

Submission (PART 2 for CCC) on the environmental impact statement (EIS)—Great Keppel Island Resort Project

Submissions close at 5pm on Friday 7 September 2012

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Section of EIS	Describe the issue	Suggested solution
Chapter 3 Sect. 3.3 Photograph 3.8 Pge 389	The photograph is referenced as a 'fauna trap'. It is a "pit-fall" fauna trap designed to collect reptiles and invertebrates for research purposes. The photograph clearly shows that the 'drift fence' material is sagging and not taught or tight and it is being held on by office clips to the small post structures; this is of concern because the drift fence should be sturdy and of durable construction and be able to withstand wind and animals running into and along the fence.	<ol style="list-style-type: none"> 1. Request confirmation from the consultant of a) the location and date of the photo, b) the success of the office clip maintaining a 'sturdy' drift fence structure of the pit fall trap to ensure unbiased scientifically valid survey results. 2. Improve the title of the photo and identify the type of fauna trap (pit fall trap for herpetological and invertebrate surveys), location and date of the photo.
Chapter 3 Section 3b Tables 3.20 and 3.24	The tables misuse the Remnant Ecosystem definition. See attached discussion paper, identified as Attachment 1 in this document.	This EIS document should not be viewed as a scientific document, but as biased towards the proposed development.
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. CCC also presumes that a marina will significantly affect natural processes by limiting the flow rate/intensity of tidal flow upstream.	<ul style="list-style-type: none"> • 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 marine and aquatic and terrestrial environments.
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 impact 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.	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.
Chapter 5.0 Economies and Management of Impacts	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</i> "	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. Furthermore, CCC requests that the review and submission report prepared by EaL be considered in its entirety by the Coordinator General, the proponent and staff and consultants, and be viewed as

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	<i>Resort Environmental Impact Statement: Chapter 5, Economies and Management of Impacts.</i>	part of the CCC submission. Therefore we request that the proponent address the report in its entirety for the EIS and SEIS.
Chapter 5.0 Economies and Management of Impacts	<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"> 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 projects, and the Department recommends it as preferred method above the input-output modelling (I-O Analysis). CCC refers the reader to all sections of the 	<ul style="list-style-type: none"> Input Output Analysis (I-O analysis) is inappropriate for this scale of project and should not be used. Complete a Benefit-Cost Analysis (BCA) 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.
Chapter 5.0 Economies and Management of Impacts 5.2.1 Economic impacts – operating impacts	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?	CCC requests for a comparison to be drawn between recent Queensland resort developments, and their economic success or failures, with those projected for GKI.
Chapter 7.0 Cumulative Impacts	<p>1. A detailed description of the methodology utilised to determine and assess the cumulative impacts has not 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.</p> <p>2. Therefore the proponent has not addressed the requirements of the Final Terms of Reference (ToR). The final ToR for the Coordinator General clearly stipulates the following on page 72; <i>“Cumulative impacts should be assessed in respect with both geographic location and environmental values. The methodology used to determine the cumulative impacts of the project should be presented, detailing the range of variables considered, including where applicable, relevant baseline or other criteria upon which the incremental aspects of the project have been assessed.”</i></p>	<ol style="list-style-type: none"> The proponent must provide and present a detailed description of the methodology used for cumulative impact assessment, to address the requirements of the Final ToR. This description 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 the ‘base’ impact and
Chapter 9.0 Conclusion and recommendations Pge 1061	<p><u>Objectives of EIS and assessment against legislation:</u> It is stated in paragraph one of page 1061 that “The principal objective of this EIS has been to identify and assess the environmental impacts against the EPBC Act and GBRMP Act.”</p>	<ol style="list-style-type: none"> CCC requests an explanation from the proponent and relevant consultants, as to why the impacts of the project were not assessed against the SDPWO Act and EP Act, and any other relevant pieces of legislation, and only the EPBC and GBRMPA

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	<p>Why has the proponent failed to assess against the state’s <i>Environmental Protection (EP) Act (Qld)</i> and the <i>State Development and Public Works Organisation (SDPWO) Act</i>?</p> <p>The proponent and consultant have failed to assess the project against the Queensland EP Act and SDPWO Act, thereby failing to address the final Terms of Reference for this Chapter of the EIS which clearly state that it must address “<i>conformity of the project with legislative and policy requirements.</i>”</p>	<p>Act?</p> <ol style="list-style-type: none"> 2. For the proponent and consultants to conform to the Final ToR and provide detail on conformity of the project with all other pieces of legislation and policy. 3. Assess the project against the EP Act, SDPWO Act and other relevant legislation and policy, providing detail of the methodology and outcomes in this chapter, and provide references to relevant chapters and appendices for further information.
<p>Chapter 9.0 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"> 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 a) examples must be provided (currently they are not) and 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. 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). 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>”. There are a few issues with this statement: <ul style="list-style-type: none"> (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. (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? (c) The statement only commits to the ‘design’ of the project 	<ol style="list-style-type: none"> 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. 2. Address the final ToR fully and identify how the project does and does not conform with the principles of ESD under the EPBC Act and the NSES. This must include reference to the principles of ESD under the EPBC Act; integration principle, precautionary principle, intergenerational principle, biodiversity principle and valuation principle. 3. a) Provide documentation for EarthCheck in the EIS and quote relevant sections of EIS where documentation is located. 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 commit to ESD at the national level and international level and adopt and implement ESD. 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).

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	meeting international standards	
Chapter 9.0 Conclusions & Recommendations Pge 1062	<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>	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 it’s 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.
Chapter 9.0 Conclusions & Recommendations Pge 1062-3	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. 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.	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. 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 it’s 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, greenhouse gases, water resources etc.) and relevant appendices.
Chapter 9.0 Conclusions & Recommendations Pge 1063 - recommendations	<u>2 basic recommendations are provided in this chapter:</u> <ul style="list-style-type: none"> • These recommendations are that the project proceeds subject to conditions of SDPWO Act and approval conditions of the EPBC Act. • 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. 	<ul style="list-style-type: none"> • Reject the recommendations and request that the EIS be undertaken again with more scientific rigour and less bias. • Request more comprehensive conclusions and new recommendations. • 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. CCC also recommends no marina.
Appendix AB- 2.2.2.4 (p. 13) and figure 8 Refer to attached discussion paper.	<ol style="list-style-type: none"> 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. 2. The Clam Bay Resort Precinct site is an inappropriate landform for clearing and large scale development. 	<ol style="list-style-type: none"> 1. Correctly map the Vegetation Communities of the proposed development areas and then verified by Vegetation Management unit of Qld Government (DEHP). 2. Restrict Resort development to previously altered sites on western end of Great Keppel Island.

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Appendix K – Community Consultation report	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.
Appendix K – Community Consultation report 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 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.	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.
Appendix K – Community Consultation report 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"> 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. 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). 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.
Appendix K – Community Consultation report 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.

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<p>Appendix K – Community Consultation report</p> <p>5.0 Consultation outcomes</p>	<p>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.</p>	<p>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.</p>
<p>Appendix K – Community Consultation report</p> <p>Appendix D of the report - Stakeholder list</p>	<p>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.</p>	<p>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>
<p>Appendix K 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>
<p>Appendix W 2.3 Freshwater surveys (page 13)</p>	<p>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</p>	<p>Misleading information. CCC seeks clarification on temporal replication quantities for each site. Amend the EIS and SEIS.</p>
<p>Appendix W Aquatic Ecology Appendix A, 2.3 Freshwater Surveys, Table 2.2</p>	<p>Lack of scientific rigour in relation to spatial and temporal replication with the freshwater water quality, sediment quality sampling and all other 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).</p>	<p>Sampling method utilised in relation to spatial and temporal replication (one sample only at each site with only one site visit) is 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.</p>

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<p>Appendix W Aquatic Ecology, Appendix A, 2.3 Freshwater Surveys, Table 2.2</p>	<p>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.</p>	<p>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.</p>
<p>Appendix W Aquatic Ecology Appendix A, 2.3 Freshwater surveys, Table 2.2 – aquatic macro-invertebrates</p>	<p>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.</p>	<p>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.</p>
<p>Appendix W Aquatic Ecology Appendix A, 2.3 Freshwater surveys, Table 2.2 – Fish</p>	<p>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.</p>	<p>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>
<p>Appendix W Aquatic Ecology (pge 722 & 724 of doc) Appendix G, 2.7 and 3.7 Freshwater Turtles (pge 54 & 63 of App. G)</p>	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> CCC requests for consultants to provide information on the survey design and methodology on freshwater turtles. CCC requests for ‘observation’ records (i.e. field data sheets) of freshwater turtles by consultants to be provided. Complete scientifically valid and rigorous survey of freshwater creeks and dams of GKI for freshwater turtles, using more than just observations. Employ freshwater turtle survey methods such as dip netting,

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	therefore have reason to believe that no methodology or field survey was deployed for freshwater turtles.	trapping, muddling and seine netting.
<p>Appendix W Aquatic Ecology</p> <p>Any section of the report with information on Freshwater Turtles</p>	<ul style="list-style-type: none"> 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. ‘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 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. 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). 	<ul style="list-style-type: none"> Information on freshwater turtles in the report be rejected. 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. Employ freshwater turtle survey methods such as dip netting, trapping, muddling and seine netting. Improve discussion on ecology of freshwater turtles after completing survey work described above.
<p>Appendix W Aquatic Ecology (pge 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 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>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>Appendix W Aquatic Ecology (pge 715-721 & 724 of doc)</p> <p>Appendix G 2.5 & 3.5 Aquatic</p>	<ul style="list-style-type: none"> 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>. 	<ul style="list-style-type: none"> 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. Unbiased survey design would include PC1 and PC3 (and/or

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macro-invertebrate communities	<ul style="list-style-type: none"> 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. 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. 	<p>P1 and P3) in the survey with replication, even though it is proposed to be affected by the proposed development.</p> <ul style="list-style-type: none"> Clarify if sites PC1,2 & 3 and P1,2 & 3 were all sampled for macro-invertebrates to clear up discrepancy between Appendix A and G. Use statistical analyses that are appropriate for ephemeral streams.
<p>Appendix W Aquatic Ecology (pge 724 & 722 of doc)</p> <p>Appendix G 3.6 Fish communities (pge 63) and 2.6 Fish communities (pge 61)</p>	<ul style="list-style-type: none"> Concerned about the fish trapping methods deployed and that the survey was not comprehensive enough to be indicative of fish species richness and abundance. 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. 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. 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 	<ul style="list-style-type: none"> 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. 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. Correct error in information supplied in regards to freshwater fish survey sampling and results.
<p>Appendix W Aquatic Ecology</p> <p>General comment on freshwater ecology survey and information</p>	<ul style="list-style-type: none"> 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. 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 	<ul style="list-style-type: none"> Ensure ephemeral nature of creeks and streams are taken into account in the report and EIS. 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.

Section of EIS	Describe the issue	Suggested solution
	course and Clam Bay Precinct), will further stress the streams and is likely to reduce the diversity of in-stream fauna.	

If there is insufficient space in the table above, please attach additional pages.



Signature:
signed by *each* submitter.)

.....(A submission by more than one person must be

CAPRICORN CONSERVATION COUNCIL

ATTACHMENTS & FURTHER INFORMATION TO OUR
SUBMISSION ON THE GREAT KEPPEL ISLAND EIS

07 SEPTEMBER 2012

ATTACHMENT 1:

DISCUSSION PAPER ON GKI VEGETATION MAPPING (REFERRED TO IN OUR SUBMISSION COMMENTS ON APPENDIX AB)

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."

