Queensland Government

State Development and Innovation

COORDINATOR-GENERAL'S EVALUATION REPORT

on the

ENVIRONMENTAL IMPACT STATEMENT

for the

DENT ISLAND GOLF COURSE RESORT, THE WHITSUNDAYS

August 2004

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1 INTRODUCTION

This report provides an evaluation of the Environmental Impact Statement (EIS) process for the Dent Island Golf Course and Residential Resort project (DIP). The EIS was conducted by Hamilton West Proprietary Limited (HW), a wholly-owned subsidiary of Hamilton Island Enterprises Limited (HIE), which is the operator of the Hamilton Island tourist resort in the Whitsunday Group of Islands. Humphreys Reynolds Perkins Planning Consultants prepared the EIS on behalf of HW. This Report has been prepared pursuant to Section 35 of the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWOA).

On 11 May 2001, the Commonwealth Minister for the Environment and Heritage determined that the DIP constituted a controlled action (EPBC 2001/259) pursuant to Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC). The Part 3, Division 1, controlling provisions were identified as being:

- sections 12 and 15A (World Heritage);
- sections 18 and 18A (Listed threatened species and communities); and
- sections 20 and 20A (Listed migratory species).

The Part 3, Division 2, controlling provisions were identified as being:

- sections 26 and 27A (Protection of the environment from actions involving Commonwealth land).

An Initial Advice Statement was lodged with the Department of State Development and Innovation (DSDI) on 23 May 2001 and the DIP was declared a "significant project for which an EIS is required", pursuant to s. 26 of the SDPWOA, on 1 October 2001. The Queensland EIS process was accredited by the Commonwealth on 8 October 2001.

Draft Terms of Reference (ToR) and the Initial Advice Statement were available for public inspection from 5 November 2001 to 23 November 2001. An amended ToR was issued by DSDI to HW on 21 December 2001. However, the ToR was subsequently refined to incorporate requirements on matters of "Dam Safety" and the finalised ToR was given to HW on 12 June 2002.

The objective of this report is to summarise the key issues associated with the potential impacts of the DIP on the physical, social and economic environments at the local, regional, state and national levels. It is not intended to record all the matters which were identified and subsequently resolved. Instead, it concentrates on those issues which remained unresolved after the Supplementary EIS report was reviewed. The report treats each key issue individually with a general format of: 1) a brief background discussion of the salient features relating to that issue; 2) the listing of any conditions which are to be imposed upon the Proponent; and 3) the rationale for the imposition of those conditions.

This report is intended to be a concurrence agency's response, in accordance with the Integrated Development Assessment System (IDAS) of the *Integrated Planning Act 1997* (IPA), and must be considered by the Whitsunday Shire Council if an application for a Development Permit for, *inter alia*, a Material Change of Use is lodged by HW for the DIP. The Council must attach the conditions in this report as conditions to any development approval it issues to HW for the DIP, pursuant to s. 3.5.11(1) of IPA.

The report also addresses impacts on matters of National Environmental significance under Part 5 of the *State Development and Public Works Organisation Regulation 1999*.

2 PROJECT DETAILS

2.1 THE PROPONENT

As mentioned in the Introduction to this report, Hamilton West Proprietary Limited (HW), the project Proponent, is a wholly-owned subsidiary of Hamilton Island Enterprises Limited (HIE). On 3 November 2003, Reline Investments Pty Ltd effectively acquired the parent company of HIE, i.e. Hamilton Island Limited, a publicly-listed company. Reline Investments is a private company owned by Mr Robert Oatley; but at the time of the publication of this report, the Dent Island Proponent remained HW.

The Mackay office of Humphreys Reynolds Perkins Planning Consultants was engaged by the Proponent to prepare the EIS.

2.2 PROJECT DESCRIPTION

The Dent Island Golf Course Resort project is to comprise an integrated golf course and residential resort development on Dent Island, one kilometre west of Hamilton Island in the Whitsunday Region of Queensland. The initial two-and-a-half year phase will involve the construction of an 18-hole, international-standard golf course, major infrastructure and some accommodation units. The balance of the project, totalling 109 five-star guest rooms, 38 villa suites and 172 predominantly two-bedroom and three-bedroom apartments, will be completed over the following 7-10 years. Scheduling of this multi-phase project will be subject to prevailing commercial conditions and forecasts.

HW estimates that the initial development will entail a capital outlay of about $25 million, with an additional $60 million investment required for the later phases. Construction is expected to generate about 600 peak full-time equivalent jobs, both on-site and off-site over the 10-year period. Approximately 100 full-time equivalent operational positions will support the integrated golf course resort.

A total golf course and resort footprint of 49.7 hectares is proposed, which represents about 13% of the total island area. The accommodation precinct will involve 10 hectares, with a building footprint of only 6 hectares.

Details of the main project components, as described by HW in the EIS (pp. 4-2 to 4-23), are listed below.

2.1.1 Golf Course

- Par 71, 18-hole resort/championship golf course of at least 6,000 metres in length from the back tees.
- Centrally located on the eastern side of the Island.
- Clubhouse to overlook the golf course, Dent Passage and Hamilton Island.
- The visual amenity from the mainland and Whitsunday Passage will not be degraded as the golf course will not be visible from the west.
- The course will consist of two loops of nine holes returning to a centrally-located clubhouse.
- Golf buggies will be able to utilise a paved path which will include timber bridges and boardwalks.
- Small shelters approximately 5 metres x 5 metres, incorporating eco-toilets (i.e. self composting), are proposed at various locations around the course.
- Appointment of leading management personnel to establish and maintain the profile of the course internationally and domestically.

- Practice facilities to cater for the various needs of golfers.

2.2.2 Accommodation

- Guest accommodation and a combination of villa and apartment-type resort accommodation located north and east of the first three holes of the golf course.
- Fairway frontage or views of Hamilton Island and Dent Passage.
- Golf club will incorporate 109 five-star guest rooms and associated restaurant, lounge, bar, pool and tennis court.
- Approximately 38 villa sites between 1,000 and 2,000 square metres and a mix of 172 predominantly two-bedroom and three-bedroom apartments.
- There will be a 3-storey height limit on buildings.

2.2.3 Maintenance Facility

- Comprises a machinery store and workshop, materials store, offices and staff facilities.
- Located toward the northern part of the golf course site, near the turf nursery but remote from the accommodation areas.
- Vehicle access via discretely located maintenance tracks.
- Chemicals to be stored in a bunded area within the building.
- A hard stand area around the building for vehicles will also host above-ground fuel storage tanks.

2.2.4 Irrigation Pump Shed

- Located adjacent to the dam.
- Approximate dimensions of 9 metres x 5 metres x 3 metres high.
- Masonry construction on a concrete slab with Colorbond roof and painted in muted colours.
- Screened with plantings of local provenance.

2.2.5 Transport & Jetty Facilities

- Utilisation of existing and recently-upgraded facilities on Hamilton Island, including the airport and marine facilities, and other water transport connections.
- A road network of existing tracks will provide buggy access to visitors, guests and employees and will also provide access and routes for underground services and drainage paths for stormwater runoff. A distributor road will connect the landing point with the hotel and clubhouse.
- Two new ferries will transport guests from Hamilton Island.
- Service vehicles and construction equipment will be transported on the self-propelled landing barge *Samson* which services Hamilton Island from Shute Harbour.
- The Dent Island jetty will be on the north-eastern shoreline, slightly south of Titan Island and directly opposite Hamilton Island harbour. It will be visible only from the east side of Dent Island and the west side of Hamilton Island.
- The jetty will be a piled structure to the outer edge of the reef flat (refer Appendix 2 : Dent Island – Jetty Option 3E of the EIS Supplementary Report). It will consist of a pile supported double ramp ending at the top of the reef slope and a pontoon located over the reef slope. No dredging will be required.

2.2.6 Domestic Refuse Collection

- Collection points to be located around Dent Island.
- Refuse to be transported, in the collection vehicle, by barge to Hamilton Island for consolidation with the Hamilton Island refuse for processing in the waste transfer area.
- Waste not suitable for composting or recycling is transported to the mainland for landfill disposal.

2.2.7 Liquid Petroleum Gas

- Similar to the Hamilton Island operation.
- LPG is to be transported to the Island and transferred into bulk tanks.
- Reticulated, from the bulk tanks, around the Island via underground mains.

2.2.8 Electrical Power

- Power to be supplied from the existing facility at Hamilton Island via a submarine cable across Dent Passage.
- The pump station for the irrigation system will require a 415 volt 3-phase supply.

2.2.9 Telecommunications

- All services available on Hamilton Island will be provided to guests, residents and employees on Dent Island.
- These services include:
  - ◊ dual carrier microwave links with the mainland;
  - ◊ mobile phone services; and
  - ◊ PABX, data transmission and payphone services.
- A submarine fibre optic link will be installed with the power cable to provide PABX, data and transmission services on Dent Island.
- Two satellite emergency links which service Hamilton Island will also be accessible for people on Dent Island.

2.2.10 Potable Water

- Potable water to be supplied from the Hamilton Island Water Treatment Plant via the submarine pipeline to two mid-level reservoirs at the maintenance compound on Dent Island.
- The reservoir will have a capacity equivalent to 2 days' supply of water, i.e. 400 kilolitres.
- Reticulated by variable speed electrical pumps with diesel motor back-up, as required for fire-fighting purposes.

2.2.11 Irrigation Water

- Irrigation water will be required for the golf course and landscaped gardens.
- The ratio of raw water and treated sewage effluent for irrigation will be determined according to the Hamilton Island Water Management Plan.
- Tertiary treated sewage effluent will be supplied to Dent Island via the submarine pipeline.

2.2.12 Sewerage

- Sewage to be transported by the submarine pipeline for treatment in the Hamilton Island extended aeration, activated sludge sewerage treatment plant.
- The Hamilton Island plant, which produces near-tertiary quality effluent, is being progressively upgraded to achieve tertiary level treatment.
- The pumping station on Dent Island will have emergency tank storage.
- Solid effluent will be stock-piled at the Hamilton Island sewerage treatment plant and used in gardens where public access is restricted.

2.2.13 Service Pipeline

- The infrastructure services for Dent Island require a submarine pipeline 'bundle' from Hamilton Island across Dent Passage. It will contain:
  - ◊ electrical power cable;
  - ◊ fibre optic telecommunications cable;
  - ◊ potable water pipe;
  - ◊ raw water pipe;
  - ◊ treated effluent pipe;
  - ◊ raw sewage pipe; and
  - ◊ spare pipe.
- The pipeline across Dent Passage will be weighted to resist buoyancy, uplift and drag forces. Options for crossing the reef flat include burial of the pipeline or placement directly on the reef flat substratum.
- The Hamilton Island landing point is the north-western corner of the airport and the pipeline will land on Dent Island about 500 metres north of Cowrie Island, well clear of the jetty.

2.3 SITE LOCATION

Dent Island, at latitude 20º 21' south and longitude 148º 56' east, is located about one kilometre west of Hamilton Island and 15 kilometres from the Shute Harbour ferry terminal. Airlie Beach is the closest regional centre, approximately 20 kilometres away. Dent and Hamilton Islands are part of the Whitsunday group of islands located within the Great Barrier Reef World Heritage area.

In addition to an area of about 390 hectares and a 12 kilometre coastline, Dent Island has an overall length of 5 kilometres and is about 1.2 kilometres at its widest. Three smaller islands are located in close proximity to Dent Island. Titan Island is located near the northeast corner of Dent Island. Cowrie Island and an unnamed island are located in Dent Passage, about midway along the north-eastern shore of Dent Island.

The proposed development site comprises two allotments described as Lot 5 on CP 855596 and Lot 4 on HR 2019, Parish of Whitsunday. HW holds the rights to Dent Island and possesses the following tenure arrangements.

2.3.1 Lot 5 on CP 855596, Parish of Whitsunday

A Permit to Occupy (PO 0/214166) in favour of HW commenced on 31 March 2000 for purposes of tourism, residential and golf course development investigation. The Permit has no end date but is subject to conditions which have been met and an application was lodged with the Queensland Department of Natural Resources, Mines and Energy (DNRME) in March 2002 for the conversion of the Permit to Occupy to a five-year Development Lease. The application will be assessed and decided by DNRME once the Whitsunday Shire Council makes a decision on any application it receives from HW for a

Development Approval for a Material Change of Use. Subject to compliance with Development Lease conditions it would be expected that a Term Lease be issued.

2.3.2 Lot 4 on HR 2019, Parish of Whitsunday

A Commonwealth lease in favour of HW commenced on 3 November 1989 for an initial term of ten years with two options to renew the term of the lease for periods of five years each to 2009. Lot 4 is only partially developed with gravel access roads. Permissible uses under the lease include golf course and tourist recreation, clay pigeon shooting and horse riding. The Commonwealth assigned all its estate, title and interest under the lease to the Great Barrier Reef Marine Park Authority on 1 July 1994, although the reassignment to GBRMPA has yet to be finalised. The proposal is in accordance with the terms of the Commonwealth lease held by HW. It will be necessary for consideration to be given to complementary term leasing arrangements for Lot 4 and Lot 5.

2.3.3 Existing Land Use

The site of the Golf Course Resort is only partially developed with gravel access roads and a large freshwater dam situated in the centre of the Island. Due to the use of the Island over a long period for grazing, there are large portions which are now devoid of natural vegetation and covered by grasslands. Some natural vegetation exists along ridgelines and areas of steeper slopes. Aviation navigation beacons and decommissioned lighthouse buildings together with an automated lighthouse are located in the south-western corner of the Island. The lighthouse and former lighthouse keeper's residence are of significant heritage value.

Overall the Island has high visual appeal and possesses a rocky coastline which is interspersed with secluded white, sandy beaches.

2.4 RATIONALE FOR THE DENT ISLAND GOLF RESORT PROPOSAL

2.4.1 Need

The Whitsunday region is a popular tourist destination in Queensland. Although it is rapidly developing as a domestic and international tourist market, it lacks the range and depth of tourism facilities offered by the Gold Coast, Sunshine Coast and Cairns. The Whitsunday Tourism Strategy (1996) contained a number of suggestions to improve the market.

Development of the Dent Island Golf Course Resort is needed to support the Tourism Strategy in the following manner:

- diversification of the tourism product to broaden the market appeal,
- offering experiences to take account of international visitor interests,
- provision of a range of visitor accommodation and recreational facilities,
- encouraging low impact accommodation consistent with the natural setting,
- provision of recreational facilities in accordance with residential and visitor growth.

The Golf Course Resort is not designed to replicate the tourism 'experience' provided at other major tourism destinations, but to deliver a unique product to those visiting the Whitsundays. HW considers that the resulting diversification of attractions will increase occupancy rates and the duration of visits to the region. Such an outcome would stimulate growth in demand for local suppliers and job-seekers.

2.4.2 Economic Benefits

HW states that construction of the Dent Island Golf Resort proposal will result in 600 person years of direct employment. The total construction budget of $85 million will be spent locally with an additional $270 million, in 2001 AUD, added to the national economy as a result of multiplier effects. The completed facility will employ 100 people who will receive a total of $2.6 million in annual wages. Another 370 full-time equivalent indirect positions are expected to be created because of the investment.

The project's operation is expected to increase total annual visitor expenditure in Whitsunday Shire by $45 million, which is about 8% of current visitor spending in the region. The Dent Island proposal will boost the Whitsunday Island tourist accommodation by about 14% and will generate an additional 180,000 visitor nights to the State.

2.4.3 Site Benefits

The proposal is strategically located adjacent to Hamilton Island which possesses an airport, marine facilities and other necessary infrastructure to enable a large number of visitors to access the attractions of the Whitsunday Islands.

In comparison with previous proposals for Dent Island, this development represents a significant reduction in intensity and 'footprint' of proposed uses. The project will affect less than 13% of the total area of Dent Island (approximately 50 hectares of existing vegetation). The majority of this disturbance (about 40 hectares) will comprise an environmentally-sensitive golf course design, which will utilise landscaping species of local provenance. Buildings on Dent Island will be limited to three stories in height and restricted to the eastern central part of the Island, which faces Hamilton Island.

HW asserts that the siting of the proposed golf course will ensure a positive benefit by providing a sustainable use for a large tract of land, previously marginal grazing land, whilst still maintaining much of the original character and natural vegetation of sufficient diversity to maintain and enhance wildlife habitat. Where appropriate a balance of indigenous vegetation will be encouraged to replace non-indigenous species.

2.5 ALTERNATIVES

Various alternative options for the DIP were investigated by the Proponent. These can be categorised as:-

- the "no development" alternative;
- alternative locations for the proposed development;
- alternative development layouts;
- alternatives for site services infrastructure;
- submarine pipeline alternatives; and
- transport alternatives.

These options are examined in more detail in Section 5.6 - Project Alternatives, of this Report.

3 THE IMPACT ASSESSMENT PROCESS

3.1 CONTROLLED ACTION & SIGNIFICANT PROJECT DECLARATIONS

On 11 May 2001, the Commonwealth Minister for the Environment and Heritage determined that the DIP constituted a controlled action pursuant to Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC). The Part 3, Division 1, controlling provisions were identified as being:

- sections 12 and 15A (World Heritage);
- sections 18 and 18A (Listed threatened species and communities); and
- sections 20 and 20A (Listed migratory species).

Also, Part 3, Division 2, controlling provisions nominated were:

- sections 26 and 27A (Protection of the environment from actions involving Commonwealth land).

An Initial Advice Statement was lodged with DSDI on 23 May 2001 and the DIP was declared a "significant project for which an EIS is required" pursuant to s. 26 of the SDPWOA, on 1 October 2001. The Queensland EIS process was subsequently accredited by the Commonwealth Government on 8 October 2001, thereby allowing HW to conduct an impact assessment procedure acceptable for evaluation of potential project impacts and remedial measures by both jurisdictions.

3.2 REVIEW AND REFINEMENT OF THE EIS TERMS OF REFERENCE

Draft Terms of Reference (ToR) and the Initial Advice Statement were released for public review on 5 November 2001. Their availability was advertised in *The Weekend Australian* and *The Courier-Mail* on Saturday 3 November 2001 and in *The Whitsunday Times* on Thursday 8 November 2001.

Public submissions on the draft ToR were accepted up to 3 December 2001. Comments on the draft ToR and the Initial Advice Statement were also sought from the following Agencies.

- Department of Emergency Services
- Department of Families (*abolished on 12 February 2004, refer Appendix 2*)
- Department of Local Government, Planning, Sport and Recreation
- Department of Main Roads
- Department of Natural Resources, Mines and Energy
- Department of the Premier and Cabinet
- Department of Primary Industries and Fisheries
- Department of Tourism, Fair Trading and Wine Industry Development
- Department of Environment and Heritage (Cwlth)
- Environmental Protection Agency
- Queensland Transport
- Whitsunday Shire Council.

An amended ToR, to assist HW to prepare an EIS, was issued by DSDI on 21 December 2001. However, this version of the ToR was subsequently refined to incorporate requirements on matters of "Dam Safety" and the finalised ToR was issued to HW on 27 March 2002.

3.3 REVIEW OF THE EIS

The EIS on the DIP project was prepared for HW by the Mackay Office of Humphreys Reynolds Perkins Planning Consultants (HRP) and distributed to Advisory Agencies on Tuesday 9 July 2002. Additionally, advertisements in *The Weekend Australian*, and *The Courier-Mail* on Saturday 13 July 2002, and in *The Whitsunday Times* of Thursday 19 2002, invited comments from the public until the close of business on Monday 12 August 2002. The advertisement, itself, and the EIS could also be inspected via the Department of State Development and Innovation's (DSDI's) and HRP's Internet web-sites. Volume 1 of the hardcopy version could be purchased for $140 or the CD-ROM version, containing all three volumes, was available for $15 a copy from HRP.

The EIS was displayed at the:
- Whitsunday Shire Council Office, Proserpine;
- Whitsunday Shire Library, Cannonvale;
- Mackay State Development and Innovation Centre, Mackay; and
- State Library of Queensland, South Bank, Brisbane.

Following the four-week public review of the EIS, 13 submissions were received by the Coordinator-General; 11 from Advisory Agencies, 1 from a member of the public and 1 from a community interest group (refer Appendix 2 for dates of submissions).

Submissions were received from the following stakeholders.

Advisory Agencies

- Department of Emergency Services
- Department of Families (*abolished on 12 February 2004, refer Appendix 2*)
- Department of Local Government, Planning, Sport and Recreation
- Department of Main Roads
- Department of Natural Resources, Mines and Energy
- Department of the Premier and Cabinet
- Department of Primary Industries and Fisheries
- Department of Tourism, Fair Trading and Wine Industry Development
- Environmental Protection Agency
- Queensland Transport
- Whitsunday Shire Council

Public - Organisations

- Mackay Conservation Group

Public - Individual

- A T Johnson

3.4 REVIEW OF THE SUPPLEMENTARY EIS

All responses to the EIS were forwarded to HRP for its consideration. Where respondents raised major issues, HRP contacted the respondent directly to resolve the matter. Otherwise, HRP prepared a clarification or additional information for inclusion in the EIS Supplementary Report (SEIS) which was lodged with the Coordinator-General on Thursday 23 January 2003.

Copies of the SEIS were issued to all Advisory Agencies for their information and comment. Copies were also mailed to the Mackay Conservation Group and A T Johnson. The SEIS was also available for inspection on the Internet.

Additional comments were requested to be forwarded to the Coordinator-General by close of business on Monday 10 February 2003. Appendix 2 shows the respondent and date for the 13 responses received. Note that Whitsunday Wildlife did not comment on the EIS, however it did respond to the SEIS.

3.5 FURTHER RESPONSE TO SUBMISSIONS

All submissions on the SEIS were forwarded to the Proponent for its consideration. Following receipt of these comments HRP held further discussions with Advisory Agencies on an individual basis in an attempt to address their concerns. The Proponent then prepared an additional information document. The document was lodged with DSDI on 2 June 2003 and forwarded to Advisory Agencies for further review and comment.

Some Advisory Agencies raised further concerns after evaluating the 2 June documentation. The Proponent resolved many of those concerns with the relevant agencies on an informal basis, i.e. in direct discussions. However, formal documentation was supplied to DPIF and DNRME on 10 September 2003 and to DEH and GBRMPA on 22 September 2003.

3.6 COORDINATOR-GENERAL'S REPORT

This report represents the end of the State's impact assessment process. Essentially, it is a review of that process and states conditions under which the project may proceed. The report also provides a review of Commonwealth matters of national environmental significance (refer Chapter 5).

3.7 COMMONWEALTH IMPACT ASSESSMENT

The Commonwealth Minister for the Environment and Heritage determined, on 11 May 2001, that the Project constituted a controlled action under Section 75 of the EPBC Act.

On 8 October 2001, the Commonwealth Department of the Environment and Heritage (DEH) accredited the Queensland EIS process for the DIP indicating that the State's assessment process was acceptable to the Commonwealth. This allowed the Proponent to undertake one impact assessment process, satisfying both State and Commonwealth requirements.

Following the release of a Coordinator-General's Report, it will be considered by the Federal Minister together with other information from Commonwealth sources and information requested from the Proponent. The Minister will then grant, or withhold, approval for the controlled action under s. 133 of the EPBC Act. The Minister may attach conditions to the approval, in addition to those set by the Coordinator-General, to mitigate impacts on matters of 'national environmental significance'.

4 ASSESSMENT OF ENVIRONMENTAL EFFECTS

4.1 INTRODUCTION

The Departments of Emergency Services; Families (*abolished on 12 February 2004, refer "Appendix 2 – Response Chronology"*); Tourism, Fair Trading and Wine Industry Development; and the Premier and Cabinet were participating Advisory Agencies that indicated that their concerns were addressed satisfactorily by the EIS and SEIS reports.

The remaining Advisory Agencies sought information or commitments, from the Proponent, in addition to those provided in the EIS and SEIS reports. The following commentary on principal issues summarises the stance of the respondents and the Proponent respectively. Each section which addresses a principal issue stipulates, where applicable, any conditions deemed necessary to allow the project to proceed with minimal damage to the environment.

"Appendix 1 - Conditions" contains a compilation of conditions which have been formulated to address issues described in this chapter and in Chapter 5 (Sustainable Development Measures). Appendix 1, Schedule 2 also contains those conditions that would normally be applied by the Environmental Protection Authority (EPA) under the *Integrated Planning Act 1997*. The EPA is to be the administering authority for its conditions.

Therefore the following Condition is imposed:

Condition 1

Site Development

The proposed development of the Dent Island Golf Course Resort Development, involving construction of an 18-hole, international-standard golf course, 109 five-star guest rooms, 38 villa suites and 172 predominantly two-bedroom and three-bedroom apartments and associated infrastructure must be undertaken in accordance with the Dent Island master plan, attached as Appendix 1, Schedule 3.

The Conditions detailed in Appendix 1, Schedule 2 of this Report, which are to be administered by the Environmental Protection Agency, must be complied with.

Reasons

This condition limits the extent of the project on Dent Island and provides for the Proponent's compliance with the EPA conditions detailed in Appendix 1, Schedule 2 of this Report. The EPA Conditions are designed to control and limit potential impacts on the land, surface and ground waters, air environment and ecological systems from contaminants that may result from the environmentally relevant activities outlined in Appendix 1, Schedule 2. The EPA Conditions are consistent with information provided in the Environmental Impact Statement and the Supplementary Report on the Environmental Impact Statement.

Principal Issues

The principal issues which emerged from the evaluation of the project by the Advisory Agencies, community groups and the general public were associated with:

- Project Justification;
- Conflict with Whitsunday Shire Council statutory planning scheme;

- Long-term Phased Development;
- Acid Sulphate Soils;
- Vegetation Clearance and Disturbance of "Of Concern" Vegetation;
- Marine Landing Facility;
- Service Pipeline;
- Construction Timing and Monitoring; and
- Nutrient Management.

Each of these issues is discussed individually. The facts associated with each issue are drawn from the documentation listed in the next section. Any conditions necessary to minimise environmental damage, after consideration of the facts, are provided in the shaded boxes. Where applicable, the rationale for each condition is explained and the condition justified.

4.2 EVIDENCE OR OTHER MATERIAL RELIED UPON

Evidence, and other material, relied upon in considering the issues and determining conditions included:

1. Humphrey Reynolds Perkins Planning Consultants, July 2002, *Dent Island Golf Course Resort Environmental Impact Statement*, on behalf of Hamilton West Proprietary Limited;
2. Humphrey Reynolds Perkins Planning Consultants, December 2002, *Dent Island Golf Course Resort Environmental Impact Statement Supplementary Report*, on behalf of Hamilton West Proprietary Limited;
3. Relevant submissions and comments received from persons and Advisory Agencies listed in Section 3.2 and Appendix 2 of this Report;
4. Correspondence and notes from meetings with various Advisory Agencies and/or the Proponent;
5. *State Development and Public Works Organisation Act 1971* (Qld);
6. *Integrated Planning Act 1997* (Qld);
7. *Environmental Protection Act 1994* (Qld)*;*
8. *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)*;*
9. *Environmental Protection and Biodiversity Conservation Regulation 2000* (Cwlth)*;*
10. Environmental Protection Agency, 2001, *State Coastal Management Plan - Queensland's Coastal Policy*;
11. Environmental Protection Agency, 1997, *Environmental Protection Policy (Water);*
12. Environmentally Relevant Activities administered by EPA;
13. Ahern, et al., 1998, *Guidelines for Sampling and Analysis of Lowland Acid Sulphate Soils (ASS) in Queensland*;
14. McDonald, et al., 1990, *Australian Soil and Land Survey Field Handbook;*
15. Isbell, 1996, *Australian Soil Classification*;
16. Whitsunday Shire Council Strategic Plan and Planning Scheme;
17. Queensland Government, Department of Tourism, Racing and Fair Trading, 2001, *Strategy for Growing Tourism*;
18. Humphrey Reynolds Perkins Planning Consultants, 2 June 2003, Letter to Mr Mark McCarthy responding to Advisory Agency submissions on the Supplementary EIS Report. The letter was accompanied by four attachments which were entitled: *Attachment 1 – Response to Supplementary EIS Issues, Attachment 2 – Revised EMPs, Attachment 3 – Revised Application to Clear Trees,* and *Attachment 4 – STP Construction Program*;
19. Humphrey Reynolds Perkins Planning Consultants, 10 September 2003, *Response to comments received from DPIF & DNRME in July 2003 on the 'Further Response*

to Issues Raised by Agencies' – Proposed Dent Island Golf Course Resort Development, on behalf of Hamilton West Proprietary Limited; and

20. Humphrey Reynolds Perkins Planning Consultants, 22 September 2003, *Response to comments received from EA & GBRMPA in June/July 2003 on the 'Further Response to Issues Raised by Agencies' – Proposed Dent Island Golf Course Resort Development*, on behalf of Hamilton West Proprietary Limited.

4.3 PROJECT JUSTIFICATION

The Terms of Reference required that the EIS justify the need for the proposal. The explanation was to consider the influence of other destination markets which also target golfing and tourism.

The EIS stated that the proposal would give tourists visiting Hamilton Island, or other Whitsunday resorts, the option of playing golf nearby, thereby increasing the available range of tourism activities. The golf course would assist in marketing Hamilton Island's conference centre, with golf featuring as a major activity for many conference delegates. The existence of other tourist destinations which particularly target the golfing market (such as the Gold Coast, Sunshine Coast and Cairns) is not expected to adversely influence the ability of the proposal to operate successfully.

In responding to the EIS, the Department of Local Government, Planning, Sport and Recreation (DLGPS&R) and the Department of Natural Resources, Mines and Energy (DNRME) considered that the need for a golf course and residential development for permanent or visitor accommodation had not been demonstrated. Concern was expressed about the extent of demand for golfing holidays and the financial difficulties experienced by golf course resorts in the region. Provision of statistics and other information which demonstrate the need for the golf course were requested of the Proponent.

The SEIS commented on several features of the Whitsunday region. These characteristics included growth in the local population and in nature-based tourism to the area. Employment generation, the enhanced economic viability of Hamilton Island and the contrast between the Dent Island golf course proposal and the existing facilities in the Region were addressed in the SEIS.

DLGPS&R again indicated that despite the additional information, the SEIS failed to demonstrate the need for a golf course. Both DLGPS&R and DNRME asserted that a cogent case justifying the need for the residential component of the development had not been provided. DNRME also requested that the Proponent justify how the State would benefit if it allocated State-owned land for privately-owned residential development.

The EPA stated that the residential development could be considered to be inconsistent with *Policy 2.1.2 (Settlement Pattern and Design)* of the *State Coastal Management Plan* unless there was an existing development right or it is demonstrated that there is a need for the development.

In its response of 2 June 2003, the Proponent indicated that golf courses are uneconomic as stand-alone operations. The supporting accommodation component was required to offset the substantial capital infrastructure construction costs. The Proponent contended that the direct investment of $85 million would be augmented with an indirect flow-on of some $270 million to the national economy. It was asserted by the Proponent that the Dent Island proposal would enhance the economic viability of Hamilton Island resort. Furthermore, the proposal would support the Queensland Government's

encouragement of private investment in tourism infrastructure as outlined in its *Strategy for Growing Tourism*.

DLGPS&R remained unconvinced that the Proponent had justified the need for the project but DNRME considered that sufficient information had been supplied to indicate that the development would confer a net benefit to the region and the State.

Conclusion

It is considered that justification for the full project has been satisfactorily explained during the EIS process and no condition will be imposed on the Proponent regarding it, i.e. no further information or action is required of the Proponent on this issue.

4.4 CONFLICT WITH WHITSUNDAY SHIRE COUNCIL STATUTORY PLANNING SCHEME

The Terms of Reference (ToR) required that the EIS detail the compliance of the proposal with the federal, State and local statutory planning frameworks. In commenting on the ToR, the Whitsunday Shire Council (WSC) advised that the proposal conflicted with the intention of the *Whitsunday Shire Planning Scheme (Strategic Plan).*

The EIS Report asserted that the development "responds" to the Vision Statement for the Strategic Plan because it is a value-adding concept. It stated that the development will optimise the unique visual and recreational opportunities of the Whitsunday Islands. The DIP would also be able to exploit the existing infrastructure on Hamilton Island, thereby increasing its effective utilisation.

The EIS also stated that the establishment of an environmentally and visually sensitive golf course is consistent with the "Regional Open Space Preferred Dominant Land Use" of the *Whitsunday Shire Planning Scheme*.

The EIS concluded that if any conflict does exist with the Strategic Plan, sufficient planning reasons exist for the WSC to approve the development in accordance with IPA requirements. It was argued in the EIS that the proposal will function as part of the Hamilton Island integrated resort. Additionally, the Proponent asserted that:

- the landscape management and environmental outcomes sought by the Strategic Plan can be achieved;
- the proposal will confer significant regional benefits;
- because of its lease conditions, tourism development has been expected on Dent Island since 1990; and
- the WSC is reviewing its Planning Scheme with the possibility of revising the Dent Island designation.

DLGPS&R considers that the *Vision Statement of the Strategic Plan* fails to support the proposed development, as it indicates that tourism and recreation in the Whitsundays should be confined to established island destinations. Furthermore, DLGPS&R believes it is a matter of conjecture that the development can be considered a logical extension of Hamilton Island. DLGPS&R does not consider Dent Island to be an integral element of the Hamilton Island resort because of the intention to limit interaction with Hamilton Island to use of its infrastructure and services. Moreover, DLGPS&R contends that previous intentions to undertake tourism development on Dent Island should not obscure the proposal's adherence to the current statutory planning scheme. The Department believes its argument is supported by the fact that no land use or development approvals currently exist. Finally, DLGPS&R maintains that a substantial golf course and

accommodation is not consistent with the Preferred Dominant Land Use where low-key recreational pursuits are envisaged.

The Whitsunday Shire Council then reconsidered its position on the development and believes that the proposal can be considered to be consistent with the *Strategic Plan*. Furthermore, through the SEIS, the Proponent stated that the project complied with the *Vision Statement* as there exists a logical strategic link between Hamilton and Dent Islands which acknowledges that duplication of the services and facilities available on Hamilton Island would not be feasible. Similarly, due to space constraints, it would not be possible to locate a golf course on Hamilton Island. The SEIS reinforced the argument that the existing and proposed Development Leases, for tourism purposes, demonstrated the synergistic connection between the two islands.

The development's potential conflict with the *Whitsunday Shire Planning Scheme* was refuted in the SEIS on the grounds that partial use of Dent Island for the golf course and resort does not constitute conflict with the intent statement of the Regional Open Space Preferred Dominant Land Use. The SEIS also indicated that a development which reflects and protects the Island's character and its ecological, scenic, cultural and recreational values cannot be construed as being in conflict with the Preferred Dominant Land Use.

DLGPS&R contends that the SEIS had failed to demonstrate that Dent Island is an "established island destination" pursuant to the *Whitsunday Shire Strategic Plan*. The Department also asserted that the SEIS had not proved that the DIP was consistent with 'low-key recreational pursuits' advocated in the *Strategic Plan's* Preferred Dominant Land Use.

The Whitsunday Shire Council advised that it accepted the DIP as integral to the management of the overall Hamilton Island - Dent Island "precinct". Therefore the Proponent contended that, as the Hamilton Island Resort is an "established island destination", Dent Island should implicitly share that designation. As the DIP will increase the diversity and quality of local experiences, the proposal is consistent with the intent of the Preferred Dominant Land Use. The Proponent asserts that the DIP proposal will offer other recreational opportunities, such as walking trails and educational activities, which are intended to encourage visitor exploration of the natural environment and provide views of the historic lighthouse precinct.

As indicated above, the WSC supports the Proponent's contention that the proposal was consistent with the strategic planning context of the locality. Despite the DLGPS&R's view to the contrary, the WSC is satisfied that the Proponent has provided detailed and extensive planning grounds which justify the proposal. The Council is reviewing its Town Planning Scheme and expects to have its draft IPA planning scheme available for a State interest check by September 2004. The provision of suitable zoning on Dent Island for sustainable tourist and ancillary residential expansion is planned to be incorporated into the new planning scheme.

Conclusion

The Proponent has convinced all key agencies, apart from DLGPS&R, that the DIP development conforms with the intent, if not the letter, of the *Whitsunday Shire Planning Scheme*. Generally, Dent Island is considered to be an adjunct of the Hamilton Island Resort. Anecdotal evidence for this point of view was revealed during the 2003 bidding process for Hamilton Island Limited, the parent company of the Hamilton Island group. Both major bidders, General Property Trust and 21st Century Resorts included the

possession of the Dent Island leases in the corporate valuation of Hamilton Island Limited.

Given that Dent Island is an integral component of the Hamilton Island Resort, the project is considered not to conflict with the *Whitsunday Shire Planning Scheme*. Indeed, the DIP will enhance the tourist attributes of Hamilton Island and will allow more efficient utilisation of the infrastructure already available on Hamilton Island.

Therefore the issue has been resolved, no condition needs to be imposed upon the Proponent, i.e. no further action is required of the Proponent in relation to this issue.

4.5 LONG-TERM PHASED DEVELOPMENT

The Proponent intends to undertake the DIP in several stages over about 10 years, depending upon prevailing business conditions and forecasts.

It is conceivable that during that time the Proponent, or a successor, may re-schedule works associated with the project. Under such circumstances, works-in-progress may be interrupted which could create unexpected impacts, e.g. work originally timed to avoid the wet season may unintentionally coincide with that seasonal event.

The Environmental Protection Agency (EPA) recommended that the Proponent provide some form of financial assurance for each critical stage of construction. If required, the State would be able to resort to the financial assurance to undertake rehabilitation of the site if the project is abandoned, or if site stabilisation is delayed and represents a significant risk to the values of the Marine Park and World Heritage Area.

Negotiations were conducted, on behalf of the Coordinator-General, with the EPA, the Whitsunday Shire Council and DNRME in order to establish the nature and administrative arrangements of any financial assurance. Bank guarantees, bonds, insurance, cash deposits, cash in a trust and private guarantees were the various types of financial assurance considered in the course of these discussions. It would appear that the most appropriate form of security will be a bank guarantee because it is relatively simple to administer and is not as costly as other forms of financing. Furthermore, a bank guarantee is considered one of the most secure types of financial instrument as it is payable immediately upon demand, is irrevocable and remains binding on the bank until it is paid or discharged.

The EPA is prohibited from enforcing the lodgement of financial assurances unless they are associated with Environmentally Relevant Activities (ERAs). Earthworks on Dent Island would not constitute ERAs. Similarly, the Whitsunday Shire Council was unsure that it possessed the necessary head of power to administer the type of financial assurance sought in this instance.

DNRME will require the Proponent to submit bank guarantees for project completion as part of its lease conditions (as yet undetermined) which DNRME will negotiate with the Proponent. These conditions will relate to each critical stage in the development and therefore will coincide with each stage of the major earthworks on Dent Island. DNRME will be able to calculate the additional amount required to cover the financial assurance for the earthworks.

The Proponent, which did not participate in the discussions, has agreed to this arrangement (REFER Item 3.27, p. Appendix 5-7, SEIS). In the event that DNRME and

the Proponent cannot determine a satisfactory arrangement, the Coordinator-General will assist in resolving the impasse.

Therefore it is recommended that:-

The terms and conditions of a bank guarantee, or some similar form of financial assurance, for each critical stage of construction are to be negotiated between the Proponent and the Department of Natural Resources, Mines and Energy, as part of that Department's lease conditions, prior to the commencement of each critical stage of earthworks activity. The Coordinator-General can assist in resolution of any difficulties in concluding a relevant condition.

4.6 ACID SULPHATE SOILS

During the assessment of potential impacts, Advisory Agencies expressed concern about the exposure of Acid Sulphate Soils (ASS) to the environment. The Proponent commissioned Ullman and Nolan Geotechnic to undertake further investigations for the SEIS. After conducting Dynamic Cone Penetrometer tests at four locations across the proposed dredged area, it was concluded that the disturbance of seabed material would have only a low potential to result in net acid production. However, monitoring would be required to confirm this assessment.

DNRME indicated that the SEIS did not adequately address its concerns about the presence and likely exposure of acid sulphate soil in the landing area and the pipeline crossing location. DNRME requested that ASS investigations be undertaken in accordance with standard guidelines and that the EMP be amended to address the issue.

A subsequent report from the Proponent confirmed that it was not expected that materials with significant acid sulphate producing potential would be encountered and indicated that it was not feasible, at this stage, to undertake further test excavation at the pipeline landing due to it requiring the use of a track mounted excavator. In lieu of further testing the service pipeline EMP was revised to include ASS investigations and remedial measures. This arrangement was acceptable to DNRME.

However for consistency, the management of ASS at the marine landing site, and at any sources of fill, also needed to be considered. The following condition is imposed to address ASS concerns:-

Condition 2

Acid Sulphate Soils

The draft Marine Landing Facility sub-EMP must be finalised, in consultation with the Department of Natural Resources, Mines and Energy (DNRME) and the Environmental Protection Agency (EPA), to reflect the same Acid Sulphate Soil management protocol contained in the Service Pipeline sub-EMP. Both sub-EMPs must be amended to incorporate the management of Acid Sulphate Soils at any sites used to supply fill during construction activity associated with the Marine Landing Facility and the Service Pipeline.

In addition to any advice received from DNRME the following requirements are to be incorporated into the Marine Landing Facility and Service Pipeline sub-EMPs.

- **A pre-construction Acid Sulphate Soil investigation is to be conducted at the relevant sites. The investigation must comply with the methods prescribed in the *Guidelines for Sampling and Analysis of Lowland Acid Sulphate Soils in Queensland (Ahern et al. 1998)* and the *Queensland Government Instructions for the Treatment and Management of Acid Sulphate Soils 2001*. Soil and sediment profiles should be mapped at a suitable scale and described according to the *Australian Soil and Land Survey Field Handbook (McDonald et al. 1990)* and *Australian Soil Classification (Isbell. 1996).***

- **The pre-construction investigation is to be conducted by an experienced and appropriately qualified person such as a certified professional soil scientist.**

- **The pre-construction investigation report must be submitted to DNRME for perusal and approval before any site works commence.**

- **Where the pre-construction investigation indicates that construction activity may be detrimental to the environment, an Acid Sulphate Soil Management Plan is to be prepared in accordance with the guidelines cited above.**

Reasons

The release of acid sulphate leachate to the waters surrounding Dent Island may result in injury to, or destruction of, the maritime environment. It is imperative that ASS management strategies are incorporated into the relevant sub-EMPs in order to ensure that acid sulphate leachate release is prevented.

It is also incumbent upon the Proponent that any off-site damage, created by collecting fill for construction associated with the project, be avoided and managed.

4.7 VEGETATION CLEARANCE AND DISTURBANCE OF 'OF CONCERN' VEGETATION

Concern about the details relating to vegetation clearance was expressed during the EIS process by a number of interested stakeholders, especially the Department of Natural Resources, Mines and Energy (DNRME).

Dent Island is subject to the *Integrated Planning Act 1997* and the *Vegetation Management Act 1999,* where a development permit is required for clearing native vegetation, from DNRME. A clearing application could not previously be lodged as the subject land is only held under an occupation permit rather than an exclusive, long term tenure such as a term lease.

Following the amendment of the clearing laws in May 2004, an application for clearing can only be assessed if DNRME is satisfied the clearing is for a relevant purpose under section 22A of the *Vegetation Management Act* or an application is successfully selected for assessment in the ballot to be held on 17 September 2004. A relevant purpose under Section 22A(2) includes a project designated as a 'significant project' under the *SDPWOA*.

DNRME had advised previously that it will assess any tree-clearing permit application on the basis that 'special circumstances' exist for the purposes of s. 263(3) of the *Land Act 1994* because of the long-standing nature of the proposal. However, this capacity no longer exists under the new laws. An application can only be approved if it meets the performance requirements within the relevant regional vegetation management code.

DNRME also sought information on any potential loss of remnant vegetation and degradation of habitat values which could arise because of the fragmentation of the vegetation after clearing operations.

Two of the three regional ecosystems mapped on the island have been classified as "Of Concern" according to their conservation status under the *Vegetation Management Act 1999*. These are RE 12.11 (Vine Forest) and RE 12.13 (Grasstree – Blady grass).

Whilst it would be desirable that "Of Concern" vegetation should not be disturbed at all, the Flora Management sub-EMP reflects the concern that the development has the potential to result in minor loss of RE12.13 and may affect the periphery of RE 12.11.

Therefore the following condition regarding vegetation management is imposed:

Condition 3

Vegetation Clearance

For each stage of the project, the Department of Natural Resources, Mines and Energy must be consulted about any proposed vegetation disturbance or clearance and, where necessary, approvals must be obtained under the *Planning Act 1997*.

Reasons

DNRME has requested that the Proponent demonstrates compliance with the Performance Requirements of the *Broadscale Tree Clearing Policy for State Land (Appendix 2)*. Due to the changes in the clearing laws, this requirement now equates to the proponent demonstrating compliance with the performance requirements of the relevant regional vegetation management code.

The condition will also enable the Proponent to effectively fulfil the requirement to report to DNRME on the impact which the raising of the existing dam and the relocation of the spillway will have on remnant vegetation. The amended Flora Management sub-EMP would necessarily include details of any associated mitigation or remediation measures.

The management strategies incorporated into the Flora Management sub-EMP should ensure that the project can deliver net benefits to the community, economy and the environment, despite the minor damage and loss of "Of Concern" vegetation which is anticipated to occur.

4.8 WHITSUNDAY SHIRE COUNCIL ISSUES

The Whitsunday Shire Council (WSC) will act as the Assessment Manager in relation to the Integrated Development Assessment System (IDAS) process for the proposed development.

The Proponent has held ongoing discussions with the WSC in relation to Council-specific issues for the proposed development.

Council has indicated that nutrient management of the golf course is considered to be a key issue requiring careful management controls and regimes in accordance with an approved management plan. This matter has been addressed in section 4.13 and the Irrigation Management sub-EMP.

The development is to be controlled through a development plan prepared in consultation with and approved by WSC. The plan is to reflect the proposal as outlined and approved through the EIS. It will also serve as the basis for assessment and approval of subsequent development applications.

Council has advised that the following further development permits are required:

Operational Works

- *earthworks and retaining walls*
- *internal roadworks and driveways*
- *landscaping*
- *stormwater drainage*
- *water supply and sewer reticulation*

Plumbing and Drainage Works

Building Works

Material Change of Use (code assessment)

All Operational Works, Plumbing and Drainage Works Development Permits must be obtained prior to the issue of a Building Works Development Permit. The approved development is also required to comply with Whitsunday Shire Council's Local Laws and other controls.

The following may be relevant;

- *Local Law 64 – Tree Preservation;*
- *Local Law 13A – Flats, Tenement Buildings and Boarding Houses;*
- *Environmental Protection Amendment Regulations (2) 1989 – Nuisance Regulations;*
- *Environmental Protection Policies.*

Any declared weeds are to be addressed in accordance with the *Land Protection (Pest and Stock Routes Management) Act 2002* and Whitsunday Shire Council's *Pest Management Plan*.

It should be noted that where a discrepancy or conflict exists between the written conditions of an approval and the approved plans, the requirements of the written condition(s) will prevail.

In addressing the EIS and SEIS, the WSC has submitted the following list of standard conditions for infrastructure matters within its jurisdiction, which would be applicable to the project. These are typical requirements issued by the WSC to project proponents.

Therefore the following conditions are imposed:

Condition 4

Clearing and Landscaping

Any vegetation removed shall be disposed of to the requirements of the Whitsunday Shire Council. Transplanting, chipping or removal from site are the preferred solutions.

A Development Permit for Operational Works (Landscaping) application shall be approved by Whitsunday Shire Council prior to the commencement of work on site for each stage.

The application shall be accompanied by detailed plans and specifications. The landscaping should seek to achieve the minimum requirements for landscaping as contained in Whitsunday Shire Council's Development Manual.

The landscaping shall be established in accordance with the approved plans prior to the commencement of the use and maintained thereafter to the requirements of Whitsunday Shire Council.

Condition 5

Building Works

Prior to issue of any Development Permit for Building Works, certificates of structural and geotechnical compliance with accepted standards must be provided by both Structural and Geotechnical Engineers. All work must be supervised by the Structural and Geotechnical Engineers and a Certificate of Completion must be provided to Whitsunday Shire Council prior to occupancy of the buildings.

Condition 6

Water Reticulation

A potable water supply must be designed, constructed and maintained in accordance with Australian Standard AS3500 and the requirements of the National Health and Medical Research Council Guidelines.

Condition 7

Sewer Reticulation

An internal sewerage system must be designed, constructed and maintained in accordance with Australian Standard AS3500.

Condition 8

Roadways, Driveways and Parking

All roadways, driveways and parking shall be designed in accordance with Australian Standard AS 2890 and comprise a sealed pavement to Whitsunday Shire Council's requirements.

All roadways and driveways shall be constructed prior to commencement of use for each stage and maintained thereafter to the requirements of Whitsunday Shire Council.

All cut/fill batter/slopes are to be protected and retained in a visually acceptable manner, with certified retaining structures, approved by Whitsunday Shire Council's assessment manager. None of these structures is to be greater than two (2) metres in height. Gabion walls are not an acceptable solution. No cut and/or fill batter shall be left unprotected.

Condition 9

Stormwater and Flooding

All stormwater drainage works are to be designed and constructed in accordance with the Queensland Urban Drainage Manual and Whitsunday Shire Council's Development Manual.

Condition 10

Electricity and Telecommunications

Electricity and telecommunications connection must be provided to the proposed development to the requirements of the relevant authority. A certification of compliance shall be provided from the relevant authority prior to the commencement of use of each stage of the development.

Condition 11

Geotechnical Matters

Any application for a Development Permit for Building or Operational Works shall be accompanied by a Geotechnical Report. The geotechnical report may be submitted to an independent Geotechnical Consultant for review and preparation of the appropriate:

- **Request for further information**
- **Conditions to be included on any Development Permit for Building or Operational Works.**

All work on site shall be supervised by the Developer's Engineer who shall ensure that all work is completed in accordance with the proposal and any Development Permit for Building or Operational Works conditions. A certification to confirm compliance shall be provided prior to the commencement of the use.

The following geotechnical matters will be considered in future reports;

- **all driveways and drainage works to be built to a standard secure from erosion before building works commence in the relevant sub-precincts.**
- **control of drainage being fundamental to slope stability**
- **minimum factor of safety for slip of 1:4 for buildings**
- **minimise cut and fill**
- **engineered retaining walls no higher than two (2) metres unless agreed otherwise by Council**
- **limited vegetation clearing of the site.**
- **more detailed investigation and analysis to be undertaken.**

Condition 12

Cultural Heritage

If any item of cultural heritage is identified during site works, all work shall cease and the Department of Natural Resources, Mines and Energy shall be notified. Work can resume only after clearance is obtained from that Department.

Condition 13

Miscellaneous Matters

Provision and maintenance of refuse collection areas is to be undertaken to the requirements of the Coordinator - Environmental Health.

The colour scheme of all buildings and works shall comprise muted tones such as greys, browns, greens, dark blue and be approved by the Manager - Development & Environmental Services.

Any alteration necessary to electricity, telephone, and/or public utility installations resulting from the development or in connection with the development, shall be at full cost to the developer.

Reasons

Imposition of the Whitsunday Shire Council conditions will ensure that impacts associated with infrastructure within the jurisdiction of Whitsunday Shire Council will be minimised.

4.9 CONSTRUCTION TIMING

It is recommended that consideration be given to the coral spawning season and the breeding or calving seasons of other fauna when scheduling construction activities in the marine environment.

Condition 14

Construction Timing

The timing of construction activities must not interfere with coral spawning or breeding or calving seasons for green turtles, dugongs, humpback whales or other migratory species. The construction schedule must be finalised in consultation with the Environmental Protection Agency and incorporated into an appropriate sub-EMP.

Reasons

Obtaining GBRMPA's and EPA's approval of the Proponent's construction schedule should assure that coral spawning, and the breeding and calving of other marine animals, proceeds with the least interruption. This should ensure the integrity of the reef and the adjacent ecosystem.

4.10 MARINE LANDING FACILITY

Two new ferries will transport guests between Dent Island and Hamilton Island. The Dent Island jetty will be located on the north-eastern shoreline of Dent Island, slightly south of Titan Island and directly opposite Hamilton Island harbour. It will be visible only from the eastern side of Dent Island and the western side of Hamilton Island.
The EPA asserted during the EIS process that the location and design of the marine landing facility, and its impact upon the Great Barrier Reef Marine Park's values, was the most significant issue from that agency's perspective.

The jetty will be a piled structure to the outer edge of the reef flat (refer Appendix 2: Dent Island - Jetty Option 3E of the EIS Supplementary Report). It will consist of a pile

supported double ramp ending at the top of the reef slope and a pontoon located over the reef slope. No dredging will be required.

DPIF has advised that construction must comply with a Marine Plant Permit. The Permit cannot be finalised until tenure of the marine landing facility and service pipeline area has been negotiated.

A draft Marine Landing Facility sub-EMP has been prepared to manage the impacts on the coral reef and its surrounding ecosystem, created by the construction, presence and use of the marine landing facilities on Dent and Hamilton Islands. Mitigation measures include siting of the landing facility in consultation with relevant agencies, compliance with approval permits and monitoring of construction equipment and vessel movements.

The draft Marine Landing Facility sub-EMP will need to be finalised in consultation with the Environmental Protection Agency. Section 6.4 and Condition 18 of this report provides for completion of the Environmental Management Plan. Therefore no additional condition needs to be imposed upon the Proponent to deal with the Marine Landing Facility.

4.11 SERVICE PIPELINE

The bundled pipeline will traverse Dent Passage. Three options have been considered by the Proponent for installing the pipeline across the approximately 100-metre wide Dent Island reef flat.

Option 1 would involve burial of the pipeline in a shallow trench across the Dent Island reef flat to Lowest Astronomical Tide (LAT). Less than $50m^3$ of silt would be removed from the trench in total and $50m^2$ of coral habitat will be destroyed. It is estimated that trenching and burial would take 3-5 days.

Option 2 would comprise burial of the pipeline in a shallow trench to the Mean Low Water Spring (MLWS) tidal level. Trench excavation would be carried out entirely with shore-based excavators at low tide but would otherwise be similar to Option 1. Less than $25m^2$ of coral habitat would be destroyed.

Option 3 would feature to placement of the pipeline directly on the substratum across the reef flat, i.e. the pipeline would not be buried but would be laid on the reef surface. Only coral directly below the pipeline will be destroyed. Marker poles would identify the position of the pipeline at the outer reef flat end of the pipeline, on the shoreward end, and midway across the reef flat to alert small boats venturing over the reef flat during high tide.

The three options differ in their aesthetic and marine environmental values. Option 1 would have the greatest impact on coral communities whilst Option 3 would have the lowest impact on benthic communities but would have the greatest potential aesthetic impact. The Proponent stated in its response of 22 September 2003 that, “the least impact method will be selected from these options in consultation with the GBRMPA following inspection of the pipeline reef flat crossing site.”

In its letter of 17 September 2003 to the Department of State Development and Innovation, the Department of Primary Industries and Fisheries (DPIF) stated that it, “would prefer temporary rather than permanent impacts on marine plants and therefore would prefer that the Service Pipeline be buried across the reef flat.” Furthermore, DPIF

recommended that the construction and installation methodology should:

- be as expeditious as possible;
- affect as small an area as possible; and
- minimise the suspension of sediments.

The following condition is imposed:

Condition 16 (part - see section 4.12 below)

Service Pipeline

The relevant approvals for the Service Pipeline crossing of the Dent Island reef flat must be obtained from the Queensland Department of Primary Industries and Fisheries and the Great Barrier Reef Marine Park Authority. The applications for the relevant approvals must set out the Service Pipeline route, and construction and installation methodology.

Reasons

The evaluation by the Great Barrier Reef Marine Park Authority and the Queensland Department of Primary Industries and Fisheries of the preferred reef flat crossing option, the route and the methodology to install the Service Pipeline, will ensure that damage to benthic communities and the reef flat are minimised. Furthermore, long-term aesthetic effects will be considered with the involvement of these two agencies in this part of the planning of the project.

4.12 Marine Construction Monitoring Program

A detailed draft marine construction monitoring program has been prepared to gauge the impacts of the Dent Island landing site jetty, the barge apron construction and the reef flat pipeline installation on the reef benthic communities. The monitoring program will possess an integrated reactive mechanism, or feedback loop. Furthermore, the program is to be refined in consultation with GBRMPA, the EPA and DPIF.

The draft monitoring program incorporates the requirement for an initial detailed survey of the corals and other organisms under direct threat from construction activity. It also features a requirement for a pre-construction baseline survey for the two construction sites and three similar control sites in the Dent Passage.

The survey is to be repeated at the end of construction and again 6 months after all construction activity has ceased. This monitoring program has been designed to enable the detection of a 10-20% change in coral cover with an 80% level of confidence.
Therefore the following condition is imposed:

Condition 16 (part - see section 4.11 above)

Marine Construction Monitoring Program

The marine construction monitoring program must be approved by the Great Barrier Reef Marine Park Authority (GBRMPA), the Environmental Protection Agency (EPA) and the Department of Primary Industries and Fisheries (DPIF).

Details of the pre-construction, end-of-construction and post-construction surveys of corals and other organisms included in the marine construction monitoring program are to be submitted to GBRMPA, the EPA and DPIF in accordance with a schedule negotiated between the Proponent and those agencies.

Reasons

A marine construction monitoring regime will minimise the injury to benthic communities arising from construction activities in the Dent Passage.

4.13 NUTRIENT MANAGEMENT ISSUES

The range of monitoring options proposed to gauge nutrient runoff from the golf course is acceptable. Similarly the extensive range of management options, if unacceptable levels of nutrients are detected, would appear to cater for most contingencies. The Proponent has volunteered to implement the most relevant of the cited options to manage nutrients on Dent Island.

However to give further confidence of the acceptability of the arrangements proposed it is recommended that the Proponent conduct "nutrient management modelling" prior to beginning construction. Therefore the following condition is imposed:

Condition 17

Nutrient Management Modelling

The Proponent is to undertake nutrient management modelling in accordance with the requirements of the Environmental Protection Agency before commencing construction.

The results to the modelling and consequent recommended management responses and actions are to be submitted to the Environmental Protection Agency for consideration as soon as they become available.

Management responses or actions considered relevant by the Environmental Protection Agency must be incorporated into the Environmental Management Plan.

Reasons

The results of a nutrient management modelling exercise should allow the EPA to assess the Proponent's nutrient management expertise and therefore its likely ability to minimise pollution of land and marine ecosystems arising from golf course runoff.

4.14 ISSUES OF CONCERN TO THE MACKAY CONSERVATION GROUP

The Mackay Conservation Group (MCG) does "not support the EIS"; it asserted that the supplementary EIS report was inadequate in addressing a number of project-related issues. Specific issues are discussed individually.

4.14.1 Economic Justification

The MCG challenged the proposition that visitor spending will be injected into the local economy, as money from pre-paid holidays will flow to Sydney, the base of the Hamilton Island group's parent company. No evidence was provided by the MCG to support its contention. MCG's view ignores the fact that Hamilton Island's permanent workforce is at least partially supported by pre-paid holiday arrangements. Furthermore, there are resorts and residences on Hamilton Island which purchase local goods and services.

Occupancy rates were challenged on the basis of data supplied by Tourism Whitsundays for 2002. These rates must be considered carefully as they are subject to sharp seasonal fluctuations through the year. Of greater significance for the 2002 year data are their potential unreliability, relative to long-term trends due to the turmoil created by the September 11 attacks on the World Trade Center and the Pentagon.

The MCG disputed the Proponent's contention that golfing contributes to nature-based ecotourism values. However, the MCG has not provided evidence that playing golf, on a properly-managed course, would detract from World Heritage Values. Indeed, people who enjoy bushwalking, bird-watching and yachting may also enjoy adding a game of golf to their itinerary of holiday activities.

The long-term sustainability of the golf course was questioned by the MCG which noted that the Proponent had failed to supply evidence that the course would remain economically viable after being commissioned. The Proponent states that in Australia golf courses are uneconomic as stand alone operations. The golf course has therefore been designed as an integral component of the overall resort development. It will optimize the use of the resort infrastructure and that of Hamilton Island. In addition the resort development is proposed to be staged over a period of 10 years. Such staging will provide ample opportunity to assess the continuing viability of developing the resort to its ultimate design intent.

The interaction between the proposal and the Laguna Quays course was not explored according to the MCG. It would be very difficult to obtain a definitive appreciation of such an interaction given that the two facilities are potential rivals, i.e. they would compete in certain instances for the same clientele. However, the Proponent emphasized during the EIS that the island setting of its proposal would distinguish it from any mainland-based course. Therefore any non-island proposition would be unable to provide such a unique offering to local, national or international visitors.

A "collective wisdom" assessment of the development by local tourism operators was criticised by the MCG; any assessment should be subject to more rigorous analysis. The Proponent has decided to stage the development in phases over a ten-year period. Progression to each new stage will depend upon the prevailing economic circumstances, i.e. the demand for a new facility will need to exceed supply in order for it to be constructed and commissioned.

4.14.2 *Alternatives*

The MCG commented that no consideration had been given to the alternatives of construction or upgrading of a golf course on the mainland or construction of only the golf course on Dent Island. Any mainland-based alternative to a Dent Island-based course cannot, by definition, be considered to be a realistic alternative offering to attract visitors. The development of the golf course on Dent Island without any residential accommodation was considered by the Proponent to be unviable economically. In summary, the DIP is the only option which will expand the range of tourism opportunities offered by Hamilton Island in particular, and the Whitsunday region in general; the "do nothing" or mainland options will merely maintain the status quo or increase the stock of conventional resort alternatives.

4.14.3 *Weed and Pathogen Control*

The MCG raised concern about the introduction of weed species to Dent Island. Subsequent to the release of the supplementary EIS report, the Proponent has

incorporated weed containment measures in the Pest Plant and Animal Control sub-EMP.

Similarly, the Irrigation Management sub-EMP, for both the construction and operation phases of the development, outlines the management strategies which will be required to protect native vegetation from the application of fertilisers and pesticides.

4.14.4 *Effluent Pipeline*

The MCG was concerned about breaches to the effluent pipeline. A Service Pipeline sub-EMP has been prepared by the Proponent to manage, *inter alia*, the potential for pipeline breaches. Automatic monitoring will be conducted by comparative flow meters located on Dent Island and Hamilton Island; and a diver inspection will be scheduled one year, three years and five years after construction and every fifth year thereafter.

4.14.5 *Irrigation Water*

The MCG disputed the Proponent's assertion that only 1.25 - 1.50 ML per day will be required to water the golf course. MCG's opinion is based on a belief that, "these figures are low by international standards for a golf course".

The Proponent has indicated that it will provide the following control methods to limit water use:- electronic systems to distribute a designed volume of water to designated irrigation areas based on soil water infiltration conditions, a rainfall sensor to prevent irrigation when not needed, an irrigation buffer to protect sensitive areas, a pressure loss sensor to detect pipe failure, and appropriately trained personnel to maintain the irrigation system, including inspection of irrigation areas, adjustments to the irrigation program and maintenance of irrigation components.

4.14.6 *Visual Impact*

It was asserted by the MCG that the visual amenity of the region would suffer, as a result of the DIP proceeding. It should be noted that the golf course and residential units will be confined to parts of the eastern half of Dent Island. It will be visible from the western aspect of Hamilton Island, the southern part of Whitsunday Island, vessels traversing Dent Passage and westward-heading aircraft east of Dent Island. The development will be obscured when Dent Island is observed from the mainland or Whitsunday Passage.

4.14.7 *Non-urban vs Urban concept*

The MCG does not believe that the development can be considered non-urban. Furthermore, the Group asserts that the development does not conform to the Whitsunday Shire Strategic Plan. As noted in the section addressing the potential conflict of the development with the Strategic Plan, there is a general belief that sufficient planning grounds exist to conclude that the DIP complies with the intent of the current Strategic Plan. Furthermore, the Whitsunday Shire Council has intimated that it will introduce the necessary amendments to accommodate the DIP in its new Town Planning Scheme which is expected to be made available for a State interest check by September 2004.

<u>Conclusion</u>

Whilst the Mackay Conservation Group raised a number of legitimate concerns about the DIP, none were sufficiently compelling to abandon the proposal. In summary, it is

considered that the conditions requested by the Advisory Agencies, and the commitments made by the Proponent, will minimise any potential impact identified in the MCG submissions.

4.15 ISSUES OF CONCERN TO WHITSUNDAY WILDLIFE

The views expressed in the submission by Whitsunday Wildlife were those of the Proserpine/Whitsunday Branch of the Wildlife Preservation Society of Queensland.

4.15.1 Statement of Opposition

Whitsunday Wildlife (WW) opposes any development on Dent Island. Such a stance ignores the pre-existing development (e.g. light house station) and former usage (i.e. light house keeper's residence and cattle grazing) on the Island. Whilst the DIP proposal has the potential to impact on Great Barrier Reef World Heritage Area (GBRWHA) values, the EIS proposes numerous counter-measures to ameliorate or negate those potential impacts. This Report comments on whether those measures are considered appropriate to reduce the possible impacts to an appropriate level and provides any additional conditions considered necessary to reduce impacts.

WW states that its submission "shows the apparent disregard for International Agreements and Conventions". The submission further discusses obligations to protect the Great Barrier Reef under the World Heritage Convention. The Proponent has responded indicating that the EIS and SEIS found that the development did not contravene any obligations or requirements under relevant International Agreements and Conventions.

The EIS discusses the effect of the controlled actions on the World Heritage Area, scheduled threatened species, communities and migratory species. Construction and operation of the development in accordance with the commitments made by the Proponent, Environmental Management Plans and the conditions incorporated into this report will ensure that the identified impacts, although minor, are minimised to an extent acceptable under international commitments.

4.15.2 The Tourism Threat

The expected increase in tourism should not impinge significantly upon GBRWHA values. Management of the GBRWHA aims to balance reasonable human use with the maintenance of the area's natural and cultural integrity.

The Proponent has indicated that while the golf course development will result in a minor increase in pressure on the area, it is the best option for providing the diversity of scenic, environmental and tourism experiences characteristic of the Whitsunday region, in a commercially viable way.

Existing facilities and services will be upgraded to meet projected demand and additional services provided where necessary. Also the Visitor Management sub-EMP incorporates strategies designed to control potential impacts. These measures include signs to clearly explain the sensitivity of Dent Island with regard to the introduction of weed species; restriction on visitor movement; signs and interpretive material to explain the natural and cultural environment, careful placement of refuse bins.

This together with approvals and permits which must be obtained from the various authorities to undertake tourism activities would mitigate the impact of increased tourism on the GBRWHA values.

***4.15.3** Seagrasses, Dugongs & other threatened species*

WW maintained that the seagrass meadows that surround Dent Island are critical to the survival of the dugong (*Dugong dugon*) and the green sea turtle (*Chelonia mydas*). This statement, and the further assertion that, "The area cannot afford the loss of any of the seagrass if the vulnerable and protected marine species are to survive" is not supported by evidence to test its legitimacy. The position was weakened by the statement that, "Seagrass areas are scattered throughout the Whitsundays, making it necessary for the dugong to be continually on the move."

Similarly, the statement that, "further destruction of this essential habitat will place further pressure on" all marine turtle species, was not supported with evidence from WW or advice from any Advisory Agency.

The proposed development will result in the direct disturbance of a small area of marine habitat associated with construction of the pipeline. The area to be disturbed constitutes a minor proportion of the existing habitat within the region.

Given their limited extent, the seagrass beds within the proposed development area are considered unlikely to be an important food source for dugongs. The minor incremental increase in vessel traffic is considered unlikely to impact upon dugong populations given the high level of vessel traffic that already exists in the area and therefore no additional management strategy is considered necessary.

The proposed development will not result in the loss of marine turtle habitat. The only potential marine turtle habitat in the area is on the northern part of Dent island, which is not influenced by the proposal.

It is considered that the EIS and SEIS have sufficiently proved that construction and operation of the golf course resort is unlikely to have any significant impact on the marine environment.

***4.15.4** Precautionary Principle*

The EIS process, as recognised in Section 10 of the *State Development and Public Works Organisation Act 1971*, has the objective of achieving a net benefit from a development. The Advisory Agencies assembled to provide technical advice to the Coordinator-General are required to determine if any impacts associated with a proposal are unacceptable or insurmountable. If any environmental detriment can be ameliorated, or some form of offset devised, a project may still confer an overall benefit to the community and would be allowed to proceed on a conditional basis.

However, this stance of conditionally permitting proposals to proceed after environmental assessment should not be interpreted as relegating the environment to a position of secondary importance. Dent Island has a history of disturbance through grazing and other development. In the short-term, any remaining environmental values are expected to be protected from potentially significant impacts associated with the DIP because of the Environmental Management Plan formulated in consultation with the various technical Advisory Agencies. The EMP will include monitoring and review, and where necessary amendment in consultation with relevant authorities.

It should be emphasised that the long-term attractiveness for investment in the Whitsunday Region is, amongst other things, directly related to the maintenance of the natural environment which exists in the Region.

4.15.5 *World Heritage Area values*

WW asserted that, "The proposed development clearly impacts upon the values of the World Heritage Area and if allowed to proceed will alter the natural state of the cultural heritage of this area for future generations". The submission from WW also states that, "We cannot in conscience allow development to intrude into or affect the values and attributes on one of the world's truly great wonders". The Proponent acknowledges that development within the GBRMP has the potential to impact upon World Heritage values. Potential impacts to nature conservation values, corals and associated biota and marine animal, plants and habitat are all addressed individually throughout the EIS and SEIS.

Risks to the World Heritage Area values from the proposed development are considered to be manageable through the Environmental Management Plan which has been formulated, in conjunction with technical agencies, in order to minimise or prevent potential environmental damage.

4.15.6 *Loss of Habitat*

A statement declaring, "The creatures whose environment has been destroyed do not understand that another area within the Whitsundays is available for them", ignores the fact that the proposed development will result in the direct disturbance of only a small area of marine habitat associated with the construction of the pipeline. The area disturbed is a minor proportion of the existing habitat of the region. The EIS conclusion that managed impacts will not destroy the environment is supported.

<u>Conclusion</u>

Whilst WW raised a number of issues about the DIP, none were sufficiently compelling to suggest that the proposal not be approved. It is not proposed to recommend conditions additional to those suggested by Advisory Agencies or address matters additional to commitments made by the Proponent.

5 ASSESSMENT OF THE RELEVANT IMPACTS OF THE PROJECT ON MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

5.1 INTRODUCTION

This chapter addresses those sections of Part 5 of the *State Development and Public Works Organisation Regulation 1999* ("SDPWO Regulation 1999") which deal with the requirements of the Coordinator-General's report for proposals:

- declared as a significant project for which an EIS is required; and
- for which the Commonwealth has accredited assessment of the relevant impacts pursuant to the Queensland *State Development and Public Works Organisation Act 1971*.

5.2 THE PROJECT

The Dent Island Golf Course Resort comprises an integrated golf course and residential resort development. The initial two-and-a-half year phase will involve construction of an 18-hole, international-standard golf course, major infrastructure and some accommodation units. The balance of the project, totalling 109 five-star guest rooms, 38 villa suites and 172 predominantly two and three-bedroom apartments, will be completed over the following 7-10 years.

The initial development has been estimated to entail a capital outlay of about $25 million, with an additional $60 million investment required for the later phases. Construction is expected to generate about 600 peak full-time equivalent jobs, both on and off-site over the 10-year period. Approximately 100 full-time equivalent operational positions will support the integrated golf course resort.

A total golf course and resort footprint of 49.7 hectares is proposed, which represents about 13% of the total island area. The accommodation precinct will involve 10 hectares, with a building footprint of only 6 hectares, or less than 2% of the Island's area.

5.3 PLACES AFFECTED BY THE PROJECT

The places affected by the project are as follows:

- the approximately 50ha site located on Dent Island adjacent to Hamilton Island;
- the Mackay-Whitsunday Region of Queensland; and
- the Mackay Statistical Division.

5.4 CONTROLLING PROVISIONS FOR THE PROJECT

On 11 May 2001, and pursuant to Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC), the Commonwealth Minister for the Environment and Heritage determined that the DIP constituted a controlled action (EPBC reference no. 2001/259).

The Part 3, Division 1, controlling provisions were identified as being:

- sections 12 and 15A (World Heritage);
- sections 18 and 18A (Listed threatened species and communities); and
- sections 20 and 20A (Listed migratory species).

The Part 3, Division 2, controlling provisions were identified as being:
- sections 26 and 27A (Protection of the environment from actions involving Commonwealth land).

5.5 SUMMARY OF THE PROJECT'S RELEVANT IMPACTS

For the purpose of assessing the impacts of the project on matters of national environmental significance, this section describes the relevant impacts as defined by s. 82 of the EPBC Act. In the case of the Dent Island Project (DIP), the relevant impacts are those that the project has, will have or is likely to have on the controlling provisions. The relevant impacts of the project are summarised below for each of the controlling provisions.

5.5.1 World Heritage Values

Dent Island is located within the Great Barrier Reef Marine Park which was inscribed on the World Heritage List in 1981. The World Heritage values for the Great Barrier Reef World Heritage Area (GBRWHA) are listed in the table below. The DIP has the potential to impact on these values. The Proponent's assessment, as described in Table 2.2.3(D) of Appendix 8 of the SEIS, is represented in the right-hand column of the following table.

Great Barrier Reef World Heritage Values	Potential Impacts
Criterion (i) an outstanding example representing a major stage of the earth's evolutionary history. The Great Barrier Reef is by far the largest single collection of coral reefs in the world. The World Heritage values of the property include: • 2,904 coral reefs covering approximately 20,055km^2; • 300 coral cays and 600 continental islands: • reef morphologies reflecting historical and on-going geomorphic and oceanographic processes: • processes of geological evolution linking islands, cays, reefs and changing sea levels, together with sand barriers, deltaic and associated sand dunes; • record of sea level changes and the complete history of the reef's evolution are recorded in the reef structure; • record of climate history, environmental conditions and processes extending back over several hundred years within old massive corals; • formations such as serpentine rocks of South Percy Island, intact and active dune systems, undisturbed tidal sediments and "blue holes"; • record of sea level changes reflected in distribution of continental island flora and fauna.	The proposed development is unlikely to cause the loss of any of the natural or cultural values associated with the World Heritage listing.
Criterion (ii) an outstanding example representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment. Biologically the Great Barrier Reef supports the most diverse ecosystem known to man and its enormous diversity is thought to reflect the maturity of an ecosystem, which has evolved over millions of years on the northeast Continental Shelf of Australia. The World Heritage values include: • the heterogeneity and interconnectivity of the reef assemblage; • size and morphological diversity (elevation ranging from the	The proposed development is unlikely to cause the loss of any of the natural or cultural values associated with the World Heritage listing.

sea bed to 1,142m at Mt. Bowen and a large cross-shelf extent encompass the fullest possible representation of marine environmental processes);
• on going processes of accretion and erosion of coral reefs, sand banks and coral cays, erosion and deposition processes along the coastline, river deltas and estuaries and continental islands;
• extensive *Halimeda* beds representing active calcification and sediment accretion for over 10,000 years;
• evidence of the dispersion and evolution of hard corals and associated flora and fauna from the "Indo-West Pacific centre of diversity" along the north-south extent of the reef;
• inter-connections with the Wet Tropics via the coastal interface and Lord Howe Island via the East Australia current;
• indigenous temperate species derived from tropical species;
• living coral colonies (including some of the world's oldest);
• inshore coral communities of southern reefs;
• five floristic regions identified for continental islands and two for coral cays;
• the diversity of flora and fauna, including:
  • Macroalgae (estimated 400-500 species);
  • Porifera (estimated 1,500 species, some endemic, mostly undescribed);
  • Cnidaria: Corals – part of the global centre of coral diversity and including:
  • hexacorals (70 genera and 350 species, including 10 endemic species);
  • octocorals (80 genera, number of species not yet estimated);
  • Tunicata: Ascidians (at least 330 species);
  • Bryozoa (an estimated 300-500 species, many undescribed);
  • Crustacea (at least 1,330 species from 3 subclasses);
  • Worms:
  • Polychaetes (estimated 500 species);
  • Platyhelminthes: include free-living Tubelleria (number of species not yet estimated), polyclad Tubelleria (up to 300 species) and parasitic helminthes (estimated 1,000's of species, most undescribed);
  • Phytoplankton (a diverse group existing in two broad communities);
  • Mollusca (between 5,000-8,000 species);
  • Echinodermata (estimated 800 extant species, including many rare taxa and type specimens);
  • fishes (between 1,200 and 2,000 species from 130 families, with high species diversity and heterogeneity; includes the Whale Shark *Rhynchodon typus*);
  • seabirds (between 1.4 and 1.7 million seabirds breeding on islands);
  • marine reptiles (including 6 sea turtle species, 17 sea snake species, and 1 species of crocodile);
  • marine mammals (including 1 species of dugong (*Dugong dugon*), and 26 species of whales and dolphins);
  • terrestrial flora: see "Habitats: Islands" and;
  • terrestrial fauna, including:
  • invertebrates (pseudoscorpions, mites, ticks, spiders, centipedes, isopods, phalangids, millipedes, collembolans and 109 families of insects from 20 orders, and large over-wintering aggregations of butterflies); and
  • vertebrates (including seabirds (see above), reptiles: crocodiles and turtles, 9 snakes and 31 lizards, mammals);
	The proposed development will have a minor impact on a very small area of seagrass and coral habitat.
	
	The Draft Marine Turtle Recovery plan does not identify any negative impacts from boat landing facilities on marine turtles when these developments occur away from key breeding areas. Due to the low probability of spatial overlap between marine turtles and the proposed development, impacts on marine turtle populations will be negligible.
	
	The spatial scale of the development relative to the Whitsunday region is very low and it is in an area where dugong are not expected to frequently occur (due to limited feeding habitat).
	
	It is unlikely that an increased amount of boating will have any impact on the corals of the reef.
	
	There is potential for fuel/oil spills or sediment run-off from construction and earth-working activities during construction which will effect water quality and scenic integrity.
	
	The proposed development is not expected to interfere with cultural of heritage issues.

• the integrity of the inter-connections between reef and island networks in terms of dispersion, recruitment, and the subsequent gene flow of many taxa; • processes of dispersal, colonisation and establishment of plant communities within the context of island biogeography (e.g. dispersal of seeds by air, sea and vectors such as birds are examples of dispersion, colonisation and succession); • the isolation of certain island populations (e.g. recent speciation evident in two subspecies of the butterfly *Tirumala hamata* and the evolution of distinct races of the bird *Zosterops spp);* • remnant vegetation types (hoop pines) and relic species (sponges) on islands. • evidence of morphological and genetic changes in mangrove and seagrass flora across regional scales; and feeding and/or breeding grounds for international migratory seabirds, cetaceans and sea turtles.	

Criterion (iii) contain unique, rare and superlative natural phenomena, formations and features and areas of exceptional natural beauty. The Great Barrier Reef provides some of the most spectacular scenery on earth and is of exceptional natural beauty. The World Heritage values include: • the vast extent of the reef and island systems which produces an unparalleled aerial vista; • islands ranging from towering forested continental islands complete with freshwater streams, to small coral cays with rainforest and unvegetated sand cays; • coastal and adjacent islands with mangrove systems of exceptional beauty; • the rich variety of landscapes and seascapes including rugged mountains with dense and diverse vegetation and adjacent fringing reefs; • the abundance and diversity of shape, size and colour of marine fauna and flora in the coral reefs; • spectacular breeding colonies of seabirds and great aggregations of over-wintering butterflies; and migrating whales, dolphins, dugong, whale sharks, sea turtles, seabirds and concentrations of large fish.	The proposed development is unlikely to cause the loss of any of the natural or cultural values associated with the World Heritage listing.

Criterion (iv) provide habitats where populations of rare and endangered species of plants and animals still survive.
The Great Barrier Reef contains many outstanding examples of important and significant natural habitats for *in situ* conservation of species of conservation significance, particularly resulting from the latitudinal and cross-shelf completeness of the region. The World Heritage values include:
• habitats for species of conservation significance within the 77 broadscale bioregional associations that have been identified for the property and which include:
  • over 2,900 coral reefs (covering 20,055km^2) which are structurally and ecologically complex;
  • large numbers of islands, including:
  • 600 continental islands supporting 2,195 plant species in 5 distinct floristic regions;
  • 300 coral cays and sand cays;
  • seabird and sea turtle rookeries, including breeding populations of green sea turtles and Hawksbill turtles; and
	The proposed development is unlikely to cause the loss of any of the natural or cultural values associated with the World Heritage listing.
	
	The proposed development will have a minor impact on a very small area of seagrass and coral habitat.
	
	A small area of "of concern" regional ecosystem will be cleared

• coral cays with 300-350 plant species in 2 distinct floristic regions; • seagrass beds (over 5,000km^2) comprising 15 species, 2 endemic; • mangroves (over 2,070km^2) including 37 species; • *Halimeda* banks in the northern region and the unique deep water bed in the central region; and • large areas of ecologically complex inter-reefal and lagoonal benthos; and • species of plants and animals of conservation significance.	cleared. It is unlikely that an increased amount of boating will have any impact on the corals on the reef.

The following discussion identifies the aspects of the development which have the potential to impact on World Heritage values. It analyses the likelihood of those potential impacts. Any conditions addressing those potential impacts on matters of national environmental significance including any monitoring, enforcement or review procedures are included at the end of the discussion for each issue.

Acid Sulphate Soils

In commenting on the EIS, Advisory Agencies expressed concern about the exposure of Acid Sulphate Soils (ASS) to the environment during construction of DIP. ASS have the potential to be disturbed during project construction activities. When ASS are exposed to air through excavation, oxidation of some chemicals in the soil can cause effects such as lowering of the in-situ pH and that of any surface runoff and groundwater. Treatment of ASS sediments usually involves neutralisation of acid with lime (calcium carbonate or $CaCO_3$). The proportion of lime to be mixed with the ASS will depend on the potential acidity of the sediment.

The Proponent commissioned Ullman and Nolan Geotechnic to undertake ASS investigations for the SEIS. After conducting Dynamic Cone Penetrometer tests at four locations across the proposed disturbed area, it was concluded that the disturbance of seabed material would have only a low potential to result in net acid production. However, monitoring would be required to confirm this assessment.

DNRME indicated that the SEIS did not adequately address its concerns about the presence and likely exposure of acid sulphate soil in the landing area and the pipeline crossing location. DNRME requested that ASS investigations be undertaken in accordance with standard guidelines and that the EMP be amended to address the issue.

A subsequent report from the Proponent confirmed that it was not expected that materials with significant acid sulphate producing potential would be encountered and indicated that it was not feasible, at this stage, to undertake further test excavation at the pipeline landing due to it requiring the use of a track-mounted excavator. In lieu of further testing the Service Pipeline EMP was revised to include ASS investigations and remedial measures. This arrangement was acceptable to DNRME.

However for consistency, the management of ASS at the marine landing site, and at any sources of fill, also needed to be considered. Condition 4 of this Report requires the Marine Landing Facility sub-EMP be amended to reflect the ASS management protocol contained in the Service Pipeline sub-EMP. Both sub-EMPs must be amended to account for Acid Sulphate Soil management at any sites used to supply fill during construction activity.

Condition 2 also requires pre-construction ASS investigations to be incorporated into the Service Pipeline and Marine Landing Facility sub-EMPs. Where the investigations indicate that construction activity may be detrimental to the environment, an Acid Sulphate Soil Management Plan is to be prepared in accordance with relevant guidelines.

This condition is designed to control and limit potential impacts of ASS on waters and ecological systems (and consequently World Heritage Criteria (ii) and (iv)) by requiring appropriate investigation of ASS and providing for any necessary management during construction.

Condition 2

Acid Sulphate Soils

The draft Marine Landing Facility sub-EMP must be finalised, in consultation with the Department of Natural Resources, Mines and Energy (DNRME) and the Environmental Protection Agency (EPA), to reflect the same Acid Sulphate Soil management protocol contained in the Service Pipeline sub-EMP. Both sub-EMPs must be amended to incorporate the management of Acid Sulphate Soils at any sites used to supply fill during construction activity associated with the Marine Landing Facility and the Service Pipeline.

In addition to any advice received from DNRME the following requirements are to be incorporated into the Marine Landing Facility and Service Pipeline sub-EMPs.

- **A pre-construction Acid Sulphate Soil investigation is to be conducted at the relevant sites. The investigation must comply with the methods prescribed in the *Guidelines for Sampling and Analysis of Lowland Acid Sulphate Soils in Queensland (Ahern et al. 1998)* and the *Queensland Government Instructions for the Treatment and Management of Acid Sulphate Soils 2001*. Soil and sediment profiles should be mapped at a suitable scale and described according to the *Australian Soil and Land Survey Field Handbook (McDonald et al. 1990)* and *Australian Soil Classification (Isbell 1996).***
- **The pre-construction investigation is to be conducted by an experienced and appropriately qualified person, such as a certified professional soil scientist.**
- **The pre-construction investigation report must to be submitted to DNRME for perusal and approval before any site works commence.**
- **Where the pre-construction investigation indicates that construction activity may be detrimental to the environment, an Acid Sulphate Soil Management Plan is to be prepared in accordance with the guidelines cited above.**

Construction Timing

Marine construction activities have the potential to impact on the reproductive capacity of marine fauna and hence on World Heritage values. When scheduling construction activities, consideration needs to be given to the coral spawning season and the breeding or calving seasons of other fauna.

Condition 14 of this report requires the approval of GBRMPA and EPA for the project construction schedule prior to undertaking any construction.

Obtaining GBRMPA's and EPA's approval of the Proponent's construction schedule should assure that coral spawning, and the breeding and calving of other marine animals, proceeds with the least interruption. This will assist in protecting the integrity of the reef and the adjacent ecosystem and their World Heritage values.

Condition 14

Construction Timing

The timing of construction activities must not interfere with coral spawning or breeding or calving seasons for green turtles, dugongs, humpback whales or other migratory species. The construction schedule must be submitted to the Environmental Protection Agency.

Marine Landing Facility

Two new ferries will transport guests to and from Hamilton Island. The Dent Island jetty will be located on the north-eastern shoreline of the Island, slightly south of Titan Island and directly opposite Hamilton Island harbour. It will be visible only from the eastern side of Dent Island and the western side of Hamilton Island.

The EPA asserted during the EIS process that the location and design of the marine landing facility, and its impact upon the Great Barrier Reef Marine Park's values, was the most significant issue from that agency's perspective.

Following extensive investigation, the Proponent has decided that the jetty will be a piled structure to the outer edge of the reef flat (refer Appendix 2 of the EIS Supplementary Report: Dent Island – Jetty Option 3E). It will consist of a pile-supported double ramp ending at the top of the reef slope and a pontoon located over the reef slope. No dredging will be required.

DPIF has advised that construction must comply with a marine plant permit under s. 51 of the *Fisheries Act 1994*. The permit cannot be finalised until tenure of the marine landing facility and service pipeline area has been negotiated.

A draft Marine Landing Facility sub-EMP has been prepared to manage the impacts on the coral reef and its surrounding ecosystem, created by the construction, presence and use of the marine landing facilities on Dent and Hamilton Islands. Mitigation measures include: siting of the landing facility in consultation with relevant agencies; compliance with approval permits; and monitoring of construction equipment; and vessel movements.

The draft Marine Landing Facility sub-EMP will need to be finalised in consultation with the Environmental Protection Agency. Section 6.4 and Condition 18 of this report provides for completion of the Environmental Management Plan. Therefore no additional condition needs to be imposed upon the Proponent to deal with the Marine Landing Facility.

Service Pipeline

The bundled Service Pipeline will traverse Dent Passage and potentially impact on World Heritage values through the removal of marine flora and fauna. Three options have been considered by the Proponent for installing the pipeline across the, approximately 100-metre wide, Dent Island reef flat.

Option	Description	Impact	Comments
1	Burial of pipeline in a shallow trench across reef flat to Lowest Astronomical Tide (LAT).	Less than $50m^3$ of silt will be removed from the trench and $50m^2$ of coral habitat will be destroyed.	Trenching and burial will take 3-5 days.
2	Burial of pipeline in a shallow trench to the Mean Low Water Spring (MLWS) tidal level.	Less than $25m^2$ of coral habitat will be destroyed.	Trench excavation undertaken with shore-based excavators at low tide.
3	Laying of pipeline directly on the substratum across the reef flat.	Only coral directly below the pipeline will be destroyed.	Marker poles will identify the position of the pipeline at the outer reef flat and shoreward end of the pipeline, and midway across the reef flat to alert small boats.

The three options differ in their aesthetic and marine environmental values. Option 1 would have the greatest impact on coral communities whilst Option 3 would have the lowest impact on benthic communities but would have the greatest potential aesthetic impact. The Proponent stated in its response of 22 September 2003 that, "the least impact method will be selected from these options in consultation with GBRMPA, following inspection of the pipeline reef flat crossing site."

In its letter of 17 September 2003 to DSDI, DPIF stated that it, "would prefer temporary rather than permanent impacts on marine plants and therefore would prefer that the Service Pipeline be buried across the reef flat."

Furthermore, DPIF recommended that the construction and installation methodology should:

- be as expeditious as possible;
- affect as small an area as possible; and
- minimise the suspension of sediments.

Condition 16 of this Report reflects these concerns and requires evaluation by GBRMPA and DPIF of the preferred reef flat crossing option, the route and the methodology to install the Service Pipeline. This Condition and the Service Pipeline sub-EMP, will ensure that damage to benthic communities and the reef flat are minimised and that the consequent impact on World Heritage values is mitigated.

Condition 16 (part)

Service Pipeline

The relevant approvals for the Service Pipeline crossing of the Dent Island reef flat must be obtained from the Queensland Department of Primary Industries and Fisheries and the Great Barrier Reef Marine Park Authority. The applications for the relevant approvals must set out the Service Pipeline route, and construction and installation methodology.

Marine Construction Monitoring Program

Construction in the marine environment has the potential to impact on World Heritage values. A detailed draft marine construction monitoring program has been prepared by the Proponent to gauge the impacts of the Dent Island landing site jetty and barge apron construction, and reef-flat pipeline installation on the reef benthic communities. The monitoring program will possess an integrated reactive, or feedback, mechanism.

The draft monitoring program requires an initial, detailed survey of the corals and other organisms under direct threat from construction activity. It also features a requirement for a pre-construction baseline survey for the two construction sites and three similar control sites in the Dent Passage.

The survey is to be repeated at the end of construction and again 6 months after all construction activity has ceased. This monitoring program has been designed to enable the detection of a 10-20% change in coral cover with an 80% level of confidence.

Condition 16 of this Report requires the marine construction monitoring program to be refined in conjunction with GBRMPA, EPA and DPIF. The pre-construction, end-of-construction and post-construction survey of corals and other organisms are to be submitted to GBRMPA, EPA and DPIF in accordance with a schedule negotiated between the Proponent and those agencies.

A marine construction monitoring regime will minimise the injury to benthic communities, and consequent impact on World Heritage values, arising from construction activities in the Dent Passage.

Condition 16 (part)

Marine Construction Monitoring Program

The marine construction monitoring program must be approved by the Great Barrier Reef Marine Park Authority (GBRMPA), the Environmental Protection Agency (EPA) and the Department of Primary Industries and Fisheries (DPIF).

Details of the pre-construction, end-of-construction and post-construction surveys of corals and other organisms included in the marine construction monitoring program are to be submitted to GBRMPA, the EPA and DPIF in accordance with a schedule negotiated between the Proponent and those agencies.

Nutrient Management

A range of monitoring measures has been proposed by the Proponent to gauge nutrient runoff from the golf course. It is considered that the monitoring measures are acceptable. Similarly, the extensive range of management options, where unacceptable levels of nutrients are detected, would appear to cater for most contingencies. The Proponent has volunteered to implement the most relevant of the cited options to manage nutrients on Dent Island.

However to give further confidence of the acceptability of the arrangements, Condition 6 of this Report requires the Proponent to conduct “nutrient management modelling” and submit the results to EPA and DEH by a date negotiated between the parties.

The results of a nutrient management modelling exercise will allow EPA and DEH to assess the Proponent’s nutrient management expertise and therefore its ability to minimise pollution of land and marine ecosystems arising from golf course runoff.

Condition 17

Nutrient Management Modelling

The Proponent is to undertake nutrient management modelling in accordance with the requirements of the Environmental Protection Agency before commencing construction.

The results to the modelling and consequent recommended management responses and actions are to be submitted to the Environmental Protection Agency for consideration as soon as they become available.

Management responses or actions considered relevant by the Environmental Protection Agency must be incorporated into the Environmental Management Plan.

5.5.2 *Listed Threatened Species and Communities*

The EPBC Act lists all of Australia's protected species.

Schedule 3 of the *Nature Conservation Act 1992* and *Nature Conservation (Wildlife) Regulation 1994* lists all Queensland's vulnerable wildlife.

Terrestrial Flora

Threatened Species

Chapter 7 of the EIS summarised the key potential impacts on the environmental values of Dent Island and its surroundings. It concluded that there would be no net detrimental impacts on the physical environment resulting from the proposal's construction and operational activities.

The EIS described the existing environmental values associated with terrestrial flora and fauna, and the marine ecosystem in Section 5.4 - Nature Conservation. That section of the EIS also assessed the potential impacts of the proposal on those environmental values.

Francis and Chenoweth, on behalf of the Proponent, conducted a five-day flora survey on Dent Island between August 2001 and March 2002, and confirmed the presence of those plant species identified by Lavarack and McDonald in their 1990 report. The EIS disclosed that no species listed as rare or threatened under the *Nature Conservation (Wildlife) Regulation 1994* or the EPBC were recorded during field investigations.

Threatened Communities

Microphyll Vine Forest, Open Forest & Woodland, Tussock Grasslands, Freshwater Aquatic Habitats and Beach Scrub & Foreshore Areas were the five characteristic Dent Island habitats described in the EIS (2.5.4.2.6, pp. 5-34 to 5-36). Whilst all five habitats supported some fauna species, and some were the sole host for particular species, only the Beach Scrub was identified as a restricted habitat type on the Island and therefore the only one that should be completely protected from development.
The EIS maintained that construction of the golf course and the associated infrastructure will result in the disturbance of about 13% of the 383 ha of the natural vegetation of Dent Island. After receiving the Proponent's assurance that 87% of the Island's vegetation and terrestrial habitat would be retained, and therefore biodiversity would not be

jeopardised, the EPA accepted that the DIP would not be expected to reduce flora species diversity on the Island.

The DNRME questioned the impact on "Of Concern" regional ecosystems. Two of the three regional ecosystems mapped on the Island have been classified as "Of Concern" in terms of their conservation status under the *Vegetation Management Act 1999* (Qld).

The Proponent stated that clearing would result in the loss of only 3% of the "Of Concern" Regional Ecosystem 12.11 (Vine Forest). Similarly, only 9% of the "Of Concern" Regional Ecosystem 12.13 (Grasstree – Blady grass) will be removed for the DIP.

DNRME has requested that the Proponent demonstrates compliance with the relevant regional vegetation management code.

Condition 3 of this Report requires that, for each stage of the project, the Proponent consults with DNRME about any proposed vegetation disturbance or clearance and, where necessary, seeks approvals under the *Planning Act 1997* and the *Vegetation Management Act 1999*.

The management strategies incorporated into the Flora Management sub-EMP should ensure that the project can deliver net benefits to the community, economy and the environment, despite the minor damage and loss of "Of Concern" vegetation which is anticipated to occur.

The quality of habitat values on Dent Island is also expected to be protected from indirect impacts attributable to drainage, wastewater contamination and the spread of weeds by the measures contained in the Erosion & Sediment Control, Site Contamination, Flora Management, Fauna Management, Marine Landing Facility, Pest Plant & Animal Control, Landscaping & Rehabilitation/Regeneration, and Irrigation Management sub-EMPs.

Condition 3

Vegetation Clearance

For each stage of the project, the Department of Natural Resources, Mines and Energy must be consulted about any proposed vegetation disturbance or clearance and, where necessary, approvals must be obtained under the *Integrated Planning Act 1997*.

Terrestrial Fauna

"Section 5.4.2 - Terrestrial Fauna" of the EIS described the animals and habitats which exist or have been observed on Dent Island. The Proponent commissioned a "wet season" fauna survey which was conducted between February and March 2002. Data from a previous study, conducted by the EPA in July 1990, and from the Queensland Museum databases, was also considered when evaluating the existing state of the fauna on Dent Island.

No amphibians were observed on Dent Island during the survey period. Of the twelve reptile species identified (skinks, geckos and snakes), none were listed as threatened or rare. Whilst not observed, the EIS conceded that the **striped-tailed delma** (*Delma labialis*), a lizard declared vulnerable under the EPBC which is widely distributed in the Whitsundays, may occur on Dent Island.

Thirty-six bird species were observed on the Island and adjacent marine habitats. The EIS stated that fifteen of these species inhabit freshwater wetlands, foreshores and marine habitats while the balance of the species were observed in a range of habitats across the Island. No endangered, vulnerable or rare bird species were observed in the study area during the survey. However, the **bush stone-curlew** (*Burkinus grallanus*), listed as "near-threatened" in the EIS (s. 5.4.2.5, p. 5-32), was recorded on the Island.
Nine species of mammals were identified during the survey. Only one species of mammal, the **coastal sheathtail bat** (*Taphozous australis*), which is classified as "vulnerable" in the *Nature Conservation Act 1992* (Qld), was noted.

Twenty-three butterfly species were observed during the survey. Although six species of snail have been observed on Dent Island in the past, only two of them were conspicuous in the latest survey. Two species of crustacean were present in freshwater habitats on the Island. Of the invertebrates found in the survey area, the **coastal pearl-white butterfly** (*Elodina perdita*) is considered as of "conservation concern" and some of the species of land snails and freshwater crustaceans are described as "locally significant".

"Section 5.4.5 - Fauna" of the EIS confidently predicted that species diversity will be maintained by retaining, protecting and managing over 87% of the existing vegetation of Dent Island. The EIS further asserted that the design of the DIP will ensure that a minimum of 83-97% of each Regional Ecosystem will be retained and managed, thereby ensuring the maintenance of all habitat types on the Island.

Habitats and sites for the vulnerable coastal sheathtail bat, the striped-tailed delma and other significant species are to be protected, or damage is to be minimised, through the actions described in the Flora Management and Fauna Management sub-EMPs. These actions include maximum retention of native vegetation, revegetation of disturbed areas with local provenance material and reuse of cleared material, maintenance of vegetation health, introduction of compensatory habitat, pest management and maintenance of natural balance in fauna populations.

No conditions in addition to EMP requirements are required to ameliorate the impacts of the DIP.

Marine Ecosystem

Section 5.4.3.1, p.5-36 to p.5-43, section 5.12.2, p.5-120 to p.5-121 and a report in Volume 2 of the EIS describe the results of a biological survey of the marine environment surrounding Dent Island. The survey was undertaken by Sea Research in September 2001. Sea Research also undertook surveys in July 1991 and March 1995.

Section 5.4.3.1, p. 5-41 of the EIS indicated that within the marine benthic and fish communities in the vicinity of Dent Island there are no listed vulnerable or threatened species or communities.

However, in section 5.4.3.1, p. 5-42, the EIS stated that some marine species in the Dent Island vicinity are listed as vulnerable or endangered, or are listed as migratory species. The SEIS provided an assessment of the expected impacts of the development on dugong, four species of marine turtles and humpback whales which have been observed in the area. *As all are "listed migratory species", the evaluation of the project's impacts on them is described in the next section of this Chapter.*
Impacts which may degrade the marine environment could arise during the construction and operational phases of the DIP. Some impacts may arise during construction activities related to the marine landing facility, the service pipeline, the golf course and

the resort's accommodation. Operational impacts on the marine environment have been anticipated in sub-EMPs addressing, *inter alia,* damage to the service pipeline, vessel movements and run-off from the golf course and golf course resort accommodation.
Sub-EMPs have been developed to negate or minimise the potential impacts on the marine environment. The sub-EPMs include; Erosion & Sediment Control, Site Contamination, Water Quality, Tidal Flows & Storm Surge, Marine Landing Facility, Pest Plant & Animal Control, Transport, Sewerage Disposal, Service Pipeline, Irrigation Management and Emergency Response & Risk Management.

On this basis it is considered that no impacts on listed threatened species and communities are severe enough to warrant rejection of the project.

5.5.3 Listed Migratory Species

Section 2.2.3.8, page 20 and Tables 2.2.3(A-C) - Appendix 8-1 & Appendix 8-2 of the SEIS provide an assessment under EPBC of the likelihood of DIP impacting on the migratory species; **dugong** (*Dugong dugon*), marine turtle (i.e. **green turtle** (*Chelonia mydas*), **flatback turtle** (*Natator depressa*), **loggerhead turtle** (*Caretta caretta*) and **hawksbill turtle** (*Eretmochylus imbricata*)) and the **humpback whale** (*Megaptera novaeangliae*), respectively.

In summary, the analysis indicated that the DIP would neither deleteriously affect the existing populations nor interfere with their lifecycles. No submissions were received from Advisory Agencies about this specific assessment.

The EIS, section 5.4.2.5 (p. 5-32) reported that the **osprey** (*Pandion haliaetus*), **white-bellied sea-eagle** (*Haliaeetus leucogaster*), **whimbrel** (*Numenius phaeopus*) and **rainbow bee-eater** (*Merops ornatus*), all of which were observed on Dent Island, are listed migratory birds.

The EIS, section 5.4.5.4 (p. 5-49) stated that impacts on migratory species will be mitigated through protection of reef platform habitats and preservation of 97% of all vine forests. Details of the intended counter-measures are listed in the Flora Management, Fauna Management and Marine Landing Facility sub-EMPs.

It is considered that the extent of impacts on migratory species should not curtail the development of DIP.

5.5.4 Protection of the Environment from Actions Involving Commonwealth Land

<u>Dent Island Lightstation (Lighthouse and Surrounding Facilities)</u>

The Dent Island Lightstation, constructed in 1879, is considered to be of great cultural significance as one of the oldest permanent European buildings in the region. The ancillary complex associated with it represents a unique historical context relating to lighthouse use and development. The importance of the Lightstation is recognised by its being placed on the Queensland Heritage Register.
The Proponent acknowledges the significance of the Dent Island Lightstation and will protect it from intense visitor activity. Visitation limits will be set, prior to the operation of the Golf Course Resort, on the number of visitors permitted at the Lightstation at any time. This is confirmed in the Cultural Heritage sub-EMP.
A draft Conservation Management Plan for the Dent Island Lightstation has been prepared. It was included in the EIS. The Cultural Heritage sub-EMP indicates that all building works proposed at the Lightstation will be guided by an approved Cultural

Heritage Management Plan (CHMP). The sub-EMP also indicates that work will cease and relevant Cultural Heritage officers of EPA will be advised if archaeological material is detected during construction.

A report entitled "*Landscape Impact of Proposed Dent Island Golf Course on Lighthouse Character and Cultural Significance*" was included in the SEIS. It concluded that, "the proposed golf course will have no effect on the landscape setting of the Dent Island Lighthouse as viewed from the building complex, from close inshore or from offshore positions, nor [*sic*] on the evocation of history associated with perception of the Lighthouse complex as an isolated settlement."

With proper conservation arrangements in place and provided the strategies and actions detailed in the CHMP are adopted, the DIP will not impact on the cultural heritage values of the Dent Island Lightstation.

Golf Course Fairways

Parts of the 11th, 12th, 13th and 17th Fairways, and all of the 14th, 15th and 16th Fairways will be constructed on the Dent Island Commonwealth Lease (refer Fig. 2.1.2(B) and Fig. 5.4.4(A) of the EIS).

As indicated previously, "Section 5.4.5 Fauna" of the EIS predicted that species diversity will be maintained by retaining, protecting and managing over 87% of the existing vegetation of Dent Island. The EIS further asserted that the design of the DIP will ensure that a minimum of 83-97% of each Regional Ecosystem will be retained and managed, thereby ensuring the maintenance of all habitat types on the Island.

Other activities including construction and operational practices on the golf course leading to erosion, site contamination, weed growth and visual disturbance also have the potential to impact on Commonwealth land. Sub-EMPs have been developed to address these impacts.

The Flora Management and Fauna Management sub-EMPs contain significant measures to preserve the environmental values associated with the Commonwealth Land.

Additional measures supporting the maintenance of those environmental values are also contained in the Erosion & Sediment Control, Site Contamination, Water Quality, Pest Plant & Animal Control, Landscaping & Rehabilitation/Regeneration, Visual Amenity, Transportation, Irrigation Management, Emergency Response & Risk Management and Visitor Management sub-EMPs.

If the sub-EMPs are appropriately administered there will be no impacts involving Commonwealth land which warrant project rejection.

5.6 PROJECT ALTERNATIVES

The following project alternatives were investigated in the EIS (s. 3.3, p 3-5 to p 3-20):

- "no development" alternative;
- alternative locations for the proposed development;
- alternative development layouts;
- alternatives for site services infrastructure
- submarine pipeline alternatives; and
- transport alternatives.

5.6.1 "No Development" Alternative

The "no development" option would avoid all impacts on Dent Island and the Great Barrier Reef including those on terrestrial and marine flora and fauna, together with visual impacts associated with the project.

However the benefits associated with the project (described in s. 3.2, p 3-2 of the EIS) would be foregone. Some of the benefits include; an international standard golf course and accommodation associated with Hamilton Island which would lead to increased market appeal and greater length of visitor stay within the Whitsundays, economic benefits from construction and operation of the project, and environmental benefits through a well-managed golf course.

5.6.2 Alternative Locations for the Proposed Development

While Hamilton and Hayman Islands have golf driving ranges and South Molle and Lindeman Islands have small nine-hole par-three courses, the project will introduce the first 18-hole international standard golf course to the Whitsunday Islands area. Any mainland-based alternative to a Dent Island-based golf course is not considered to be a realistic alternative offering to attract visitors to Hamilton Island.

As golf courses are uneconomic as stand-alone operations, the resort accommodation component is a necessary element of the development.

No realistic alternative island locations for the golf course are apparent. A mainland based alternative would only increase the stock of conventional golf course alternatives for Hamilton Island.

5.6.3 Alternative Development Layouts

Locations on Dent Island suitable for the golf course and accommodation are dictated by;
- visual management constraints (e.g. not visible from a western perspective);
- environmental constraints;
- geotechnical constraints (e.g. low landslip potential and favourable excavation characteristics); and
- topographic constraints (e.g. well drained land which is not too steep to develop).

Within these constraints sufficient land was allocated for the golf course, while leaving suitable land for the resort accommodation.

After undertaking this exercise the Proponent advised that there were no practical alternatives to the locations selected for the Golf course and resort accommodation.

Roads on the island will provide golf buggy access for guests and employees, construction access, routes for underground services and stormwater drainage paths. Road locations are dictated by the policy to use existing tracks and other disturbed corridors, to areas of suitable grades and the need to connect the landing point, clubhouse and accommodation. These constraints limit the position of roads significantly.

5.6.3 Alternatives for Site Services Infrastructure

Potable water for Dent Island can be supplied from:

- Treated water imported from Hamilton Island

  In the initial stages of the Dent Island development the current water sources from Hamilton Island will be adequate to service the population at a 100 per cent safe sustainable yield. As the Hamilton and Dent Island populations grow, the existing raised dam and a new dam on Dent Island will be required.

  Supply of treated water in this manner will ensure efficient utilisation of existing resources and limit new infrastructure requirements.

- Treatment of water from the existing dam on Dent Island

  The existing dam on Dent Island cannot be raised sufficiently to meet the demand for both potable and irrigation water for the development as a stand-alone entity.

  Sites for additional dams have proved to be commercially or environmentally unstainable. An additional raw water dam can be constructed below the existing dam. While this dam would still not yield sufficient water, it will assist in spillway design of the existing dam and deter erosion.

  The establishment of a potable water treatment facility on Dent Island is not viewed favourably as it would increase infrastructure to be constructed and maintained on Dent Island, duplicate resources on Hamilton Island, and impose unnecessary constraints on making best use of available water resources.

- Desalination by a reverse osmosis plant on Dent Island

  As with duplication of the conventional water treatment plant, duplication of the desalination facilities on Hamilton Island would lead to unnecessary infrastructure on Dent Island, poor use of existing water resources and an additional deep water ocean outfall from Dent Island to return brine.

  The existing facilities on Hamilton Island can readily be augmented to provide the potable water required for Dent Island.

- Treated water imported from the mainland.

  Barging of treated water from the mainland is not a feasible alternative to providing Dent Island's potable water from Hamilton Island. In addition, the requirement to load and unload ballast water could be expected to have some adverse impact on the marine environment.

The most efficient method of providing potable water to Dent Island is from Hamilton Island's conventional water treatment and desalination plants. Potable water will be taken by submarine pipeline to two tanks on Dent Island with a capacity equivalent to two day's supply. Provision will be made to pipe raw water from Dent Island to the Hamilton Island treatment plant.

Irrigation water will be required for the golf course and landscaped gardens. Treated sewerage effluent and raw water from the existing Dent Island dam will be used in the first instance. As development proceeds all water from the existing dam will be needed for treatment to provide potable water, and irrigation water will come from treated Hamilton and Dent Island effluent. The Hamilton Island sewage treatment plant has

recently been upgraded to provide tertiary treatment. Treated effluent will be piped from this sewage treatment plant to a new storage dam on Dent Island constructed below the existing raw water dam.

Water for irrigation can be selected from raw water and treated sewerage effluent, in accordance with Hamilton Island's Water Management Plan which allows for the selection of water for different purposes recognising:-

- that treated effluent is to be used first;
- water consumption being recorded and currently projected for potable and irrigation water;
- the quality of tertiary treated sewerage effluent available for reuse;
- the preference of treated effluent for golf course irrigation;
- the current capabilities of all water catchment dams; and
- the need for maintenance on any part of the water supply system.

Sewerage treatment alternatives are limited to the existing upgraded treatment facility on Hamilton Island and a new and separate treatment plant on Dent Island. Treatment on an individual premises basis by septic tank or small treatment facility is not sustainable especially in a resort environment with a fluctuating population.

Following a planned further upgrade, by construction of a second sedimentation tank, the Hamilton Island plant will be able to cater for the combined needs of the Hamilton Island and Dent Island populations. Sewerage from Dent Island will be pumped to Hamilton Island for treatment. An emergency holding tank with the capacity to store two day's raw sewerage effluent will be provided on Dent Island.

Suitable siting of a treatment plant on Dent Island would be difficult to achieve, given the lack of flat land and the need to keep facilities remote from tourist and residential accommodation. In addition, a treatment plant is not favoured on Dent Island as it will:

- increase the infrastructure to be constructed and maintained on the island;
- duplicate resources on Hamilton Island; and
- impose unnecessary constraints on reuse of treated effluent.

The preferred arrangement is to treat Dent Island sewage to tertiary quality at the Hamilton Island sewerage treatment plant.

Electrical Power to Dent Island will be supplied from Hamilton Island (which is supplied from the mainland and a back-up generator on Hamilton Island) via a submarine cable across Dent passage.

Wind turbines are considered too expensive to operate and would detract from the scenery. There are no other feasible alternatives to supply power to Dent Island. It would be prudent to include the power cable with the submarine pipeline to be run across the seabed.

Telecommunications services (dual carrier microwave links to the mainland, mobile phone services, PABX, data transmission and payphone services, satellite emergency links) are provided to Hamilton Island.

The most feasible method of providing telecommunications to Dent Island is to extend the services provided to Hamilton Island. Mobile phone coverage on Dent Island will be achieved using the same cellular connections which service Hamilton Island. A submarine fibre optic link will be installed with the power cable to provide PABX, data

transmission and payphone services on Dent Island. The two satellite emergency links will also be available for Dent Island.

5.6.5 Service Pipeline Alternatives

The proceeding discussion of the available infrastructure alternatives supports the conclusion that Dent Island should be supplied with infrastructure services from Hamilton Island rather than stand-alone facilities. Water, sewerage, power and telecommunications services will be provided in a "bundled" submarine pipeline across Dent Passage.

The landing point on Hamilton Island is at the northeast corner of the airport. This location experiences little uncontrolled marine activity, and is not used for anchorage. The landing point is readily accessible from the shore, and is in an area already disturbed by resort construction activity. It is the closest point to Dent Island and has no natural fringing reef.

All alternative practical landfall points on Hamilton Island require greater length of submarine pipeline and involve crossing of a beach or reef.

A landing point at Dent Island, some 300m north of Cowrie Island is favoured because of:

- its remoteness from the marine landing (and reduced risk of pipeline damage from boating activities);
- the relative ease of access from the landfall, over the beach and up the natural shoreline slopes to the development area, thereby involving less excavation and clearing;
- the existing landform and vegetation in this gully allows installation of a pipeline with minimal environmental and visual impacts.

Alternative landing points where shoreline access is possible require either considerable clearing of vegetation in the gully giving access to the foreshore or a longer crossing of the fringing reef.

5.6.6 Transport Alternatives

The Dent Island Project will not be a stand-alone development. It is to be integrated into the operations of Hamilton Island resort and actively promoted as part of that resort. While there will be some direct access to Dent Island from other locations, the main transport connection will be from Hamilton Island. The only permitted means of motorised guest and resident staff transport on Dent (and Hamilton) Islands will be by golf buggy.

Transport facilities between Hamilton Island and Dent Island will cater for:

- pedestrians, principally day trippers i.e. bushwalkers;
- golf buggies and their occupants;
- service vehicles (e.g. refuse collection, gas delivery and goods delivery vehicles);
- grounds maintenance and baggage delivery/collection vehicles; and
- construction equipment.

Four possible embarkation points on Dent Island and two on Hamilton Island have been investigated:

- Dent Island (Option 1) just north of Cowrie Island involves the construction of a jetty, barge ramp, excavated swing basin and a rock armoured breakwater. The option is considered to be unsuitable because of the magnitude of excavation required and encroachment into the Great Barrier Reef Marine Park.
- Dent Island (Option 2) 500m north of Cowrie Island. The site suffers the same disadvantages as Option 1, albeit that there is slightly less cover of live, hard coral on the reef slope. In addition it is more exposed to waves approaching from the south.
- Dent Island (Option 3) just south of Titan Island where the beach and landward approach are relatively flat and afford easy barge access. This point provides the only vehicular access to the existing track system and the freshwater dam.
- Dent Island (Option 4), on the northern shoreline of Dent Island, is protected from the south, has accessible beach and landward approach, and the land behind the beach is suitable for development.
- Hamilton Island (Option 1). Service vehicles and construction equipment will embark from the existing barge ramp within Hamilton Island Harbour. The site is suitable because it is separate from the transportation and activities of resort guests. As an alternative a new facility could be built between the existing barge ramp and the mainland ferry jetty to cater for roll-on/roll-off vessels.
- Hamilton Island (Option 2). The existing mainland ferry jetty within Hamilton Island Harbour will be used for embarkation of pedestrians and perhaps golf buggies.

Hamilton Island Options I and 2 will be used for Hamilton Island embarkation. These existing services provide similar services to those required for the Dent Island development.

Dent Island (Option 3) has been selected as the preferred Dent Island embarkation point because of its:
- accessible beach and landward approach;
- safe access for vessels out of the strong currents near Dent Island;
- ready access to the existing track up the eastern slope of the island; and
- lack of need for construction of a new access road.

5.6.7 *Landing Point Design Alternatives*

Four alternative arrangements for providing access to Dent Island for visitor catamaran and ferry or transport/supply barge have been considered. While there are advantages in separating visitor and supply access, the resulting need for environmental disturbance at two points was considered undesirable.

Five optional landing point design arrangements have been considered:

Option A - Dredged Access Channel to Shoreline

A dredged channel across the reef flat would provide access to a barge ramp and floating catamaran dock on the shoreline. The access channel would be approximately 3 metres deep, 100 metres wide and traverse 150-200 metres of reef flat. Up to 60,000 cubic metres of material would be dredged over an area of up to 20,000 square metres.

Option B - Dredged Berth with Reclaimed Accessway from Shoreline

A small berthing basin at the outer edge of the reef flat would provide access to a barge ramp and floating catamaran dock at the end of a reclaimed accessway extending from the shoreline. Rock wave barriers would be constructed around the berthing basin. The basin would be approximately 3 metres deep, 70 metres wide and extend 50 metres into the reef flat. Up to 11,000 cubic metres would need to be dredged over an area of up to 3,500 square metres. The accessway would be 105 metres long and 45 metres wide. Total area of reef flat impacted by the basin and accessway would be approximately 8,225 square metres.

Option C - Dredged Berth with Piled Jetty Structure

A small berthing basin as outlined in Option B would be dredged to provide access to a floating catamaran dock and fixed barge landing ramp. No rock revetments would be required, the structure being designed as an all weather structure.

Option D – Floating Pontoon and Barge Ramp with Piled Jetty Structure

A fully piled structure would be constructed beyond the reef flat. A floating pontoon and floating barge ramp would be connected to the structure. The structure size would have to be increased to cope with design issues in its location. It would be very difficult to design the barge ramp to withstand the forces exerted by a barge landing.

Option E – Floating Pontoon and Piled Barge Ramp and Jetty Structure

A piled jetty structure would connect Dent Island to a pile supported double barge ramp ending on the top of the reef slope and to a floating pontoon located over the reef slope. No dredging will be required. If waves prove to be problematic for landing vessels, a floating breakwater would be constructed.

Option E is the preferred landing structure design. Options A, B and C are considered to have an unacceptable impact on the reef flat. Options D and E are considered to be better than Options A, B and C because they are constructed beyond the reef flat with access from Dent Island to the pontoon and ramp via a piled jetty structure causing less direct impact on the reef flat. The use of prestressed concrete sections and pre-painted steel piles will allow maximum off-site prefabrication.

Option D is considered to be too difficult to design as it would need to be braced sufficiently to take the forces exerted by a barge. In addition, it would not provide all weather access to the island. The preferred Option E would overcome these difficulties.

Option E would not require a dredged basin. The only direct impact on the reef would be due to the piles, shadow effects from the structure and construction of the toe of the barge ramp at the reef crest. The use of prestressed concrete sections and pre-painted steel piles would also allow the maximum amount of prefabrication off site.

5.7 CONCLUSION

The likely impacts that the Dent Island Golf Course Resort project will have on each of the controlling provisions have been studied. It is considered that the project can be completed in accordance with the conditions which have been imposed.

6 SUSTAINABLE DEVELOPMENT MEASURES

6.1 INTRODUCTION

Given that the DIP is a "significant project" and that the Whitsunday Shire Council is likely to receive an application for a material change of use in relation to the DIP, due regard for the obligations associated with the *Integrated Planning Act 1997* (IPA) must be observed. In particular, s. 1.2.1 of IPA declares that the purpose of the Act "is to seek to achieve ecological sustainability". As defined in s. 1.3.3 of the IPA, "ecological sustainability" involves long-term consideration of the physical, social, cultural and economic environments which may be affected by a development such as the DIP.

As explained in **Section 1, Introduction**, of this report, Hamilton West Proprietary Limited (HW), the project Proponent, is a wholly-owned subsidiary of Hamilton Island Enterprises Limited (HIE). HIE is the operator of the Hamilton Island tourist resort in the Whitsunday Islands. According to HW, HIE has developed a coordinated approach to foster both tourism and conservation by promoting **environmental best management practices** in the following two complementary policy areas.

- An integrated planning framework and management system for assessing and regulating facility design, construction and operation.
- Specific activities to be conducted at each site with the aim of minimising the impacts on the surrounding natural environment.

In supporting this corporate code of practice, the Proponent's parent company indicated during the course of the EIS process that it is committed to managing and maintaining the successful growth of tourism in the Whitsunday Islands. Simultaneously HIE will identify and adopt the relevant policies and guidelines which establish environmental protection and quality at the centre of all of its operations and developments.

6.2 BEST MANAGEMENT PRACTICES IN PLANNING AND DESIGN

HIE asserts that its planning framework promotes best management practice in tourism and pursues a prophylactic approach to environmental management. This policy is supported and reinforced by HIE's attention to:

- resort ambience resulting from features such as building density, building height, setbacks and landscaping;
- site and building design which incorporate water and wastewater management systems and drainage;
- management of construction activities; and
- supporting infrastructure such as transportation, sewerage systems, irrigation and emergency response protocols.

6.3 BEST MANAGEMENT PRACTICES FOR OPERATION OF TOURIST FACILITIES

HIE's stated aim is to provide imaginative tourism products which promote environmental awareness and appreciation. This approach is intended to reduce impacts on the natural environment and simultaneously confer a marketing edge for the resort.

In particular, HIE encourages the application of passive initiatives in building design. It recognises that judicious orientation of built structures, utilisation of natural lighting,

maintenance of cross ventilation, and the installation of solar panels and louvred systems promote architecturally innovative, energy-effective buildings.

The Proponent recognises that the operation of a well-conceived resort facility is just as important as its design if it is to be environmentally-friendly. In addition to the preparation of studies, guidelines and plans, a number of environmental management programs are to be established. These include:

- the use of indigenous species tolerant to local conditions in order to assist in stabilising degraded landscapes and to reduce water consumption;
- protection of existing vegetation, including transplanting existing vegetation within development footprints;
- the re-use of wastewater;
- on-site stormwater retention;
- a weed management program;
- a waste management program; and
- a stormwater management program.

These are cited as economical long-term sustainable alternatives to more traditional building practices. There is a commitment that all new development activity will reflect HIE's environmental commitment and other planning and development guideline documents.

6.4 DRAFT ENVIRONMENTAL MANAGEMENT PLAN

Purpose of EMP

The purpose of the draft Environmental Management Plan (EMP) is to identify appropriate mitigation measures for each potential environmental issue and to identify corrective actions to thwart unacceptable impacts.

Aim of EMP

The draft EMP's three main objectives are to provide:

- evidence of pragmatic management of the DIP proposal to ensure compliance with environmental requirements;
- Local Government, State and Commonwealth authorities and Hamilton West Pty Ltd with a framework to confirm compliance with their policies and requirements; and
- the community with evidence that management of the project will be conducted in an environmentally sustainable manner.

The draft EMP will be refined and enhanced as design details, staff schedules, equipment specifications and construction and operational procedures are more clearly defined. All requirements and modifications will be implemented after consultation with the relevant authorities.

Structure of EMP

The environmental management commitments identified during the EIS process are formalised in the draft EMP. In order to fulfil the Proponent's sustainable development objectives, the DIP-specific issues are addressed in sub-EMPs which are dedicated to the construction or operational phases; or in some cases both the construction and

operational phases of the DIP. The following table summarises the structure of the draft EMP.

Each sub-EMP should be regarded as an operational and reference tool; as such it will be refined or amended, in conjunction with the relevant statutory authorities, in order to achieve best practice environmental management. Such an approach is designed to minimise an activity's environmental harm through cost-effective measures.

The key factors involved in the implementation of best practice environmental management include:

- instituting administrative systems which incorporate, *inter alia*, staff training, system monitoring and system review;
- relevant stakeholder consultation;
- service creation and delivery; and
- waste prevention, treatment and disposal.

The Proponent has agreed to appoint an independent environmental supervisor. The role of this supervisor is set out in the responsibility and reporting arrangements of the EMP.

In summary the draft EMP, and its subsequent revisions, will encourage the effective management of environmental impacts during the construction and operation of the golf course resort. Furthermore, the monitoring protocol will gauge the success of that effectiveness.

Condition 15

Environmental Management Plan

The draft Environmental Management Plan for the proposed development, (provided in the Supplementary Environmental Impact Statement and updated in correspondence dated 22 September 2003 from Humphreys Reynolds Perkins Planning Consultants to the Department of State Development and Innovation) must be finalised in accordance with the *Environmental Protection Act 1994*, and in consultation with the Environmental Protection Agency, and submitted with the application for a development permit to commence construction works.

The Environmental Management Plan is to address the construction and/or operational elements of the sub-EMPs described in the table below.

ELEMENTS OF ENVIRONMENTAL MANAGEMENT PLAN				
Issue		Phase of Project		
No	Description	C[1]	O[2]	C&O[3]
1	Erosion & Sediment Control	X	X	
2	Site Contamination			X
3	Water Quality	X	X	
4	Tidal Flows & Storm Surge			X
5	Flora Management			X
6	Fauna Management			X
7	Marine Landing Facility	X	X	
8	Pest Plant & Animal Control			X
9	Landscaping & Rehabilitation/Regeneration			X

10	Visual Amenity			**X**
11	Noise & Vibration	**X**		
12	Air Quality	**X**		
13	Transport			**X**
14	Potable Water Management			**X**
15	Sewage Disposal			**X**
16	Service Pipeline			**X**
17	Irrigation Management			**X**
18	Emergency Response & Risk Management	**X**	**X**	
19	Cultural Heritage	**X**		
20	Visitor Management		**X**	

C[1] Sub-EMP dedicated to the Construction Phase
O[2] Sub-EMP dedicated to the Operational Phase
C&O[3] Sub-EMP addresses both Construction and Operational Phases

Reason

This condition is designed to ensure effective management of environmental impacts generated by the development.

7 CONCLUSION

The documentation provided during the EIS process is considered to have satisfied the requirements of the Queensland Government for impact assessment in accordance with the *State Development and Public Works Organisation Act 1971*. It has provided sufficient information to the three levels of government, and to the community, to allow an informed evaluation of potential environmental impacts which could be attributed to the Dent Island Golf Course Resort project (DIP). Careful management of the key pre-construction, construction and operational activities should ensure that any potential environmental impacts will be reduced or avoided.

The influence of construction activity associated with the DIP, and the subsequent environmental performance attributable to its ongoing operation, will be monitored by a variety of public agencies; particularly the Environmental Protection Agency, the Commonwealth Department of the Environment and Heritage, the Great Barrier Reef Marine Park Authority, the Department of Natural Resources, Mines and Energy, the Department of Primary Industries and Fisheries, the Department of Local Government, Planning, Sport and Recreation and the Whitsunday Shire Council.

On the basis that the key impacts have been identified, countermeasures developed and a variety of monitoring programs designed for the DIP, it is appropriate to support the Proponent's intention to proceed with the project.

Therefore, I recommend that approval of the project, as described in detail in the EIS and SEIS, and summarised in Section 2 of this report, be granted and that the conditions contained in *Appendix 1 – Conditions*, must be attached to any development approval by the Assessment Manager.

Hamilton West Proprietary Limited and their agents, lessees, successors and assigns, as the case may be, must implement the conditions in this Report (Appendix 1) and all commitments presented in the EIS and SEIS and consequent discussions. In the event of any inconsistencies, the conditions of this Report prevail.

Copies of this Report will be issued to the:

- Proponent, pursuant to s. 35(5)(a) of *the State Development and Public Works Organisation Act 1971* (Qld) {This Report should then comprise part of the Proponent's applications for any development approvals for a Material Change of Use pursuant to the *Integrated Planning Act 1997* (Qld)};
- Assessment Manager (i.e. the Whitsunday Shire Council), pursuant to s. 40 of *the State Development and Public Works Organisation Act 1971* (Qld);
- Commonwealth Minister for the Environment and Heritage to assist the Honourable the Minister's decision regarding the controlled actions for this project pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).

A copy of this Report will also be forwarded to Advisory Agencies and made publicly available on the Department of State Development and Innovation's web site.

Paul Fennelly
COORDINATOR-GENERAL
Date / /

APPENDIX 1 – CONDITIONS

Schedule 1

Conditions to be attached to the Development Permit for the Material Change of Use under the *Integrated Planning Act 1997.*

Condition 1

Site Development

The proposed development of the Dent Island Golf Course Resort Development, involving construction of an 18-hole, international-standard golf course, 109 five-star guest rooms, 38 villa suites and 172 predominantly two-bedroom and three-bedroom apartments and associated infrastructure must be undertaken in accordance with the Dent Island master plan, attached as Appendix 1, Schedule 3.

The Conditions detailed in Appendix 1, Schedule 2 of this Report, which are to be administered by the Environmental Protection Agency, must be complied with.

Condition 2

Acid Sulphate Soils

The draft Marine Landing Facility sub-EMP must be finalised, in consultation with the Department of Natural Resources, Mines and Energy (DNRME) and the Environmental Protection Agency (EPA), to reflect the same Acid Sulphate Soil management protocol contained in the Service Pipeline sub-EMP. Both sub-EMPs must be amended to incorporate the management of Acid Sulphate Soils at any sites used to supply fill during construction activity associated with the Marine Landing Facility and the Service Pipeline.

In addition to any advice received from DNRME the following requirements are to be incorporated into the Marine Landing Facility and Service Pipeline sub-EMPs.

- A pre-construction Acid Sulphate Soil investigation is to be conducted at the relevant sites. The investigation must comply with the methods prescribed in the *Guidelines for Sampling and Analysis of Lowland Acid Sulphate Soils in Queensland (Ahern et al. 1998)* and the *Queensland Government Instructions for the Treatment and Management of Acid Sulphate Soils 2001*. Soil and sediment profiles should be mapped at a suitable scale and described according to the *Australian Soil and Land Survey Field Handbook (McDonald et al. 1990)* and *Australian Soil Classification (Isbell 1996).*

- The pre-construction investigation is to be conducted by an experienced and appropriately qualified person such as a certified professional soil scientist.

- The pre-construction investigation report must be submitted to DNRME for perusal and approval before any site works commence.

- Where the pre-construction investigation indicates that construction activity may be detrimental to the environment, an Acid Sulphate Soil Management Plan is to be prepared in accordance with the guidelines cited above.

Condition 3

Vegetation Clearance

For each stage of the project, the Department of Natural Resources, Mines and Energy must be consulted about any proposed vegetation disturbance or clearance and, where necessary, approvals must be obtained under the *Integrated Planning Act 1997.*

Condition 4

Clearing and Landscaping

Any vegetation removed shall be disposed of to the requirements of the Whitsunday Shire Council. Transplanting, chipping or removal from site is the preferred solution.

A Development Permit for Operational Works (Landscaping) application shall be approved by Whitsunday Shire Council prior to the commencement of work on site for each stage.

The application shall be accompanied by detailed plans and specifications. The landscaping should seek to achieve the minimum requirements for landscaping as contained in Whitsunday Shire Council's Development Manual.

The landscaping shall be established in accordance with the approved plans prior to the commencement of the use and maintained thereafter to the requirements of Whitsunday Shire Council.

Condition 5

Building Works

Prior to issue of any Development Permit for Building Works, certificates of structural and geotechnical compliance with accepted standards must be provided by both Structural and Geotechnical Engineers. All work must be supervised by the Structural and Geotechnical Engineers and a Certificate of Completion must be provided to Whitsunday Shire Council prior to occupancy of the buildings.

Condition 6

Water Reticulation

A potable water supply must be designed, constructed and maintained in accordance with Australian Standard AS3500 and the requirements of the National Health and Medical Research Council Guidelines.

Condition 7

Sewer Reticulation

An internal sewerage system must be designed, constructed and maintained in accordance with Australian Standard AS3500.

Condition 8

Roadways, Driveways and Parking

All roadways, driveways and parking shall be designed in accordance with Australian Standard AS 2890 and comprise a sealed pavement to Whitsunday Shire Council's requirements.

All roadways and driveways shall be constructed prior to commencement of use of each stage and maintained thereafter to the requirements of Whitsunday Shire Council.

All cut/fill batter/slopes are to be protected and retained in a visually acceptable manner, with certified retaining structures, approved by Whitsunday Shire Council's Assessment Manager. None of these structures is to be greater than two (2) metres in height. Gabion walls are not an acceptable solution. No cut and/or fill batter shall be left unprotected.

Condition 9

Stormwater and Flooding

All stormwater drainage works are to be designed and constructed in accordance with the Queensland Urban Drainage Manual and Whitsunday Shire Council's Development Manual.

Condition 10

Electricity and Telecommunications

Electricity and telecommunications connection must be provided to the proposed development to the requirements of the relevant authority. A certification of compliance shall be provided from the relevant authority prior to the commencement of use of each stage of the development.

Condition 11

Geotechnical Matters

Any application for a Development Permit for Building or Operational Works shall be accompanied by a Geotechnical Report. The geotechnical report may be submitted to an independent Geotechnical Consultant for review and preparation of the appropriate:

- Request for further information.
- Conditions to be included on any Development Permit for Building or Operational Works.

All work on site shall be supervised by the Developer's Engineer who shall ensure that all work is completed in accordance with the proposal and any Development Permit for Building or Operational Works conditions. A certification to confirm compliance shall be provided prior to the commencement of the use.

The following geotechnical matters will be considered in future reports;

- all driveways and drainage works to be built to a standard secure from erosion before building works commence in the relevant sub-precincts.
- control of drainage being fundamental to slope stability.
- minimum factor of safety for slip of 1:4 for buildings.

- minimise cut and fill.
- engineered retaining walls no higher than two (2) metres unless agreed otherwise by Council.
- limited vegetation clearing of the site.
- more detailed investigation and analysis to be undertaken.

Condition 12

Cultural Heritage

If any item of cultural heritage is identified during site works, all work shall cease and the Department of Natural Resources Mines and Energy shall be notified. Work can resume only after clearance is obtained from that Department.

Condition 13

Miscellaneous Matters

Provision and maintenance of refuse collection areas is to be undertaken in accordance with the requirements of the Coordinator – Environmental Health.

The colour scheme of all buildings and works shall comprise muted tones such as greys, browns, greens, dark blues and be approved by the Manager - Development & Environmental Services.

Any alteration necessary to electricity, telephone, and/or public utility installations resulting from the development or in connection with the development, shall be at full cost to the developer.

Condition 14

Construction Timing

The timing of construction activities must not interfere with coral spawning or breeding or calving seasons for green turtles, dugongs, humpback whales or other migratory species. The construction schedule must be finalised in consultation with the Environmental Protection Agency and incorporated into an appropriate sub-EMP.

Condition 15

Environmental Management Plan

The draft Environmental Management Plan for the proposed development, (provided in the Supplementary Environmental Impact Statement and updated in correspondence dated 22 September 2003 from Humphreys Reynolds Perkins Planning Consultants to the Department of State Development and Innovation) must be finalised in accordance with the *Environmental Protection Act 1994*, and in consultation with the Environmental Protection Agency, and submitted with the application for a development permit to commence construction works.

The Environmental Management Plan is to address the construction and/or operational elements of the sub-EMPs described in the table below.

ELEMENTS OF ENVIRONMENTAL MANAGEMENT PLAN				
Issue		Phase of Project		
No	Description	C[1]	O[2]	C&O[3]
1	Erosion & Sediment Control	X	X	
2	Site Contamination			X
3	Water Quality	X	X	
4	Tidal Flows & Storm Surge			X
5	Flora Management			X
6	Fauna Management			X
7	Marine Landing Facility	X	X	
8	Pest Plant & Animal Control			X
9	Landscaping & Rehabilitation/Regeneration			X
10	Visual Amenity			X
11	Noise & Vibration	X		
12	Air Quality	X		
13	Transport			X
14	Potable Water Management			X
15	Sewage Disposal			X
16	Service Pipeline			X
17	Irrigation Management			X
18	Emergency Response & Risk Management	X	X	
19	Cultural Heritage	X		
20	Visitor Management		X	

C[1] Sub-EMP dedicated to the Construction Phase
O[2] Sub-EMP dedicated to the Operational Phase
C&O[3] Sub-EMP addresses both Construction and Operational Phases

Recommended Conditions to be imposed on a Marine Parks Permit

Condition 16

Service Pipeline and Marine Construction Monitoring Program

The relevant approvals for the Service Pipeline crossing of the Dent Island reef flat must be obtained from the Queensland Department of Primary Industries and Fisheries and the Great Barrier Reef Marine Park Authority. The applications for the relevant approvals must set out the Service Pipeline route, and construction and installation methodology.

The marine construction monitoring program must be approved by the Great Barrier Reef Marine Park Authority (GBRMPA), the Environmental Protection Agency (EPA) and the Department of Primary Industries and Fisheries (DPIF).

Details of the pre-construction, end-of-construction and post-construction surveys of corals and other organisms included in the marine construction monitoring program are to be submitted to GBRMPA, the EPA and DPIF in accordance with a schedule negotiated between the Proponent and those agencies.

Condition 17

Nutrient Management Modelling

The Proponent is to undertake nutrient management modelling in accordance with the requirements of the Environmental Protection Agency before commencing construction.

The results to the modelling and consequent recommended management responses and actions are to be submitted to the Environmental Protection Agency for consideration as soon as they become available.

Management responses or actions considered relevant by the Environmental Protection Agency must be incorporated into the Environmental Management Plan.

Schedule 2 - Conditions prepared for the Coordinator-General by EPA

Conditions applying to dredging and the treatment of sewage associated with the development of Dent Island.

Parts Applicable to this authority:

1. Part 1 General Conditions All Activities

2. Part 2 Sewage treatment

3. Part 3 Dredging

Part 1 General conditions applicable to all activities covered under this approval

Activity

Prevent and /or minimise likelihood of environmental harm

(A1-1) In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and / or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority.

NOTE: This authority authorises the environmentally relevant activity. It does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

Maintenance of measures, plant and equipment

(A2-1) The holder must:

install all measures, plant and equipment necessary to ensure compliance with the conditions of this authority; and

maintain such measures, plant and equipment in a proper and efficient condition; and

operate such measures, plant and equipment in a proper and efficient manner.

Records

(A5-1) Record, compile and keep all monitoring results required by this document and present this information to the administering authority when requested, in a specified format.

(A6-1) Records must be kept for five years

(A7-1) The administering authority must be notified as soon as practicable when the release of contaminants is not in accordance with the conditions of this authority or any event where environmental harm may be caused.

(A8-1) Written advice of any event referred to in (A7-1) must be provided within fourteen (14) days following the event and must include:

(a) the location of the event;
(b) the time of the event;
(c) the time the holder of the environmental authority became aware of the event;
(d) the suspected cause of the event;
(e) a description of the resulting effects of the event;
(f) actions taken to mitigate any environmental harm and or environmental nuisance caused by the event; and
(g) proposed actions to prevent a recurrence of the event.

Integrated Environmental Management System (IEMS)

(A9-1) An Integrated Environmental Management System (IEMS) must be developed and implemented prior to carrying out of the activities permitted by this authority.

(A9-3) The Integrated Environmental Management System must provide for at least the following functions:

(i) The measurement and monitoring of contaminants released into the environment including procedures, methods, record keeping and notification of results;

(ii) The assessment of the environmental impacts of any releases of contaminants into the environment;

(iii) The training of all relevant staff in the awareness of environmental issues, including:

(a) The environmental policy of the holder of this authority so that staff are aware of any relevant commitments to environmental management; and
(b) Any relevant environmental objectives and targets so that all staff are aware of the relevant performance objectives and can work towards these; and
(c) Control procedures for routine operations for day to day operational activities to prevent or minimise environmental harm, however occasioned or caused; and
(d) Contingency plans and emergency procedures for non-routine situations to deal with foreseeable risks and hazards including corrective responses to prevent and mitigate environmental harm (including any necessary site rehabilitation); and
(e) Organisational structure and responsibility to ensure that roles, responsibilities and authorities are appropriately defined to manage environmental issues effectively; and
(f) Effective communication to ensure two-way communication on environmental matters between operational staff and higher management; and
(g) Their obligations in respect of record keeping required under this environmental authority.

(iv) Periodic conduct of energy audits and review of environmental performance and procedures adopted , not less frequently than every three years;
(v) Waste management plans for waste prevention, treatment and disposal.
(vi) A storm water management plan;
(vii) An irrigation management plan for the sustainable disposal of effluent to land;
(viii) A biosolids management plan;
(ix) Contingency plans and emergency procedures for the operation of the environmentally relevant activities;
(x) Maintenance plans for critical components, and
(xi) A program for continuous improvement.

(A9-4) The waste management plans referred to in condition A9-3 (v) must address at least the following:

(a) the estimated quantity and nature of each waste produced;
(b) the current method of disposal;
(c) proposed methods of pre-treatment or disposal;
(d) proposals for reductions in the quantity of waste produced through waste minimisation and cleaner production, and
(e) the maintenance of records for the removal and disposal of waste from the premises.

(A9-5) The stormwater management plan referred to in condition A9-3 (vi) must have regard for best practice erosion and sediment control and must achieve the following outcomes:

(a) prevention of incident storm water and storm water run-off from contacting wastes or contaminants;
(b) diversion of upstream run-off away from areas containing wastes or contaminants;
(c) collection, treatment and disposal of contaminated storm water run-off, for example, from waste disposal sites and any short term solid waste storage areas;
(d) details the natural water flows;
(e) details the location and design of water diversions and sediment control measures;

(f) details the inspection and maintenance of diversion and sediment control measures; and
(g) provides for the periodic monitoring of the effectiveness of the control measures (for example by the measurement of suspended solids levels).

(A9-6) The irrigation management plan referred to in condition A9-3 (vii) must achieve the following outcomes:

(a) the efficient application of effluent to land utilising best practice methods;
(b) the control of salinity and sodicity in any receiving soils;
(c) the minimal soil structure degradation;
(d) the control of nutrient and heavy metal build up in both soils and subsoil from effluent and other sources;
(e) the prevention of subterranean flows of effluent to waters;
(f) the prevention of impacts on the groundwater resource through infiltration;
(g) the prevention of effluent run-off from receiving soils by limiting application rates and/or the use of tail-water dams;
(h) the prevention of surface ponding in areas accessible to the general public;
(i) the prevention of spraydrift or overspray from effluent disposal areas;
(j) the prevention of damage to native vegetation;
(k) maximisation of health and safety protection in relation to effluent handling and irrigation definition the effluent irrigation area.
(l) The prevention of impacts on potable water supplies, and
(m) Details the areas to be used for effluent irrigation.

(A9-7) The bio-solids management plan referred to in condition A9-3 (viii) must address at least the following:

(a) the estimated quantity and nature of bio-solids produced;
(b) the current method of disposal;
(c) any proposed methods of pre-treatment or disposal; and
(d) the subsequent environmental impacts and corrective and preventive measures taken to prevent and / or minimise the likelihood of environmental harm associated with biosolids.

(A9-9) An up to date copy of the Integrated Environmental Management System must be kept in a location readily accessible to personnel carrying out the activities.

(A9-10) The IEMS must be maintained and updated at least once every five years.

(A9-11) The IEMS must not be implement or in a way that contravenes any condition of this authority, or any development condition applicable to carrying out the activities.

Acid sulphate soils (ASS)

(A9-4) You must comply with the latest edition of the Queensland Environmental Protection Agency's INSTRUCTIONS FOR THE TREATMENT AND MANAGEMENT OF ACID SULPHATE SOILS, 2001, produced by the Queensland Environmental Protection Agency in consultation with the Department of Natural Resources and Mines and the Department of Primary Industries.

(A10-1) Acid sulphate soils must be managed such that contaminants are not directly or indirectly released, as a result of the activity, to any waters or the bed and banks of any waters.

END OF CONDITIONS FOR SCHEDULE A PART 1

Schedule B - Air

Nuisance

(B1-1) The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any odour sensitive place.

END OF CONDITIONS FOR SCHEDULE B PART 1

Schedule C- Water

Erosion and sediment control

(C1-1) Earthworks and clearing on site must be in compliance with the stormwater management plan.

END OF CONDITIONS FOR SCHEDULE C PART 1

Schedule D – Noise and vibration

Noise nuisance

(D1-1) Noise from activities must not cause an environmental nuisance at any noise affected premises.

END OF CONDITIONS FOR SCHEDULE D PART 1

Schedule E Waste Management

(E1-1) All regulated waste removed from the site must be removed by a person who holds a current environmental authority to transport such waste under the provisions of the Environmental Protection Act 1994.

END OF CONDITIONS FOR SCHEDULE E PART 1

Schedule G - Community

Complaint response

(G1-1) All complaints received must be recorded, including investigations undertaken, conclusions formed and action taken. This information must be made available to the administering authority on request.

END OF CONDITIONS FOR SCHEDULE G PART 1

END OF CONDITIONS FOR PART 1

PART 2 Sewage Treatment

Schedule A – General

(A1-2) This authority applies to the treatment of a maximum 1800 cubic meters of effluent per day by the Hamilton island sewage treatment plant for 6000 equivalent persons.

Annual monitoring report (Sewage treatment)

(A2-2) An annual monitoring report must be provided to the administering authority with the annual return. This report shall include but not be limited to:

(a) summary of the previous twelve (12) months' monitoring results obtained under any monitoring programs required under this authority and, in graphical form showing relevant limits, a comparison of the previous twelve (12) month's monitoring results to both this authority limits and to relevant prior results;

(b) an evaluation/explanation of the data from any monitoring programs;

(c) a summary of any record of quantities of releases required to be kept under this authority;

(d) a summary record of equipment failures or events that have caused environmental harm or have potential to cause environmental harm must be recorded for any site under this authority; and

(e) an outline of actions taken or proposed to minimise the environmental risk from any deficiency identified by the monitoring or recording programs;

END OF CONDITIONS FOR SCHEDULE A PART 2

Schedule C – Water

Release to waters

(C1-2) Contaminants must only be released to waters from the discharge location and in compliance with the release limits listed in Schedule C Table 1

SCHEDULE C TABLE 1 - RELEASE QUALITY CHARACTERISTIC LIMITS

Sampling point	Release point	QUALITY CHARACTERISTICS	RELEASE LIMIT	LIMIT TYPE
Chlorine contact tank outlet	W1	5-day Biochemical Oxygen Demand	10mg/l	80th percentile
Chlorine contact tank outlet	W1	5-day Biochemical Oxygen Demand	20mg/l	maximum
Chlorine contact tank outlet	W1	Suspended Solids.	15mg/l	80th percentile
Chlorine contact tank outlet	W1	Suspended Solids.	30mg/l	maximum
Chlorine contact tank outlet	W1	pH	6.5 - 8.5	range
Effluent collection well	W1	Dissolved Oxygen	2 mg/L	minimum
Chlorine contact tank outlet	W1	Free Residual Chlorine	0.7(mg/L)	maximum
Chlorine contact tank outlet	W1	Ammonia	1(mg/l)	max.
Chlorine contact tank outlet	W1	Total Nitrogen	5(mg/l)	max.
Chlorine contact tank outlet	W1	Total Phosphorus as P.	1(mg/l)	max.
Chlorine contact tank outlet	W1	Faecal Coliforms (CFU/100mL)	1000 colonies per 100 millilitres	median(1)
Chlorine contact tank outlet	W1	Faecal Coliforms (CFU/100mL)	4000 colonies per 100 millilitres	Max

Notes: (1) Median and 80th percentiles must be based on the results of at least five consecutive samples, individual samples may be collected at intervals specified in Schedule C Table 3

(2) "80th percentile" for this quality characteristic means that the measured values of the quality characteristic must not be greater than the limit for any more than one out of five consecutive samples.

Discharge location details

(C2-2) Contaminants must only be released to waters from the discharge location W1.

Discharge Location W1 - namely release of treated sewage effluent from Hamilton Island STP to waters described as Dent Passage, Coral Sea at a location described as adjacent to the treatment plant.

(C3-2)The discharge location W1 must be submerged such that the top of the outfall pipe is at least 20 metres below Low Water Datum.

Monitoring

(C4-2)Monitoring must be undertaken and records kept of contaminant releases to waters from the final contact tank for the parameters and not less frequently than specified in Schedule C Table 2. All determinations of the quality of contaminants released must be:

(a) made in accordance with methods prescribed in the latest edition of the Environmental Protection Agency Water Quality Sampling Manual; and

(b) carried out on samples that are representative of the discharge.

SCHEDULE C - TABLE 2 - MONITORING FREQUENCY

QUALITY CHARACTERISTIC DETERMINATION	MONITORING POINTS	FREQUENCY
5-day Biochemical Oxygen Demand.	Chlorine Contact tank Outlet	monthly
Suspended Solids.	Chlorine Contact tank Outlet	monthly
pH.	Chlorine Contact tank Outlet	daily
Dissolved Oxygen.	Chlorine Contact tank Outlet	daily
Free Residual Chlorine.	Chlorine Contact tank Outlet	daily
Faecal Coliforms. (Organisms/100 ml)	Chlorine Contact tank Outlet	quarterly
Ammonia (mg/l)	Chlorine Contact tank Outlet	Monthly
Total Nitrogen (mg/l)	Chlorine Contact tank Outlet	Monthly
Total Phosphorous as P (mg/l)	Chlorine Contact tank Outlet	Monthly

(C5-2) The total quantity of contaminants released to waters via the release point W1, must not exceed the respective quantities stated for the release point in Schedule C - Table 4 on any dry weather day or on any one day.

Schedule C - Table 4

Maximum permitted quantity of release		
Release point	**Maximum release on any dry weather day**	**Maximum release on any one day**
W1	1800 cubic meters	3200 cubic meters

(C6-2) The daily volume of contaminants released to waters must be determined or estimated by an appropriate method, for example a flow meter, and records kept of such determinations and estimates.

(C7-2) The release of contaminants into Dent Passage for any one year must not exceed 5% of the total volume of contaminants treated by the sewage treatment plant.

Stormwater management

(C8-2) There must be no release of stormwater runoff that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain.

Contaminant and sewage pump station

(C9-2) Contaminant pumping stations must be fitted with stand-by pumps and pump-failure alarms as well as high level alarms to warn of imminent pump station overflow. All alarms must be able to operate without mains power.

(C10-2) Pump failure alarms must be detectable by the maintenance staff, in such a manner as to facilitate compliance with general environmental duty. All alarms must be able to operate without mains power.

(C11-2) A list of pump stations associated with this schedule of the environmental authority must be maintained by the holder of this integrated environmental authority and be made available to the administrative authority when requested.

(C14-2) An infiltration management plan must be prepared and implemented, which achieves the following outcomes:

(a) Identifies actions for reduction of infiltration to sewers.
(b) Avoidance of unintended stormwater inflows to sewer.
(c) Timeframes for implementation of the controls identified in point (a) and (b)

Pond conditions

(C12-2) All ponds used for the storage or treatment of contaminants, sewage or wastes at or on the authorised place must be constructed, installed and maintained:

- so as to minimise the likelihood of any release of effluent through the bed or banks of the pond to any waters (including ground water);

so that a freeboard of not less than 0.5 metres is maintained at all times, except in emergencies; and

so as to ensure the stability of the ponds' construction.

(C13-2) Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering any ponds or other structures used for the storage or treatment of contaminants or wastes.

END OF CONDITIONS FOR SCHEDULE C PART 2

Schedule E – Waste

(E1-2) Sludge drying beds and a hardstand area for biosolids (dewatered sewerage sludge) must be developed to achieve the following:

(a) prevention of leachate release to ground water
(b) diversion of uncontaminated stormwater
(c) control and capture of incidental stormwater
(d) capture of and disposal of incidental stormwater to appropriate facilities to meet the limits set in Schedule F Table 1.

END OF CONDITIONS FOR SCHEDULE E PART 2

Schedule F - Land

Land disposal

(F2-1) The only contaminants permitted to be released to land are treated effluents and stormwater to the areas shown in the irrigation management plan in compliance with the limits levels stated in Schedule F Table 1.

Schedule F - Table 1 (Release limits - 'Land')

	Release Limit				
Quality characteristics	Minimum	50th Percentile	80th Percentile	Maximum	Median
5-Day Biological Oxygen Demand			15mg/l	45 mg/L	
Suspended Solids			20mg/l	30 mg/L	
Faecal Coliforms CFU/ 100mls				1000 CFU per 100 millilitres	100 CFU per 100millilitres
Total Nitrogen				20 mg/L	
Total Phosphorus				5 mg/L	

Notes: (1) Median and 80th percentiles must be based on the results of at least five consecutive samples, individual samples must be collected at intervals specified in Schedule F Table 2

(2) "80th percentile" for this quality characteristic means that the measured values of the quality characteristic must not be greater than the limit for any more than one out of five consecutive samples.

(F2-2) Monitoring must be undertaken and records kept of a monitoring program of contaminant releases to the irrigation area at the monitoring points, frequency and the parameters specified in Schedule F – Table 2.

Schedule F - Table 2 (Frequency - 'Land')

Monitoring point	Quality characteristic Determination	Units	Frequency
Release point to irrigation system following chlorination	5-Day Biological Oxygen Demand	mg/L	Monthly
Release point to irrigation system following chlorination	Suspended Solids	mg/L	Monthly
Release point to irrigation system following chlorination	Faecal Coliforms	CFU per 100 millilitres	Quarterly
Release point to irrigation system following chlorination	Total Nitrogen	mg/L	Monthly
Release point to irrigation system following chlorination	Total Phosphorus	mg/L	Monthly

(F3-2) The daily volume of contaminants released to land must be determined or estimated by an appropriate method, for example a flow meter, and records kept of such determinations and estimates.

(F4-2) When conditions prevent the irrigation of treated effluent to land (such as during or following rain events), alternative measures must be taken to store effluent prior to any discharge to waters.

(F6-2)Effluent must only be dispersed to land that is subject to the irrigation management plan.

(F8-2)Notwithstanding the quality characteristic limits specified in Schedule F Table 1 the contaminants supplied to another party must not have any properties nor contain any organisms or contaminants in concentrations, which are capable of causing environmental harm.

Preventing contaminant release to land

(F9-2) Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

END OF CONDITIONS FOR SCHEDULE F PART 2

END OF CONDITIONS FOR PART 2

Part 3 Dredging

Schedule A Part 3 Dredging

(A1-3) The only dredging permitted by this authority is dredging of material for the pipe bundle from Dent Island to Hamilton Island as detailed within the Environmental Impact Statement and Supplementary Report for the Dent Island Golf Course Resort.

(A2-3) The placement of dredged spoil may only be on the areas adjacent to the pipe bundle trench prior to filling in of the trench with the dredged material.

END OF CONDITIONS FOR SCHEDULE A PART 3

Schedule C Part 3 Water

Water

(C3-3) Turbidity generated from the works must not result in a change of greater than 10% above the background values at any point further than 200 metres from the dredging operation. For this

condition, the background values of the ambient water quality will be those determined by the baseline water quality monitoring specified in the EIS for the proposal.

(C4-3) Any dredge spoil proposed to be stockpiled on land must be laboratory tested for acid forming potential in accordance with methods prescribed in the latest edition of the Guidelines for sampling and analysis of lowland Acid Sulphate Soils (ASS) In Queensland 1998 (Ahern, C.R., Ahern, M.R. and Powell, B.).

(C5-3) A dredge management plan must be prepared, implemented and maintained prior to any dredging operations taking place which addresses the following issues:

(a) Management of dredge spoil material prior to backfilling of the pipe bundle trench.

(b) Control measures established to minimise turbidity generation from the operation of the dredge.

(c) Control measures implemented to address the siltation from the operation of the dredge.

(d) Procedures for assessment and monitoring of the siltation and turbidity from the operation of the dredge.

(e) Map of defined dredge operation area.

END OF CONDITIONS FOR SCHEDULE C PART 3

END OF CONDITIONS FOR PART 3

Schedule H - Definitions

Words and phrases used throughout this licence or development approval are defined below:
Where a definition for a term used in this approval is sought and the term is not defined within this approval the definitions provided in the Environmental Protection Act 1994, its regulations, and Environmental Protection Policies shall be used.

Word Definitions

"administering authority" means the Environmental Protection Agency or its successor.

"you" means the holder of this Environmental Authority or owner / occupier of the land which is the subject of this Development Approval.

"site" means the place to which this environmental authority relates or the premises to which this development approval relates.

"authorised place" means the place authorised under this environmental authority/development approval for the carrying out of the specified environmentally relevant activities.

"this authority" means this environmental authority/development approval.

"environmental authority" means level 1 licence (without development approval), or level 1 approval (without development approval), or level 2 approval (without development approval) under the Environmental Protection Act 1994.

"development approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the Integrated Planning Act 1997

"stormwater management plan" means the stormwater management plan referred to in Part 1 condition A3-9 (vi)

"irrigation management plan" means the irrigation management plan referred to in Part 1 condition A3-9 (vii)

"dust sensitive place" means -

- a dwelling, mobile home or caravan park, residential marina or other residential place;
- a motel, hotel or hostel;

- a kindergarten, school, university or other educational institution;
- a medical centre or hospital;
- a protected area;
- a park or gardens; or
- a place used as an office or for business or commercial purposes.

  and includes the curtilage of any such place.

"odour sensitive place" has the same meaning as a "dust sensitive place"

"dwelling" means any of the following structures or vehicles that is principally used as a residence-

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"noxious" means harmful or injurious to health or physical well being.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"nuisance sensitive place" includes -

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes.

  and includes a place within the curtilage of such a place reasonably used by persons at that place.

"$L_{A\ 10,\ adj,\ 10\ mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

"$L_{A\ 1,\ adj,\ 10\ mins}$" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response

"$L_{A,\ max\ adj,\ T}$" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"noise affected premises" means a "noise sensitive place" or a "commercial place"

"noise sensitive place" means -

- a dwelling, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area; or
- a park or gardens.

  and includes the curtilage of such place.

"commercial place" means a place used as an office or for business or commercial purposes.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration -

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.

In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 - 1997 Acoustics - Description and Measurement of Environmental Noise Part 2 - Application to Specific Situations.

"protected area" means -

- a protected area under the Nature Conservation Act 1992; or
- a marine park under the Marine Parks Act 1992; or
- a World Heritage Area.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part-thereof.

"50th percentile" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"80th percentile" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works.

"dredge spoil" means material taken from the bed or banks of waters by using dredging equipment or other equipment designed for use in extraction of earthen material.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"mg/L" means milligrams per litre.

"NTU" means nephelometric turbidity units

"regulated waste" means non-domestic waste mentioned in Schedule 7 of the Environmental Protection Regulation 1998 (whether or not it has been treated or immobilised), and includes:

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"licensed vehicle" means a vehicle authorised to be used under the licence to transport regulated waste.

"registered vehicle" means "licensed vehicle"

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"infectious waste" means "clinical waste"

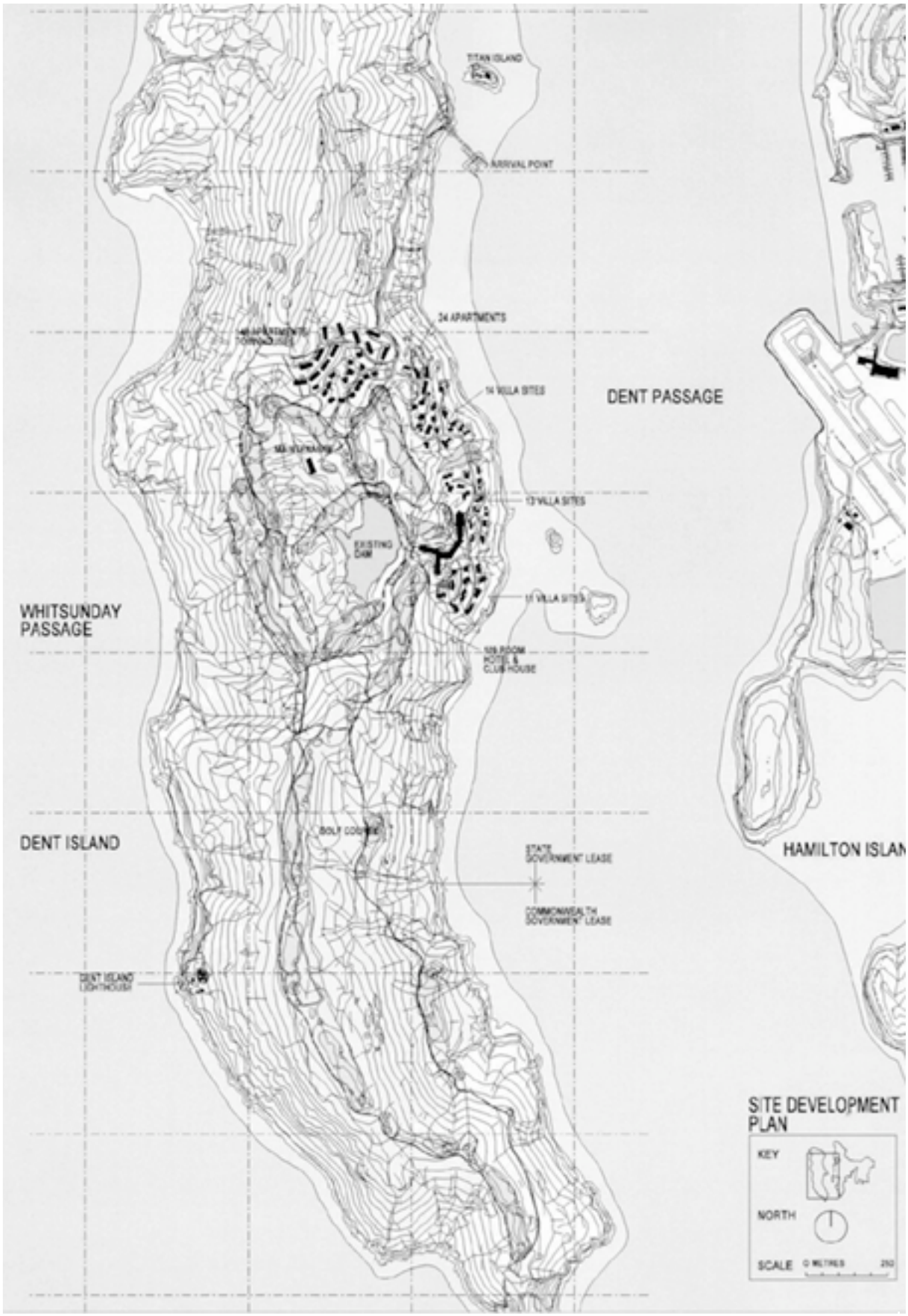
"vibration sensitive place" means a noise sensitive place or a commercial place.

"annual return" means the return required by the annual notice (under section 316 of the Environment Protection Act, 1994) for the section 86(2) licence that applies to the development approval.

END OF DEFINITIONS FOR SCHEDULE H

END OF CONDITIONS

Schedule 3 – Dent Island Master Plan



APPENDIX 2 - RESPONSE CHRONOLOGY

Respondent	Draft ToR	EIS	EIS Supp
Department of Emergency Services	30 Nov 2001	8 Aug 2002	10 Feb 2003
Department of Families*	26 Nov 2001	12 Aug 2002	NR**
Department of Local Government, Planning, Sport and Recreation	10 Dec 2001	21 Aug 2002	7 Mar 2003
Department of Main Roads	14 Nov 2001	12 Aug 2002	13 Feb 2003
Department of Natural Resources, Mines and Energy	23 Nov 2001	9 Aug 2002	21 Feb 2003
Department of the Premier and Cabinet	7 Dec 2001	21 Aug 2002	NR
Department of Primary Industries and Fisheries	16 Nov 2001	16 Aug 2002	11 Feb 2003
Department of Tourism, Fair Trading and Wine Industry Development	3 Dec 2001	29 Aug 2002	*Refer TQ*
Department of the Environment and Heritage	23 Nov 2001	NR	20 Feb 2003
Environmental Protection Agency	23 Nov 2001	8 Aug 2002	28 Feb 2003
Queensland Health	NR	NR	12 Feb 2003
Queensland Transport	13 & 29 Nov 2001	13 Aug 2002	11 Feb 2003
Tourism Queensland	*Refer DT,FT&WID*	*Refer DT,FT&WID*	12 Feb 2003
Whitsunday Shire Council	22 Nov 2001	22 Aug 2002	21 Feb 2003
A T Johnson	NR	1 Aug 2002	NR
Mackay Conservation Group	23 Nov 2001	9 Aug 2002	24 Feb 2003
Mackay Whitsunday REDC	3 Dec 2001	NR	NR
Whitsunday Wildlife	19 Nov 2001	NR	13 Feb 2003

* The Department of Families was abolished on 12 February 2004 following the Queensland State Election on Saturday 7 February 2004. The former Department's functions were redistributed between the newly established agencies of the Department of Child Safety and the Department of Communities.

** NR = No response received for that particular document.

APPENDIX 3 - LIST OF ABBREVIATIONS

ASS	Acid Sulphate Soils
CHMP	Cultural Heritage Management Plan
CG	Coordinator-General
DATSIP	Department of Aboriginal and Torres Strait Islander Policy
DEH	Department of the Environment and Heritage
DES	Department of Emergency Services
DET	Department of Employment and Training
DF	Department of Families
DIR	Department of Industrial Relations
DLGPS&R	Department of Local Government, Planning, Sport and Recreation
DMR	Department of Main Roads
DNRME	Department of Natural Resources, Mines and Energy
DOH	Department of Housing
DPIF	Department of Primary Industries and Fisheries
DSDI	Department of State Development and Innovation
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EP Act	*Environmental Protection Act 1994*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPC	Exploration Permit – Coal
EPP	Environmental Protection Policy
EQ	Education Queensland
ERA	Environmentally Relevant Activity
ERP	Emergency Response Plan
ETP	Employment and Training Plan
GBRMPA	Great Barrier Reef Marine Park Authority
IAS	Impact Assessment Study
InAS	Initial Advice Statement
IPA Act	*Integrated Planning Act 1997*
PASS	Potential Acid Sulphate Soils
QT	Queensland Transport
SDPWO Act	*State Development and Public Works Organisation Act 1971*
TMP	Traffic Management Plan
ToR	Terms of Reference

– END OF REPORT –