City Pacific Limited

TOWNSVILLE OCEAN TERMINAL

ENVIRONMENTAL IMPACT STATEMENT SUBMISSION RESPONSE

RESPONSE TO TOWNSVILLE PORT AUTHORITY

August 2008

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RESPONSE TO TOWNSVILLE PORT AUTHORITY

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TOWNSVILLE PORT AUTHORITY

Note: This submission response document has been prepared by means of duplicating the individual submission received and inserting response clauses where relevant.

1.1 SECTION 2: PROJECT NEED AND ALTERNATIVES

1.1.1 Section 2.1: Project Justification

Section 2.1 of the Terms of Reference (ToR) required the proponent to describe the justification for the project, with particular reference made to the economic and social benefits, including employment and spin-off business development, which the project may provide.

TOWNSVILLE PORT AUTHORITY COMMENT

The Port of Townsville is an industrial port with nine (9) operational berths. Approximately 10 million tonnes of diverse products are handled by the Port of Townsville each year.

Cruise ships currently do not pay port fees for visits, and their use of the port is subject to commercial shipping activities. The Authority and Port Users work tirelessly to accommodate cruise ships, recognising the significant value that they provide to the city and region. As the port continues to grow, utilisation of the existing berths will increase, presenting further constraints on the port's ability to accommodate cruise and recreational naval visits.

There are a number of factors that limit the suitability or availability of berths for use by different types and sizes of ships. A number of berths are subject to leasing or priority berthing arrangements with port users, and are heavy if not fully utilised by those customers for their product handling needs. Some berths are not capable of accommodating cruise and military ships as they have insufficient wharf length or berth pocket depth for the size of vessels.

Being an industrial port, the berths and surrounding areas are not designed for large volumes of passenger disembarkation, and there are inherent safety risks that must be managed. The majority of cruise ships and the larger recreational naval vessels that dock in Townsville can generally only use Berths 4, 8 and 9. Berth 9 is subject to a licence and priority berthing agreement with Queensland Sugar Limited, with sugar utilisation expected to continue to grow, limiting its availability. Berth 4 is subject to a licence and priority berthing agreement with Cement Australia, with cement trade expected to grow substantially in the future. The Authority will soon commence works to upgrade Berth 8 to enable transfer of large volumes of trade over this berth. In light of all these factors, it is apparent that the ability and capacity of the Port of Townsville to accommodate cruise and recreational naval ships into the future will be severely limited.

The Authority has been a strong advocate of the need for a dedicated cruise and naval facility, and has actively lobbied for its development for almost a decade. A dedicated cruise and naval facility is essential to support and encourage the anticipated future growth of these industries, which provide substantial benefits for the City of Townsville and the surrounding region. The Authority maintains its strong support the need for construction of a Townsville Ocean Terminal facility for cruise and naval ships.

RESPONSE

The Proponent recognises the support that the Port has given to the development of a cruise or ocean terminal over many years. Prior to CPL's involvement, the Port was a key stakeholder and advocate for a major development of the area. The Port indeed had a masterplan concept designed for the FDA area in 2002 and this was presented by the Acting CEO of the Port to the Breakwater Island Limited Board over 6 years ago.

In view of the joint interest in achieving an ocean terminal and residential development, Jupiters and the Port have worked closely together for many years advocating the development to the State Government and to the City.

The Port's direct involvement in the development was restricted by their charter, but they remained enthusiastic supporters of the concept of the masterplan through its many phases. That close relationship continued after Jupiters merger with Tabcorp and the subsequent joint venture that Tabcorp formed initially with Consolidated Properties and later with City Pacific Limited.

City Pacific has through their personnel maintained a continuous connection not only with the project but also with the Port. City Pacific recognises and confirms the strong support and direct assistance by the Port in the development of the masterplan covering the SCL and the FDA and the many negotiations and discussions with the State to bring the project to this stage.

Without this support it is probable that the project would not have been able to meet the State's requirements for a project of State Significance.

A copy of the early plans of the City and the Port's early masterplan are reproduced below in acknowledgement of the pioneering efforts of the Board and management of the Port to bring the project to fruition.

1.1.2 Section 2.2: Compatibility with the Port of Townsville

The Terms of Reference (ToR) for the TOT and Breakwater Cove Project included specific requirements for the proponent to address compatibility of the project with the current and future operations of the Port of Townsville. In this regard, the Section 2.2 of the ToR provides as follows:-

The EIS shall discuss the compatibility of the Project, particularly the proposed Breakwater Cove precinct, with existing and future operations associated with the Port of Townsville. The discussion must consider the future expansion and operations of the port to at least 2050 including potential capital works, dredging and consideration of growth in throughput over new and existing berths. The EIS must provide examples of similar residential developments located near industrial port facilities and discussion of their compatibility.

This section sets out specific areas to be considered and addressed by the proponent in order to demonstrate whether the Breakwater Cove development is compatible with port operations, including:-

- Emissions associated With port operations;
- Health *and* social impacts *to* determine *if the location of the* residential development *is* appropriate considering the existing and proposed activities in the port area;
- Economic impacts, particularly impacts on the future expansion and operation of the port to at least 2050;
- Mitigation measures proposed to minimise impacts from port operations on future residents and businesses.

Commodities and Trade Growth

The Port of Townsville is a diverse, industrial port currently handling approximately 10 million tonnes of primarily bulk commodities. This trade is continuing to grow, and a recent Port Master Planning exercise carried out by the Authority shows that trade is expected to treble in volume by 2030.

The main products handled by the Port are sourced from regional mining and agricultural industries - as such the Port of Townsville is a bulk commodities, industrial port. The main commodities handled include nickel ore, lead, zinc, copper and nickel concentrates, refined and smelted metals, raw sugar, cement, petroleum products, fertiliser, sulphur, live cattle, timber logs, scrap metal, motor vehicles, containers etc. A number of dangerous goods and hazardous substances including LPG, explosives, ammonium nitrate, sulphuric acid, caustic soda etc are also handled through the port to support mining, military and industry purposes.

Many substantive public and private companies have invested significantly at the Port and in Townsville and the region for products that are handled through the Port of Townsville. Such companies include BHP Yabulu, BHP Cannington, Sun Metals Corporation, Xstrata, Queensland Sugar Limited, Incitec Pivot, Cement Australia, Shell and BP to name a few. The Port of Townsville plays a vital role in the regional economy.

The future outlook for trade growth is very difficult to predict. Trade studies and history itself clearly demonstrate that trade will continue to grow, however there are many factors that influence how the trade will grow. Changes in the economic climate, technologies, transport connectivity, mineral exploration activities etc are just a few factors that can affect the future of the Port of Townsville. It is essential that the Port of Townsville plans to be in as flexible a position as it can be to accommodate the various trade scenarios that may occur.

- The EIS has not recognised the volatile nature of trade growth and consequent port growth. The EIS has only identified future port operations as including the expansion of Berth 10, upgrade of Berth 4 and extension of Berth 8 in the inner harbour, and construction of new Berths 12 and 13 in the outer harbour. It is quite probable that there will be at least another four (4) new berths required in the period to 2050.

- The Authority, having now had an opportunity to fully review the EIS and assess the risks to the Authority and Port users, strongly believes that construction of the proposed Breakwater Cove residential component of the project will jeopardise the Port of Townsville's current and future operations and therefore presents an unacceptable risk.

- Based on the information presented in the EIS, the Authority does not accept that the EIS has demonstrated that the Breakwater Cove residential development is compatible with the current and future operations of the Port of Townsville. The Authority believes that allowing the residential component of the project to proceed would restrict the Port of Townsville's ability to continue to grow and expand, and to attract further industrial developments and investments at the port and the broader region.

The reasons to support this view are detailed below in this submission.

RESPONSE

The Proponent has addressed all matters set out in the ToR. To the degree that there is the need for clarification, the Proponent has been requested to provide a Supplementary EIS.

The specific issues raised in the Port's introduction will be dealt with in more detail in the body of this Supplementary EIS. In general terms however, CPL is confident that the EIS and the supplementary data have and will consider the question of port compatibility reasonably and thoroughly.

Townsville Port and Port users are achieving environmental performance standards that have not, and are not expect to, create unacceptable nuisance impacts on nearby residents. This is the broad conclusion from detailed and exhaustive technical investigations of air quality and acoustic impact issues.

A detailed report examining the critical issues impacting on the compatibility of the port and the proposed residential precinct has been prepared (Transpac Consulting Report: *Port Compatibility – Impact of Proposed Townsville Ocean Terminal and Breakwater Cove Precinct on the Future Activities and Expansion of Townsville Port* – Appendix A31 in Volume 2. This Report considers the evidence on amenity issues provided by technical specialist reports, and evaluates the extent to which available evidence supports concerns about potential incompatibility.

Based on the findings of the technical reports, the Report on Port Compatibility finds that on all key measures of nuisance disamenity – noise, dust nuisance and odour – the Townsville Port and its users are performing at levels that for the most part do not compromise acceptable nuisance standards. Potential exceedances are rare and infrequent, relating to noise emanating from the loading and unloading of motor vehicles and scrap metal, the blasting of ship's horns and the odour impacts associated with the loading of live cattle. Nuisance dust levels are well within acceptable EPA guidelines. Where exceedances have been recorded or are anticipated, the Report finds that satisfactory mitigation measures can be implemented.

The Port and nearby residences have co-existed largely harmoniously and this is demonstrated by the low level of recorded complaint activity. Records from Townsville Port Authority and EPA were updated and examined. Not only are the number of complaints low – with a total of 61 complaints recorded by TPA on dust, noise and vehicles between 2001 and 2007 – where data was available on the origin of complaints, the evidence shows that the majority come from residents of South Townville (rather than to the west of Ross Creek in the vicinity of the proposed Breakwater Cove precinct). The Report concludes that since 2001 there have been 2.38 complaints per 1,000 persons within the nearby population catchment to the Port and 0.54 environmental nuisance complaints per 1,000 persons.

The Report further examined complaint activity in the context of port activity. The analysis found that the patterns of complaint activity did not appear to have any strong relationship with measured port activity (e.g. trade throughput and capital works expenditure), indicating that complaint activity since 2001 did not exert any effect on port performance.

The near negligible presence of adverse community experiences towards the Port is reflected in the above-average property values achieved for properties located west of Ross Creek, in close proximity to the Port. This data were originally presented in the EIS, but is worth re-evaluation as high property values reflect properties of comparatively high desirability and residential amenity. Had the Port been a significant disamenity to nearby residents, property prices in both absolute terms and in terms of growth would have reflected this by being below the levels achieved for Townsville as a whole. Combined with feedback gained from residents living in close proximity to the Port, the objective property value data is strong evidence that living in relative proximity to the Port is seen as desirable and offering a net positive amenity to residents.

Given these historic experiences, the analysis concluded by attempting to forecasting potential complaints emanating from Breakwater Cove. The study concluded that on the basis of current and anticipated Port environmental performance, the Proponent expects no more 5 complaints per year from Breakwater Cove residents noise, dust and odour issues.

In addition to this Report, another report has been prepared examining port/residential interface issues in 14 Australian and 2 international port cities (Appendix A32 in Volume 2). The report shows that the vast majority of cases, residents are located well within 700m of port berths; and that in some cases – specifically Mackay and Sydney – residents are located within 300m of port berths. The case studies confirm that all Australian ports are regularly dealing with port-residential interface issues. In some cases, these challenges are brought about as a result of residential expansion towards port lands/facilities while in others they result from the encroachment of port activities towards existing residential areas.

In these circumstances, it is widely recognised that all stakeholders have a stake in achieving a workable balance between the needs and expectations of all impacted users. A suite of management measures are implemented in all cases, and reflecting their respective idiosyncrasies, the interface regimes include a combination of measures including, but not limited to, the use of spatial buffers, physical buffers, design mitigation at source and at receptor, sustained robust port-community engagement mechanisms and in some cases, active strategies to reduce disamenities by modifications to port activities.

The case studies demonstrate that ports and residents can coexist, and there are a myriad of ways in which such coexistence can be negotiated and realised. On the basis of these experiences, the Proponent is confident that an appropriate range or suite of interface management initiatives can be implemented to ensure ongoing compatibility between the Townsville Ocean Terminal precinct and the Townsville Port. These are covered in the Port Protection Agreement.

Together with the findings of the case studies report (Transpac Consulting Report: *Case Studies on Seaports and Residential Interface Experiences in Australia, Singapore and New Zealand* – Appendix A32 in Volume 2), the Proponent is confident that the Breakwater Cove precinct can be developed and in fact reflects positively on the environmental performance of the Port of Townsville and Port users. This is consistent with the historical evolution of the FDA development concept, which was originally promoted by the Port of Townsville.

Indeed, this confidence in the compatibility of the Port and the Breakwater Cove precinct reflects the views expressed by Townsville Port Authority in its 2006-07 Annual Report, which states (p. 20):

> ***The Authority is working closely with City Pacific Ltd. and the Queensland Government to ensure that adequate port protection mechanisms are in place for the Breakwater Cove residential development which will be located adjacent to the Ocean Terminal facility. These mechanisms, which will closely reflect those agreed for residential developments surrounding the Breakwater Marina, will ensure that residents are aware of potential amenity impacts, that building design appropriately addresses impacts and that legal protections are in place to ensure the ongoing operations and growth of the Port of Townsville.***

The economic growth of the port has been considered both in its current configuration and the expansion. The Port's 2030 masterplan shows the intended plan of expansion and an area for expansion beyond that which has been considered as the 2050 and beyond scope.

All of that was and/or is being considered in each of the sections of the EIS dealing with Port Compatibility. The results of these various studies indicate that the Port can operate harmoniously with the proposed residential development. It is important to note that the Port does operate in close proximity to existing residential and commercial development a good deal of which is well within a 500m distance from the various operations of the Port.

It is acknowledged that for the Port and its Users any new development might be perceived to pose a potential threat that might restrict its growth. It is CPL's definite view from the results of the EIS and SEIS studies, that the risk of restriction to port operations and expansion from this perceived threat is low and that taking a wide city or regional view, the overall masterplan is well balanced and its uses and location is compatible with the Port operations and its growth strategies.

1.2 TOR SECTION 2.2.1: EMISSIONS ASSOCIATED WITH PORT OPERATIONS

Section 2.2.1 of the ToR requires the proponent to describe the potential for nuisance and amenity impacts (dust, noise, odour, lighting, electromagnetic interference etc) within the Breakwater Cove precinct associated with existing and future operations associated with the Port of Townsville to at least 2050. The EIS was required to provide examples of similar residential developments located near industrial port facilities and discussion of their compatibility.

TOWNSVILLE PORT AUTHORITY COMMENT

The Port of Townsville originally commenced operations more than a century ago in the upper reaches of Ross Creek. As the City of Townsville grew, ship sizes increased and the port itself grew, land was reclaimed and the port moved in an easterly direction.

The Port of Townsville today, wholly located on land reclamation, remains located within the central business district of the city of Townsville. The Port of Townsville (the Authority) and port customers have made large-scale investments in assets that cannot be feasibly be moved - assets that provide significant economic benefit to the region. This includes the establishment of mines in the north-west minerals province, three (3) refineries in the Townsville area (copper, nickel and zinc) as well as

storage and shiploading facilities at the Port of Townsville. As the region and the city have prospered and grown, land values have increased and land uses surrounding the port's assets have been changing. These changes are imposing greater challenges with respect to land use planning to ensure the long-term viability and growth of commercial core port operations whilst minimising conflicts with adjacent land uses.

The Authority recognises the sensitivity of the surrounding environments and is committed to the sustainable development and operation of the Port of Townsville through responsible environmental management, effective land use planning and continual improvement of environmental performance. Environmental management of the port environment is the culmination of all planning, operations, and monitoring activities for the long-term sustainable development of the Port of Townsville. The Authority lists environmental management as a top priority and encourages proactive and responsive environmental management throughout the port community.

Whilst the Port of Townsville is clearly operating with residential areas neighbouring it, the proposed Breakwater Cove residential development site is in much closer proximity to the immediate ship-to-shore product handling interface (i.e. the berths) than any existing residential areas. The residential developments that are being proposed (500 multiple dwellings and 200 detached dwellings) are located close to the nine operational berths at the Port which handle a wide range of products - these distances are range from as close as 230m (Berth 10) to approximately 775m (Berth 11). The TOT facility itself, if constructed, will be less than 101~m on residential dwellings.

The Authority has undertaken a comprehensive review of the EIS, and is of the view that:

- Inadequate/insufficient monitoring and modelling has been undertaken to ascertain current and future amenity impacts (air quality, noise, light, electromagnetic interference) on the site to be regarded as scientifically robust if it is to be relied upon solely to demonstrate compatibility with current and future port operations.

  RESPONSE

  The Townsville Port Authority's recognition of environmental issues and its current and continuing improvement of environmental performance are clearly set out in their annual reports. Development around the Port has been an ongoing issue for many decades which included the Breakwater Island Casino development precinct under which the casino was built and opened in 1986. The development of the Future Development Area, as defined under BICA, was envisaged and known to the Port at the time the casino development was undertaken. Indeed, the Port was a pioneer of the concept of developing the FDA and to include in it a cruise terminal and a large residential development. To this end, the Port commissioned Geoff Plante & Associates to undertake a concept design shown on page 2.

  The Port's view that inadequate or insufficient monitoring and modeling has been undertaken to ascertain current and future amenity impacts on the site from Port operations has to a significant degree been addressed and remedied in this Supplementary EIS. Although it is acknowledged that a full year's modelling and monitoring has not been possible at every location, it is clear from the results that have been obtained that the amenity impacts of noise, dust, air quality generally, light and electro-magnetic interference are not significant. The trends from the shorter monitored locations and those that are close to or at the 12 month period, clearly show a trend of low dust levels that is difficult to refute. It is further suggested that additional monitoring be undertaken post approval at the developer's expense to build a record of the various amenity impacts from the Port which can be used as an early warning system to alert the Port in the unlikely event that major divergences are occurring from their current operation.

The contention that the Port is a noisy, dusty, smelly and dangerous industrial location beside which residential development would be totally inappropriate is not borne out by the facts either from monitoring, modeling or a review of complaints by residents in the vicinity.

In actual fact and consistent with the Port's excellent record of improving its environmental management of the Port over many years, these amenity impacts are with very few exceptions, within acceptable ranges for residential developments in urban areas such as the Breakwater Cove complex.

Notwithstanding that, it is recommended and accepted by the Proponent that further monitoring is undertaken in close cooperation with the Port so as to provide feedback to the Port to assist it in its ongoing and excellent programme of environmental improvement. In addition, the regular monitoring which would be combined with the Port monitoring process would provide the Body Corporate with a clear record of the actual affects of noise, dust, etc., with which it will be able to alleviate many of the concerns of its residents.

- The most well known and accepted mitigation for incompatible land uses is appropriate buffering. The proximity of residential areas to a large and growing bulk commodities industrial port (ranging from 230 metres to 775 metres) falls substantially short of separation distances recommended in other states including Western Australia, South Australia and Victoria (at least 1,000 metres to 2,000 metres).

  RESPONSE

  The distances noted by the Port for development, the distances of residential development to the nearest Port activities are incorrect. A careful review of the distances from loading operations in the Port indicate that the closest residential development to the loading point of berth 10 is in the order of 370m and the furthest in the order of 1,100m. From berth 3 the distances are in the order of 720m to the closest residential development through to 1,200m to the furthest. For berth 11, the closest residential dwelling is 800m from this berth and the furthest in the order of 1,500m.

  The Port has indicated that the most well known and accepted mitigation for incompatible uses it appropriate buffering. It points out that separation of distances for the TOT Project fall well short of those that are recommended in other States of at least 1,000m to 2,000m.

  The investigation of ports in Australia and overseas indicates that this so called standard of buffering between the industrial areas of the Port and residential and other development is seldom the case. A review of the report clearly shows that there are a number of instances where Port activity is undertaken in even closer proximity to residential development that is proposed in this project. Indeed this development is by comparison to the benchmarks set out in the attached document, midway within the range of such activity. Refer to Transpac Consulting report at Appendix A32 in Volume 2.

- The Authority has invested significantly in establishing appropriate buffers between surrounding residential developments and port activities, including the creation of an environmental park on more than 7 hectares of land located between Boundary Street, Benwell Road and Archer Street. The park, which cost in the order of $1.2 million to establish with significant ongoing maintenance costs, was developed to reduce the effect of Port operations on the surrounding community - thereby providing a buffer between the Port's activities and the nearby residential areas. The environmental park also provides a high quality natural area for use by the local community, with more than 90,000 native and coastal plants and grasses planted.

- Recognising that maintaining appropriate separation distances is the most effective mitigation measure, the Authority has also invested significantly in procuring lands in proximity to the port (Archer Street and Sir Leslie Thiess Drive) to preclude the establishment of incompatible uses that could potentially restrict activities.

- The EIS has not provided examples and discussion of compatibility of similar residential developments located near industrial port facilities of the same nature and size as the Port of Townsville.

RESPONSE

The Authority's actions in investing and creating an environmental park as a buffer between the South Townsville residential area and the new industrial park being built between Boundary Road, Benwell Road and Archer Street is an excellent and laudable undertaking. The buffer does provide for a barrier between this new development by the authority and the existing residents who are living in buildings which offer little or no protection from the potential impacts. This environmental park however does not provide a separation from the existing Port operations immediately to the north across Archer Street from South Townsville, nor indeed from the development immediately to the west across Ross Creek from the southern area of the Port.

The Port prepared a masterplan for the re-development of the strip of land to the east of Sir Thiess Drive virtually all of which was acquired by the Port some years ago. This masterplan which includes the redevelopment of lands on the eastern side of Ross Creek was further developed by the Department of Infrastructure in the Port City Strategic Plan of May 2007. This plan envisages tourist accommodation and commercial development along the western shore of Ross Creek. This is consistent with the residential uses at number 1 and number 7 The Strand and Breakwater Villas which are immediately to the south and west of the lands owned by the Port. The issue of buffering and the comparison of other ports in Australia and elsewhere where residential development has been undertaken in close proximity to the port was admittedly an omission from the EIS. This matter has been addressed and a full analysis of Australian and international ports is included at Appendix A32 in Volume 2 in a report undertaken by Transpac. This report in summary shows that:

The use of buffers in land use planning decisions is today being usurped by more performance driven measures such as building covenants.

Buffers are a tool of the past which often provided little or no mitigation depending on what was included in the buffer – the benefit of a buffer over water is less effective than one across land where landscaping and building forms provide added value.

The FDA Scheme employs performance based tools to mitigate any external impacts. These tools will be far more effective than the buffers proposed.

<u>Air Quality</u>

Air Quality – Dust

It is most likely that the majority of air quality issues will be sourced from product transfers, ships emissions etc.

The Air Quality report has assessed dust impacts from port operations in terms of dustfall and dust concentration. The report references various monitoring works undertaken by the Port of Townsville and Queensland Environmental Protection Agency, which have shown that air quality at the relevant monitoring locations is within acceptable guidelines.

The Proponent's consultants undertook dust deposition monitoring at four (4) locations. Dust deposition jars were placed on the western breakwater (2 months of data collected), at Mariner's Peninsula in the surplus casino land (9 months of data) and at the Jupiter's casino car park (4 months of data). Dustfall was assessed by review of monitoring data only with no modelling undertaken. Given the close proximity of the proposed residential development (which will result in people living immediately adjacent to the port 365 days a year), and the fact that dust particulates will fall out close to the source, dust deposition monitoring would be required to be undertaken specifically at the site for 12 moths to ensure a complete dataset of dust fallout from port activities through seasonal and wind variations. Modelling is then also required to predict dust deposition from future expanded port activities.

Air quality measurements were taken at Berth 10 during the study period (NO2, SO2, hydrocarbon and PM10) and were correlated against port activities. Dust concentration was assessed using modelling. The reports do not provide adequate information on how the dust emission rates for the Port were determined to enable assessment of their accuracy/suitability. To enable the validity of the predictions to be determined, the proponent should supply the calculations and basis upon which the emission rates for port generated air emissions were determined.

The effect of increased emissions as shipping increases has not been assessed directly from any modelling or predictions. Rather the report relies on monitoring at Berth 10 (from existing port operations) and uses the maximum concentrations measured as the value for ambient levels and adds to the predicted port operation concentrations. The study thus does not specifically address the potential for increase in shipping movements/operations with respect to ship emissions. Monitoring was conducted during periods when the port was busy but not operating at or near capacity. Hence, the study is rudimentary only in considering ship emissions.

The EIS and air quality report refer to reductions in emissions at the site in the future, relying on possible plans for future port berths in the outer harbour and future relocation of abrasive blasting, ship repair, recreational boat ramp and other activities to Ross River. It must be recognised that activities in the existing port harbour area will continue to grow until port berths reach capacity. Any future port berths in the outer harbour will be activities in addition to the loading, unloading and storage activities that take place at the port currently, not in substitution for these operations.

RESPONSE

By way of response to the criticisms of the dust monitoring and modelling reported in the Air Quality report in the EIS, the Proponent asked the author of the Air Quality report (ANE) to address these matters. The result is five (5) Supplementary Reports at Appendices A1-A5 in Volume 2.

In regard to the deposition dust, that is the dust that falls on surfaces, ANE was engaged to undertake 12 months of monitoring at four (4) locations in close proximity to the development site and at a fifth location away from the immediate locality. This monitoring started in November 2006 and concluded in October 2007. The results of the monitoring to July 2007 were included in the EIS. The results of the monitoring for August, September and October are included in the Supplementary Report.

While the monitoring was conducted over a 12 month period, the results are not available for every station for every month as some of the stations were vandalised. The full results are shown at Appendix A3 in Volume 2. The trends from the shorter monitored locations and those that are close to or at the 12 month period, clearly show a trend of low dust levels that is difficult to refute.

Appendix A3 in Volume 2 also shows the results of the TPA's monitoring from July 2006 to December 2007 for comparison. It is noted that data is not available for every month for each of the TPA's stations either.

The ANE monitoring recorded deposition levels between 3 and 88mg/m²/day – well below the accepted EPA nuisance standard of 120mg/m²/day. By comparison the TPA's data for Berth 8 shows levels between 56 and 380mg/m²/day.

The results of the TPA's monitoring at Berth 10, which is the closest station to the development site shows levels between 15 and 111mg/m²/day.

This confirms the predicted effect of dust emissions from the Port reduce with distance. It also means that the ANE monitoring is consistent with the TPA's monitoring.

The conclusion that can be drawn then, is that dust deposition at the development site will maintain a level well below the established nuisance standard.

The Supplementary Report also contains comparisons with other places around the State as monitored by the EPA – refer to Table 4.

The dust levels anticipated at the development site are comparable to places like Eagle Farm and the Valley in Brisbane.

Of particular interest from the ANE monitoring is that the fifth station at Jezzine Barracks often gave a higher level than the others suggesting that background dust in Townsville is a common feature of the city.

In regard to Particulate Dust i.e. the dust in the air, ANE reviewed the available data from the TPA and EPA and have further investigated this data in their Supplementary Report at Appendix A4 in Volume 2. Table 1 of that Report shows data for the period July 2007 to February 2008 and is therefore comparable to the ANE monitoring period.

The two monitoring stations (at Berth 10 and the Coast Guard carpark) are very relevant to the development site. The results clearly show that for TSP's the concentrations are by any analysis well below the established criteria of 80ug/m³. Likewise for PM the results are within the acceptable range. The fact that there is a high percentage of fine dust is also indicative of background dust.

The issue of Port growth and the increasing activity both within the current confines of the Port and the future expanded Port as set out in the Port's expansion plan has been carefully considered in the EIS and this consideration has been re-evaluated and updated in the Supplementary EIS.

Air Quality – Odour

The odour assessment conducted only considered live cattle export and did not consider odour from petroleum/oil, molasses or other products. Air quality samples were taken from a live cattle shipment within the Port. Modelling predictions for live cattle showed resultant maximum odour concentrations far in excess of legislated criterion levels. This clearly demonstrates that excessive odour levels will result at the project site. The study provided thus clearly identifies that inadequate buffer is provided with respect to odour from port activities.

The EIS recommendations for mitigation including limiting live cattle export to two days per year and requesting the Port to notify the Body Corporate of scheduled activities is considered unrealistic, unfeasible and an undue impost upon the Port and the livestock industry.

RESPONSE

The EIS did consider odour from a number of sources including petroleum oil and molasses. It did however concentrate particularly on the highest amenity impact which is that of live cattle odour. It is clear from the original ANE report that it is probable that odour emissions by the Port when loading cattle are excessive. This is and would be the case whether for the project site other areas within the SCL, South Townsville, North Ward, Castle Hill and the CBD. The updated ANE report at Appendices A1 and A2 in Volume 2 updates the record of live cattle trade and includes a table for this activity for the last decade.

The Proponent has considered the EIS comments and confirms that the development does not propose that the Port's operations in relation to the current and future programme for loading live cattle should be curtailed or restricted in any way. The Breakwater Cove development is unique in respect of neighbouring residential and commercial developments, whereby residents will have a mitigation measure that enables them at times when the odour from live cattle loading or other sources becomes problematic, to take action to mitigate these odours. It is proposed that the Port Protection Codes will allow residents, should the odour of live cattle loading or other odours be excessive, to move indoors and close windows and doors to shut out these odours. Specific designs of the doors and windows and the buildings in general provide an effective way for this to be done which is an attribute currently not available to most neighbours in the vicinity.

In addition and as a commentary on the likelihood of live cattle loading being a significant area of complaint for future residents, contact was made with operators in the major cattle exporting areas within Queensland and the Northern Territory. It appears that the current practice where live cattle are now being primarily run through Darwin will continue and potentially grow in light of the shorter and less traumatic sea journey for cattle from that port.

Noise Impacts

The acoustic analysis of noise adjacent to Jupiter's Casino during the study period (which the EIS claims was an above average period for ship movements at the Port) measured noise levels at 56dBA (daytime), 53dBA (evening) and 54dBA (night). *The EIS concludes that "existing Port operations are likely to generate noise impacts on Breakwater Cove that, at their worst, are predicted to be no more than 3dBA higher than what is presently experienced at the nearest noise receptors at the Casino. As such, they are likely to be either indiscernible or slightly discernable to future Breakwater Cove residents."* The monitoring had not been at the port specifically, hence the supplementary acoustic report which involved 2 days of monitoring at the port.

The noise impact assessment reports are considered inadequate to provide a validated assessment of existing or future port noise impacts. Testing conducted of actual port operations was limited to two days, was not representative of the range of shipping/freight operations which can occur and was not validated to monitoring at the project site. Further monitoring concurrently at the port and at the project site is required to validate the modelling conducted.

The consultants also used a model to simulate possible future noise from future port development and operations. The modelling results indicate that noise impacts should generally be within the external design emission guidelines except for:

- berthing and operation of the car carrier ship (predicted exceedance of the night time criterion by 8-18dBA; and
- operation of ships' hems (predicted night time exceedance of 23-26dBA).

Mitigation measures proposed included limiting the use of ships horns and utilizing alternative berths, neither of which are acceptable and, in the latter case, in contravention of maritime regulations. Limiting use of ships' horns to daytime where possible is not feasible with respect to use of horns for navigation purposes (this has been confirmed in writing by the Regional Harbour Master, Townsville). Public Address Systems on cruise ships (and naval vessels) are quite loud and are very audible at significant distances from existing cruise terminals. There is some scope with the cooperation of cruise ship operators and captains to turn the volume down but this is difficult in practice and would need to be a condition of any approval for the TOT.

Scrap metal ships create significant noise, probably more so than any other loading operation in the port, yet were not identified as one of the higher noise impacting activities in the EIS. If scrap metal loading operations were forced to stop or reduce loading times, this has the potential to impact on ships waiting for berths and cause unnecessary delays and substantial costs to ships in port.

The practicality of achieving necessary acoustic ratings of future residential buildings has not been assessed by way of example calculations of required house facade acoustic construction and as to whether the Port Protection Code requirements are adequate for Breakwater Cove.

Other noise mitigation devices planned to further reduce the risk of noise impacts include a 6 metre high acoustic barrier around the western side of the TOT and noise reduction measures to be recommended for buildings, viz:

- Exhaust vents to be insulated away from noise source;
- Adoption of acoustic design techniques and materials for facades exposed to the Port to comply with AS3671 (which the proponent claims should provide noise reduction up to 35dBA);
- Any private opening space or balcony to be located away from noise sources (i.e. away from sight lines to the Port);
- Doors incorporating an enclosed porch;
- Non-habitable rooms to be located between the noise source and bedrooms.

The report does not discuss the affect on noise travelling across water.

The expansion of Berth 10 was recognised by the acoustic report however again there are deficiencies with this report in terms of fully understanding the actual impacts now and in the future. The use of Berth 10 (once upgraded) for container handling, scrap metal ships, car carriers, naval operational loading activities etc would increase substantially in the future. The report fails to fully quantify potential noise increases that may result.

RESPONSE

The noise impacts from the Port and the critique of the acoustic analysis suggests that the supplementary acoustic report which involved two days of monitoring at the Port was either limited by this factor or inadequate because of the shortness of time. The two days enabled the consultant to measure the source noises of a large number of the major noises that come from the Port and these results have then been modeled to determine the actual noise likely to occur at the residential development. It is acknowledged that scrap metal was not one of those noises that were considered or measured as this activity was not being undertake at the time. However, opportunity arose in June 2008 to monitor noise emissions during scrap metal loading - the results are shown in the Ron Rumble reports at Appendix A6 in Volume 2. The results were consistent with earlier predictions and the levels are not considered problematic.

The updated acoustic analysis report addresses a number of the issues that have been raised by the Port in relation to noise impacts. The practicality of achieving acoustic ratings within future residential buildings has been commented on and will further be commented on in the acoustic analysis report in the Supplementary EIS. It is clear from the results from monitoring and modelling, that the level to which noise impacts need to be mitigated through to living and bedroom spaces within houses is able to be readily achieved. As part of the Development Agreement executed with the State and the Harbour Agreement executed with the Port of Townsville, a Port Protection Agreement with Port Protection Codes is to be agreed prior to the issue of the Development Lease. These codes will provide a building environment where should impacts from a number of amenities such as noise occasionally exceed what is acceptable, the building fabric and design will allow residents, for those few occasions when exceedances are uncomfortable, to isolate themselves from that affect. In the acoustic analysis report the consultant provides clear and expert advice that this is both possible and entirely practical. The noise reduction measures recommended for buildings by the Port will be taken into account in developing the Port Protection Codes with the State and the Port in due course. It may be premature to predetermine what those outcomes should be by way of a condition in the EIS, but rather to allow the Port Protection Codes to be developed so that they meet performance criteria to enable noise to be reduced to acceptable levels within each dwelling.

Light Impacts

The study concluded that visual impacts to residents in the equivalent of a 2-storey building will be largely screened by the 3 metre acoustic mound topped by a 3 metre barrier. The taller buildings will be within view of the Port but most are separated from the nearest Port docks and will be oriented to take advantage of the main views to Cleveland Bay, the Marina and city, so that views to the Port are minimised.

The EIS has not assessed in any technical sense lighting impacts from the Port upon the project site. There should be a study of actual lighting levels resulting at the project site conducted to determine compliance with Australian Standard AS4282:1997 "Control of the Obtrusive Effects of Outdoor Lighting". This study would identify whether lighting from the port would cause complaint from residents with line of sight to the port - this is relevant to both sky glow and elevated light fitting visibility.

RESPONSE

A technical assessment of the light emissions from the Port to determine compliance with AS 4282:1997 has not been done. If such a report were to be commissioned arguably it should be done by the TPA.

Light emissions from the Port have been reviewed by a consultant. The consultant's opinion without the benefit of a full study, is that the light sources could be better shaded and directed, but were consistent with light levels from street lighting in suburban areas.

It is however accepted by the Proponent that the light emissions from the Port should be quantified by investigation to determine a base against which comparisons can be made in the future. The Proponent is prepared to work with the TPA in this regard.

Effects from Berth 1 Fire System Spray

The Authority regularly tests, and in emergency situations will be required to utilise the fire spray system located at Berth 1 and on the tugs. Sea water spray from the Berth 1 fire system will spray onto residential areas at the proximity proposed.

RESPONSE

The ongoing testing of the fire system is an issue that has been occurring at berth 1 for some years. Given the similar proximity of existing residences and other developments as well as future developments in the Surplus Casino Land from berth 1 and the total lack of any recorded complaint in relation to this activity, it is not seen that this item would create any potential for further complaint and therefore restrain the Port from lawfully undertaking such fire system training.

Visual Amenity Issues

The addressing of potential visual amenity impacts of the port on residents relies on the buffer mound (3 metre bund topped by a 3 metre barrier) and the perception that residents choose to live in an area close to the port. The port protection codes must be unequivocal in their requirement for residential developments in the multiple dwelling sectors (i.e. above 2 storeys) to prohibit any balconies facing the port.

RESPONSE

The issue of what residents perceive to be of interest and value in living in close proximity to a port or any other development is a complex matter. The point of the Port Protection Codes is to provide residents with an option that should the activities, noise or other amenity impacts caused by the Port be of concern, that they can take action to mitigate such impacts.

Surveys of residents in close proximity to the Port and particular to residents in number 1 and number 7 The Strand unearthed some interesting comments in relation to the Port. It is interesting to note that a number of residents of those apartments indicated that a major positive attribute of their lifestyle was their ability to sit on a balcony and watch the port activities particularly in the evening. To arbitrarily deny residents the ability to view what a number of people regard as a very interesting and worthwhile activity to watch would be somewhat draconian. It would be far better to require that if such a balcony overlooking the Port were to be a requirement of a design by residents, that under the Port Protection Codes the residents had the ability to move indoors should any aspect of the Port operations become unacceptable.

Electromagnetic Interference 1 Radiation

The EIS has briefly discussed potential for electromagnetic interference. However, the EIS notes that during field measurements, only the front radar units on the subject vessel were operating. It is not clear whether levels would be exceeded if both front and rear radar units were operating. The EIS does not consider devices other than TV/radio that could potentially be impacted (particularly safety 1 security equipment, e.g. car security locking, roller doors, pace makers etc). It has not been explained in the EIS whether any other equipment onboard, apart from radar, may contribute to or cause levels to be exceeded, or why narrowband measurements were undertaken at only one site compared with 11 sites for broadband measurements.

RESPONSE

Further investigation has been undertaken in relation to the electromagnetic interference and the operating procedures particularly in military vessels for the use of radar in ports. In this respect the report by Admiral R Natter US Navy Retired (R Natter & Associates) at Appendix A23 in Volume 2 is relevant. This report clearly indicates that the US Navy has confirmed that when in port only their long distance radar is used which is the assumption considered by EMC Technologies in the original EIS report. In addition the US Navy who operate warships in close proximity to residential areas in a number of locations across the world, has no experience

where the use of normal radar has caused any issues in relation to security and other equipment.

Amenity Impacts from Construction Activities

Dust Impacts

The air quality study assessed dust emissions from the construction phase of the TOT and Breakwater Cove development including mobile sources. The predictions demonstrate exceedance of recognised dust concentration criteria. The report states that the assessment was conducted on the basis of no dust emission controls during construction (i.e. worst case and with the implementation of recommended dust control measures, criteria limits can be satisfied). However no technical assessment (i.e. modelling) was conducted to demonstrate what dust concentrations would result with dust control measures in place. No assessment was conducted for dust emissions from construction activities at the Port of Townsville.

RESPONSE

The modelling for the construction site is explained in the Supplementary Report by ANE at Appendices A3 and A4 in Volume 2. It assumed an exposed site with little or no dust minimisation measures. This would not of course be how the site would be managed. The site based Environmental Management Plan will include dust minimisation measures such as watering of exposed surfaces. Construction site dust is not expected to be a problem.

Effects on Water Quality in the *Harbour*

The issue of impacts on water quality in the harbour during construction was not specifically addressed. Effects of dewatering were not assessed in detail (i.e. potential sediment loads, volume of discharge, period of discharge, number of discharge locations, model of plume, location of monitoring sites for dewatering etc). The process for stopping dewatering based on monitoring results was not defined. The risk of significant quantities of fine material migrating to the Port of Townsville's dredge areas was not discussed. The filtration system requires clear definition (i.e. where will the settling ponds be located, how will these be connected to the flocculent area?). Daily inspections and follow up actions should be included in the construction Environmental Management Plan (EMP).

RESPONSE

Council's comments in relation to water quality are acknowledged.

The reports by Hyder Consulting (Appendix A13 in Volume 2) and Flanagan Consulting Group (Appendices A11 and A12 in Volume 2) cover these issues in some detail and address the methodology again to ensure water quality issues have been properly considered. The Hyder report points out that some further baseline studies will be undertaken. This was an agreed approach established with the EPA recently.

Construction Operating Hours

The EIS states construction site operating hours will be in accordance with normal Townsville City Council (TCC) approval conditions imposed on the Operational and Building Works Approvals obtained to prevent amenity impacts on the immediate area. These will be from 7am to 7pm for tidal works. Activity on haul routes will be 10 hour days, 6 days per week for 3 years (no haulage on Sunday). Although not documented in the EIS, the developer has the option to extend these hours on application to TCC.

The Noise Study (12.10.07) pages 53/54 outlines construction hours which are typically 6am to 6pm for material deliveries by road and bulk civil works. The exception is barging of materials which could occur 16 hours per day or 24 hours per day. Given the scale of the project and Environmental Protection Act

noise amenity limits for construction (i.e. inaudible outside the period 6.30am to 6.30pm Monday to Saturday), construction should be limited to 6am to 6pm Monday to Saturday only. Best management practices to control noise emissions will be required however, as the overall scale of the project is such that it will be a significant source of noise and dust for an extended period of time.

RESPONSE

The construction times will depend on the final construction methodology, e.g. barging vs. trucking, and different times may be applicable to different aspects of the construction.

It is anticipated that both the EPA and TCC will impose limits by way of conditions on the Operational Works Application for the reclamation and for the Tidal Works Application for the temporary bridge. At both of the construction sites it is expected that hours of 6:30am to 6:30pm would be the norm.

Operations Environmental Management Plan - Breakwater Cove

A comprehensive list of Body Corporate responsibilities should be developed in the Operations Environmental Management Plan (OEMP), for example:

- document, implement and maintain the OEMP;
- review and approval of contractor EMPs;
- investigating incidents of non-compliance;
- maintenance of all records;
- management of quarterly water quality monitoring for 5 to 10 years after development;
- review and interpretation of water quality monitoring;
- hydrographic surveys;
- dredge management including permitting, contract management, monitoring etc;
- managing implementation of the OEMP;
- developing and maintaining an evacuation procedure (including relevant training);
- provide how the Body Corporate will be given the resources and expertise to undertake these functions.

RESPONSE

A comprehensive list of Body Corporate responsibilities can be adequately addressed in the CMS, the approval is one for which the State has responsibility.

1.3 ENVIRONMENTAL MATTERS

Whilst the responsibility for evaluation of environmental impacts rests with other agencies, the Port of Townsville (the Authority) makes the following comments in the context of the intention that it will own and operate the TOT facility and hence may become responsible for any matters not adequately addressed in the EIS.

Dredging - Environmental Considerations

The EIS has considered dredging and associated monitoring/management activities both for the project construction and for ongoing maintenance (TOT berth and swing basin as well as the canal estate and marina access).

TOT Berth and Swing Basin

Modelling of the cruise ship berthing area indicates an annual accumulation of sediment of up to 1 metre per year. The report recommends that dredging should occur every time the inner harbour is dredged by the Authority. The EIS proposes management arrangements to be implemented during dredging operations to minimise impacts on the environment. The Authority, as owner and operator of the TOT, needs to be aware that many of these management arrangements are not current practice for maintenance dredging activities in the Port.

The potential effect of changes of sedimentation in channels and the harbour was not specifically addressed in the EIS. The length of time a cutter suction dredge would be in the harbour dredging the TOT turning basin and berthing pocket should be provided and the risk to traffic (e.g. ferries/barges/small pleasure craft etc) discussed.

RESPONSE

Additional investigation was undertaken by Flanagan Consulting Group into the issue of dredging and water quality. The report - Potential Operational Dredging Impacts on Water Quality can be found at Appendix A12 in Volume 2. For maintenance dredging the dredge could be located largely within the berth pocket recess and will therefore not be an impediment to traffic.

The Proponent notes the TPA comments in relation to management arrangements for dredging. These should refer to the proposed management arrangements for the Breakwater Cove area which will be settled and agreed with the approving authority in due course.

Canal Estate and Marina/s

Initial construction will require capital dredging of an external access channel (to the Breakwater Marina and proposed new marina as part of the Future Development Area) to a width of 50m and depth of 5.5m. The channel will extend approximately 350m into Cleveland Bay. Modelling of flushing of the external access channel indicates that regular annual maintenance dredging will be required at least every 2 years assuming annual accumulation of sediment of approximately 7,000m3.

Modelling of flushing of the marina area indicates that 90% flushing will be achieved during a spring-neap tide cycle. The Development will be totally dewatered during construction with all flora and fauna removed.

The EIS states that annual maintenance dredging of the internal access channel and canals will be in the order of 1000m3 per annum and that "this is less than 0.5% of the maintenance dredging undertaken by the Townsville Port Authority".

Modelling indicates that all current sediment quality parameters can be maintained provided that the flushing mechanism proposed is achieved (e.g. tidal exchange but recommended depths in marina and access channel must be maintained by dredging). Modelling also indicates that current water quality can be maintained (i.e. to ANZECC 95% and in some cases 99% species protection guidelines), provided that the flushing mechanism proposed is achieved.

The report concludes that it is vital for the maintenance of sediment and water quality that dredging be maintained at the proposed and modelled levels. Dredge spoil material must be disposed of on land. The EIS indicates that dredging and disposal will be under the Port of Townsville's (the Authority's) permits / facilities. This has not been discussed with or agreed by the Authority.

1. Potential alternative disposal options are listed (EIS p3:72) however possible locations are not identified. It would be useful to have a broad impact assessment of each option to identify potential show stoppers that may preclude options e.g. high moisture content for land disposal options would be a significant issue. The EIS suggests transfer of dredged material from the trailer hopper dredge to trucks by excavator at a port wharf. Wharf availability for this type of unloading would be highly unlikely/difficult. Control of spillage during transfer and transport and dewatering of high moisture content dredged material would be difficult. The cost of inefficient unloading of a trailer hopper dredge would be prohibitive.

   RESPONSE

   The comments of the TPA in relation to maintenance dredging in the Breakwater Cove area are noted. The options for maintenance dredging have been more thoroughly considered and these are set out in the Flanagan Consulting Group report - Potential Operational Dredging Impacts on Water Quality at Appendix A12 in Volume 2.

2. The EIS identified two options for disposal of dredged material that involve the Authority. These are:-

   i) ocean disposal in the Authority's designated sea disposal site; and

   ii) disposal in the port reclaim area.

   The dredged material is primarily characterized as ooze (currently 1.3m to 3.1m thick in the Breakwater Cove area) most of which will remain untreated within the canals following completion of the project. Ooze does not have the engineering characteristics required for the Breakwater Cove reclamations. Likewise it is unlikely to be suitable for disposal in the port reclaim area. Maintenance dredging is anticipated to be required annually with predicted volumes of 7,000m^3 per year. The cost of containing, managing and stabilising extremely poor quality material would be prohibitive. All costs would be to the account of the Body Corporate.

   RESPONSE

   The comments of the TPA in relation to the potential disposal on the Port reclamation are acknowledged. Clearly if such an option were to be agreed between the Port and the Developer or Body Corporate manager, the Port would have to be reimbursed for any costs incurred by it.

3. Responsibilities for the following components of maintenance dredging were not clearly defined in the EIS. Although relatively small volumes of sediment accumulation are anticipated (7,000m3 per annum), dredging will likely be required on an annual basis necessitating the following to be undertaken regularly:-

   (i) Contract and review of hydrographic survey to determine need for dredging and dredging volumes;

   (ii) Dredge approval process including contaminant testing and assessment of disposal process;

(iii) Dredge contract management;

(iv) Management and implementation of environmental monitoring programs during dredging including reporting to regulators as required by dredging permit conditions;

(v) Close out hydrographic surveys.

RESPONSE

The comments of the Port in relation to responsibility for maintenance dredging are noted. The Breakwater Cove maintenance dredging will be the responsibility of the Body Corporate. The Port's input to assist in developing a plan to deal with this for the Body Corporate manager is welcomed.

4. The approval process for both dredging and disposal of dredged material was not addressed and timing implications for approval was not discussed.

RESPONSE

The responsibilities are clearly those of the Body Corporate within the Breakwater Cove area in light of the indemnity provided to the Townsville City Council who is responsible for canal dredging under the Coastal Protection Management Act. The Flanagan Consulting Group report considers the issue of approvals.

5. The water quality study indicates that contaminants in sediment samples in the project area are within the range of that generally in Cleveland Bay; however the location and results of samples collected in the project area were not provided. The report indicates contaminant levels in sediments in the project area meet the Queensland HIL-A soil guidelines and recommends disposal to land.

RESPONSE

The matter of water quality is covered in the Flanagan Consulting Group report and also in the Hyder Consulting report entitled Draft Water Quality Monitoring Program found at Appendix A13 in Volume 2 and Flanagan Consulting Group reports at Appendices A11 and A12 in Volume 2.

6. The water quality report indicates dredged material is not suitable for ocean disposal however gives no reasons to support this. The water quality report should justify why dredged material should not be disposed at sea.

RESPONSE

The matter of disposal at sea is considered in the Flanagan Consulting Group report is one of the disposal options. This option is available to either the Proponent (capital dredging) or the Body Corporate manager (maintenance dredging) at any time subject to the necessary approvals.

7. Ongoing sources of potential contaminants to marine sediments in the marina were not listed and it is unclear if contaminant levels are likely to meet the NODGMD for ocean disposal.

RESPONSE

Refer to Flanagan Consulting Group on Water Quality at Appendices A11 and A12 in Volume 2 and the Hyder Consulting report at Appendix A13 in Volume 2.

8. In cases where there are no accepted guideline levels for various parameters in marine waters, sediments and ground water, the author of the water quality report has developed guideline levels specific to the project. It is recommended that only accepted guidelines are used and that recognised bodies have the responsibility for setting appropriate levels to ensure consistency. Objectives of the ANZECC guidelines are to provide *"a nationally consistent approach to water quality management that is underpinned by the development of high-status guidelines which can provide guidance when issues arise."* ANZECC guidelines note *"where appropriate, state and/or local jurisdictions can use their own legislative and regulatory tools to refine these national water quality guidelines either into their own regional guidelines or into specific water quality objectives."* The Queensland Water Quality Guidelines 2006 have a defined process for developing accepted guidelines at a local level which the project water quality study did not follow.

9. The monitoring programs appear to be designed more for a general "state of the environment" monitoring rather than specifically for pollution control monitoring by this project, i.e.:

   (i) no habitat map (particularly seagrass and coral distribution) is provided to illustrate the closest location, and most likely impacted, sensitive ecological communities that need to be protected from impacts of the project;

   (ii) no dredge plume model was provided to indicate possible spatial extent of impacts on neighbouring sensitive ecological (and social - The Strand) communities to assist with identifying appropriate monitoring locations;

   (iii) no dredging period was provided for either capital or maintenance dredging to gauge the temporal impact on sensitive communities i.e. how long may the seagrasses and corals be shaded I smothered by impacts of the project;

   (iv) the analytes (attributes to be monitored) were not clearly linked to potential pollution sources generated by the project;

   (v) the report required the Authority to continue the monitoring following completion of the project. Reference to the Authority undertaking monitoring should be removed as it is outside the scope of this project. All costs of monitoring are to be the responsibility of the proponent.

   RESPONSE

   The comments of the TPA are acknowledged. The water quality issues have been extensively reconsidered and discussed in detail with the EPA. As a result further baseline studies are proposed to be completed prior to the start of construction. Refer to the Hyder Consulting Draft Water Quality Monitoring Program report at Appendix A13 in Volume 2 and the Flanagan Consulting Group report on Water Quality Management during Construction (Appendix A11 in Volume 2).

10. The monitoring programs are poorly defined. It is not clear how the monitoring programs will detect significant impacts to sensitive areas by project activities e.g. what are the potential contaminants requiring weekly testing of groundwater during construction and ongoing groundwater monitoring following completion of construction. Page 15 indicates water exiting the site will be continuously monitored however it is unclear how or where. The process for translating review of environmental monitoring data to modification of construction activities is not clear i.e. the construction EMP does not elaborate further as discussed on page 17 of the water quality report.

RESPONSE

The TPA comment on the monitoring programme is noted. This has been addressed in the Hyder Consulting report entitled Draft Water Quality Monitoring Program at Appendix A13 in Volume 2.

11. The report does not indicate if harbour waters or Ross Creek waters will be impacted by the project.

RESPONSE

Refer to the Flanagan Consulting Group report on Water Quality at Appendices A11 and A12 in Volume 2.

1.4 TOR SECTION 2.2.2: HEALTH AND SOCIAL IMPACTS AND SECTION 4.1.6: HAZARDS & RISKS

1.4.1 Section 2.2.2 of the ToR required the proponent to address health and social impacts as follows:

Drawing on information developed in technical assessments, undertake an integrated health impact assessment of the proposed Breakwater Cove precinct to determine if the location of the residential development is appropriate considering the existing and proposed activities in the port area. Issues that should be considered include dust and air emissions, noise and odours from mineral products, fire and explosions, export of live cattle and other products.

Undertake an analysis of the risks and hazards to people and property in the TOT and Breakwater Cove precincts associated with cargoes and operations at adjacent berths in the port, as well as future development areas to be created within the port

Describe the potential social impacts on future residents of the Breakwater Cove Precinct from operations associated with the Port of Townsville. Include:

- *a description of the likely demographics of the proposed Breakwater Cove precinct including residents and employees of businesses.*
- *the expected local community values, vitality and lifestyles.*
- *implications (real and perceived) for public amenity associated with existing port operations and as a result of potential future expansion of the port.*

Section 4.1.6 of the ToR required that the Proponent consider health and social impacts of the proposed Breakwater Cove precinct to determine if the location of the residential development is appropriate considering the existing and proposed activities in the port area. The ToR specifically requires that this assessment consider issues of fire and explosion, requiring that the proponent undertake an analysis of the risks and hazards to people and property in the TOT and Breakwater Cove precincts associated with cargoes and operations at adjacent berths *in the* port, *as* well *as future* development *areas* and berths to be *created* within *the* port.

TOWNSVILLE PORT AUTHORITY COMMENT:

The Authority considers that the "Hazard and Risk Assessment Report" (Hyder) fails to adequately address the potential impact of dangerous goods and hazardous substances that are carried on ships, loaded and unloaded at berths in the port and stored/handled within the Port, and other hazards and risks that may potentially exist or arise as a result of a multi-cargo industrial and naval port (including the TOT facility) operating on the doorstep of a major, high-class residential development.

The Proponent has not undertaken any risk assessments or modelling of potential impacts of dangerous goods and hazardous substances in the context of the proposed new development. The EIS also has not considered toxic gases impacts from a fire or other event.

Dangerous Goods, Hazardous and Toxic Substances

In terms of the potential incompatibilities or impacts of cargoes handled/transiting the port, the EIS has not involved any separate investigations, consequence or scenario modelling.

The EIS does not identify all of the hazardous goods that are currently, or in future may, transit or be handled/stored at the port.

There are currently nine (9) different classes of cargoes that come through the port. Within these nine (9) classes are products that are broken down into UN numbers, of up to about 3,500 different products. Table 1 below highlights products that are currently handled / transported through the Port of Townsville. Whilst not all cargoes are regularly handled by the Authority, they are trades that are handled, which would be expected to grow in volume in future.

In looking at potential impacts, it is important to consider that many ships have multiple cargoes on board. Ships are required to stow in accordance with the IMDG code and other shipping practices. It is therefore important to recognise that risks may arise not only from the product being loaded or unloaded (such as a gas or fuel ship on Berth 1), but also in addition to this the products that may already be stowed on the ship as transit cargo.

Currently limits determined by the Chief Inspector of Explosives on Class 1 Explosives (handling and transit) and Security Sensitive Ammonium Nitrate are 400 tonnes for handling and 1,400 tonnes for transit. Figures 1 and 2 below show the potential consequence zones for handling limits from the risk assessment for these products. No risk assessments have been undertaken for the various scenarios that could arise for the various cargoes (including transit cargoes). The EIS has failed to address any of these potential risks and impacts.

Berth 10 is currently used by the Royal Australian Navy for operational purposes which include the handling of explosives. An existing Explosive Limit Licence, Explosives Handling Area (EHA) issued by the Department of Defence has determined the explosive limit based on the distance between the Explosive Ordinance loading operation and all building groups (offices etc) and traffic routes within a 400m radius. The Port is restricted in its loading operations during events at the Townsville Entertainment Centre. The proposed developments potentially involve establishment of 6-storey multiple dwellings and an Entertainment Precinct within the 400m radius. Any significant changes to developments within this 400m radius would trigger a review of the licence and further restrict the use of Berth 10 to the detriment of Defence activities. It should be noted that substantial upgrade plans are being prepared for Berth 10 to enable increased use by the Department of Defence for operational purposes, and for increased general cargo handling.

RESPONSE

The Port's comments in relation to the need for a report on hazardous goods principally SSAN and Class 1 explosives are acknowledged.

An assessment has been carried out by Lloyds Register and Hyder Consulting and their reports can be found at Appendix A17 in Volume 2.

The report initially formed the view that the existing limits created a risk to public safety in terms of AS3846. This was reviewed with the Department of Mines and Energy (DME). DME provided comments on the interpretation of the Australian Standard and the application of risk in establishing the limits which are acknowledged and accepted by the consultants.

The clarification by the Chief Inspector resolves any overpressure issues for the Townsville Ocean Terminal.

Electromagnetic Interference 1 Radiation

A number of queries were not addressed in the assessment:

- Potential for incidents has not been included in the assessment, e.g. whether a vessel could inadvertently emit much higher radiation if radar procedures on board were not followed.
- Noted during field measurements, only the front radar units were operating. Would levels be exceeded if both front and rear radar units were operating? Is there any difference between cargo and naval vessels?
- Are there other electronic devices apart from TV/radio that potentially could be impacted particularly safety I security equipment e.g. car security locking, roller doors, pace makers etc
- Is there any other equipment on board a vessel, apart from radar, that may contribute to cause levels to be exceeded?
- It is not clear why narrowband measurements undertaken at only 1 site compared with 11 sites for broadband measurements.

RESPONSE

The points made by the TPA are noted. The matter of EMR was reconsidered by the consultant EMC Tech and they confirmed their views in their EIS report. In addition a report was commissioned to investigate this and other matters with the US Navy to determine what their standard operating procedure was and likely effects of EMR from their vast experience.

The report by Admiral R Natter US Navy Retired (R Natter & Associates) can be found at Appendix A23 in Volume 2.

1.5 TOR SECTION 2.2.3: ECONOMIC IMPACTS

1.5.1 Section 2.2.3 of the ToR requires the Proponent to:

In consultation with the Townsville Port Authority describe the impacts of the Project on the future expansion and operations of the port to at least 2050 including:

- *Potential limitations on future expansion of port facilities and other proposed capital works.*
- *Limitations on current or future operations that may arise from nuisance complaints and/or legal action including (but not limited to) dust, odour, noise, lighting, visual amenity, electromagnetic radiation/interference.*
- *The potential for higher environmental compliance costs for the Townsville Port Authority or port users as a result of the Project.*

TOWNSVILLE PORT AUTHORITY COMMENT:

During the 2006/2007 financial year, the Port of Townsville handled almost 10 million tonnes of product. The predominant imports included nickel ore (61%), petroleum products (18%), cement (9%) and zinc concentrates (5%). Primary exports included lead, copper and zinc concentrates (38%), raw sugar (28%), high analysis fertiliser (19%) and molasses (6%).

The value of international trade (international exports and imports) through the Port of Townsville in the 2006/2007 financial year totalled over $6.2 billion. This represented an increase of 12% on the previous year's total of $5.49 billion, and does not include products that are traded domestically. The value of international exports from the Port of Townsville alone was almost $5.2 billion. This represents an increase of over 15% on the previous years' figure of just under $4.5 billion and equates to 14% of total international exports from Queensland - valued at $36.8 billion.

In its annual economic report on the Queensland economy, Queensland Treasury partly attributes this rise in the value of exports to the continuation of the commodity boom over the year, which saw a substantial rise in base metal prices. It is expected that the global demand for base metals will continue for the foreseeable future.

The direct and flow on effects of the Port's activity account for almost 8,000 full time jobs, with direct and indirect wages and salaries accounting for over $320 million. This represents about 10% of total employment in North Queensland.

These figures highlight *the* Port *of* Townsville *as one of* Queensland's most strategic assets. The Port is highly-integrated with the regional economy it serves and is intrinsically linked with its future outlook. The statistics above reflect the critical role the Port of Townsville plays in facilitating the economic development and wellbeing of Townsville, the region it serves, and also the state of Queensland.

All of the companies that have invested in establishing mines, refineries, storage facilities, shiploading facilities at the Port and in the region have a significant vested interest in the future viability of port operations.

- The Authority has previously highlighted concerns regarding inadequacy of the amenity impact monitoring and modelling that has been undertaken to conclusively demonstrate compatibility of the residential development with current and future port operations.

- The EIS has shown some areas where amenity impacts are clearly envisaged, such as dust fall, noise and odour.

- The Port Protection Measures have no application in terms of residential opposition to future port developments or new commodities that the Authority may seek to handle in the future. The proximity of a substantial residential development will have an impact on the ability of the Port to expand its physical layout and also the volumes and nature of the products handled. This may be a result of either perceptions of future residents, or as a result of their dissatisfaction with actual amenity impacts that they experience at the site and the potential for these impacts to be exacerbated if the port grows (irrespective of the fact that the impacts are within legislative, licence or other accepted criteria).

- The EIS fails to consider increased costs to the Authority and Port Users in managing complaints from future residents regarding amenity impacts. Such costs may include more stringent environmental licence conditions, potential restrictions on operating hours, inability to expand operations etc. These are considered quite likely outcomes that should have been considered and addressed in the EIS.

RESPONSE

The comments of the Port Authority in relation to constraints are noted. Comments in relation to the four points raised by the Port are set out below:

1. **Monitoring was impacted by vandalism during the run up to the EIS. Notwithstanding that, monitoring results at the site, adjacent to the casino, on the SCL site and in the city vary between five and twelve months. The results are consistent and are low in relation to the EPA standards for dust deposition.**

Conclusions from the monitoring are that none of the data raises a concern and the probability of there being seasonably higher dust falls in the wetter months is highly improbable.

In addition, modelling of dust fall has been modelled in the supplementary report by ANE which shows that dust levels from loading activities at berth 11 do not exceed the EPA standards.

2. **The EIS demonstrated that amenity impacts from the Port were with some exceptions within acceptable limits. These exceptions did not include dust fall.**

   The exceptions were:

   - **loading of cars**
   - **loading of scrap metal**
   - **ships horns**
   - **live cattle loading**

   It is for these exceptions, that the Port Protection Codes are to be introduced. Generally the conditions under all other circumstances are within acceptable limits. This covers both the current and forecast future operations of the Port.

   Refer to Port Compatibility Report by Transpac at Appendix A31 in Volume 2.

3. **The studies of current and future amenity impacts of the Port demonstrate that the probability of adverse amenity impacts from the expanded Port are negligible.**

   The studies show clearly that the amenity impacts are with few exceptions, benign. With the combination of the Port Protection Codes and the provision of the Port Protection Agreement, the likelihood of dissatisfaction with impacts from the Port is considered to be very low.

   Reference is made to the reports on dust and noise amenity and also to the Port Compatibility Report by Transpac Consulting at Appendix A31 in Volume 2.

4. **The report by Transpac Consulting at Appendix A28 in Volume 2 has addressed the Port's concern in relation to the increased costs of managing complaints. This report considered the low level of complaints from existing neighbours over the last 7 years, together with the results of the supplementary studies. The amenity impacts from the Port are generally benign. When coupled with all of the provisions in the Port Protection Agreement including the Codes, it is considered that the probability of more stringent licence conditions being imposed is very low.**

   It is nevertheless important to note that environmental restrictions are becoming more onerous in response to changing governmental and public concerns. It is noted that the Port is clearly aware of this trend and that it has adopted a pro-active approach to environmental management. The results of this improvement programme are shown in the Port's Annual Reports over the last several years. The compatibility of the residential development's proximity to the Port is not dependence on continuing improvement of the current environment, and forecasts are based on the current environment. It is considered unlikely that the Port would reduce its excellent environmental management focus in the years to come.

The key outcome of the detailed assessments is that while the number of likely complaints is very low, there are nonetheless a range of mechanisms that have been considered and proposed to manage such complaints and the processes by which they are managed and resolved to minimise the likelihood of complaint events on the one hand, and minimise the costs to the Port in the event of complaints on the other. This also involves the active management of residential expectations through the provision of comprehensive disclosures under the terms of the PPM to potential residents and purchases, so that they are fully aware of the environment in which they are contemplating residing. Proper awareness will go a long way towards mitigating the potential risk of future complaints, which would be driven by perceptions, even when emission levels are within acceptable standards.

1.6 TOR SECTION 2.2.4: MITIGATION MEASURES

1.6.1 Section 2.2.4 of the ToR requires the Proponent to:

Discuss the Project's proposed mitigation measures designed to minimise impacts from port operations on future residents and businesses within the proposed Breakwater Cove precinct. The role of possible contractual, statutory and design mechanisms, including a Port Protection Code and Agreement, to manage potential nuisance complaints and/or legal action should be included.

Measures designed to avoid or minimise impacts from various emissions should also be considered and discussed including, but not limited to:

- *The requirement for noise barriers within the TOT precinct and/or noise reduction design criteria of dwellings within the Breakwater Cove precinct should be determined to mitigate impacts arising from operations at the Port of Townsville. The EIS should recommend relevant internal and external noise criteria to be met by the development for incorporation in the FDA Port Protection Code.*
- *Feasible strategies for mitigation of air quality and lighting impacts including building design criteria, vegetated buffer zones etc.*
- *A discussion should be provided of timing schedules for construction and operations with respect to minimising environmental nuisance and harm from noise, dust and odour.*
- *Protection for the Port of Townsville or users, such as commitments to cover future financial imposts caused by the development and for contractual covenants with purchasers to waive claims and objections.*

TOWNSVILLE PORT AUTHORITY COMMENT:

Townsville Port Authority (the Authority) has been involved in the development of the Port Protection Measures that are proposed to mitigate impacts from the port on the project site. The Authority considers that these measures are very unique and are comprehensive in terms of attempting to address both the built form of buildings and legal protections for the Port and Port Users.

The proponent claims that the PPM forms a robust set of protection measures for current and future port operations (2:14). However, it is clear that the proposed protection measures discussed will only:

- be effective if the amenity impacts have been comprehensively identified;
- it is clearly demonstrated that built form mitigation measures will reduce amenity impacts to acceptable levels;
- limit actions by landowners within Breakwater Cove itself.

The Authority considers that there remain deficiencies with the proposed measures in terms of their effectiveness in affording protection to the Port *and* Port Users:

- The Port Protection Measures, to be effective, must be based upon comprehensive and scientifically accurate and reliable data relating to amenity impacts (air quality, noise, light, electromagnetic interference etc). As highlighted above in this submission, the Authority considers that there is insufficient data and information presented in the EIS to enable reliance on that information to inform the Port Protection Measures (i.e. the Port Protection Codes, Design Standards, Materials Specifications etc).

  RESPONSE

  It is clear from the investigations undertaken as part of the EIS and the more recent supplementary investigations that the various emissions from the Port are, generally speaking, within acceptable limits and this situation is a credit to the Port Administration and its commitment to environmental improvement. The Port Protection Measures act as a safety net, when emissions from the Port are at their highest (say when live cattle loading is occurring) then residents will be able to go inside, close their door and windows and escape the problem. It is accepted that mitigation measures must be effective if the problems are to stay outside and to this end an understanding of the potential emissions is necessary in designing the mitigation measures. The Proponent is confident it has a good understanding of the emission levels and that the various mitigations required are not particularly unique. There are many developments, particularly in inner city areas where buildings are required to employ mitigation measures. Any further discussion about the level of emissions and the nature of the mitigation measures would be best served in the preparation of the Port Protection Code.

- The EIS does not provide any scientific evidence or information to support the proposed 3 metre mound topped by a 3 metre barrier that are intended to provide a "buffer" between the residential development and the proposed TOT and existing port.

  RESPONSE

  The three (3) metre mound and the three (3) metre barrier on top are by themselves not the solution to mitigation – they are nevertheless part of the package. They provide a security barrier around the TOT as well as visual and acoustic benefits.

- Whilst the proposed Port Protection Measures provide a comprehensive framework for legal protection, they cannot preclude future residents from making complaints. A complaint resolution framework is proposed to be incorporated in the Community Management Statements (CMS) for the residential areas. The Authority considers that locating 700 residences in such close proximity to the ship-shore interface of the Port (i.e. the berths where product is handled) will inevitably result in complaints that must be effectively managed, despite the fact that port operations are being carried out within legislative, licence or other accepted criteria. This will place a significant burden upon the Authority and port users to investigate and respond to increased complaints to a standard that is generally acceptable to the community.

  RESPONSE

  Data on residential complaints about the Port and its users was assessed in the original Economic Impact Assessment Report. The data considered was sourced from:

  - **Townsville Port Authority Annual Report (various years);**
  - **Townsville Port Authority correspondence; and**

- **EPA correspondence.**

Requests were issued in March to all State Agencies, Townsville City Council and Townsville Port Authority for any data on complaints. No additional data from Agencies has been provided. Transpac Consulting updated the complaints dataset with the latest information available in the most recent Townsville Port Authority Annual Report (2006-07), which was previously not available.

The data has been re-examined and analysed in detail in the Transpac Consulting Report: *Port Compatibility – Impact of Proposed Townsville Ocean Terminal and Breakwater Cove Residential Precinct on the Future Activities and Expansion of Townsville Port* (Appendix A31 in Volume 2).

Not only are the number of complaints low – with a total of 61 complaints recorded by TPA on dust, noise and vehicles between 2001 and 2007 – where data was available on the origin of complaints, the evidence shows that the majority come from residents of South Townville (rather than to the west of Ross Creek in the vicinity of the proposed Breakwater Cove precinct). The Report concludes that since 2001 there have been 2.38 complaints per 1,000 persons within the nearby population catchment to the Port and 0.54 environmental nuisance complaints per 1,000 persons.

The Report further examined complaint activity in the context of port activity. The analysis found that the patterns of complaint activity did not appear to have any strong relationship with measured port activity (e.g. trade throughput and capital works expenditure), indicating that complaint activity since 2001 did not exert any effect on port performance.

- The Port Protection Measures have no application in terms of residential opposition to future port developments or new commodities that the Authority may seek to handle in the future. The proximity of a substantial residential development will have an impact on the ability of the Port to expand its physical layout and also the volumes and nature of the products handled. This may be a result of either perceptions of future residents, or as a result of their dissatisfaction with actual amenity impacts that they experience at the site and the potential for these impacts to be exacerbated if the port grows (irrespective of the fact that the impacts are within legislative, licence or other accepted criteria).

RESPONSE

The suggestion that it is somehow wrong for future decisions about the future operations of the Port to be questioned, whether that be to expand the physical layout or to introduce new product handling is misinformed. Community awareness of environmental impacts is increasing and the community now expects decisions about the future activities of the Port to happen in a consultative way with the interests of the broader community in mind.

It is inevitable that the community will demand higher operating standards over time and this is evidenced by the current debate about the so called "black dust". Whether Breakwater Cove happens or not, Community expectations will inevitably influence future decisions in regard to the Port.

- The protection measures will not prevent owners/occupiers of land in the Entertainment Precinct, marina, green space areas, or non-landowners in Breakwater Cove (such as tenants of units or houses) from making complaints or suing the Authority or port users in connection with amenity impacts.

RESPONSE

The comments of the TPA in relation to a raft of non owners as potential complainants are noted.

- **Tenants: it is possible to require through the CMS that all tenant agreements will require the tenant to acknowledge and endorse the Deed of Covenant and Release signed by the Owner.**
- **The Entertainment Precinct: the object in setting this area aside is for the future expansion of the TEC and associated users.**
- **Other users generally: the same can be said for the Port at the moment and the probability of complaint from these existing sources, eg., pedestrians using the Port breakwater or visitors to the TEC, is extremely low. This is supported by the absence of any record of complaints from these sources currently.**

1.7 TOR SECTION 2.3: ALTERNATIVES TO THE PROJECT

1.7.1 Section 2.3 of the ToR required the proponent to, amongst other things:

- *Provide general information on any alternative locations or design options that were considered including the option of not proceeding with the development. Feasible alternative uses of the site should also be outlined including existing use (considering its value as tidal waters) and partial development/reclamation of the FDA;*
- *Discuss the suitability of the proposed land uses within the Breakwater Cove precinct and their vulnerability to impacts from existing and future likely adjoining land uses. Alternative configurations of the proposed residential components should be presented and discussed in this context including the option of medium density residential only (subject to security requirements for cruise/military vessels).*
- *Discuss the availability of appropriate alternative sites both within and external to the Port of Townsville. in addition, the feasibility of alternative designs of the TOT and Breakwater Cove precincts including to accommodate its use for broader community and commercial purposes;*
- *Discuss the options for dredge material disposal and reasons why sea disposal of dredge material would be required. Indicate any constraints to the different options for disposal.*
- *Describe the social, economic, ecological and technical criteria for selection of the preferred Project option;*
- *Provide sufficient detail to enable understanding of the reasons for selection of the preferred option and for rejection of alternatives.*

TOWNSVILLE PORT AUTHORITY COMMENT:

The EIS outlines several variations on the final preferred option with changes in location and density of housing etc, but has not considered any substantive alternatives that would have been worthy of investigation. The EIS also concludes that the Townsville Ocean Terminal (TOT) facility is not viable without the proposed Breakwater Cove residential development.

- The Authority considers that various alternatives which provide greater separation of residential areas from port operational activities, including the TOT itself, could have been considered.

- The EIS fails to consider the reverse amenity constraints on the Port of Townsville, and the potential negative economic impacts if port operations are restricted and/or growth opportunities for the port and the industries that it serves are inhibited by the Breakwater Cove residential development.

RESPONSE

The alternatives to the project that would have provided greater separation for residential areas was not considered realistic in light of the fact that the project is located within the defined FDA under BICA. It is worth noting that this same area is the subject of the masterplan undertaken for the Port by Geoff Plante & Associates in 2002. The Townsville Ocean Terminal Project has been around for over a decade in one form or another.

Section 2.3 Alternatives to the Project

The EIS provided a summary of the events that gave rise to the preparation of the EIS, which included an evaluation of the merits of the project and different land uses considerations which gave rise to the preparation of the FDA Scheme.

The Transpac report addresses the questions of reverse amenity constraints on the Port and the potential negative economic impacts. Refer to the Transpac report on Port Compatibility at Appendix A31 in Volume 2.

1.8 TOR SECTION 3.5.1: OPERATION OF THE TOT PRECINCT

1.8.1 Section 3.5.1 of the ToR required the proponent to, amongst other things, describe:

- *Details of navigation, security, quarantine, buffer zones and other requirements associated with the operation of the terminal under both cruise ship and naval vessel arrival, departure and occupation.*

- *Mitigation measures to minimise impacts from the Townsville Ocean Terminal on the Breakwater Cove precinct.*

- *The operations of helicopters using the proposed helicopter landing pad including the likely operating constraints such as flight paths, allowable working hours, security considerations etc.*

TOWNSVILLE PORT AUTHORITY COMMENT:

- Refer to previous comments regarding amenity impacts, separation/buffer zones, complaints management etc.

RESPONSE

The comments from previous sections as noted by the TPA have been addressed elsewhere.

1.9 TOR SECTION 4.3: TRAFFIC AND TRANSPORT

The ToR (Section 3.4) references several options for the delivery of quarry product to the site using combination of barges and road transport. The Construction Methodology Report discusses the use of B double and Semi Trailer configuration at the rate of up to 20,960 vehicles per annum for a three year period.

TOWNSVILLE PORT AUTHORITY COMMENT:

- Increases in heavy traffic of the magnitudes proposed will ultimately have an impact on the pavements of roads within the Port area with a decrease in the design service life. The EIS has not assessed the impacts on road networks under the control of the Port of Townsville (Authority) which include part of Boundary Street, Benwell Road and part of Archer Street.

- Whilst it is stated that a dedicated fuel pipeline to the TOT facility is preferred, such a facility is not included in the current design and is not being provided by the Proponent. The EIS has not assessed the impacts that road fuel tankers would have on the local road networks and the amenity of residents for refuelling of cruise and naval vessels at the TOT by road tanker should a dedicated fuel line not be supplied. Refuelling of vessels by road tanker is an intensive operation that can take 3 days to complete.

- The construction of the TOT facility and the temporary bridge have the potential to impact on marine activity and navigation in the Port and in Ross Creek. The EIS has addressed some of the potential impacts, but fails to address the following:-

    - Potential for deposition of rocks, debris or siltation of the channel during the removal of the section of the western breakwater and construction of the TOT berth and facility. The risk of dropping of rocks into the harbour or channel would be higher if loading onto a barge for transport. Should any material escape into the harbour or channel, this may result in closing of the port until the debris is removed, the area is surveyed and depths re-declared. This would have a significant impact on the port, port users, ferries and barge operations.

      RESPONSE

      The question of heavy traffic on the roads which are within the Port's jurisdiction is noted and the Proponent accepts that there is a need for this to be considered and that compensation be paid to the Port in relation to potential decrease in the design service life of the roads. For a calculation of road impact refer to the Flanagan Consulting Group report at Appendix A8 in Volume 2.

      The current specification agreed by the State for the TOT facility does not include a dedicated fuel pipeline. The Proponent has undertaken concept design work to determine the route, design and cost of providing such a facility to the TOT. This report has been provided to the State.

      The issue of rocks falling into the channel is a construction management issue and this valid concern will be dealt with appropriately in that document. It is noted however that the preferred construction method for the construction of the TOT using isolating sheet piling would prevent any loose material falling into the channel.

    - Modelling to appreciate the marine craft waiting times when the temporary bridge is closed. In the absence of modelling, it is unclear whether the proposed temporary holding buoys for waiting vessels are rated for the larger vessels that moor in Ross Creek, and whether they provide insufficient mooring area, with potential for vessels to back up into the harbour area whilst the bridge is closed, which is unacceptable for marine safety and security reasons.

RESPONSE

The issue of marine craft waiting times and the operation of the temporary bridge is being addressed by Flanagan and response to this will be a reference to that report with a summation of the key issue which is a default to open and a provision of adequate navigation and waiting facilities as agreed with the Harbour Master.

The logistics of the Temporary Bridge and its operation as an opening bridge to allow maritime traffic to pass has been reviewed by Flanagan Consulting Group and a copy of their report is at Appendix A7 in Volume 2.

It is clear that the volume of maritime traffic in Ross Creek is not going to cause a problem for the management of the bridge.

By reducing the width of the opening of the bridge it is possible to reduce the time cycle of the open/close of the bridge. This means the need for maritime vessels to wait for an opportunity to pass is greatly reduced. Nevertheless as an added precaution at the suggestion of the Acting Harbour Master there will be pontoons both upstream and downstream of the bridge for vessels to hold pending the opening of the bridge.

As an alternative, a barge option to carry trucks across Ross Creek has been considered by the project Proponent, which would effectively avoid any concerns about the impact of a temporary bridge structure on creek access.

This alternative to the temporary bridge across Ross Creek involves barging the trucks back and forth across the creek to the site. Discussions with the Port and the Regional Harbour Master have confirmed that this option is possible and two barge landing ramp locations have been identified with them and design work has been undertaken to show that the options are viable. The barging option has an advantage over the bridge in that noise on the Strand and Sir Leslie Thiess Drive is minimised.

- Given construction may be carried out at night with on-site lighting, there is a concern that lighting in this area could interfere with navigation lights in the port area, lead lights, channel lights etc. Night vision could be affected with powerful lighting if not managed in an appropriate manner. Current back lighting from the town and port from a master's prospective can cause navigation lights to become obscure or difficult to see, particularly in bad weather. This may be significant for both the port entry and entry into the Breakwater Marina.

RESPONSE

Given the location of the development and that construction will all happen well to the west of the existing breakwater that divides the FDA from the Port, the probability that lighting will interfere with navigational lights is low. Notwithstanding that this can be adequately dealt with as part of the construction management plan.

- It is not clear who will be responsible for operation of the bridge.

RESPONSE

The operation of the bridge will clearly be the responsibility of the contractor.

- Some vessels with deeper drafts that moor in the charter boat marina and possibly the motor boat club are restricted during times of extreme low tides to get their vessels in and out of their berths as the depth of water near the museum and towards the old ferry terminal is fairly shallow in anything under 1 metre of tide. Opening times may impact on persons being able to take their vessels to sea or return at times that fit in with relevant tides.

  RESPONSE

  As mentioned above with the revised design and operating philosophy of the bridge, the delays to maritime vessels will be minimal if any.

- The EIS does not provide any detail of how the bridge will be managed in a severe weather event such as impending cyclone, flooding etc when small craft may be trying to reach their moorings, or may have broken loose of their moorings and be drifting downstream, and whether the bridge itself will be constructed to sustain an impact from a vessel or severe flooding/ water flow.

  RESPONSE

  In severe weather the bridge will default to open which will allow marine vessels free access into and out of the river and the moorings should that be required.

- There would be risks associated with loading and moving rock in rough seas which have not been considered in the EIS. The risks will be dependant upon the size of the barge (e.g. height of sides) loaded height, barge stability, loading/unloading technique and movement method (e.g. towed or pushed).

  RESPONSE

  The TPA comments are noted and there would be restrictions on the loading and moving of rock in rough seas.

1.10 OTHER MATTERS

TOWNSVILLE PORT AUTHORITY COMMENTS

Impacts on Wave Environment of Harbour

In Section 7 - Appendix 13 - Coastal Engineering Study, page 50, the following statement is made:

"The proposed dredging of the berth for the Cruise Ship Terminal is within the confines of the main harbour of Townsville Port and will not affect the wave climate outside of the harbour, nor there be any adverse impact within the harbour itself."

There does not appear to have been any investigation to substantiate the claim that the Ocean Terminal will have no effect on the wave environment within the harbour. In particular, that changing the shape of the harbour will not effect the reflection of longer period waves around the harbour, causing issues for ships moored at other berths in the harbour.

This should be addressed by determining (through modelling or measurement) if long period waves penetrate into Cleveland Bay and the Port. The Authority has attempted to locate measurements or a model that would address this. Whilst several consultants have indicated they have the capability to measure or model to determine the presence of long waves or otherwise, they have not conducted such work for Cleveland Bay in the past. If long waves are determined to penetrate to the Port, then it will be necessary to model the effect of these waves in the harbour with and without the Ocean

Terminal and determine the different effect they will have on ships moored at other berths in the harbour.

RESPONSE

The possibility of long waves in the expanded Port with the Ocean Terminal berth causing harbour resonance concerns has been considered by the Coastal Engineering Consultant and its likelihood is not supported by available evidence.

Hydrodynamic Modelling of Vessel Interaction – TOT

The EIS has not adequately considered hydrodynamic interaction between vessels moored in the Ocean Terminal and those entering/leaving the harbour. The Authority is intending to upgrade Berth 10 to be capable of accommodating panamax sized ships. The worst case interaction will likely be between the design cruise ship in the Ocean Terminal and loaded panamax sized ship departing from Berth 10 with minimal under-keel clearance. There is the potential in this scenario for the cruise ship to be moved on its moorings to an extent that presents a risk to the safe operation of the Ocean Terminal. Mitigation of this by restricting harbour traffic flow when there is a ship in the Ocean Terminal would not be an acceptable restriction to place on port operations.

To address this issue, it should first be determined through modelling if hydrodynamic interaction is likely to cause a problem. If this is determined to be the case, the Regional Harbour Master and the pilots should be involved in ship manoeuvring simulation exercises to determine appropriate adjustments to pilotage operations that will mitigate hydraulic interaction issues.

RESPONSE

In considering this matter, discussions were held with the Acting Harbour Master.

As noted in the Flanagan Consulting Group Report at Appendix A7 in Volume 2 the Harbour Master considers this to be a design issue to be addressed at the construction stage.

Navigational Issues

The EIS has not adequately considered navigation of ships into the Townsville Ocean Terminal (TOT) berth for ships larger than 238 metres Length Overall (LOA). A navigation modelling study would need to be undertaken to identify any measures that may be required to enable safe navigation. Such improvement measures may include:-

1. Removing the seaward end of the western breakwater from the junction of the western and northern breakwater and relocating the entrance beacon P15 to a new western entrance of the harbour;

2. The western bank of the channel between P13 and P15 being dredged to reduce bank effect and increase manoeuvring room whilst turning into the inner harbour; and

3. Departure leads being installed - one adjacent to the S10 beacon and the fairway beacon should be relocated to line up with the Platypus Channel leads.

RESPONSE

It is our contention that the requirements to allow safe navigation for larger vessels are a matter for the Port as the owner of the Port and eventual owner of the ocean terminal.

The Flanagan Consulting Group Report at Appendix A7 in Volume 2 notes discussions with the Harbour Master about the size of vessels permitted into the Port. The current benchmark of 238m has been varied in the past with vessels of 258m allowed to berth. To permit vessels over 238m to enter the Port, the Harbour Master requires modelling to be done. It is likely that some dredging at the entrance of the harbour would be required in the future should large vessels wish to access the Port require this and that a navigational marker may require relocation. This is an operational matter for the Port to consider together with users, in the future.