



---

22 October 2012

GKI Resort Pty Ltd  
Tower Holdings Pty Ltd  
Level 30 Northpoint  
100 Miller Street  
North Sydney NSW 2060

Email: [mail@towerholdings.com.au](mailto:mail@towerholdings.com.au)

CC:

The Hon Tony Burke MP  
PO Box 6022  
House of Representatives  
Parliament House  
Canberra ACT 2600.  
[Tony.Burke.MP@environment.gov.au](mailto:Tony.Burke.MP@environment.gov.au)

Great Barrier Reef Marine Park Authority  
GKI Federal Submission  
Townsville head office  
PO Box 1379  
Townsville QLD 4810.  
[info@gbmpa.gov.au](mailto:info@gbmpa.gov.au)

**Submission - Environmental Impact Statement  
Great Keppel Island Tourism and Marina Development  
(EPBC 2010/5521/GBRMPA G33652.1)**

**PREAMBLE**

Capricorn Conservation Council (CCC) since 1973 has been the principal non-government environmental organisation in Central Queensland. CCC covers environmental issues in the Fitzroy Basin, the largest catchment flowing into the Great Barrier Reef lagoon, the coastal and marine areas from Baffle Creek to St Lawrence and includes the Bowen and Galilee Basin coal and gas fields.

CCC rejects the proposal by GKI Resorts Pty Ltd to build a marina on Putney Beach and to 'revitalise' any part of Lot 21 (which is public land). CCC welcomes a smaller scale resort revitalisation within the Fisherman's Beach resort precinct (only) that is low impact to the ecology, environment and Matters of National Environmental Significance. We encourage and urge for implementation of ecologically sound environmental management plans for Great Keppel Island.

With respect to environmental management of Great Keppel Island (GKI) CCC has been actively and constructively engaged in community consultation processes for many decades. CCC actions of particular relevance to the current GKI Tourism and Marina Development proposal include:

**1990-1994:** Submissions to Livingstone Shire Council recommending protection of undeveloped areas of GKI as a National Park, improved erosion and removal of noxious plants and feral animals.

**2006-2010:** Letters to Queensland Government regarding the lack of compliance with Lot 21 lease conditions by Tower Holdings and need for effective environmental management plans before any lease extension or renewal is approved.

**2008:** Submission to GKI Lot 21 Land Evaluation Report (ROC/305/003) which after public consultation and technical review was released 28 August 2009 by the Queensland Government (refer to attachment). The Land Evaluation Report included the following recommendations (that CCC support):

***11.1 Most Appropriate Use***

*The most appropriate is **conservation** based on the significant natural and cultural values that have been identified by the Environmental Protection Agency and other organisations. Conservation values are best protected by maintaining the land in its non urban state.*

***11.2 Most Appropriate Tenure***

*Most Appropriate Tenure is ‘protected area’ under the Nature Conservation Act 1992 to allow for the long term protection and enhancement of the values of the land whilst maintaining public access. A suitable tenure is considered to be National Park or Conservation Park under the Nature Conservation Act.*

***11.3 Most Appropriate Manager***

*The most appropriate manager of National Park or Conservation Park under the Nature Conservation Act 1992 is the Environmental Protection Agency.*

**CCC supports the gazettal of Lot 21 as a National Park (or Conservation Park) as recommended in the Land Evaluation report** (28 August 2009), for the protection of the natural, cultural and environmental aspects of the island, as well as the enjoyment of future generations via low impact activities such as bushwalking, nature trails, camping and picnic areas.

**CCC considers Tower Holdings holds sufficient area for redevelopment on their other leases, specifically the site of the original resort.** Other than Lot 21, they hold leases over 38 ha including the 17 ha airstrip. We support the redevelopment on these sites (not Lot 21) which can be done while keeping Lot 21 in natural condition.

Lot 21 leasehold land is under a 10 year term lease agreement which specifies, (Condition H111); *“The lessee shall at all times...allow the public...free and unrestricted access to from and across the leased land.”* The EIS makes no reference to the Lot 21 Land Evaluation Report.

**CCC opposes the building of a marina at the shallow Putney Beach site** because of the significant ecological risks to the surrounding marine (park and world heritage area), beach, sea grasses, tidal estuary and fringing reefs ecosystems and the unassessed and potentially damaging hydrological/geophysical changes to the beach and dunal structures.

In addition to the EPBC and GBRMP EIS items (EIS Guidelines, p.2, a-f) the proponent needs to investigate and report on additional implications for the GKI proposal on (a) the *UNESCO World Heritage Committee - Reports On The State Of Conservation Of Properties Inscribed On The World Heritage List - 8. Great Barrier Reef (Australia) (N 154)*, and (b) the on-going Australian and Queensland Government Strategic Assessment of the Great Barrier Reef World Heritage Area (GBRWHA)

In particular, how will the full extent of the GKI proposal and its own impacts interact with the anticipated cumulative impacts of coastal industrial and urban growth within the catchments of the Great Barrier Reef (GBR)?

What are the cumulative impacts of the project combined with the proposed port projects and consequential increase in shipping in Keppel Bay, the GBRWHA and the marine park? Xstrata's Balaclava Island Coal Export Terminal, Mitchell Group's Fitzroy Terminal (barges to off-shore transhippers), Gladstone Ports Corporation Ltd Sea Hill and Port Alma port and industrial precinct must be considered in the cumulative impact assessment of GKI resort proposal.

CCC also requests that the EIS be completed in more detail, to a higher standard and with a lesser footprint and impact (no marina, no development on Lot 21):

CCC submits the following concerns and requests for additional action and information with respect to the Great Keppel Island Revitalisation Plan Environmental Impact Assessment. The following comments are made under their relevant 'titles' of the EPBC/GBRMP EIS guidelines, followed by reference to the section and subsequent sections of the EIS that the comment/s relate to/are about.

We would also like to submit:

- part 1 of our State (Qld) submission as an attachment for consideration as part of our federal submission, in relation to Matters of National Environmental Significance. This attachment is a pdf titled '*gki-EIS submission CCC Part 1*'.
- A review and submission to the Queensland Coordinator General on Chapter 5 – Economies and Management of Impacts of the GKI Resort EIS, prepared for CCC by Economists at Large (EaL) as part of this submission. This attachment is a pdf called '*Ecolarge 2012 Great Keppel Island submission 3*'.

## **COMMENTS ON MNES BY EIS GUIDELINES:**

### **2.2 Opportunities for Public Input**

Community engagement has been poor. Questions about project size, scope, locations were met with statements like, 'it will all be in the EIS'. The focus groups were ineffective and concerned groups and individuals supporting of the aspects of the redevelopment have been dismissed as a noisy minority and frustrated that their constructive input has being ignored. The EIS while voluminous still contains conceptual plans only and has not responded to suggestions for alternative locations and designs for the marina or for reduced impacts to Lot 21. This contrasts poorly with interactions with other significant project proponents (ports, mines) in Central Queensland where CCC (and other stakeholders) are represented on community and technical reference groups and have the opportunity for fair exchange on specific project design and management aspects. The community remains largely unaware of the full extent of the proposal and survey questions like, "Do you support the revitalisation" but none about option or variations or individual elements of the proposal give a false impression of community support .

We refer you to our further comments on community engagement and consultation under - '5.7 Consultation' - in this submission.

CCC requests that the Minister (Tony Burke) ask the proponent to complete further and more appropriate community engagement and consultation.

## 5.1 Executive Summary

The following comments in the table below are focused on the executive summary. The issues and impacts explored will have impacts upon the MNES, particularly the GBRWHA, the marine park, threatened species and communities and migratory species.

Section of EIS	Issue	Suggested solution
Executive Summary	ES.2 The GKI revitalisation Plan Objectives Broad statements about protecting Outstanding Universal Values of the Great Barrier Reef Marine Park and World Heritage Area, include the obscure statement, 'ensure the ecological and sustainable development of the project' are not clearly supported by an analysis (within the limited timeframe of the comment period) of the technical appendices and the conclusions or statements of intent.	These and other wordings in the opening are meaningless and do not demonstrate 'principles of ecologically development'. CCC considers most potentially damaging components of the proposal are in order of threat.
	Key points of concern/ecological threats:	<ul style="list-style-type: none"> <li>• The ecological, hydrological threats in the Leekes Creek and Clam Bay precincts with significant residential style development, human population vehicle movements, golf course, effluent treatment and disposal</li> <li>• The massive reconfiguration of the airstrip with excavation and fill works resembling that of a moderate size coal mine and the airstrip noise and vibration impacts being moved to effect public use and low cost accommodation areas.</li> <li>• The spillover of residential precincts to the eastern fall of the island (Clam Bay/ Fishermans Beach.</li> <li>• the private and low cost developments on the island.</li> <li>• The marina: although the changed entrance may be an environmental benefit provided there is a clear assessment of values of the Passage Rock marine ecology</li> <li>• The potential ongoing loss of the Spit and sand supply to Putney Beach which unfortunately is also an effect of the marina proposal</li> <li>• But most importantly –join the growing ranks of Central Queensland Coast (and Great Barrier Reef generally), failed resorts</li> </ul>
	It is incorrect to say significant grazing activities were undertaken the actual extent of clearing. Impact on Island is very minimal. This is also reflected in the executive summary of false photographs showing the cleared area is a recent theory by former owner for horse paddock.	Remapping Full response is required from the proponent to the recommendations in the: <i>Section 16 Land Evaluation Report, Lot 21 on SP192569 – Great Keppel Island, RPOC/305/003</i> that is for protection of Lot 21 under Nature Conservation Act.

	Remainder of the island is uncleared, remnant with healthy natural regrowth of partially cleared areas.	
	Contradiction between villas and apartments ‘available for purchase by individuals’ and leasehold	What will be the tenure for ‘owners’ of villas and apartments?
	<p>EC 3 refers to the Central Queensland Tourism Opportunity Plan - 2009 2019 but fails to mention the former DERM, <i>Section 16 Land Evaluation Report, Lot 21 on SP192569 – Great Keppel Island, RPOC/305/003</i>. This contains recommendations:</p> <ul style="list-style-type: none"> <li>• 11.1 ‘most appropriate use is conservation’</li> <li>• 11.2 ‘most appropriate tenure is protected area under the Nature Conservation Act 1992...suitable tenure to be National Park or Conservation Park’.</li> </ul>	<p>The Report was completed (2008) after public input, scientific and technical input. How will proposal meet the requirement of the Nature Conservation Act?</p> <p>Will Lot21 be handed back for protection as a National Park?</p>
	<p>False and misleading statements (page 4) referring to occupancy rates in Queensland resorts as declining due to insufficient new resort developments. There are a range of factors e.g. impact such as high Australian dollar and weather events and economic conditions (global and resource boom impacting on tourism and manufacturing</p> <p>Reference to island accessibility for the contemporary travellers: GKI has a good ferry service and accessible beaches for safe landing.</p>	<p>More detailed economic analysis needed.</p> <p>Current trends in Australian tourism tends towards low key ‘barefoot’ low impact resorts allowing access and appreciation of Queensland nature vs. poorer outlook for mega resorts and low use of marinas , natural islands with minimal infrastructure.</p>
	575ha environmental protection precinct to be rehabilitated and protected ‘in perpetuity’. This is a misleading / false statement given that even nature refuges are not protected ‘in perpetuity’ .There is no limitation on the proponent or future owner expanding into the environment protection precinct.	575ha (or entirety of Lot 21) should be more clearly stated as being rehabilitated and returned to the status of National Park as recommended in the <i>Land Evaluation Report</i> .
	Paragraph ‘beneficial use’ of dredge material deceptive ...risk of too great as demonstrated by the failed ‘supposedly highly surveyed	More study into risk factors for disturbing natural beach system and placing spoil in bags

	<p>and engineered' Bund Wall at Fishermans Landing (Gladstone Harbour). Subsequent result demonstrated that the design was deficient and temporary environmental permits and great expense was required to fix fault. The TEP resulted in higher than approved level of water quality contamination. Proponent need to do further work/study to assess risk factors. The bund wall had continuous leaching and re-suspension of sediment therefore the continuous release of contaminants in nutrients excessively into the ecosystem as opposed to sea dumping where the spoil is more likely to be kept wet throughout the process</p>	
	<p>Bagged sediment will alternatively become wet and dry with tides and during the process of removal, bagging and deployment. Risks of Geo-fabric bags breaking during preparation, installation, over marina lifetime?</p>	<p>How will Geo-fabric bags be prevented from breaking during installation of rock armour?</p> <p>How much spoil will be lost in the removal, storage and bagging process?</p> <p>What dredging methods will be used, e.g. back-hoe, excavator, from the beach or floating, what are dredge management plans for range of tides, winds, storms, rain events.</p> <p>Contingency for breakdown, response if Dugong or Turtle are present, especially if with calf (Putney Beach has a light covering of sea-grass meadow and nursing mothers have been sighted here.</p> <p>Planning for Turtle nesting season?</p> <p>Presence of migratory birds or local species such as Beach Stone-Curlew, Sooty or Pied Oyster Catchers, all know to frequent the beach. What amount of bond will proponent set aside for remediation, rehabilitation of beaches, injured or distressed animals?</p>
	<p>Wrapping swells from prevailing currents, and winds forms the crescent shape of Putney Beach and Fisherman's Beach. Historical accretion / erosion patterns caused the shape of the beaches and dunes. GKI beaches are known to have quite dynamic history. Studies and local historical knowledge show that the dunes and beach and shallow water at Putney have extended much further into the passage between GKI and Middle Island (ref Creighton, C., 1984) – up to 100m</p>	<p>More study needed into alternative marine facility locations and types, in particular floating, moored jetty based marina, ferry and cargo terminal. <b>Tropical Cyclone David 13 - 19 January 1976 edited Summary</b>  <i>David</i> crossed the Queensland coast just north of St Lawrence (south of Mackay). It passed over Gannet Cay Automatic Weather Station where a central pressure of 970 hPa was recorded. It was intensifying right up to the time of landfall. A feature was its huge size with gales extending from Papua New Guinea waters down to Lord Howe Is. It generated huge swells and these combined with large tides caused extensive damage to Heron Island as it passed to the north. It crossed the coast in a sparsely populated area however winds unroofed 30 buildings in Yeppoon and several in Mt Morgan. Wind gusts reached 95 knots at Pine Islet and 84 knots at the Gladstone Met. Office. Large seas combined with high tides caused considerable damage to breakwaters, retaining walls and other structures especially at Rosslyn Bay Harbour</p>

	<p>further in the 1940s and charter operators up to the 1970s report that it was possible a low tides to walk most of the way to Middle Island. Creighton found evidence of even earlier history indicating that the entire area of the commercial village to the end of the airstrip is underlined with ancient salt pans and intertidal mangroves forests. Cyclone David is understood to have caused over a metre of water to overtop the Putney Beach dunes system. <i>(Ref Cyclone David which destroyed part of the rock wall of the Rosslyn bay Marina and more recent examples from Cyclone Yasi)</i></p>	<p>(Yeppoon) where the Breakwater was destroyed along with yachts and trawlers. ....at Yeppoon tides were up to one metre above predicted levels.  <a href="http://www.bom.gov.au/cyclone/history/david.shtml">http://www.bom.gov.au/cyclone/history/david.shtml</a></p>
	<p>The pattern of erosion /accretion in the last 50-60 years (a period of declining average regional rainfall ~50mm per decade) has been for steady southward movement of the high tide which is causing considerable erosion of the Putney Beach dunes and changes in the entrance location to Putney Creek. Other marinas which also encompass creek or wetland entrances (Nelly Bay, Magnetic Island) have shown constant problems with erosion, siltation, alteration to sand deposition and erosion patterns (The local example is The Causeway Lake and the resultant attempts to manage the loss of sand from Kinka Beach. CCC understands that Nelly Bay beach need constant replacement of sand because of the construction of the marina.</p>	<p>Consider a jetty into deeper waters which will not require dredging of beaches and will not interfere with wave patterns and beach and channel accretion and erosion.</p> <p>More hydrological study and modelling into full range of alternative marine facility locations and types.</p>
	<p>Paragraph 85 final paragraph Tourism in Queensland 20 years - this statement may be false given the many projects proposed and either never commenced or started and not completed. just in the local area for example; Agnes Water dormant units construction on edge of coastal paperbark wetland, Capricorn Iwasaki, (despite two international standard Golf Courses) failed to meet promised occupancy, economic activity; Zilzie Bay, housing , resort, Golf Club, Magnetic Island (Nelly Bay) incomplete marina precinct despite approval in 1999,</p>	<p>Need to consider smaller scale proposal, reduced tourist numbers options in medium to long term 5-15+ years before full proposal approval given.</p>

	<p>Page 6 : The promise of economic activity and sustainable ecological activity is not realised referring to increase number of visitors (maybe in some of the following 4000 pages) any reference to the potential challenge for GKI as a prime attractive tourism destination due to the proposed massive expansion of coal shipping from Curtis Island Balaclava Island and Raglan Creek barge terminal, with significant increase in large bulk ship movements including offshore loading of cold within visual range</p>	<p>Issues raised in ‘focus group’ about the competing interests in Keppel Bay, Residential and low impact tourism vs. industrialisation need to be answered.</p>
S.8	<p>‘internationally recognised a top management group’ to manage Resort Hotel. Other Queensland resorts and holiday destinations in particular bigger resorts / apartments are struggling</p>	<p>Need to show a complete survey of other Queensland similar to those resorts and their economic status and ecological sustainability over recent decades, with projections contrast in various conditions of seasonal climate change, global economic outlook, including value of Australian dollar. The proposal also should look at the international situation in regard to such island and coastal tourism proposals many of the proposed venues at Clam Bay will face out into southern Keppel Bay which potentially become a heavy industrial zone.</p>
	<p>Concern about economic viability of the Clam Bay complex given distance from resort proper, community facilities and transport (terrain makes it unlikely for residents and tourists to walk of cycle)</p>	<p>Restrict development to eastern side of Mt Wyndham to Putney Point Ridge</p>
	<p>Final paragraph ‘no plans to convert Lot 21 to freehold’; Current lot 21 lease to be extended twice since 2010 the lease agreement specifically states ‘cannot be converted to freehold’. Lease has been extended past 2010 expiry date despite complaints about non-adherence to lease conditions (including investigations into illegal tree clearing resulting in a warning notice and lack of adequate environmental plans – feral goats, noxious weeds, erosion and fire management). Long extension of the EIS period – originally slated to be ready for release in 3<sup>rd</sup> quarter 2011 has delayed any effective adherence to lease conditions.</p>	<p>A clear time line for meting all lease conditions must be set before any further extension is approved.</p>

	Protected marine in the tidal vegetation area of Leekes Creek has a very low level <0.5m margin between highest tides and small dual system that separates sea from the mangrove areas and salt pans, marine couch grasslands. Even moderate storm surge activity on top of high tides could potentially impact well into the Leekes area, and with anticipated increasing oceanic swells and potentially	Resort footprint to be limited to western part of GKI to avoid increasing risk of salt water intrusion in the Leekes Creek area.
	Intertidal areas with respect to Putney Beach The area has been observed at the low tide of having a small colony of sea grasses known to have occasional visitation from nursing Dugong mothers and calves. A marina is not supportive of the natural beach, fish habitat and rock pools.	Marina should be rejected at this site and deep water alternatives properly considered.  Proponent should seek and accept input from local knowledge of Putney Beach corals, marine life.  What will be done to offset loss or damage of this environment
	Marinas at Nelly Bay Magnetic island for example have caused reduced water quality. Studies in 1980s reference demonstrated Putney Beach to be dynamic. Historically intertidal dunes and wetlands extended further south as far as the air airstrip area but at other times the beach and dunes extended hundred of metres further out into the Passage rocks and channel	What will be done to prevent the significant changes to the nature of the normal accretion rate accretion and erosion patterns?
	There are expectations of increased coastal inundation and erosion from more severe storms and heightened swells. Changing tidal impacts from placement of Marina in this location? Significant impacts on the wave and current patterns (wrapping swells?) It is understood that the coastal structure and sand mass, between Fisherman's and Putney Beaches including the spit, is kept intact by the (~perpendicular) wave action wrapping around the island.	Studies of range of projected changes to beaches dunes, dune vegetation, Putney Creek and wetlands and risk are needed
	The insertion of a marina into the narrower passage between GKI, Passage Rocks and Middle Island will have a range of consequences for the 'natural' cycles (short and long term) of accretion and erosion.	Will the inter-island channel have a greater accumulation of sand (potentially destroying the unique coal and marine life community?  Or will the deflection of the swell cause scouring a deeper channel?

		Could the marina wall cause a combination of both effects resulting in loss of stability and resilience for marine life in addition to becoming an unpredictable set of shoals causing navigation hazard?
	The suggestion of the east facing marina , while suggestion reduced dredging would force mariners to enter and exit into prevailing winds, swell, and tidal flows, close to the Putney Point rocks.	How will ecological damage be managed if there are accidents causing marine contamination?  Also how will the existing corals and marine life in the shallows and rock pool on Putney Point be protected?
	Nelly Bay requires twice yearly replenishment of beach sand due to altered accretion from the marina. If poor design or changing natural patterns cause excessive sedimentation (normal for most marinas especially those with only one entrance – Putney Beach Marina is similar to Nelly Bay marina into which Gustave Creek runs. Big Storm water events add great amounts of terrestrial of silt. This often contaminated soil mixes with fine marine sourced silt and as the normal process in enclosed marinas is for a greater rate of accumulation vs. lesser rate of flushing by tides).	What precautionary steps have been taken to ensure this cannot happen at Putney?
	Outstanding Universal Values - GKI is unique whole of ecosystem large coastal island in Southern GBR. Flora and fauna mapping and short term study might not show particular endangered species or regional ecosystems.	The island’s ecological community should be regarded as a whole; representing island community unique in its entirety; hence the previous reports of the need for the majority of GKI to be protected under the Nature Conservation Act
ES.5	Marina comprised of bagged geotextile dredge spoil – (Ref Creighton, C. 1984) for dynamic nature of Fishermans, Putney beach, spit, changes to accretion, erosion based on historical and projected, wave interference patterns, potential silting of deeper coral rich passage, marina silting.	Need to more fully assess viability and risks of such a structure.
ES 10	Airstrip impact on vegetation and on excavation and erosion of steep slopes, increased erosion and possible loss or partial destruction of Putney intertidal wetland – including increasing risk of storm surge, high tide, increased sea level impacts.	Airstrip
	Increased use of recreational water craft – jetskis have in the past caused injuries to Turtles on GKI	What is the projected increased in water craft traffic to GKI and how will marine life be protected from anchors, fast boats, contamination from debris, fuels

		spills, increased faecal coliforms?
	Putney creek and wetlands and altered airstrip size and location	How will water runoff from increased hard surfaces, and enclosure of the mouth by a silt trapping marina, with potentially lower water quality impact on the fish refugia potential of Putney Creek?
	Putney creek sediment basin may trap terrestrial sources of run-off, but another source of sediment will be fine marine sediment from geofab bagged sand which may continuously leach fine material and contaminants.	How will water quality changes be managed and corrected?
	Other marinas e.g. at Nelly Bay requires constant replacement of nearby beach sand and has a hazardous entry channel due to silting shoals.	Will this be possible at Putney Beach from changed wave and current patterns?  How will this be risk and cost assessed and mitigated on GKI?
ES4.3	Wastewater; the total eventual waste water at completions even if treated the A class will change the natural seasonal wet/dry ecology - this will benefit certain species exotics and native including microbial bacterial fungal forms. Combined with increased nutritional sources from increased human presence and herbicides (glyphosate has been shown to cause variations in competitive pressures in water bodies; CQ is experiencing many unexplained changes to aquatic micro flora including highly virile cyanobacteria hard to detect in water treatment and capable of releasing powerful neuro-toxins into the food chain. CQ has decadal or longer dry periods, e.g. 1/2 yearly average rainfall followed by a wet year of three. It is not valid to suggest that water management can be based on this pattern into the future (too short a history plus predictions of even greater variability of so called extreme dries and fewer rainfall events and low intensity storms but more Cat. 3+ storms.	A complete review of the total water management plan with respect to ecological impacts should be done including changes expected in use and discharge during the various proposed expansion stages. This should also consider more extreme wet and dry year /decades.
ES14	Photo montage the height of marina wall would appear to be below highest tide mark especially in storm event with increased wave height and storm surge,	More details of structure needed – or as already expressed alternative sites and types.

ES24	<p>Where is the proof that that the fundamental issue of tourism decline or slow growth is lack of new investment. this argument has been applied to a whole series of dormant, stalled, interrupted or only partially completed projects which promised to be the salvation of local economies and tourism in particular; Hummock Hill, Wild Duck Is, Iwasaki, Great Barrier Reef (Zilzie Bay), Agnes Waters. Mainstay of Australian tourism has been low key, local, gray nomads seeking uncrowded natural places.</p>	<p>Proponent need to more clearly justify the viability of the full scale of the proposal or reduce the footprint.</p>
	<p>Consultation history: Community engagement has been poor – little information ever provided and focus groups were ineffective. Questions about size, scope, locations were met with ‘it will all be in the EIS’ and concerned groups and individuals supporting of the redevelopment have been frustrated their input is being ignored.</p> <ol style="list-style-type: none"> <li>1. Meeting Sep 2009, Cap enterprise(2), CQCG (1), CCC(2), Cap Enterprise(1), Tower Holdings(2): post Plan 2 –</li> <li>2. CCC Management Committee – Sep 2009, Tower (2) and Consultants (Engineering) CCC committee and members,</li> <li>3. Social Impact consultant – discussed CCC position mainly regarding the possible expansion of the airstrip.</li> </ol>	
ES4 pg 9 - 10	<p>Significant scale back EIS Key Changes made since the rejected proposal While some of the dot points listed are commendable many are misleading as to their intent and some can be considered to increase impacts on the community and natural values of Great Keppel Island. The scale back has been minimal since the rejected proposal and results have been in the creation of a second urban precinct on the island</p>	<p>Suggested Solutions: Reduce development footprint particularly the proposed airstrip realignment and development of Clam Bay Precinct which will cause urban run-off to reef systems on east beaches and headlands including seasonal effluent discharge. Development into relatively Review Marina proposal against alternative transport link on Fishermans Beach. Reduce size to avoid loss of natural values to Great Keppel Island</p>

	<p>Villas behind Leeks eliminated Precinct. Refer commitments ES 14.17</p>	<p>Villas behind Leeks Beach. I understand that this alteration was necessitated following the failure of negotiations regarding land held in Aboriginal freehold title. The proponent should consider factors which lead to this failure and outline additional measures which could further consider this proposal including equity of interests, cultural sensitivity, and sensitive design criteria. There may be accommodation options negotiable which are less destructive than those in the Clam Bay</p>
	<p>Clam Bay Precinct Clam Bay Precinct development claims to be based around cleared vegetation The mapping does make appropriate corrections in Land Zone and hence regional ecosystem definition. There has however never been broad scale clearing (apart from areas near the homestead at Leeks Creek) of this area such as to trigger a change of cleared/remnant status under the Vegetation Management Act. There is a possibly deliberate failure to recognise the naturalness of low canopy vegetation community naturally induced by wind shear and exposure</p>	<p>Clam Bay Precinct Suggested Solution: Retain infrastructure services within the Fishermans Beach precinct. Minimal or no residential precinct at Clam Bay with no disturbance to micro-catchments falling to pristine eastern beach and reef features. This area remains totally inappropriate for the construction of an exclusive residential enclave especially with the addition of sewage and stormwater works and a full size golf course. Also threatens the high quality estuarine features of Leeks Creek Suggested Solution See Comments/Solutions on Section 3.3.2.3.8 and Appendix AB</p>
	<p>Entrance Channel realignment . The concept of reducing dredging is accepted although Putney Beach is generally the worst place on the island to start with a dredging proposal being both shallow and potentially subject to the most rapid rate of unnatural sediment recruitment or loss. .</p>	<p>Marina Entrance Channel realignment. Suggested Solutions Further consideration of alternatives to Marina particularly to retain the remaining dugong feeding area on GKI. The EIS needs to consider the transit difficulties for watercraft due to the significant funnelled tidal flows and effect of strong north easterly winds on the proposed channel especially in a wind against ebb tide situation. Consideration should be given to a degree of porosity (e.g. passive sediment transport slots) in Marina walls to assist natural processes of sediment movement to and avoid the nutrient build up in trapped waters such as occurs within the marina end of Rosslyn Bay Boat Harbour</p>
	<p>Relocation of Airstrip Further information needed on the impact of this proposal. The relocation will result in further loss of habitat and comprises the most significant earth moving and landscape scarring activity within the Great Keppel proposal. The airstrip also moves the impact of noise, etc to the private dwellings and lower cost community accommodation along the northern end of Fishermans beach. Appendix AE covers only the existing condition of limited</p>	<p>Relocation of Airstrip. Suggested Solutions As the move is more likely to be an adjustment for use of larger aircraft the impact of this change should be clarified. Referencing between ES and Appendices was poor!  The issue of this EIS ignoring the presence and interests of other landholders and public interest (day trippers etc) on the island need addressing in this and many other sections relating to noise, loss of beach amenity etc.</p>

	flights.	
ES 4.1	Environmental Protection Precinct. This is described as a ‘Conservation’ lease under the Lands Act. Given that the Lands Department, now Department of Natural Resources and Mines rarely enforces lease conditions or inspects lease land for compliance purposes the proposed tenure appears to be little more than a holding lease for future development purposes	Environmental Protection Precinct The proponent has The proponent, and the assessing Departments should clarify within the EIS the purpose and secure tenure of such Conservation Leases. In addition the proposal should be evaluated against other tenure options such as Conservation Park with joint trusteeship, National Park, Reserves for Environmental Purposes etc. The current lessee and previous lessees on Great Keppel Island do not have a demonstrated record of management of natural areas.
ES4.2	Issues regarding the positioning of the dredged marina channel have been raised above.  The “innovative” use of geotextile tubes to reduce the amount of dredge spoil dumping is raised in the EIS. The potential stability of this method is not discussed and no reference is provided regarding the “extensive assessment of the marina”	Further verification of this option and alternative options must be provided. Alternative options canvassed should include assessment of channelled or piered marina walls to assist natural sediment transport processes, sand loss to in minimising the expected significant sediment trapping, and nutrient accumulation which will be expected within Putney Beach A self functioning sand bypass system should be evaluated against a system which requires specific operations such as pumping or transfer of dredged material.
	Proposed alteration to Putney Creek	More discussion is needed on various alternatives to altering Putney Creek mouth other than just the “convenience” of removing the influence of the creek on the proposed marina. Entrance sand blockage of creeks of this catchment size and aspect is a normal characteristic in Queensland, especially in regions of high annual and seasonal rainfall variability. Creation of constant tidal inflow is likely to require highly unnatural construction processes.
ES4.3	Wastewater Treatment claimed to be innovative process in EIS. There appears to be minimal “innovation” revealed in brief examination of Appendix A suggests that more detailed modelling is required especially with proposed impacts within the pristine Leeks Creek catchment. Potential N and P long term increases are speculative.  See also ES10.5	More detailed examination/verification of the claims in the ES needed and the technical data provided in Appendix AN. Issues include: <ul style="list-style-type: none"> <li>• Maintenance of water clarity and nutrient levels in Leeks Creek Estuary.</li> <li>• Construction of Stormwater Retention lined ponds on Golf Course could lead to loss of Freshwater inflow to estuary during dry months especially early Spring marine ecological trigger events. Interception of ground water flows.</li> <li>• Build up of N &amp; P in substrate/ groundwater</li> </ul>
ES4.4	EIS Carbon Positive Commitment	Design/layout or proposed residential areas do not appear suited to this objective. In particular the location of a significant number of Clam Bay precinct units under the winter shadow line of the steep ridgeline to the north. The extent to which this inhibits solar energy collection and the adverse winter (too cool) and summer (too hot/ breezes blocked) needs to be validated.

ES4.5	EIS Infrastructure Footprint approximately 3.52% of island	This information is out by several orders of magnitude and apparently assumes that Golf courses, sewage works, artificial water structures are natural conditions. A more honest calculation of area of impact is needed as is a clear intent (by both proponent and government agencies) as to the future best condition for the remainder of the island.
ES7	EIS Project rationale This notes the steady decline in tourism sector especially inbound tourism and the tendency of Australians to take the outbound options. Also notes that there have been no major new tourism developments within G	Given than many of the large island resorts and marinas are struggling or closed there is a strong possibility that the model of service proposed will not meet contemporary demand should this start to increase again within the Great Barrier Reef Region. The proposal overall appears little different to those which preceded it 25 years ago. The option on not proceeding on GKI and modernising one of the existing underperforming resorts should be discussed. More information is needed which might justify that largely private residential design and layout will meet contemporary demand.
ES12	Outline of Alternative Options	No substantial details provided – appears as opinion only and no reference to other sources
ES14.2	EIS state that no significant alteration of the islands topography is required	This statement needs verification especially in the light of the significant works proposed to create essentially a new larger airstrip on an alignment which cuts significantly into the hard rock and dune topography of the island
ES18	The EIS describes minimising energy consumption and the use of solar power as major objectives of this proposal in the mitigation of climate change effect See also pg 263 dot points first paragraph	The mooted location of a significant number of the residential units especially in the Clam Bay Precinct is not suited to these energy efficient measures. Shading of dwellings on the south slope of the main spine of the island and poor access to cooling NE sea breezes (biting midges and white-winged sandflies love the valley) will require high energy consumption for human comfort.

## **5.7 Consultation**

Item 4 of the EIS guidelines for consultation clearly state that ‘*details of issues discussed, including a description of the views of affected parties*’ be provided. The following comments on Appendix K, the community consultation report, identify that the consultation has not occurred to the extent required by the EIS guidelines:

<b>Section of EIS</b>	<b>Issue</b>	<b>Suggested solution</b>
<b>Appendix K – Community Consultation report</b>	Throughout the majority of the report, the Capricorn Conservation Council is referred to incorrectly as the Capricorn Conservation Commission (CCC). It is very disappointing that the name of our organisation is incorrectly provided, especially considering the consultants have met with CCC persons on a number of occasions, in regards to this project and other projects they are working on in the region.	Correct the name-error in the entire report and replace Capricorn Conservation Commission with Capricorn Conservation Council.
<b>Appendix K – Community Consultation report</b> 2.2 Methodology	What is the purpose of the methodology described to assess the ‘potential involvement’ of stakeholders with an influence and interest matrix? The very method is very subjective. The whole reason of doing community consultation is to consult	CCC requests for an explanation of the purpose and merit of this matrix. CCC also requests for each stakeholder to be consulted and asked what their own and other stakeholder group influence and involvement is, and for this information to be reported back.

	with the community, so why didn't the consultants and proponent actually ask the stakeholders what they think their interest and influence is and report this back in the report? This method used appears to be biased, subjective and of little value to the community and individuals in regard to identifying their concerns and listening to and documenting their questions, objections and support.	
<b>Appendix K – Community Consultation report</b>  3.6 Focus Groups	1. The four objectives of the focus groups, as identified within this section of the report, are very biased towards the needs of the client/proponent and consultants rather than the needs, concerns, and issues of the community.  2. Secondly, this section of the report identifies appendices with invitation lists, names of people and questions asked at the focus groups meeting, but there is no mention of focus group meeting proceedings or outcomes. CCC questions where the transcript for each focus group's discussion, with details of concerns raised and responses provided, are in the EIS and this report?  3. Furthermore, the focus group which CCC was involved in, we believe, was not given the opportunity to view or comment on any written summary/documentation or account of the discussion, issues, concerns or Q & A, thereby preventing persons and groups consulted from verifying or clarifying their statements and issues and concerns were heard or dealt with.	<ol style="list-style-type: none"> <li>1. Given the biased objectives of the focus groups, the objectives must be improved and further improved consultation with community undertaken into the future that is a-tuned to community and unbiased and impartial.</li> <li>2. CCC requests a full transcript for all focus group meetings and other consultation meetings and methods to be provided in the report (as part of consultation and within the EIS/SEIS).</li> <li>3. Written documentation and accounts of focus group meetings/consultation must be made publicly available, included in the EIS and especially provided to persons/groups/businesses consulted, so that they have an opportunity to clarify and verify it is an accurate account.</li> </ol>
<b>Appendix K – Community Consultation report</b>  3.7 Community meetings (pge 9)	The first paragraph identifies that the proponent and project team met with CCC members in mid-2010 and that the EIS manager (assume this is Patrice Brown), meet with CCC officers and concerned members on a couple of occasions and maintained regular contact during the EIS.	CCC requests that the proponent and project team provide transcripts of this meeting initial meeting, further meetings and the regular contact, to CCC and include them in the EIS, so that CCC can identify what is being claimed as consultations with members and officers and verify if our concerns and opinions were accurately noted.
<b>Appendix K – Community Consultation report</b>  5.0 Consultation outcomes	A summarised list of issues are provided in table 5.1, however CCC questions why the full documentation and transcripts for community consultation have not been provided in this document. A summary is sufficient for the main body of the report, however appendices must include full transcripts and accounts of Q&A for all consultation methods, particularly but not limited to meetings and focus groups. These transcripts must have been verified by participants as an accurate account.	A summary list of issues is not sufficient. Full transcripts of issues, concerns and benefits identified by individuals, groups and businesses at all consultation methods (especially for focus group meetings and community meetings) must be provided in the report. Such transcripts and documentation must be provided to participants for verification, clarification and accuracy.
<b>Appendix K – Community Consultation report</b>  Appendix D of the report - Stakeholder list	The list, provided in tabulated form, identifies communication with CCC on three occasions, all 'in person'. There are no dates provided in the report for these consultations to be confirmed by CCC.	CCC requests that the proponent provide the dates for these consultations. CCC further requests that the proponent do this (provide detail of the dates and content of consultation communication) for all individuals, community groups and businesses.

<p><b>Appendix K</b> Community Consultation report Appendix O</p>	<p>The proponent has gone to great lengths to show support for the project, providing a full list of names, dates and comment details of 458 emails to support the project from their website, taking up 54 pages to do so. Question is, what about the emails (or other forms of communication to Tower or the consultants) that document peoples concern or viewpoints that do not support the project? The report is biased and focuses on proving and showing support, rather than documenting and considering the issues and impacts of all stakeholders (even those who do not agree) in detail. For example, where are full transcripts of focus group meeting outcomes or community meeting outcomes or other consultation methods?</p>	<p>CCC requests that the proponent provides a list (with names, dates, comments) of all emails and other communications that are either not in favour of the project, or have expressed or identified concerns.</p> <p>The Community Consultation report must be rejected on the basis that it is a biased document. Full transcripts of other communications must be provided.</p>

**5.9.2 Impacts to Listed Migratory Species, Threatened Species and Ecological Communities**

**f)Terrestrial Flora and the Ecological Community Littoral Rainforest, Coastal Vine Thickets**

• **3.3.3.1 (a) i, Page 387 of EIS**

The ‘study area’ for the desktop literature and databases review has inappropriately been limited to the proposed development precinct areas of the island only, rather than considering the island in its entirety. This is evident by the statement on page 387 that ‘*The study area for this purposed includes the Clam Bay Precinct, Fisherman’s Beach Precinct and Marine Services Precinct.*’ Species, ecosystems and ecosystem processes do not follow anthropogenic lines of interest bound by development: species, ecosystems and ecosystem processes are driven by nature’s limitations, abundance and interactions.

• **Chapter 3, Section 3b, Tables 3.20 and 3.24**

The tables misuse the Remnant Ecosystem definition. Table 3.20 (starting page 360) of the EIS document lists areas of the vegetation Regional Ecosystems on Great Keppel Island. In column 4 (BVG Description, it ends each entry with a list of land zones it can occur on (e.g. ‘8.2 8a can occur on land zones 2, 3, and 5’). This is a deliberate distortion of the RE system; by definition RE 8.2.8a can only occur on land zone 2. Combining related vegetation types on different land zones is an attempt to understate the impact of development.

Similarly, combining an RE with REs in other Bioregions (Column 7: Remnant representation within state) is misleading, as the vegetation community 8.2.8a can only occur in Bioregion 8. Again, this is an attempt to understate the impact of development.

Table 3.24 (page 373) lists an estimated upper impact on RE 8.2.8a as 74.21 ha. As the EIS document often errs on the side of understating the environmental impact this is likely to be less than the actual impact. To this should be added the approximately 50 ha of RE 8.2.8a which has been incorrectly re-mapped as ‘non-remnant’ giving an area of impact of at least 125 ha, which is about 64% of the RE 8.2.8a on Great Keppel Island.

The Australian Government decision rejecting the development of Hummock Hill Island (EPBC 2005/2502) states-

“The supplementary offsets report summarises the REs to be impacted by the proposal and correlates them with a list of analogous vegetation types. The proponent argues that these analogies (vegetation communities) can be used to assess the impacts to floristic diversity with the GBRWHA because they use are the same vegetation type but with different geology and bioregion elements. The Coordinator-General’s report uses these analogous vegetation communities in its assessment of floristic diversity values of the world heritage area but uses the RE classification system for terrestrial flora assessment. The department disagrees with the use of “vegetation communities” for the purpose of assessment of impacts on the floristic diversity of the world heritage area. The department considers that the RE classification system, which is well documented and supported, is the best representation of floristic diversity in the GBRWHA.”

<p><b>Appendix AB-2.2.2.4</b> (p. 13) and figure 8</p> <p>Refer to attached discussion paper.</p>	<ol style="list-style-type: none"> <li>1. Incorrect re-mapping of a large area of the proposed Clam Bay Development area as ‘non-remnant’ vegetation. Please refer to our attached discussion paper (Attachment 1) for more information on the issue.</li> <li>2. The Clam Bay Resort Precinct site is an inappropriate landform for clearing and large scale development.</li> </ol>	<ol style="list-style-type: none"> <li>1. Correctly map the Vegetation Communities of the proposed development areas and then verified by Vegetation Management unit of Qld Government (DEHP).</li> <li>2. Restrict Resort development to previously altered sites on western end of Great Keppel Island.</li> </ol>
---	---	--

**5.9.3 Impacts to Listed Values of the Great Barrier Reef World Heritage Area and**

**5.9.5 Impacts to the Environment of the Great Barrier Reef Marine Park**

Page 257	EIS Commits to maintaining resilience of coral reefs and other ecosystems See also Strategy 4.2 in Table 3.6 on page 260. Urban stormwater mitigation strategies do not work with runoff from steep coastal headland slopes or seepage through dunes.	The development footprint includes golf course and residential infrastructure extending into the micro-catchments (eastern fall) of Clam Bay and Long Beach. The EIS should demonstrate how the increased impact of these developments could be mitigated. As an alternative aimed at minimising impact on coralline ecosystems there should be discussion on the benefits of a drawback from the eastern fall catchments
----------	---	---

• **Chapter 3, 3.5.3.2, Surface Water (Page 641)**

CCC is greatly concerned that the proposal to permanently open the mouth of Putney Creek is not ecologically sound. This is a small estuary and the mouth of the creek should naturally open and close over time with sand bars, as they also do on the mainland. The proposed marina will significantly affect natural processes by limiting the flow rate/intensity of tidal flow upstream.

CCC objects to the sand bar being removed from the mouth of Putney creek.  
CCC object to the development of a marina on Putney beach and over Putney Creek due to the interference it will have with natural processes of the marine, aquatic and terrestrial environments, and the potentially irreversible effects of dredging (initial and maintenance) on the water quality of the GBRWHA, the marine park and the diversity and health/resilience of nearby fringing coral reefs.

• **Chapter 3, 3.5 Water Resources, Surface Water Table 3.65 (page 627-8)**

No quantitative figures are provided on the development proposal in the final column of Table 3.65 for the stormwater catchment characteristics. This makes it very difficult to assess the actual and consequential impacts of the proposed development on each catchment. How many villas, units, resort area, golf course area, hard surfaces etc. are proposed in each catchment area? This information is vital to make an assessment on the impacts to the environment of the GBR Marine Park and WHA.

Provide quantitative figures on each of the proposed development activities, such as the number of different types of buildings, hectares of sealed surfaces, hectares of airstrip and airport etc, for each of the catchment areas.

• **3.4.1.2 Context (page 510)**

The statement that a golf course has been in operation with the current (shut down) resort at fisherman’s beach, may well be correct (we were unaware of this), however was it a mini golf course and how many holes and what was the size of the course (hectares)? Just because a golf course existed, does not mean that it has not had impacts on water quality for the GBRWHA and the marine park, and the comparison of the context of size (in hectares) and location and geology between the existing and proposed must be provided and considered.

### 5.9.9 Cumulative Impacts of the Proposed Development

Section of EIS	Issue	Suggested solution
<b>Chapter 7.0 Cumulative Impacts</b>	1. A detailed description of the methodology utilised to determine and assess the cumulative impacts <u>has not</u> been provided by the proponent in the overview on page 1028 and the totality of Chapter 7. Merely, a reference to the ‘purpose’ of the chapter is provided in the first paragraph on page 1028 of Chapter 7 of the EIS.	<ol style="list-style-type: none"> <li>1. The proponent must provide and present a detailed description of the methodology used for cumulative impact assessment, to address the requirements of the EIS guidelines.</li> <li>2. This description and assessment should include a description of the criteria used, the variables considered, any matrices or indices used and their applicability, any baseline data used to determine past or current situation and impacts, and a detailed explanation of how the proposed mitigation (for each item) will in fact reduce (or not) the impact level.</li> </ol>
<b>Chapter 7 Table 7.1 MNES Page 1041-2</b>	<ol style="list-style-type: none"> <li>1. This table attempts to assess the cumulative impacts of the project upon the Outstanding Universal Values of the GBRWHA for the Matters of National Environment Significance (MNES). The GBRWHA OUV’s are not the MNES. Furthermore, there is no clear assessment of the cumulative impact on ecosystem resilience, which is required and stated in the EIS guidelines.</li> <li>2. It is a attempt with no explanation of how the ‘medium’ level impacts were determined or assessed, nor does it provide an explanation of how the mitigation will reduce the impact to a ‘low’ level impact. This is unacceptable.</li> <li>3. The current cumulative impact assessment is qualitative only. Quantitative assessments and information must also be provided <i>i.e.</i> area of impact to habitat, area of habitat or ecosystem proposed for removal, area of coral, sea grass and fish habitat to be impacted by dredging and turbidity plumes.</li> </ol>	<ol style="list-style-type: none"> <li>1. Assess the cumulative impacts to all 6 MNES and ecosystem resilience, as required by the EIS guidelines for 5.9.9 and 5.9.10. This is of particular importance to fringing coral reefs, sea grasses, endangered and migratory species and water quality.</li> <li>2. The current assessment of cumulative impacts be rejected. Request for further detail in a full and comprehensive cumulative impact assessment, that describes the methodology of the assessment and provides scientific explanations of how, what, where and why the proposed mitigation will be able to reduce the impact.</li> <li>3. Assess and collate information on quantitative cumulative impacts. Also include a description of the methodology used.</li> </ol>
<b>Chapter 7 7.1 discussion P.1044</b>	<ol style="list-style-type: none"> <li>1. Page 1044 attempts to discuss the cumulative effect of impacts on MNES. This discussion is very limited and has no scientific findings or explanation behind it, nor any reference to each MNES or specific individual species that may be impacted (such as the Beach Stone Curlew). This one page discussion fails to fully address the EIS guidelines for 5.9.9, particularly in relation to ecosystem resilience. It also fails to recognise that impacts to the island as a whole need to be considered in relation to fauna and flora and ecosystems, and not just the direct project footprint area.</li> <li>2. The statement on page 1044 that <i>‘this</i></li> </ol>	<ol style="list-style-type: none"> <li>1. The current cumulative impact assessment be rejected and a comprehensive assessment and discussion of cumulative impacts be requested and completed, that has scientific validity and explanation in the methodology used for the assessment, discussion and conclusions. Broaden the scope to consider impacts to the island environment as a whole and not just the ‘project footprint’ area – this will dramatically change the impacts in relation to habitat and ecosystem services.</li> <li>2. Request an answer as to how the</li> </ol>

	<p><i>assessment ensures that no intolerable risks from cumulative events for the GKI Revitalisation Plan remain</i>, does not have any evidence or explanation around how this conclusion was made. Furthermore, an ‘event’ is different to an ‘impact’, as an event is likely to cause an impact.... So what does this statement really mean? It appears to have no valid science behind it.</p>	<p>assessment ensures this statement is correct and valid. Distinguish between impacts and events. Undertake a more comprehensive assessment and discussion with scientific rigour.</p>
--	--	---

## **5.12 Environmental Management System**

### **• Chapter 8 – Environmental Management Plan and Appendix O (actual EMP)**

Section 8.1 states that the EMP is of a ‘*preliminary nature and will be developed further prior to any constructions works...*’. CCC considers that the ‘preliminary nature’ of the EMP is totally unacceptable; a full and considered EMP must be submitted as part of the EIS so that the management of impacts (avoidance, mitigation, offsets etc) to the MNES are considered and assessed prior to any approval. Failure to do so could result in adverse and irreversible impacts to the GBRWHA, the marine park, threatened species, communities and migratory species.

The EIS guidelines (item 5.12) clearly state that ‘*reference must also be made to EMPs’ ... ‘to manage impacts on the World and National Heritage values of the GBR, listed threatened species and communities’* . In its current form the EMP (Appendix o) does not clearly identify how it will manage impacts on particular MNES.

CCC requests that Minister Burke and DSEWPaC reject the current EMP and request a full and considered EMP with details provided and completed for each MNES (and environmental issue/element), so that the impacts and management actions and processes to avoid, reduce and mitigate impacts, are itemised in plain English.

## **5.15 Conclusion**

<b>Section of EIS</b>	<b>Issue</b>	<b>Suggested solution</b>
<p><b>Chapter 9.0</b> Conclusion and recommendations Pge 1061</p>	<p><u>Principles of ESD paragraph:</u> The last paragraph of page 1061 briefly discusses points on principles of ESD. CCC has identified three issues with the statements in this paragraph and the lack of information provided in it. They are as follows:</p> <ol style="list-style-type: none"> <li>1. If the principles of ESD are ‘<i>integral to the decision making process</i>’ of the proponent in their planning and design phase (as quoted in first sentence of the above mentioned paragraph), then <b>a)</b> examples must be provided (currently they are not) and <b>b)</b>, the relevant sections of the EIS where there is evidence and examples must be provided or quoted. At the moment, the generic statements in the paragraph provide the reader with the impression that the decisions and actions for the principles of ESD are tokenistic.</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide direct evidence of the principles being ‘integral to the decision making process’ by; a) quoting examples and providing evidence, and b), give direct references to the sections of the EIS that contain examples and evidence.</li> <li>2. Address the EIS guidelines fully and identify how the project does and does not conform with the principles of ESD under the EPBC Act and the NSESD. This must include reference to the principles of ESD under the EPBC Act; integration principle, precautionary principle, intergenerational principle, biodiversity principle and valuation principle.</li> <li>3. a) Provide documentation for</li> </ol>

	<p>2. Failed to identify how the project conforms with relevant legislation and policy (as identified in the final ToR) for ESD and principles of ESD. For example, there is no mention of how the project conforms to the 5 principles of ESD, in section 3A of the EPBC Act, or to the National Strategy for Ecological Sustainable Development (NSES).</p> <p>3. The final sentence of this paragraph states <i>“The EIS has adopted the EarthCheck third party certification process to ensure the design meets international guidelines for ESD”</i>. <i>There are a few issues with this statement:</i></p> <p>(a) No evidence or reference is provided by the proponent to actual EarthCheck checklist/s or certification documentation in the EIS for the project; this must be provided.</p> <p>(b) How can the EIS ‘adopt’ the EarthCheck third party certification process when it is a document and not an individual, company, corporation or proponent?</p> <p>(c) The statement only commits to the ‘design’ of the project meeting international standards</p>	<p>EarthCheck in the EIS and quote relevant sections of EIS where documentation is located.</p> <p>b) CCC requests that the proponent explain how an EIS can ‘adopt’ a certification process. Committing a document does not commit the company or corporation. The proponent and their consultants, staff and contractors must <b>commit</b> to ESD at the national level and international level and <b>adopt and implement</b> ESD.</p> <p>c) Commit to implement and action national and international policy and legislation for ESD (and EarthCheck) for all project phases (i.e. construction and operation and any closure).</p>
<p><b>Chapter 9.0</b> Conclusions &amp; Recommendations P.1062</p>	<p><u>First paragraph of page 1062</u> In the definition of a conclusion, this paragraph says nothing at all. It provides a very basic outline and very general comments of what the EIS did, but provides no clear summary or links to scientifically valid conclusions for each section of the main body of the EIS report or its appendices. Therefore, this chapter of the EIS has not addressed the final ToR, which clearly states that <i>“The EIS should make conclusions and recommendations with respect to the project based on the studies presented, the EMP, the identified residual impacts and...”</i></p>	<p>For the proponent and consultants to fully address the final ToR and provide a comprehensive description and summary of the impacts, findings and conclusions and recommendations for each chapter and sub-sections of the main body of the EIS and its associated appendices of reports. References must be given to conclusions drawn for each chapter of the EIS and its subsection (i.e. land, nature conservation, aquatic ecology, terrestrial ecology, coastal environment, greenhouse gases, water resources etc.) and relevant appendices.</p>
<p><b>Chapter 9.0</b> Conclusions &amp; Recommendations P.1062-3</p>	<p>An evaluation of the cumulative effect of the project (in general and to the MNES) are summarised over these two pages. This does not provide a complete picture to the environmental, social, cultural and economic values and the impacts, studies and conclusions drawn for each value (or chapter and subsection) of the EIS.</p> <p>As described in our previous comment, there is no comprehensive summary of the impacts from the studies presented, the EMP, residual impacts and conclusions drawn.</p>	<p>Further information and scientifically valid conclusions must be provided beyond what has been written for the two evaluations of the cumulative effect of the project.</p> <p>As recommended in our previous comment and solution, CCC requests that for the final ToR to be addressed fully in relation to conclusions and recommendations, such that a comprehensive description and summary of the impacts, findings and conclusions and recommendations for each chapter and sub-sections of the main body of the EIS and its associated appendices of reports, is provided. References must be given to conclusions drawn for each chapter of the EIS and its subsection (i.e. land, nature conservation, aquatic ecology, terrestrial ecology, coastal environment,</p>

		greenhouse gases, water resources etc.) and relevant appendices.
<b>Chapter 9.0</b> Conclusions & Recommendations P.1063 - recommendations	<p><u>2 basic recommendations are provided in this chapter:</u></p> <ul style="list-style-type: none"> <li>• These recommendations are that the project proceeds subject to conditions of SDPWO Act and approval conditions of the EPBC Act.</li> <li>• CCC disagrees with the two recommendations provided for the project on the basis that (a) the EIS contains many inaccuracies and misleading information and requires more scientific rigour to the surveys, reports and conclusions on the impacts and values, and (b), CCC objects to any development of Lot 21 and the proposed marina on the basis that the impacts to the local environment and OUV of the GBRWHA will be too great/high.</li> </ul>	<ul style="list-style-type: none"> <li>• Reject the recommendations and request that the EIS be undertaken again with more scientific rigour and less bias.</li> <li>• Request more comprehensive conclusions and new recommendations.</li> <li>• CCC recommends that there be no development on Lot 21 (golf courses, villas or otherwise) and that this area should become a national park for conservation purposes and low impact recreational activities.</li> <li>• CCC also recommends no marina on Putney Beach.</li> </ul>

### 5.19 Additional Social and Economic Matters

Section of EIS	Issue	Suggested solution
<b>Chapter 5.0</b> <b>Economies and Management of Impacts</b>	CCC approached Economists at Large (EaL) to review this Chapter of the EIS and provide an expert review on the robustness of the economic assessment, management and impacts. EaL assessed the robustness and appropriateness of the Economic Impacts as presented in the EIS and found it to be inadequate in a number of ways. These inadequacies are outlined in their report, which is attached to our submission and is titled “ <i>Submission to Queensland Coordinator General: Great Keppel Island Resort Environmental Impact Statement: Chapter 5, Economies and Management of Impacts.</i> ”	<p>As identified by EaL, CCC cautions decision makers from giving this project an approval based on the current level of economic assessment, and would encourage a more complete assessment of potential costs as well as benefits to be undertaken.</p> <p><u>Furthermore, CCC requests that the review and submission report prepared by EaL be considered in its entirety by DSEWPaC, the proponent and staff and consultants, and be viewed as part of the CCC submission. Therefore we request that the proponent address the report in its entirety for the EIS and SEIS.</u></p>
<b>Chapter 5.0</b> <b>Economies and Management of Impacts</b>	<p>The EaL report concludes that there has been inadequate analysis undertaken, inappropriate economic assessment tools used and insufficient information provided to know the ‘final balance of benefits to costs’ of this project.</p> <ul style="list-style-type: none"> <li>• Of great concern is the sole use of ‘input-output’ analysis in the economic assessment and that ‘benefit-cost analysis’ (BCA) has not been used. Given that EaL have identified that the Queensland Department of Infrastructure and Planning agree that BCA is the most suitable economic analysis for major</li> </ul>	<ul style="list-style-type: none"> <li>• Input Output Analysis (I-O analysis) is inappropriate for this scale of project and should not be used.</li> <li>• Complete a Benefit-Cost Analysis (BCA)</li> <li>• In particular the costs to the environment should be included in the assessment and analysis – we refer you to the project costs section of the EaL report for further details.</li> </ul>

	<p>projects, and the Department recommends it as preferred method above the input-output modelling (I-O Analysis), CCC requests that the current Economic Impact Assessment in the EIS be rejected and a new assessment using BCA be completed.</p>	
<p><b>Chapter 5.0 Economies and Management of Impacts</b> 5.2.1 Economic impacts – operating impacts</p>	<p>CCC notes with concern and great caution that two recent island developments on Magnetic Island, spent most of their start-up money on building a new marina and are now selling off their resort units for far less than what they are worth. Given that it is a shorter trip from Townsville to Magnetic Island than Yeppoon to Great Keppel Island and their tourism industry is larger than Rockhampton's; how will a resort and units on GKI be economically viable if the ones on Magnetic Island can't?</p>	<p>CCC requests for a comparison to be drawn between recent Queensland resort developments, and their economic success or failures, with those projected for GKI.</p>

## **Appendix P - GKI Biodiversity Strategy**

Figure 6: All the areas marked as the same BVG have some other major development proposals which will potentially either disturb, disrupt eliminate any proposed GKI biodiversity offset areas and values. The competition for suitable offset areas along the Central Queensland Coast is becoming intense. Two years after the approvals for the Curtis Island LNG plants and Western Basin Dredging there has been no tangible progress on implementing offsets, many understood to be in the same locations as the GKI EIS documents suggest would be suitable; i.e. offset double dipping. CCC also considers that while the principle of biodiversity offsets may be valid, the actual practice has little evidence of success.

Also offset areas are not adequately protected from future exploitation unless incorporated into National Park or marine protected area. Also as GKI is the largest near coastal terrestrial (continental) island in the Southern Great Barrier Reef any offsets strategy and locations should consider the nature of a whole of island ecological community, not just the normal terrestrial biodiversity indicators. In short mainland offsets cannot ever replicate the isolated and protected nature of whole of island ecological community.

Comments on Listed Possible GKI Offset locations

1. **Broadsound Coast** – this area is under un-conventional gas and coal exploration permits and therefore would be risks to offset disturbance
2. **Shoalwater Bay** – this area is considered dual-use, defence and conservation, and is under the Department of Defence environmental management program so should not be considered a valid GKI off-set area
3. **Fitzroy Delta and Curtis Island** – This area is already under consideration for offsets for Curtis Island LNG, Western Basin Dredging projects and has two current port development applications, Balaclava Island Coal Export Terminal(Xstrata) and Fitzroy Terminal Project (Mitchell Group), plus is part of the Gladstone Ports Corporation Ltd, Port Alma and Sea Hill Master Plan for strategic port land. Some of the area is also under petroleum exploration lease (shale oil).

Other than parts of Curtis Island all sites are on the mainland therefore could not be considered to adequately represent the GKI insular ecology and due to the overlap of the matters listed above would represent offset ‘double dipping’ if approved under the GKI EIS.

## **Appendix W Aquatic Ecology**

Putney Beach acknowledges (p.10) the diverse invertebrate community, sea grasses, turtle nesting beaches are likely to suffer habitat loss and disturbance from marina construction and operation (also from increased human traffic, small water craft and marine spills and incidents).

The freshwater inter-connectivity is shown to vary depending on the silting and movement of the tidal entrance. Other aerial images in the EIS documents confirms long term local knowledge that the Putney Creek ‘normal’ mouth exits at the northern most end of the Beach close to rocky headland rather than the current mouth through the low dune (inside the proposed marina footprint).

Putney Beach is known to be of a dynamic nature depending on seasonal events storms and currents. The location of a marina is certain to have an impact on the dynamism of the beach and Putney Creek and wetland. The ‘footprint’ of the marina and surrounding infrastructure and human traffic and activities needs to better reflect this larger area of alteration.

Figures 5.2, 5.7, 5.8 (e.g. Putney Creek mangroves) show the narrow separation of beach tidal zone, dunes and wetlands (salt/clay pans) and suggests a fragile geomorphology, prone to major alteration from storms, storm surge and human activities. While a hardened marina and probable rock/geofabric walls may prevent the current intertidal area reverting to more permanent tidal intrusion, the study does not eliminate the possibility that the altered sand accretion outside the marina wall could cause Putney to alter its mouth in a South-westerly direction after ‘extreme rainfall and storm events.

Elsewhere the EIS acknowledges the potential for more southward tracking of category 4-5 events These could severely alter GKI’s shoreline and render the marina useless or potentially detrimental to the Putney Beach aquatic systems.

### 5.3 Sea Grass Impacts/Map

The impact of the marina on sand movement and the potential for contamination and disturbance to sea grass biota is acknowledged, though there is insufficient review of the increased human and boating traffic on sea grasses. The marina may cause total and permanent loss of sea grass meadows within its direct footprint and risk to the recovery capability as illustrated in figure 5.15 which shows the post winter recovery /re-growth patterns.

The marina has the potential for increased toxic *Lyngbya majuscula* population and will reduce the actual area for viable a sea grass (and dependant) community plus add to changes to the beach profile potentially limiting or eliminating sea grass recovery.

Figure 6.1 does not indicate the Putney Beach/Point corals were surveyed, yet extensive photographic evidence indicates this is a diverse and health community.

**Figure 8.1** shows the marina ‘footprint’ but ignores the area impacted by human and boating traffic in associated marine and terrestrial areas.

CCC considers that if a marina currently only at concept drawing stage receives approval at the Putney Beach site it should:

1. be smaller in size,
2. emulate the existing headland and beach profile
3. be assessed for viability of re-colonisation by full range of species,
4. avoid encapsulation of Putney Creek and wetlands
5. be thoroughly studied for alterations for beach dynamics and
6. potential impact on nearby sea grass and coral community (GBRMP Green zone)
7. have contingency plans for alteration and removal if ecologically unacceptable effects are manifest

Marine infrastructure for a ferry terminal and pleasure craft moorings should be subject to greater study of alternative locations and design to avoid dredging and disturbance to as stated, p.88 “potential to affect species of conservation significance”. The object should be achieving a ‘nil’ requirement for biodiversity offsets rather than the existing practices of allowing destruction of habitat and hoping that post project research, management plans and monitoring will adequately replace the loss.

For example the diverse rock pool and coral community at or near the proposed marina site will be destroyed and there is no guarantee that it will recover and remain a viable habitat during the operational life of the marina.

### Appendix W – Human activity

**(p.93)** The disturbance to turtle nesting during construction and subsequent operations plus the major increase in human traffic needs further independent review.

**(p.94) Resort activities** are noted to have ‘manageable risks’. This needs more rigour to measures the range of ecological risks and consequences.

**Cumulative impacts** are dismissed, “considered to be minor, minimal”. The poor assessment of cumulative impacts was a major component of the UNESCO World Heritage Committee review of the status of the GBR World Heritage Area, and is a key aspect of the ongoing GBR Strategic Assessment. The EIS needs to further examine to cumulative impacts not just of GKI and immediate Marine Park areas but of the other factors in Central Queensland and the southern GBR. For example there is no mention of the Mitchell Group Fitzroy Terminal Project which involves off-shore trans-shipping of coal in nearby waters of Keppel Bay.

### Climate Change

Negative impacts on seagrasses and coral

**(p.99) Putney Creek improved tidal flushing:** Altering the tidal passage from a permanent mouth exiting through a marina causing an artificial flushing regime which cannot be regarded as an improvement.

**(p.105)** Marina rated as likely to have high range risks for Coral (10), Dugong (15) and Turtles (15). CCC considers this risk rating to be unacceptable for the small but locally significant haven provided by GKI, especially given the known decline across the whole GBR in coral cover, Dugong and turtle health and populations (not just the from the 2010-11 flood events).

### **Potential Offsets (p.10)**

CCC considers there have yet to be any scientifically proven effective offsets implemented for sea grass, mangrove and salt marsh loss. Given the cumulative regional pressures; Port Curtis has lost >3000Ha of inter-tidal/intra tidal habitats to port and industrial projects in the past forty years. Offsets for the approved project developments, Curtis Island LNG and Western Basin Dredging have not yet been achieved. The offsets required for the current project proposals/plans for Balaclava Island, Fitzroy Delta, Sea Hill and probable future projects for shale oil extraction from alongside The Narrows and urban growth pressures, will add to the unrealistic competition for suitable areas for biodiversity offsets.

Under current policies, offsets are not protected from subsequent exploitation, unless declared as National Parks. There is a finite limit to potential offset areas and coastal hazard mapping indicates there will come under increasing pressure from sea level rises and erosion from increased storm surge and swells. Salt marshes which provide important ecosystem services and specialised habitats are especially vulnerable as there are physical limits to their inland advance.

CCC considers that while the scale of loss of sea grass, mangrove and salt marsh habitats are small relative to the large losses to coastal industrialisation, their island location raise the need for protection from any loss. Also that if mainland offset areas can in fact be identified and secured against the competitive forces described above, the sites could be lost to coastal inundation, industrial and urban growth and subsequent contamination.

Offsets approvals allocating funds for research and rehabilitation may measure ecosystem health and changes but require very long term, continuous and intensive field study and analysis as well as validation by peer review and truly open public consultation and communication. CCC considers that such offset measures are invariably inadequate and if harm is detected this becomes a classic 'too little, too late' situation so that effective remediation of habitats or preventing local extinctions or substantial decline in species and species diversity. This view is often expressed by researchers and academic bodies; "there's never enough baseline data", "too many legacy issues and complex influences to determine the cases of problem."

CCC requests that there needs to be more scientific rigour into the identified potential for environmental damage to assist decision making about resort alternatives which avoid the need to have to consider offsets.

### **Marina wall – revegetation (p.112)**

Proponent should research and report where this have been done successfully. Can a marina with generally uniform physical profile emulate the natural substrate and provide the variety of habitats with similar tidal influences as the natural Putney rock pools?. Can mangroves and smaller marine vegetation survive on a geo-fabric core rock capped structure?. Will the rock capping and the spoil filled have a similar mineral leachate and nutritional profile to the natural system?

### **Appendix W-A – Lot 21 Environmental Protection Area**

The proposed 545 Ha environmental protection area will have no formal protection from future resort expansion, just as the environmental precincts on Curtis Island, the remain as 'strategic port land'. CCC urges the recommendations of the GKI Lot 21 Land Evaluation Report (ROC/305/003) be fully implemented and the areas be protected under the Nature Conservation Act as a National Park. By accepting the findings of the 2008 technical, legal and scientific review and associated public consultation, the natural values would be protected; the current right of public access would be

preserved and the natural attractions of GKI would be a draw card for people seeking a whole of tropical island holiday and recreational experience. As a National Park the area could support small scale nature based tourism with hiking and camping areas and minimal infrastructure.

### **Appendix W-B GBR Marine Park**

Marina construction and operation *will* modify and disturb existing GBRMP habitats and create risks for nearby areas including ‘Green zones’. More study is needed into the variation to the ‘wrapping swells’ which influence the Shape of Putney Beach, Fishermans Beach and the spit separating the two beaches. The confinement of the Putney Creek estuary within a marina and opening the channel for permanent flushing will alter the intertidal ecosystem. Unless it is proposed to ‘amour’ the entire length of Putney Beach there remains the possibility than storm and storm surge events could cause the creek to overtop the narrow dunal structure and exit outside the marina. The events could alter the beach system and reduce the viability as a turtle nesting and sea grass area. (p.21 Physical Coastal Processes)

### **5.2 Queensland Coastal Plan**

Introduced in 2012, the Queensland Coastal Plan is now proposed to be absorbed into a single state planning structure and the responsibility for coastal planning has been removed from the Environment and Heritage Protection portfolio to the State Development and Infrastructure Planning portfolio. Despite the current GBR Strategic Assessment for which Queensland has to demonstrate improved Coastal Zone management practices the known current risks and anticipated worsening of coastal hazards, the environmental focus is being downgraded. GKI is clearly facing the same range of coastal pressures and is mapped a being of High Ecological Significance HES. CCC urges a much more cautious approach to the revitalisation plans, changing the location and type of marine infrastructure and confining the resort to the western side of GKI.

### **Putney Wetlands p.40**

Map 10.2 describes the Putney Creek wetland and as palustrine. The proposal to open the creek flow through the marina will change the nature of the saline / fresh water interaction and the ecological characteristics of the wetland. Also the water quality from marina activities including impacts of maintenance dredging and increased human traffic (e.g. potential faecal coliform contamination) will change. More study into the wetlands ecological values over time and across the range of seasonal changes is needed to protect positive habitat values and prevent decline in water quality or detrimental change in species mix.

### **Appendix WC (p.35 – 5.1) “Renourishment” of Putney Beach**

Insufficient detail is provided about the feasibility and viability of this proposal. As highlighted throughout this submission there is a lack of evidence of adequate studies and modelling to show the potential changes to the beach, dunes and nearby channels which could result from marina construction, containment of Putney Creek and increase human usage of the immediate area. If “renourishment” is required on an ongoing basis The experience of the marina at Nelly Bay Magnetic Island, has been a change to sand movement, requiring the beach sand to be replaced on a regular basis. If similar affect occurred at Putney the beach would become an artificial, sterile ecosystem unsuited to supporting health intertidal micro, macro flora and fauna let along turtles and sea grasses.

Constant or period 'renourishment' may be required causing further disturbance to intertidal biota from dredge sites and potential contamination and excessive nutrient release into the food chain. The marina footprint of 90 000m<sup>2</sup> plus 40 000m<sup>2</sup> of bund wall would reduce the normal beach structure by ~50%. This means alteration to 50% of the existing beach habitat and 50% loss of normal sand movement. More study is required of potential impacts on the beach dynamics and potential changes to the siltation and scouring of channels between GKI, Half Tide Rocks and Middle Island. The study should consider the range of physical changes and the possible consequent impacts on nutrient/contaminant flows and turbidity and current changes to the diverse reefs in the area.

## **5.2 Sediment Transportation – p.47**

It is acknowledged that sand movement will be altered and some modelling e.g. 5.10 shows increased accretion around Passage Rocks (potentially damaging the coral community) and reduced accretion at the spit separating Putney Beach from Fisherman's Beach, potentially causing increased risk of beach and dune erosion, possible loss of the spit itself and increasing the possibility of severe storms surges encroaching into the commercial village and residential area. Predicted Siltation on the south-western side of the marina wall is indicated in 5.11. The 1984 study by Creighton noted the historically dynamic nature of this section of GKI with the Putney high tide marks extending further north, north-west in the 1940s and indications of intertidal flats below the northern end of the airstrip in much earlier periods.

The possibility that dredging, entrance channel construction, marina bund walls, increased human and water craft traffic causing increased risk of altering the hydrodynamics of the beach and dunal system needs to be more thoroughly studied.

## **Appendix E**

The maps (p.21) shows the 'normal' tidal entrance of Putney Creek as being at the far north eastern end, against the rocky headland while the current entrance has moved along the beach following the natural siltation of the original channel. The mobility of the tidal passage is a natural process reflecting the history of rain events causing freshwater flows, flushing, erosion and siltation against tide and wave-borne sediments. Encapsulating and of necessity armouring the currently mobile tidal passage with a marina will alter the natural biological processes of the flora and fauna adapted to the intertidal area. The 'controlled' flushing resulting from the proposed marina location need to be further studied to determine the range of positive and negative impacts on mangroves, water quality, saline/fresh balance, mangrove species mix, nutrient exchange and other ecosystem services. There needs to be more work done to consider the range of ecological changes which could result from a marina, particularly with respect to the wider range of alternative marine facilities.

## **Figure 2.45, p.53**

This image demonstrated the shape of the prevailing swells and how they distort, "wrap", around Putney Point and deflect off Passage and Half Tide Rocks to form a pattern which creates the shape of Putney Beach. Swells wrapping clockwise around GKI meet to form Fisherman's Beach and The Spit. Projecting an obstacle such as marina bund wall will change the way the prevailing swells 'wrap' with the likelihood of higher water velocity causing scouring in one location and reducing sand importation to replenish the beaches. The range of hydrodynamic changes and consequential habitat changes needs far better modelling and study before a permanent obstruction is considered.

## Appendix W-F Marine Fauna

Page 11 shows locations of coral communities on GKI suggests probable alternative locations for a ferry terminal and marine facilities with lesser impact coral and associated species. More study is needed into range of alternatives (type, location, size designs) to the Putney Beach marina are needed to evaluate the most environmentally positive outcome.

### Paragraph 2.2 - p.32

The information on the intertidal rocky shore indicates a great species richness of Putney Beach/Putney Point. This community must be protected from any disturbance or dislocation. Any form of marina if is approved, even with a smaller footprint, should avoiding loss of the intertidal rock pool community and interference with Putney Creek tidal flows and be designed to emulate natural shapes and surfaces which allow decolonisation by marina flora and fauna. Are there any examples of marina bund walls which support mangroves and habitats like currently exist?

### 2.6 Putney Beach Turtles

Half of Putney Beach will be lost for turtle nesting area, even if the marina enables the beach system to retain its natural profile. While the area is small compared to mainland coastal beaches, being on an island gives it a higher value due to its greater protection from predators and impacts from beach driving and camping. Any marine infrastructure for the resort must not cause any loss of turtle nesting area.

### Appendix W-F 4.2

An environmental plan will be developed but given the long history of failure environmental plans linked to the lease conditions on GKI, and the total scale of the proposal compliance would be problematic. If the resort impacts are confined to currently disturbed built environment and infrastructure locations, west of the Mt Wyndham to Putney Point ridge environmental management is more achievable. Similarly a more ecologically sustainable resort would provide the best protection to Lot 21.

### Appendix W-G Golf Course

Placing a golf course into Lot 21 will reduce natural habitats, change species mix (loss of forest species and increase in those preferring open spaces, e.g. fewer small honey eaters and more aggressive noisy miners).

Even with 'best practice' these will be changes to ground water, run-off, nutrient and pesticides into watercourses and the GBR.

### Appendix W-I

The area designated for the golf course and Clam Bay is a haven for mosquitoes and biting midges, particularly during summer days when the breeze drops. This will impact on the attractiveness of the area and increased use of insecticides and repellents by visitors

Section of EIS	Issue	Suggested solution
Appendix W 2.3 Freshwater surveys (page 13)	The statement " <i>Sites were surveyed at different times during the year, post-wet season, ...</i> " in this section of Appendix W (page 13) is very misleading when compared to the survey detailed provided in Table 2.2, Appendix A (survey design) of Appendix W. The information in Table 2.2 clearly shows that each site had only one temporal replication for each freshwater survey site. For example, April/May 2011 = one site visit. June 2011 = one site visit	Misleading information. CCC seeks clarification on temporal replication quantities for each site. Amend the EIS and SEIS.
Appendix W Aquatic Ecology Appendix A, 2.3	Lack of scientific rigour in relation to spatial and temporal replication with the freshwater water quality, sediment quality sampling and all other	Sampling method utilised in relation to spatial and temporal replication (one sample only at each site with only one site visit) is

Freshwater Surveys, Table 2.2	freshwater sampling parameters undertaken. Samples from eight sites were generally sampled once each spatially and temporally. The ‘once only’ sample at each site is unacceptable in scientific terms to provide any valid scientific conclusions about the water quality; replication of samples is essential in any scientific field surveys and absolute minimum of three samples for each site sampling visit should have been completed over multiple temporal sampling events (date/season).	not scientifically rigorous enough. Replication of sampling must occur to provide sample averages for each site, spatially and temporally. Further sampling, with further spatial and temporal replication, must be completed and included in the EIS and SEIS in relation to all freshwater aquatic sampling parameters listed in table 2.2.
<b>Appendix W</b> Aquatic Ecology, Appendix A, 2.3 Freshwater Surveys, Table 2.2	Appears to be an error in the naming of the Putney Creek freshwater survey sites in Table 2.2, as they are labelled as PC1, PC2 and PC3 in table 2.2, however on the map provided of freshwater monitoring site locations, they are P1, P2 and P3. Further checking of this issue identified that PC1, PC2 and PC3 are delineated as estuarine Putney creek sites on another marine monitoring map.	CCC requests clarification of this error, the differences between sites P1, P2, P3 and PC1, PC2 and PC3. Furthermore, how does or has this error caused repercussions for data presentation and analysis throughout the entire report. Amend the report.
<b>Appendix W</b> Aquatic Ecology Appendix A, 2.3 Freshwater surveys, Table 2.2 – aquatic macro-invertebrates	Macro invertebrate information on page 32 of Appendix A in table 2.2 of the report (page 177 of Appendix W), identifies that Putney Creek sample sites 1 and 3 (PC1 and PC3) were only sampled once (spatial replication of 1), whereas all other sites had a spatial replication of six (6). The reason given for the once only sampling is “these sites will be lost to development”; this reason is unacceptable and scientifically inappropriate. Since Putney Creek catchment has the proposal of the Fisherman’s Beach Resort Precinct (proposed development area) over it, a proposed marina at the mouth of the estuary and proposed changes to the estuary entrance, it is absolutely essential that spatial and temporal replication of sampling be required for sites PC1 and PC3; in fact, it is more of a reason to sample further and gather more data and information about what aquatic and catchment values will be lost or impacted. The reason provided in this report, gives the reader the impression that this is a tactic to limit the science (collecting data/information) in the proposed development area of Putney Creek Catchment so that there is limited information to alter, change or stop the development proposal.	It is not scientifically acceptable that spatial and temporal replication was not completed for sites PC1 and PC3 for aquatic macro-invertebrates. Given the proposed marina, changes to Putney Creek catchment and the beach/estuary entrance by the development proposal, spatial and temporal replication must occur and more sampling surveys and data are required for the EIS and SEIS, so as to draw scientifically valid conclusions about distribution, abundance and impacts to macro-invertebrates and water quality from the development.
<b>Appendix W</b> Aquatic Ecology Appendix A, 2.3 Freshwater surveys, Table 2.2 – <b>Fish</b>	Table 2.2 identifies that Leeke’s Creek and Putney Creek sites were not sampled for fish due to low water levels. It appears that no attempts were made to return in appropriate wet or dry season times when there was enough water to ensure that sampling of fish (spatially and temporally) in box traps. This is unacceptable. Given that both Leeke’s Creek Catchment and Putney Creek catchment will be impacted by the proposed developments of the Fisherman’s Beach Resort Precinct and the Clam Bay Resort Precinct, it is imperative that fish sampling occur in the waterways of Leeke’s Creek and Putney Creek and for this data and information to be included in the EIS and SEIS.	CCC requests that fish sampling/surveys, with spatial and temporal replication, occur in Putney and Leeke’s Creeks and information be included in the EIS and SEIS. Consultants must visit the sites when there are appropriate water levels.

<p><b>Appendix W</b> Aquatic Ecology (p.722 &amp; 724 of doc)</p> <p>Appendix G, 2.7 and 3.7 <b>Freshwater Turtles</b> (p.54 &amp; 63 of App. G)</p>	<ul style="list-style-type: none"> <li>Statement that “<i>freshwater turtles were not observed during the surveys</i>” in section 2.7 and 3.7 of appendix G of the report, however there is no information provided by the consultant of how long the sites were monitored, or what methods were used to survey freshwater turtles on GKI. This is unacceptable. In fact, table 2.2 of appendix A, which identifies freshwater survey design by the consultants, does not even mention freshwater turtles. We therefore have reason to believe that <b>no</b> methodology or field survey was deployed for freshwater turtles.</li> </ul>	<ul style="list-style-type: none"> <li>CCC requests for consultants to provide information on the survey design and methodology on freshwater turtles.</li> <li>CCC requests for ‘observation’ records (i.e. field data sheets) of freshwater turtles by consultants to be provided.</li> <li>Complete scientifically valid and rigorous survey of freshwater creeks and dams of GKI for freshwater turtles, using more than just observations.</li> <li>Employ freshwater turtle survey methods such as dip netting, trapping, muddling and seine netting.</li> </ul>
<p><b>Appendix W</b> Aquatic Ecology</p> <p>Any section of the report with information on <b>Freshwater Turtles</b></p>	<ul style="list-style-type: none"> <li>Survey methodologies for freshwater turtles do not exist in the report and it can be therefore concluded that any statements, conclusions and recommendations on freshwater turtles on GKI are totally inadequate, flawed and unacceptable.</li> <li>‘Observations’ only are not adequate enough and there is no information on how, where, when, why of freshwater turtle observation methodology, nor of replication of method/s. This is unacceptable and suggests that the consultants didn’t</li> <li>The discussion on the ecology of turtles in section 3.7 of Appendix G is limited and can be improved with reference to some of the regional freshwater turtle research in the Fitzroy Basin and field survey work that needs to be completed for the EIS.</li> <li>There are statements in this report that “<i>it is possible that freshwater turtles may occur in the project area</i>”. We can confirm that in fact there are freshwater turtles on the Island and CCC has seen direct photographic evidence of <i>Chelodina longicollis</i> inhabiting the island (photos from island residents).</li> </ul>	<ul style="list-style-type: none"> <li>Information on freshwater turtles in the report be rejected.</li> <li>For consultants to design and complete scientifically valid and rigorous survey of freshwater creeks and dams of GKI for freshwater turtles, using more than just observations.</li> <li>Employ freshwater turtle survey methods such as dip netting, trapping, muddling and seine netting.</li> <li>Improve discussion on ecology of freshwater turtles after completing survey work described above.</li> </ul>
<p><b>Appendix W</b> Aquatic Ecology (p.723 of doc)</p> <p>Appendix G 3 Regional Context</p>	<p>This section and subsequent sections state that information is not readily available for water quality, sediment quality, aquatic flora and aquatic habitat “in the lower Fitzroy Basin”. We believe this to be an incorrect statement, as there have been water monitoring programs occurring with Fitzroy Basin Association (FBA), Landcare</p>	<p>Incorrect. Identify and utilise coastal catchment and lower Fitzroy Basin water quality surveys, data and reports from FBA, CQU, Landcare groups and subregional groups. Amend report and findings.</p>

	<p>groups, CQU students and subregional groups such as FRCC and Boyne Calliope sub-region. Reports and information would be readily available from FBA, FRCC, Boyne Calliope subregion and CQU library or CQU aquatic scientists.</p>	
<p><b>Appendix W</b> Aquatic Ecology (p. 715-721 &amp; 724 of doc)</p> <p>Appendix G 2.5 &amp; 3.5 Aquatic macro-invertebrate communities</p>	<ul style="list-style-type: none"> <li>• Results for macro-invertebrates are biased because consultants decided (as identified in table 2.2 appendix A of report) to only sample one site (PC2) Putney Creek for macro-invertebrates with replication (6 samples). The other two Putney Creek sites (PC1 and PC3) were only sampled once, with no spatial or temporal replication, because the two sites <i>'would be lost to development'</i>.</li> <li>• Results and observations provided on the macro-invertebrate community indicate that not only is the community similar to moderately disturbed environments, but also highly indicative of ephemeral systems. The assessment of the sites as being potentially indicative of saline environments, is also indicative of ephemeral systems.</li> <li>• SIGNAL 2 has been used as statistical analysis method for macro-invertebrate communities. Given that the freshwater survey results provided are indicative of ephemeral systems, we would like to point out that the use of SIGNAL is not recommended for analysis of ephemeral systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide unbiased survey design, field survey and analysis by doing further macro-invertebrate survey work on GKI with better spatial and temporal replication, in both wet and dry season. Then, update and improve report data, analysis, conclusions and recommendations.</li> <li>• Unbiased survey design would include PC1 and PC3 (and/or P1 and P3) in the survey with replication, even though it is proposed to be affected by the proposed development.</li> <li>• Clarify if sites PC1,2 &amp; 3 and P1,2 &amp; 3 were all sampled for macro-invertebrates to clear up discrepancy between Appendix A and G.</li> <li>• Use statistical analyses that are appropriate for ephemeral streams.</li> </ul>
<p><b>Appendix W</b> Aquatic Ecology (p.724 &amp; 722 of doc)</p> <p>Appendix G 3.6 Fish communities (p.63) and 2.6 Fish communities (p.61)</p>	<ul style="list-style-type: none"> <li>• Concerned about the fish trapping methods deployed and that the survey was not comprehensive enough to be indicative of fish species richness and abundance.</li> <li>• The use of small bait traps only in the fish survey method will have missed any larger fish. Nets should have been used for a more comprehensive survey.</li> <li>• Only one fish caught (Carp Gudgeon at Putney Creek 2) is not necessarily indicative of poor fish assemblages in the creeks and streams of GKI, but rather an indication of poor fishing effort, despite the nature of the ephemeral streams.</li> <li>• Again, concern of error in data and report as there is conflicting information regarding fish survey work and fish survey results. In an earlier section of report, Table 2.2 (of freshwater survey design in Appendix A) clearly states that Leeke's creek and Putney Creek sites (PC1, PC2 and PC3) were not trapped for fish due to low water levels, yet the discussion in section 2.6 of Appendix G states</li> </ul>	<ul style="list-style-type: none"> <li>• Fish trapping methods not comprehensive enough – improve survey effort. Go back and complete further survey work in the wet season and with other survey methods, such as the use of nets, with more spatial and temporal replication, to ensure larger fish and smaller fish present may be captured and surveyed.</li> <li>• Clarify (to CCC and government and public) what exactly the error is and what information is correct and incorrect in regards to the discrepancy between Appendix A of no fish trapping in Putney Creek due to low water, yet result of one fish trapped in Putney Creek in Appendix G of report.</li> <li>• Correct error in information supplied in regards to freshwater fish survey sampling and results.</li> </ul>

<p><b>Appendix W</b> Aquatic Ecology</p> <p>General comment on freshwater ecology survey and information</p>	<ul style="list-style-type: none"> <li>• It appears the freshwater survey does not take into account that the creeks on Great Keppel Island (GKI) are ephemeral streams which are subject to natural drying events. Comparing the results of the freshwater survey to the DERM guidelines is not particularly useful given that the guidelines are based on permanently flowing streams.</li> <li>• Ephemeral streams are naturally stressed environments by their very nature (extended dry periods of no flow and flash flooding for example). CCC is concerned that the further loss of flows to the ephemeral streams on GKI, as a direct result of the diversion of flows into stormwater ponds and wetlands (for the proposed golf course and Clam Bay Precinct), will further stress the streams and is likely to reduce the diversity of in-stream fauna.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure ephemeral nature of creeks and streams are taken into account in the report and EIS.</li> <li>• Do not develop a golf course or the Clam Bay Precinct or the Marina. Protect the unique terrestrial and aquatic ecosystems of the Leeke's Creek catchment and Putney Creek Catchment for conservation purposes.</li> </ul>
--	--	--




**Signatures**

.....