



MINISTER FOR ENVIRONMENT

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSED WESTPORT PROJECT, WARNBRO SOUND
BY DELTA HOLDINGS PTY LTD

This proposal may be implemented subject to the following conditions:

1. The proponent shall adhere to the proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made in the Environmental Review and Management Programme and in subsequent correspondence with the Environmental Protection Authority (copy of commitments attached).
2. A legal Agreement shall be negotiated for the project between the proponent, the Shire of Rockingham and other agencies if necessary. The Agreement should reflect amongst other things the commitment by the proponent to bypass sand across the harbour entrance and renourish, if necessary, sand lost from the system, from an external source and will include maintenance of the harbour entrance to a depth of RL-4.0 AHD. It should also reflect the provision of a bond, of not less than \$250,000.
3. The proponent shall undertake additional refinement and detailed design for the proposed breakwater and sand by-pass system, so as to minimise potential coastal erosion effects. Redistribution of sand from mechanical by-passing or derived from renourishment from external sources shall be undertaken in a manner that will minimise coastal erosion which may otherwise result from the project. This will involve a re-assessment of the implications for sediment movement and shoreline stability. Results of additional refinement, detailed design and reassessment of implications for sediment movement shall be submitted to the Environmental Protection Authority and be to the satisfaction of the Authority and Department of Marine and Harbours prior to construction.

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4. The proponent shall commence a groundwater monitoring programme to the satisfaction of the Environmental Protection Authority and the Water Authority of Western Australia, as soon as practicable, to assess the impacts of construction on groundwater.

The monitoring objectives should include:

- . establishing the existing groundwater regime of the locality within 750 m of the waterbody;
- . utilising the staging of construction to determine the manner in which groundwater in the locality changes as a result of construction; and
- . establishing the extent to which existing and future property owners' groundwater resources are altered by project construction.

The results of the programme shall be submitted to the Environmental Protection Authority after 1 year.

5. The proponent is to demonstrate through the monitoring programme what effects the project will have and is having on groundwater supplies for at least two years after the final construction stage. The proponent shall make arrangements for alternative water supplies or otherwise compensate for the loss of groundwater supply caused by the construction phases of the project, to the satisfaction of the Water Authority and the State Planning Commission (as it relates to land Reserved under the Metropolitan Region Scheme). The dewatering of the site is to be monitored and managed to the satisfaction of the Water Authority of Western Australia, to minimise the immediate degradation of the groundwater resources of the region and to ensure that the long-term degradation is not aggravated by the dewatering. The proponents obligations relative to impact on groundwater shall extend to at least two years after construction of the final stage of the project.
6. The proponent shall undertake further refinement of harbour and entrance channel design to improve flushing characteristics and consequential water quality of the harbour to the satisfaction of the Environmental Protection Authority and Department of Marine and Harbours. The main objective for re-design should be to minimise flushing time for the harbour. The proponent shall abide by the Guidelines for Development of Canal Estates, 1984 in re-designing the harbour and entrance channel. As part of the re-design, the depths of the two main north-south canals should differ by approximately 0.5 m.
7. The proponent shall set as objectives for water quality in the harbour, those criteria contained in Schedules 1 (Direct Contact Recreation) and 16 (Navigation and Shipping) of the Environmental Protection Authority's water quality criteria (Department of Conservation and Environment Bulletin 103). Water quality monitoring for the project shall include:
- . measurement of physical, biological and chemical parameters within the harbour as well as a control outside the harbour, appropriate to meeting Schedules 1 and 16 of the water quality criteria. These will be based on the water quality monitoring guidelines attached;
 - . management strategies for implementation, in the event of criteria not being met, particularly in the case of algal blooms and accidental spillages;

- . contingency planning to include funding commitment and resources; and
 - . monitoring and management, with particular regard to nutrients, oil and fuel, wastes from boats, anti-fouling paints, rubbish and suspended solids.
8. The proponent shall re-assess harbour design criteria for future stages, if problems regarding water quality arise during Stage 2 (waterways Stage 1 as defined in Section 5.6.1 of the ERMP) of the project. This should include provision for engineering solutions to water quality problems including, but not confined to, widening the entrance channel and pumping.

These provisions shall be taken into account before further detailed design and construction phases commence.

9. Approvals for further stages beyond Stage 2 shall not be granted unless the Environmental Protection Authority is satisfied that the effect of the proposal on the environment is acceptable, and with the proponent's performance in the environmental management of Stage 2.
10. The proponent shall prepare an environmental monitoring programme to the satisfaction of the Environmental Protection Authority and Department of Marine and Harbours, prior to commencement of construction. This programme shall, amongst other things, include details of monitoring siltation rates and side slope stability in the canals and at the harbour entrance.
11. The proponent's commitment to implement the environmental monitoring programme should be reflected in the Agreement between the proponent and the Shire of Rockingham.
12. The frequency of reporting on monitoring shall be to the satisfaction of the Environmental Protection Authority and will at least be on an annual basis for the first five years. Immediate reporting to the Environmental Protection Authority of any unforeseen or extraordinary event that adversely affects environmental conditions within or adjacent to the project site arising as a result of the project, must also be undertaken.
- As part of the reporting process, the proponent is required to demonstrate how the monitoring results will affect management practices for current and future stages.
13. Prior to the transfer of ownership of the project from the proponent to another party, the proponent shall advise the other party of the conditions and commitments applicable to the project; and the other party shall advise the Minister for Environment, in writing, of its acceptance of those conditions and commitments.

Barry Hodge, MLA
MINISTER FOR ENVIRONMENT

15 JUL 1988

WESTPORT PROJECT

ENVIRONMENTAL REVIEW AND MANAGEMENT PROGRAMME

COMMITMENTS BY THE DEVELOPER

In the ERMP commitments have been made in the following sections:-

- Section 1 - pages 6 - 10, Summary
- Section 5 - pages 29 - 30, Project Description
- Section 8 - pages 84 - 97, Management
- Section 9 - pages 99 - 100, Management

Reference is also made in Volume 2 Appendix "J", Management Responsibilities and in the draft Agreement between the Shire of Rockingham and the Developer (clauses 2,3,4 & 15 and Annexure 'D').

Additionally in the responses to comments on the ERMP some issues needed elaboration and two new issues required a commitment.

For ease of reference all the commitments are collected in this Statement and arranged in the following order:-

1. Works and funding commitments during construction.
2. Management and funding commitments for operation after construction.
3. Environmental Management Commitments:
 - (a) Before and during construction
 - (b) After construction
4. Monitoring Commitments:
 - (a) Before and during construction
 - (b) After construction

The aims, purpose and detail are not repeated in this Statement.

COMMITMENTS MADE BY DELTA HOLDINGS LTD FOR
PROPOSED WESTPORT PROJECT, WARNBRO SOUND.

General

- (a) Delta Holdings Ltd, the Developer, will be responsible for the costs and works associated with construction and development of the residential waterways project and the environmental monitoring and management programme. The Developer will in the future appoint a Manager who will then become responsible for this programme.
- (b) The Developer will enter an Agreement with the Shire of Rockingham which will specify the responsibilities and obligations of the parties. Commitments made in this document will be incorporated in that Agreement.
- (c) The Developer will obtain relevant licences and leases from the Department of Marine and Harbours in relation to construction, operation and maintenance of the breakwaters, waterways, marina and jetties etc.
- (d) The Developer will lodge a bond of \$250,000 with the Shire to guarantee operation and maintenance of the complete waterways and breakwaters including foreshores, entry channels and water quality.
- (e) In order to minimise the impact of the project both during and after construction and to guide development of future stages of the project, a management and monitoring programme will be prepared and undertaken by the Developer. Results of monitoring and any management action will be made available to the Shire of Rockingham and relevant State Agencies annually or as required.
- (f) The Developer/Manager and his consultants will carry out the monitoring and management programme which has been designed to address foreseeable contingencies. In the event that the water quality within the waterways declines, or the breakwaters lead to unacceptable changes in or shoreline position, the Developer, or his successor, will undertake whatever action is necessary by agreement with State agencies as detailed in Section 8.4.4.
- (g) The operation and management of the project will be funded initially by the Developer and later by users of the facilities and residents through a Body Corporate (Trust) and differential rating of waterfront lots.

1.2 Management Commitments

1.2.1 During Construction

(a) Land Stability & Dust Control

An earthworks and stabilisation programme will be implemented (Section 8.3.1.1).

The programme is based on that recommended by the Soil Conservation Service of the Department of Agriculture and involves:

- (i) stripping and stockpiling of topsoil and vegetation from areas to be disturbed prior to earthworks commencing;
- (ii) minimising the area of bare land at any one time;
- (iii) respreading top soil on completed areas with appropriate seeds and fertilizer;
- (iv) carrying out the bulk of the earthworks in winter.

Due to the presence of water from dewatering operations, bare and newly seeded areas will be irrigated if required.

If necessary, a stabilising medium (eg. hydro-mulch or rolled limestone gravel) will be applied to areas where a vegetated cover has not established. At all times pedestrian and vehicular access on newly planted areas will be controlled.

(b) Turbidity

Excavation will be mainly carried out "dry" - the only true dredging will take place when the waterways are connected to the sea or one stage to another.

Any dredged spoil will be discharged into sand cofferdams to allow fines to settle. Where possible discharging waters will be directed inland and not directly on to the beaches.

Any dredging will avoid the period of high seagrass productivity (see Section 8.3.1.2).

(c) Frontal Dunes Stability (See also 1.2.2(b))

During the construction phase the frontal dunes will be recontoured and revegetated (see Section 8.3.1.3) and will involve:-

- (i) import of sand to fill in blowouts and depressions;

- (ii) recontouring of the dune belt to minimise isolated high spots and reduce steep slopes;
- (iii) bare areas on the front face of the dune belt being covered with topsoil and vegetation recycled from adjacent areas and seeded;
- (iv) should the need arise, areas in danger of mobilisation will be treated by brushing or stabilising membrane, eg adjacent to the entrance channel.

The foreshore land will be transferred to the Crown as a foreshore reserve following rehabilitation and development.

(d) Groundwater - Dewatering

Some of the Groundwater pumped from the excavation, will be irrigated over bare and revegetating areas to control dust and to promote growth of vegetation. The remainder will be discharged to the north and east of the excavation to minimise lowering of the groundwater table, especially beneath the houses to the north.

Dewatering will be done by using a number of lines of "spears" which have separate pumps or by open sump pumping and can be shifted from time to time as the adjacent water table drops. Water quality will be monitored and once any line exceeds say 2,000 p.p.m. it will be diverted seawards.

Saline/brackish groundwater will be disposed of by soakage into depressions in the foredunes near the beach.

In this manner the majority of the groundwater will be recycled into the ground to minimise fluctuations in the watertable.

If any houses in Warnbro have their borewater supply disrupted during dewatering, they will be compensated for the cost of mains supply over that period. In the unlikely event of longer term effects their bores will be deepened.

(e) Social Disruption

During construction noise will be controlled to within statutory limits. If required an attempt will be made to reduce noise levels further. Dust will also be controlled as outlined in (a) above.

1.2.2 Post Construction Phase

Maintenance of Water Quality

(a) Water Quality

Maintenance of good quality water to meet Schedules 2, 4, 5, 7(2) & 16 (and if possible Schedule 1) will be achieved by minimising entry of pollutants and pathogenic organisms to the waterways through:

- (i) control of drainage;
- (ii) collection and removal of organic matter, litter and other flotsam;
- (iii) control of hydrocarbon and sewerage discharge from recreational craft;

Drainage from within the waterways catchment area which can contain nutrients, hydrocarbons and heavy metals will discharge into the waterways via silt and oil traps. Drainage from outside the waterways catchment will enter the ground-water system through inter-connecting compensating lakes.

Any organic matter (seagrass wrack, litter or other flotsam) will be removed as necessary. Due to the presence of seagrass in Warnbro Sound it is possible that seagrass wrack will wash into the waterways. If sufficient wrack accumulates it will be manually removed and disposed of on land.

Discharge of litter, oil and sewerage into the waterways will be prohibited by regulation. In order to be able to enforce regulations, garbage bins, a vacuum pumpout facility and sewerage toilets will be provided around the waterways. Equipment will be provided to contain major spills which can then be allowed to evaporate or be removed or treated as necessary.

In the event that water quality within the waterways declines the Developer (and his successors) will undertake whatever action is necessary to prevent poor quality water developing and then leaving the waterways (see Section 8.3.2.1).

If coliform bacterial counts ever exceed permissible limits, appropriate signs will be erected within the waterways and on the foreshore.

Heavy Metals

Runoff from hardstand areas will be trapped in sumps and periodically removed. Entry of parti-

culate heavy metals in runoff will be minimised as storm water will be discharged through silt and oil traps before entering the waterways. If accumulation of heavy metals is found to be occurring in sediments and biota the Developer will undertake whatever action is necessary following negotiations with State and Local Government Agencies (Section 8.3.2.1(b)) eg. remove enriched top sediments.

(b) Foreshore Reserve

The Dune Management Zone will be fenced with the only access through it on fenced paths - vegetation will be monitored closely. The Dune Development Zone will be recontoured, grassed, planted with trees and irrigated. Public facilities will be provided by agreement with the Shire of Rockingham (Section 8.3.2.2).

(c) Sediment Movement and Shoreline Change

The amount of sand accumulated, and the position of the shoreline, will be monitored twice a year. A sand bypass operation will be carried out if required using a front end loader and trucks. Bypassing will be restricted to daylight hours in winter.

In regard to the possible need to bypass sand the Developer, or his successor, undertakes at his cost to do the following:

- (i) in the event that an accumulation of sediment adjacent to the southern breakwater is deemed by the responsible Authorities to have resulted in erosion of the beaches to the north, sufficient sand to make up the erosion will be transported to, and distributed upon, the northern beach in amounts exceeding 5,000m³ at a time.
- (ii) in the event that an accumulation of sediment adjacent to the northern breakwater is deemed by the responsible Authorities to have resulted in erosion of beaches to the south, sufficient sand to make up erosion will be transferred to, and distributed upon, the southern beach in amounts exceeding 5,000m³ at a time.
- (iii) in the event that an accumulation of sediment adjacent to the northern breakwater is not deemed by the responsible Authorities to have resulted in erosion of the beaches to the south and has become trapped, the excess accumulation will be redistributed

along the northern beach in amounts exceeding 5,000m³ at a time.

This should avoid the possibility of sand being lost to the system by spilling down the bank slope.

After completion of all stages of the development if sand is lost downslope and erosion of beaches is attributable to the Westport project, the Developer, or his successor, undertakes to do the following:

- (i) import at his cost from a site nominated by an agreement with State Agencies and distribute sufficient sand to make up any erosion in amounts exceeding 10,000 m³ at a time,
- (ii) construct engineering structures by agreement with State Agencies.

Management of the breakwaters, and bypass and entry channel will be the Developer's responsibility in perpetuity unless there is a change in policy by a future Government or the Department of Marine and Harbours (see Section 8.5).

(d) Groundwater

See Sec. 1.3.1 (c)

3 Monitoring Commitments

A monitoring programme with the following aims will be implemented:

- (a) Pre-construction - to establish:
 - (i) background levels of nutrients, heavy metal, pathogenic organisms in water and sediments adjacent to the waterways entry;
 - (ii) the position of the shoreline;
 - (iii) the nature of the groundwater regime.
- (b) Post-construction - to guide the management programme so as to minimise or avoid problems with:
 - (i) water quality and accumulation of heavy metals;

- (ii) dune stabilisation;
- (iii) sediment movement and shoreline change;
- (iv) groundwater.

1.3.1 Pre-construction

Background Nutrient and Heavy Metal Levels

(a) Samples of seagrass, shellfish (eg. Donax) and sediments will be taken at 6 representative sites within 200 metres of the entrance channel and analysed for heavy metals (Cu, Sn, Pb, Zn, Cd) and pathogenic organisms. Similarly water samples will be taken off the entrance channel, 2000m north of the entrance, and 2000m south, and analysed for nutrients, suspended solids and chlorophyll 'a'.

(b) Shoreline, Seabed and Seagrass

Regular monitoring of shoreline position, seabed profile and seagrass distribution has been undertaken since April 1986 at sections 10, 25, 50, 100, 200 & 300m north and south of the experimental groyne. Monitoring of these three parameters will continue on the same profiles but extended to 1200m north and south.

(c) Groundwater

A groundwater extraction programme aimed at minimising changes in the groundwater regime will be determined after monitoring of trial bores has been assessed (Section 8.3.2.4). Nine observation bores for the Stage 1 Waterways and ultimately a total of twelve observation bores will be drilled into the Safety Bay Sand and the upper part of Rockingham Sand and monitored. Two large diameter bores will be drilled and test pumped to determine hydrological characteristics of the Safety Bay Sand. As soon as results are to hand computer model of groundwater regime will be prepared and the groundwater extraction programme finalised after agreement with the West Australian Water Authority (Sec 8.4.1.3).

The Consultants will confer with the Geological Survey Department and Water Authority of W.A. to reach agreement on the detailed technique to be used in the monitoring bores.

1.3.2 Post-Construction

Once construction of the first stage of waterways is complete regular monitoring of water quality (including nutrients, pathogenic micro-organisms, sediment movement, shoreline change, seagrass distribution and groundwater will be carried out.

The programme will be flexible in that the parameters and their frequencies of measurement will be tailored to the character of the waterways as on-site experience is gained.

(a) Water Quality

Regular monitoring of water quality will be undertaken at representative sites and depths in the waterways and in the adjacent Sound waters. Monitoring will be monthly, or more frequently if required, during the first year and thereafter at intervals to be dictated by experience. The Table shows the range of monitoring parameters and sampling frequencies considered appropriate.

(b) Sediments and Biota

Regular monitoring of heavy metals and nutrients in sediments, and heavy metals and pathogenic micro-organisms in biota, will be undertaken at representative sites in and adjacent to the waterways. The procedure to be adopted for analysis of organisms will follow the standard mussel-watch programme. Analysis of sediments will be standardised to ensure constant depth and area of seabed sampled. The Table shows the parameters and sampling frequencies considered appropriate.

(c) Dune Stability

Regular inspection of the frontal dunes will be made especially during summer holidays, weekends and following storms.

(d) Shoreline, Seabed and Seagrass

Regular two monthly monitoring of the shoreline position, seabed profile and state of seagrass adjacent to the breakwaters will be continued on established sections until a clear picture of the annual longshore transport regime has been established. At this time the monitoring interval may be varied as the aims of the programme will then be to establish whether there is any variation in transport regime between years and the impact of major storms (i.e. end March, end September).

The monitoring programme will also clarify whether sand is lost down the bank slope or not, and the response of the seagrass to the waterways and breakwaters.

(e) Groundwater

Regular three monthly monitoring of the volume of water extracted, groundwater levels, groundwater quality (nutrients and salt content) and the position of the saltwater interface will be continued as outlined in Section 8.3.2.4.

1.3.2.1 Sample Analysis and Interpretation

Monitoring and analysis will initially be carried out by the Developer, and subsequently by the Manager on behalf of the Developer and later the Westport Trust, in accord with the above programme.

Interpretation of results will to a large extent determine the success of avoiding problems with water quality, dune and shoreline stability and groundwater. Consultants engaged by the Developer or Manager will supervise monitoring and interpretation of results and recommend appropriate management action.

1.3.2.2 Reporting and Review

Results of the management and monitoring programme will be supplied on an annual (or as otherwise determined) basis to the following agencies:-

- | | | | | |
|-----|------------------------------|-----|-------------|------|
| (a) | earthworks and stabilisation | SOR | EPA | SCS |
| (b) | water quality management | SOR | EPA | DMH |
| (c) | foreshore reserve management | SOR | SPC
&EPA | SCS |
| (d) | sand bypass operation | SOR | EPA | DMH |
| (e) | groundwater management | SOR | EPA | WAWA |

SOR = Shire of Rockingham
EPA = Environmental Protection Authority
SCS = Soil Conservation Service
WAWA = Western Australian Water Authority
DMH = Department of Marine and Harbours
SPC = State Planning Commission

The reports will contain:

- (a) the results of monitoring and management action over the period;

- (b) an analysis of the results in relation to previous periods;
- (c) a discussion on the relevance of the results in terms of impact on the environment;
- (d) recommendations with respect to (for example):
 - (i) modifications to the monitoring and management programme;
 - (ii) management action by the Developer;
 - (iii) action by a State agency;
 - (iv) modification to further stages of the project.

The annual reports will also provide a means whereby the monitoring and management programme as well as plans for future stages can be reviewed, and if necessary modified, in light of experience gained on site. The Developer undertakes to respond to comments made by the responsible Authorities on the annual reports.

1.3.2.3

Contingencies

The monitoring and management programmes have been designed to address foreseeable contingencies. The Developer/Manager and his staff will be equipped to deal with fuel spills, fires, stratification of the water mass and the impact of storms. The Developer/Manager will carry public liability insurance and individuals will be responsible for their own property and craft.

In the event that water quality within the waterways declines the Developer (and his successors) will undertake whatever action is necessary to prevent poor quality water developing and then leaving the waterways (see Section 8.3.2.1).

In the event that the breakwaters lead to unacceptable changes in the shoreline position the Developer (and his successors) will undertake to import sand and if appropriate to construct groynes to redress the problem (see Section 8.3.2.3). Any contingencies and action taken will be included in the next monitoring report.

ENVIRONMENTAL MONITORING PROGRAMME

HARBOUR AND ADJACENT WATERS

Sampling - Daily to Monthly as appropriate

Light	0.5m intervals to bottom
Salinity	"
Temperature	"
Dissolved Oxygen	"
pH	"
NH4	0.5 m depth (or 0.5m depth and
NO3/NO2	0.5m from bottom if stratified)
TOTAL N	
PO4	"
TOTAL P	"
Suspended solids and organic matter	"
Chlorophyll 'a'	"
Bacteria	"
Hydrocarbons	"

WEATHER

Sampling - Daily to Monthly as appropriate

Wind speed/direction
Atmospheric pressure
Temperature
Humidity
Tide
Rainfall

BIOTA

Sampling - 6 - 12 monthly as appropriate

Mytilus edulis (mussels)
Posidonia sinuosa (seagrass)

Analyse Cd, Pb, Cu, Sn, Zn, E. Coli

SEDIMENTS

Sampling - 6 - 12 monthly as appropriate

Analyse for organic carbon Cd, Pb, Cu, Sn, Zn, E. coli

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