuary, and that there is potential for contaminated surface water run-off from the road or bridge pavement (or spills of fuels or chemicals from vehicles travelling along Ford Road);

b) the fact that proposal does not address in detail how stormwater run-off or contaminants from the road and bridge pavement will be managed;

c) the potential impact on water quality within the Vasse Estuary from contaminated run-off from the road or bridge; and

d) the possibility that this issue could be addressed with appropriate engineering design, however there would remain an increased risk of contaminants entering the Vasse Wonnerup wetland system,

it is the EPA's opinion that the proposal presents an unacceptable risk of contaminated surface water run-off and spills into the Vasse Wonnerup wetland system and therefore does not meet the EPA's objective for estuarine water quality.

4. Other Advice

The EPA notes that on 16 July 2000 the *Commonwealth Environment Protection and Biodiversity Conservation Act (1999)* will come into operation. This Act provides for the Commonwealth to assess any proposal which triggers one of the six matters of National Environmental Significance in the Act. One of these triggers is actions which have the potential to impact on a wetland which has been listed as, or has been nominated for inclusion as, a Ramsar Wetland of international significance, in accordance with the Ramsar Convention (1982).

Section 16 of the *Commonwealth Environment Protection and Biodiversity Conservation Act (1999)* refers to 'Wetlands of international importance'. This section states that:

> *" a person must not take any action that:*
>
> *(a) has or will have a significant impact on the ecological character of a declared Ramsar wetland; or*
>
> *(b) is likely to have a significant impact on the ecological character of a declared Ramsar wetland.".*

In the event that the State's decision making processes have not been completed by 16 July 2000 and hence the provisions of s.522B of the Commonwealth Act do not apply, this proposal may require referral to the Commonwealth Minister for the Environment by the proponent in order to comply with the Commonwealth legislation.

5. Conclusions

The EPA has considered the proposal by the Shire of Busselton to construct a road across the Vasse Estuary further to its Bulletin 940.

The EPA notes that the Shire of Busselton commissioned environmental consultants to provide an indication of environmental protection needs associated with the upgrading of Ford Road, and that the consultant's report (LeProvost Dames and Moore, 1997) considered the environmental factors listed above, with the exception of estuarine water quality.

The EPA recognises that the proposal to build Ford Road is consistent with the Busselton Shire's long term management plan and is within a gazetted road reserve. However, over time the importance of the adjoining area as a significant wetland has been recognised, and the area to the east of the proposed road alignment is now listed as a Ramsar site because of its international importance as a waterbird habitat.

The wetlands to the west of the proposed road are similarly important, and the Ramsar site should be extended to include this area.

In summary, the proposed road, if built would be at the western boundary of a Ramsar site which should be extended further west to include additional wetlands of importance as a waterbird habitat. Contracting parties to the Ramsar Convention on Wetlands of International Importance are required to formulate and implement planning in a manner which promotes the conservation of wetlands included in the Ramsar list of sites.

The EPA acknowledges that the proposed road could be designed to minimise direct impacts and on-going risks to waterbirds, wetland vegetation and terrestrial fauna. However, even with best design, the proposal would still present a degree of risk to waterbirds, particularly from traffic movement and potential for water quality degradation. The EPA considers that subjecting a Ramsar listed wetland to such risks would be inappropriate.

The EPA therefore considers the proposal to construct a road across the Vasse Estuary as proposed is environmentally unacceptable as it cannot be managed to meet the EPA's objective in relation to waterbirds.

6. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister considers the report on the relevant environmental factors of waterbirds, wetland vegetation, protected fauna, flood management and estuarine water quality, as set out in Section 3, provided further to Bulletin 940.
2. That the Minister notes that the EPA has concluded that the proposal cannot meet the EPA's environmental objective for waterbirds.
3. That the Minister notes that the EPA has not included in this Bulletin "conditions and procedures to which the proposal should be subject, if implemented", because the EPA holds the view that even the design which minimises environmental risk would still present a degree of risk which is considered inappropriate for a Ramsar listed wetland.
4. That the Minister not issue a statement that the proposal may be implemented.
5. That the Minister notes the EPA's other advice presented in Section 4 in relation to the proposed Commonwealth *Environment Protection and Biodiversity Conservation Act (1999)*.
6. That the Minister notes the EPA's other advice presented Section 4 of Bulletin 940, and reiterated in Section 3.2 of this report, in relation to previous deposition of fill along the proposed alignment, and the EPA's view that the Shire of Busselton should remove the fill and prepare and implement a weed control and wetland vegetation rehabilitation plan for the area affected by the fill deposition.

Appendix 1

References

Commonwealth of Australia (1995), Australian Treaty Series 1981 No. 6, Department of Foreign Affairs, Canberra. Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment (Tokyo, 6 February 1974).

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Water and Rivers Commission (1992-93), Semeniuk Wetland mapping, Pinjarra to Dunsborough.

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Appendix 2

Summary of identification of relevant environmental factors

Appendix 2: Summary of Identification of Relevant Environmental Factors

Preliminary Environmental Factors	Proposal Characteristics	Government Agency Comments	Identification of Relevant Environmental Factors
BIOPHYSICAL			
Waterbirds	The proposed road crosses the Vasse Estuary, which is part of the Vasse-Wonnerup Wetland system.	• CALM and the DEP advise that the Vasse Wonnerup wetlands are listed as a Ramsar Wetland of international significance and therefore has a high conservation value. DEP also advise that the wetland system is included within the Lakes EPP (DEP, 1992). • CALM advise that the southern extension of the proposed Ford Road forms part of the boundary of the Ramsar site. The wetland on the western side of the road alignment is also recognised as having significant conservation value which substantially add to and complement the values of the Ramsar listed wetlands to the east. This is a sheltered area which is particularly important for waterbird breeding and roosting, and which are of limited availability on the estuary. Verbal advice received from CALM officers indicate that it is CALM's intention to progressively purchase wetland areas west of the proposed road, or include those wetland areas to the west of the proposed road which currently vested in the crown within the conservation and reserve system (K McNamara pers. com). Once this land is within the conservation and reserve category, it will be considered for inclusion within the Ramsar site. • CALM believe that the best option for protection of the conservation values of the Vasse Wonnerup wetland system is that the road not proceed and the existing unsealed road be closed.	**The proposed road across the Vasse Estuary is likely to have a potential impact on Waterbirds. Waterbirds is therefore considered to be a relevant environmental factor.**

Wetland vegetation	The proposed road crosses the Vasse Estuary waterway, and fringing estuarine vegetation. It is noted that an area of samphire flats on the north east side of the proposed road alignment has already had fill placed on it, and this has lead to the death of some samphire community.	• DEP advise that the Vasse Estuary is included within the Lakes EPP (DEP, 1992). Removal of the fringing vegetation as a result of bridge construction may impact on the ecological functions of the wetland, which are protected under the EPP. The fill which has already been placed on the north east end of the road alignment has lead to the death of some samphire. This is contrary to the EPP, and should be removed. • CALM and DEP advise that the fringing vegetation of the Vasse Estuary at this location provide valuable waterbird habitat. The preservation of this habitat is important for waterbirds protected under the JAMBA and CAMBA international waterbird agreements, and for the viability of the Vasse Wonnerup wetland system as a Ramsar listed wetland of international significance. • CALM advise that the wetland vegetation in the vicinity of Ford Road provides shelter for roosting and breeding of waterbirds which are of limited availability in the estuaries. In view of this, CALM believe that if the proposal does proceed, a bridge of adequate width should be constructed so that dry shoreline is maintained under the bridge on both sides of the Vasse Estuary. A minimum bridge width of 130 metres is suggested. • CALM also state that the dumping of fill at the north east end of the proposed road alignment has changed local hydrological conditions and confirm that this has lead to the death of some samphire community. CALM consider that if the proposal does proceed, the northern end of the proposed road would need to have culverts installed to restore water flow patterns and allow the recovery of the wetland vegetation in the vicinity of the fill.	**The proposed road across the Vasse Estuary is likely to have a potential impact on Wetland vegetation. Wetland vegetation is therefore considered to be a relevant environmental factor.**
Protected Fauna	Native terrestrial fauna such as the Western Ringtail Possum and Southern Brown Bandicoot are known to live in the area and are likely to use the fringing wetland vegetation as a dryland faunal corridor. The Western Ringtail Possum has been listed as rare or likely to become extinct, and the Bandicoot is protected under the *Wildlife Conservation Act (1950)* as amended.	• CALM advise that the vegetated estuarine foreshore is likely to provide an important corridor for native terrestrial fauna. CALM consider that the proposed bridge span should be a minimum of 130 metres to allow for the retention of dry shoreline on either side of the Vasse Estuary to allow for the movement of native terrestrial fauna during typical high water levels. • WRC advise that if an area of dry shoreline were to be retained on either side of the Vasse estuary in the vicinity of the proposed road alignment (approximately 0.5 metres AHD), then a bridge with a span greater than 130 metres may be required for certain flow conditions. Further hydrological review and survey work would need to be undertaken to determine the optimum span of bridge.	**The proposed road across the Vasse Estuary is likely to have a potential impact on protected fauna. Protected fauna is therefore considered to be a relevant environmental factor.**

Flood management	The proposed road crosses the Vasse Estuary. Any impedance to waterflow in the Estuary may impact on water levels upstream of the road in flood conditions.	• CALM advise that if the road proceeds a bridge across the Vasse Estuary is considered essential to protect waterbird nests and fringing vegetation from flooding, and that the bridge should be of sufficient length to allow for water to flow unimpeded along the natural channel, and retain dry shoreline under the bridge on both sides of the Estuary during typical high water levels. CALM suggest that, based on information provided within the Busselton Flood Study (1987), the bridge should have a minimum span of 130 metres. • CALM also advise that the Shire is examining the possibility of increasing the rate at which water can be released from the Vasse Diversion Drain into the Vasse River in order to achieve some flushing. This has not been taken into consideration as part of the proposed bridge design and may increase the volumes of water flowing through the wetland system and across the proposed road alignment. • WRC advise that a bridge with a span of 75 metres or greater would have an insignificant effect on water levels upstream of the proposed road alignment and that there are no significant concerns to the WRC if a bridge was constructed.	**The proposed road across the Vasse Estuary is likely to have a potential impact on upstream water levels and is therefore considered to be a relevant environmental factor.**
POLLUTION MANAGEMENT			
Estuarine Water Quality	Contaminated surface water run-off from proposed road, and possible spills of fuels and chemicals from vehicles travelling along Ford Road, may drain into the sensitive estuarine waterway.	• CALM advise that the proponent has not addressed in detail the issue of how stormwater run-off and contaminants from road and bridge pavement will be managed. The detailed road design needs to include an evaluation of likely volumes to be contained as well as disposal systems for emptying containment basins, to ensure there is no possibility of release of contaminants into the Vasse Estuary during peak flow or flood events.	**The proposed road across the Vasse Estuary is likely to have a potential impact on estuarine water quality. Estuarine water quality is therefore considered to be a relevant environmental factor.**

Appendix 3

Summary of assessment of relevant environmental factors

Appendix 3: Summary of Assessment of Relevant Environmental Factors

Relevant Factor	Environmental Objectives	Assessment	Advice
Waterbirds	• Comply with the intent of international waterbird treaties to which Australia is a signatory CAMBA. • Comply with the intent of the Lakes EPP, including protecting the beneficial use of the area, i.e. use of lakes as a refuge for many rare and endangered species of flora and fauna including many birds which migrate from the northern hemisphere, and which are protected under international treaties. • Comply with the intent of the Ramsar 'Convention on Wetlands of International Importance'. Article 3 of the Convention states that *'the contracting parties shall formulate and implement their planning so as to promote the conservation of wetlands included in the list'*.	• The EPA acknowledges the report by LeProvost Dames and Moore, entitled 'Ford Road Environmental Study' (1997). The report was commissioned to provide a clear indication of the environmental protection needs associated with the upgrading of Ford Road to a sealed road. This work included desk top studies and winter, spring and summer field inspections of waterbirds. This report recognised the high habitat value of paperbark communities immediately west of the proposed road alignment for waterbird nesting, and importance of fringing estuarine vegetation for foraging and feeding young birds due to the low, dense vegetation cover and enclosed nature of the Estuary at this location. • In view of the significance of the Vasse Estuary as a waterbird habitat, the LeProvost Dames and Moore report recommended that a bridge with a span of 50 - 75 metres be constructed, to span the Vasse Estuary waterway and fringing estuarine vegetation, to protect waterbird habitat areas from direct impact of road construction, and flooding associated with the road construction. The report also recommended that bird mortality as a result of road construction could be minimised by fencing both sides of the road, screen planting of local species of tall shrubs to encourage waterbirds to fly over height of traffic, and placing all powerlines underground. • The EPA notes the above advice, and the Shire of Busselton's intention to comply with the recommendations contained within the LeProvost Dames and Moore report (1997) . However, the EPA also notes CALM's advice that the best option for protection of the conservation values of the Vasse-Wonnerup wetland system is that the road not proceed and the existing unsealed road be closed, due to the potential impact on waterbird populations. • The EPA concludes that while it is technically possible to construct a bridge that has minimal direct impact on	Having particular regard to: • the information provided in the LeProvost Dames and Moore report; and • the advice from CALM and the DEP, it is the EPA's opinion that the proposal is likely to present a risk of continual disturbance to waterbirds and possible deaths as an result of collisions with vehicles travelling along Ford Road. The risk is contrary to the intent of the Ramsar agreement and the intent of the Lakes EPP, and therefore does not meet the EPA's objective for waterbirds.

Relevant Factor	Environmental Objectives	Assessment	Advice
		waterbird habitat, there would remain an on-going risk of	
Waterbirds (cont'd)		continual waterbird disturbance and deaths as a result of the road, and that this is contrary to the intent of the Ramsar agreement. The proposed road is also contrary to the intent of the Lakes EPP.	
Wetland Vegetation	• Maintain integrity, functions and environmental values of wetlands. • Comply with the intent of the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992, including protecting the beneficial use of the area as designated under the Lakes EPP, i.e. use of lakes as a refuge for many rare and endangered species of flora and fauna. • Comply with the intent of the Ramsar 'Convention on Wetlands of International Importance'. Article 3 of the Convention states that *'the contracting parties shall formulate and implement their planning so as to promote the conservation of wetlands included in the list'*.	• The EPA notes the information presented within the LeProvost Dames and Moore report which acknowledges that the fringing estuarine vegetation is important for feeding, foraging and nesting for waterbirds (see waterbird factor above). However, it also states that no rare, priority or threatened flora were found during the field surveys, and that the proposal is unlikely to result in any major impacts to existing fringing wetland vegetation if a bridge with a width of 50 - 75 metres were constructed as proposed. However, the report does acknowledge the proposal will contribute to the incremental loss of samphire in the Busselton area, and that these areas are important for night time feeding for waterbirds. The report also acknowledges that the fill at the northern end of Ford Road has changed local hydrology and lead to the death of some samphire community. • The EPA also notes that the fill at the northern end of the proposed road alignment has contributed to the death of some samphire community. The EPA believes that the proponent should either remove the fill, or else place culverts beneath the fill in order to restore local hydrological characteristics, as suggested by CALM. • The EPA considers that the proposal is inconsistent with the intent of the Lakes EPP and Article 3 of the Ramsar Convention. However, it concedes that a bridge of adequate span could be designed to ensure there is minimal impact on fringing wetland vegetation. The EPA therefore concludes that the impact on wetland vegetation can be managed, provided that the proponent takes action to restore local hydrology characteristics at the northern end of the proposed road alignment.	Having particular regard to: • the fact that the vegetation in the vicinity of the proposed road provides important waterbird habitat; and • the proponent's intention to construct a bridge to span the waterway and adjacent wetland vegetation, it is the EPA's opinion that the proposal could be modified to meet the EPA's objective, provided that: • designing a bridge of adequate span to ensure there is minimal impact on wetland vegetation; and • the proponent taking action to restore local hydrology characteristics at the northern end of the proposed road alignment.

Protected Fauna	• Protect native fauna consistent with the provisions of the *Wildlife Conservation Act (1950)* as amended.	• The EPA notes that the LeProvost Dames and Moore report acknowledges that while no native mammals were observed during field studies, native fauna are likely to use the area and that the fringing estuarine vegetation is likely to be significant in providing a movement corridor through the expanding urban areas in Busselton. The report acknowledges that it is important that an uninterrupted dry foreshore buffer be retained under the proposed bridge to retain the corridor in most flow conditions. • The EPA considers that it is important to ensure that a foreshore area be retained on both sides of the Vasse estuary in the vicinity of the proposed road, and notes advice received by WRC which indicates that a bridge with a span greater than 130 metres may be required to ensure that dry foreshore is retained during some flow conditions. • The EPA concludes that the impact on protected fauna can be managed, provided that further hydrological review is undertaken to determine the optimum bridge span to provide for faunal corridors.	Having particular regard to: • the fact that native fauna are likely to use the fringing estuarine vegetation; and • the need to retain a dry foreshore corridor on either side of the Estuary to allow for faunal movement, it is the EPA's opinion that the proposal could be modified to meet the EPA's objective, provided that: • further hydrological review and survey work was undertaken to determine the optimum bridge span to provide for faunal corridor during typical high water levels.
Flood Management	• Ensure that the hydrological regime is maintained such that it does not compromise the integrity, functions and environmental values of the wetlands.	• The EPA notes that the LeProvost Dames and Moore report acknowledges that the flow of water into and out of the Vasse Wonnerup Estuary is controlled by man-made structures, to regulate water levels and avoid flooding of low lying areas. The construction of a bridge with a span of 50 to 75 metres is recommended to ensure that there are no hydrological impacts on the Vasse Estuary upstream or downstream of the proposed road, and to provide scour protection. • The EPA also notes advice provided by the WRC which indicates that a bridge with a minimum span of 75 metres would have an insignificant effect on water levels upstream of the proposed bridge.	Having particular regard to: • the advice from the WRC, it is the EPA's opinion that the proposal could be managed to meet the EPA's objective provided that a bridge with a minimum span of 75 metres is constructed.

Estuarine Water Quality	• Maintain or improve the quality of the existing estuary water quality to ensure that existing or potential uses, including ecosystem maintenance, are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993).	• The EPA notes that Figure 4 of the LeProvost Dames and Moore report indicates the need to construct a drainage swale adjacent to the proposed road alignment to direct stormwater run-off from the road. However, no detailed discussion has been submitted to EPA which details how water run-off will be managed. • The EPA considers that as the proposed road crosses a Ramsar wetland of international significance, it is extremely important that the issue of contaminated water run-off from the road, and the risk of spills (from vehicles travelling along the proposed road) be addressed in detail. • While the EPA acknowledges that this concern could possibly be addressed with appropriate engineering design, there would remain an increased risk of contaminated run-off and spills into the Vasse Wonnerup wetland system. The EPA has concluded that increasing the risk of contaminated run-off and spills into the wetland system is inappropriate for a Ramsar nominated wetland.	Having particular regard to: • the location of the proposed road/bridge across a Ramsar listed wetland; and • the potential for contaminated run-off or spills to enter the wetland, it is the EPA's opinion that the proposal would increase the risk of contaminated surface water run-off and spills into the Vasse Wonnerup wetland system and therefore does not meet the EPA's objective for estuarine water quality.