City **Pacific** Limited

TOWNSVILLE OCEAN TERMINAL

ENVIRONMENTAL IMPACT STATEMENT SUBMISSION RESPONSE

RESPONSE TO TOWNSVILLE CITY COUNCIL

August 2008

Townsville Ocean Terminal

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RESPONSE TO TOWNSVILLE CITY COUNCIL

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

2.1 CONSTRUCTION ISSUES

2.1.1 Project Failure During Construction

Whilst this project appears no more risky than others of a similar nature or scale, Council is concerned that the community will suffer a loss of amenity and reputation if the project and/or Proponents fail during the life of the project. Council therefore requests that further information be provided by both the State and the Proponent on management measures to mitigate this risk.

RESPONSE

The issue of risk of completion was considered by the State in its negotiations with Consolidated Properties as the Developer at that time. The Development Agreement provides for a performance bond which was set by the State to adequately provide for this risk. As the Development Agreement is a confidential document, the details may not be divulged.

The State has commissioned an engineering consultant to assess the performance risks for the project and to advise as to whether any changes to the existing regime of performance bonds provided under the Development Agreement are recommended. This will then be discussed and if there is any change, this will be negotiated with the Developer. Although it is not envisaged that this information will be either publicly available or available to any specific agency or Council, it is appropriate that the State Government provide Council with comfort about the issue of the adequacy of performance bond levels.

2.1.2 Haulage of Material

a) Council acknowledges that the project as proposed will require 1,648,548 tons of hard fill to be hauled to the site over the life of the project. Council also acknowledges that on a financial cost benefit basis that route option 1 would be the Proponents preferred option. Notwithstanding this, Council is concerned that the social costs of this option may not have been fully considered.

Particular attention is drawn to the likely effects on the residents of 1 The Strand. If the route as preferred is used, the Proponents will need to specifically address this issue within any operational works applications.

b) Further to this, Council is concerned that the load proposed on Council roads, as a result of additional heavy haulage vehicles above and beyond the design number of ESA's, will significantly reduce the life of Council's roads. Council is concerned that the ESA calculation as provided in Appendix A06 does not reflect the probable outcome of the proposed usage. Council therefore requires, prior to operational works commencing, that Council and the Proponent agree terms and conditions for accessing its roads.

c) In light of the abovementioned issues, Council requests that a social cost benefit analysis be undertaken in deciding the final route for the haulage of material.

d) Councils preferred option is to haul material via the future Port Access Route to a barging point at the mouth of Ross River. This provides the least social impact and significantly limits exposure to Council roads. Council also notes that the development of this route may provide some benefit to DMR and the Port, and suggests that some recognition of this benefit could be considered.

e) Irrespective of the option selected, Council requires that the Proponent develop an agreed management plan, as part of the operational approvals process, to handle all amenity issues that arise e.g. mitigation measures, a responsive complaints system monitored with KPI's etc.

RESPONSE

a) In (a) and (c) the Council requested that the social impact be considered and a social/cost benefit analysis be undertaken in deciding the final route for the haulage of material. The relative merits of all the haul routes and options have been reviewed by independent consultants (Flanagan Consulting Group) – refer to the report at Appendix A8 of Volume 2.

In this options analysis Flanagan Consulting Group has analysed each route and the social/cost benefits of each. It should be noted that the material haulage for the construction material for the FDA/TOT may also beneficially create a potential benefit with the Resort Corp project by their utilising the bridge to reduce through city traffic.

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.

The report concludes that Option 1A is the preferred haulage option. Before haulage commences, the Proponent will need to apply for and obtain Operational Works Approval in accordance with S.68 of the *Breakwater Island Casino Agreement Amendment Act 2006 (BICA).*

The impact of the haulage programme on residents along the way – like 1 The Strand in the event that the temporary bridge option was endorsed, would need to be canvassed in that application. This would need to include a Social Impact/Cost/Benefit Analysis.

b) The additional vehicular traffic and the impact on the roads is an issue capable of calculation. The project accepts that a contribution to the maintenance of the affected roads will be required and the effects of the increased traffic have been considered in the Flanagan Consulting Group report at Section 9.1 Review of Construction Issues at Appendix A8 in Volume 2.

The Operational Works application would also canvas the impact of the haulage programme on Council, State and Port Authority roads. It is envisaged that all three agencies will want the Proponent to enter into an agreement under which they would reimburse the asset manager for any negative impacts.

c) See comments in (a) above.

d) See comments in (a) above.

It should however be noted that all options will involve the haulage of up to approximately 100,000m^3 of the bulk material by truck so management of this truck movement through the city is essential.

e) Noted and this will be addressed in greater detail when the final haulage route has been determined.

The Proponent understands the need to have a pro-active haulage management plan to deal with potentially negative effects such as noise and dust and traffic congestion as well as complaint management.

All of the issues raised by Council in (a) – (e) above are best addressed at the Operational Works phase in a Construction Traffic Management Plan, when details like not only the size and frequency of the trucks but also their characteristics such as noise emissions are known in more detail.

2.1.3 Navigation of Craft

Temporary Bridge

a) Council notes that the EIS indicates that the opening of the temporary bridge will have a span of 27 metre, and a clear opening of 25 metres. Council considers this to be appropriate and notes that the EIS allows for alternatives to be considered. Council expects that it will be consulted if something less than that envisaged by the EIS is to be considered.

b) Council considers that the proposed opening times of the temporary bridge, being 8.00am, 11.00am, 2.00pm, 5.00pm, and 7.00pm to 7.00am, are unacceptably restrictive. Council considers hourly opening to be appropriate.

c) Council acknowledges that counts of small craft using Ross Creek were taken. These counts appear low. Council understands that these counts were carried out on the 29th and 30th of August and Sunday 2nd September 2007. It is understood that there was a strong wind warning issued for the days of the 29th and 30th and Sunday the 2nd September was Fathers Day. On this basis Council requests that a more representative count be undertaken, or that this deficiency be clearly noted and considered in any future use of these figures.

d) Notwithstanding any of the above, Council will require acceptable consideration of the aforementioned factors in any operational works approvals process.

RESPONSE

a) The temporary bridge if it is employed will be the subject of a Tidal Works application lodged with Council in the first instant. Council will therefore be involved in the final design of the bridge.

The EIS left the door open to alternative bridge designs to accommodate changes in circumstances. One such change is that the Sunferries vessels no longer visit Flinders Street East. A revised Temporary Bridge design is shown at Appendix A19 in Volume 2 and it now has a lesser 15m clear opening which would accommodate the vessels commonly moored upstream of the bridge.

b) Following discussions with the Board of the Motor Boat Yacht Club, the Council, the Port and the Acting Harbour Master, a change in approach to the temporary bridge and the provision of opening times to suit small boat users, has been determined.

The bridge will be open as a default position and closed only when required to allow trucks to pass over the bridge. This means that there will be no disruption for the Townsville Motor Boat Yacht Club members either exiting into the Bay or returning to the Marina.

The detail of this haulage option is set out in the FCG - Review of Construction Issues report at Appendix A8 in Volume 2.

The revised temporary bridge design (with a smaller opening span) would be able to be opened and closed in something like a three (3) minute cycle. Refer to the report by Flanagan Consulting Group at Appendix A7 in Volume 2 for more details. This means that the logistics of managing the movement of the construction traffic across the bridge and the passage of vessels up and down the creek can be such that the maritime vessels will take priority and therefore are not likely to be inconvenienced at all. The default position for the bridge will be "open" – it will only close when it is necessary to run trucks across. Vessels would then be able to pass unimpeded.

A management plan will nevertheless be submitted by the Proponent with the Tidal Works Application and this plan will need to be workshopped with all stakeholders.

The management plan will address the following:

- **Open/close cycle times;**
- **Communication tools – bridge to maritime vessels and bridge to trucks**
- **Non-truck movement operational times**

  Eg. 7pm to 7am every night;

  7am to 7pm Sundays and Public Holidays;

  4pm to 7pm Wednesdays; and

  2pm to 7pm Saturdays.

  to provide absolute priority to maritime vessels.

c) **A count of small craft using Ross Creek was undertaken in August and September 2007. In order to supplement this count, a further week of counting was undertaken in the week 14 May 2008 to 20 May 2008. The detailed report of this count can be found in the Flanagan Consulting Group report at Appendix A7 in Volume 2 (Impact on Marine Traffic).**

The summary that can be drawn from this report is that there is relatively light marine craft traffic through the bulk of the week except for Wednesday afternoon's and on the weekends. It is anticipated that this will enable the haulage of material, other than late Wednesday afternoon, Saturday afternoon and Sundays, to be able to comfortably undertaken and to accommodate the demand or default open philosophy of bridge utilisation.

d) **Council's position with regard to any further work and justification of the temporary bridge and the management plan for it under the operational works application is acknowledged.**

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.

Existing Breakwater Marina

Council understands that the existing channel to the Breakwater Marina will not be available during construction. This may limit access to the Marina for larger vessels. Council requests further advice on how this will be managed and may require that an alternative temporary channel be created to assure reasonable access.

RESPONSE

Access to the existing Breakwater Marina will be maintained via a temporary channel to the west of the current channel and the new Strand Breakwater. This temporary channel will be required for at least two (2) years and eventually the existing marina will be accessed via Breakwater Cove. The temporary channel will provide comparable accessibility to that of the existing channel.

Investigations by Flanagan Consulting Group indicates the depth of the temporary channel is similar to the existing channel. The results can be found in the Flanagan Consulting Group report at Appendix A7 in Volume 2.

Construction Site Lighting

Lighting has been identified as a possible source of interference with small craft navigation at night. Council requests that this be considered within operational planning.

RESPONSE

The lead lights are positioned in the mid point of the Platypus Channel with the first light beam at a position roughly adjacent to the southern end of the new ocean terminal berth pocket and the second at the head of the creek north of Palmer Street. Construction lighting is unlikely to be anywhere within at least 100m of this location and is therefore in a practical sense not likely to interfere with it.

Notwithstanding this, construction site lighting and the potential for interference with navigation aids will be canvassed as part of the Operational Works application.

2.1.4 Miscellaneous

Site access and parking

Council requests further information on the probable local traffic effects (non material haulage) and parking requirements during construction.

RESPONSE

Access to the construction site will require careful planning and management because with the temporary bridge option, all traffic will enter and leave via Entertainment Drive and there is potential for conflict with the haulage traffic. The Proponent will canvass the non-haulage traffic and the need for construction vehicle parking as part of the Construction Traffic Management Plan submitted with the Operational Works application.

Saltwater building corrosion

Any in-situ material used for fill may contain residual saltwater that could leach up to a future building and cause corrosion problems. This will need addressing and monitoring.

RESPONSE

Hyder Consulting Group has investigated the potential for salt leaching and the risk of corrosion and advises that:

> ***"All concrete structures as part of building shall be designed and constructed in accordance with AS3600 -2001 Concrete Structures, which stipulated minimum requirements for reinforcement steel cover and concrete mix design to cater for a wide variety of soils conditions including saline or aggressive soils."***

2.2 COASTAL ENGINEERING ISSUES

2.2.1 Strand Beach Erosion

The EIS identifies that the development of breakwaters will produce a more northerly alignment of the waves on some areas of the Strand. This will result in the realignment of some beaches and cause changed erosion and accretion of sand. In particular the beach at the Burke Street headland may see further erosion with a corresponding accretion at the south end of the same beach at Gregory Street. Lesser erosion has been noted upon the next beach to the south (between Gregory Street and the Marina Peninsular). Council requires further studies to identify and monitor on-going sand erosion effects of the development, if any, and the development of an agreed management plan with Council.

RESPONSE

Coastal Engineering Solutions Pty Ltd has considered this issue in more detail and confirms that impacts will be minor. It will not be noticeable to anyone but those in Council charged with the monitoring of this matter given the natural fluctuations in the beach alignment throughout the year. (Refer to the Coastal Engineering Solutions Report at Appendix A24 in Volume 2.)

Notwithstanding that this impact will be minor the Proponent is prepared to assist Council with its ongoing beach management programme (established after the 1999 Strand Rehabilitation) to monitor and indentify any unforeseen impacts.

2.2.2 Storm Surge Events

Comments on the sections of the EIS dealing with the treatment of the storm tide hazard are provided below. These comments relate to:

Section 4.1.2 - Potential Impacts and Mitigation measures;

Section 4.7 - Coastal Environment; and

Section 7 - Appendix A24: Hazard and Risk Assessment.

The proposed TOT is located in an exposed section of the Port which is subject to cyclone induced coastal processes including storm tide and associated wave action.

Council is concerned that the proposed treatment options described in the EIS may not adequately address the storm tide hazard. Recent studies[1] have indicated that climate change will affect the frequency and severity of extreme events, with this providing a major consideration for establishing appropriate standards.

An underlying theme throughout the sections of the EIS relating to the mitigation of the storm tide risk is an approach that seeks to meet current minimum design levels. Whilst this is understandable, a preferred approach, given the exposure of the site, the potential for increased frequency resulting from the effects of climate change and the consequences of a storm tide inundation event would be to take a more precautionary approach and adopt standards that exceed minimum design levels.

Council notes that as the proposed development is outside of its jurisdiction, the controlling legislation comes under the coastal hazards policy 2.2.1 of the EPA's State Coastal Management Plan. Under the provisions of this legislation, the determination of the Defined Storm Tide Event (DSTE) "should be based on a rational appraisal of the impacts of storm tide inundation and the social and economic benefits of the development" (page 32 of the Guideline to the State Coastal Management Plan).

This in effect could result in a DSTE of greater than a 100 year ARI event, and in the current circumstances, this may be prudent. It should be noted that the buildings within the site need to be designed to a wind speed corresponding to a 500 year ARI event.

Council is concerned with the approach adopted in the EIS, with respect to storm tide inundation, with the treatment of risk. The risk assessment of the proposed development is described in the report titled "Townsville Ocean Terminal - Hazard and Risk Assessment" (Appendix B of A24). Councils concerns relate to the assessment of the consequences of the various risks. In particular:

- CL2 - Flooding caused by storm surge. As there is no return period associated with this risk, the consequences of this risk would be Catastrophic, not Major, resulting in an Extreme risk category, not High.

- CE1 - Extreme Storm Tide Event - to 100 year ARI. The consequences would be Major, not Minor. The risk rating becomes High not Low

- CE3 - Extreme Waves - to 100 year ARI. The consequences would be Major, not Minor. The risk rating becomes High not Low

These differences may have resulted in the designers of the marine structures not incorporating sufficient mitigation measures to appropriately treat the storm tide risk.

Given the importance of this matter, Council commissioned a review of the relevant sections of the EIS by Systems Engineering Australia (SEA) (Appendix A). The major issues discussed by SEA include:

- *The statement "The TOT and Breakwater Cove Precincts have been designed and constructed to ensure that the development minimises the potential adverse effects of extreme weather events and does not result in an unacceptable risk to people or property"* is not supported by any rational analysis in the documents that have been reviewed. (refer to page 2 of SEA's report)

- The storm tide levels contained in Table 4.7.1 used for the design of the marine structures are incorrect. (refer to page 2 of SEA's report)

[1] CSIRO (2001): *Climate Change Projections for Australia.* Climate Impact Group, CSIRO Atmospheric Research, Melbourne, 8 pp.
(Australian Government): Climate Change in the Cairns & Great Barrier Reef Region: Scope and Focus for an Integrated Assessment, 103 pp.

- The use of the Lucinda wind data may be non-conservative as the wind measuring instrument is shielded by the bulk sugar loading shed and consequently under reads wind speeds from certain directions (refer to pages 2 and 3 of SEA's report)

- *This document does not provide assurance that "the proposed building work is not sited within the high storm tide hazard zone" as the "the high storm tide hazard zone" is not defined or delineated.* (refer to page 3 of SEA's report).

On the basis of the above Councils requests that the State closely review the approach adopted by the Proponent. This should consider the uncertainty presented by climate change and adopt a precautionary approach to the design of breakwaters.

RESPONSE

In accordance with the Policy 2.2.4 (Coastal Hazards) of the EPA's State Coastal Management Plan, the design approach has been to adopt a 100 year Average Recurrence Interval (ARI) event as the Designated Storm Tide Event (DSTE).

This is not a "minimum design level" but the accepted hazard mitigation approach. As was set out in the original Coastal Engineering Solutions Report in the EIS, Climate Change is expected to increase mean sea-level, so in accordance with the policy adopted by the Queensland Government an additional allowance has been made in calculating DSTE of 0.3m.

The requirement for a higher design standard (like a 500year ARI) to be applied in certain areas is a matter for the State to consider, however, it is noted in the Coastal Engineering Solutions Supplementary Report is inconsistent with the standard being enforced by Council for other developments in the Breakwater locality.

In response to the criticism in regard to the relevance on the Lucinda wind data, Coastal Engineering Solutions was asked to review this approach and in its Expert Report at Appendix A24 in Volume 2 the validity of the Lucinda wind data is discussed in some detail. They conclude the use of the Lucinda wind data is appropriate.

The response to the Council's Risk Assessment can be found in the Hyder Consulting Hazard and Risk response reports and Risk Registers at Appendices A16 and A18 in Volume 2.

By way of response to the reference to the CSIRO document on Climate Change Projections it is noted that it suggests there could be an increase in intensity and frequency in regard to tropical cyclones. As mentioned above the potential impacts of climate change have been taken into consideration in determining the design of the project.

In regard to the criticisms of the definition of the "storm tide hazard zone", this is discussed in some detail in the Coastal Engineering Solutions Supplementary Report. The extent to which there will be "greenwater overtopping" by cyclone waves during the DSTE will be influenced by the final design of the armour rock walls. The design of these walls will be determined during the Operational Works Stage.

2.3 INFRASTRUCTURE ISSUES

2.3.1 Roads and Traffic

The EIS concludes that "existing land-based transport infrastructure affected by the TOT Project during and post construction are existing road networks feeding the Breakwater Precinct. Analysis of the road network showed:

- *Capacity constraints at the Flinders/Denham Streets intersection at times;*

- *This is aggravated by special events at the Townsville Entertainment Centre causing higher than normal traffic movements to and from the breakwater;*

- *The TOT Project will not materially impact the existing situation;*

- *Sir Leslie Thiess Drive, the main feeder to the TOT Project site, is more than adequate to accommodate the TOT Project".*

In summary, whilst the Proponent acknowledges existing capacity constraints on the network feeding the Breakwater Precinct, and estimates that proposed developments within the Breakwater will contribute a further 11,000 vpd to this network, it asserts that no road infrastructure upgrades and/or augmentations are required in order to accommodate its development. Council does not support this position and provides the following in response.

Council has had several reports[2] completed that indicate an additional access would be required to service a potential development of the Breakwater Precinct. This additional access has been identified as a bridge over the Ross Creek as an extension of The Strand and then via Ross, Archer, Perkins and McIlwraith Street's to Dean Street.

These reports are based on assumptions of land uses from all areas within the Breakwater Precincts being developed to capacity in accordance with Figure 2 of the attached report from C & G Horman "Breakwater and Associated Developments - Assessment of Peak Hour Traffic volumes (report No 015 11 December 2007), the "Horman Report" *(Appendix E and F)*.

Discussions with representatives of the Proponent had indicated that their reports had concluded that there was no need for a bridge or at the very least, that a bridge would not be needed for some time. In the interest of deferring capital expenditure and reducing cost for all parties, Council commissioned an additional report on the basis that previous reports had overestimated traffic volumes due to assumptions of major developments that are now known to not be proposed.

This Horman Report was undertaken after much research of the scale of the combined proposed developments in the Breakwater Precinct including: -

- The Marina Precinct (Mirvac and City Pacific)

- Surplus Casino Lands (Resortcorp and Consolidated properties)

- Port land between Ross Creek and Sir Leslie Thiess Drive (Western side of Ross Creek)

- Redevelopment of the Wickham Street, King Street, and The Strand block

- Port land between Ross Creek and Ross Street (Eastern side of Ross Creek)

- The FDA and Ocean Terminal site

- All existing development that is proposed to be retained.

This model for Breakwater development is now as per Figure 7 of the attached Horman report. The main difference between Figure 2 in the Horman Report and Figure 7 is a major shopping complex of some 23,000 GFA sq.m., which is not being proposed. This was originally proposed for a lot at the end

[2] Sinclair Knight Merz (SKM) *Flinders Street East Traffic Study*, 71 pages (Appendix B)
C&G Horman *Ross Creek Bridge Location Comparison Report for Townsville City Council.* 45 pages (Appendix C)
C&G Horman *Traffic Impact Report Critique of EIS Reports - Holland and Veitch Lister Consulting, 5* pages (Appendix D)

of Sir Leslie Thiess Drive. Other amendments are relatively minor. Figure 7 in the Horman report is the best information to date of all development proposed in the Breakwater precinct.

The Horman Report was carried out on the basis of a peak traffic assessment of both morning (a.m.) and afternoon (p.m.) instead of a daily volume assessment. Generally when daily volumes are assessed then the rule of thumb is to take 10% of the daily traffic for the assessment of peak hour traffic. This can be erroneous when there are the mixes of development that are being undertaken in the Breakwater area that have differing traffic distributions during the day.

Further, to ensure the peak hour assessments were accurate, the assessment of existing traffic generation was calibrated with observation from traffic counts prior to superimposing the proposed new development. This ensures that the study will be producing reasonably accurate results. Peak hour assessments were used because the infrastructure required to service the traffic in the peak hour needs to be determined.

For the purpose of this study three scenarios were chosen as follows:

1. No FDA - all developments shown in Figure 7 are completed apart from the FDA and the road network is essentially unchanged.

2. FDA Island - A channel suitable for use by ferries and small craft connects Ross Creek to the Marina access channel between the existing casino/entertainment centre and the FDA. Access to the FDA is proposed via a low fixed bridge over Ross Creek connecting to Ross Street.

3. Strand Bridge - The FDA is accessed via Sir Leslie Thiess Drive and the Strand is extended across Ross Creek using a bascule bridge. This is as per the Proponent's model.

These scenarios were chosen to demonstrate the effective trigger point when a bridge, if still required, would be needed across Ross Creek as an extension of the Strand to Archer and Perkins Streets.

The 2nd scenario was chosen to demonstrate from a traffic point of view that an alternate development may be able to proceed without much impact on the Flinders Street, Wickham Street, King Street, The Strand and Sir Leslie Thiess Drive system. If scenario two were chosen then all the works to access the FDA would in fact be front gate works and would be at cost to the developer.

In addition some sensitivity testing was undertaken to determine if other factors may dictate the need for downstream (or upstream) infrastructure. The sensitivity tests for all three scenarios were:

- Sensitivity Test 1 - Mall reopening. Common knowledge may not contemplate a nexus between this event and the traffic capacity of the total system. However the introduction of extra phases within the signal timing at the Denham Street - Flinders Street intersection can only reduce the available time for traffic to feed in and out of Flinders Street East. This has the effect of reducing capacity at this intersection and causing redistribution to other access points to the Breakwater Precinct i.e. Oxley Street, Melton Terrance and Cleveland Terrace.

- Sensitivity Test 2 - Flinders Street redevelopment. Mirvac have been planning a Twin Tower development on Flinders Street between Flinders Street East and Ross Creek. This will inject further traffic into the system in the peak hour and once again cause a redistribution of the traffic to the access points of the Breakwater Precinct

The Horman Report produced the following observations:

Scenario 1 (FDA not proceeding):

In this case the Strand Bridge over Ross Creek is not required. The sensitivity testing of the Mall opened to traffic or additional development on Flinders Street East does not tip the balance to require the Strand Bridge. The combination of both of these sensitivity tests may require some works to accommodate the redistribution of traffic from the Denham Street Flinders Street East areas, and this may result in an upgrade of The Strand/Oxley Street intersection.

Works will still be required Viz: -

- The one way system of King Street, Wickham Street and The Strand will need revamping to a two way system.

- Works in Ross Street, Archer, Perkins and McIlwraith Streets will be required as a result of the Port office block and ferry terminal relocation defined in the Port strategic development plan for the Ross Creek East Precinct.

Scenario 2 (Low Level Bridge Ross Street - TOT)

Connecting Ross Street to the Ocean Terminal and the FDA downstream of the Entertainment Centres as per scenario two provides an interesting alternative that caters for the FDA, TOT and retains full navigability of the Ross Creek system for small craft.

This option provides a full navigable channel to be constructed downstream of the Entertainment Centre and then from Ross Creek across the northern face of the Entertainment Centre and Jupiter's to join with the navigable channel from the existing Breakwater Marina.

The FDA and TOT would then be on an island connected by a low level bridge downstream of this new navigable channel. The low level bridge would also divide the larger shipping from small craft activity and enhance security in the port area as all small craft would be relocated *away* from the harbour. This is a particular advantage for visiting military vessels.

This option requires the same works as for scenario 1 i.e. revamping the one way system of King Street, Wickham Street and the Strand to a two way system and in addition requires scaled up work for Ross Street, Archer, Perkins and McIlwraith Streets as a result of the Port offices block and Ferry Terminal relocation as defined in the Port Strategic development Plan for the Ross Creek East Precinct plus the FDA and TOT.

This option demonstrates clearly that much of the works required for the FDA and TOT are in fact front gate works and therefore at no cost to the community but rather at 100% cost to the developer.

Scenario 3 (FDA Development as proposed)

The FDA being constructed off Entertainment Drive as per scenario 3 will cause: -

- A four lane bridge to be constructed on the alignment of The Strand and across Ross Creek. This will cause major realignment and upgrade works on Archer/Perkins/McIlwraith Street to Dean Street and have follow-on effects for Dean and Abbott Streets with potential future constraint at the Tom Aitken Overpass.

- The intersection at Sir Leslie Thiess Drive is contained to the existing road reserve with a far lesser amount of acquisition of land than previous studies showed. It is recalled that Sir Leslie Thiess Drive required the Enterprise House site acquisition for a major intersection. Acquisition of land will now only be limited to increasing the truncations at this intersection. This is due to the fine tuning of the traffic generation and in particular the removal of the shopping complex previously identified.

- The one way system of King Street, Wickham Street and the Strand will need revamping to a two way system.

The Horman report only investigated the access to the Breakwater Precinct as being via Flinders Street East and The Strand up to Oxley Street. The other two accesses being Melton Terrace (one way in) and Cleveland Terrace are very much local access streets and were limited to a combined 6000 vpd for the study purpose. The study acknowledged that the capacity constraint to the area were the Finders Street Denham Street intersection and the Oxley Street/The Strand Intersection.

Once the saturation points of these intersections are reached there is a trigger for additional access to the area. The study did not assess the downstream or upstream effects of the generated traffic on the Main Road System of Dean Street/Railway Parade and Eyre Street. It is understood the Department of Main Roads may have concern with the resulting traffic exceeding capacity on these Streets.

A problem identified with the provision of the Strand Bridge over Ross Creek is that it tends to attract trips from the City to the Breakwater and Strand Precincts. The traffic levels on George Roberts Bridge are reduced from 24,200 vpd for scenarios 1 and 2 to 14,770 vpd when the bridge is in place.

The Strand traffic is also increased markedly by the advent of a bridge over Ross Creek at the Strand, so much so that parking and unparking will become difficult in the area between Friar Street and Oxley with traffic volumes of:

- Existing about 4,290 vpd i.e. a reasonable environmental service level
- Scenarios 1 and 2 - 7,100 vpd i.e. acceptable but high than a desirable upper limit for an environmental capacity
- Scenario 3 about 13250 vpd, which is unacceptable for parking in a recreational area.

If the bridge is to go ahead then the Strand end needs consideration with respect to its connection back to a road system of higher order in the Hierarchy. The Horman Report has used the existing street system to access back to Eyre Street (A main road) via Oxley Street. Figure 3 in the Horman Report identifies an upgrade proposed by the DMR for the Eyre/Oxley/Denham Street intersection.

It is considered that a bridge option at the Strand would need much better connectivity with the Main Road system in order to shorten up the interaction of higher volumes on The Strand.

A review of McIlwraith Street traffic shows: -

- Existing traffic about 2890vpd i.e. a quiet suburban Street
- Scenario 1 - 18750 vpd requiring 4 lanes and special intersection treatments. This traffic is brought about by the advent of the development on the Port Land between Ross Creek and Ross Street alone.
- Scenario 2 - 23,890 vpd i.e. requires 4 lanes and additional intersection treatments. This traffic is brought about by the advent of the development on the Port Land between Ross Creek and Ross Street and the advent of the FDA accessed via the extension of Ross Street along berth 10.
- Scenario 3 - 35,300 vpd. This is near capacity for a 4 lane system with a congested level of service.

Dean Street Traffic in scenario three is in the order of 49000vpd and McIlwraith Street traffic is about 35000vpd. The intersection of McIlwraith Street with Dean Street (a main Road) is proposed as shown in Figure 20. This situation would warrant a revamp of the South Townsville Road hierarchy.

Previous road headworks assessments for the Breakwater Precinct only, and as based on earlier traffic reports using figure 2 development assumptions in the Horman Report, had a $42M capital works component in 2005 terms.

A recovery from developments identified in Figure 2 relied upon apportionment of traffic generated from each development. Only $30M could be recovered from the identified developments and the $12M under recovery is related to the redistribution of normal city traffic from Denham Street to the new Strand Bridge and would be required to be funded from the Community via the Townsville City Council. In light of more recent studies Council proposes to review its Headworks Policy.

Any new headworks distributions will need to be assessed from the scenario chosen and identified land uses (figure 7), and a fresh set of estimates for the respective identified capital works. The Horman report indicates the FDA and TOT trigger the bridge and other road upgrades that may otherwise not be required.

It could not be stated that the bridge will never be required without further studies of the development potential of Melton Hill and Flinders Street East being included in that review. Given time constraints this will not occur within the time permitted by the EIS.

However it is identified that the FDA either triggers the need for a permanent bridge over Ross Creek or at the very least triggers the bringing forward of the bridge works.

It should be noted that traffic from the Ocean Terminal site is relatively insignificant. It does not contribute excessively to the peak hour. Therefore the ocean terminal, as a stand alone project, could proceed with very little additional impact on the street system.

In conclusion Council submits that:

- The FDA as proposed by the Proponent (Scenario 3) triggers the need for a bridge over Ross Creek being an extension of The Strand to be required earlier than it would otherwise be needed. Without additional studies as identified it cannot be stated that this bridge would never have been required.

- The existing street system access to the Breakwater Precinct can handle all but the FDA for the land uses identified in the Horman report.

- If Council had spare capacity in its infrastructure systems then it would allocate them in accordance with the following priorities:

    1. Priority Infrastructure Areas attached to Council's Priority Infrastructure Plan (PIAs in the PIPs)

    2. Land zoned according to the City Plan for the intended use.

    3. Other Townsville City Council land (not zoned appropriately and requiring an MCU)

    4. Existing land e.g. Port land which is not within the boundaries of Townsville City Council.

    5. Finally land to be reclaimed.

- The advent of a bridge over Ross Creek, being an extension of The Strand, could significantly effect the traffic situation on The Strand which is a recreational and tourist destination area. This is brought about by traffic in addition to the FDA. This traffic would need to be diverted away from the Strand as quick as possible.

- The advent of a bridge over Ross Creek, being an extension of The Strand requires a review of the road hierarchy in South Townsville and North Ward.

- There is a need to review the Breakwater Precinct Road Headworks charges and this should include all modification to all roads in the hierarchy.

As the FDA is land not yet under Council control, and as it is triggering the need for infrastructure to be either required or brought forward, it will commit Council to additional costs earlier than otherwise anticipated. It is therefore Councils position that the Proponents enter into an Infrastructure agreement with Council for the provision of the bridge and upgrading of any identified roads to be available when the FDA land is fully occupied.

RESPONSE

In response to the comments made by Council and in particular the Horman Report, the Proponent instructed Veitch Lister (VL) to review its model and its traffic predictions. In particular VL was requested to investigate the Council comment that without the Future Development Area (FDA) the proposed Strand Bridge was not needed. To respond to this suggestion VL re-ran its model excluding the FDA with an updated development outcomes scenario. (For details about which developments have been canvassed – refer to the VL Supplementary Report at Appendix A21 in Volume 2). The model shows that without the FDA and without the Strand Bridge, traffic volume on the Denham Street Bridge will rise to 25,000v.p.d by 2025. While this is not by itself a problem the intersection of Flinders and Denham Streets will, as noted in the Supplementary Report of Holland Traffic Consulting (HTC) at Appendix A21 in Volume 2, be congested and operating above its capacity. Of particular concern will be the peak hour flows – for the 2 hour morning peak some 686 vehicles will be looking to turn right off Denham into Flinders Street and in the evening peak 2 hours some 805 vehicles will be looking to turn left from Flinders into Denham Street. This volume of traffic will cause considerable delays. As HTC observes in their Supplementary Report, the proposition that the Strand Bridge is not required except due to the FDA development is not supported even by the Horman Report.

Indeed, as HTC further observes, the Bridge is actively promoted by Council in its Breakwater Road Network Headworks Policy which was only recently amended and confirmed by Council.

The Bridge is also shown in the Townsville Economic Gateway Publication which is a joint Council, Port Authority and State Government publication from 2007.

We offer no comment on the "Scenario 2" proposal in the Horman Report as it does not fit within the parameters of the EIS.

Using the same base data on development outcomes in the Townsville CBD/Breakwater locality, VL were also asked to re-run the model allowing for the FDA and the Strand Bridge (with two way Strand traffic between Wickham and King Street). The model shown in VL's Supplementary Report shows a considerable easing of traffic volumes on the Denham Street Bridge in the 2025 time horizon with volumes down by nearly 30%. The volume of traffic on the Strand Bridge in 2025 is projected to be around 13,000v.p.d. The morning peak, right turn from Denham into Flinders drops by 40% and the evening peak, left turn from Flinders into Denham drops by nearly 45%.

According to Council's comments, the Strand Bridge has the unfortunate outcome of increasing traffic on the Strand (between Fryer and Oxley Streets) to around 13250v.p.d. The VL model however suggests the daily total will be just over 9,000v.p.d.

Similarly, Council says the impacts on McIlwraith Street will be significant with in excess of 35,000v.p.d. However the VL model predicts a more modest outcome with around 5,600 vehicle movements.

Apart from a more accurate prediction of the impacts on the Strand and in South Townsville, the VL model assumed a more appropriate directional split for the FDA traffic with more traffic heading towards the City than South Townsville – the rationale behind this is explained in the HTC Supplementary Report.

The HTC Supplementary Report comprehensively rebuts the propositions in the Horman Report and in particular the suggestion that the Strand Bridge is triggered by the FDA. It also confirms that the impact of the traffic generated by the FDA on the problematic Flinders and Denham Street intersection is in accordance with the Main Roads definition, insignificant (i.e. less than 5%).

Notwithstanding that the FDA does not have a significant impact on the operation of the Denham and Flinders Street intersection, the Proponent has always stated and is still prepared to make a reasonable contribution in line with the Council Headworks Policy for the bridge, towards the cost of the solution to the problem – The Strand Bridge. The Proponent notes with agreement Council's comments that there is a need to review the Breakwater Road Network Headworks Policy. The Policy does not currently require development other than in the Breakwater to contribute. Given that the need for the Bridge comes from the limited capacity of the Flinders/Denham Street intersection to handle the expected increase in CBD traffic, the Proponent argues that all development which will generate future traffic which will use the Flinders/Denham Street intersection should be contributing if Council is serious about recovering the cost of the Strand Bridge.

2.3.2 Water and Sewerage

Water and Wastewater Infrastructure Connection

Within its EIS the Proponent has indicated that the upgrades to Council's system to accommodate this development will be looked after through Council's Headworks Policy/Priority Infrastructure Plans (PIP). It is Council's understanding that the Developer believes that they only have to pay for infrastructure on their site and a headworks contribution. E.g. Appendix 10 'Final Draft Infrastructure Report' in 2.4.5 says 'Any sewerage works external to the site required to be upgraded will be undertaken by Citiwater in accordance with the provisions allowed for in the headworks contributions ...'. Similar statements apply for the water supply.

These assumptions are incorrect.

Headworks charges cover existing and/or planned items such as dams, Reservoirs, treatment plants, major pump stations, pressure mains, etc. The area in question is under water and is not considered within Councils planning schemes. Council has made no provision for any water or wastewater infrastructure to be taken to the site, nor has it made provision for this development. As such, the infrastructure required to facilitate development has not been included within Council's Headworks Policy/PIP.

There has not been any provision in the headworks for the development of this area. Additional infrastructure, required to deliver the service from existing or planned headworks capable of servicing the development, will need to be provided at the Proponent's expense

Council commissioned an external report through Maunsell Australia to assess the need for additional external infrastructure to service this development. Council is now of the understanding that "external works" will be required to connect the development, and this being the case the developers will need to pay the impact costs of adding their development to Councils system.

In addition they will need to pay normal headworks (Infrastructure charges) for those other matters within the respective systems that are normally covered by headworks.

Council has undertaken an initial report to attempt to identify the scope and cost for this work. The full report is attached as Appendix G.

In summary the report identifies:

- That to service the development with water supply will require external works to an apportioned value between $4.3M and $4.7M. Because these works were not planned the developer will have to pay the financing cost of the remainder of the apportioned works;
- If the Water Supply upgrade works are shared with adjacent developers then economies of scale could reduce this $3.5m. Likewise the same comments applies to paying the financing cost of the remainder of the apportioned works;
- That to service the development with wastewater services will require External Works of the order of $2.3m. In addition because these works were not planned the developer will have to pay the financing cost of the remainder of the apportioned works;
- If the wastewater upgrade works are shared with adjacent developers then economies of scale could reduce this to $1.5M. Likewise the same comments applies to paying the financing cost of the remainder of the apportioned works; and
- Normal Headworks or infrastructure charges as the case may be, will still be applicable.

Water Reticulation

- The design criteria appear to be consistent with the TCC requirements;
- The design criteria mentions that TCC prefers that ring mains are constructed in cul-de-sacs, however DWG. No. K031-QL00704-02 in the Infrastructure Report shows dead end mains in each of the development "fingers";
- With respect to water demands during construction, the EIS noted that the existing TCC infrastructure is capable of handling the demands during construction. With the construction of Saltwater and the residential area on the old Quarterdeck site, the existing water mains may not handle any additional demand; and,
- For fire flow, we note that the Proponent has indicated a Council requirement of minimum flow requirements of 15 l/s at 12m. This flow rate is applicable for residential areas only, commercial areas should have minimum flow of 30 l/s.

It is specifically noted that Council will have no ongoing asset ownership and maintenance responsibility for water reticulation in the development and the above comments are not to be considered as Council requirements.

Sewerage

- The EIS indicates that a vacuum sewerage scheme is preferred for the collection of sewage from the residential areas whilst acknowledging that Council will need to approve the installation of this type of scheme. It is noted that the vacuum sewerage scheme will be privately owned and Council will not "approve" the proposal.
- No flow rates have been advised for the residential component of the development; and
- For sewage and grey water from berthed vessels, the EIS indicates that these will be deposited into the town sewerage scheme. Council requires that this waste be considered a trade waste and would need consideration prior to accepting it into the sewerage scheme (similar to the scheme proposed for the Marina Berths).

It is specifically noted that Townsville City Council will have no ongoing asset ownership and maintenance responsibility for sewer reticulation and pumping in the development and the above comments are not to be considered as Council requirements.

RESPONSE

In response to Council's comments in regard to Water and Wastewater Infrastructure Connections and in particular the Maunsell Report, the Proponent engaged UDP Consulting Engineers to provide advice in regard to the service upgrades identified in the Maunsell Report. The UDP report is at Appendix A22 in Volume 2.

Council's overriding comment is that its Headworks Policy did not canvas the proposed development and that the developer will have to pay the connection costs as well as paying the normal headworks charges. If this involved extending the existing water main and sewer from the Townsville Entertainment Centre then there would be no argument. Council has proposed however that a new 375mm water main from the City Reservoir - a distance of nearly three (3) kilometres straight through the CBD. In regard to waste water, Council wants a new 225mm rising main to Boundary Street in South Townsville – again the main is three (3) kilometres in length and again it goes through the CBD.

The collective cost of this work could be as much as $6.6 million. While there is potential for this to be shared with the developers adjoining the Casino the impost is significant, particularly when the total headworks policy contributions could be as much as $11.8 million.

The Proponent does not dispute the need for augmentation of water mains and sewers in the CBD/Breakwater locality and the need for this work in light of the ongoing revitalisation of the Townsville CBD is noted in the UDP Report. The issue is who pays for the augmentation works. What is clear is that the development is capable of being serviced, so from an EIS perspective there is no issue.

As for who pays, this is a matter to be resolved between the service provider (Council) and the Proponent and would normally be by conditions of approval and the applicable headworks policies.

The Council's comment that it has made no provision for "water or wastewater infrastructure to be taken to the site" suggests a lack of planning on its part. The FDA has been around for over 20 years and the nature of the development in the FDA has been debated for over a decade. Council's submission notes that its CBD Masterplan published in 2000 accommodates development in the FDA.

The passage of BICA Legislation in 2006 reinforced the potential for development in the FDA – this legislation specifically noted that Council's headworks contributions would be applicable. A similar provision has been incorporated into the proposed FDA Scheme which was reproduced in the EIS. Council should therefore be well advanced in its infrastructure planning to accommodate the FDA and to ensure its headworks contributions would be applicable. A similar provision has been incorporated into the proposed FDA Scheme which was reproduced in the EIS. Council should therefore be well advanced in its infrastructure planning to accommodate the FDA and to ensure its headworks policy captures the augmentation of this infrastructure. It is noted that Council adopted a Road Network Contribution Policy for the Breakwater a couple of years ago.

It is clear that Council's Headworks Policy will apply to the FDA and to the extent the infrastructure works canvassed in the Policy need to be updated then it is incumbent on Council to initiate this process in accordance with Schedule 3 of the Integrated Planning Act 1997.

It is also clear that the proposed works are exactly the type of works that Headworks Policies provide for.

The Proponent therefore rejects Council's comments that the water and sewerage infrastructure will NOT be provided through Council's Headworks Policy.

It is understood that Council is concerned that its headworks policy will not apply to the FDA until such time as the Land in the FDA officially becomes part of the Local Government Area pursuant to s.67 of the BICA i.e. on completion of the reclamation works and the Schedule 3 process to include the FDA is complete.

Arguably there is technically a window of opportunity for a development application to be lodged with Council when the titles are available under s.67 but before the Schedule 3 process is at an end and the Headworks Policy applies to that Land.

This is a different situation to that which prevailed for the SCL. The BICA made it clear that upon its ascent that SCL land immediately fell under the jurisdiction of the Council. No such provisions exist in the BICA for the FDA.

To overcome this potential loophole, the Proponent is prepared to recognise that an Infrastructure Agreement should be executed between the developer and the Council prior to the issue of any titles under s.67 of the BICA.

2.4 OPERATIONAL AND FUTURE MAINTENANCE ISSUES

This section identifies issues that relate to the ongoing operation of the development.

2.4.1 Non Maintenance of Assets

a) Canals

The waterways once constructed become Unallocated State Land - Canal, subject to the provisions of the Coastal Protection and Management Act 1991. Section 121 of that Act places an obligation for maintenance on Council. However, the Proponent has entered into a Development Agreement with Council and has agreed to indemnify it for any maintenance obligations associated with the "waterways".

Notwithstanding the rights of recovery that this arrangement provides, responsibility for the Canals still rests with Council and it does not wish to intervene and/or take legal action for such recovery. It is therefore important that an agreed standard and program be established prior to the completion of these waterways. This should take into consideration canal conditions impact on flushing.

b) Parklands

The proposed construction method involves the extensive use of on-site fill (ooze) with special lateral subsoil drainage to aid in the dewatering of the ooze and then capped with engineered fill. This will cause settlement as dewatering takes place. Settlement may also impact on any structures built upon the Parkland i.e. BBQ facilities etc. Council requests that this be acknowledged within any on-maintenance arrangements.

c) Breakwaters

Responsibility for breakwaters will rest with adjoining landholders. Significantly, this will be the Body Corporate. Given the private nature of this body provision should be made for regular and systematic independent inspection of Breakwaters to assess condition.

RESPONSE

a) The Proponent confirms that an agreement exists which effectively indemnifies Council of maintenance responsibilities under s.121 of the Coastal Protection and Management Act. To ensure there is no disagreement in regard to the extent of the maintenance responsibilities the Proponent is agreeable to enter into a Memorandum of Understanding (MOU) in this regard. The appropriate time for this MOU to be executed would be prior to the completion of the reclamation works and being put "on maintenance';

b) The Proponent is agreeable to acknowledging Council's settlement concerns in any on-maintenance arrangement;

c) The Proponent acknowledges the need for regular and systematic inspection of the Breakwaters – this can be incorporated into the Community Management Statement.

2.4.2 Disaster Management

The design and layout of the development is not conducive to evacuation from threats due to fire or explosion in the port. Evacuation of the "fingers" will mean that the evacuees will need to move towards the threat before they can move away.

The single access will have competing sources of people during an evacuation. A full house at the Entertainment Centre (5500) and the Casino (2000) plus the proposed Resortcorp development (1500) and 2000 from the FDA will impact efficient evacuation. An evacuation plan for area will need to be developed and residents made conversant with it.

The TOT development will require its own evacuation plan that coordinates this development with other areas. Because of the special nature of any disaster management plan, there will need to be an on-going communication plan.

The ocean terminal will need its own risks and hazards operational plan because of the transferring of substances from land to water vessels. E.g. fuel spills, fire fighting effects, sewage etc.

RESPONSE

As a consequence of the submissions by the Council, the Department of Emergency Services (DES) and the Queensland Police Service (QPS) and with the assistance of the input by those agencies in two workshops, a proposed Disaster Management Plan (DMP) has been produced. It is envisaged that this plan will be developed and finalised with the input of DES, QPS and Council prior to the completion of any dwellings and moving people into the Breakwater Cove area. The DMP is a key responsibility of the Principal Body Corporate. This DMP will need to be finalised as part of a broader DMP for the whole of the Breakwater precinct.

As the DMP will be controlled by the Principal Body Corporate for the Breakwater Cove precinct, the body corporate will establish an emergency management committee (EMC). EMC will be constituted by the body corporate chairman, the body corporate manager, the Breakwater Cove marina manager and the Senior Breakwater Cove security officer or its delegate. The EMC will seek the assistance of Emergency Services Queensland to train and assess and prepare the members of the EMC to the appropriate level to manage the DMP.

The DMP proposes three key strategies in relation to the management of disaster events for the facility. These are:

a) A co-ordinated and integrated communications system via the body corporate structure that will enable communication with residents both at the time of a disaster event and to provide training and preparedness for members for such an event. The body corporate structure is uniquely enabled to undertake this co-ordination and training role because under BICA all properties to be sold in the Breakwater Cove development must be a member of the body corporate.

b) Each dwelling is to have a safe room, likely to be the laundry set in the middle of the building without windows with a sealed solid door and reinforced walls. This will enable residents to be directed to wait in this room in the event that there is a major disaster where recommendations to residents to remain indoors would be the primary refuge recommendation.

c) Evacuation procedures which enable each finger to have an assembly point at the western end of the finger and to allow boat transfer of residents across the access channel to the Strand Breakwater from where they can walk out through the Mariners Peninsula into the City.

A copy of the proposed Disaster Management Plan is attached at Appendix A15 in Volume 2. This Disaster Management Plan has been discussed reasonably extensively with Council, DES, QPS and the Ambulance Service.

2.4.3 Navigation

Small craft navigation problems in Ross Creek caused by waiting for bridge opening. Many boats have inability to turn with the width of Ross Creek. This can be compounded by cross winds.

Lead Lights can become obscured or confused by the advent of other additional lighting. The occupants of residential development may have no knowledge of colours used in marine signals and the confusion may inadvertently be produced from decorative lighting.

RESPONSE

In response to the concerns in regard to the operation of the temporary bridge and navigation of the creek by small craft, further investigations were undertaken by FCG in regard to the frequency of vessel movements. The operation of the temporary bridge is now proposed to be default "open" unless required to be closed to allow trucks to pass. Refer to their report at Appendix A7 in Volume 2. This detail would be easily resolved at the Tidal Works application phase. As a safeguard the Acting Harbour Master has suggested that pontoons be located in the Creek both upstream and downstream of the bridge to allow for congestion should this happen.

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.

In regard to lead lights, FCG was asked to review the potential for detrimental impacts – refer to their report at Appendix A7 in Volume 2. Following discussions with the Acting Harbour Master they conclude there is no need for concern.

2.4.4 Social and Economic

Port Compatibility

As a regional asset the Port of Townsville moves more than $3.5 billion worth of exports each year, which amounts to approximately 12 percent of Queensland's export cargo by value. Townsville Port Authority generates almost $30 million of revenue annually and represents more than ten per cent of north Queensland's gross regional product. Port activity and industries utilising the port are responsible for over 8,000 regional jobs. Council reinforces the potential for the operations of the port to be adversely affected by incompatible development. This was recognised within the CBD Masterplan, which proposed short-term accommodation, commercial and retail developments within the breakwater area. These are less susceptible to nuisance complaints due to ease of control of environment and limited exposure to potentially offensive elements.

RESPONSE 1

The Proponent is open to refining the Master Plan in relation to the specific use of the multi-level structures located at the south-eastern component of the FDA. The current Master Plan envisages these to be residential apartments, for permanent residents. However, the Proponent will actively consider the option of modifying the use of these structures to short-term accommodation.

This notwithstanding, the detailed environmental impact and amenity impact studies confirm that the Port typically does not emit noise or air quality emissions that are unacceptable from a nuisance point of view and that it would be erroneous to base a concept Master Plan and subsequent detailed management arrangements on the premise that the Port is, and is likely to be in the future, offensive to residents of Breakwater Cove when the results of the studies done for the EIS and the Supplementary indicate otherwise.

Labour

The EIS identifies that the project will impact on an already tight labour market. This will not only have a broader economic effect but may also potentially impact the project financial viability. Council recommends that the Proponents work with Townsville Enterprise and financially assist its efforts to attract skilled labour during this period.

RESPONSE

The Proponent will work actively with all relevant stakeholders, including but not limited to Townsville Enterprise, to attract skilled labour to the region to the degree that labour cannot be sourced locally. In addition to supporting general promotional campaigns initiated and managed by TEL, the Proponent will actively work with professional recruitment and employment services firms to attract relevant skills to the project and the region.

Survey Stratification

Council notes that the social survey commissioned by the Proponent was inappropriately stratified. The survey states that it interviewed 409 people over the age of 18 in both Townsville and Thuringowa. Of these 50.1% of respondents where gathered from Thuringowa and 49.9% gathered from Townsville.

A simple analysis of population older than 18 reveals the distribution is closer to 60% Townsville and 40% Thuringowa. Council also feels that the survey would be more representative if more responses had been gathered from closer to the development. This situation should be considered when using these figures.

RESPONSE

A detailed response to issues related to the sampling methodologies of the community survey is provided at Appendix A27 in Volume 2. A peer review of the original Transpac Consulting study, prepared by Dr Gerd Haberkern of Enhance Management, is provided at Appendix A34 in Volume 2.

In general terms, the technical considerations of these issues confirm that the original sampling methodology was robust and consistent with industry practice and standards. The original sample design was to enable analysis of the data in terms of cross-tabulations between residents of the then Townsville and Thuringowa Local Government Areas.

In response to this submission, and a number others that raised similar queries, a re-analysis of the survey data on the basis of weighting the results to reflect population distribution was undertaken. This re-analysis found that the observed variance of the distribution of attitudes on key attitudinal questions about support or opposition to the project and its component parts was well within the maximum margin of sampling error for the study (+/-4.8%). The original and weighted analysis outcomes are provided at Appendix A27 in Volume 2. As such, the overall findings as presented in the original Social Impact Assessment Report (Volume 2) remain an accurate reflection of the distribution of community attitudes at the time of the original study. The re-weighted analysis shows that notwithstanding spatial variations in the distribution of attitudes, the majority of residents of Greater Townsville support the project so much so that support outweighed opposition broadly 2-to-1.

Housing

The economic impact assessment predicts 1,913 direct and indirect equivalent full time jobs to be created in 2008 and 2009 and 38.6 continuing fulltime positions created after completion. The report states that most of the construction workforce is likely to be sourced from outside the region with high usage of rental accommodation. There is potential that there may not be enough rental housing stock to accommodate these people. Current September 2007 REIQ House vacancy rate is 1.9% and Unit Vacancy rate is 2.8%.

RESPONSE

A detailed examination of the impact of the project's workforce on the local accommodation market is presented at Appendix A26 in Volume 2. This assessment concludes that while the private rental market is tight, and is expected to remain tight into the foreseeable future, there is sufficient short-term tourist-related accommodation within the region (such as motels, caravan parks etc.) to meet the anticipated peak demands of project construction.

This notwithstanding, it should be recognised that accommodation pressures arising from rapid population growth in the region is a reflection of the robust and dynamic economic circumstances of the past 5-10 years. These conditions have made the region attractive to investors and workers. In this regard, the Ocean Terminal project is a reflection of continued investor confidence in the region; and while economic growth poses challenges in areas such as economic and social infrastructure provisioning, it is economic growth that also underpins the improvements in economic welfare and the quality of life of the residents of Townsville and the North Queensland region in general.

Health

There are health concerns for residents from the port's activities. Depending on wind direction and timing of unloading of various metals, dust is likely to fall over the development. Residents within the development are likely to be older. As the terms of reference states, older members of the community may be more prone to dust and noise impacts and other port activities, intensifying the negative health impacts.

RESPONSE

The acoustic and air quality impact assessment reports have concluded that existing emissions from the Port of Townsville and forecast emissions of same have been, and are expected to be on the whole, within acceptable nuisance limits and regulatory standards. Additional testing of dust content (Appendices A1-A5 in Volume 2) indicates that – on the basis of available data – there is no cause for concern in relation to metals contents and its impacts on public health irrespective of the likely age composition of Breakwater Cove residents.

As discussed in Transpac Consulting's Updated Social Impact Assessment (Appendix A30 in Volume 2), It can further be noted that as the likely future residents are anticipated to be of relatively high socio-economic status, these persons are also more likely to have better health status than persons of relatively lower socio-economic status. It would, therefore, be erroneous to imply that the likely (older) age of Breakwater Cove residents makes them more susceptible to adverse health impacts; their socio-economic status in fact makes them more likely to be a healthier cohort within the overall population.

2.5 PLANNING ISSUES

This section identifies issues that relate to the planning of the development.

2.5.1 Compatible Land Use

The Port of Townsville forms an important part of the operations of a number of North and North West Queensland heavy industries. Activities and their potential impacts include:

- Loading of Lead and Zinc (noise, light)
- Loading/unloading of Fuels and liquids. (spillages, explosions, fire, odours)
- Unloading of Nickel ore. (Dust, noise, light)
- Live Cattle and Sheep loading (odours)
- Molasses and Sugar Loading (odours)
- Scrap metal loading (noise, light)
- General container cargo (noise, light)
- Explosives (ammonium nitrate, explosion, fire)
- Navy Operation (potential RF interference with TV, Security devices (electronic locking), and miscellaneous equipment (Pacemakers etc).

As discussed earlier, a major consideration for the Townsville Ocean Terminal Study was the compatibility of development in proximity to the port and the impact this may have on future operations. To mitigate this risk the CBD Masterplan envisaged a mixed use development centred around short-term hotel accommodation, commercial, retail and community developments (Entertainment Centre etc.). The advantage of such developments, when compared to a residential development, would be the duration of exposure and the likelihood of complaint.

Within its EIS the Proponent recognises the potential for residents to suffer a loss of amenity as a result of living in proximity to the port. A range of amenity impact mitigation measures have been proposed to minimise impacts from port operations including:

- A range of Port Protection Measures (PPM);
- The construction of a 6m acoustic berm and fence between the Ocean Terminal and the Breakwater Cove precinct;
- The adoption of architectural design criteria for future Breakwater Cove dwellings to mitigate noise and odour impacts; and,
- The provision of information to local residents on future events that may have odour impacts, such as loading live cattle to minimise inconvenience.

These measures go some way to mitigating and managing the risk of incompatible uses. They also reinforce the fact that the development is occurring within the buffer of an operating port and that this comes at a cost. Notwithstanding this, the following suggestions are made:

- Proposed PPM's are based on covenants acknowledging potential nuisances and limiting the purchaser's right to complaint to following an agreed process. There is concern that any covenant will be circumvented and if not circumvented then lost in the novation with subsequent purchasers. Tenants may not be party to the agreement. This situation could be improved by making these provisions statutory and binding on all residents;
- Many of the proposed architectural design criteria are contrary to sustainable building design principles. Whilst it is suggested within the EIS that the development may adopt parts of the Solar Cities program, Council would like to see something more definitive agreed, i.e. use of photovoltaic panels, smart meters, solar hot water, requirement for all buildings to meet a set certified green ratings etc; and
- The Townsville Ocean Terminal development included within the CBD Masterplan incorporated significant hotel accommodation and commercial uses. Such uses were considered to present less of a risk conflict than other uses such as residential. Council acknowledges that a development of the type envisaged within the CBD Masterplan may not be viable at this time. Council submits however that some hotel accommodation should be incorporated into the FDA Scheme and suggests that the proposed south-western 6-storey building adjacent to the proposed car park would create a buffer for residential developments and significantly improve the on-going annual economic impacts beyond those derived from the operation of the Ocean Terminal.

RESPONSE

The Port Protection Measures are not simply a covenant limiting the right of an occupant to complain which could be circumvented by a failure to novate to subsequent purchasers, as suggested by Council.

There are several agreements which dovetail together to provide for the protection of the continuation of Port operations.

These include Breakwater Island Casino Agreement Act 1984 (as amended) (BICA), Port Protection Agreement, Harbour Agreement, SCL Scheme, FDA Scheme, Port Protection codes, Community Management Schemes.

The Port Protection Measures (PPM) have several layers.

- **disclosure to buyers of the Port operations**
- **flagging the Port operations and the PPM to subsequent buyers**
- **measures that limit group actions against the Port**
- **controls that regulate development design to mitigate Port impacts**

The overall objectives and outcomes are to:

- **acknowledge the Port operations and their importance**
- **make initial and subsequent buyers abundantly aware of the Port and its potential nuisance**
- **remove Body Corporate rights to complain or sue the Port**
- **regulate the building design to mitigate any nuisance impacts**

The measures cannot prevent an individual from taking action against the Port. However, if the Port is acting lawfully, the abundant disclosure and new proposed dispute resolution processes are designed to defend the Port by making a case against it very difficult.

Therefore, the sequence of legal safeguards established and proposed is as follows:

- **BICA – the legislative protection;**
- **FDA Scheme – the planning scheme protection which will include the Port Protection Code (PPC);**
- **The detailed assessment of Impacts through the EIS which will inform the final port protection codes in the PPA;**
- **Port Protection Agreement – the contractual protection;**
- **Community Management Statement (CMS) - the by laws protection;**
- **Architectural Review Committee within the CMS – the building approval process protection; and**
- **Dispute Resolution Processes – the compliance protection.**

The so called covenant referred to by Council is part of the Port Protection Agreement (PPA).

The PPA is the initial legal document establishing a contractual relationship between the first developer, subsequent buyers, the State and the Port.

This document requires the adoption of several measures designed to provide the legal mechanisms to implement the PPM and development guidelines as follows:

- **the State and Port are to agree to any proposed Port Protection Codes as contained in the FDA Scheme;**

- **all residential lots sold within the FDA must be part of a Community Titles Scheme under the Body Corporate and Community Management Act (BCCM) (other than practical exceptions);**

- **the State and Port are to approve the First Principal Scheme Community Management Statement (CMS);**

- **prospective buyers are required to sign a Deed of Covenant and Release in favour of the State and Port;**

- **any land sold by the developer will require disclosure to the buyer of the Amenity Impacts and the Port Protection Measures(PPM).**

The PPM's do not rely on the novation of the Deed of Covenant and Release for their successfulness.

While the developer can insist on the initial purchasers executing the Deed of Covenant and Release, the Body Corporate in the completed development cannot insist on subsequent sellers/buyers doing likewise. Commercial liability will remain with the seller if he/she does not ensure that this obligation is passed to the new buyer. Consequently, it is considered highly unlikely that a new owner will not be bound by a Deed of Covenant and Release.

The State could however (through legislation) require novation as a prerequisite to transfer the title.

In regard to tenants, the CMS can require that tenancy agreements include an acknowledgement to be executed by the tenant, to be bound by the terms of the covenant for the term of the tenancy.

In regard to sustainable building design principles, this is discussed in more detail in 2.7.5.

In regard to nature of the proposed residential development and the suggestion that "hotel accommodation" should be incorporated into the FDA Scheme" particularly in the "south western building adjacent to the proposed carpark," to reduce the risk of conflict with the operations of the Port, the Proponent notes that this is the south-eastern corner of the project and that it does not accept that permanent accommodation represents a risk. It is nevertheless amenable to the addition of this use.

The EIS and the Supplementary Reports show the Port is a well managed facility with minimal negative impacts on the broader community or its close neighbours. The investigations by the Proponent in regard to air quality, noise and risk and an evaluation of the incidents of complaints all confirm that the proposed residential development is appropriate. Only where there are spasmodic exceedances to the Port emissions necessitating mitigation measures as envisaged in the Port Protection Code. These codes will provide similar measures to those enforced in the SCL Area. The future residents are expected to enjoy a level of amenity similar to those living in the Townsville CBD/Breakwater locality.

This level of amenity is not the same as in leafy residential suburbs nor is it meant to be and it is more than compensated by lifestyle attractions.

The Supplementary Reports includes a study of Port/Residential interferences from around Australia, Singapore and New Zealand. Refer to Appendix A32 in Volume 2. The study confirms that residential and Port activities are often co-located without problems. The concept of buffers around potentially problematic land uses is increasingly being replaced with improved management practices – it is no longer appropriate for offensive land uses to be quarantined and greatly improved environmental impacts is now a common result of good management practises.

However it was always intended that in the Multiple Dwelling Precinct designated in the FDA Scheme that short term accommodation in the form of managed serviced apartments – like the Quest in Palmer Street and the currently under construction Gateway Development on the corner of Dean and Palmer Streets would be possible. The building adjacent to the carpark has in fact been identified for such use. It was not initially intended that "Hotel" type development would occur although the Proponent is not averse to this proposal.

To avoid any confusion in this regard perhaps, Table 4A of the FDA Scheme could be amended to show "Motel" development as Code Assessable. To reinforce this as a desirable outcome, clause 10.2.1 of the FDA Scheme could be expanded to read as follows:

"This Precinct …….. frontage areas, the units in the south-east corner adjacent to the carpark are to be predominantly for short term occupancy, functioning as serviced apartments.

A review of the performance criteria for the dwellings to be met by building codes is to be undertaken in detail as part of the PPA approval process. It is noted that the current view of the experts in this area is that house designs will not vary from those in other locations in the city.

2.6 LAND TENURE

This section identifies issues that relate to proposed tenure.

Northern Breakwater

It has been advanced by the Proponent that the state will grant freehold title to Council over the Northern Breakwater from the road reserve to the high water mark on the inside of the revetment wall.

Council's preferred option is to have two freehold lots created similar to that created with respect to the Mariner's peninsular development directly behind this project. This arrangement sees lot 1 created from the road to the edge of the breakwater, held by Council in freehold and lot 2 created from the edge of the breakwater to the high water mark of the inside revetment wall held in freehold by the body corporate.

Alternatively Council could hold lot 1 as a reserve for Public Purposes or Recreation. The states evolving position regarding restricting usage of reserves such as leasing areas for particular uses which was deemed by the state to be inconsistent with the purpose of the reserve leaves this as the non-preferred option for Council.

RESPONSE

- **This preference by the Council needs to be discussed with the State.**
- **It is noted that the design of the Breakwaters is subject to an Operational Works approval. Under this approval Council can ensure that the breakwater is designed to reasonable standards and physically modeled to ensure that it will perform properly and withstand cyclonic forces so Council's reluctance to accept responsibility for the asset is unclear.**

Strand Breakwater Bridge

The current proposal is that the bridge connecting the Strand Breakwater to the Mariner's peninsular development will revert to Council upon completion of the project. Council is advised that the bridge cannot be created as a land parcel because of its integral part in the overall flushing canal system. Therefore the Proponent advises that it can only be held and maintained by Council. Council would prefer not to assume ownership and responsibility for the bridge.

RESPONSE

This preference by the Council will be considered by the State and their view communicated directly to the Council as part of the EIS process.

Parkland Outside the Principle Scheme

The Parkland outside the scheme as indicated by Plate 3.7.1 of the EIS document is to be transferred to Council in Freehold upon completion of the project. It is expected that the Parkland will be maintained to a high standard. This standard will be the same as that currently maintained along the Strand. This is Council's preferred position regarding this area.

RESPONSE

The parkland along the eastern and northern boundaries of Breakwater Cove covers some 1.9ha in area. It is intended that this park area will be developed to a high standard that will match that of the current world class Strand areas.

Public Roads

Council is to assume responsibility for these roads pursuant to the requirements of the Section 901 of the Local Government Act 1993 Qld. This position is accepted and anticipated by Council.

RESPONSE

Noted

Waterways and Canals

The obligation on Council pursuant to the Coastal Protection and Management Act 1995 is for Council to assume responsibility for the ongoing maintenance of the canals and waterways. An agreement has been reached with the Proponent that they will indemnify Council against any legislative requirement to carry out the maintenance for the waterways and canals. Subject to the development of an agreed management plan, Council is satisfied with the terms of this agreement.

RESPONSE

Noted.

Commercial Marina Basin

The Proponent advances that this area will be subject to a state lease which will be granted to the operator of the basin and all maintenance obligations rest with the lessee. The Proponent further advises that should the area not be subject to a lease the obligations will then revert back to the Body Corporate. This proposal is Council's preferred position.

RESPONSE

Noted.

Car Park

The required car park for the project is proposed to be held as land in freehold. The obligation for maintenance then resides with the owner of the land. This is Council's preferred position for this parcel.

RESPONSE

Noted and agreed subject to the right to charge for parking in the future.

2.7 ENVIRONMENTAL

This section identifies issues that relate to the proposed development and its effect on the environment.

2.7.1 Turbidity

There is a potential for the marine environment to be impacted as a result of increased turbidity from dewatering activities during the construction phase, and annual dredging works throughout the operational phase. Council provides the following observations for consideration within the assessment:

Dewatering

Dewatering will be undertaken throughout the construction phase to remove water from the excavation pit. Dewatered material, as per the EIS (A05 Construction Methodology Report, Section 2.2 Dewatering, Page 9), is to be pumped into "settlement ponds", and then into CB. At this stage a detailed management plan of how dewatering will be undertaken is not available. This management plan should be developed as part of any operational works approvals process to ensure that outcomes provided for within the EIS are achieved. This plan should be developed in consultation with the Environmental Protection Agency and GBRMPA and should include, but not be limited to:

- Details regarding the amount of water to be pumped daily from the excavation site;
- Evidence to show that the settlement ponds will be adequately sized to be able to treat the water to acceptable water quality standards, prior to being discharged from the site;
- Details on the additional measures to be taken if settlement ponds are not sufficiently sized to adequately treat the water to acceptable water quality standards, e.g. increasing the size of sediment basins; adding a flocculating agent to the settlement ponds to coagulate sediment and remove sediment from the water column; and/or pushing water through an additional filtration medium prior to discharge;
- A detailed and approved Soil Erosion and Sediment Control Plan (EIS lacks detail);
- Details of the qualified person (individual/consultancy) who will ensure:
  - Environmental performance is compliant with the EIS, Management Plans, Development Approvals and other relevant legislation (e.g. Environmental Protection Act),
  - Discharged water is being maintained at acceptable WQ standards (as detailed in EIS or any other approval documentation),

- Environmental harm and endangerment to marine life is not being caused.

A detailed water quality monitoring plan including monitoring locations, parameters, and frequencies should be provided. Some monitoring specifications have been provided in the EIS Water Quality Report Monitoring Plan (EIS, A14, Page 66), and should be adhered to as a minimum.

RESPONSE

The Water Quality during Construction report addresses the issues raised. This report by Flanagan Consulting Group can be found at Appendix A11 in Volume 2. Flanagan Consulting Group has also considered the dewater issue in greater detail in the Construction Issues Report at Appendix A8 in Volume 2.

Dredging

The environmental risks associated with dredging during the operational phase, are recognized in Section 4.11.2 of the EIS. Management measures to reduce this risk are outlined in Section 4.11.2. However the EIS does not quantify the amount of sediment being disturbed/released into CB and the effect that this annual dredging, after the proposed management measures are put in place, will have on marine environments of National Environmental Significance. If the proposed management measures are not put in place, the environmental consequences are made clear in Section 4.11.2 EIS, and that they will have a significant impact on the marine environment and matters of National Environmental Significance.

Concern has been raised as to the sustainability of any system that requires annual dredging. A Management Plan for dredging works should therefore be provided so future managers of the area can undergo any maintenance works with clear understanding of what is required and the environmentally sensitive methods to go about it.

A Dredging Management Plan should include:

- Methodology for annual surveying and monitoring of the lakes basin to determine whether dredging is required and to what extent;
- Methodology for undertaking dredging works including:
  - Machinery type to be used (e.g. suction dredge),
  - Environmental management measures to be put in place to prevent environmental harm,
  - Depths and locations of excavation to ensure canal shape.
- An Environmental Monitoring Plan, including monitoring locations, parameters, frequency and water quality/environmental targets to be achieved; and,
- Environmental Risks associated with the dredging activities, and mitigation measures that address the environmental risks.

RESPONSE

The maintenance of good water quality is forecast to require regular dredging of the canals. Annual surveying will determine the extent to which dredging will be required. This will verify the calculations undertaken for the EIS. The Potential Operational Dredging Impacts on Water Quality report by Flanagan Consulting Group can be found at Appendix A12 in Volume 2.

2.7.2 Flushing and Water Quality

The Oceanographic Study (EIS A14) details measures that have been built into the Marina design to improve flushing. The Oceanographic Study does not provide a diagram showing the preferred marina basin levels to be maintained throughout the life of the development, and does not explain what the above means for maintaining the environmental values and water quality of the development area. However, the Water Quality Report (EIS, A12), does explain that the harbour, including the entrance canal and the internal sections of the canal estate, do need to be dredged (although the WQ Report also does not provide design details of the marina floor levels), annually to maintain flushing and adequate water quality. If the development is not adequately flushed - poor water quality will result, along with the potential for algal blooms which could impact on the adjacent CB marine environment.

Management measures have not been proposed to monitor dredging performance (maintenance of design) or deal with a water quality decline if it does occur (for any reason) in the development area during the operational phase.

It is recommended that further management measures be identified to ensure canal and basin design specifications and contingency plans established to manage an algal bloom or a water quality deterioration event.

RESPONSE

The maintenance of water quality has been calculated to require annual dredging. Refer to the Hyder Consulting report entitled Draft Water Quality Monitoring Program at Appendix A13 in Volume 2 and the FCG report, entitled Potential Operational Dredging Impacts on Water Quality at Appendix A12 in Volume 2. In addition the OEMP will cover the contingency plans for events such as an algae bloom or deterioration in water quality.

2.7.3 Stormwater Management

The SMP has been prepared as part of the EIS, in A10 - Infrastructure Report (Hyder Consulting Pty Ltd, 19 Feb 2007). The plan includes MUSIC Modeling of the development site and several proposals for stormwater quality management measures to be implemented during the Operational Phase.

The SMP concludes that the proposal titled Option B Case 6 (A10, Section 6.1.6, Pge 14), provides the best Stormwater Treatment for the development and therefore should be implemented, with consideration for ISS concerns/recommendations raised below.

The EIS goes on to note that the Townsville City Council have applied to the Queensland Government for an exemption from QDC Part 25 Water Savings Targets therefore rainwater tanks may not be required.

Whilst Council is not looking to mandate water tanks in new dwellings, it does encourage their use and considers their inclusion within such a sensitive development to be a positive measure. Council also recommends that responsibility for the maintenance of litter traps should be with both the individual landholder and the body corporate.

RESPONSE

Council's comments with regard to rainwater tanks are noted and acknowledged. The ESD Report (Appendix A20 in Volume 2) by Guy Lane recommends water tanks as a potential addition to all dwellings. In the event that rainwater tanks are installed in private single dwellings the responsibility for cleaning litter traps will rest with the owner. For unit buildings this responsibility will lie with the subsidiary Body Corporate.

2.7.4 Acid Sulphate Soils

A more detailed Potential Acid Sulphate Soil (PASS) Management Plan, with ongoing testing requirements during construction phase, should be developed as part of the operational works approvals process. The PASS Management Plan should include, but not be limited to:

- Detailed monitoring plan including locations, frequencies, parameters etc for on ongoing soil and water monitoring for PASS indicators;
- Preventative and reactive management measures to prevent PASS impacts on the environment.

RESPONSE

Requirement noted and this will be complied with the Operational Works Application.

2.7.5 Energy

The EIS has made some commitment to seek to be involved in the Solar Cities Programme, and to encourage future land owners to build sustainable houses and buildings.

The following are some recommendations for innovative sustainable design that could be implemented by the developer at the sub-division level:

- Join Ergon's pilot project for demand-side management.
- Install a centralised district chilled water thermal energy storage (TES) air-conditioning systems (district air-conditioning can be metered to individual households)
- Install a centralised gas supply for the whole development area
- Install centralised solar panel farm and wind turbines
- Use of local native plant species in parklands and landscaping to increase biodiversity on the site
- Water sensitive urban design techniques should be incorporated within road, parkland and carpark designs and incorporated into the existing stormwater management plan.
- Enforce covenants or a Sustainable Housing Code to ensure sustainable building designs will be implemented by all residents. Suggestions for sustainable measures that could be included in a covenant/code include:
  - A requirement for all buildings to meet a set certified green rating Ensure orientation to maximise shading from overhangs or other measures to keep afternoon sun away from all windows
  - Increased proportion of outdoor living, particularly towards the west, whilst ensuring east (port facing) walls provide noise mitigation.
  - A closed greywater reuse system for each building to only be used within the building itself (dual reticulation) and then returned to sewer. Treated or reused greywater must not be used for garden watering or be discharged to stormwater or marina - should only be used within buildings - unless treated centrally to high water quality standards within the development area.

- Rainwater tanks are encouraged to reduce stormwater runoff and assist water conservation due to the scale and size of this development.
- Significant and effective wall and window shading techniques, especially for west facing walls, suitable for a dry tropical climate, (for example wide eave widths, awnings, balconies, vegetation etc) in addition to insulation required under the building code
- Reflective roof paint, preferably white or light colour, in addition to insulation required under the building code
- Solar panels
- Solar hot water
- Energy and water efficient appliances
- Use of local native plant species in landscaping to increase biodiversity

RESPONSE

As mentioned in 2.5.1 above, the Port Protection Code Requirements which will influence the architecture of the buildings are only needed to mitigate infrequent exceedances from the Port. Accordingly, the design of individual buildings will not need to be radically different from other modern buildings in the locality. The mitigation measures against exposure to tropical cyclones are likely to influence the design just as much if not more than noise attenuation measures – Refer to the report by Ron Rumble at Appendix A6 in Volume 2.

The Proponent is desirous to be part of the Solar Titles Programme but is also committed to Breakwater Cove and the Ocean Terminal itself being a model for ecological sustainable development. To this end, SEA 02 has been engaged to provide advice on ESD measures that could be incorporated into the development.

The Proponent wants to work with Council to develop an ESP Plan for the project which will detail the appropriate measures outlined in the SEA 02 report at Appendix A20 in Volume 2.

2.8 HAZARD AND RISK ASSESSMENT

In Section 4.16, the EIS discusses a Hazards and Risks Assessment undertaken by Hyder Consulting. The Hazards and the Risks Assessment is again presented in the Appendices as Appendix A24.

A Hazards and Risks assessment is very much subject to the point of view from which the assessment is undertaken. The assessment in the EIS has been broken into two sections viz: Risks relating to the construction phase and risks relating to the existence of the development once it has been completed (i.e Operations Phase).

There are many things in the construction phase that do not concern the community and the environment. These would be issues that may, if not managed properly affect the profit margins of the contractors and the developers or have other consequences; however contamination of the environment during construction that would affect the environment is of concern.

Therefore not all of the items in the construction risk register are of importance to the community and have not been assessed as part of this response. It would be expected that a competent construction organization would have a detailed risk management plan to manage the relevant construction phase risks.

An important part of any risk assessment is the assessment of the consequence scale, likelihood scale, and the risk matrix for combining the consequence scales and likelihood scales. The consequence scales as proposed did not accurately or comprehensively reflect the range of impacts of risks as they related to the community and the environment as there was no financial consequence scales included.

The Risk Matrix to determine the overall risk priority had 5 levels of risk as a product of consequence and likelihood when most matrices have 4 scales. However these matters are only of concern to the party conducting the risk assessment and if they do not want a financial consequence rating scale then that is their prerogative.

In the interest of having a more accurate reflection of how this project would affect the community it was determined that a risk management workshop with participants selected as being representative of the community should review the identified risks.

The EIS had been referred to many departments of Council with various types of expertise. All these internal appraisers were invited to the workshop. In addition 10 external participants were selected across the community to volunteer one day to partake in this exercise. The attendance rate was excellent with 24 participants. There were 11 external participants viz: -

- Dr Allison Cottrell - School of Earth & Environmental Sciences, James Cook University
- Peter Smith - Townsville Port Authority
- Renee Crosby - Townsville Port Authority
- Britt Louez - Environmental Manager, Sun Metals Corporation
- Murray Whitehead - Environmental Protection Agency, Manager
- Gina Turner - Principal Advisor , (Development Control), Department of Main Roads (Northern)
- David Edwards - Department of Main Roads (Northern), Engineer
- Dr Bruce Harper - Coastal Engineering advice, Systems Engineering Australia
- Spencer Nightingale - Deputy Director, Rail and Ports Investment, Qld Transport
- Peter Jensen - Regional Manager, Department of Transport
- Guy Lane - Consultant SEA 02

The facilitator was Robin Hagen of Strategic Asset Solutions.

The first exercises were to reassess the consequence scales, likelihood scales and the risk matrix. The main differences between those used by the developer and those at Council's workshop were in the consequence scales and the risk matrix (Appendix H).

The resulting consequence scale reduced all the nominated environmental consequences to one scale, namely a scale that would be deemed acceptable to the Environmental Protection Agency.

A financial consequence scale was added. A catastrophic consequence to the community was nominated as $50million after much consultation. This was decided on the basis that a 25% increase in rates in any one year would be viewed as catastrophic to Council. The financial consequences were ranked from catastrophic, major, moderate, minor and then to insignificant. An insignificant financial consequence was less than $100,000.

Six consequence categories were used in the assessment, namely Community, Reputation, Financial, Legal, Health and Safety, and Environment. Where possible the nomenclature was kept the same as that used by the Proponent.

A positive consequence scale was also developed to assess the impacts of identified opportunities ***(the consequence scales used in this exercise are attached- Appendix I and J).***

The ***risk matrix agreed by the workshop participants is shown attached in Appendix H***. The main difference is the use of 4 risk levels rather than 5 used by the Proponent. The scale chosen complies with the Australian Standard AS4360 for risk assessment.

When assessing the likelihood level of a particular event with its associated consequence much attention was paid to the period that the elements were exposed to the risk. For example the construction period is 3 to 4 years. The likelihood of a 100 year Average recurrence interval occurring in a 4 year period is "rare" whereas for an allotment created in a canal development where those allotments will last for several hundred years the same annual probability is "almost certain". The likelihood of a 100 year event occurring in any one hundred year period is 64%. It is noted that in the Proponents assessments that these two likelihoods are ranked as "rare" and "rare".

Prior to the workshop all participants were requested to identify and submit any additional risks for ranking that they did not consider had been included in the original risk assessment. These were collated with the original risk register and inserted into the analysis spreadsheets as pre-work by the facilitator.

The workshop then focused on re-assessing the original risks (inherent risk excluding any proposed or further mitigation measures) together with the additional risks identified. Subsequent to the workshop a review of the proposed risk mitigation and management strategies were undertaken and the residual risks re-assessed to identify the 'Residual Risk' level for each risk and opportunity.

The re-assessed risk schedules are attached (Appendix K and L)

The summary of comparison between the Proponent's risk analysis and that of the community workshop are as follows: -

Construction				
	Original (Inherent Risks)		Residual Risks	
Risk	Proponent	Community	Proponent	Community
Extreme	5	42	0	n.a
New Extreme		24		
High	35	41	4	n.a
New High		18		
Moderate	40	23	34	n.a
New Moderate		5		
Low	23	11	47	n.a
Negligible	14		32	
Total	117		117	

Operational Risks Identified				
	Original (Inherent Risks)		Residual Risks	
Risk	Proponent	Community	Proponent	Community
Extreme	7	97	0	34
New Extreme		48		48
High	29	77	3	36
New High		40		40
Moderate	40	24	31	25
New Moderate		9		9
Low	24	6	45	11
New Low		1		1
Negligible	6	n.a	27	n.a
Total	106		106	

The above tables show a completely different risk profile as assessed by the community. This does not mean any profile is wrong it just mean that the community group sees this project from a different point of view.

Due to shortage of time the construction risk were not re-evaluated after the application of the management and mitigation measures proposed. The differences in the ranking of the inherent risks between the Proponent's consultants and the community assessors are marked and warrant re-evaluation.

Any new risks identified by the group have not been reassessed after application of management and mitigation measures. They have been identified but it is not the task of the community assessors to identify how the Proponent should take mitigation action.

What is of concern is that after being ranked by a different group of people with differing view points that such a large number of extreme risks still exist. The difference of 0 extreme risks as identified by the Proponent's consultant versus 34 (plus 48 new risks) is of major concern.

Comments On Differences Between The Two Risk Assessments (Operational Only)

The key risks identified and rated as extreme and high after reconsideration of the mitigation measures are listed below.

- Those risks relating to severe weather events and the location of the site to the ocean, sea levels and climate change.
- Those risks relating to the incompatible land uses of the port and the proposed residential precinct.
- Those risks relating to direct dredging impacts on the environment and secondary consequences on the food chain.
- Risks relating to harm on the environment from increased small boat activity and proximity of residential activity.
- Risks relating to breakdown of port protection measures curtailing the future activities of the port.
- Direct traffic impacts on the community.
- Changes to adjacent shorelines.

- Introduction of marine pest from oversees boating visitors.
- Impact on existing services (in particular health services).
- Parkland settlement due to inferior fill.
- Of the 48 new extreme risks and 36 new high risks identified, as previously mentioned, that have not had mitigation measure applied (see schedules). These broadly relate to issues such as:
  - Location and impact of exposure to sea and weather (6)
  - Degradation of water quality (2)
  - Sustainable housing (4)
  - Increased recreational boating impacts (1)
  - Inadequacy of the EIS process (2)
  - Breakdown of port protection measures (6)
  - Incompatible land uses between the port and residential. (8)
  - Parking issues (3)
  - Impediments to navigational channels and aids (8)
  - Ongoing disproportionate maintenance and operation costs (4)
  - Inadequate infrastructure - Roads - Water and Sewerage (15)
  - Environmental harm (2)
  - Disaster Management and incidence response compounded by Port activities and residential mix (9)
  - Inadequate communication during the EIS process. (2)
  - Increased pressure on existing services (Health, Schools etc) (1)
  - Dredging Issues (7)
  - Beach Erosion exacerbated (1)
- Ten (10) additional opportunities were identified in addition the above risks:-
  - Meeting the demand for water side accommodation and marinas
  - Provision of Recreational and public space.
  - Provision of fishing facilities.
  - Enhancing Townsville's reputation.
  - Supporting and enhancing Townsville as a maritime service centre.

- Provision of construction and long term employment.
- Promotion of cruise tourism.
- Provision of additional access via a Strand Bridge over Ross Creek during emergencies.
- Opportunities to implement energy efficiencies such as chilled water/energy storage for multiple dwelling units.
- Opportunity for additional shared car parking for entertainment centre (500 car parks).

It is obvious the perceptions of the community group that assessed the risks are quite different from that presented by the Proponent's consultants. However there is sufficient evidence presented from this difference that would suggest that further consultation could relate to listening to the community view rather than imposing a particular view upon the community.

RESPONSE

The risks of the project have been re-evaluated based on the revised and new expert reports and the submission of Council. It is noted that the review of the Council Group risk analysis, found that the analysis had been conducted using a different standard to that required by the TOR. This made direct comparisons difficult. Notwithstanding this, the revised risk register has considered the risks raised by the Council arranged team and then added them into the Risk Register as appropriate. The Council Group assessment of the impact of risks has been considered in the re-evaluation of the Risk Register and comments provided for each risk differently assessed or new risk introduced to the assessment. A comprehensive update of the Risk Register can be found at Appendix A18 in Volume 2.

CONCLUSION

The Townsville City Council supports the sustainable development of the Townsville Ocean Terminal and welcomes the proposal presented by TABCORP and City Pacific. Council believes that the development as presented will provide many benefits and subject to the points raised being addressed, should be supported.

After assessing the Proponents EIS Council submits that the following must be addressed before the project is allowed proceed:

1. Compatibility with the Port of Townsville.

   The Port of Townsville moves more than $3.5 billion worth of exports each year, which amounts to approximately 12 percent of Queensland's export cargo by value. It generates almost $30 million of revenue annually and represents more than ten per cent of North Queensland's gross regional product. Port activity and industries utilising the port are responsible for over 8,000 regional jobs.

   In considering the impact of the proposed development the Coordinator General should be satisfied that it presents no risk that could impede the operation and/or expansion of the Port of Townsville.

2. Coastal Engineering Issues

Council acknowledges that the Proponents design meets the current minimum standard required of this type of development. A preferred approach however, given the exposure of the site, the potential for increased frequency resulting from the effects of climate change and the consequences of a storm tide inundation event, would be to take a more precautionary approach and adopt standards that exceed minimum design levels.

3. Infrastructure Provision

Within its EIS the Proponent adopts a position that its development does not impact on road infrastructure and that both water and sewerage external infrastructure requirements will be provided through Councils headworks policy. Neither of these is correct and Council requires that the Proponent enter into infrastructure agreements in relation to road, water and sewerage infrastructure.

Council believes that the following should be addressed before the project proceeds:

1. Turbidity

There is potential for the marine environment to be seriously impacted as a result of increased turbidity from dewatering activities during the construction phase, and annual dredging works throughout the operational phase. Council expects that prior to any operational works approvals being granted that detailed management plans for both these activities, along with a detailed Soil Erosion and Sediment Control Plan, are completed and approved by the appropriate authorities. This should include a process of monitoring for dredging and access to permits to dredge as of right.

2. Energy & Design

Many of the proposed architectural design criteria, incorporated to avoid conflict with the port, are contrary to sustainable building design principles. Whilst it is suggested within the EIS that the development may adopt parts of the Solar Cities program, Council would like to see something more definitive agreed, i.e. use of photovoltaic panels, smart meters, solar hot water, requirement for all buildings to meet a set certified green rating etc.

3. Port Compatibility Measures

Proposed Port Protection Measures rely on covenants acknowledging potential nuisances and limiting the purchaser's right to complaint to following an agreed process. There is concern that any covenant will be circumvented, and if not circumvented then lost in the novation with subsequent purchasers. Tenants may not be party to the agreement. This situation could be improved by making these provisions statutory and binding on all residents.

It is also noted that the original CBD Masterplan for the Townsville Ocean Terminal incorporated significant hotel accommodation and commercial uses. Such uses were considered to present less risk of conflict than other uses such as residential. It is Council preference that the FDA Scheme provides for some hotel accommodation with the south-western 6-storey building adjacent to the proposed car park being the obvious and most appropriate area. This would create a buffer for residential developments and significantly improve the on-going annual economic returns beyond those derived from just the operation of the Ocean Terminal.

4. Route options

The Proponent proposes to haul more than 1.6 million tons of hard fill to the site over the life of the project. The preferred route is to haul material from quarries located at the Pinnacles and Roseneath via Abbott Street, Railway Avenue (or Woolcock Street), Boundary Street and Archer and Ross Streets to a temporary bridge located at the Strand then into Sir Leslie Thiess Drive to the site. It is expected that the haul trucks will operate for up to 10 hours a day six days a week for a period of three years. At the peak up to 7 trucks per hour will be travelling to and from the site.

Councils preferred option is to haul material via the future Port Access Route to a barging point at the mouth of Ross River. Council is concerned that the social costs of the Proponents prefer[r]ed option may not have been fully considered. In light of this, Council requests that a social cost benefit analysis be undertaken in deciding the final route for the haulage of material.

5. Temporary Bridge

Council considers that the proposed opening times of the temporary bridge, being 8.OOam, 11.00am, 2.00pm, 5.OOpm, and 7.00pm to 7.00am, are unacceptably restrictive. Council considers hourly opening to be appropriate.

6. Access to Council Roads

Council is concerned that the load proposed on Council roads, as a result of additional heavy haulage vehicles above and beyond the design number of ESA's, will significantly reduce the life of Council's roads. Council is concerned that the ESA calculation as provided in Appendix A06 does not reflect the probable outcome of the proposed usage.

Council therefore requires, prior to operational works commencing, that Council and the Proponent agree terms and conditions for accessing Councils roads and that a management plan to handle all amenity issues that arise e.g. mitigation measures, a responsive complaints system monitored with KPI's etc. be developed

7. Disaster Management

The design and layout of the development is not conducive to evacuation from threats due to fire or explosion in the port. Evacuation of the "fingers" will mean that the evacuees will need to move towards the threat before they can move away.

The single access will have competing sources of people during an evacuation. A full house at the Entertainment Centre (5500) and the Casino (2000) plus the proposed Resortcorp development (1500) and 2000 from the FDA will impact efficient evacuation. An evacuation plan for area will need to be developed and residents made conversant with it.

The TOT development will require its own evacuation plan that coordinates this development with other areas. Because of the special nature of any disaster management plan, there will need to be an on-going communication plan.

The ocean terminal will need its own risks and hazards operational plan because of the transferring of substances from land to water vessels. E.g. fuel spills, fire fighting effects, sewage etc.

8. Strand Beach Erosion

The EIS identifies that the development of breakwaters will produce a more northerly alignment of the waves on some areas of the Strand. This will result in the realignment of some beaches and cause changed erosion and accretion of sand. In particular the beach at the Burke Street headland may see further erosion with a corresponding accretion at the south end of the same beach at Gregory Street. Lesser erosion has been noted upon the next beach to the south (between Gregory Street and the Marina Peninsular). Council requires further studies to identify and monitor on-going sand erosion effects of the development, if any, and the development of an agreed management plan with Council.

Council considers the following matters to be important to the success of the development:

1. Project Failure

Whilst this project appears no more risky than others of a similar nature or scale, Council is concerned that the community will suffer a loss of amenity and reputation if the project and/or Proponents fail during the life of the project.

Council therefore requests that further information be provided by both the State and the Proponent on management measures to mitigate this risk.

2. Existing Marina Channel

Council understands that the existing channel to the Breakwater Marina will not be available during construction. This may limit access to the Marina for larger vessels. Council requests further advice on how this will be managed and may require that an alternative temporary channel be created to assure reasonable access.

3. Site Access & Parking

Council requests further information on the probable local traffic effects (non material haulage) and parking requirements during construction.

4. Labour

The EIS identifies that the project will impact on an already tight labour market. This will not only have a broader economic effect but may also potentially impact the project financial viability. Council recommends that the Proponents work with Townsville Enterprise and financially assist its efforts to attract skilled labour during this period.

5. Breakwater Tenure

It has been advanced by the Proponent that the state will grant freehold title to Council over the Northern Breakwater from the road reserve to the high water mark on the inside of the revetment wall.

Council's preferred option is to have two freehold lots created similar to that created with respect to the Mariner's peninsular development directly behind this project. This arrangement sees lot I created from the road to the edge of the breakwater, held by Council in freehold and lot 2 created from the edge of the breakwater to the high water mark of the inside revetment wall held in freehold by the body corporate.

Alternatively Council could hold lot I as a reserve for Public Purposes or Recreation. The states evolving position regarding restricting usage of reserves such as leasing areas for particular uses which was deemed by the state to be inconsistent with the purpose of the reserve leaves this as the non-preferred option for Council.

6. Stormwater

The Stormwater Management Plan concludes that the proposal titled Option B Case 6 (MO, Section 6.1.6, Pge 14), provides the best stormwater treatment for the development and therefore should be implemented.

The B15 goes on to note that Council has applied to the Queensland Government for an exemption from Water Savings Targets therefore rainwater tanks may not be required.

Whilst Council is not looking to mandate water tanks in new dwellings, it does encourage their use and considers their inclusion within such a sensitive development to be a positive measure. Council also recommends that responsibility for the maintenance of litter traps should be with both the individual landholder and the body corporate.

Council would like to emphasise that it continues to work cooperatively with the Proponent on many of the issues outlined and is confident that agreement will reached. Council looks forward to seeing this occur in a manner that does not impede the Proponents planning.

RESPONSE

Council's support for the project is noted and the commentary above presents the Proponent's response to the various issues raised by Council.

By way of response to Council's conclusion, it is noted that Council has helpfully categorised its issues as either:

- **to be resolved before the project is allowed to proceed;**
- **before the project proceeds; and**
- **matters important to the success of the development.**

We equate these three (3) categories to:

- **prior to the completion of the EIS process;**
- **prior to the issue of the Operational Works Permit for the reclamation; or prior to the tidal works permit for the temporary bridge; and**
- **general comments.**

Notwithstanding that the last two categories are consequently not relevant to this stage of the approvals process we note that almost all of these have been considered in the responses to this document and also in expert reports in Volume 2. Outcomes and references to the matters raised are set out below:

- **Turbidity - 2.7.1 - Water quality management to control this issue;**
- **Energy and Design - 2.7.5 - Strong commitment to ESD.**

- **Port Compatibility Measures - 2.5.1 - The excellent record of the Port will make it a good neighbour to residential uses;**
- **Route Options - 2.1.2;**
- **Temporary Bridge - 2.1.2;**
- **Access to Council Roads - 2.1.2;**
- **Disaster Management - 2.4.2;**
- **Strand Beach Erosion - 2.2.1;**
- **Project Failure - 2.1.1;**
- **Existing Marina Channel - 2.1.3;**
- **Site Access and Parking - 2.1.4 - A management plan will be developed - carparking for construction staff will be accommodated largely on site.;**
- **Labour - 2.4.4 - The Proponent will work to ensure labour is adequate and available;**
- **Breakwater Tenure - 2.6 - This is to be determined by the State not the Proponent;**
- **Stormwater - 2.7.3 - Stormwater tanks are supported for the development;**
- **2.1.2 - The route using the temporary bridge over Ross Creek is preferred;**
- **2.1.2 - Changing the operation of the bridge allows default access to marine craft;**
- **2.1.2 - Access to Council roads and the potential wear of these will be compensated by agreement with Council;**
- **2.4.2 - A proposed DMP has been developed with input from DES, TCC, QPS and others;**
- **2.2.1 - The impacts on beach realignment and erosion are minor;**
- **2.1.1 - Performance bonds have been considered and are required by the State;**
- **2.1.3 - The temporary marina access channel has sufficient depth with no dredging required;**

The Council has raised three critical areas of concern:

- **Compatibility with the Port;**
- **Coastal Engineering; and**
- **Infrastructure Provisions.**

By way of final comment on three issues identified by Council to be resolved at the EIS stage, the Proponent submits as follows:

Compatibility with the Port

The Proponent submits that the EIS and the SEIS make it clear that the impacts from the Port on the Development site do not preclude residential land uses. In fact residents would enjoy a level of amenity consistent with inner city living in many other cities. The Port Protection Measures exist as a safety net for the infrequent circumstances and occasions where Port Emissions exceed the norm. The suggestion that the development will impede the operations and/or expansion of the Port is not supported by the evidence from the EIS and SEIS studies and the environmental improvement programme initiated by the Port Authority in response to increased community expectations is an exemplary standard for Australian ports. The increased community awareness about the environment is and will continue to influence environmental management by major industrial corporations in Australia and the Port has clearly taken this challenge on board.

Coastal Engineering

The proposed design exceeds current minimum standards and includes a buffer to accommodate climate change. The final design will be subject to Council approval through the operational works process and the Proponent suggests that a basis for this aspect of the development to be addressed at that stage has been established in the EIS.

Infrastructure Provisions

The Proponent stands by its statement that the project does not have a significant impact on Council's roads and this is confirmed by the supplementary modelling and traffic impact report. In regard to water and sewerage infrastructure, the Proponent acknowledges that new development will place additional demand on Council's infrastructure and they are prepared to pay fair and equitable contributions towards augmentation of that infrastructure. The amount of this contribution is a matter for agreement between the developer and Council having regard to established criteria set down in the Integrated Planning Act.

It is clear however that this project can be adequately serviced by municipal infrastructure and that there are no undesirable environmental impacts.

The Proponent therefore submits that infrastructure provisions do not need to be finalised at the EIS stage.