Proposed Geraldton Port Expansion

Geraldton Port Authority

Report and Recommendations
of the
Environmental Protection Authority

Environmental Protection Authority
Perth Western Australia
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Contents

Summary and recommendations

Increased trade and associated shipping within the Port of Geraldton has created a demand for additional land adjacent to the harbour area. In response to this demand, the Port of Geraldton proposes to reclaim a 5 ha area in the existing fishing boat harbour, within the Inner Harbour.

Associated with this reclamation activity would be the breaching of the outer breakwater and dredging of a channel to create a new entrance to the fishing boat harbour. The Port Authority also proposes to extend the existing sand trap on the northern side of the main breakwater to provide protection for fishing vessels navigating the new entrance. Spoil collected through maintenance dredging within the main harbour and fishing boat harbour would be utilised as fill for the proposed reclamation.

Following initial discussion with representatives from the Geraldton Port Authority in April 1989, the Authority determined that the proposal should be assessed under Part IV of the Environmental Act as a Notice of Intent (NOI). This report was completed in September 1989, and comment was sought from the City of Geraldton, local fishing groups and relevant Government Departments.

This assessment report was prepared following consideration of both the NOI and submissions received.

Recommendation 1

The Environmental Protection Authority recommends that the proposal to deepen Geraldton Harbour and associated land reclamation as described in the Notice of Intent is environmentally acceptable, subject to the following recommendations and compliance with commitments made by the proponent in the Notice of Intent, and recommends that the proposal can proceed accordingly.

Recommendation 2

The Environmental Protection Authority recommends that any major additional dredging activity not addressed within the Notice of Intent be referred to the Authority for assessment prior to commencement.

Recommendation 3

The Environmental Protection Authority recommends that the proponent ensure that water within the Geraldton Harbour is maintained at an acceptable quality, so that it does not have an adverse impact on the marine environment outside the Inner Harbour area as required in Schedule 10 (relating to water quality associated with water flushing and replenishment within the harbour) of the 'Water Quality Criteria for Marine and Estuarine Waters of Western Australia'. The proponent should also ensure that water within the Inner Harbour is maintained so as to be suitable for the unobstructed passage of shipping and boats, as required in Schedule 16 (relating to water quality for navigation and shipping) of the 'Water Quality Criteria for Marine and Estuarine Waters of Western Australia'.

Recommendation 4

The Environmental Protection Authority recommends that in order to minimise environmental impacts that could occur from sediment plumes resulting from dredging, the proponent, shall prior to commencement of dredging, bund all reclamation areas (for both Stages I and II) and take such other action as is required to meet this objective to the satisfaction of the Environmental Protection Authority.

In addition, should sediment plumes extend beyond the main Inner Harbour breakwater, remedial action to minimise environmental impact should be taken as soon as possible, to the satisfaction of the Environmental Protection Authority.

Recommendation 5

The Environmental Protection Authority recommends that all refuelling facilities and fuel links in both the main harbour and Fishing Boat Harbour be designed and sited so as to minimise the risk of spills into the Inner Harbour area.

The storm water drainage system and discharge points should be designed and sited so as to minimise any detrimental impact on the marine environment and accordingly should be referred to the Environmental Protection Authority for comment prior to construction.

Recommendation 6

The Environmental Protection Authority recommends that prior to construction, the proponent should identify appropriate environmental management for the quarrying and transport of rock associated with the construction of the bund walls to the satisfaction of the Environmental Protection Authority following consultation with the Town of Geraldton.

1. Introduction

The Port of Geraldton is located on the northern side of Point Moore Peninsula, and provides a regional port facility for towns in the Mid-West Region (see Figure 1). The Port also provides a base for fishing related industries, in particular rock lobster fishing, and associated processing. The Port also provides cargo storage and handling facilities.

Increased trade and associated shipping within the Port of Geraldton has created a demand for additional land adjacent to the harbour area, to ensure the continued operating and economic viability of the Port.

In response to this demand for increased land, the Port of Geraldton proposes to reclaim a 5ha area of the existing fishing boat harbour, within the Inner Harbour area. Associated with this reclamation activity would be the breaching of the outer breakwater and dredging of a channel to create a new entrance to the fishing boat harbour. The Port Authority also proposes to extend the existing sand trap on the northern side of the main breakwater to provide protection for fishing vessels navigating the new entrance. Spoil collected through maintenance dredging within the main harbour and fishing boat harbour would be utilised as fill for the proposed reclamation. An existing effluent outfall pipe located off the main harbour breakwater, associated with nearby rock lobster processing plants, is also proposed to be relocated.

Following initial discussion with representatives from the Geraldton Port Authority in April 1989, the Authority determined that the proposal should be assessed under Part IV of the Environmental Protection Act as a managed Notice of Intent (NOI). The document was completed by Halpern Glick Maunsell Consulting Engineers on behalf of the Geraldton Port Authority in September 1989, and comment was sought for a period of four weeks, ending on 21 October 1989.

This assessment report was prepared following consideration of both the NOI and submissions received during the public review.

2. Background

The Geraldton Port Authority has been the controlling body for all port related activities at Geraldton since 1969, when responsibility for the port was relinquished by the Department of Marine and Harbours. Land adjacent to the Inner Harbour area is located within Crown Reserve Nos 20606 and 25300, and is vested in the Geraldton Port Authority under the zoning 'Harbour Works' under the Geraldton District Town Planning Scheme.

The NOI indicates that increased trade and associated shipping within the Port has created a demand for additional land adjacent to the harbour area. This demand originates from three different user groups, i.e.

- Fishing Industry -seas offshore of Geraldton and the Abrolhos Islands form part of the major rock lobster fishing grounds in Australia. The Port of Geraldton houses a large fishing fleet (over 350 vessels) associated with the rock lobster fishing industry. Additional land is required to expand fishing facilities and related industries, including hardstand areas for trawlers and workboats, and expansion of workshops.
- Shipping Industry - additional areas are required for the handling and storage of increasing amounts of bulk cargo and containers; and
- Construction - additional areas with water frontage are required for the construction of the Goodwyn Gas Platform Modules, so that Geraldton can be nominated as a preferred construction site.

Various options have been considered by the Geraldton Port Authority to accommodate this increased demand for land in the Port area. These include :

- Utilising existing vacant land adjacent to the Port - there is existing vacant land both within the Port complex and outside it's boundaries. However, this is not considered suitable as waterfront access is required.
- Relocation of the Fishing Boat Harbour - this option is not considered to be economically viable due to the high cost and possible alienation of related fishing and service industries.
- Reclamation of a 5 ha area of land within the Port area, using spoil accumulated by maintenance dredging within the Inner Harbour area and dredging associated with a proposed new entrance to the Fishing Boat Harbour.

This third option is considered to be the most acceptable option by the Geraldton Port Authority as it would allow for maximum waterfront access as required. It would also conveniently make use of dredge spoil associated with maintenance dredging activities. No rezoning of land would be required, and the reclaimed land could be automatically vested in the Port Authority for 'Harbour Works'. This option would also allow for the possible future development of an additional berth within the main harbour.

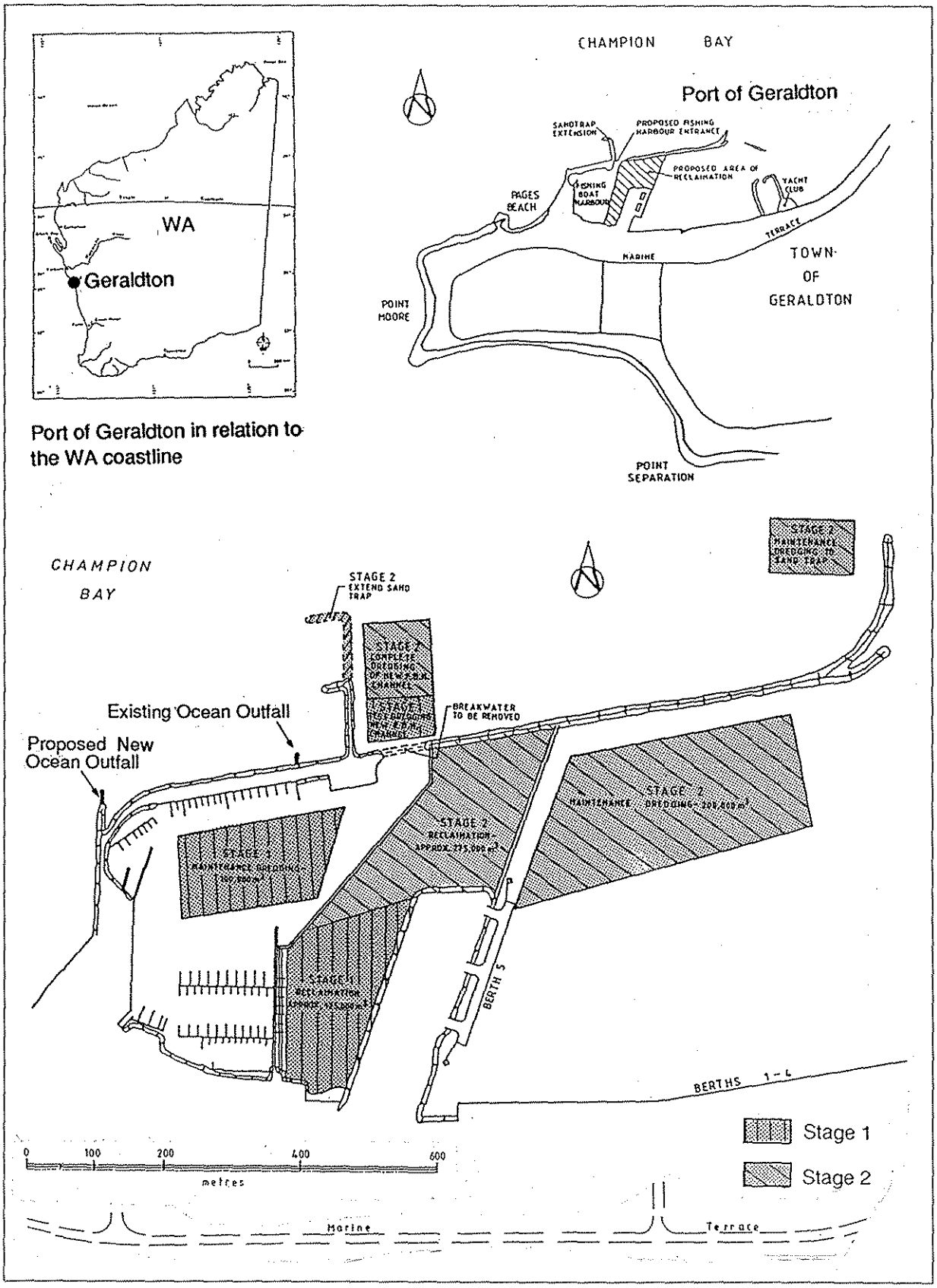
3. Description of project

3.1 Dredging and reclamation

The Geraldton Port Authority proposes to expand the inner harbour facilities at the Port of Geraldton. This is proposed to be undertaken in two stages. These stages are illustrated in Figure 1.

Stage I

- Dredging within the Fishing Boat Harbour. This would involve the dredging of 2.64 ha directly south of the main breakwater, to increase water depth to a uniform 3.5 m (presently ranges from a



Source: Halpern Glick Maunsell Pty Ltd (1989) Geraldton Port Expansion-Notice of Intent

Figure1: The Port of Geraldton in relation to the Western Australian coastline, and location of the proposed dredging and reclamation areas

depth of 1 to 3 m). This is proposed to allow for the unrestricted access of larger vessels into the Fishing Boat Harbour, and will generate 100,000 m^3 of spoil.

- Test dredging for the proposed new Fishing Boat Harbour entrance channel, immediately east of the existing sand trap. This will involve the dredging of 0.6 ha, and generate 5,000 m^3 of spoil.

All spoil generated via this dredging is proposed to be used to reclaim approximately 2.2 ha of land between No 5 Berth, the shoreline and the southern pens as indicated in Figure 1. This would be protected by a granite bund wall along the western and northern perimeter. The existing bund wall would be removed on the completion of dredging, and material incorporated in the new bund wall.

Stage I is proposed to commence as soon as EPA approval is granted. Dredging would be expected to take 4 to 6 weeks and reclamation 4 to 6 weeks.

Stage II

- Dredging within the main Harbour south of the outer breakwater - this would involve the dredging of approximately 7 ha, and increase the overall depth to 7 metres to improve berthing access to No. 5 Berth, and generate 200,000 m^3 of spoil.
- Dredging north of the Stage 1 test dredge site to provide an entrance channel to the Fishing Boat Harbour, to a depth of 4 metres - this would generate 75,000 m^3 of spoil.
- Relocation of the existing rock lobster processing effluent outfall pipe.

All spoil generated in Stage II dredging is proposed to be used to reclaim a 2.8 ha area of land as indicated in Figure 1. If additional fill is required, a small area of accumulated sand adjacent to the north east extension of the main breakwater is proposed to be dredged.

All reclaimed land would be filled to the existing level of No 5 Berth and bund walls armoured with granite from existing local quarries. A new entrance would then be required to gain entry to the Fishing Boat Harbour. This would be created by removing part of the existing breakwater The existing sand trap would also be extended northwards by 100 metres to provide protection to fishing vessels navigating the new entrance channel, and protect the entrance channel from siltation.

The commencement of Stage II would be dependent upon granting of the construction contract for the Goodwyn Platform Module contract.

3.2 Development of the reclamation area

The NOI includes a preliminary concept plan for use of the reclamation site, based on expressions of interest for port related land use which requires a water frontage (Figure 2).

It is likely that the following types of industry would be located in the reclamation area:

- refrigeration and air conditioning units;
- slipways;
- fishing co-operative;
- hardstand fishing boat storage area;
- construction area for trawlers and workboats;
- additional cargo storage and handling areas; and
- construction areas for the building of offshore oil platform modules.

Details regarding service industries and layout have not yet been fully determined. However, the NOI states that the area would be serviced by septic tanks. Industries located on the reclamation site would not be permitted to dispose of industrial effluent via septic tanks.

4. Review of public submissions

Submissions were received from the City of Geraldton, the Department of Marine and Harbours and the Water Authority of Western Australia.

The following list is a summary of the issues raised :

Waste disposal

- the proposed septic system will require the approval of the Water Authority of Western Australia (WAWA) prior to construction.

Relocation of effluent outfall

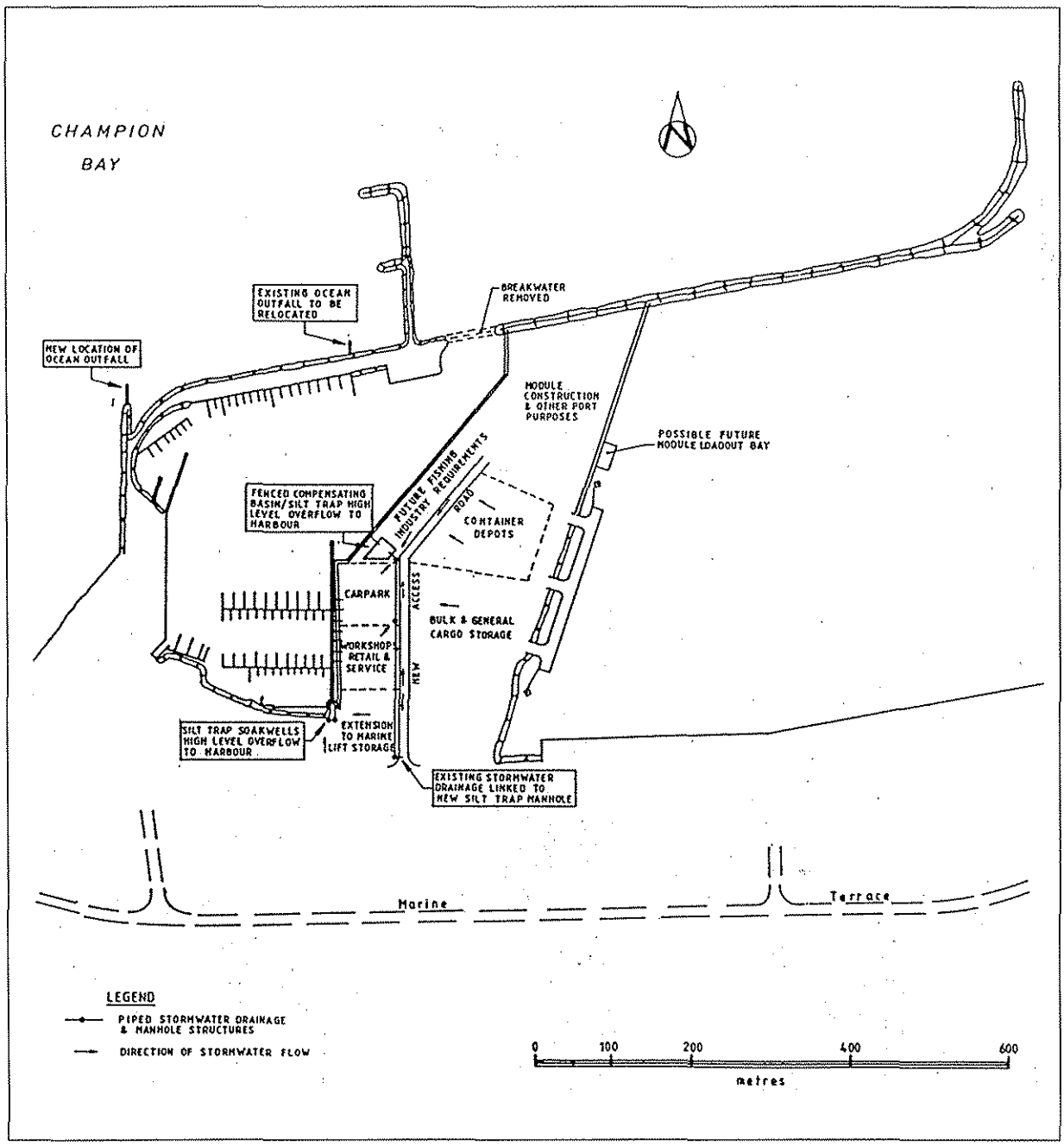
- The Notice of Intent does not adequately address the impacts of the relocation of the existing effluent outfall. Further information regarding the long term changes to the existing environment associated with the relocation of the outfall is required.

Stormwater drainage

- Further details regarding the proposed stormwater drainage of the reclaimed area should be forwarded to the City of Geraldton prior to construction.

Reclamation area

- The newly reclaimed land should be included within the municiple district of the City of Geraldton so that the Council has control through the normal mechanisms of building permits, health issues and industrial use of the area.
- The reclaimed area should be included in Area 14 (Industrial) under the City of Geraldton Town Planning Scheme No. 1 so that control over the development can be exercised by the City of Geraldton.



Source: Halpern Glick Maunsell Pty Ltd (1989) Geraldton Port Expansion-Notice of Intent

Figure 2: Preliminary concept plan for use of the reclaimed area

5. Environmental Impact

5.1 Water Quality

The long term water quality within the Fishing Boat Harbour and the main harbour is not expected to be significantly altered by the Port expansion proposals.

The Port Authority has undertaken to update current oil spill contingency plans to take into account the new Port configuration associated with the proposed expansion (NOI Section 8.4), existing accordingly. Details regarding these modified plans should be discussed with officers of the Environmental Protection Authority.

The Port Authority has also undertaken a commitment to monitor heavy metals in areas proposed to be dredged.

The proponent has made a commitment that industries located on the reclaimed land would not be permitted to dispose of effluents via septic tanks (NOI p 19). As previously mentioned, the reclamation site is proposed to be serviced by septic tanks. The Authority considers that the Geraldton Port Authority develop a long term plan for connection of permanent industry to deep sewage.

Recommendation 2

The Environmental Protection Authority recommends that any major additional dredging activity not addressed within the Notice of Intent be referred to the Authority for assessment prior to commencement.

The marine environment adjacent to the existing Port facilities is presently used for water based recreational activities including swimming and fishing. The adjoining marine ecosystem should therefore be protected from any adverse effects of harbour activities. Water within the Harbour should be maintained at an acceptable quality so that it does not have an adverse impact on the marine environment outside the Inner Harbour area, as required in Schedule 10 of the 'Water Quality Criteria for Marine and Estuarine Waters of Western Australia' (see Appendix 4). The proponent should also ensure that water within the Inner Harbour is maintained so as to be suitable for the unobstructed passage of ships and boats as required in Schedule 16 of the "Water Quality Criteria for Marine and Estuarine Waters of Western Australia' (see Appendix 5).

Recommendation 3

The Environmental Protection Authority recommends that the proponent ensure that water within the Geraldton Harbour is maintained at an acceptable quality, so that it does not have an adverse impact on the marine environment outside the Inner Harbour area as required in Schedule 10 (relating to water quality associated with water flushing and replenishment within the harbour) of the 'Water Quality Criteria for Marine and Estuarine Waters of Western Australia'. The proponent should also ensure that water within the Inner Harbour is maintained so as to be suitable for the unobstructed passage of shipping and boats, as required in Schedule 16 (relating to water quality for navigation and shipping) of the 'Water Quality Criteria for Marine and Estuarine Waters of Western Australia'.

5.1.1 Turbidity associated with dredging and reclamation

A temporary increase in suspended sediment is expected associated with dredging and reclamation activity, and to a lesser extent with the construction of the bund walls , sand trap extension and breaching of the main breakwater in Stage II.

The NOI states that the use of a Kingfisher cutter suction dredge would minimise turbidity to a large degree, and a floating pipe line would be used to pump dredge spoil to the reclamation site. The bund wall at the Stage 1 reclamation site is proposed to be constructed in advance of the reclamation to maximise containment of the sediment plume, and spoil discharged as far from the bund wall opening as possible to allow maximum settlement time for suspended sediment before it reaches the Inner Harbour. The bund wall for reclamation associated with Stage II is proposed to be extended to the breakwater. This would allow for ponding of spoil discharge into the bunded area and slow release of water back into the harbour via filtration through the bund walls.

The Authority has several concerns regarding this method of reclamation. These are as follows:

- there is no certainty that turbidity associated with spoil discharge during Stage 1 operations would be contained behind the bund wall;
- there is no certainty that the bund wall proposed for Stage II would contain a sediment plume within the bunded area; and
- there is no mention in the NOI as to whether or how sediment plumes would be contained within the Inner Harbour.

The Authority considers dredging within the harbour area to be environmentally acceptable, however dredge spoil deposition at the reclamation site may have the potential to generate offshore or nearshore sediment plumes. It is considered important to stringently control the spread of sediment plumes as they have the potential to have a detrimental impact on offshore seagrass communities. Details regarding the monitoring and management of sediment should be discussed with officers of the Authority prior to dredging commencing.

Recommendation 4

The Environmental Protection Authority recommends that in order to minimise environmental impacts that could occur from sediment plumes resulting from dredging, the proponent, shall prior to commencement of dredging, bund all reclamation areas (for both Stages I and II) and take such other action as is required to meet this objective to the satisfaction of the Environmental Protection Authority.

In addition, should sediment plumes extend beyond the main Inner Harbour breakwater, remedial action to minimise environmental impacts should be taken as soon as possible, to the satisfaction of the Environmental Protection Authority.

5.1.2 Relocation of Ocean Outfall

A rock lobster processing effluent outfall presently discharges effluent from the main breakwater (see Figure 1). At present seven rock lobster processing factories, which operate on a seasonal basis (November to June) are connected to the outfall.

In 1989 a survey was undertaken by the Water Authority of Western Australia to determine if the outfall was having an adverse effect on water quality in the area of discharge, and waters within the Fishing Boat and main harbour areas. The study concluded that the only area which experienced conditions which exceeded EPA water quality criteria was the area immediately above the discharge zone of the outfall.

The NOI states that this effluent outfall may be relocated due to maintenance and reconstruction activities in the northern boat pen area within the Fishing Boat Harbour. The outfall is proposed to be relocated at the western end of the main breakwater.

The Authority considers that there is a possibility that polluted effluent discharged from this outfall may enter the Fishing Boat Harbour when the new entrance is constructed, as part of Stage II of the proposal. This outfall would require a discharge license under Part V of the Environmental Protection Act. Details regarding the final design and relocation of the discharge pipe should therefore be forwarded to the Pollution Control Division of the Authority before it is relocated.

5.1.3 Drainage of reclaimed area

The Notice of Intent (p.18) states that stormwater runoff would be directed to a drain centrally located along the new access road as indicated in Figure 2, with a manhole and silt trap at either end. A fenced compensating basin with a high level overflow into the harbour is proposed to be constructed at the northern end of the drain to trap sediments and other materials washed off the reclamation area. At the southern end, a new drainage system is proposed to be connected to the existing drain along the Fishing Boat Harbour bund wall. This would allow stormwater from the existing berthing areas to flow through the new drain and silt traps to a new compensating basin. Stormwater from the proposed extension to the marine lift and hardstand area (see Figure 2) would be directed to a separate drain and silt trap. This is proposed to have a soak well and high level overflow into the south east corner of the Fishing Boat Harbour.

The Port Authority has undertaken a commitment to manage stormwater runoff from factories and hardstanding surfaces within the reclaimed area so that spills of chemicals and other potential pollutants are directed into drains and captured in silt traps (NOI p. 40).

In view of the nature of some of the land uses and industries proposed to be located on the reclaimed land (including refrigeration and air conditioning units, slipways and boat construction), the Authority considers that final stormwater drainage plans should be forwarded to the EPA and the City of Geraldton prior to construction for comment. Further, all refuelling facilities and fuel links in both the main harbour and Fishing Boat Harbour should be designed and sited so as to minimise the risk of spills.

Recommendation 5

The Environmental Protection Authority recommends that all refuelling facilities and fuel links in both the main harbour and Fishing Boat Harbour be designed and sited so as to minimise the risk of spills into the Inner Harbour area.

The storm water drainage system and discharge points should be designed and sited so as to minimise any detrimental impact on the marine environment and accordingly should be referred to the Environmental Protection Authority for comment prior to construction.

5.2 Marine ecosystems

With the exception of the extension of the sand trap and new Fishing Boat Harbour entrance channel dredging, all proposed work associated with the port extension is proposed to be undertaken within the Inner Harbour area.

The Inner Harbour area has been significantly altered as a result of previous dredging, reclamation and breakwater construction, however dredging outside the Inner Harbour area would result in the loss of some seagrass. The Notice of Intent (p. 26) states that disturbance to seagrass meadows in Chapman Bay is expected to be less that 1 % of the total cover in Chapman Bay. Obviously there would be a loss of benthic community associated with the reclamation, however this area is already highly disturbed and degraded due to past port activities. The proposed dredging within the Inner Harbour is therefore not expected to have an additional environmental impact.

As mentioned in Section 5.1.1, sediment plumes extending outside of the Inner Harbour area may have a detrimental impact on seagrass communities as sediment plumes may reduce the light available. The Authority therefore recommends that generation of offshore sediment plumes be minimised, as indicated in Recommendation 4.

5.3 Interruption of offshore processes

The Geraldton coastline is characterised by a longshore littoral drift, which transports sand northwards. This process has been interrupted by the construction of offshore breakwaters associated with the Inner Harbour. The NOI (P. 30) states that sand is trapped and accumulates at Pages Beach to the south of the main harbour area, against the main breakwater, at the existing northern sand trap, and at the northeast limit of the main breakwater. Lack of sand replenishment due to trapping associated with harbour construction has contributed to beach erosion west of the harbour area. Regular maintenance dredging is undertaken by the Port Authority at Pages Beach and adjacent to the sand trap. Spoil is used to replenish northern beach areas (mechanical sand by-passing).

The proposed 100 metre extension to the existing sand trap would create a temporary loss of offshore movement of sand as it accumulates to fill the extension. However, some sand is expected to by-pass the trap and continue longshore transport. The NOI states that this is not anticipated to exacerbate existing erosion problems to beaches to the north of the harbour.

The Port Authority has undertaken to maintain close contact with the Department of Marine and Harbours

with regard to the ongoing monitoring of shoreline erosion along the northern beaches. The Port Authority has undertaken to take appropriate management measures associated with exacerbated shoreline erosion if considered necessary in conjunction with the Department of Marine and Harbours (NOI Section 8.3.1).

The Authority notes this commitment, and requests that it be kept informed of the results of shoreline monitoring of beaches north of the Port facilities. The Authority also requests that a shoreline monitoring report be submitted to it after a period of four years to determine the impact of the Port expansion on the northern beaches. This report should include a discussion of the results obtained during the shoreline monitoring period, and implications of these results on the beach in the long term.

5.4 Noise and dust

5.4.1 Construction phase

Increased noise and dust levels are expected associated with increased truck movements during the construction phase, and with reclamation activities. The proponent is committed to minimising these effects as far as possible (NOI Section 8.2.2). The Authority requests that the proponent liaise with the Authority and the Town of Geraldton regarding truck operating times and routes associated with the breakwater construction.

In relation to blasting at local quarries associated with rock material for the construction of the breakwaters, the Authority considers that acceptable noise levels for blasting and ground vibration should be established with the Authority prior to blasting commencing.

Recommendation 6

The Environmental Protection Authority recommends that prior to construction, the proponent should identify appropriate environmental management for the quarrying and transport of rock associated with the construction of the bund walls to the satisfaction of the Environmental Protection Authority following consultation with the Town of Geraldton.

The Authority considers that the proponent should monitor dust levels, and where necessary undertake appropriate remedial action, such as watering, to minimise dust generation. Reclaimed areas should be stabilised as soon as possible after earthworks have been completed.

5.4.2 Post Construction

Bulk cargo listed in the NOI as presently being handled by the Port of Geraldton include copper concentrates, mineral sands, petroleum products, and fertilizers (nutrients).The expansion of Port facilities associated with the implementation of this proposal is likely to increase the increase the export potential of these products.

Problems have been experienced in the past with dust emissions arising from the handling and stockpiling of bulk materials in the Port Area. All of these products require careful management in transport, stockpiling and loading to minimise spillages to the water, as well as wind blown loss. It is necessary in an area with a regime of strong winds like Geraldton to ensure that the highest standards of dust control are employed when handling bulk dry materials. Measures such as those listed in the Guidelines in Appendix 3 should be employed by the Geraldton Port Authority on all existing and proposed bulk cargo deposits within the Port area.

As the Geraldton Port is licensed under the Environmental Protection Act, it would be necessary to apply for a Works Approval for any extension to the bulk handling system for the Port.

5.5 Land Use

The NOI includes a preliminary concept plan for use of the reclaimed land, based on expressions of interest for port-related land use which requires a water frontage (Figure 2).

As stated in Section 3, it is likely that the following types of industry would be located in the reclamation area:

- refrigeration and air conditioning units;
- slipways;
- fishing co-operative;
- hardstand fishing boat storage area;
- construction area for trawlers and workboats;
- additional cargo storage and handling areas; and
- construction construction areas for the building of platform modules.

Details regarding service industries and layout have not yet been fully determined. The NOI states that the area would be serviced by septic tanks, however industries located on the reclamation site would not be permitted to dispose of industrial effluent via septic tanks.

The Authority also notes that the Port Authority has determined that a rock lobster processing factory would not be a suitable land use at this location (NOI p 10).

As previously stated, Stage II of the proposal is clearly related to the possibility that land would be required for construction of modules for the Woodside Petroleum Goodwyn Platform. Stage II is therefore found by the Authority to be environmentally acceptable for this purpose.

In relation to the operation of boat maintenance and hull cleaning facilities, it is considered by the Authority to be of utmost significance that facilities be designed and operations conducted to minimise the spread of dust or toxic wastes, for example anti-fouling paint wastes through the air, or to the water. Such facilities are likely to be licensed by the Author-

ity in the near future, and new facilities should build this consideration into the design, for example via the incorporation of wind breaks and drainage traps. Final design details for these facilities should be discussed with officers of the Pollution Control Division of the Authority prior to construction.

As the Geraldton Port is licensed under the Environmental Protection Act, it would be necessary for any proposed industries or activities planned to be located on the reclamation area (which have the potential to pollute (air, water, noise) or otherwise disrupt the environment) to be subject to Works Approval conditions as required by the Environmental Protection Authority.

6. Conclusion

Following consideration of the NOI and submissions received, the Authority has concluded that the proposal is environmentally acceptable subject to the recommendations contained within this assessment report and commitments made within the NOI.

7. References

Department of Conservation and Environment (1981) 'Water Quality Criteria for Marine and Estuarine Waters of Western Australia' Bulletin 103

Halpern Glick and Maunsell Pty Ltd (1989) Geraldton Port Expansion - Notice of Intent

Appendices

Appendix 1

Halpern Glick Maunsell

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SAB/jm:E8437
30th October 1989

Eve Bunbury
Assessment Officer
Environmental Protection Authority
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1 Mount Street
PERTH W.A. 6000

Dear Eve

GERALDTON PORT EXPANSION NOTICE OF INTENT

Following are responses to some of the issues raised by submissions on the above project. With regard to the City of Geraldton's submission, we believe that none of the issues raised warrant further discussion as agreement has already been reached between the Council and the Geraldton Port Authority (point IX of their response) or they are not environmental issues.

Regarding the Water Authority submission, it is recognised that the Water Authority has no authority over septic systems and that this is under the control of the Health Act of 1911. The document states the septic tanks are of a design approved of by the Water Authority.

Relocation of the outfall is not part of the proposal to expand within the Port of Geraldton. As such it is listed in associated works which will be completed during the Port expansion programme. The Port of Geraldton will liaise directly with the Water Authority of Western Australia and other relevant Government Authorities to satisfy their concerns.

If you have any enquiries regarding the above please do not hesitate to contact me.

Yours faithfully
HALPERN GLICK MAUNSELL PTY LTD

S.A.BIRD
SENIOR ENVIRONMENTAL SCIENTIST

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- The GPA commits to not allowing crayfish processing industries to establish on the reclaimed land of Stages 1 and 2. This is mainly because of effluent disposal problems associated with this type of industry.

- The GPA commits to not allowing the disposal of effluents from industries into any septic tanks installed on the reclaimed land.

- The GPA commits to carrying out management and monitoring programmes designed to detect and address foreseeable contingencies associated with the reclamation works. This includes monitoring of heavy metals in soils to be dredged, modification of contingency programmes designed for hydrocarbon spillage and fire events and the repair of any stabilising structures associated with the works should they fail. These management and monitoring programmes shall be performed to the satisfaction of the EPA.

Appendix 2

SUMMARY OF COMMITMENTS

The GPA is responsible for all activities with regard to the Port of Geraldton, including the present proposal. As such the Authority makes the following commitments:

- The GPA commits to managing the increase in turbidity generated by dredging. This will be performed by constructing the bund walls well in advance of reclamation in order to contain the extent of the plume. In addition the discharge outlet will be located as far away from the overflow outlet as possible to allow the maximum amount of suspended sediment to settle out before discharge to the harbour. Dredging of Stage 1 will be limited to one month while dredging for Stage 2 will be limited to four months so as to minimise the period over which turbidity will be generated. Management of turbidity will be performed to the satisfaction of the EPA.

- The GPA commits to managing the reclamation activities in such a way as to minimise the generation of noise and dust. In the unlikely event that complaints are received the GPA commits to taking appropriate action to rectify the problem. This action will be performed to the satisfaction of the EPA.

- The GPA commits to locating the dredge and associated pipelines such that continued access to the fishing boat harbour and to the berths within the main harbour will be provided. This will be carried out after consultation with port users along the lines of normal practice during other similar dredging programmes.

- The Department of Marine and Harbours has undertaken to monitor the beaches on either side of the Geraldton Foreshore Development Marina in order to identify any unforeseen shoreline instability as a result of that project. The GPA commits to remaining in communication with the DMH with regard to the results of this monitoring programme and if necessary, take appropriate management actions in conjunction with the DMH.

- The GPA commits to managing stormwater runoff from factories and hardstanding surfaces within the reclaimed area so that spills of chemicals, and other potential pollutants at the Port are directed into drains and captured in silt traps. The design of the drainage system will include a soak well and high level overflow and will be designed to the satisfaction of the EPA.

Appendix 3

Guidelines to minimise and control dust associated with bulk material handling at the Port of Geraldton

1. Wherever possible bulk dry materials should be dumped and stockpiled in sheds or warehouses constructed the purposes. Such warehouses should be fitted with a properly designed loading station connected to the ship loading conveyors. Wherever necessary dust extraction and filtration systems should be employed to control dust emissions during handling operations.

2. Where materials must be stockpiled outside they should be thoroughly wetted before any handling operation (tipping or loading). Stockpiles should be surrounded by fixed sprinkler systems to ensure adequate dust control, even during strong winds.

3. Consideration may also be given to treating non-active surfaces of stockpiles with stabilising agents to promote crusting and minimise dust emissions.

4. All material handling conveyors should be fitted with tight fitting well maintained covers and transfer points, receival hoppers and load out points should be well enclosed, shielded from the wind and fitted with dust extraction equipment to minimise dust emissions.

5. Ship loading and unloading systems should be designed to ensure high standards of dust control. Particular attention should be given to ensure:

   (a) All grabs are well maintained to minimise leakage.

   (b) Dust extraction systems, where fitted, are operated whenever loading operations are underway.

   (c) Dump hoppers are shielded from the wind.

   (d) Loading arms are designed and operated to ensure that the free fall of bulk materials into ship's holds in minimised. Properly designed telescopic loading chutes should be fitted where possible.

   (e) Wherever feasible bulk materials are wetted prior to loading.

Appendix 4

BENEFICIAL USE NO. 10
FLUSHING WATER AND WATER REPLENISHMENT

Waters which move under the influence of tides, currents, winds or by virtue of other influences can be termed flushing or replenishment waters. Naturally they may have either a beneficial or detrimental effect upon the water quality of the zone into which they move.

In the case when there is movement of waters of inferior quality into a zone where higher water quality is required some provision must be made so that the more stringent requirements are still attainable.

The actual values of criteria for flushing waters cannot be determined in advance, but must be determined on a case-by-case basis. Hence narrative criteria only can be stated (see Schedule 10).

SCHEDULE 10

MARINE AND ESTUARINE WATER QUALITY CRITERIA FOR FLUSHING WATER AND WATER REPLENISHMENT

Criteria

When flushing and replenishment waters arrive in a zone of defined beneficial use or uses, their effect should not be detrimental to the beneficial use or uses defined for that zone.

Consequently, specific water quality criteria for flushing and replenishment waters can only be determined on a case-by-case basis bearing in mind both the degree of mixing which will occur and the criteria established for the waters that they will be mixing with or replenishing.

The free movement of flushing waters should not be impeded in any way which will be detrimental to this beneficial use.

SOURCE:- DEPARTMENT OF CONSERVATION AND ENVIRONMENT (1981) - 'WATER QUALITY CRITERIA FOR MARINE AND ESTUARINE WATERS OF WESTERN AUSTRALIA' - BULLETIN 103

Appendix 5

BENEFICIAL USE NO. 16
NAVIGATION AND SHIPPING

Waters for navigation and shipping should satisfy the following three requirements:

- Suitability for unobstructed passage of shipping and boats.
- Satisfactory physical and chemical properties for intake for engine room, motors and other uses.
- Physical, chemical and biological properties which will afford reasonable protection of port facilities, installations and equipment, and not cause unpleasant or unsafe conditions for crew, manpower, passengers and the general public.

The criteria set out in Schedule 16 are designed to give a reasonable level of protection to shipping, port facilities, installations and equipment and also to personnel. They are mostly derived from water quality criteria for ocean waters published by the State Water Resources Control Board, California, USA.

SCHEDULE 16

MARINE AND ESTUARINE WATER QUALITY CRITERIA FOR NAVIGATION AND SHIPPING

Parameter	Criterion	Source
Aesthetic Considerations	As on page 8.	USA EPA (Comp)
Floating or Submerged Material or Objects	Waters should not contain floating or submerged material, or objects including solids, liquids, foams, and scum, in concentrations or amounts that cause nuisance or adversely affect this beneficial use.	Calif.
Odour	Waters should not contain odour-producing substances, in concentrations that cause nuisance or adversely affect this beneficial use.	Calif.
Settleable Matter	Waters should not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affects this beneficial use.	Calif.
Suspended Solids	Waters should not contain suspended material in concentrations that cause nuisance or adversely affect this beneficial use.	Calif.
pH	6.0-9.0	WG
Surfactants	Waters should not contain surfactants in quantities that give rise to foam resulting from movement or use of the waters.	Hart/WG
Oil and Grease	Waters should not contain oil, grease, wax or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect this beneficial use.	Calif.
Chemical Constituents	Waters should not contain chemical constituents in concentrations that result in deterioration, excessive scale-formation or corrosion in or on vessels, port installations and structures, that cause nuisance or that otherwise adversely affect this beneficial use.	FPA/WG
Radioactive Substances	Waters should not contain radioactive substances in concentrations that would cause their use as ballast water to be unacceptable or that would endanger the crews of vessels.	WG
Nutrients and Other Biostimulants	Waters should not contain nutrients or growth stimulants in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect this beneficial use.	Calif.

SOURCE:- DEPARTMENT OF CONSERVATION AND ENVIRONMENT (1981) - 'WATER QUALITY CRITERIA FOR MARINE AND ESTUARINE WATERS OF WESTERN AUSTRALIA' - BULLETIN 103