

Subject : Response to DEP further queries dated 19 February 2002.

"Response to 1.1.1

Please provide references to any documents to support information provided in JPPL's justification for its proposal (e.g. data on Fremantle Port Berth capacity, resident numbers and studies on future port development in Cockburn Sound).

Please note that the Environmental Protection Authority's (EPA) consideration of JPPL's view that its proposal will reduce impacts in Fremantle and surrounding areas by reducing some of the Fremantle Port Authority's current business is likely to be supplementary to its assessment of the direct environmental impacts associated with the proposed James Point Port."

JPPL COMMENT

Source of reference data for JPPL justification of its proposal.

a) Inner Harbour Berths

- from published FPA plans of existing berth layout and of future Inner Harbour Berth development.

b) Inner Harbour Berth Utilization and Capacity

- from published FPA trade and shipping statistics.

c) Life of Inner Harbour

- from published data relevant to current activity, predicted growth and estimated potential economic capacity of Inner Harbour facilities.

FPA figures indicate that the average compounding annual growth rate in containers (TEU's) in the nine years up to and including 2000/2001 was greater than 11%, reaching 354,227 in that year.

If the average compounding growth rate for the 16 years from 2000/20001 is 6% the number of TEU's handled in 2016/2017 will be about 900,00 TEU's.

d) Alternative Port Site Options

A comprehensive study was undertaken on behalf of the WA Government in about 1988 with the objective of identifying the most suitable site for a general cargo facility to supplement the Fremantle Inner Harbour. All the relevant Government agencies were represented on the steering committee for the study.

Five alternative sites were considered as follows:

- Rous Head
- Catherine Point
- Naval Base
- Kwinana (Bulk Cargo Jetty Area)
- Mangles Bay (Point Peron)

The preferred site as selected was Naval Base which is the site of the proposed James Point Port and of the proposed FPA future container port facility. Figure 1 shows the

proposed FPA outer harbour facility in comparison with the proposed James Point facility.

A further study was undertaken on behalf of the WA Government in the early 1990's to identify the most suitable siting option(s) for livestock export. The study considered country ports as well as Fremantle/Kwinana. The site of the 1st Stage of the proposed James Point Port was selected as the preferred option.

It should be noted that there is currently no general cargo facility in Kwinana. The FPA has no published plans to provide such a facility in the foreseeable future. Also, if livestock and some general cargo is moved out of the Inner Harbour, it will permit the container capacity of the Inner Harbour to be maximised delaying the need for the FPA container facility in Cockburn Sound.

e) Resident Numbers

The figures for residence numbers adjacent to Fremantle Inner Harbour and James Point Port were derived from a count of residences from a 1:2000 scale aerial photo prints, supported by street observations in selective areas such as Northbank, East Fremantle, Naval Base and Kwinana to estimate residences in multiple residence buildings and to distinguish residences from commercial buildings.

JPPL considers that the environmental, social and traffic benefits resulting from the removal of the livestock trade from Fremantle Inner Harbour are significant and are relevant when assessing the net impact of relocating the trade to Kwinana.

"Response to 1.1.3

Please note that the draft Environmental Protection Policy (EPP) for Cockburn Sound is an EPA document. It has not been prepared by the Cockburn Sound Management Council (CSMC), as suggested here. The CSMC have published a draft Environmental Management Plan (EMP) for Cockburn Sound. The intent of the EMP is to give effect to the principles laid out in the EPP.

JPPL COMMENT

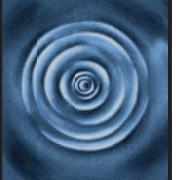
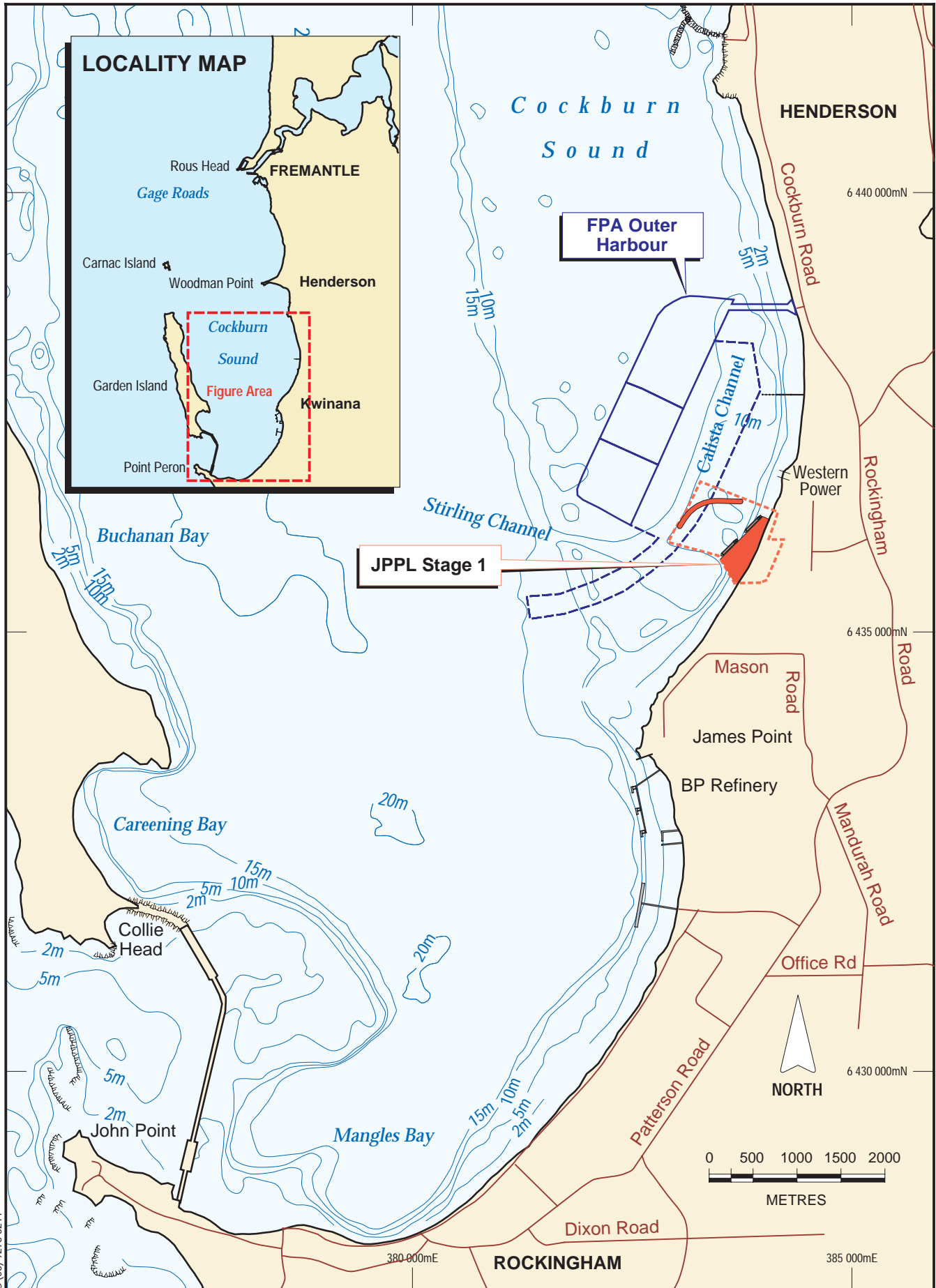
Comments noted and accepted.

Figure 1

Please outline the indicative Stage One port limits. The Response to 4.1.15 suggests the port limits will be sequentially excised from Fremantle Port Authority (FPA) waters as the proposal is developed."

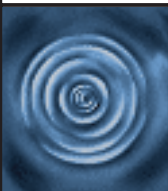
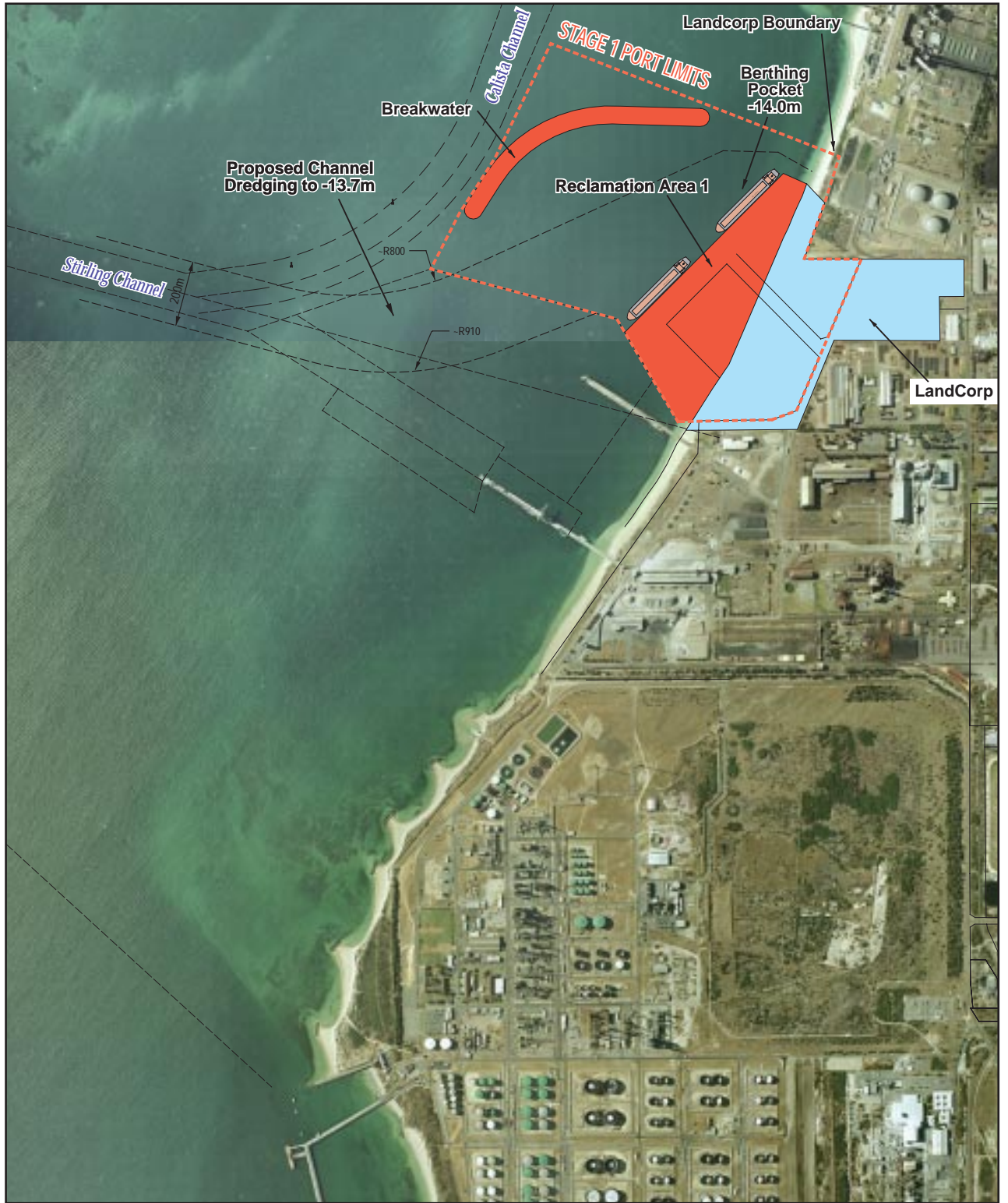
COMMENT

Figure 2 shows the revised layout which now excludes Reclamation Area 2A shown in the PER and includes the Port Limits for Stage 1. The reason for excluding Reclamation Area 2A is that at this stage the BHP jetties and navigation basin are not available to James Point Pty Ltd and there is no indication that they will become available in the near future. Therefore the Stage 1 development for which environmental approval is being sought will be limited to the development shown in Figure 2.



James Point Pty Ltd
 JAMES POINT PORT FACILITIES - STAGE 1
**FPA OUTER HARBOUR AND
 JPPL STAGE 1 CONCEPTS**

Figure
1



James Point Pty Ltd
 JAMES POINT PORT FACILITIES : STAGE 1
STAGE 1 CONCEPTUAL LAYOUT - AMENDED
MARCH 2002

Figure
2

"Response to 1.3.1

Have the owners of the BHP site been contacted to investigate options to move the Stage One proposal in a southerly direction to free up more of Barter Road Beach? If so, what was the outcome?

Please be aware that should the proposal be moved in a southerly direction, the EPA may require an understanding of the impact of this change to proposal."

JPPL COMMENT

James Point Pty Ltd has been advised that Landcorp has purchased the BHP site and that the area adjacent to the water will be owned and controlled by the Fremantle Port Authority.

JPPL had previously approached Landcorp and expressed an interest in the BHP foreshore land. JPPL can only assume that its proposal to move south has not been accepted by the Government Agencies involved in the acquisition of the BHP land and jetties.

"Response to 1.3.2

This response does not address the question asked. The Environmental Values (EVs) as they relate to Cockburn Sound are outlined in EPA (2000). The EVs as they currently stand in the area of the proposed port will cease to exist in the area of the foot print and may be impacted in the port waters should the proposal proceed.

Referring to a previous Government decision, which may not have been supported by an independent and detailed environmental assessment, to justify impacts of the proposal on relevant environmental values would be difficult for JPPL to defend on environmental grounds. This would be particularly relevant if appeals were lodged with the Minister for the Environment and Heritage on this ground. The requirement for JPPL to seek all relevant environmental and planning approvals as part of its contract with Government for its proposal is to, among other things, ensure that environmental impacts are fully and publicly assessed."

JPPL COMMENT

a) Location

There are limited alternatives available for port development in the near metropolitan area.

This view is supported by the conclusions of the Alternative Port Site Study undertaken on behalf of the WA Government in about 1988 and by the FPA's plans to establish a Container Facility at Naval Base Kwinana (offshore from the James Point proposed Port as shown in Figure 1).

The site chosen for the James Point port makes use of existing commercial shipping channels, is in an area used by commercial shipping, does not have existing sea grass, is adjacent to industrial land with an established buffer zone, and has defined major road and rail transport routes. There is no alternative site in the near metropolitan area which meets all these criteria.

b) Layout

A general cargo and/or livestock berth ideally needs at least 100 metres of immediate land backing in order to operate efficiently.

Jetty Berths such as the existing BHP Jetties are not suitable for general cargo or livestock.

The depth of water in the navigation basin and alongside the berth needs to be a minimum of 11 metres and ideally 13 metres.

The proposed James Point Port configuration meets these requirements while at the same time -

- minimizing dredge area.
- minimizing the impact on circulation in Cockburn Sound.
- limiting reclamation to the area needed to accommodate the disposal of dredged material.

JPPL has modified its layout to minimize the impact on water circulation in Cockburn Sound and to optimize water exchange within the Port consistent with operational suitability.

JPPL cannot identify an alternative site for the Port, which reduces the overall environmental and social impact while remaining a viable economic option.

JPPL cannot identify an alternative layout for general cargo facilities on the chosen site which is operationally suitable and which further reduces environmental impacts.

The consideration of alternatives did not factor in loss of Environmental Values as the location in Cockburn Sound was essentially fixed by Government Policy. By reclaiming the berth area and the offshore breakwater, there is a loss of water surface area and as such EVs can non-longer apply to the reclaimed areas.

"Response to 1.4.1

While it is understood that JPPL have consulted with the Town of Kwinana, the response provided is not clear as to whether the port proposal, and the livestock export element in particular, is consistent with relevant Industrial classes and Town Planning Scheme provisions?"

JPPL COMMENT

JPPL is of the view that the Port proposal at the time of referral was consistent with the Town of Kwinana Town Planning Scheme and the Metropolitan Regional Scheme except that an amendment to the Metropolitan Regional Scheme was required to enable the reclamation to be undertaken.

JPPL has formally applied to the Ministry of Planning for an amendment to the Metropolitan Regional Scheme to permit the reclamation and development of the Port.

JPPL believes that the current MRS Scheme zoning for the land adjacent to the Port is general industry.

JPPL understands that the Town of Kwinana Town Planning Scheme shows the beach area (Part of Lot 1864 and Lot 55) as Recreation and Drainage and the balance as General Industry.

JPPL is aware that, subsequent to referral of the Development Proposal to the DEP/EPA and to the Ministry of Planning, the Town of Kwinana is progressing an amendment to the Town Planning Scheme to exclude the holding/penning of livestock within land zoned industrial. The proposal to develop Stage 1 of the Port does not include the holding/penning of livestock in the area covered by the Town of Kwinana Town Planning Scheme.

"Response to 2.1.3 and 2.1.4

There are patches of remnant seagrass approximately 100m from the Stirling Channel. The proposal provides for 100m widening of the existing channel - 50m on each side. Accordingly, the dredging operation will occur approximately 50m from existing seagrass. Noting the EPA's position on seagrass loss in Cockburn Sound (Bulletin 907), does JPPL consider that its proposed dredging operation can be managed to ensure that no loss of these seagrasses will occur?

Further to this, the EPA Service Unit is concerned about the findings of Dr Lavery's report suggesting that shoot densities of Posidonia angustifolia in the general vicinity of James Point have decreased considerably since 1998 suggesting that seagrass at the "Kwinana" site is stressed. Dredging works are likely to impose an additional stress on seagrasses in the vicinity of James Point.

Moreover, inferences made about the impact of dredging (or lack thereof) on P. angustifolia based on comparisons with other seagrass species (e.g. P. sinuosa and P. australis) are not substantiated by information presented in the response. It is plausible that the effects of dredging on seagrasses are species-specific and the extent of impacts would be influenced by the current health of individual seagrass assemblages."

JPPL COMMENT

JPPL is confident that dredging can be undertaken such that no loss of existing seagrass meadows occurs. There will not be direct loss of seagrass meadows nor will there be losses due to shading.

JPPL's consultants are aware of Dr Lavery's findings. Seagrasses in a similar state to those found at Dr Lavery's 'Kwinana' site were shaded by the six month dredging programme for the Jervoise Bay Southern Harbour. Seagrass health monitoring of these seagrasses showed that although flowering was aborted, the shoot and leaf densities did not decrease significantly. As pointed out, it is likely that effects of dredging of seagrasses will vary from species to species and management will need to take this into account. However, the DEP used a mixture of results for *P. angustifolia* and *P. sinuosa* to derive EQC for Cockburn Sound, which would strongly suggest that the DEP believes that the two species will have similar responses to changes in light climate.

Further it is noted by others that *P. australis*, *P. angustifolia* and *P. sinuosa* belong to what is termed the 'australis complex' and have similar growth and morphological characteristics (Larkum et al 1989). It is considered unlikely that there would be dramatic difference between the effects of dredging on one or other members of the complex.

As part of the Construction EMP for the port, the information obtained from the Southern Harbour programme will be used to derive shading criteria for seagrasses adjacent to the channel.

"Response to 2.1.6, 2.1.7 and 2.1.8

The EPA Service Unit does not concur with the view of JPPL that the "...proposal will not result in the further loss of seagrass habitat in Cockburn Sound". ..."

In its responses, JPPL state "the JPPL Stage 1 proposal will be largely built on sand habitat which once supported seagrass". Lavery and Westera (2001) also suggest dead Posidonia rhizome mats have been present at the Kwinana site. The sandy margin of Cockburn Sound, having once supported seagrass is, in the view of the EPA Service Unit, by definition seagrass habitat.

This position reflects that presented by the EPA in Bulletin 907 (EPA 1988). In its strategic advice to the Minister for the Environment the EPA (1998) concluded that "... it is important to retain the sand banks and sandy margins of Cockburn Sound, where seagrass meadows once grew, so as not to lose future opportunities for seagrass re-establishment in the Sound". Further, maintenance of environmental conditions that support survival, growth, restoration and expansion of seagrass cover is a key environmental objective for the EPA (EPA 1998)."

JPPL COMMENT

It appears that the EPA Service Unit has applied a fundamentally different interpretation of the concluding paragraphs of EPA Bulletin 907 to that applied by JPPL and others.

It is JPPL's interpretation that:

- Sand habitat is not seagrass habitat.
- Sand habitat (regardless of its former state) is not afforded the level of significance or protection as seagrass meadow.
- Protection of remaining seagrass meadows **is** an EPA Objective
- Protection of sand banks and sandy margins where seagrass once grew is **not** an EPA Objective.
- Further, what constitutes a 'seagrass meadow' has not been defined by the EPA in Bulletin 907.

To expand, the two relevant section conclusions are quoted below (refer to pages 22 and 23 of EPA Bulletin 907):

- "Approximately 80% of the seagrasses in Cockburn Sound have been lost, either from water quality change or direct physical impact. The EPA considers that it is paramount that any further loss of seagrasses in the Sound be avoided. Protection of the remaining seagrass meadows of Cockburn Sound is an objective of the EPA."

- “The EPA considers that it is important to retain the sand banks and sandy margins of Cockburn Sound, where seagrass once grew, so as not to lose future opportunities for seagrass re-establishment in the Sound.”

This makes it clear that an EPA objective is to protect existing seagrass meadows (where the term ‘meadows’ lacks definition elsewhere in the Bulletin) and although the protection of sand banks and sandy margins is considered important, it is not an EPA Objective. This point of demarcation between the level of protection afforded actual and potential seagrass habitat has been outlined in a number of meetings by members of the EPA board.

JPPL strongly disagrees with the EPA Service Unit’s interpretation of the EPA’s objectives and suggests that it request the EPA for clarification of its position.

"Response to 2.1.12

Could you please forward a copy of Calver et al (2001) to the EPA Service Unit to assist it in understanding any impacts of the Stage One proposal on dolphin populations in Cockburn Sound."

JPPL COMMENT

A full copy of Mike Calver’s report as well as a review of the report is attached.

"Response to 2.2.1

It is noted that detailed wave modelling is required to finalise the design of the offshore breakwater. If, after considering the results of this detailed modelling, JPPL intend to make changes to the alignment of the offshore breakwater to minimise the risks of coastal impacts, the final alignment will need to be to the satisfaction of the Fremantle Port Authority, which has expressed some concern about impact of the current port configuration on shipping safety."

JPPL COMMENT

JPPL's contract with Government provides a mechanism for the approval of any layout and concept designs. The final design of any breakwater will be dealt with in accordance with the agreed mechanisms. It should be noted that the FPA's concerns were raised previously and considered in accordance with the mechanism provided in the contract.

The final alignment of the offshore breakwater will be established in consultation with the FPA prior to submitting the Construction EMP for approval.

"Response to 2.2.6

Although it is noted that JPPL suggest that Stirling and Calista Channels have not required maintenance dredging since their development, what up-front attention has JPPL given to the issue of maintenance dredging in its proposal (e.g. frequency/spoil disposal). Will JPPL commit to maintaining all channel and port basin depths in the vicinity of its proposal in the long term?"

JPPL COMMENT

Stirling and Calista Channels are controlled by the FPA and are used by vessels other than those which may visit the proposed James Point Port. FPA charges on vessels

visiting the Outer Harbour cover the maintenance of channels and navigation aids including Stirling and Calista Channels.

The proposed deepening and widening of Stirling Channel will only occur if there is agreement between JPPL and the FPA.

JPPL will commit to maintaining the area under its control (Stage 1 port).

Based on information available on sea/swell conditions, current velocities in the area of James Point Port, and FPA maintenance dredging history for the existing channels and the BHP Basin, JPPL believes maintenance dredging of its area will be required no more frequently than every ten years and the quantity of dredged material will be less than 5,000 cubic metres. Provision will be made for shore based disposal.

Stirling and Calista Channels will remain an FPA responsibility.

"Response to 2.4.2

The statement "...the increased traffic volume represented by this proposal may not significantly increase any such risk of weed spread that already exists" should be substantiated further. JPPL suggest that transport of livestock to the proposed stage one port would occur along Anketell Road between Kwinana Freeway and Rockingham Road. The EPA Service Unit understands that this route is not currently used to deliver livestock to Fremantle Port and passes adjacent to The Spectacles wetland, which is listed in the Lakes EPP."

JPPL COMMENT

Of the 6.25 km section of Anketell Road between the Kwinana Freeway and Rockingham Road, 1.5 km is close to the Spectacles situated on the south side of Anketell Road.

Anketell Road is identified in the FRIARS report as a major transport route into the Kwinana Industrial area.

There is no special restriction on its use that would indicate the recognition of a particular threat to a sensitive region such as the Spectacles.

The live sheep transport vehicles do not pose any more significant threat of introduction of weed pests, than do other vehicles using the road.

- The vast majority of the live sheep transport vehicles will be transferring stock to the Port from existing feedlots at Baldivis and Mundijong.
- The sheep from the feedlots will have been fed a controlled diet of pellets for five days prior to transport.
- Livestock trailers are fitted with heel boards to prevent manure spillage.
- Truck cleaning will be monitored.

The EPA Service Unit comments do not alter JPPL's response to 2.4.2. JPPL considers that trucking associated with the JPPL port along Anketell Road will not increase the risk of weed invasion of the Spectacles Wetland above current levels. However, JPPL will regular inspect livestock transport routes to detect any problems

with spillages. If spillages are found to be a problem, spill control measures will be tightened.

"Response to 2.6.1

Any steps taken to disturb roosting sites or to destroy pigeons should be on advice from the Department of Conservation and Land Management, the Local Government Authority and Health Department of WA."

JPPL COMMENT

Comments noted.

"Response to 3.1.2

Reference is made to "treatment" of operational wastes (e.g. truck wash down), however it is not clear as to what method of treatment has been considered. Please clarify."

JPPL COMMENT

The method of treatment will be specified as part of the works approval application. JPPL will seek appropriate advice and proposals regarding the treatment and will consult with the DEP and relevant Authorities to ensure the treatment will be acceptable.

"Response to 3.1.3

This submission raises the issue of soil contamination on the proposed development site. However in its response, JPPL only considers how it intends to address groundwater contamination. Please give consideration to the issue of soil contamination."

JPPL COMMENT

JPPL will purchase the land forming part of its Stage 1 development from LandCorp. JPPL believes the land is free from contamination.

Regardless, JPPL in its negotiations with LandCorp for the purchase of the land will seek certification to ensure that the land is free of contamination at the time of purchase. JPPL will forward information on the state of contamination of the land to the DEP as part of the Construction EMP.

"Response to 3.2.4

The EPA Service Unit is of the view that should the stage one port proceed, JPPL, third parties responsible for existing stormwater that enters Cockburn Sound via the proposed port site and the Cockburn Sound Management Council (CSMC) should aim to rationalise stormwater management in the area to achieve a net environmental improvement for stormwater management. This is consistent with the objectives of the CSMC to integrate management of land and marine environments (CSMC 2001)."

JPPL COMMENT

JPPL agrees that the EPA Service Unit's views are sensible and that any stormwater discharged through the site should be rationalized and managed in line with the CSMC EMP for the Sound. However, JPPL believes that there are no third party stormwater drains running through the site to Cockburn Sound.

"Response to 3.3.18

The EPA Service Unit requires clarification on several issues in regard to the design, alignment and presence of the offshore breakwater.

Firstly, The response states that "The port may be built without the offshore breakwater or the breakwater may be added at a later date." The response to 5.2.6 "JPPL has already committed to remove the breakwater (if it is constructed)" also calls in to question whether the breakwater will be constructed, and if so, when. The DEP has previously raised the question of whether the offshore breakwater would be constructed with the balance of the proposal or whether its conclusion would be on an as required basis. In a draft response to DEP comments on the draft Public Environmental Review it was suggested that the breakwater is an integral part of the proposal and any reference suggesting this was not the case would be modified in the PER. It is unclear to the EPA Service Unit whether the breakwater would be constructed and if not whether the impacts have been fully considered.

Further to the matter of impacts without the breakwater, JPPL state, "The breakwater was included in the PER because it was regarded as representing the worst case scenario with respect to impacts on circulation, coastal processes and water quality". What consideration has been given to any change in environmental impacts that may come about and require consideration by the EPA if the breakwater was not constructed?

Figure 7.19 of the PER indicates that residual depth-averaged currents are weaker and flushing rates less in the areas immediately to the north of the offshore breakwater and further to the north, between the proposal and the Jervoise Bay Southern Harbour (inter-harbour impacts in EPA Bulletin 907). This figure indicates a reduction of up to 40% in these residual currents, with the largest reductions occurring in the lee of the offshore breakwater. The ecological implications of this reduction in residual currents have not been fully addressed. Further attention should be given to refining the design of the breakwater to not only address the issue of coastal processes but also to minimise this "shadow" effect.

In determining the final design, more detailed consideration should be given to the dispersion of phytoplankton and contaminants as a result of the construction of the offshore breakwater."

JPPL COMMENT

JPPL would like to make it clear that the offshore breakwater is part of the proposal. The environmental impact assessment presented in the PER was conducted on the basis that the breakwater would be present.

The residence time north of the breakwater was found to only increase by a matter of hours. As shown in Figure 7.19 of the PER, under strong southerly winds the shadowing effect of the structure is greatest. However, this is also when flushing is most rapid. The change in circulation and residence times is minor and there will be no effect on ecology. There is no need to further refine the design from an ecological perspective, further refinements will focus on reducing impacts on coastal processes and improving navigation.

"Response to 3.3.22 and 2.1.14

The autumn flushing analysis of the proposed Stage One James Point Port suggests that there is a 25 - 50% increase in the residence times for bottom water in autumn. An interpretation of the ecological significance of this effect (eg sediment respiratory demand) and water quality (nutrients, chlorophyll) should be provided. This issue is particularly important since the autumn residence times appear to be greater than typical doubling times for the phytoplankton in the area. The response to 2.1.14 does not give attention to the combined effects of increases (sic) residence times for bottom waters and sediment oxygen demand and stratification which could occur as a result of elevated respiration rates during calm Autumn periods."

JPPL COMMENT

The analysis undertaken for the PER found that the residence time for waters less than 7.0 m deep would be essentially unchanged from the existing conditions. For the calm autumn meteorological conditions selected, the e-folding time of these waters was estimated to be of the order of 2 to 3 days. The analysis for the bottom waters (12.6 to 14.0 m deep) when the Stage 1 development was present suggested that the e-folding time under calm autumn conditions would be of the order of 5-6 days. This is not directly comparable to existing conditions because the water is not currently this deep (~12 m maximum in this region).

The possible frequency of such events was discussed in Section 7.12.3 of the PER, where it was illustrated that for the 12 months of 1995 meteorological data, there were 6 occasions when bottom waters in the harbour and channel (~15 m deep) may remain unmixed due to wind stirring and surface heating and cooling alone (i.e. advection is not included) for 5 days or longer and that 7 days was the longest that no vertical mixing would take place.

Therefore the first part of DEP's comment has been rephrased as: What will be the ecological significance of occasional calms resulting in a residence time of 5-6 days of bottom waters?

Based on the work of Bastyan and Paling (1995) it is likely that there will be a drop in dissolved oxygen (DO) levels in the bottom waters of the deeper sections of the harbour. However, DO levels will not drop to point where ammonium release is enhanced (<1mg/l). The impact of the increase in frequency of reduced DO levels was discussed in detail on Section 8.3.5 of the PER.

Settling of phytoplankton to the seabed will also be greater within the calmer waters of the port. The primary production available to support sediment fauna will, if anything, increase; this is evident in the accumulation of organic matter that occurs in sediments in sheltered, deeper waters. The biomass, abundance and biodiversity of sediment fauna is expected to become more akin to that of the deep basin of the Sound.

Therefore, the worst case scenario anticipated is similar to that in the Cockburn Sound basin (depth ~20 m). Although residence times of these basin waters are considerably longer (>10 days) than those for the deeper sections of the port: available data indicate that oxygen levels in Cockburn Sound bottom waters generally remain high, with the inference that sediment oxygen demand is not outstripping supply. Further,

bottom dissolved oxygen levels will not be low enough (<1mg/L) for long enough to promote a significant increase in sediment nitrogen release rates.

It is considered that occasional periods where residence times of bottom waters are of the order of 5-6 days will not be the primary factor controlling nutrient related water quality in the port. The primary factor controlling water quality will be the quality of the source water as residence times for all waters in the port will be of the order of 1-2 days. These typical residence times are less than or equivalent to typical doubling times for the smaller marine phytoplankton species. However, it should be recalled that, unlike the Jervoise Bay Northern Harbour, groundwater nitrogen loads are unlikely to be an issue.

JPPL will monitor dissolved oxygen profiles as well as sediment organic content and nutrient content as part of the Environmental Management Program. If it is found that the impact assessment incorrectly predicted that there would be no significant change to the sediment/water column processes and that water quality problems are arising from enhanced nitrogen flux from the sediment, then JPPL will implement a solution such as physical mixing to control the problem.

"Response to 3.3.12

The thermal fields that have been modelled include the effects of heat losses from the water body to the atmosphere. The dispersion fields for contaminants will differ from the dispersion fields for heat because, in general, they do not involve an atmospheric loss. There should be further consideration of the effect(s) of the proposed port on the dispersion of contaminants from the nearby industrial outfalls, noting the likely underestimation of contaminant dispersion."

JPPL COMMENT

The James Point Stage 1 port does not add to the discharge of contaminants to the Sound, however it is acknowledged that it may alter the area over which contaminants from the BP and Western Power plumes are dispersed.

At the time of the modeling for the PER it was decided that the thermal effect of the BP and Western Power plumes were the most significant and the effect of the Stage 1 Port on the thermal signature was modeled. It was found that the port would have a minor impact on the dispersion of the plumes when maximum heat loads were used in the modeling.

The DEP has recently used the hydrodynamic model developed for the PER to derive mixing zones for discharges to the Sound for the draft EPP. More detailed information on the heat loads and contaminant loads was provided by Western Power and BP to the DEP than was provided to JPPL. JPPL understands that changes to the geometry of the mixing zones for the BP and Western Power discharges should be reflected in a revised EPP for Cockburn Sound.

The modeling undertaken in the PER suggests there may be a minor impact from the Stage 1 port on the distribution of contaminants from BP and Western Power. However, this will not affect the environmental acceptability or otherwise of the proposal. As such, JPPL will commit to extending the modeling work recently undertaken by the DEP to include the effects of the Stage 1 development on the

dispersion of contaminants from the BP and Western Power plumes. This will be based on the most recent information supplied to the DEP. This work will be undertaken and submitted to the EPA independently of the environmental approval process.

"Response to 3.3.23

The response provided does not clearly address the issues raised in the submission. Please discuss the relevance of the frequency of the reduced DO levels in the harbour basin and shipping channels."

JPPL COMMENT

The possible frequency of such events was discussed in Section 7.12.3 of the PER, where it was illustrated that for the 12 months of 1995 meteorological data from, there were 9 occasions when bottom waters in the harbour and channel (~15 m deep) may remain unmixed for longer than 3 days. By comparison, for existing conditions there are no occasions when the water column remains unmixed for more than three days.

Based on the work of Bastyan and Paling (1995) it is likely that there will be a drop in dissolved oxygen (DO) levels in the bottom waters of the deeper sections of the harbour. However, DO levels will not drop to point where ammonium release is enhanced (<1mg/l). The impact of the increase in frequency of reduced DO levels was discussed in detail on Section 8.3.5 of the PER.

"Response 3.3.34

Will a pump out facility be provided at the port?"

JPPL COMMENT

JPPL will not, as a matter of normal practice, permit vessels to discharge waste within the Port. As such it is unlikely that a comprehensive permanent installation will be available for the discharge and disposal of waste from visiting vessels.

There will be provision for the use of mobile pumping facilities and sullage tanks to be used in special circumstances in accordance with conditions set by the appropriate authorities.

"Response to 4.1.12

The EPA Service Unit notes that JPPL suggest that the port's operation will not jeopardise the quality of seafood caught outside the harbour. Does this imply that the port waters will not be managed to meet EQO 2, the maintenance of aquatic life for human consumption (EPA 2000)? The EPA and the community expect that the water quality of Cockburn Sound is managed to protect all social EVs, including values related to the harvesting of seafood that is safe to eat."

JPPL COMMENT

The water in the port will be managed to meet EQO deemed appropriate for ports, harbours and marinas in the final EPP for Cockburn Sound. It is also JPPL's expectation that seafood (excluding sessile organisms such as mussels) within the port should meet the criteria set for the maintenance of aquatic life for human

consumption. The Operations EMP for the port will include a monitoring program designed to establish the health of seafood within the port.

"Response to 4.1.20

Have JPPL collected quantitative information to substantiate the statement "The major impact from the loss of Barter beach is to the horse fraternity" ?..... "

JPPL COMMENT

The only published quantitative study was undertaken by Coastwise in 1999, the results were based on aerial surveys undertaken on a peak beach use day in February 1999. The statement is based on this survey (a total number of 37 people, 27 cars and 16 horses were surveyed on the beach).

"Response to 4.3.11

Please substantiate JPPL's view "...that the impact on residents along the routes will be reduced as a consequence of this proposal"..... "

JPPL COMMENT

The statement " *that the impact on residents along the routes will be reduced as a consequence of this proposal*" refers to the net impact through reducing the number of vehicle movements on routes into the Fremantle Inner Harbour which are through built up areas and are immediately adjacent to medium density residential development (e.g. Leach Highway between the Kwinana Freeway and Stirling Road).

In the case of Livestock transport the overall reduction in distance travelled from existing feedlots to Port will be 21 km in the case of James Point Port versus Fremantle Inner Harbour, and there is an estimated 9000 truck trips from feedlots to Port.

The section of travel removed includes 11.5 km of Leach Highway which is adjacent to residential developments for most of the distance.

The section of travel added is 8.6 km from Kwinana Freeway to the proposed Kwinana Port along which there are three residences.

References

Larkum, A.W.D., McComb A.J. and Shepard, S.A. (1989). *Biology of Seagrasses: A treatise on the biology of seagrasses with special reference to the Australian region.* Elsevier Science 841 pp

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