15 January 2008,

EIS Response - Hummock Hill Island Development

Dear Sir,

Please find attached, written submission on the EIS of the Hummock Hill Island Development project.

My response is presented in 3 parts,

1. The environmental values of Hummock Hill Island and surrounds in context and our clear moral obligation to preserve the area.
2. Analysis of detail presented by the proponents in the EIS, showing limitations and superficiality of supporting material.
3. Conclusion and recommendation

Due to the limited time available to respond to the EIS I have not been able to provide as thorough an analysis of the EIS as this unique area deserves. The proponents have had years to prepare for this EIS and have had significant resources at their disposal; $4 million have been spent so far. In contrast I am just a local Coastcare hero, doing what I can to stem the white-anting of our environment, sacrificing my time off work over the Christmas period to respond within the few weeks allocated. It is my wish that this submission be given equal regard and the veracity of the observations I pose not be dismissed on the basis of a perceived lack of substantiating data, which take time and resources to prepare. What I present I hold to be true and present in good faith. The accuracy or precision of some of the information may be limited, some of it somewhat dated, but serves to demonstrate the principles involved rather than trying to improve on the quality of the data provided by the proponents.

Should any of it not be clear or the Coordinator-General need clarification, I am willing to follow-up and/or present this material in person.

I would also like to stress that my views expressed do not imply wrongdoing by any individuals but merely raise the prospect of the potential subversion of systems that lack appropriate checks and balances, without transparency or accountability.

I reserve all rights to the intellectual property of my analyses provided in this document.

Sincerely,

Jan Arens,

18 January 2008
Part 1  Hummock Hill Island – Environmental Values in context:

Human population on earth is projected to grow to over 9 billion where it is expected to stabilise. (http://www.un.org/esa/population/publications/popnews/Newsltr_83.pdf)

Our growth is necessarily constrained to this earth and stabilisation is inevitable. Growth is a function of (births – deaths)

Mathematically, to stabilise deaths will increase in excess of births.

To “Have one for mum, one for dad and one for the country” implies increased death elsewhere.

Achim Steiner, the UN Environment Program Executive Director said "The human population is now so large that the amount of resources needed to sustain it exceeds what is available at current consumption patterns." His view on this is by no means unique. (http://www.iht.com/articles/2007/10/25/europe/environ.php)

Australian population growth is roughly 1.2%. Natural increase and net overseas migration currently contribute almost equally to population growth. (http://www.abs.gov.au/ausstats/abs@.nsf/ProductsbyCatalogue/5A9C0859C5F50C30CA25718C0015182F?OpenDocument)

My motivation to immigrate to this amazing country was its people and astonishing natural beauty. Unfortunately all too many today come here to escape conditions elsewhere in the world. As pressure on the earth’s resources mounts, the drivers for international migration will increasingly be famine and wars. We have a moral obligation to accommodate this pressure.

No doubt some of the motivation is the prospect of riches, i.e. better access to resources, a bigger slice of the cake. No less so migration to our region.

Our local condition is of course a function of government policy to make this the industrial heartland of Queensland. Public money buys land including productive agricultural land for industrial development and builds infrastructure to promote industry. Our public land and scarce water resources are allocated to industry and no doubt many more concessions and incentives were offered below the public radar. This break-neck expansion of industry attracts opportunists and economic refugees alike. Our influence on
migration is through the perceptions we create and we have created a beauty here. Without razor wire and detention centres, domestic migration is inevitable.

At a global scale, overconsumption of our natural resources is so profound that we have precipitated a mass extinction of species [http://www.well.com/user/davidu/extinction.html]. Analogous with the great extinctions seen in the geologic record, this is the sixth great mass extinction. It marks the beginning of the Anthropocene when the activities of the human race first begin to have a significant global impact.

At a regional scale we have accentuated population growth, already far beyond sustainable. [http://www.environment.gov.au/esd/national/nseesd/strategy/intro.html#WIESD, http://www.population.org.au/index.html] The proponents suggest increasing this pressure through the Hummock Hill Island development, and that is irresponsible. Their EIS fails to acknowledge the social and economic consequences of the additive impact on already failing infrastructure viz. water supply, skilled employees, housing construction capacity etc. But more disturbingly the EIS fails to acknowledge the multiplier effects on the degradation of the environment.

While we adopt an economic prosperity and industrial growth agenda, we have not balanced this with an appropriate emphasis on the environment, commensurate with our moral obligation and international commitment to maintain biodiversity.

Habitat fragmentation is one of the principal drivers of species extinction, ultimately threatening our very own survival. This is acknowledged by all governments worldwide, including Australia, who have signed the Convention on Biological Diversity. The Convention was opened for signature at the Earth Summit in Rio de Janeiro on 5 June 1992 and entered into force on 29 December 1993.

Top of the list of our nation’s commitment is: [http://www.countdown2010.net/?id=92]

“Species and ecosystems need space to develop and recover. At least 10% of all ecosystem types should be under protection to maintain nature and natural landscapes”
I reproduce a table below from the EPA website:
(http://www.epa.qld.gov.au/nature_conservation/biodiversity/conserving_biodiversity/protected_areas/)

<table>
<thead>
<tr>
<th>Type of protected area</th>
<th>Number</th>
<th>Area (ha)</th>
<th>Percent of Queensland</th>
</tr>
</thead>
<tbody>
<tr>
<td>National parks (scientific)</td>
<td>7</td>
<td>52 180</td>
<td>0.03</td>
</tr>
<tr>
<td>Conservation parks</td>
<td>176</td>
<td>42,319</td>
<td>0.02</td>
</tr>
<tr>
<td>National parks</td>
<td>212</td>
<td>6,710,715</td>
<td>3.88</td>
</tr>
<tr>
<td>Resources reserves</td>
<td>39</td>
<td>347 858</td>
<td>0.2</td>
</tr>
<tr>
<td>Nature refuges</td>
<td>97</td>
<td>61,948</td>
<td>0.03</td>
</tr>
<tr>
<td>Co-ordinated conservation area</td>
<td>1</td>
<td>1 170</td>
<td>0.0007</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>532</td>
<td><strong>7 216 190</strong></td>
<td><strong>4.1617</strong></td>
</tr>
</tbody>
</table>

Less than 4% of the state is afforded formal protection, where our international obligation is to protect at least **10%** of all ecosystem types.

“Vegetation and regional ecosystem mapping now exists for more than 70% of the State. The maps are an essential component for the administration of the Vegetation Management Act 1999”
(http://www.epa.qld.gov.au/nature_conservation/plants/queensland_herbarium/survey_and_mapping/)

The mapping differentiates the extent of remnant vegetation as a percentage of pre-clearing extent within defined bioregions. It includes the protected areas listed above.

Four broad classifications of regional ecosystems have been adopted,

1. Non Remnant cleared
2. Remnant endangered <10% of pre-clearing extent remains (pink)
3. Remnant of concern 10-30% of pre-clearing extent remains (mustard)
4. Remnant not of concern >30% of pre-clearing extent remains (green)

Below a subset of the mapping in our area

All areas mapped as “remnant endangered” per definition, are in breach of our international obligation. Scars on our national dignity.

In fact the extent of our breach is underrepresented as it is masked by the fact that some ecosystem types may have disappeared entirely and are now shown here as part of the white areas.
I reproduce some of the remnant vegetation information from the EPA website below:

The majority of remnant vegetation cleared was of woodland communities (green), now shown as the white areas of “cleared - not remnant” on the diagram. A closer look at the diagram shows that the bulk of the clearing had occurred in the south-east quadrant of the state, this includes the region concerning Hummock Hill Island (circled red) and Curtis Island.


“The Vegetation Management Act 1999 (VMA) was proclaimed on the 15 September 2000. The clearing rate of remnant vegetation in the 1999-2000 period increased by 53% in comparison to the clearing rate in the 1997-1999 period. The clearing rate of remnant vegetation in the 2000-2001 period (after proclamation of the VMA) initially was reduced to 60% of the clearing rate in the 1997-1999 period. The clearing rate of remnant vegetation in the 2001-2003 period increased to reach 87% of the 1997-1999 period clearing rates (Figure 1).”

Figure 1 is presented below
Rearranging the data in a time series, expressed as a % of the original pre-clearing extent of woodland, it is quite apparent that the impact of the VMA 1999, up to 2005 has not slowed the rate of clearing appreciably, if at all.

Note that if we consider that almost all clearing has occurred in the SE quadrant of the state, the situation is quite dire. The SE quadrant of Queensland was down to less than 50% of the original woodland in 1999 and if the rate of clearing has continued unabated, it could be down as far as 40% as I write this.

Considering that for the purposes of legislative application a 30% threshold constitutes the distinction between “not of concern” and “of concern”, the whole of the SE quadrant Queensland could become of concern within 20 years, if not “endangered” i.e. in breach of our international obligations.
The Vegetation Management Act 1999 (VMA) was proclaimed more than 6 years after the treaty on Biological Diversity entered into force. Even until today we (the public) see no evidence of change in the rate of clearing of remnant vegetation in Queensland; that is no change in clearing of biodiversity sustaining habitat.

There are 56 species listed within a 70 km radius encompassing Hummock Hill Island and Curtis Island that are considered threatened. Some even critically endangered. (http://www.environment.gov.au/cgi-bin/erin/ert/ert_dispatch.pl?loc_type=coordinate&search=Search&report=epbc Coordinates: 24 S, 151 E 70 km buffer)

While some of us may not rue the potential demise of the Black Breasted Button Quail, the Yellow Chat or the Brigalow Scaly Foot in isolation, it does however represent our contribution to the current global extinction pattern.

Not including migratory or marine species, these species are dependent on remnant regional habitat. The very ecosystems the proponents wish to affect. Just in this small area, this tiny bit of the world in our care, over 6100 hectares of regionally significant remnant vegetation is under direct threat of clearing.

THAT IS 61 km²

- North Curtis island development 2500 hectares -proposal
- Curtis Island resort style development 500 hectares – already being cleared, including mangroves in dugong habitat and declared fish habitat
- Wiggins Island Coal Terminal 150 hectares terrestrial vegetation
  - 100 hectares marine vegetation
  - 22 hectares sea-grass in dugong protection area (1% of Curtis beds)
- Hummock Hill Island development 1200 hectares – this development lease
- Broad Acres/Tannum Waters (Tannum Sands) 1500 hectares –already cleared
- Boyne Island (Paradelma orientalis habitat) 150 hectares –already cleared
- Fitzroy pipeline - ?? hectares, includes habitat of the critically endangered Yellow Chat
The 61 square kilometres constitutes more than 2.6% of the remaining remnant vegetation in the 70km radius search area, home to 56 species of concern. These developments and proposals are just the ones I know of and have been able to verify; it does not include the latest LNG proposal for Curtis Island or the 210 km² State Development allocation within the search area.

As the reality of climate change struggles to permeate the decision making instruments of government, so too does the reality of habitat fragmentation and the devastating effects this has on our environment. We as a nation formally committed to maintaining biodiversity in 1992, we promised the world that we would preserve a minimum of 10% of the ecosystems in our care and have those ecosystems under protection by 2010. We, so rich, can’t even do that. Since signing, more than 15 years ago, there has been NO CHANGE in the rate of woodland clearing in Queensland.

“Clearing of remnant woody vegetation, as defined by the Queensland Herbarium Regional Ecosystem mapping (Accad et al., 2006 (based on 2003 data)), for the period 2004–2005 was 172,000 ha/year” This is a staggering 3440 km² of remnant regional ecosystem cleared in the 2004-2005 period. I dread the 2006-2007 data.

The inconvenience of environmental values conflicting with our prosperity aspirations is all too often suppressed, when we give ourselves a self placating pat on the back for a job well done with the economy. And while we feel compelled to continue to “grow that economy” and “develop”, we tend to accept the consequential white-anting of those rare remnants of sustaining eco-system that goes with it. We carve up ecosystems fragmenting them. With our offset horse-trading of ecosystems and stripping of ecosystems to their artificial legal thresholds, we weaken the structure without obvious outward evidence of damage until it eventually completely collapses.

At what stage the viability of a sustaining habitat is irreparably compromised is of course difficult to determine. A recent “Back on Track” workshop by the Fitzroy Basin Association in Rockhampton (7-8 June 2007) proved that for many species we have already crossed that threshold. We are facing a dreadful
environmental "Sophie's Choice". The workshop initiative aimed to prioritise at-risk species so that the limited funds available are applied as best we can for the preservation of those species. Many of the “protection” programs are reduced to mere monitoring functions, while in some cases endangered species are abandoned entirely. It is ironic that for one of the endangered species discussed, the principal threat identified was “council activity” because the last known occurrence of the species was on road easements. All of it’s habitat otherwise destroyed for the sake of development.

I quote from the EIS, the proponents’ position regarding Black Breasted Button Quail present on Hummock Hill Island, PAGE 14, PAGE 21-3, PAGE 14-37, PAGE 4-34:

- Black Breasted Button Quail “is the most significant vertebrate species known from the Island”
- “Habitat for these species is outside the special lease and development area”
- “The Island does provide limited habitat for species of conservation significance (such as the Black Breasted Button Quail), however essential habitat for these species (such as littoral vine forest) is outside the development footprint and a vegetation buffer is located between the development and habitat for these species. Queensland Herbarium have noted that the region (and Island) does not have a high level of biodiversity in comparison to areas such as the Whitsunday Coast and Wet Tropics area. Those areas of the Island with higher conservation significance, particularly the coastal zone and endangered regional ecosystems are not directly or indirectly affected by the development, hence, whether or not the project proceeds does not affect the ongoing conservation value of these areas.”

Comment:
The Black Breasted Button Quail’s significance derives from the fact that we have driven it towards extinction; it otherwise has no iconic attributes the average Australian sympathises with. Sightings are rare; there are after all not many of them left. Its sighting on the island is therefore quite significant.

Evidence of it’s characteristic “platelets” left behind when foraging, may well have been outside the proponent’s intended zone of disturbance, but where it feeds is sure to be different, to where it roosts, lives, mates, migrates. These birds are known to occur on neighbouring Wild Cattle Island and further north-west at the Lilies (Birds Australia ongoing Atlas of Australian Birds). Whether this forms part of their foraging range, mating range or whether specimens observed are discrete individuals or part of isolated communities is not known. The extent and significance of the Hummock Hill Island habitat has not been defined. Habitat for Black Breasted Button Quail is limited and as such mitigation through offset would not be feasible and an attempt to do so is morally questionable. While far from pristine, as the proponents are keen to point out, the island does provide habitat.

Feral cats and dogs are an ongoing risk, but ultimately it is an island and when it comes to defending species from extinction, island refuges have been found to be our best hope at being able to isolate endangered species from predation. It may well prove to be a corner stone for the preservation of this species in the near future. National Park protection status caters for this, where on the other hand urbanisation will no doubt bring cats and dogs and pose a clear and obvious increased risk to the Black Breasted Button Quail.

The reductionist approach of buffering identified “essential” habitat fails to take into account the effects of habitat fragmentation. As we carve up the regional ecosystems we risk their ability to sustain the species that depend on them. Don’t forget, we can reduce habitat to a cage. Many endangered species now only exist by the dedication of volunteers and committed servants within the Environmental Protection Agency and Queensland Parks and Wildlife Service, propping up eco-systems that have lost their ability to sustain those species any longer, a cost not recognised by the proponents in the EIS. The provision of migration corridors has no demonstrated scientific basis, particularly when it comes to Black Breasted Button Quail.

Irrespective of the rank we give it, biodiversity on and around the island exists and Black Breasted Button Quail is part of it. No matter how you do it, when you remove remnant vegetation to build hotels, golf courses, and residential dwellings at the scale proposed, and introduce 2300 tourists and 1600 residents, it
will have a profound effect on the whole ecology of the island and surrounding waters. To suggest otherwise is misleading. We should not be confused by labels such as eco-efficiency, eco-home or “environmentally sustainable infrastructure” as a substitute for our obligation to protect our environment.

**Quote PAGE 21:**
“The proposal will involve the loss of approximately 341ha of remnant vegetation (within the meaning of the Queensland Vegetation Management Act 1999), comprising eleven regional ecosystems listed as “endangered”, “of concern” and “not of concern”. These areas contain mapped essential habitat for the Koala and Wallum Froglet, although both species have not been found on the Island, and the mapping is considered questionable.”

**Comment:**

1) Was a search instigated specifically to find Wallum frogs? Were the investigators there at the right time of the year? Was this potential habitat considered in context with the known distribution of this frog? Do we indeed know the extent of its occurrence or its habits? The proponents seemed to have relied on a description of known association with “critical microhabitat” and those they say are not on the island. But did they look for them? The scientific uncertainty requires us to adopt a precautionary approach.

2) Per definition “endangered” is already in breach of our international commitment to preserving biodiversity.

3) “Questionable” mapping implies scientific uncertainty; hence we should adopt a precautionary approach.

4) The proponent suggests a loss of 340 ha, the “footprint”. They ignore the wider impact of fragmentation of the 12 km² site and the threat posed to the island ecology as a whole.

5) If we include fire breaks, road easements, sewer easements, power and gas line easements, boat ramp parking lots, beach access, illicit and unintended community impacts, invasion by non indigenous flora and fauna, fire-management and uncontrolled fires, habitat fragmentation, externalities etc. The actual ecological footprint is grossly understated.

6) The proponents’ responsive master planned design meticulously traces the boundaries delineated by what is claimed to be “questionable mapping”. It seems to swallow up the “green” areas and avoids the dreaded “pink”

7) Of course what this approach gets wrong is that they need to respond to the ecosystem, not the legislative artefacts of our environmental protection laws.

8) “pink” means less than 10% of a vegetation type remains. Under the VMA we label it “endangered”, whether it is or not, based on a scientific understanding of the ecosystem in its regional context. 10% is an arbitrary threshold, proposed by ecologists and other scientist to achieve a global agreement for the preservation of biodiversity. We only need to look at our own government’s behaviour towards Kyoto to recognise that it would have had to have been a very conservative number indeed to be sufficiently palatable to have a chance of wide acceptance.

9) Where ecosystem type is “of concern” it has been reduced to less than 30%. Note the proponents’ mitigation approach is to “acquire” equivalent habitat elsewhere and provide protection via covenant of some sort. But if it is of concern here, it will be of concern there as well. The proponents do not give an analysis of the status of the vegetation types and how their action, even in their limited view, will affect the classifications. All we know is that the areas are classified cleared, <10%, 10%-30% or >30%. Are the areas the proponents wish to clear 11% or 29% of the original ecosystem? Their action could well push the classification over the 10% legislative threshold. Are these boundaries in fact scientifically significant when it comes to evaluating the Hummock Hill Island and wider Colosseum Inlet ecosystem?

10) Offset mitigation is by no means a proven concept. While it does have a place in the scheme of Biodiversity preservation it must only be considered in the most extreme circumstances. E.g. a
unique stand of vegetation was to be inundated by the raising of Awoonga dam. This was recognised in the EIS of the dam project. Mitigating strategy was to be achieved by offset arrangement. No equivalent habitat existed and “regeneration” of the habitat in an alternate location was adopted. Feedback from GAWB is that the detail of the arrangement is undocumented. Public review of the implementation of this offset mechanism has proven impossible. Concerns exist within the EPA about the efficacy of this particular arrangement. There is an obvious lack of transparency and accountability and that we can ill afford when it comes to Hummock Hill Island’s unique vegetation ecologies within environmentally sensitive areas. The proponents do not provide a scientific evaluation of the effectiveness of the offset mechanisms under the Act let alone linking it to scientific evaluation of the offset schemes in existence. If they wish to adopt a scheme to offset or mitigate the risk of the environmental harm that their action poses, they have an obligation to demonstrate the viability of those schemes in scientific/ecological terms. In that the EIS fails.

11) Where vegetation types have been mapped as “not of concern” the proponents seem to have given themselves a moral licence to go for it. These “green” areas represent the least fragmented systems, the healthiest of what is left. It should not be interpreted as a green light for clearing. We need to shift our paradigm and relabel these areas “best remnant ecosystems” rather than being of no concern.

12) We should not accept incremental loss of ecosystems because they are already damaged goods nor deny those damaged ecosystems an opportunity to recover.
Below is a segment of the vegetation types mapped on Hummock Hill Island.
*(Regional Ecosystem Map requested 31 May 2007 for Coordinates Latitude -24 Longitude 151.4)*

As “questionable” as it may be, it is the best we have and a credit to the authorities who have been able to produce it within their funding constraints.

Again four broad classifications apply:

1. Non Remnant cleared
2. Remnant endangered <10% of pre-clearing extent remains *(pink)*
3. Remnant of concern 10-30% of pre-clearing extent remains *(mustard)*
4. Remnant not of concern >30% of pre-clearing extent remains *(green)*

Note that the pink areas represent less than 10% of that ecosystem type within the bioregion and as such are already in breach of our international obligations. The brown/mustard areas are perilously close.

White areas within the pink areas on Hummock Hill Island, if given time could recover, fading the scars on our national dignity. Who knows, it may even result in all of the pink area on Hummock Hill Island being reclassified as “of concern” rather than in breach of international obligation.

Each vegetation type numbered on the above map can be referenced through the EPA website.
I have reproduced this information for the ecosystems as they are mapped on Hummock Hill Island and highlighted aspects of environmental preservation significance warranting their protection, either in their own right or by association with rare or endangered species.

12.1.1 **Of concern**, Casuarina glauca open forest on margins of marine clay plains, Provides estuarine wetland habitat. Subject to weed invasion, especially groundsel (Baccharis halimifolia). Patches often too small to map at 1:100 000.

12.1.2, 12.1.3 Not of concern, Salt pan vegetation including grassland and herbland on marine clay plains, Mangrove shrubland to low closed forest on marine clay plains and estuaries, **Habitat for water mouse Xeromys myoides** in southern part of the bioregion particularly in areas immediately adjacent to mangroves, 12.1.3. ([Van Dyck & Gynther, 1996, 2003]).

12.2.2 **Of concern**, Microphyll/notophyll vine forest on beach ridges, **Habitat for rare and threatened flora species including Acanthus amplexicaulis, Alyxia sharpei, Xylosma ovatum, Dansiea elliptica and Acronychia littoralis.** Continues to be threatened by clearing for coastal residential development. Also subject to extensive weed invasion over 90% of its pre-clear distribution (Rivina humilis, Passiflora suberosa, Lantana camara, Catharanthus roseus, Panicum maximum, Asparagus spp., Salvia spp.) and localised human disturbance from recreational and vehicle tracks. Often associated with RE 12.2.11. Patches often too small to map at 1:100 000 scale. This applies to most of HHI.

12.2.11 Not of concern, Corymbia spp., Eucalyptus spp., Acacia spp. open forest to low closed forest on beach ridges in northern half of bioregion, Often **associated with RE 12.2.2,** in patches often too small to map at 1:100 000 scale.

12.2.14 Not of concern, Foredune complex,

Comment: Foredune complexes are sensitive to wind erosion particularly where disturbance has occurred. Tannum Boyne Coastcare is involved with revegetation of such affected systems in Tannum Sands. Very dramatic erosion has occurred of the foredunes along the beaches of Agnes Waters due to illicit clearing. The proponents seek to reduce erosion sensitive buffering [PAGE 9-15], ignoring their own consultant’s recommendation. There are good reasons to be cautious when developers claim concerns for environmental issues as environmental degradation by the hands of developers seems to be endemic in our region. (Attachment 1, “How we develop”)

12.3.3 12.3.3a 12.3.3b 12.3.3c **Endangered**, Eucalyptus tereticornis woodland to open forest on alluvial plains, **Habitat for rare and threatened flora species including occasional Stemmacantha australis,** Sub-coastal and inland parts of bioregion. Also occurs in coastal areas north of Bundaberg. While Eucalyptus tereticornis remains common in the landscape, very few intact stands remain. Eucalyptus tereticornis grows into a very large hollow-forming tree and has a special significance for fauna species, especially in drier areas. The type is variable, ranging from woodland in drier parts to tall open forest in higher rainfall areas and mono-specific to intermixed with other canopy species. Eucalyptus tereticornis will regenerate readily but there is a lack of recruitment to replace old trees in stands that are logged, thinned or grazed and regularly burnt. The grasses and herbs associated with intact Eucalyptus tereticornis communities also persist in the landscape, so there is a potential for re-establishing the RE and increasing its remnant area. Eucalyptus tereticornis is replaced by E. grandis in highest-rainfall parts of the bioregion. 12.3.3a: Too small to map at 1:100 000 scale. 12.3.3c: This floristic association on land zone 9-10 is mapped as 12.9-10.11.

12.3.6 Not of concern, Melaleuca quinquenervia, Eucalyptus tereticornis, Lophostemon suaveolens woodland on coastal alluvial plains, Provides **wetland habitat for a range of flora and fauna including Crinia tinnula**

12.3.10 **Endangered**, Eucalyptus populnea woodland on alluvial plains, Eucalyptus populnea is one of the species characteristics of the broad overlap between the Southeast Queensland and Brigalow Belt bioregions. Confined to western margins of bioregion. Cleared and thinned for grazing and agriculture. Some relatively intact remnants present in road reserves.

Comment: Note that the vegetation type 12.3.10 associated with the geology of the island is unique and does not exist anywhere else in this form. Mitigation by offset would not be possible. Even low level or
proximal disturbance could have unforeseen consequences for this unique stand of poplar box. To suggest that avoidance of sensitive areas through responsive design constitutes appropriate mitigation is only valid if the functioning of the overall eco-system is taken into account. There is a clear lack of scientific certainty that the proponents proposed action will not result in irreversible harm to this ecosystem.

12.12.7 Not of concern, Eucalyptus crebra woodland on Mesozoic to Proterozoic igneous rocks. **Habitat for rare and threatened flora species including Acacia grandifolia.**

Quote PAGE 14-201: “Habitat for rare and threatened flora species including Acacia grandifolia. This species has not been observed on Hummock Hill”

Comment: While noted that A. grandifolia has not been observed, it is not clear if a search was specifically conducted for this species. A. grandifolia is just one of the rare and threatened species we could find in this type of woodland. Acacias are common to this kind of woodland. Of particular interest would have been a search for Acacia falciformis. Almost all sightings of Paradelma orientalis on Boyne Island have been associated with the coarse bark of this tree and then only at very specific times of the year. Given the relative proximity of prospective vegetation types and loss of its habitat on Boyne Island, a search specifically for this endangered species is warranted. I recommend Stephen Peck of the EPA for the job. There is a good chance P. orientalis actually exists on the Island and in the absence of the full scientific certainty it compels us to be cautious. The island location affords the best chance of preserving endangered species from predation and this would be a sensible reason to afford the island National Park status.

12.12.12 Of concern. Eucalyptus tereticornis, E. crebra or E. siderophloia, Lophostemon suaveolens open forest on granite,

12.12.28 Of concern. Eucalyptus moluccana open forest on Mesozoic to Proterozoic igneous rocks, Data on clearing rate between 1995 and 1997 indicates that the RE continues to experience an annual loss in excess of 1% of current extent per year. The area remaining is likely to fall below 30% within 5-10 years.

These ecosystems interact and depend on each other in ways we do not fully understand, particularly in this island setting on decomposed granitic soils. Again, in the absence of a sound scientific basis to our understanding of the interdependencies of the specific ecosystems affected by the proponents’ proposed action, there are no guarantees that these endangered ecosystems will not suffer irreparable harm. Incomplete, generic or future management plans are speculative and do not adequately qualify as mitigating measures for the proposed modification to these very specific ecosystems under threat.

The fact that the EPA’s protected matters search tool does not capture or reflect all environmental values we know from and around Hummock Hill Island, serves to demonstrate the lack of full scientific certainty. e.g. Turnix melanogaster — Black-breasted Button-quail, listed as vulnerable under the EPBC Act and Numenius madagascariensis — Eastern Curlew a listed migratory species under Bonn, CAMBA, JAMBA.

International migratory species including those listed as endangered depend on feeding sufficiently to build up reserves that will enable them to cover very significant distances. Any disruption in their feeding patterns could have serious adverse consequences. “The Island is a part of the east Australia flyway for migratory shorebirds, and extensive marine habitats on the landward side of the Island are significant in this regard.”

How on earth the proponents can suggest: “Aircraft movements are anticipated to be less than 6 flights per day and will pose minimal risk to birds on the island” is beyond me. The introduction of 2300 tourists and 1600 residents enjoying “arguably the best beaches between 1770 and the Capricorn Coast” with their dogs chasing tennis balls and seagulls, does not conjure up images of a “Natural environment protected and enhanced so that areas and features of conservation significance are retained and the human population can enjoy living in close proximity to, and in harmony with, the natural ecosystems of the Island and surrounding waters”
The proponents then also pose contradictory arguments in:

- “The proposed development is not proximate to any significant areas of migratory shorebird habitat. As such a significant increase in the level of threat posed from construction, habitat loss, domestic animals, human interference, ongoing noise and lighting is not expected”
- “Hummock Hill Island does not provide extensive wader bird habitat, but does offer habitat to a limited range of listed migratory species”
- “Minimal disturbance to marine/tidal habitats, known to be of importance to both local and migratory shorebirds and potentially the Water Mouse;”

The word negligible is used with disturbing frequency to describe environmental impact throughout the EIS. It would have been prudent to quantify the impacts rather than neglect it. This is particularly important where proposed management practices have no action recorded against “negligible” or “minor” impacts.

The qualifier “where possible” to describe mitigating management practices has also been used with unacceptable frequency. It implies discretionary application of the proposed mechanism. As such it gives no guarantee of negating environmental harm. It highlights uncertainty of the environmental impacts and requisite mitigation steps. The level of uncertainty is unacceptable and a precautionary approach should be adopted.

**World Heritage, our children’s heritage**

_Quote PAGE 13, PAGE 21-2:_

“The Great Barrier Reef WHA has been included on the World Heritage List on the basis of meeting four criteria. The Island contains some features that may be considered aligned with the listing criteria as summarised below:”

Comment: The proponents question the basis of Hummock Hill Island’s inclusion in the World Heritage listing. I profoundly disagree with their interpretation of the area’s alignment with WHA criteria. Not only because of the subjective basis of the assessment but more importantly the profoundly inadequate appreciation of the environmental values reflected in the EIS. Some important features have been overlooked and in many cases marginalised. The fact is Hummock Hill Island and the waters around the Island are part of the Great Barrier Reef World Heritage area. The surrounding waters are listed Dugong and Fish Habitat. The beaches of Hummock Hill Island are frequented by nesting sea turtles and endangered fauna occurs on the Island all protected under the EPBC Act. The Island’s beaches and sand flats are part of the East Australia flyway for migratory shorebirds covered under Bonn, CAMBA, JAMBA. This should not be marginalised when considering our heritage areas. Hummock Hill Island is part of the wider Colosseum inlet ecosystem and is recognised as being of state significance. It is recognised as having high environmental values on coastal planning schemes.

_Quote PAGE 13, PAGE 21-2:_

1) An outstanding example of a major stage of the earth’s evolutionary history;
- Fringing reefs are absent from the Island together with major evolutionary geological processes or evolutionary history that have isolated unique flora and fauna from mainland populations. The proposed development will not impact the WHA listing under this criterion.

Comment: The significance of “fringing” in the above context is not clear. Important coral reef systems exist within meters of the north beach. (Alquezar, Boyd, Bunce: “Coral mapping pilot study” CQU May, 2007) Are the proponents trying to create an impression of an overall absence of coral reefs? Subjectively we can ascribe a level of significance to these coral reefs, even fail to mention them because they are perhaps incompatible with the proponents’ development objectives, preferring to consider them not outstanding enough to mention in the context of WHA listing. None the less, within the context of this bio-region they are unique. For the record I include some personal photographs below, examples of the coral reef present just tens of meters from the proponents’ intended development.
Coral reef photographed 6th January 2008  23°59'34"S  151°28'22"E

- They are very healthy
- They are exceptionally close to the main land
- Warm-water hard corals dominate whereas further south colder water soft corals become prevalent, this is a transition zone. It allows us to study the boundary conditions of the Great Barrier Reef itself with respect of a) main-land influences b) extent of coral viability c) effects of climate change and global warming.
- They are a marker and health indicator for the environment, an important canary for the industrial heartland of Queensland.

To suggest major evolutionary geological processes are absent is incorrect. We can of course debate the semantics of “major” here; instead I would like to focus on the geology and geomorphology. The island displays acid igneous outcrops. These are part of a larger plutonic intrusion complex (mapped Miriam Vale Granodiorite of Permian age). The whole of Colosseum inlet is uniquely shaped by the Miriam Vale Granodiorite. Nowhere else on the Central Queensland coast do we find estuarine ecosystems associated with encompassing granitic substrates. Siliceous sand resulting from the weathering of these granites has shaped the land. There has been a history of gold mining associated with this intrusion pointing at cultural
and historic significance. Sands have been mined within the region for their suitability in a number of applications and we know that sought-after minerals derived from this rock are trapped within the dunes and beaches of the islands. The EIS consultant’s report on the geology states that the Island’s outcrops are different to the main granodiorite intrusion with evidence of differential cooling. The lithology of pegmatites on the island is unique. It can teach us a lot about the genesis of the whole intrusive complex. The ridge that so prominently features on the island has provided a structure that has allowed a sand mass to build up to the north-west resulting in the second largest sand island after Fraser Island, Wild Cattle Island National Park. The sand mass west, on the leeward side of the ridge on Hummock Hill Island, forms part of the same formation as Wild Cattle Island. These sandy islands and the regulated release of fresh water from their phreatic aquifers is increasingly recognised as playing a significant role in the ecology of the near shore environment including the health of seagrass beds which sustain sea turtles and dugong. These features have been overlooked in the EIS. The image below was photographed centrally off the main foreshore development proposal of the western precincts, a few hundred meters off shore.

Seagrass photographed 6th January 2008  23°59’39”S  151°27’31”E
This seagrass is not acknowledged in the EIS, but is within the Dugong protection area.

The waters around Hummock Hill Island are part of the Great Barrier Reef World Heritage area; these waters are also a refuge for Dugong. “The dugong (Dugong dugon) is the only herbivorous mammal that is strictly marine, and is the only extant species in the Family Dugongidae. It is listed as vulnerable to extinction at a global scale by The World Conservation Union (IUCN)” (http://www.tesag.jcu.edu.au/dugong/doc/dugongactplan.pdf)

Contrary to the proponents’ statement, rare fauna does exist in association with Hummock Hill Island. Not only does the EIS fail to recognise this, it consequently fails to recognise the inherent risk of the proponent’s proposed action to the Dugong habitat. The United Nations Environment Programme’s Dugong action plan lists threats in Queensland being due to coastal development, fishing and dredging e.g. such as for the Port for Gladstone.

“Seagrass-Watch is the largest scientific, non-destructive, seagrass assessment and monitoring program in the world. Since it’s genesis in 1998 in Australia, Seagrass-Watch has now expanded internationally to 18 countries. Monitoring is
James Cook University has designed the scientific methodology for the seagrass monitoring along our coast. The monitoring programme is executed by a number of volunteer groups. One such group, The Great Sandy Strait Fauna and Flora Watch presented some of its data at a Coastal Forum held at the Boyne Island environmental centre. The data shows the undeniable degradation potential of seagrass-beds.

I present a summary of the data with Gordon’s kind permission. The team have monitored 33 quadrats at this site, recording the amount and types of seagrass present in each quadrat. The total amount of cover is categorised into one of five categories and is represented in the graph below. The data set covers three years of monitoring and shows an alarming loss of seagrass from this site.

Poona Seagrass Watch Site PN2

*Effect of development on seagrass in dugong protection area*

Chronology comments:
Poona development clearing late 2003 - early 2004
Natural creek diverted, storm-water drains onto beach
Building construction, gardens, lawns, fertilizer etc. June-July 2005
*Survey data by Wayne, Glyn, Bill Alston, Anne, robyn, Sue, Gordon*

The proximity to and synchrony with development activities at the Poona community and lack of such degradation at other monitoring sites in the Great Sandy Strait, is suggestive of a causal relationship. As a matter of fact the monitoring team makes the inference unequivocally. The detailed mechanisms that led to the degradation are uncertain. The scientific uncertainty makes any inferred mitigation measures here at Hummock Hill speculative. We need to be cautious.

The waters around Hummock Hill Island are part of the Great Barrier Reef World Heritage area, they are recognised fish nurseries. Funding levels have not enabled the appropriate authorities to adequately study the complex interaction between this island within fish/dugong habitat and the Great Barrier Reef as a whole. Recreational fishing groups have been conducting monitoring programs e.g. CapReef, and have recorded significant declines in fish catches by recreational fishermen in the wider Capricorn region. There
has been a dramatic increase of boat licences issued in the last few years in Gladstone. There is a lack of scientific knowledge about the specifics of the greater Colosseum inlet ecosystem. Increased recreational boating and the associated unintended impacts pose an increased risk to the ecosystem. It can be reasonably foreseen that the proposed action will impact on the WHA listing. There is a strong case to adopt a precautionary approach.

**Quote PAGE 13, PAGE 21-3:**

2) An outstanding example representing significant ongoing geological processes, biological evolution and mans interaction with his natural environment;

- In general, features listed under this criterion have limited representation on the Island in the context of the sub-region and/or entire WHA. Surrounding waters do contain features listed under this criterion, such as mangroves and seagrass meadows, the latter being habitat for dugong and turtles. Impact to these features from the proposed development and human interaction are minimal and do not impact the overall WHA values.

Comment: The proponents’ proposal for two boat ramps, one of them associated with a marine centre clearly signifies intent to promote human interaction with the marine ecosystems of Hummock Hill Island. Boating already presents a danger to Dugong and sea-turtles within the Dugong protection area. The integrity of the Dugong protection areas in Gladstone harbour has been compromised with recent shipping incidents including a substantial oil spill, port traffic and wharf expansion plans etc. The Hummock Hill Island segment of the Dugong habitat represents a relatively undisturbed area, and this could be significant for breeding and calving. Fragmentation of coastal marine species habitat is already implicated in compromising of the genetic stock of some of these species. Increasing disturbance of this area could well have unforeseen consequences for the Dugong by complicating communication between the southern extent of the species in the Great Sand Strait and the main extent of the species’ occurrence north. It is very likely that the proponents’ action will impact on WHA values.

**Quote PAGE 14, PAGE 21-3:**

3) Contain unique, rare and superlative natural phenomena, formations and features and areas of exceptional natural beauty;

- In general, unique, rare and superlative natural phenomena listed under this criterion are not represented on the Island in the context of the sub-region and/or entire WHA. In comparison to other areas in the WHA such as the Whitsunday region or Great Keppel Island, Hummock Hill would not be considered “superlative”. Adjacent waters contain mangroves systems and habitat for dugong and turtles that will have minimal impact from the proposed development following management and mitigation measures; and

Comment: The proponents make the point that “the region (and Island) does not have a high level of biodiversity in comparison to areas such as the Whitsunday Coast and Wet Tropics area”. Once again, I can only guess at the intent of raising this observation. Does the existence of St Peters Basilica or St Pauls Cathedral in Melbourne diminish the significance of St Peters in Rockhampton? The proponents fail to observe the environmental significance of the local context of Hummock Hill Island shown on the Curtis Coast Regional Coastal Management Plan and as adopted by Calliope Shire council (http://www.epa.qld.gov.au/register/p00528ox.pdf) viz. proximity to significant coastal wetlands, sand dunes and endangered regional ecosystems of state significance. Concurrently Hummock Hill Island has been assessed as being of “High Environmental Value” by the Burnett Mary Regional Group who is in the process of documenting regional management plans, also missing from the EIS (http://www.bmgr.org.au/downloads/Draft_High_Ecological_Values__Rosedale_Workshop.pdf)

I live in the region and visit the Hummock Hill Island area on a regular basis; to me it is an area of exceptional beauty. To outsiders with intent to profit from it, who don’t really know it, it may well seem less significant.
The semantic use of qualifiers is too often used in the EIS document to infer reduced importance to the environmental values of the area. What is meant by superlative, outstanding, unique, major or significant? Outstanding = more than 3 standard deviations removed from the mean? Major = affects more than 51% Unique = the last Quail? Significant = the last 10% of our ecosystems? Superlative = the one on top?

In the context of World Heritage values they are strictly emotional, it links to our humanity. To try and reduce it in legal terms misses the point. The proponents recognise the fact that people pay more money for ocean views and hence they target development by the sea. What they don’t distil from this observation is the value of the natural beauty itself, the emotional “human” bit. To claim “minimal or no impact” is a logical consequence of their profitability induced blindness.

Quote PAGE 13, PAGE 21-3:

4) Provide habitats where populations of rare and endangered species of plants and animals still survive.
   - In general features listed under this criterion have limited representation on the Island in the context of the sub-region and/or entire WHA. Mangroves and seagrass meadows are present in adjacent estuarine and marine waters. Species of conservation significance that have representative habitat on the island and/or adjacent waters include the black breasted button quail, dugong and marine turtles. Habitat for these species is outside the special lease and development area. Mitigation and management measures proposed for these species will minimise impacts to the WHV.

Comment: The proponents acknowledge the presence of black breasted button quail, dugong and marine turtles and claim Mitigation and management measures proposed for these species will minimise impacts without demonstrating the scientific detail of the occurrence of these species within the area or demonstrating adequate scientific expression of the ecosystems of Hummock Hill Island and the surrounding area. Mitigation and management measures proposed are generic and lack detail. The detail of the proponents’ proposed action is missing, to be developed in the future and in some cases where presented clearly unworkable. To suggest that they will minimise impacts to the WHV is extraordinary.
Quote: “Historically the Island was overlooked when National Parks and Conservation Areas were created in the region due to the lesser conservation value of the Island compared with nearby areas”

Comment:

1) Reference is made at least 8 times in the EIS to “lower conservation value” of Hummock Hill Island; the proponents obviously don’t want us to miss this.

2) All eight derive from a single source: Briefing notes referring to the early 1980’s where compromises were negotiated to progress mineral exploration and mining.

3) Since then society’s norms have changed e.g. sand mining of our coastal areas is regarded unacceptable now.

4) Since the early 80’s more than 100,000 km² of remnant woodland has been cleared in Queensland, which is more than 10% of the original pre-clearing extent. Perspectives change as unspoilt remnants become rarer.

5) Less than 4% of Queensland is covered by formal protection such as National Parks or designated Conservation Areas, well below our commitment under the Biodiversity Convention.

6) High environmental value of the area is recognised by the Burnet Mary Regional Group in the development of the Wide Bay Burnett Regional Coastal Management Plan and by Calliope Shire’s planning scheme, but ignored in the EIS.

7) We have an international obligation to increase the level of protection of our ecosystem types; there is no need for compromise any longer.

8) Instead of weakening the perimeter of our World Heritage Areas we should strengthen it; Hummock Hill Island should be given National Park protection.

The reasons not to develop Hummock Hill Island are clear.
Part 2  Limitations and superficiality of the supporting material

Quote PAGE 3-59: “Concentrated brine (850 KL/day) will be discharged to a series of evaporation ponds located adjacent to the desalination plant as shown on Figure 3.6. The concentrated solution water will be naturally evaporated leaving a residue of crude sea salt which requires intermittent removal. The required area of each evaporation pond would be approximately 6,000 m2 or approximately 80m x 80m. By utilising the natural evaporation pond there is no requirement for discharge of concentrate back into the estuary or the ocean. Sea salt collected from the evaporation ponds may be disposed of at landfill, and will also be suitable for commercial processing if a suitable arrangement can be made with a commercial salt manufacturer. Evaporation ponds will be lined to prevent leaching of saline concentrate to groundwater or leakage to surface waters. The ponds will be designed to contain rainfall events up to the Q100 event (approx. 13 mm). If salinity levels in the ponds are equal to or less than seawater due to dilution by rainwater, the water will be released to Boyne Channel via a release point as shown on Figure 3.13.”

Analysis:

1) 850 kl/day brine equates to 850 m³/day. The proposed evaporative surface is 18500 m²
2) To evaporate this volume we need 850/18500=0.043m/day net evaporation, which is 43 mm/day.
3) Quote: “The Gladstone Radar evaporation data shows that 95% of the time the summer monthly evaporation rates will be between approximately 150 mm and 250 mm – approximately double the winter evaporation rates” So local evaporation rate is 3-8 mm/day
4) Based on the quoted monthly figures in the EIS, worst case scenario will need a 600 m x 600 m evaporative surface and best case 300 m x 300 m area, but that’s if it never rains.
5) Precipitation is roughly 50 mm/month in winter and 100 mm/month in summer, evaporation exceeds precipitation, so we can still make salt but we need at least double the surface area again.
6) If we take into account rainfall variation, periods where precipitation exceeds evaporation are likely. The consequent management of evaporative lakes is going to be complex and the number and sizes proposed appear grossly underestimated.
7) 500 kl/day for 2300 tourists and 1600 residents equates to a 128 l/person/day supplemental water provision, this is less than Brisbane at their most stringent Level 6 restrictions. It appears discordant with a lush tropical, high quality resort.
8) 500 kl/day via MVC will generate 2.7 t/day or 1000 t.p.a. CO₂ pollution.
9) 850 kl/day brine + 500 kl/day water equates to 1350 kl/day seawater feed per day, that is 1350 tonnes of water will need to be pumped uphill every day, more energy, more CO₂ pollution.
10) 1350 kl/day seawater at 3.4 % contains 46 tons of salt. 46 t per day, and they want to landfill this? Where?
11) Pond designed to “Q100 rainfall event of approximately 13 mm” is of concern when the Rosedale Post Office rain-station within 60 km of Hummock Hill Island has recorded 2450 days with rainfall greater than 13mm over the last 100 years. More than 24 events per year >13 mm.
12) While the erroneous application of data is not good, of greater significance is the proponents’ demonstrated lack of an appreciation of the orders of magnitude of environmental impact associated with their proposed action.
Cardno 2007, do a feasibility investigation for water supply to the proposed development, estimating water usage of 589 l/household/day. The feasibility investigation makes no mention of pools while the proponents cater explicitly for them in residential precincts. They confirm appropriateness of water allocation by comparison with Agnes Water and Town of 1770 allocation of 440 l/household/day. Agnes Water and Town of 1770 can hardly be considered an appropriate model for responsible water infrastructure planning. The proponents offer “22 kL tank for the Village Townhouses and Seaside Cottages, whilst a 45 kL tank has been considered for low density residential properties. These tanks provide a reliable yield of approximately 120 L/day and 215 L/day respectively”, but do not appear to link this statement to expected rainfall patterns or roof catchment size, no data is presented. The proponents’ state “Tanks of this size are typically installed underground” Tanks of these sizes need to be of robust construction designed specifically for underground use and are considerably more expensive than conventional above ground tanks. In this region underground rainwater tanks are definitely the exception rather than the norm.

No doubt there are still a few tenacious climate change sceptics out there, and the extent of negligent procrastination of our decision making instruments of government to incorporate even the possibility of the effects predicted by scientists, is yet to soak in. I have invested in some data, yet another bit of data hinting at the climate change reality. (039084:ROSEDALE POST OFFICE, ftp://ftp.bom.gov.au/anon/home/ncc/www/rainfall/totals/daily/data/history/nat/)

It is an analysis of the annual rainfall data from the Rosedale Post Office weather station; it is within 40 km of the Awoonga dam catchment and within 60 km of Hummock Hill Island.

The declining trend is undeniable. While statistically significant in this data set, it is data from just one weather station and offers no degrees of freedom as a statistical predictor. It would have been prudent for the proponents to at least have considered rainfall patterns of the nearest 8 weather stations.

Analysis: The utility of rain water tanks as a reliable water supply for residential purposes can only be assessed by looking at daily rainfall patterns, tank storage capacity, roof area catchment and typical domestic usage rates. Domestic use by average households in the Tannum/Boyne area is close to 800 l/day, about 30% higher than Cardno’s estimate. Using the Rosedale Post Office daily rainfall figures between 1897 and 2006 as an approximation for Hummock Hill Island, a number of scenarios can be calculated. The graph below reflects the amount of time the
storage tanks would have been empty during the 1897-2006 period had a rainwater system been relied on to supply 800 l/day. A typical family home with a very large 8m diameter storage tank ~ 100 kl capacity would have been without water for 20% of the time. Note that the largest tank that is commonly transportable without special oversize provisions is 25 kl (4m diameter). The 22 kl (~2.7m diam.) and 45 kl (~5.2 m diam.) suggested would have been empty more than 45% and 35% of the time respectively, those households being 100% reliant on supplemental water during those times.

**Rainwater storage reservoir failure**
*Based on daily rainfall data 1897 - 2006 (Rosedale Post Office)*

With the proponents preferred option for desalination being questionable and the harvesting of rain water very likely to be restricted. It leaves the inevitable option of piping water in from GAWB resources i.e. Awoonga dam.

“Currently industry uses approximately 75% of water from the dam. To meet current and future projected demands, the Gladstone Area Water Board raised the level of the Awoonga dam wall 10 metres, increasing its capacity from 283,000 ML to 777,000 ML and its Historical No Failure Yield (HNFY) from 49,400 ML/yr to approximately 80,000 ML/yr.” ([http://www.gawb.qld.gov.au/images/graphs/lakelevel191207yearly.jpg](http://www.gawb.qld.gov.au/images/graphs/lakelevel191207yearly.jpg))

**Lake Awoonga Dam Level and Rainfall Data**
*December 2006 - December 2007*
Continuation of the dam level trend will see reservoir failure within 3 or so years. Water restrictions will not help much given that most of the water here is used by industry. We will need to shut down industry before then.

Predictions of long term reservoir capacity rely on statistical models that use historic rainfall data. It assumes normalcy in rainfall patterns i.e. stochastic behaviour. Factoring in estimates such as the Hurst phenomenon can improve the robustness of the prediction models but relies on the precision of the Hurst factor which requires long term data, typically 100’s of years, which we haven’t got, so reliance on predictive models needs to be taken with due care. On the bright side; the probability of a cyclone event, like the one that raised dam levels last time, is much higher under changed climate conditions.

Awoonga dam as it stands will not secure water for Queensland’s industrial heartland and government kneejerk reaction is predictable. Environmental values will again be set aside for the net benefit of the state.

Construction of the Fitzroy pipeline is the most likely outcome. But how will we deal with the social impact of having to “sell” the pipeline to the irrigators along the Fitzroy River who have been denied pumping quotas on environmental grounds? Is Anna going to politically mitigate and dredge Port Alma to throw them a prosperity bone? Do we now loose the Yellow Chat for the perceived net benefit of the state?

The proponents factor in economic multipliers for externalities. The EIS does not factor in externalities for either environmental or social costs.

**Quote PAGE 4-33:** “Solar power generation through photovoltaic cells is currently not an effective, efficient or economic solution for supply of electricity on the Island. However from 1 March 2006 all new homes built in Queensland are required to install energy efficient hot water systems (solar, gas or electric heat pump) and use energy efficient lighting for at least 40 percent of internal floor space. All residences in the proposed development will be required to install solar hot water systems reducing electrical power demands.”

**Analysis:**
1) The proponents claim to have investigated Solar/photovoltaic cell arrays as a potential source of power; the above quote is the net result of these investigations offered in the EIS.
2) Local insolation provides 18 Mega joules/m² or 5 kWh/day/m²
3) Commercially available PV panels will here comfortably produce 1.1 kWh/day/m² electrical power, more than 20% of the available solar energy.
4) People “empowered to take responsibility for managing and limiting their own ecological footprint” will reduce power requirements in an average household to <10kWh/day.
5) Less than 3m x 3m surface area under PV panels required per “eco” household
6) Roofing with energy absorbing PV panels provide cooler interiors providing greenhouse gas saving synergies
7) There is no question about effectiveness or efficiency.
8) It is an “economic” judgement, and while we continue to neglect the imprint of CO₂ pollution on the liability column of our asset registers we will continue to make bad economic decisions.
9) The proponents proposed use of solar energy to reduce greenhouse emissions is merely compliant and would by law apply to any development, whether on Hummock Hill Island or not.
Quote PAGE 9-16: “Public access to the Island by vehicle can only be achieved on extremely low tides via the causeway and is not commonly carried out.” and “Shallow entries to Colosseum Inlet and parts of Seven Mile Creek also currently limit access to these water from the ocean for recreational craft”

Comment:

1. One of the stated benefits of the proposed development is improved public access not otherwise available in the area.
2. Assuming the proponents have an appreciation of “common” use in the area and the frequency of use is as stated, the infrequent nature of causeway use and restricted access to the island has more to do with the signs telling the public to KEEP OUT rather than any physical constraints.
3. The proponents reflect an invalid appreciation of the area.
4. Improved access can be achieved without the proponents’ action, that is, if better access really happens to be a community priority or objective.
5. The Bangalee community has not been consulted by the proponents or their delegates.

6. The Curtis Endeavour had no trouble reaching the beach at Bangalee. How big are the recreational craft the proponents envisage for the area?

7. Campers regularly access Hummock Hill Island and its beaches. It has been a tradition amongst some of the regions families.

8. Even communities empowered to take responsibility for their ecological footprints don’t always do this responsibly or sustainably.
Based on the existing condition, preliminary assessment of ecological value and current human uses of identified watercourses draft EVs are outlined in Table 9.6.

**Table 9.6 - Draft EVs for Estuarine and Coastal Waters around Hummock Hill Island**

<table>
<thead>
<tr>
<th>Watercourse Type</th>
<th>HCV Aquatic Ecosystems</th>
<th>Human Consumers of Aquatic Foods</th>
<th>Primary Recreation</th>
<th>Secondary Recreation</th>
<th>Visual Appreciation</th>
<th>Cultural &amp; Spiritual</th>
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</thead>
<tbody>
<tr>
<td>Estuarine Waters</td>
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<tr>
<td>Coastal Waters</td>
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</tr>
</tbody>
</table>

It is noted that estuarine and coastal waters of Hummock Hill Island are contained in the Baffle Creek catchment. The Baffle Creek catchment has an area of 3,996 km² of which 80% is cleared for agricultural purposes, mainly pastoral activities. Ephemeral watercourses discharging to estuaries around the island would be classed as slightly to moderately disturbed systems.

**Comment:**

1. The proponents ascribe no environmental value to estuarine or coastal waters of Hummock Hill Island.
2. Hummock Hill Island is not in the Baffle Creek Catchment.
3. While the Baffle Creek catchment is the more dominant catchment in the region, the mouth of the Baffle is at least 70 km south-east with at least 5 substantial systems draining to sea between Hummock Hill Island and Baffle Creek.
4. Hummock Hill Island is influenced by the catchments of Twelve Mile Creek, Scrubby and Sandy Creek, and is not contained in a catchment.
5. Any projections made from the erroneous supposition above will be misleading.
6. The proponents demonstrate a lack of appreciation of the area.

Erosion Prone Area & Storm Tide Inundation were reviewed by COASTAL ENGINEERING SOLUTIONS 2005

**Quote:** “primary objective of this initial appraisal has been to ascertain whether or not a defensible argument could be put to the Environmental Protection Agency for a reduction in the current 80 metre width of the Erosion Prone Area”, “We must therefore unfortunately advise that we see no opportunity to argue a reduction in the currently designated 80 metre Erosion Prone Area width fronting the proposed development”, “The topographic survey data suggests that the land behind the currently designated Erosion Prone Area rises from around RL+3.3m to RL+3.6m. This is approximately the same level as the predicted 100 year Average Recurrence Interval storm tide event (disregarding any sea level rise as a consequence of enhanced Greenhouse conditions)”

**Quote PAGE 9-15:** “Erosion prone areas behind the North Beach and Main Beach are not part of the lease area. As such, these areas are not included as part of the lease area or proposed development works on Lot 3 on FD841422 and will remain untouched. It is noted that some public access and drainage infrastructure will be required through the erosion prone area. Details of potential impacts from these access routes are discussed in Section 9.2.6.”
Comment:

1. The proponents sought to reduce buffering, not improve buffering for potential environmental effects.
2. Buffering of Erosion Prone Areas is required to be 80 meters along the sandy foreshore measured inland from the toe of the primary dune.
3. The delineation of the buffer zones is based on 1984 data (segment reproduced below), at a time before the realities of climate change would have been taken serious. We probably should be looking at bigger buffers.

4. Note 80m buffer along proposed foreshore development while the next segment west requires 400m erosion buffer.
Development within 80m of base of dune

Evidence of significant erosional events (see photos below)

Row of very large dead trees, where they could grow, they now no longer can.

Sand washed away, reclaiming areas where trees had grown in the past.

Recent erosional action As at 6th January 2008

400 m buffer required here
5. The consultant’s report clearly states that a defensible argument to reduce the 80m buffer does not exist yet the proponents mount one in the EIS. Highlighting protection by the headland to the east, ignoring increased risk from the west.

6. The proposed beachfront development is in breach of the 80m requirement (shown above designated 21, 24, 25).

7. The western area precincts of the proposed development about 40% of the project’s residential development is within cooey of predicted storm tide events, not taking climate change conditions into account.

8. Our government instrumentalities have suffered political leadership in denial of climate change, the odds of policies and guidelines reflecting the real risks, as identified by scientists, in a meaningful way are unlikely.

9. Suggesting that the raising of low lying areas mitigates the risk of inundation is foolhardy.

10. Two tests not presented in the EIS should be exercised to better characterise inundation risk.
   a. Review of insurance premiums being charged on properties in low lying coastal areas of Queensland compared to non low lying residential areas. Note: The externality of increased insurance cost has wider social impacts.
   b. Extend the inundation modelling of the development proposal to include scientific predictions of climate change effects, such as sea-level rise and more importantly storm surge intensity increased by more powerful and frequent cyclones. A statistical sensitivity analysis is required.
Quote PAGE 3-108:

- “A program of community consultation was undertaken to provide opportunities, encourage and facilitate active community involvement in the EIS process and provide ongoing information about the Hummock Hill Island Development. The consultation Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations. Decisions and actions should provide for broad community involvement on issues which affect them.

- “has provided opportunities for ‘affected’ and ‘interested’ persons to contribute to the process, assisted the EIS project team to understand and respond to community issues where necessary and captured feedback and incorporated it into the draft EIS (refer to Section 16)”

- “Consultation for the Hummock Hill Island Development has focused on the local and regional communities surrounding the Island, as well as key stakeholders. The ‘affected’ and ‘interested’ stakeholders are detailed as follows:”

“The objectives of the public consultation program for the Hummock Hill Island Development are to: Ensure the conduct of an open and accountable community consultation program which meets requirements under the State Development and Public Works Organisation Act 1971 and Environmental Protection and Biodiversity Conservation Act 1999; Provide opportunities for ‘affected’ and ‘interested’ persons to contribute to the process;

Comments:

1. Elsewhere in the EIS document the proponents acknowledge Bangalee and Squatters Community both within 5 km of the development proposal yet do not include them on their list of stakeholders. This is a gross neglect.

2. The principal recreational users reside in Boyne/Tannum, no community forum was held there.

3. I am an ‘affected’ and ‘interested’ person and have not been consulted.

4. I am the president of Tannum Boyne Coastcare (TBCC) which is listed on their stakeholders list.

5. No formal communication from the proponents or their delegates has been received by TBCC.

6. A message out of the blue was left on a TBCC member’s answering service on the day of departure of the proponents’ “consultation” team from the area. The TBCC member returned the call after work and sought to have the meeting the next day but that could not be accommodated, unprepared and unable to get any other TBCC members to join the session, two TBCC members attended a brief information session, hardly conducive to our active involvement on issues which affect us.

7. Consultation implies a procedure of consulting; that is to seek advice from someone, to have regard for person’s feelings, interests, etc, in making decisions or plans. (Collins English Dictionary).

8. Per definition TBCC was not consulted and inclusion on their list of identified and contacted stakeholders is misleading and any suggestion that consultation with TBCC has occurred is a misrepresentation and downright offensive.

9. The proponents fail at least the first two of their principle consultation objectives.

10. The EIS fails the terms of reference where “The public consultation process must identify broad issues of concern to local community and interest groups” and “Details of the public consultation process and the major issues emerging from that process must be clearly addressed in the EIS.”

In economic terms the proponents have reduced the environmental value of Hummock Hill Island via a preventative expenditure rationale, to quote PAGE 17-20, PAGE 17-21, PAGE 17-19:

1) “In this case the preventative expenditure approach offers an appropriate proxy for the value of the potential environmental costs of the development”
2) “It is difficult to separate out the preventative components and hence to put a figure to the environmental values. However, once the land offset and management plans are factored in, it is estimated that preventative expenditures are likely to total at least $10 million.”

3) “Identification of environmental issues include:
   - No rare or threatened flora species were identified within the development footprint;
   - A number of fauna species of international, national and state significance were identified as occurring on the Island, mainly migratory wader and shoreline birds;
   - There are few if any likely impacts on water quality, groundwater or other environmental assets such as visual amenity;
   - Habitats, such as those for endangered species are not likely to be impacted directly or indirectly by the proposed development; and
   - The Island has historically been used for beef cattle production under a pastoral lease since 1887, although such use is no longer important.

Comment:
1) Land offset and management plans are legislative requirements, so if we extend the proponents’ argument, Hummock Hill Island would ultimately have no environmental value if the law did not require compensatory structures to offset or mitigate environmental harm. Preventative expenditure is not an appropriate proxy.

2) The list of environmental attributes associated with the environmental value that have provided input to the proponents’ economic model downplays the inherent risk of environmental damage of the proposed action.

3) Rare and threatened species occur on the island, whether identified within the “development footprint” does not negate this possibility. In fact it can be reasonably foreseen that these species will occur within that footprint.

4) The Black Breasted Button Quail is not likely to be migratory and should be considered explicitly in modelling. How much money will be spent to save this species from the brink of extinction? How much have we already invested?

5) Claiming “few if any” impacts resulting from action at this scale is misleading. E.g. we need look no further than the project web page to see that “ocean vistas” are being promoted. People who are encouraged to invest money in property here will have an expectation to in fact enjoy this view. If these views are not forthcoming, the promotional material is dishonest in which case illicit vista management (refer comment elsewhere in my submission) down the track will be likely. Either way structures will be quite evident from the surrounding waters. The traditional recreational use is boating on the water around the island, currently available to everybody but particularly in favour by those who appreciate the area’s relatively unspoilt character. Visual amenity is in the eye of the beholder, consider the analogy; would you continue to enjoy your soup the same way had you seen a maggot in it?

6) Claiming that indirect impact on endangered species, ergo the Black Breasted Button Quail, isn’t likely, just does not seem honest. Without adequate scientific understanding of these animals’ existence on the Island, this is a very bold claim indeed.

7) I presume the raising of a “no longer important” issue of “historical use of Hummock Hill Island to produce beef cattle” serves to imply a potential loss of economic productivity rather than merely raising an image in our mind of an already degraded environment. We can test this motive by reviewing how cattle production has been accounted for in the proponents’ opportunity cost modelling.

8) The proponents mention “replacement costs” but seem to ignore them in their economic models. The EPA budget for Queensland last financial year was roughly $143 million. This reflects the level of investment we are prepared to make in looking after our environmental assets. No doubt it includes money spent on remediation.

9) Many of us invest personal time and money to rectify the degradation of the environment and if we had the capacity would gladly fund the replacement of lost habitat. So “replacement cost” as a proxy for environmental value is limited by capacity to pay and therefore in any meaningful terms an underestimation.

10) Wealth is not determined by cash flow, it’s the balance sheet that counts. The unstated environmental value in this EIS is the undeniable attraction of living by the sea. Through an analysis of land prices in the Boyne/Tannum area it is possible to get a handle on real-estate appreciation due to environmental values. By separating out the premium individuals are prepared to pay for environmental values over and above the price of a non-descript block of land. As such it is a valid “replacement cost” for modelling purposes.
11) The proponents rightly question PAGE 17-18 “What price can be put on environmental resources or effects when there is no market in their use?” If we consider the above graph, the premium people have been prepared to pay was up to $350 per square meter. Extrapolating this to Hummock Hill Island, the unspoilt natural setting would have a value projecting exponentially off the graph, in excess of $1000/m².

12) PAGE 1-4 “The Island is approximately 13 km long, 3 km wide, with a total area of 2,150 ha, of which 341 ha (12%) fall within the development footprint”

13) If on the basis of the above analysis we factor in a loss of environmental amenity due to clearing for development, the 341 ha footprint of the proposed development represents $3.41 million for every single dollar of EV degradation.

14) We know EV degradation potential has been shown to be at least $350/m² for some areas in Boyne/Tannum

15) But realistically, no one really believes that environmental degradation will be constrained to the “foot print” so a more appropriate measure of the environmental value of Hummock Hill Island on the basis of the proponents’ preventative expenditure/replacement cost approach would be to consider the EV degradation for the full 2150 ha, that is $21.5 million per EV degradation dollar.

16) A valid proxy for ascribing environmental value would be to use the inverse relative projected sale values of the different island site locations, from the financial models not made publically available. From this we can generate an “EV degradation density” contour map of the island. The integration of this data then represents a more rigorous and appropriate EV value for the economic modelling.

17) Even very modest acknowledgement of EV degradation values suggests that significantly higher environmental values should be used in the cost-benefit analysis presented in the EIS.
The proponents imply intent on the Queensland Government’s behalf to develop Hummock Hill Island, a desire with some urgency indeed, so that prompt payment shall be made for the revenue generated from sales, e.g.

**Quote PAGE 11, PAGE 4-18, PAGE 1-31:**

- “The land for the proposed development is available and has long been identified by the Queensland Government for this type of development under a special lease”,
- “The long-established land use intention for the leased area is for subdivision and a tourism and residential development. Indeed, there is an obligation, under the conditions of the lease, for the lessee to develop the leased land promptly and make payments to the Queensland Government for the revenue generated from sales”
- *Conversion of the pastoral lease to special lease was undertaken in November 1991, Queensland Special Lease (Hummock Hill Island) Vol. 7724 Folio 154.*

**Comment:**

1) Local paper article writes of a Supreme Court case between Walsteam and the state government ending the proposal to build a resort containing hotels, golf courses, shopping centres, subdivided allotments and associated services. This is not the behaviour of a government in support of development of this kind.

2) Advice from Environmental Defenders Office (Qld) Inc is that the court action appears to be due to the licence having been issued by the wrong person. The desire to develop Hummock Hill Island may well have resided in a hand full of individuals with privileged information and would not reflect government intent.

**Quote PAGE 1-31, PAGE 13-6:**

- *Hummock Hill Island P/L was the new leaseholder for the Island, purchasing the lease from Walsteam in 1991*
- *The Queensland Government, in granting the Special Lease (SL 19/52155) in 1991, decided the site was suitable and desirable for a range of Business, Industrial, Commercial, Residential, Tourist and Recreation purposes. This decision has been reflected in approval of a previous application for a residential and tourist development by Miriam Vale Shire Council in 1996*

**Comment:**

3) Note the confused chronology.


**Quote PAGE 4-18:**

- An original proposal for the “provision of a major residential and recreational facility” was proposed in 1993 by Hummock Hill Island Pty Ltd (a wholly owned subsidiary of Raymag Securities Ltd) and given approval by Miriam Vale Shire council though development did not commence and the approval lapsed

**Comment:**

5) The 1993 proposal’s failure suggests potential structural problems with proposals of this kind on Hummock Hill Island.

6) The EIS does not provide and analysis of the reasons for failure then and what has changed to suggest it offers a better prospect now.


**Quote PAGE 4-21:**

- A proposed development for “a combination of tourist and residential facilities with supporting community infrastructure and commercial services” was proposed by East Wing Corporation Pty Ltd in 1999 and was granted Significant Project status under the SDPWO Act.

- A number of master plan developments were proposed by East Wing Corporation Pty Ltd between 2002 and 2005
Comment:
8) Failures to implement these proposals indicate that previous cost/benefit analyses would not have shown appropriate merit or at least not have been deemed to confer a net benefit to the state. An assessment of this nature would have been made as recently as 2005, within the framework of “state significant project”
9) No analysis is provided as to why the current proposal could do any better now.

Quote PAGE 2, PAGE 4:35:
- Eaton Place Pty Ltd currently hold a Special Lease (SL/SL 19/52155) over Lot 3 on FD841442 (1,163 Ha) located on Hummock Hill Island
- Special Lease No. 19/52155 was issued for the purpose of undertaking feasibility studies and environmental investigations to prove up a major development project

Comment:
10) The lease implies a feasibility study, not a “long-established land use intention” of development.
11) No evidence has been provided in this EIS of government support for development of the area other than through inference of the granting of Special Lease (SL/SL 19/52155).
12) Advice from the Assistant Director, Major Projects, Department of Infrastructure is that the declaration of significant project status under either of the SDPWO Act or EPBC Act does not infer Government backing of the project (either State or Commonwealth)

Quote PAGE 3-49:
- Special Lease 19/52155 “requires that development approvals be substantially progressed by November 2006 (extended by 1 year to 2007)”

Comment:
13) Advice from the Assistant Director, Major Projects, Department of Infrastructure is that the lease of the site was extended by the Department of Natural Resources and Water (NRW) on 15 November 2006 for 12 months as the proponent could demonstrate that the project was progressing through the assessment process
14) The EIS was advertised for public comment the weekend before 10th December 2007 per advice from the Director of Major Projects, Department of Infrastructure and Planning
15) No substantial advance had been made progressing developmental approvals by 15 November 2006, nor has that condition been met one year later, as at the end of the lease extension to 15 November 2007.
16) It’s time to put a stop to the more than 16 year chequered history of all and sundry attempting to “develop” this truly unique natural environment. How many more go’s are they entitled to?

Quote PAGE 11,PAGE 4-18: “The coastal location provides a micro climate that is more comfortable for tourists and residents, and reduces the need for artificial cooling minimising energy consumption and associated greenhouse gas production;”

Comment:
1) A description of the microclimate referred to is not found in the EIS.
2) It could be inferred that the proponents suggest Hummock Hill Island would have lower temperatures or more effective sea-breezes than surrounding areas. No data to this effect has been presented.
3) Greenhouse gas mitigation is purported but the EIS document does not articulate the mechanism that will be adopted to secure this perceived benefit. E.g a ban or restriction by covenant of air-conditioners.
4) Sandflies are a part of mangrove areas; Hummock Hill Island is no exception. Residential dwellings will need sufficiently fine mesh to screen them out, this negates sea-breezes. People will run air-conditioners.
5) The presence of sandflies, mosquitoes and other naturally occurring insects associated with the mangroves impact on the comfort of tourist and residents. This is a contingent environmental risk. The community may seek permits to chemically fog or alter mangrove and coastal habitat to manage. The
EIS suggests a community “empowered” to manage their own ecological footprint. Coastal communities have been known to suffer illicit behaviour of residents managing environmental conditions to suit their purpose and authorities have been ineffective at stemming this behaviour. This EIS offers no alternative.

Quote PAGE 4-9: “The proposed development will increase access to recreational facilities such as sporting ovals, water access, golf course facilities, tennis, squash and fitness activities. These facilities will provide the local community with increasing opportunities for participation in activities not currently available within the area without travelling considerable distance.”

Comment:
1) Self fulfilling condition, there is no local community so of course sporting ovals, golf course facilities, tennis, squash and fitness centres don’t exist
2) They do exist in Miriam Vale, Tannum/Boyne etc. and while in this context travelling is considered “considerable”, it is otherwise promoted as an asset. Quote: “The Island is ideally situated, with Gladstone (65 km), Tannum Sands (40 km) and Miriam Vale (30 km) being the nearest regional centres providing shopping, postal and banking facilities.”
3) Quote PAGE 10-9: “the majority of residents would be expected to commute to Gladstone”, This is a considerable distance to commute on a daily basis and that does not fit the label “ideally situated”
4) Peak-oil has arrived and access to cheap fossil fuel is a thing of thing past. To structure a community on the basis of commuting 65km by car contravenes the principles of sustainable development. Suggesting exploration of public transport as an optional consideration is inadequate.
5) Access to the waters around Hummock Hill Island already exists. Improvement of boat ramps to the area are not contingent on developing Hummock Hill Island as proposed.

EIS terms of reference Page 34 of 54:
3.7.2.2 Greenhouse gas emissions and abatement
This section of the EIS must:
• provide a discussion of potential emissions during construction for each relevant greenhouse gas from construction equipment and plant, with total emissions expressed in ‘CO2 equivalent’ terms;
• provide a discussion of expected operational emission sources (including aviation and related activities) and emissions expressed in ‘CO2 equivalent’ terms;
• estimate emissions from upstream activities associated with the construction of the proposed Project, including fossil fuel based electricity consumed;

Quote PAGE 10-9: “A detailed inventory of greenhouse gas emissions has therefore not been undertaken”

Quote SINCLAIR KNIGHT MERZ page21: If the construction works required ten truck visits per hour over an 8 hour day, every day for one year approximately 1,700 tonnes of CO2e would be emitted. If 100 workers also travelled from Gladstone to the site each day in their own light duty petrol cars approximately 450 tonnes of CO2 could occur each year. For comparison, if an excavator operated 8hrs per day, 5 days per week for 50 weeks per year, approximately 160 tonnes of CO2e would be emitted. A fleet of 10 similarly sized items of mobile construction equipment could result in approximately 1600 tonnes of CO2e per year.

Quote PAGE 10-11: Direct and indirect greenhouse gas emissions will also occur during construction and operation of the project. The greenhouse gas emissions would represent a small fraction of Queensland’s annual greenhouse gas emissions, and the project detailed design would further investigate energy efficiency measures and strategies to be incorporated to maximise energy efficiency and limit greenhouse gas emissions during construction and operation.

Quote PAGE 10-9: The majority of greenhouse gas emissions generated from the development would arise from domestic residential activities (refer to Section 3.4.3 of the EIS), which would occur independent of where the population lived.
The annual greenhouse gas emissions generated from the development is likely represent a small fraction of Queensland’s annual greenhouse gas emissions with the incorporation of appropriate energy efficiency measures in the design measures.

Comment:

1. The EIS does not provide estimated emissions of upstream activities arising from the proposed development and as such breaches the terms of reference of the EIS.
2. The proponents manage to compile very detailed perceived economic benefits for the project using externalities etc. with superb efficiency. Even though the EIS should principally address environmental considerations the proponents do not afford analysis of CO₂ emissions the same rigour as their economic analysis.
3. What’s good for the goose is good for the gander. If the economic benefits however insignificant compared to Queensland’s overall economy, associated with residential development are used to justify the project, the pollution associated with the residential development and the ongoing occupation of the site should then also be accounted for in the balance.
4. Water supply via desalination as proposed will generate at least 1000 t.p.a. CO₂ pollution.
5. Grid supplied power for 2300 tourists and 1600 residents at ecologically responsible consumption levels (no airconditioning) will generate over 3400 t.p.a. CO₂ pollution.
6. Concrete for residential and tourist accommodation will exceed 15000 t. The cement alone has a CO₂ emissions equivalence of 1500 t.
7. Aluminium window and door frames attract at least 2.6 t CO₂ pollution for every t of primary aluminium.
8. Non plantation timber has it’s CO₂ footprint
9. Commuting of 1600 residents to Gladstone’s industrial sites 65 km away adds to the CO₂ footprint
10. Flying in tourists from overseas, flying and driving in intrastate tourists all adds to the CO₂ footprint
11. It took me 15 minutes to compile this list.
Part 3  Conclusion & Recommendation

The proponents of the project create a paradox. On the one hand they play down the environmental values while on the other they recognise “the best beaches between 1770 and the Capricorn Coast” and who would not want to live there? They project an unrealistic Utopic Shangrila where “residents and tourist live and interact in harmony with natural systems and are empowered to take responsibility for managing and limiting their own ecological footprint, minimising their impact on the environment.” yet available, CO₂ neutral technology inextricable associated with such a community, appears to have been overlooked for economic reasons. The EIS overwhelmingly reflects “compliance” to codes rather than exceeding regulatory requirements. It lacks a demonstrated commitment to progressive leadership in the purported sustainable environmental principles.

If I have succeeded with this document, the reasons not to develop Hummock Hill Island will be clear. I also need to tease apart the proponents claim as to the benefits of the proposed action and how those benefits are uniquely linked to Hummock Hill Island. Clearly some of these benefits can be derived elsewhere and are not contingent on development of Hummock Hill Island. In fact there is considerable rationale not to attempt the creation of a new and isolated community but instead to concatenate urban growth to existing infrastructure so as to minimise the overall cost to the wider community.

The project was declared significant for the state. Advice to us from the Environmental Defenders Office suggests that the declaration has put the environment on the back foot. “All powers of other government agencies (including the EPA) to impose conditions on the project or require its refusal evaporate, and the government is obliged to implement the recommendations in the Coordinator General’s report, so effectively that report becomes the final decision.”

The very authority charged with the protection of the environment, the EPA is excluded.

The Coordinator General will now decide whether the project confers a net benefit to the region and the State. He will be comparing apples and oranges without the benefit of a decision matrix or developed guidelines as to the relative merit of EV’s in economic offset terms.

How much are we prepared to pay for Turnix melanogaster habitat?

How much will the Coordinator General find acceptable?
A consequential strategy in favour of the proponents will be:

The proponents have loaded the benefits basked with hundreds of millions if not billions of dollars, while slipping a meagre “at least $10 Million” into the environmental values basket.

The proponents quote economic benefits with confused irregularity throughout the EIS document. A sample is re-presented below:

- net regional benefits from the project of approximately $54 million (in NPV terms);
- net State benefits from the project of approximately $87 million (in NPV terms);
- $635 million ($390 million NPV) value for total construction and building expenditure;
- A $270 million ($167 million NPV) direct contribution to regional value added income from building and construction;
- A $390 million ($240 million NPV) direct and indirect contribution to regional value added income from building and construction;
- A $460 million ($280 million NPV) contribution to Queensland from construction and building work;
- Generate 260 regional construction jobs per year (directly and indirectly) with a peak of 460 regional jobs per year;
- Generate $1,060 million ($380 NPV) in total direct and indirect regional tourism expenditure;
- A contribution 0.5% of the Queensland Tourism GSP and 12% of the Fitzroy tourism Gross Regional Product, based on the Queensland Tourism targets for 2016;

The melange of timeframes, state/regional benefits, direct/indirect benefits, job numbers/person years employment, construction/tourism expenditure, infrastructure/residential development costs etc. have confused me no end. Are the proponents double dipping benefits? E.g. when quoting 5,400 person years are those wages and salaries also reflected in 460 million ($280 million NPV) contribution to Queensland. Is $54 million net regional benefits included in $87 million State benefits, the region being part of the State, or are they additive benefits? Is it per annum or life of project?
Simplifying it to a level I can cope with, it appears the proponents’ economic model takes projected expenditure and applies multipliers to these sums, recognising the cascading effects of money moving through the economy. These effects cascade through the local economy and the state economy and of course the national economy given the proponents’ base in Sydney and their NSW business network.

The multipliers are referred to in the EIS and the contained consultant’s report, but I have not been able to actually find them in the document. The equations used are also missing from the EIS.

The model manipulates these projected sums to reflect the changing value of money over time. The time frames vary with projected construction timelines of various components of the project and life of asset consideration. Sometimes 8 years, sometimes 17 years sometimes who knows?

Quote PAGE 3-86: “Anticipated construction costs for the proposed development are anticipated to be $635 Million (or $390 in NPV1 terms) over the 16 year construction period. A breakdown of anticipated development costs are outlined in Table 3.20.” and “Detailed financial aspects related to this development are confidential and are provided under separate cover to the Coordinator-General”

Comment:
1. Table 3.20 shows 203,877,600 under Cost ($) heading as a TOTAL (Excluding interest), not $635 or $390 million, more confusion.
2. The financial details are privileged, so we have to take it on good faith that the numbers add up. They don’t appear to do so.
3. Formulae and base inputs are not provided

Quote EIS Public Consultation REPORT: “Total development value of $570 million over about 18 years from 2007 to 2024, including$125 million in physical infrastructure;”

Comment: Yet more confusion.

Let’s assume there is a valid $x00 million value associated with the development of Hummock Hill Island. How big is it really and how much of it can we honestly ascribe to the project and the island location uniquely?

1. Population growth of the region has been excessive without the advent of this development proposal, housing construction is already constrained by available building services in the region. The proponents even acknowledge that if residential development did not occur on the island it would occur in the region any way. The inclusion of a residential construction component in the benefit forecast is therefore a false economy.
2. The proponents’ own statement of the relative contribution of the residential component is 40%. The overstatement of the benefits is therefore at least of that magnitude.
3. The economic model is based on a proposed level of tourist accommodation, assumed occupancy levels, generic tables with data on regional tourist per capita expenditure and privileged assessment of room rates. It appears a 70% occupancy rate was adopted while the proponents present “36% in Cardwell Shire (the home of the Port Hinchinbrook development)”. Hinchinbrook does not suffer the stigma associated with Gladstone – The industrial Heartland of Queensland yet occupancy rates are a mere 36%. 70% occupancy here is unlikely.
4. Occupancy rates could be over estimated by more than 100% on this basis, halving the tourism related benefits claimed by the proponents. Tourist expenditure could be overstated by 100%.
5. Escalating oil prices after peak-oil \(^\text{see attachment}\) will affect travel affordability and subsequent projected tourist numbers. Another one of those contentious realities marginalised by our governments.

6. We risk losing the visitors currently attracted to the Hummock Hill Island area for its relatively unspoilt nature.

7. Alternative use of Hummock Hill Island such as making it into a National Park is likely to enhance the attractiveness of the area significantly due to synergies with World Heritage listing, Marine and estuarine protection areas, concatenation with existing National Parks etc.

8. Clearly the economic benefits claimed by the proponents are not uniquely a function of the proposed development of Hummock Hill Island nor will they be lost should the project not go ahead.

9. In reality the benefits are likely to be far less then suggested in this EIS, consistent with the historic difficulty of getting development projects on Hummock Hill Island off the ground.

10. Maintaining a relatively unspoilt character of the Hummock Hill Island area may ultimately prove far more important to the regions wellbeing in many ways.

Despite the proponents’ presentation of unbelievably impressive benefits, they do cast their own doubt on the ultimate viability.

Quote PAGE 4-6: “The proposed scale is also necessary to provide critical mass for the proposed commercial centre and community infrastructure such as education and emergency services necessary to provide a sustainable and viable community. A smaller tourist community would not ensure viability for the proposed commercial precinct”

Aspects not adequately dealt with in the EIS are the social costs of creating an isolated community. The environmental cost of commuting from Hummock Hill Island to Gladstone’s industrial sites for work, the cost of providing additional infrastructure and the long term impost on society to maintain that infrastructure will be significantly higher than were the residential development concatenated to existing communities.

Quote PAGE 1-1: The SL gives the proponent freehold rights to 436 ha of land within Lot 3 to be developed in accordance with actions and arrangements identified through the Impact Assessment Study (SL Condition C369) following consent from the Minister and Council and obtaining all relevant approvals”

Ultimately, the most potent driver for the project is 436 ha of land, worth more than $2 billion. The proponents are claiming freehold rights to this tract of public land. If indeed rights have been conferred, the way this may have been achieved certainly is not obvious to the public. The people have a right to know this. Lack of transparency will lead to concerns about propriety of the process.

Who are the privileged individuals negotiating our assets away in the dark backrooms of our governments?

The reasons to develop Hummock Hill Island are far from clear
It is recommended that the Coordinator-General

- reject the recommendation made by the proponents in the EIS
- and that Special Lease 19/52155 over Lot 3 on FD841442 be allowed to lapse.

This recommendation is made on the basis of a precautionary principle:

- The intended action threatens species protected under the EPBC Act
- Insufficient scientific detail has been provided to quantify the nature of the occurrence of these species under threat, ecological interactions within the licence area, on the island, within the World Heritage listed area, and within listed Dugong and fish habitat and wider Colosseum Inlet eco-system.
- Invalid representation in the EIS of the environmental values of the Hummock Hill Island area.
- the EIS understates the environmental values contravening the National Strategy for Ecologically Sustainable Development
- Erroneous detail in basic design of infrastructure resulting in unrealistically small footprint for the proposed action and hence an unspecified environmental risk.
- Poorly specified Environmental management plans.
- Lack of scientific evidence to support the effectiveness of the generic protection and offset mechanisms proposed.
- Internally inconsistent application of advice given in consultant’s report within the EIS.

Additional aspects of the EIS supporting rejection of the EIS recommendations are:

- the EIS breaches the terms of reference due to invalid community consultation
- the EIS overstates the project benefits
- The proponents failed to complete the EIS process by the deadline of the one year extension of Special Lease 19/52155.

A consequential recommendation is that the Coordinator-General then also recommends that Hummock Hill Island be given National Park protection status.
Attachment: How we develop

This attachment serves to demonstrate the overt misbehaviour of people within our communities and the impotence and negligence of the authorities to deal with such behaviour. It can be reasonably foreseen that these practices will extend to any development of Hummock Hill Island.

An example of development in Miriam Vale Shire - custodian of Hummock Hill Island

By Frank and Wendy George, Agnes Water Landcare Group

Damage has occurred along the Agnes Water beach primarily due to development and human intervention. Climatic elements have in some instances accelerated the damage. Examples of such damage are: - removal and destruction of natural vegetation, flattening and altering of the dunal area with heavy machinery to create paths, accesses, and structures (bridges, decks, gazebos, fencing, storm water disposal), dumping of building debris and introduction of weeds. In most cases this irrevocably destroys the biodiversity of the area, the destruction of flora and fauna species leading to fragmentation. An example is the disappearance of the beach stone curlew (Esacus neglectus) from the Agnes Water beach since a developer cleared a large area of land including the erosion prone area.

The three major reasons leading to this situation are:-
- The apparent philosophy of today’s developers
- Governing authorities allow the destruction
- Laws and restrictions are inadequate and rarely enforced

The philosophy of today’s developers
The general trend of developers on the Agnes Water coastline is to make as much money as possible in the shortest time possible and then to move on. They have little or no regard for the environment and most of them are unable to see the damage they cause.

With dollar signs firmly in their sights they are more concerned with obtaining “sea views” and “private beach accesses” than conserving the coastline. They are not deterred by legal restrictions, preferring to seek “retrospective permits” or incur disproportionate fines after the damage is done. Most are quick to threaten legal action against any authority or body that stands in their way, and use false promises of community benefit to persuade authorities to make decisions in their favour. (Examples of such promises that have not been fulfilled are: The financing and construction of a new bridge to the main beach for public use, new clubrooms for the surf club and new clubrooms for the Volunteer Marine Rescue, proper wheelchair access with “buggies” supplied onto the Agnes water beach, to name but a few.)

Of the many developments fronting Agnes Water beach, not one developer has supplied a proper board and chain access onto the beach as required, or made any attempt to stabilise the dunes. Vegetation has been poisoned, ring barked, hacked, broken and sawn to create “picture windows” for the occupants of developments all along the frontal dunes. In regard to the penalties laid down in the Coastal Protection and Management Act 1995 Qld, no one has ever been fined for vegetation destruction in accordance with the Act.

Governing authorities allow the destruction
Local and state governments have done little in past years to protect the foreshore against such destruction. They turn a blind eye to the false advertising and promote the unsubstantiated promises that developers make. In some cases they ask for regeneration of destroyed areas in state owned reserves and erosion prone zones, long after the damage is done. Local council frequently relaxes conditions laid down in building permits at the developers’ request. They allow inappropriate development with immunity.
Laws, fines, restrictions are inadequate and rarely enforced
Developers are required by law to transfer erosion prone land to state authorities when registering sub-divisions. Loopholes, such as the timing of registration of sub-divisions have been used by developers to their own advantage, delaying the handover of erosion prone land to authorities for as long as two years or more. This has resulted in untold irreparable damage, in particular the removal of vegetation and disintegration of the frontal dunes mostly caused by the construction of illegal structures, numerous beach accesses and the increased traffic this brings.
Local council tends to favour developers, gifting areas of erosion prone land and “floating” road reserves when accepting development applications - in most cases against the wishes of the ratepayers. Council has been known to agree to a developer’s water rates not being imposed and numerous other “favours”. Laws against driving vehicles on the beach exist but local and state authorities turn a blind eye to this practice and even provide vehicle access to certain beaches. Fines and penalties are defined within the government Acts but are rarely, if ever, used. Any fines that are given simply represent disapproval and are totally inappropriate.

Storm water drainage in developments along Agnes Water beachfront has been mismanaged for years with disastrous results. A number of developments discharge their stormwater directly into erosion prone areas. There have been flood mitigation plans to redirect flood water from a particular development in Agnes Water for several years. Both local council and the developer concerned were aware that the area was flood prone and required appropriate remedial measures to be taken in case of flooding. However, with the passage of time, the cost of this exercise will fall on the ratepayer as the developer has long since left the district and no flood mitigation has been carried out. In an adjacent development, a “basement car park” frequently has to be evacuated and stormwater pumped out, even with below average rainfall.

In summary, whilst local and state authorities are not prepared to proceed with prosecution against developers who violate the Coastal Protection and Management Act 1995 (Qld) nor provide any deterrent to their law-breaking, the situation described above will continue until the coastline is destroyed. Developers will continue to laugh at the law. That is until their properties become damaged and inundated as a result of climate change and their own lack of concern, and they are up against lengthy court battles with insurance agencies.
The following extract is from a letter written to the president of the Agnes Water Landcare Group from the Director General of the Environmental Protection Agency (EPA), Terry Wall, dated 5 March 2007 It is written in response to a complaint about damage to dune vegetation by a developer creating a beach access track illegally across state land. It sums up the agency’s attitude to such situations:

“…An EPA officer inspected the works undertaken and advised Council and the developer that a permit was required for the works. Whilst not condoning the undertaking of this work without a permit, the EPA’s decision to require an application for a permit will ensure that a properly constructed beach access is installed at this location, with the developer incurring the cost of providing these public facilities. The decision on whether or not to proceed with prosecution of an alleged offence depends upon the facts and circumstances of the situation. In this situation the EPA determined that the best possible environmental outcome would be achieved by working with the developer and Council to facilitate construction of a properly made access track at the required location” (Terry Wall, Director General, EPA)

The outcome:
The track referred to in Mr Wall’s letter has never been completed to EPA’s specifications. A bridge was specified as necessary to traverse the route taken by the developer across a deep gully and a “proper” access by board and chain at the beach entrance also required. Neither of these conditions have been adhered to and it is very doubtful that the developer (now long gone from the area) incurred any of the costs referred to in the letter. More recently, owners of the units in this same development are planning yet another access across the same reserve, only a few metres away from the one in question! And why wouldn’t they?
Photo above: This reinforced concrete pathway, 5 metres wide in some places, was constructed by a developer from his development to the high tide mark on Agnes Water beach. The drop from the end of the pathway to the beach is substantial but no further access was provided at the time. The path did not comply with the plan agreed to by EPA in at least 5 requirements. It took some persuasion but finally local and state government authorities gave in to pressure from the community to rectify. A few metres of the section of pathway over erosion prone land was ripped up and a board and chain entry to the beach constructed. The same developer then built an extremely ugly fence alongside his property, all the way to the beach beside this pathway and an equally ugly deck on the frontal dune, both illegally. Council and EPA, when urged to do something about this turned a blind eye. The fencing of the properties on both sides of the pathway encroaches on the public easement and prevents the access of emergency vehicles one of the purposes for which the pathway was intended, but authorities do not want to recognise this.

Photo above: Not one developer along the Agnes Water beach has provided board and chain access beyond the top of the frontal dune. The drop to the beach from the access point pictured is 30 to 40 metres at any given time. This results in a number of foot tracks fanning out on to the beach which, over time, erode away the dune.
This huge blowout through the frontal dune was the direct result of a developer cutting an access to the AW beach through the erosion prone area from his development. The delay in transfer of his subdivision to state guardianship allowed this blowout to increase in size over several years.

Photo above: The driver of the bobcat claimed he had a permit from EPA to cut a track across the rainforest gully in the erosion prone zone onto the Agnes Water beach to create an access for the residents of the units (pictured above). In fact he did not, neither was there any plan. For EPA’s response, see excerpt from Mr Wall’s letter.
This is just some of the damage that occurs along the foredunes to enable the residents of the units (pictured above and below) to gain the "sea view" that the developers promised.

Photo above: A "picture window" created for the occupants of these units to get a better view. The trees diagonally across the gap have been removed since this picture was taken. All the vegetation seen in the photo is on state reserve land.
Quoting from the Hummock Hill Island EIS:

“Natural environment protected and enhanced so that areas and features of conservation significance are retained and the human population can enjoy living in close proximity to, and in harmony with, the natural ecosystems of the Island and surrounding waters”

“residents and tourist live and interact in harmony with natural systems and are empowered to take responsibility for managing and limiting their own ecological footprint, minimising their impact on the environment.”

The reality of our communities’ interaction with the environment is starkly different and highlights the profound irrationality of these statements. These statements are a testament to the inadequate assessment by the proponents of the deleterious impacts of their proposed action on the Hummock Hill Island environment. Empowering the residents to take responsibility for their ecological footprint is incongruent with protection of the environment.
Attachment: Peak-oil or not

Peak oil is already changing our economic landscape.

http://www.wtrg.com/oil_graphs/PAPRPOP.gif

Oil Dashboard
January, Thursday 3 2008 - 00:19:45

Crude Oil
$99.32  0.30  0.30%

00:19 AM EST - 2008.01.03

It’s not going to get better

http://www.oil-price.net/