

**GUIDELINES FOR THE PREPARATION OF A
PUBLIC ENVIRONMENTAL REPORT
PHELPS/PANIZZA PRAWN AQUACULTURE PROJECT
BLACKMORE RIVER**

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Introduction

The purpose of the Public Environmental Report (PER) is to provide the Government with concise and comprehensive information regarding the design, construction and operation of the proposed aquaculture venture and associated facilities. It should contain sufficient information to enable understanding and assessment of the scope and environmental implications of the proposal. The PER should clearly identify the main environmental impacts associated with the development and should contain a management strategy to minimise these impacts.

Information should be presented in a concise format, using maps, overlays, tables and diagrams where appropriate to clarify the text.

Content of a PER

1. Executive Summary

The Executive Summary is to include a brief outline of each section within the Public Environmental Report (PER) using text and dot points. It is recommended that the Executive Summary be written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read or purchase the entire PER.

The summary should be a concise outline of the matters discussed in the main body of the document, to allow the reader to quickly obtain a clear understanding of the proposal, its environmental implications and management objectives. The summary should include:

- the title of the proposal;
- name and address of the proponent,
- experience and qualifications of the proponent and other key personnel;
- proof of ownership or lease of the project area;
- a brief description of the background to the proposal;
- a brief assessment of alternative site options and justification of the need for the proposal;
- a statement of the objectives of the proposal;
- a brief description of the proposal;
- a brief description of the existing environment;
- a brief summary of the principal potential and anticipated environmental impacts; and
- a statement of the proposed environmental management principles and monitoring procedures.

2. Description of the proposal

This section should describe the development proposal to allow a detailed understanding of infrastructure design and engineering and all stages of construction, operation and management of the farm and include relevant plans, photos and maps. Aspects to be covered include:

- a) The layout of the proposal, including all elements such as ponds, intake and discharge channels, water supply channels, tanks, buildings, roads, parking, stormwater drainage, sewerage etc., and the area of land each will comprise.
- b) Design and engineering details of all ponds and dams (dimensions, construction materials, alignment, batter slope design, Blackmore River Q100 levels), ancillary facilities, the water intake and waste water outlet and pumping systems. Include process descriptions and flow charts where applicable indicating volumetric capacity

and requirements. Note that for dams where the main wall is 5.00m or greater and the retained volume exceeds 50 000 cubic metres, the proposed structure is referable under the Australian Committee on Large Dams guidelines.

- c) Proposed construction methods and the stages of all aspects of the development, including the timing of the stages. Note, a Permit to Construct or Alter Works, issued under the *Water Act* may be required.
- d) The volumes and possible sources of extractive materials (i.e. clay, soil, gravel and rock) required for construction of dams and other infrastructure associated with the project.
- e) Species to be cultured, sources of juveniles/broodstock and farming techniques. Include information on feeding, rearing techniques, hygiene and quarantine requirements, stocking rates, pond inputs, harvesting and all monitoring programs to be undertaken.
- f) Water supply (including freshwater) and management requirements and water quality maintenance. Provide detailed specifications on any proposed storages including construction methods, sources of fill, storage capacity, impacts of storage on the catchment, overflow design and capacity, spillway stabilisation and risk assessment in the event of a Probable Maximum Flood.
- g) Waste water collection, storage, treatment, analysis and disposal.
- h) General waste generation. Outline plans for waste prevention, treatment and disposal.
- i) Outline of sludge treatment practices, including harvesting, conditioning and disposal. Provide details of all monitoring programs.
- j) Design and details of all aspects of prawn processing and packaging.
- k) Power, potable water supply, road access requirements and associated corridors.
- l) Staffing and servicing requirements, hours of operation and security of the site.
- m) Landscaping proposals.
- n) Construction practices and management to minimise the potential for aggravating existing biting insect populations.
- o) Expected life of the project, decommissioning and rehabilitation of the site, including rehabilitation of potential mosquito breeding sites.

3. *Environmental Constraints and Issues.*

This section examines those aspects of the existing biophysical and socioeconomic environment that may be affected by the proposal, including site capability and suitability. Aspects to be covered include:

- a) Existing land use, tenure of the site and adjacent land uses (including easements, zoning, etc.).
- b) Topography, geology and soil characteristics, including extent of acid sulphate soils - a 3D map of the soils in the area to be disturbed is required. Include soil capability and suitability for water retaining structures, such as freshwater dams and pond constructions, and any other possible uses, such as for fill.
- c) Terrestrial and aquatic flora and fauna species, communities and habitats that may be affected by the proposal. In particular, provide information on any areas of mangroves or terrestrial vegetation likely to be disturbed, including a map at an appropriate scale showing any vegetation communities that are to be cleared. An initial weed assessment should be undertaken. Existing fire regimes should be outlined.
- d) Hydrology, including catchment area, surface and groundwater flow patterns, water table depths and regimes, flood flows and areas of seasonal inundation, tidal influences and levels of tidal fluctuation, and existing water quality of surrounding watercourses.
- e) Seasonal stream flows and tidal flushing regimes along surrounding watercourses.
- f) Climate, storm surge and cyclone characteristics.
- g) Sites of significance including archaeological, historical, cultural, Aboriginal, biological and recreational sites.
- h) The potentially significant biting midge problem and sensitivity of mosquito populations to disturbances in and adjacent to tidal areas.
- i) Briefly outline the socio-economic issues relating to employment potential, down stream employment effects, impact of transport external to the site and demand on current service infrastructure.

In relation to the Heritage Conservation Act and sites protected under this Act, it is recommended that the proponent seek advice from an archaeologist on the following matters:

- Define the precise location of heritage sites in relation to the proposal and where necessary undertake an archaeological survey;
- assess the significance of the sites which are to be impacted by the proposal;
- provide options for mitigation of loss of heritage value of sites which lie within the area of impact;

- undertake a further survey to ensure that other unrecorded sites, which are also protected by the Act, are not included in the development area.

This section should also include the results of the inspection of the Register of Sacred Sites maintained by the Aboriginal Areas Protection Authority, as well as details of the application lodged with the Aboriginal Areas Protection Authority for an Authority Certificate within the meaning of Part 3, Division 1 of the *Northern Territory Aboriginal Sacred Sites Act* and a copy of the Certificate issued by the Authority as a result of that application containing conditions (if any) relating to the protection of sacred sites on, or in the vicinity of, the project area.

4. *Potential and Anticipated Impacts and Proposed Safeguards*

Impacts may be direct, indirect, short term or long term. Some will be temporary and some will be irreversible. All potential impacts should be identified and characterised in relation to the information provided in the above sections. Include information on the magnitude, risk and the significance of the impacts. This section should also provide information on environmental management practices and safeguards proposed to prevent or minimise these impacts.

Management practices or safeguards should be expressed as a series of commitments. These commitments and any associated discussion of impacts should be included in appropriate sections and subsections. Each commitment should be numbered consecutively and highlighted to stand out from the surrounding text. These commitments will form the basis for the Environmental Management Plan for the site.

Types of impacts or issues that may be associated with the proposal are:

- a) Clearing and disposal of vegetation, particularly large areas, including mangroves. Outline the extent and nature of clearing and any preventative, remedial or rehabilitative measures undertaken to minimise the impacts.
- b) Destruction or disruption of habitat areas of flora and fauna communities (including impacts on ecological processes) from clearing large areas of vegetation.
- c) Introduction and spread of weed species, particularly through construction or earthmoving equipment. Identify precautions to minimise introduction and spread of weeds, e.g. washdown of equipment, and develop an ongoing weed management program.
- d) Fire. Outline proposed fire management measures, including provision of firebreaks. Discuss the impact of fire management and any measures to protect vegetation, maintain ecological values and manage fire within remnant vegetation. Develop an ongoing fire management plan.
- e) Disturbance of potential acid sulphate soils and potential for acid leachate formation. Discuss the prevention or minimisation of the effects of mangrove clearing and the management of acid sulphate soils including a contingency plan to manage acid leachate.

- f) Siltation of waterways from suspended solids in waste water and site runoff.
- g) Soil erosion and dust generation from construction and operational activities. Outline any preventative, protective or remedial actions to be undertaken.
- h) Impacts to receiving waters (surface/groundwater/marine) from the discharge of waste water, such as depletion of dissolved oxygen levels, eutrophication, etc. Discuss all monitoring procedures for water quality parameters, plans of the uptake and discharge, and address maintenance of water quality within the farm. Note that the Waste Discharge Licence issued under the *Water Act* may stipulate monitoring parameters and procedures.
- i) Possible impacts from an increase of volume to receiving waters following expansion of the site and waste water discharge. Large volumes of waste water may alter gas exchange regimes of mangroves. Discuss any preventative measures.
- j) Disease and quarantine. Outline measures to prevent disease within the farm and its spread to or from natural fisheries. Outline measures to prevent escape of prawns from the farm to the natural environment.
- k) Impacts on the mangroves and other estuarine biota caused by waste water discharges. Consider alternatives to using the mangrove system as a biofilter and for polishing effluent.
- l) General waste generation management, other than waste water, from processing, feeding, harvesting, etc.
- m) Modifications to natural hydrological regimes, such as changes to the freshwater flow and flooding in the area (including those impacts arising from the compounding of fresh water), alteration of stream morphology, bank stability and water tables as a result of dam construction and interruption of regular tidal flow. This section should also include the impact of the proposed fresh water dam on the existing Finn Road and the proposed Berry Springs connector road. Note that an application for a Surface Water Extraction License under the *Water Act* will be required.
- n) Changes in community structure of mangrove species (in addition to other salt intolerant vegetation) via the alteration of salinity gradients as a result of dam construction and changes in freshwater availability.
- o) Alteration of riparian zones as a result of dam construction.
- p) Changes in community structure of aquatic animals (vertebrates and invertebrates) present in the water courses via the alteration of habitat and reproductive areas as a result of any dam construction. Additionally, diminished flows in the dry season may increase seasonal water temperature fluctuations that may, in turn, adversely affect aquatic species adapted to the current thermal regime.
- q) Effects on recreational water quality and aesthetic value of the site.

- r) Consideration of access, fencing and public safety in light of the adjacent use of land as a recreational boat ramp.
- s) The effect of the proposal on Sacred Sites and Heritage Sites.
- t) The impact of existing biting insect populations in the area on the construction work force and prawn farm work force.
- u) The impact of the development on mosquito and other biting insect habitats which lead to the creation of breeding sites by impounding tidal water, restricting tidal regimes, allowing increased tidal inundation of low lying areas, restricting or impeding fresh water drainage, lowering water tables in existing wetlands and any other ecological changes that can create breeding sites and result in a biting insect problem.
- v) Rehabilitation of the site following decommissioning of the project.
- w) A summary table listing potential impacts, environmental management practices and safeguards, monitoring and management methods and other commitments, cross-referenced to the text of the report, should be provided together with the outline of an Environmental Management Plan (EMP). An EMP should:
 - Provide details of proposed measures to prevent or minimise adverse impacts and assess the likely effectiveness of these safeguards.
 - Ensure that safeguards are being effectively applied.
 - Enable remedial action for any impacts that were not anticipated in the PER.
 - Determine the differences between predicted and actual impacts (via monitoring); and provide for the periodic review of the management plan itself.

5. *Glossary*

A glossary defining technical terms and abbreviations used in the text should be included to assist the general reader.

6. *References*

The reference list or bibliography should be accurate and concise.

7. Appendices

Information relevant to the PER but not suitable for inclusion in the main text should be included as appendices, for example detailed technical or statistical information, maps, baseline data, supplementary reports, etc.

Administrative Requirements

- a) A copy of the draft PER should be submitted to the Environment and Heritage Division prior to formal submission to ensure all aspects of the proposal relating to the environmental implications are adequately addressed.
 - b) 10 copies of the PER should be submitted to the Department of Lands, Planning and Environment, together with 2 CD-rom copies, which will provide for circulation to government advisory bodies for comment. CD-rom copies should be in ADOBE®.pdf format for placement on the Internet.
 - c) Arrangements for the public display and review, including locations and number of copies will be made at the time when the preliminary copy of the draft PER is reviewed. It is the responsibility of the proponent to advertise the public availability of the PER for public comment.
 - d) The action officer for the proposal is Ms Lisa Banks (ph 8924 4022). For matters relating to the *Heritage Conservation Act*, contact Mr Steve Sutton (ph 8924 4142).
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