Dredging Trinity Inlet and Reclaiming East Trinity: A Win-Win-Win Solution

Photograph and superimposed residential suburb by Brad Newton Photography

Report Authors: Norm Whitney, Peter Senior **23 January 2015**

Table of Contents

1. Summary

- **A proposal to dredge Cairns Trinity Inlet channel; *and***
- **Reclaim a State-owned degraded East Trinity property; *and***
- **Gain major short and long-term benefits for Cairns community and businesses……**
- ***AT NO NET COST.***
- **Hence the title of the attached proposal: A Win-Win-Win Solution**

Ports North Cairns propose dredging the Trinity Inlet Channel and basin to enable larger cruise ships to dock at the cruise terminal as well as other marine and related activities such as expansion of naval operations. This proposal has considerable merit including a range of significant indirect benefits for Cairns businesses and community. Ports North plan to dump all the initial dredging spoil and future maintenance spoil in an extended area by the current offshore dump site. Ports North have commissioned consultants to prepare an EIS in response to the Queensland Government Coordinator General's Terms of Reference for the EIS.

This report proposes a land-based solution for disposal of all the dredging spoil: a stand-alone residential development on a Queensland State-owned 943.6 ha site at East Trinity. Direct benefit-costs are estimated as follows:

Direct Benefits	**Estimate of revenue from land sales**	**$1,510m**	
Cost estimates	Dredging and pumping spoil	$75m	
	Chemical treatment	$40m	
	Preloading (if necessary)	$52m	
	Site infrastructure	$528m	
	Cost to purchase 943.6 ha site	$100m	
	Financial	$103m	
	LESS: Estimate of total cost of development	**$898m**	
	Direct benefit-cost estimate	**$612m**	

Indirect benefits would include:

1. Provide a more beneficial alternative to dumping the dredging spoil at sea;
2. Enable a solution to fix the State-owned degraded land at East Trinity;
3. Create major associated benefits for Cairns community and businesses;
4. Avoid Ports North and/or the Queensland State Government needing to use taxpayers funds to pay for the cost of the dredging;
5. Make a major contribution to accommodating the Cairns population growth; and
6. Expedite realisation of major benefits projected for the vital Cairns Shipping Project and other Cairns maritime and related industries.

Key conclusions from this very positive benefit-cost estimate are, the State Government:

a. Now has an excellent opportunity to fulfil its election promise to complete dredging the Trinity Inlet channel without using taxpayers funds;
b. Could transition their degraded property at East Trinity to a valuable residential area, incorporating spoil dredged from the Trinity Channel; and
c. Should immediately commission preparation of a detailed plan in parallel with the EIS to avoid delays in the achievement of the many potential benefits. This plan should include a critical path and full consideration of the proposal outlined in this report, as well as information from the EIS studies and report.

An alternative approach for this proposal would be to divide the total project into two distinct phases. Changes to the original report are shown in red.

Phase 1 would comprise:

a. The Queensland State would separate the 500 ha understood to be required for spoil placement, and use half of the residual 446.3 ha, ie 223 ha, for Phase 1 development. The State would sell the 223 ha for a nominal amount to a developer on the condition that the developer will pay for all the dredging, spoil treatment and associated costs to place the dredging spoil on the approximately 500 ha of land identified for placement of the spoil. The costs estimated, as noted below, are $115m. This estimate for Phase 1 will assume the average of the costs understood to be presented in the draft EIS, ie between $200m and $250m – assume $225m; and

b. The Queensland State would expediting the regulatory processes to enable the developer to commence residential development of the 223 ha at the earliest time. The estimated benefit-cost to the developer would be a profit of $60m.

Phase 1 Project Benefits and Estimates Costs		**$ millions**	
Indirect Benefits: see Section 9 Conclusions			
Direct Benefits	**Estimate of revenue from land sales**	**$357m**	
Cost estimates	6.5 Dredging and pumping spoil	$225m	
	And 6.6 Chemical treatment (see a. above)		
	6.7 Preloading (not necessary)	0	
	6.8 Site infrastructure	$125m	
	6.9 Cost to purchase 943.6 ha site	0	
	6.10 Financial	0	
	LESS: Estimate total cost of development	**$350m**	
	Direct benefit-cost estimate	**$7m**	

Phase 2 would complete the project as proposed elsewhere in this report, over and above those components involved in Phase 1.

The key benefits of this phased approach would be:

a. Cairns communities and business would be to enable dredging to commence at the earliest time, and expedite all the related benefits noted elsewhere in this report.

b. The Queensland State Government would be to avoid any further payment for this project using tax payers funds, to resolve the high level of pollution on their East Trinity property, and minimise current costs attempting to rectify the polluted areas on their land.

2. Background and objective

There are two interlinked major issues

2.1 Ports North propose to dredge the Trinity Inlet Channel and area near the new CBD cruise terminal to enable larger cruise ships to dock at the cruise terminal (a fast-growing part of Cairns' tourism industry) and other marine and associated activities such as expansion of naval operations. This proposal has considerable merit, and is strongly supported by the authorities and the authors of this report. Dredging as proposed will involve about 5 million cubic metres of spoil initially, then ongoing maintenance dredging. The Ports North Initial Advice Statement notes: *'The estimated annual maintenance dredging quantity for the proposed improved channel is 580,000m3. For comparison, the current average annual maintenance dredging is around 320,000m3.*' Ports North propose to dump all the initial spoil and future maintenance spoil in an extended area by the current dump offshore site. This area is shown in Ports North Initial Advice Statement, July 2012, page 12, Figure 3, Project Site (Initial Advice Statement).

2.2 Queensland State Government own a 943.6 ha partly-degraded area at East Trinity, about 1 kilometre across the Trinity Inlet from the Cairns CBD. The background and events to date relating to this area as well as the dredging are described on the website: Cairns Trinity Inlet Dredging and East Trinity - Opportunities. CSIRO carried out a rigorous assessment of this property between 1995 - 1999 to understand the pollution problems. CSIRO's peer-reviewed report noted considerable dangerous pollution and degradation, and proposed covering most of the area with dredging spoil as a major part of the solution to reclaim this land to useful purpose.

History and background of the East Trinity site

The history of the site and demise to its current degraded state is a long story. An aerial photograph of **East Trinity, Trinity Inlet and the Cairns CBD in 1942** is shown below, with points of interest flagged, and the aerial photo noted on the front cover shown for comparison.

…….. **and now, 72 years later:**

The majority of this property between 1884 through to 1998 was farmed; dairy and cattle grazing, then cane until farming became uneconomic. A development proposed by Sailfox Pty. Ltd. with proponent NatWest Markets Australia Limited involved purchasing the site, then planning and proposing a major resort, the $1.4 Bn (1990's dollars) Royal Reef Integrated Resort and Community. The project plan was approved in principle by the Queensland Labor State Government, and work commenced. A few environmental activists objected. The State Government withdrew approval. The developer went into receivership, and their bank, National Westminster, commenced proceedings to recover their losses from the State. An out-of-court settlement was reached - the settlement amount, rumoured to be many millions of dollars, has never been revealed to the public.

The property is now a major liability to the Queensland State Government and continues to be a drain on the State; millions of dollars have been spent on testing, reducing the acid sulphate run-off into the Trinity Inlet and plagued by inadequate maintenance. Much of the property is now overgrown with weeds and over-run by feral pigs and vermin, with a large area of dead melaleuca trees, as shown below:

Large areas of stagnant ponded water breed clouds of mosquitoes, crocodiles abound, as reported by many East Trinity residents – all this within 1 kilometre of the Cairns CBD, new cruise terminal, main tourist centre and wharf. For example, a CSIRO report, Acid Sulfate Soils in East Trinity Inlet, May 1999, noted: *'Our research indicates that: The land at East Trinity is severely degraded and is a continuing environmental hazard; ……water discharged into Trinity Inlet contains dissolved aluminium between 120 and 6000 times the Australia and New Zealand Environment and Conservation Council (ANZECC) guidelines..'* There is considerable evidence of further deterioration since 1999, but also of major advances in technologies that can address these problems cost-effectively.

The Liberal National Party's quarterly magazine, Dialogue, Issue 6, has an article (pages 24 – 27) describing the history of the East Trinity property – see Appendix A.

There are several issues relating to the East Trinity property concerning Native Title, in particular a current claim concerning the Mandingalbay Yjdinji Country; the 943.6 ha East Trinity property comprises about 3% of the total claimed for the Country. A Strategic Plan for the Country was prepared by the Mandingalbay Yjdinji Aboriginal Corporation in 2009.

An alternative proposition

Rather than treating the dredging spoil as waste to be disposed of, this spoil could be managed as a valuable resource to enable land-based reclamation projects. An example is the Portsmith area in Cairns which was reclaimed gradually during the 1950s and 1960s using dredging spoil. Portsmith now comprises valuable industrial, commercial, defence forces and residential land as a result of Cairns' far-sighted leaders' decisions in the past.

Whilst discussion about this degraded area at East Trinity has been pursued with various degrees of acrimony for many years, the likelihood that this massive amount of dredging spoil will be available has spurred further debate about over-coming the East Trinity problems.

An article in the Cairns Post, 2 May 2014, noted: *'UNESCO's draft decision on the Reef's world heritage status .....recommended they consider adding the reef to the "world Heritage in Danger" list in 2015',* and that *'This marked the first time UNESCO has commented on the decision to allow three million cubic metres of dredge in Reef waters.'* Whether or not one agrees with UNESCO's assessment or relevance, the potential implications for the Trinity Inlet dredging and spoil placement are clear.

The Coordinator General's very comprehensive Cairns Shipping Development Project, Terms of Reference for an environmental impact statement, November 2012 (EIS report) includes the requirement for Ports North to *'Provide descriptions of all feasible alternative land-based spoil disposal sites'*. Five land-based options are being assessed for placement of this spoil. One of these options is the 943.6 ha East Trinity area.

Ports North have contracted consultants to complete a draft EIS report. The report delivery was initially stated as May 2014. Later the delivery date was stated as September 2014. Delivery appears to be delayed yet again: In an article in the Cairns Post, 9 August 2014, Brett Moller, chairman of Ports North, wrote: *'After 18 months of studies, the project EIS is due for submission to government later this year'*. The latest statement from Ports North is for an *'October'* completion.

A win-win-win solution

This report presents a win-win-win solution to both interlinked major issues described above, matching this report's overall objectives to:

1. Provide a positive alternative to dumping the dredging spoil at sea;
2. Redress the environmental degradation of the State-owned East Trinity property over a reasonable period of time; and
3. Create associated benefits for Cairns community and businesses.

Thanks

The authors of this report are very grateful to the professional specialists and others who provided advice and information in this report. Most specialists requested that their names not be included, often citing their company policies which preclude their offering more than personal comment when the full relevant data is not available for assessment, as is currently the case. With the sole exception of payment of the discounted fee to the photographer who

produced the East Trinity photographs, all effort and input to this report has been offered freely, pro bono.

3. EIS report - options

The Coordinator General's Terms of Reference for the EIS report include:

- *An outline of the alternative options considered and reasons for selecting the proposed development option.*
- *Detail the criteria used to determine the alternatives and provide sufficient detail to convey why certain options or courses of action are preferred and why others are rejected.*
- *Provide descriptions of all feasible alternative land-based spoil disposal.*
- *Sufficient baseline economic data to underpin a comprehensive assessment of the direct, indirect, cumulative, costs and impacts of the project.*
- *The indirect impacts likely to flow to other industries and economies from developing the project, and the implications of the project for future development.*

This report considers only one option for land-based spoil disposal sites: the 775 ha of lowland at East Trinity. This consideration of only one of the five options is not intended to detract from the other four options selected for assessment except insofar as it is not immediately evident that any of the other four options would have a positive benefit-cost.

4. Two approaches for this East Trinity property have potential

These two approaches are:

4.1 Convert the land to support residential uses.

This first approach appears very promising - potentially a win-win-win. A Cairns Post article, Committee fears for Reef, 24 July 2014, included: *'Leichhardt MP Warren Entsch, however, said both he and Environment Minister Greg Hunt's preferred disposal site was on-land. "Greg Hunt had already made it publicly clear that he wants the dredging [spoil] on land," he said. "I have made is very publicly clear that I want it on land, at East Trinity…." He said depositing the dredge spoil at East Trinity would also provide land for the city's future population growth.'* This option would:

- Provide a better alternative to dumping the dredging spoil at sea;
- Remedy the degraded lowland area at East Trinity; and
- Create associated benefits for Cairns community and businesses.

Initial estimates indicate this reclamation would be a sound economic proposition as well as making a major contribution to accommodating Cairns projected population growth, thus substantially achieving all 3 objectives outlined in Section 2.

Other potential benefits of this first approach include:

- The initially-estimated $110m cost to complete Ports North's plan to dredge the Trinity Inlet channel has not been fully budgeted. The Queensland State Government has pledged $40m contribution. The 2013/14 budget includes $2.7m for the EIS report as part of a $5.5m capital program. The 2014/15 budget included: *'Cairns Shipping channels: $12.3m for an environmental statement for widening and deepening of the Cairns shipping channel.'*

Queensland State Budget, Capital Statement 2014-15					
DEPARTMENT OF STATE DEVELOPMENT, INFRASTRURE AND PLANNING					
Capital Grant	Statistical Area	Total Estimated Cost $'000	Expenditure to 30-06-14 $'000	Budget 2014-15 $'000	Post 2014-15 $'000
Cairns Shipping Development Project	306	**40,000**	**6,200**	**12,300**	**21,500**

- More employment opportunities would be available for nearby Yarrabah Aboriginal people and others living in Cairns Southern corridor;
- Funds available from this proposed development could contribute to achieving Aboriginal cultural plans and proposals such as outlined in the 2009 Strategic Plan for the Country prepared by the Mandingalbay Yjdinji Aboriginal Corporation.
- Compliance with modern town planners' strong preference that residential expansion should be close to the CBD rather than spread out over a wider area; and
- Minimise conversion of prime agricultural land to residential to provide for population growth.

The total process involved to complete this proposed residential development would be complex, but is not unusual and should not present any major difficulties for competent engineers, economists and project managers. Numerous similar reclamation projects have been completed in Australia including large areas of the Gold Coast and Sunshine Coast (e.g. Pelican Waters, Kawana Waters, Twin Waters), Trinity Park in Cairns as well as reclamations numerous other countries. The requisite competences to complete this proposed reclamation project are readily available in Queensland, many of which are available in Cairns. An Internet search provides descriptions of hundreds of major reclamations in Australia and around the world, many of which include the use of pumped dredging spoil. Improved technologies and experience have resulted in both better, faster and more economic solutions, including commencing construction of buildings on reclaimed land at an early stage. Singapore in particular provides several relevant examples.

4.2 Return this land to agricultural use, as in the past.

This second approach is technically feasible, but the revenue from agriculture would provide only a minimal return on the high cost to upgrade the land. So this option would not be economically feasible, and the chances that any government would pay the massive reclamation costs that would be involved (see Section 6) appear to be minimal.

5. Many factors are involved in reclaiming the East Trinity land

5.1 How much land would be reclaimed and available for development?

The land potentially available by reclaiming just the Queensland State-owned site is 775 ha of lowland. With the additional adjacent 168 ha raised land, a total 943.6 ha has potential for residential development (see Brannock Humphreys Royal Reef Impact Assessment Study, May 1992, and Environmental Impact Statement, October 1995, comprising two large and very comprehensive volumes. The raised 168 ha would not need filling before development. The PRP June 1994 study, Possible DCP Boundary, identifies an adjacent additional approximately 3,750 ha of East Trinity land potentially available for development.

The 168 ha of raised land is between the 50 metre and 350 metre contours, as noted on Figure 2.4(A) Topography of Site, EIS Volume One, Brannock Humphreys report. This raised area would therefore present very desirable views across Trinity Inlet to Cairns City and the hills beyond. Note: Considerably more raised land could be made available for immediate development that would not be required for the estimated 500 ha for spoil placement). Phase 1 is assumed to include an additional 55 ha; a total of 223 ha, that is, half of the excess land over and above the 500 ha understood to be required for spoil placement.

By way of comparison, CRC Edmonton town centre master plan, 2006 states: *'Based on the outcomes of the environmental analysis, 1551 ha of developable land have been identified. The population of the Edmonton – Gordonvale Growth Corridor could be in the range of 28,500 – 53,500 people.'* The Trinity Beach suburb is about 300 ha.

Four lots owned by Ports North (Far North Queensland Ports Corporation Limited) between the Trinity Inlet and the State-owned land would likely be part of any future development. These four lots, with a total area of 1.83 ha (Lot Plans 1-4 C19823, Land Use 'Harbour Industries'), could provide access to Trinity Inlet. They are well-positioned for a dredge to discharge spoil pumped directly onto the site as well as providing residents' access to the water, and to a beach if this is part of the development.

Note:	100 hectares	= 1 kilometre square
	943.6 ha	= 9.463 square kilometres

5.2 What would be the density of this development?

Modern urban development mostly includes increasing amounts of higher density. Trinity Beach Esplanade and Trinity Beach Road are examples. The historic 800+ square metre, or 'quarter-acre' section, is becoming a rarity; a luxury that leads to excessive urban sprawl. If East Trinity is developed, it seems likely that a mix of residential single dwelling, low rise apartment blocks and commercial properties would be adopted. The yield from 943.6 ha would typically support a population of 15,000 to 20,000 persons, so the full 4,000 – 5,000 ha that could be available at East Trinity could potentially accommodate some 60,000 - 100,000 residents: that is sufficient for Cairns population growth for 10 or more years according to current projections.

5.3 What additional infrastructure would be required?

Considering first the total 4,000 – 5,000 ha of land as outlined in the DCP report is developed, this would probably require a raised bridge above the fish habitat area around Admiralty Island, such as the design in an earlier study by GHD Engineering. Such a bridge and surrounding roading could now cost in the order of $800m (the original estimate was approximately $400m). Recall at that time this bridge was part of the proposed second Southern access to Cairns.

Four options were presented in the Queensland Transport Trinity Inlet Transport Crossing Impact Study (figure 5.2). A 'Middle Corridor' was preferred over the higher areas of Admiralty Island towards the city connecting to Aumuller Street. A tunnel connection directly to the CBD was considered because a bridge in that area would need to be high level to allow for shipping and a tunnel using the latest technology would have less impact on the environment. Documents refer to this as the 'Far East Corridor'.

The amount of infrastructure required would depend on the amount of land developed and the intended commercial and residential development. However, it seems more likely that the expenditure and time to build a bridge or tunnel would only become economic if most of the 4,000 – 5,000 ha at East Trinity is developed. This in turn would require a full multi-criteria analysis of all significant development options for Cairns, including densification (see Section 7 Implementation).

Considering just the proposal to develop the 943.6 ha of State-owned land at East Trinity, no bridge would be required. Only normal infrastructure normally required for a development of this size would be required.

5.4 An option for a ferry across to the CBD Pier Marina?

The original plans for the Royal Reef Integrated Resort and Community prepared by Brannock Humphreys in May 1992 included a ferry crossing to the Cairns CBD. Whilst a bridge as originally proposed would reduce the driving time between East Trinity and Cairns CBD, East Trinity residents note it usually takes only 30 minutes to drive the 30 Km to Cairns CBD via Pine Creek Road leads and the Bruce Highway - slightly less outside rush hour, more in heavy traffic. This compares with, for instance, Kewarra Beach, 20 Km North of Cairns CBD with similar driving time (can be up to one hour in rush-hour). Gordonvale is 24 Km from the CBD, also a similar travel time.

A ferry between East Trinity and the Pier Marina could be a profitable venture, as proposed in the original Reef Resort project, possibly requiring a subsidy from the developer until the population grew to support a profitable ferry service. Note that many people choose to use ferries when available rather than drive and pay for parking, for instance to avoid drink-driving when going to a city restaurant, and in particular to travel to the CBD to work and avoid mounting parking costs. Examples include between Sydney's Manly and Circular Quay, and from the Brisbane riverside suburbs into Brisbane City.

An important aspect to businesses in the Cairns CBD would be that a fast regular ferry service would likely result in many East Trinity residents travelling to the CBD for work, shopping and entertainment, thus invigorating the CBD.

If the Aquis integrated resort project goes ahead, a ferry between East Trinity and Yorkeys Knob would provide fast and economical transport for construction and operational staff to travel to and from the resort.

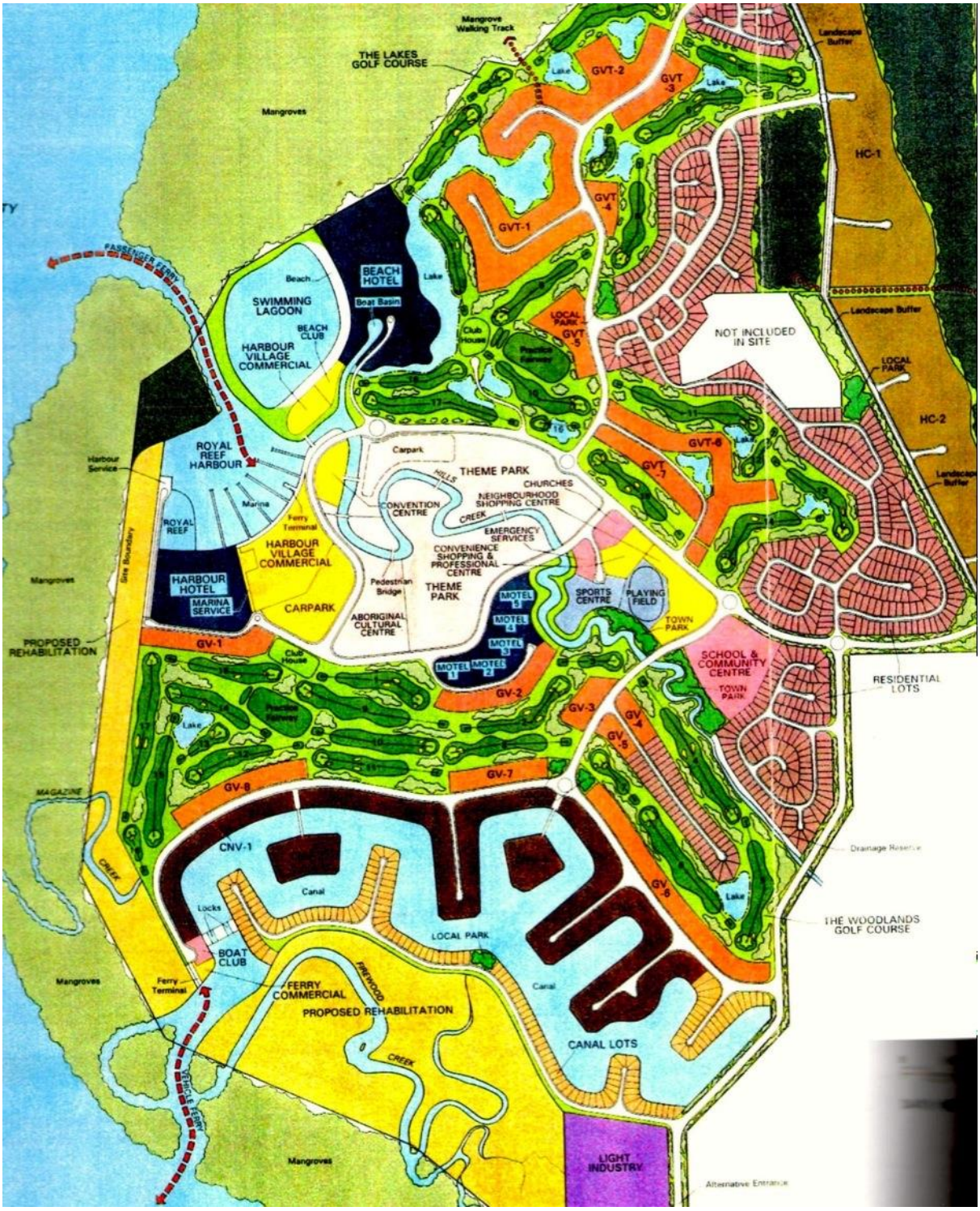
5.5 Would this reclamation affect the view from Cairns CBD and cruise terminal?

Some concerns were expressed that development of East Trinity would *'destroy the view from the City of the [East Trinity] hillside green backdrop'*. In fact the existing mangrove fringe and likely new trees planted would mostly hide all buildings from view, even when viewed from the top balcony of the Hilton Hotel, which is about the same height as the top decks of large cruise ships.

5.6 It seems much preparation work was completed years ago. What happened?

Thousands of hours and millions of dollars were spent planning a range of developments for East Trinity and related infrastructure. Why was all this discarded? The primary reason was because a few very vocal people against any development created so much propaganda, manipulated information and associated publicity led to the initial approval of development being retracted (see Section 2).

The very comprehensive Brannock Humphreys Royal Reef Impact Assessment Study, May 1992, Section 10.0 CONCLUSIONS notes: *'There will be no major detrimental impacts to the environment as a result of the proposed development which has been modified to be generally in accordance with the Trinity Inlet Management Plan.' The* Brannock Humphreys and Environmental Impact Statement, October 1995, noted: *'The EIS concludes that there will be no major detrimental impacts to the environment as a result of the proposed development. The EIS has demonstrated that both scenarios are sustainable on the site, both from an infrastructure serviceability and environmental impact perspective.'* A selection of diagrams from the IAS report can be viewed at Cairns Trinity Inlet Dredging and East Trinity - Opportunities. The resort master plan is shown below:



Other projects in the past, in Cairns and other parts of the world, provide invaluable lessons for proposals such as in this report. For instance, between 1987 and 1994 a few very vocal people tried to stop the Skyrail project, now an award-winning world-recognised attraction acclaimed for meeting the highest environmental standards. Fortunately for Cairns and tourists there were a few determined private individuals such as the Chapman family who countered false information and some extreme views against the Skyrail proposal, leading to its very successful completion and world-wide acclamation as a premier tourist attraction.

This general issue is described in an interview with Dr Patrick Moore, a founder of Greenpeace who later resigned, recently noting the more extreme elements that have taken over the green movement which has become a *"combination of extreme political ideology and religious fundamentalism rolled into one."* See Environmentalism has become a religion', 250514. An important caveat is that many people – probably the great majority - that advocate environmental protection and sustainability carry out or enable valuable improvements; hopefully their efforts more than compensate overall for the harm caused by their more extreme colleagues.

5.7 What are the main alternatives to this reclamation?

There are two main alternatives to this proposed reclamation, with many variations on each option:

5.7.1 Dump the initial and ongoing dredging spoil in the extended site past the end of the Trinity Channel.

A smaller spoil dump site has been approved by State Government departments in the past. The far larger amount of spoil proposed (some ten times more than recent quantities) is part of the current EIS assessment, but, as noted above, dumping spoil *'near our reef'* is increasingly unpopular and other concerns by Queensland State Government and bodies such as UNESCO may impact this option. Ports North estimated the cost at $110m. Given the current stated intention for the State to reduce expenditure and reduce debt, and the growing concerns about protecting the environment, it does not seem likely that the State government will allocate some $110 of taxpayers money for this dredging project. Section 4.1 noted: A Cairns Post article, Committee fears for Reef, 24 July 2014, included: *'Leichhardt MP Warren Entsch, however, said both he and Environment Minister Greg Hunt's preferred disposal site was on-land. "Greg Hunt had already made it publicly clear that he wants the dredging [spoil] on land," he said. "I have made is very publicly clear that I want it on land, at East Trinity…."*

5.7.2 Postpone the dredging until some later unspecified date.

This option would be inconsistent with an LNP election promise to ensure the dredging is carried out, so should be discarded. The option is noted here because it has been discussed in several media articles. Postponement would preclude, or at best delay, the many major benefits that Ports North and Cairns businesses and residents are expecting, as noted in the introduction, and thus be a highly negative outcome for Cairns businesses and the great majority of the Cairns community. Also, until the 775 ha lowland site is reclaimed, the Queensland State will remain responsible for the high ongoing costs of maintaining this site and ultimate responsibility to resolve the site's pollution problems.

5.8 How does the proposed reclamation fit into the long-term plan for Cairns?

Unfortunately, that is the easiest question to answer: Cairns has no agreed long-term plan for this proposal to fit into, or at least, not a complete long-term plan that has been

shared with, and agreed by, the Cairns community. Why not? This is a vital question that is addressed in Section 7 Implementation.

Several Cairns organisations and businesses are carrying out valuable planning work within their own sphere such as James Cook University, Cairns Airport and Advance Cairns. But there is no overall vision for Cairns agreed by businesses and the community, and no agreed integrated long-term plan.

Many visions for Cairns have been put forward and discussed over many years. Cairns was blessed with City Fathers who had far-sighted vision, such as the creation of Portsmith using dredging spoil over a period of several years to reclaim the salt/mud flats.

Many ideas and visions for the Cairns region have been proposed over the last few decades, including the list below. Hopefully these and many more will be considered when a long-term plan is developed for Cairns and agreed (Section 7.7).

- Expansion of many Cairns businesses provides more services for the proposed expansion of North Queensland 'food-basket' to feed the *'exploding middle class across the Asia-Pacific region'* (Andrew Robb, Federal Minister for Trade and Investment, 15/07/14).
- The Portsmith tank farm is relocated to the reclaimed Admiralty Island. The current location is a hazard, being too near the CBD, and could be cut off if Trinity Inlet was blocked.
- East Trinity, with about 5,000 ha of land potentially suitable for residential development close to the CBD, accommodates much of Cairns population expansion and avoids most building on valuable agricultural land.
- Cairns Airport Aviation Precinct and Commercial Precinct.
- A deep-water wharf at Yarrabah enables very large tankers and naval vessels to dock. An underground pipe could connect to a tank farm at Admiralty Island.
- A raised bridge from the Southern end of Aumuller Street over Admiralty Island is the second access to Cairns CBD as well as providing close access to residences at East Trinity.
- Ferry transport connects East Trinity and the CBD to Yorkeys Knob to transport staff to and from the Aquis integrated resort.
- A plateau built on dredging spoil adjacent to the Northern end of the Esplanade for RVs, amusements, cafes and parking, with a beach at the Southern end (Cairns Post front page 08-05-12 Cairns Post follow-on 08-05-12.)
- An integrated resort (Aquis) attracts Asians as their middle-class wealth grows, and other Australian and international tourists.

6. Benefit-Cost estimates

The most perplexing aspect of the period since the Royal Resort proposal was abandoned nearly two decades ago is that only the costs of East Trinity reclamation have been considered – invariably very large costs suggested without proper analysis. The authors of this report are not aware of any significant assessment of the potential financial and other related benefits available by reclaiming the degraded 775 ha area.

Why have only the 'costs' been considered? It is unheard of for any large potential project of this nature to have no benefits at all, even small benefits. Some minor potential benefits have been suggested through 'eco-tourism', but even these would involve significant costs before any 'eco-tourism' revenue could be obtained. No authority would ever agree to major expenditure unless there would be a significant net benefit. The only reason for not carrying out a rigorous benefit-cost assessment that has been put forward – past and present - is fear of upsetting some environmental extremists who might, in turn, persuade voters to vote against the party supporting such an assessment. Remarkably, it appears that the benefit-cost estimate described below is the first presented since the 1992/95 Royal Resort proposal.

The Cairns Shipping Development Project, Initial Advice Statement, July 2012, describes many major benefits for Cairns available once the dredging is completed. The largest benefit is described as: *'The proposed Cairns Shipping Development project will see mega cruise ship numbers grow by 61 annual visits by 2025, with continued growth beyond that time. The additional value added in the economy, generated over the 25-year project period 2016 to 2041, is estimated at $436m.'* See Appendix B. Clearly, these major benefits for Cairns businesses and community, as well as other related benefits, will be realised sooner if the dredging start and completion are expedited.

Emphasizing the importance of completing the dredging as soon as possible, The Australian reports in an article titled **Poor port facilities irritate cruise industry** (13/06/14): *'Carnival Corporation chief executive officer Ann Sherry, who has long advocated the need for improved port infrastructure, warned that the cruise growth would only continue if problems in ports such as Sydney, Brisbane and Cairns were fixed……. "In Cairns, it is vital for the planned dredging of Trinity Inlet to go ahead so that the Queensland city can achieve its potential as a cruising hub for the region, including Papua New Guinea and Asia," she said.'*

The Cairns Post, 06/08/14, noted: '*The 1500-passenger Pacific Eden is part of the company's expanded five-ship fleet and will arrive in September, 2016, for a two-month season. P&O Cruises chief executive officer Ann Sherry said Pacific Eden's mid-range size meant the ship would be able to berth at the cruise terminal. "The terminal is a spectacular starting point for a cruise holiday but we still believe that the proposed dredging of Trinity Inlet is essential so that Cairns can cater for larger cruise ships to realise its full potential as a major cruise hub," Ms Sherry said. Tourism Tropical North Queensland chief executive officer Alex de Waal welcomed P&O Cruises' announcement and vowed the tourism body would continue working with industry partners to position Cairns as a home-port destination. He said widening the shipping channel would improve its prospects. "More than 80 per cent of the cruise ships built since 2008 are too large to enter the Port of Cairns," he said. "Improved access is expected to result in large cruise ship numbers growing by 63 annual visits by 2025. "(This will) inject $634 million into the regional economy and generate up to 679 extra flow-on jobs per year by 2041. "The Great Barrier Reef is our trump card and if the EIS demonstrates that dredging can be done with minimal or no impact it should go ahead."'*

Additional benefits to Cairns businesses and organisations following the dredging (and therefore advantaged by expediting completion of the dredging) would include the following:

- **Diversification:** Cairns is overly reliant on the in-bound tourism industry and the economic cycles that this brings. Developing East Trinity would not only improve a strength (tourism through greater access for Cruise liners) but also diversify industry and employment opportunities through construction and related activities.

- **Royal Australian Navy:** Similar to the reasons for providing access to the larger cruise ships, the larger Royal Australian Navy (RAN) and foreign warships may be more inclined and able to berth alongside Cairns wharfs. The RAN has recently purchased two Landing Helicopter Dock (LHDs, see link below) with the first to enter service this year. The plan is for the LHD's to operate out of Sydney with Townsville No 10 as their primary loading base. With the increasing commercial pressure to bring cruise liners into Sydney berthed at Garden Island, Cairns, with its current Navy infrastructure and support facilities, could be presented as an alternative home port base for an LHD or as an alternative base of operations to Townsville. The flow on effects of additional Naval vessel port visits are most obviously to the tourism industry. If the permanent Naval presence by basing additional ships in Cairns is increased there would be additional requirements for defence-funded housing, with the associated flow on benefits. http://en.wikipedia.org/wiki/Canberra-class_landing_helicopter_dock.

- Great Barrier Reef International Marine College Cairns will benefit from all or any increased marine activity in and around Cairns.

- Other Cairns industries that are expected to benefit include the Cairns fishing industry, bulk and general cargo industries, marine services - slipways, dry docks and superyacht services.

This report focuses only on development of the 943.6 ha area, including both the 168 ha raised area and the 775 ha lowland area. The report estimates how this project could be a stand-alone development that is not dependant on further development of the additional land potentially available at East Trinity, nor is dependent on major infrastructure including a new bridge.

The estimates below have been drawn up using the best information available to the authors, including from several engineering and other specialists. It is recognised that much more investigation and resulting data will be required to produce accurate measures of both the benefits and the costs of this proposal. It is assumed that all the estimates below include the various management and investigation costs associated with that activity. All figures are intended to be conservative to avoid any inaccuracy significantly impacting the overall conclusion.

6.1 Number of land lots available

Conventional residential development of detached dwellings in suburban precincts can yield between 8-14 lots per gross hectare depending on the lot sizes adopted. A conservative estimate of 8 lots per gross hectare has been adopted for the purposes of this estimate. However the yield from such a large parcel of land would likely comprise a mix of conventional residential and medium and high density residential around commercial and employment nodes, likely resulting in an average yield of greater than

8 lots/ha. The yield from 943.6 ha would likely support a population of 15,000 to 20,000 persons. The above is based on the assumption that all 943.6 ha could be recovered and suitable for residential purposes, and that attractive features such as lagoons and parks, as were included in the original Royal Reef Integrated Resort and Community project, would be incorporated. Obviously a proper plan would be much more complex than this simple averaged approach.

Assume an average 8 lots per ha for the total 943.6 ha:
943.6 ha x 8 = 7,549 lots in total

Phase 1: develop only the 223 ha x 8 lots per ha = 1,784 lots (See section 5.1, noting Considerably more raised land could be made available for immediate development that would not be required for the estimated 500 ha for spoil placement).

Repeating the note in Section 5.1, by way of comparison, CRC Edmonton town centre master plan, 2006 states: *'Based on the outcomes of the environmental analysis, 1551 ha of developable land have been identified. The population of the Edmonton – Gordonvale Growth Corridor could be in the range of 28,500 – 53,500 people.'* The Trinity Beach suburb is about 300 ha.

An allied question is, when will these land lots be available? Several comments on local media have suggested it will take 10 years before the reclaimed land at East Trinity can be built on. The suitability of reclaimed land for building purposes can be very different from land that has been settled for many years. A search on the Internet reveals thousands of reclamation projects around the world with results showing building starts within months, or may be await several years if the benefit-cost analyses determine this is the most economic option. A general rule is often noted that the sooner building starts, the more expensive the preparation costs. A full assessment together with application of modern technologies will be required for East Trinity. Many modern aids are available such as those developed by Dr Julie Lovisa from James Cook University using maths to determine when dredged soil is solid enough to build on. However, several parts of the 964.3 ha area at East Trinity such as the 168 ha raised area could be available for building immediately, and several parts of the lowland area are likely to need little or no capping or neutralization. It is normal for a large project such as proposed to be phased; the low-hanging fruit is tackled first.

6.2 Land sale prices

RPData information shows there were 142 relevant residential lots sold within 10 kilometres of CBD in the 12 months from 1 March 2013 to 28 February 2014. The average price was $221,000. Similarly, 39 residential lots in the Gordonvale area were priced at an average $143,000. An average of these two prices is $182,000. It is assumed that 80% of lots will be residential, 20% will be commercial (small shops, hotels, tourism and the like, but not industrial), and that commercial lots will attract a premium of 50% above residential prices. These figures indicate an average lot price of $200,000.

Access to the Cairns CBD would be via a fast, frequent ferry as well as existing roads with some upgrades. A new bridge or tunnel providing much shorter access to the CBD

as described above would increase considerably the value of these properties, but is not taken into consideration in this estimate.

This lot sales price estimate is very conservative as only single detached dwellings are considered. No consideration is given to attached housing or low-rise residential blocks, all of which would attract higher prices per area. High-rise developments may not be suitable for this area, in part because of suitability of the ground.

Further support for the view that the sales price estimate is conservative were noted in an article in the Cairns Post, 31/05/2014, by Nick Trompf, Executive General Manager, New Corp, North Queensland: *'After six years in the doldrums, established housing is bounding back. REIQ figures released this week show Cairns had the highest median house price growth (5.6 per cent) in Queensland in the March quarter. House prices in Cairns are materially undervalued and with rising rents and low interest rates, returns are positively geared in many suburbs. With record growth in Sydney and Melbourne house prices, investors are set to return in droves to our region (as they did in previous booms).*' Also Deputy Mayor Cr Terry James told a Cairns Chamber of Commerce lunch *"By the end of March, 409 (building) applications had been lodged this year - 106 more than the last high of 303 in 2010-11 and 11 9, or 40%, more than this time last year. The number filed has been the highest over the past four years"* (Cairns Post, 4/06/2014).

Sales would likely be over a period of several years for a development of this size - an allowance for the time difference of costs and income is provided in Section 6.10.

Assume a lot sale average price of $200,000 per dwelling lot. As noted in Section 5.1, This raised area would present very desirable views across Trinity Inlet to Cairns City and the hills beyond. As such, the average price per dwelling lot may be higher than the estimated $200,000.

6.3 Land sale revenue

Estimate of potential revenue: 7,549 (see 6.1) dwellings x $200,000/lot = **$1.51 billion**

Phase 1: Assume revenue: 1,784 (see 6.1) x $200,000 / lot = $357m

Experienced developers have noted they would expect a development of this magnitude to yield revenues of well over $2 billion. The Cairns Post, 23 May 2014, reports *'Paradise Palms (the 153ha property and golf course at Kewarra Beach) has been described as the "most significant development site" to go to the market this year in the Far North. It is the city's only master-planned residential community developed around a world-class gold course. It is estimated that the full development of the 1400 residential and resort-style accommodation lots, a 20-lot residential housing stage, a 153-apartment lakeside site and acreage could fetch up to $1 billion.'*

The Cairns Regional Council attributed confidence in the region's growth to the sharp increase in planning applications which have risen from 85 in late 2012 to 137 in November 2013. Cairns housing approvals rose from 36 in January 2013 to 58 in January 2014, a 61% rise, and 45% more than the 40 in December. This level of confidence has been greatly enhanced by the approval of the Aquis licence, supportive

comments by the Queensland Deputy Premier, Jeff Seeney, and expected start of construction now only awaiting final approval of the Aquis EIS report - Justin Fung, director and chief executive of Aquis Great Barrier Reef Resort, was quoted in the Cairns Post 31 May: *"Given the Government's announcement and the advanced state of the EIS we remain confident of commencing construction in early to mid-2015 following the wet season"*.

6.4 Estimate of development costs

Many factors need to be considered in order to determine the direct and indirect costs of using the dredged spoil as part of reclaiming this property. It is not acceptable in today's practice for the ASS or PASS to be directly placed on land that will leach contaminants into the soils on which it is laid. Issues for consideration that will require further investigation and data include:

- The quantity of lime required will depend on the quality of the lime and level of contamination of the soil;
- The costs of treatment pads, channels, settling basins, bunds and excavations for any permanent man-made ponds/lakes for strategic reburial strategies.
- Methods of treatment will depend on soil analysis and environment characteristics such as ground water tables and surface and underground water courses;
- Hydraulic separation procedures added to the dredging process stream may require treatment of concentrated acidic soils;
- Water storage for 'reburial' such as Aquis' proposed man-made lakes; and
- Possible re-use of sands and gravels in the soil to clean and re-use on the new reclaimed site. If so dredging canals and channels may become feasible for parts of the residential estate.

Given the lack of recent data, the following estimates rely on updating historic information and comparisons with other reclamations.

Assume all the initially-proposed 5m M3 of dredge spoil is pumped to selected sub-areas of the 775 ha lowland area. For instance, the areas requiring spoil could comprise one third of the total area covered to an economic treatment and surcharge load depth of 2 metres.

More dredging spoil could be available if required and would allow the Trinity Inlet Channel and basin to be dredged deeper, thus allowing larger cruise ships to dock at the terminal, with consequent additional revenue for Ports North and Cairns tourist and potential benefits for Cairns marine industries. Land survey data and soil analyses may indicate that several parts of the total site will not require extensive reclamation work, which is the view of several East Trinity residents who are familiar with the property.

6.5 Dredging and pumping spoil to the site

Estimate $15 per M3 x 5M3 = **$75m**

Phase 1: assume the cost to pump the spoil is the same, eg to the suggested 500 ha

This cost estimate, which excludes hydraulic separation, was provided by Hall Contracting, who recently carried out the Port Douglas channel dredging. The bund wall between the site and the Trinity Inlet, built by CSR in 1972, remains in good condition, as does the adjacent road. Minor changes would be required to the narrow gap that allows water flow into and out of the site. Assuming site development will be phased, an indicative time-line for major parts of the site could be:

- Mobilisation 12 weeks
- Dredging 5m M3: 50 to 70 weeks, depending on the borehole information and dredging and pumping equipment
- Demobilisation 4 weeks

It is possible that considerably more dredging could be required when all sets of data and their analyses have been completed, with consequent higher costs. As with all other estimated costs for this proposal, any major change in cost should be viewed in terms of its materiality to the overall conclusion, as noted in Section 6.11.

Note: Aquis EIS proposes dredged excavation – *'two cutter suction dredges that can each achieve production rates of about 650 M3/hr.'* At a production rate of 1,300 cubic metres per hour, 5m M3 would take about 23 weeks on a 24 x 7 basis, although other factors such as distance would likely reduce practical production rates, and different equipment would be required.

Many lessons are also available from the current dredging project to produce the second Brisbane Airport runway. http://www.bne.com.au/corporate/upgrading-your-airport/new-parallel-runway/npr-dredging-reclamation-works. The website explains: *Brisbane Airport is located on an old Brisbane River delta. This means the underlying soils are very soft and watery. Significant preparation work must be completed to create a solid base for the new runway. To compress the soil and remove the water, around 13 million cubic metres of sand is required from Moreton Bay to be placed on the runway site.*

Other pertinent comments from dredging engineers include: *'Carefully managed deposition of dredged spoil ashore in reclamation is the optimum way to control the dredging process and ensure no adverse impact on GBRMPA. Dredged material is all retained on land and only water meeting the strict release limits for turbidity, dissolved oxygen and suspended solids is allowed to be released back to the inlet - in other words, only clean water is returned to the sea.'*

6.6 Chemical treatment to correct acidity

Treatment of acid sulphate soils, or 'neutralisation of ASS', is the most commonly cited problem concerning reclamation of this East Trinity property.

Levels of acidity in the dredging spoil from Trinity Inlet and basin are invariably sited as a problem that would be so costly and impractical that reclamation would not be feasible, concluding that dumping the proposed 5 million cubic metres of spoil in an extended dump past the Trinity Inlet channel is the only feasible option.

As noted in the introduction to this section, this report is the only known assessment of the potential benefits from reclaiming this degraded land that has been carried out since the 1995 Royal Resort proposal.

> **The key to achieving potential benefits is an <u>economic</u> solution to fix the acidity problems for both the existing soil on the property and the dredged spoil. It is unlikely in the extreme that there will be no suitable <u>technical</u> solution.**

Two comparative estimates of lime treatment to neutralize spoil were obtained: $2 - $3 per M3 and $7 - $13 per M3. This estimate will assume an average $7 per M3, recognising that full analysis will be required to enable an accurate cost estimate. Comparisons with other projects indicates that the direct cost of lime comprises approximately 50% of the total cost of treatment. Investigations by Hollings Dames and Moore 1993, Golders Associates 1989 and numerous references and methodologies described in Chapter 15 of the Aquis Resort EIS provide a useful starting point to assess the chemical treatment requirements for the site prior to full analysis of samples, noting treatment pads and environmental procedures are more stringent nowadays.

Data collected on the specific ASS contamination levels will enable the quantity of lime to be calculated. An QDPI study noted 110 ha severely acid soils (SAC) at the southern end of the site with 600 tonnes of sulphuric acid per ha, however, without further data an estimate of $5 has been allowed to neutralize severely contaminated soil. However, indicative figures are as follows:

Estimate for lime treatment of capping spoil: $7 per M3 x 5m M3 = **$35m**
Estimate for lime treatment to neutralize 110 ha of severely contaminated soil: **$5m**

Phase 1: this calculation indicates <u>chemical treatment</u> is the same, ie $40m

However, Phase 1 will assume the average of the total costs understood to be presented in the draft EIS, including dredging, chemical treatment and associated costs, of between $200m and $250m – <u>assume midpoint of $225m</u>.

Similar to the note in Section 6.5, it is possible that considerably more capping and neutralization treatment could be required when all sets of data and their analyses have been completed, with consequent higher costs. As with all other estimated costs for this proposal, any major change in cost should be viewed in terms of its materiality to the overall conclusion, as noted in Section 6.11.

Lime can be delivered by truck and ship. Quantities of lime as large as estimated for this proposal may be economic to purchase in Australia or from overseas for delivery by ship, then pumped from the ship onto land. If trucks are used, the estimate of $20m of lime delivered (half the total cost of lime treatment) at $50 per tonne translates into 400,000 tonnes. If relatively small 3 axle rigid trucks were used at their maximum allowable load of 23 tonnes, 400,000 tonnes would require some 17,400 truck-loads; over a 2-year period, about 25 truck-loads per day. Projects requiring large quantities of lime often use truck-and-dog vehicles with much larger capacities. For instance, one lime supplier commented they *'can supply and deliver lime to the East Trinity site by*

truck and quad dog. At this stage that is the most effective option of getting lime to the site. This combination has a pay load of around 32 tons.'

Stewart Hagan, General Manager, Phoenix Lime Pty Ltd., noted: *'I'm sure that we could add value over and above simply supplying lime to the site and would be happy to be involved in the early stages to develop the most cost effective solution to the potential ASS problem'.* Suppliers invariably have expertise that can improve and expedite results when involved at an early stage.

Recent comments in the media suggest there could be shortage of lime for a large project such as proposed, particularly if Aquis goes ahead too. Phoenix stated they have some 55,000,000 tonnes of lime potential in their new quarry, that is about 100 times the amount that East Trinity may require.

With regard to the availability of lime, Volume 11 of the Aquis EIS, Appendix Q Soils and Contamination, Soil and Contamination Issues, 24 March 2014, notes: '*On this basis, the total lime requirement would be in the order of 105,000 tonnes (about 25,000 tonnes/year over the construction period). We have confirmed with Mirriwinni Lime that they have the capacity to supply the tonnage required for this project.'* Note: the purity of this lime and suitability for the East Trinity requirements are not known.

Chapter 15 of the Aquis EIS report repeats and notes further: '*Mirriwinni Lime has leases at several locations and currently produces 100,000 tonnes of agricultural lime (aglime) per year. Phoenix Lime has leases across a 3.5 million tonne deposit at Ootann. Phoenix Lime is currently seeking approval to supply 350,000 tonnes of lime per annum to the NORNICO nickel project. Additional smaller operators supply lime from leases in the Mt Garnet, Almaden and Ootann regions.'*

Chapter 15 further adds: *'15.4.4 Residual Impact. The management and treatment of ASS to mitigate potential environmental impacts is a mature process that has commonly been adopted for ground disturbance projects in the Cairns Region and for lake/water developments of a similar size elsewhere along the Queensland coastline. With appropriate management there is not expected to be a significant residual environmental impact.'*

There have been numerous investigations and reports written relating to East Trinity soil. The Brannock Humphreys EIS report 1995 concluded: *'However, the adopted strategy of treating all soils on the site or having acid producing capacity, combined with a testing program during the excavation and treatment phases will ensure efficient management of any acid sulphate soils on the site'*. Section 5.4.1 notes *'..samples of dredged material....(from)..the main channel in Cairns Harbour'* lead to the conclusion that *'It is evident from this analysis that the composition of the material will form an engineered fill of sufficient quality for most, if not all, the bulk fill requirements of the East Trinity site.'*

Recent comments from geotechnical engineers include: *'The potential amount of acid present is a function of the volume of acid soil sulphate present and likely to be changed from anaerobic to aerobic conditions. If the fill soil placed over the site is limed then the natural soils in place will not be exposed to aerobic conditions and there should be no requirement for treatment. If the QDPI study is accurate, the $35m estimate would*

be the treatment cost. That cost depends mostly on the total acidity of the proposed dredge spoil. There may also be other associated costs such as pre-development investigations and monitoring costs during implementation. The process of testing, liming and validation testing of acid sulphate soils is a very common, accepted and proven practice. Every project in Queensland where excavation occurs below RL5m AHD requires an Acid Sulphate Soil Management Plan (ASSMP). The Department of Environment, Consulting Engineers, Contractors and regulators are all very familiar with the process and these ASSMP and their implementation is widespread. Local experience dealing with soils of this nature includes Bluewater Canal Estate and Trinity Park.'

6.7 Preloading to expedite spoil settlement (if necessary)

These potential costs are often included with the other treatment. However, assuming a worst case, the following is estimated:

Assume preloading cost: $200,000 per ha.
Assume one third of property nearest the inlet requires preloading to 2m depth, with preloading depth tapering off sharply towards the eastern boundary:
Preloading estimate: $200,000 per ha x (775 ha x 1/3) = **$52m**

Comments from geotechnical engineers include: *'Preloading is undertaken to accelerate potential settlements so that by the time building commences the movements associated with building have been largely stopped. Preload requirements and costs depend on many factors such as the depth of soft or compressible material, the load intended to be applied and the timeframe applying the preload - an earlier start requires earlier preloading to be completed. For residential estates in estuarine environments where, say 2 metres, of soft clays are present, then preloads are typically about 2 metres high to complete consolidation over about 18 months. Assuming 2 metres of soft clay and a 2 metre high preload, the earthworks would involve placing, shaping and then removal of 20,000 cubic metres per hectare. Cost of placing and removing on site or dredged materials is typically about $10 per cubic metre. This indicates preloading costs of about $200,000 per hectare. There are also investigation, monitoring and engineering costs.'*

6.8 Site infrastructure costs

Estimate $70,000 per lot x 7,549 lots = **$528m**

Phase 1: assume infrastructure costs per lot are same, ie $70,000 x 1,784 lots = $125m

This estimate assumes a recent average of $50,000 per lot for development costs plus headworks and related charges for infrastructure as $20,000 per lot. These figures were provided by a Queensland consultant with very considerable experience in this field, and local knowledge. The site infrastructure cost clearly is the largest single cost for this stand-alone project. However it is probably the easiest figure to verify as numerous other large scale developments have been completed in Australia to compare against.

There are many authoritative reports that note infrastructure costs are un-necessarily high due to excessive and overly complex federal, state and local government

regulations and delays. For instance, the Productivity Commission report, Planning, Zoning and Assessment, 16 May 2011, notes: *'The greatest cost [of infrastructure] depends on the jurisdiction and development type. In Queensland, the infrastructure costs dictated by the State Government are exorbitant for certain development (eg $93,000 for a medical centre with $700,000 construction cost), generally though the increased cost of required consultants for the spiralling different disciplines required by most councils is probably the greatest cost. Council requiring too much information/consultant reports up front to assess a DA, which is a financial burden for clients to have prepared before they have any certainty about whether a development is DA feasible. Especially onerous for home owners with small renovations there can be a huge list of required reports apart from basic plans and elevations — eg arborist, surveyor, hydraulic engineer/drainage, BASIX, heritage, waste management, environmental statements, photographic report, colours/materials sample board, landscape plan, erosion management, etc.'* This issue is addressed in part in Section 8 Indicative Project Time-Line.

6.9 Cost of purchasing the 943.6 ha site

Currently the site is a significant liability to the Queensland State Government - the site's very degraded and hazardous state is described in Section 2. The State paid a substantial amount to the National Westminster bank to avoid litigation and take ownership, and has thus incurred large ongoing maintenance costs. If this stand-alone project proposal is completed, it will be because a developer decides a commercial project such as this proposal could yield a competitive level of profit: it is this developer's calculation that will primarily determine the value of the site.

Advice has been received that normal valuation methods are not suited to this unique situation. In practice, the site's value will be determined by negotiation *'between a willing buyer and a willing seller'*. As noted in the Section 7 Implementation, a successful developer would need to be convinced that the current plethora of regulations relating to the site would not prevent or detract significantly from their planned development.

The Ports North EIS is required to '*Provide descriptions of all feasible alternative land-based spoil disposal'* (see Section 3). This assessment as well as the many previous reports relating to this site, as noted above, should provide much of the technical information needed to produce a costed potential project plan for this stand-alone proposal. This issue is also addressed in section 7 Implementation.

An initial figure for the sale price of this 943.6 ha property of **$100m** is assumed for this benefit-cost estimate on the basis that this amount would:

- Cover all costs incurred by the state;
- Yield a significant profit for the State;
- Possibly be considered affordable by a developer, being less than 7% of the low estimate of potential revenue;
- Recognise that no current 'valuation' method is likely to produce an acceptable figure; and
- As no potential project plan has been produced to date, there is no other figure or rationale currently available.

The Queensland State would separate the 500 ha understood to be required for spoil placement, and use half of the residual 446.3 ha, ie 223 ha, for Phase 1 development. The State would sell the 223 ha for a nominal amount to a developer on the condition that the developer will pay for all the dredging, spoil treatment and associated costs to place the dredging spoil on the approximately 500 ha of land identified for placement of the spoil. The costs estimated, as noted below, are $115m. But if accurate costing is higher, then additional land over could be sold in Phase 1. This estimate for Phase 1 will assume the average of the costs understood to be presented in the draft EIS, ie between $200m and $250m – assume the midpoint $225m.

6.10 Financial costs

This reclamation and related projects would likely be phased over several years. Many costs would be incurred ahead of revenue streams, although development could commence on the 168 ha raised area as soon as approvals are granted and before the lowland area reclamation is completed.

This project would require considerable up-front finance before any return. This is normal for most projects of this nature - developers and their financiers normally plan for loan finance before revenues occur. Any prospective developer(s) as well as their financiers would require a high level of assurance that governmental approval processes and decisions would be made efficiently and not rescinded as happened with the Royal Reef Resort project. Discounted cash flow with net present value would be used for all projects of this nature. The $103m allowance below clearly is a very simple and only indicative approximation.

Assume all project costs attract financing fees average 2 years at 6.5% interest rate.

Total costs (see figures above): $75m+$35m+$5m+$52m+$528m+$100 = $795m
Assume financial costs: $795m x average 2 years @ 6.5% interest rate = **$103m**

Phase 1: assume developer can commence development shortly, so low financial costs.

6.11 Total benefit-cost estimates

Stand-Alone Project Benefits and Estimates Costs		**$ millions**	
Indirect Benefits: see Section 9 Conclusions			
Direct Benefits	**Estimate of revenue from land sales**	**$1,510m**	
Cost estimates	6.5 Dredging and pumping spoil	$75m	
	6.6 Chemical treatment	$40m	
	6.7 Preloading (if necessary)	$52m	
	6.8 Site infrastructure	$528m	
	6.9 Cost to purchase 943.6 ha site	$100m	
	6.10 Financial	$103m	

	LESS: Estimate total cost of development	**$898m**
	Direct benefit-cost estimate	**$612m**

As noted above, obviously this estimate is not accurate, but the estimated benefit-cost is large enough to accommodate significant changes.

The estimate of total land sales, $1.51 Bn, is considered by real estate professionals to be conservative. The site infrastructure estimated cost, $0.528 Bn can be compared with many other large developments and shown to be comparable. The other five cost-estimates may be less accurate, but are much less material to the overall conclusion.

It should be noted that an alternative benefit-cost carried out for only the 775 ha of lowland area indicates a lower, but still very substantial, benefit-cost. The indirect benefits are the same for both.

An alternative approach for this proposal would be to divide the total project into two distinct phases. Details are provided in Section 9 Conclusions, and the report Summary.

7. Implementation

Implementation of this stand-alone project would have several components, generally as listed below. It is recognised that planning processes in Queensland have become extremely complex. Further, it is assumed that the promises by Prime Minister Tony Abbott and Queensland Premier Campbell Newman to minimise excessive 'red and green tape' will be implemented in time for the bulk of this or a similar proposal's implementation.

7.1 The Queensland Coordinator General should first approve the Port North draft EIS, after ascertaining the report complies fully with the terms of reference. Local, State and Federal support for placing the dredging spoil on land will be the key factor. If the final EIS report is sufficiently supportive of this proposed or a similar reclamation, and it receives appropriate political support, then:

7.2 The Queensland State Government will need to ascertain the approximate value of their 943.6 ha property. As noted in Section 6.9, a valuation estimate should be determined as part of a rigorous potential stand-alone project plan - without a plan that includes the possibility of sale of the land, it could be argued the land is a liability to the Queensland State owners, with a negative worth. The first and most urgent task will be to appoint a team of very experienced specialists to develop one or more potential stand-alone project plans, including critical paths, time-lines and credible benefit-cost analyses. Issues relating to Native Title will need to be addressed, as noted in Section 2, possibly including a Cultural Heritage Management Plan. Considerable information is already available to assist and expedite development of this project plan including: information presented in the Ports North EIS Report; the Brannock Humphreys Royal Reef IAS study, May 1992, and EIS report October 1995; the East Trinity Master-plan and Prefeasibility Study undertaken by Ports North consultants ARUP on behalf of DEEDI (Department of Employment, Economic Development and Innovation); and the Aquis EIS report and subsequent preparation and negotiation processes. The current State budget has ample allocated funds to pay for this project plan assignment (see Section 4.1).

7.3 As noted above, a key part of the potential project plan will be the time-line. Section 8 presents an indicative project time-line with several critical caveats.

7.4 When the Queensland State Government receives the potential project plan(s), it will be in a position to decide on a course of action to sell the 943.6 ha as soon as possible. The buyer(s) could be one or more developers (local or overseas such as Chinese), or possibly the Cairns Regional Council as an interim step towards private ownership so the sale and development process such as rezoning and some infrastructure can be managed locally. Any developer(s) would need to produce their own plans, probably based on and modifying the State Government's plan(s), have the plans approved, and be assured that no further regulations would significantly affect the viability of their plans. This step should be expedited to minimise any delay in completing the Trinity Inlet and basin dredging and the resulting benefits to Cairns.

7.5 The State Government and Cairns Regional Council should provide credible assurance to prospective developers as well as Cairns leading organisations, businesses and communities that the State will expedite:

- Removal of non-essential 'red and green tape', as promised by Prime Minister Tony Abbott and Premier Campbell Newman;
- Optimisation and simplification of all current relevant regulatory processes and decision-making: and
- Confirmation that no subsequent decisions will be based on different criteria ('shift the goalposts') that stymie or delay Cairns developments, as happened with the Royal Reef Resort (see Section 2).

7.6 Any major prospective developer's confidence will be enhanced considerably when they are confident that a long-term 'best-practise' plan for Cairns is being drawn up as a matter of urgency and in parallel with this stand-alone project planning. The 943.6 ha development operations should be able to commence under existing schemes before the new long-term plan is agreed, in particular the dredging. Development on the 168 ha raised area could begin as soon as approvals are completed without waiting for any spoil placement; this would expedite the project cash-flow. The possibility of developing additional land at East Trinity would need to await completion of the Cairns long-term plan.

7.7 Drawing on experience elsewhere, arrangements to complete this Cairns long-term plan should include:

- Appointing a Board as soon as possible to oversee development of the Cairns long-term plan. Members of this Board should include representation from all major groups, in particular the Cairns Regional Council, Ports North, Cairns Airport, Cairns Hospital, Queensland Transport Cairns office, James Cook University, Cairns Chamber of Commerce, Advance Cairns and Cairns communities. State and Federal representation should be requested to assist the Board as required.

- Critical to the success of this Board will be the selection of the Chair. A highly credible person will be essential – a wise, experienced, pragmatic, and very successful local person.

- The Board's first task would be to have terms of reference drafted for a report to assess relevant issues, assess previous plans, draft a set of strategic options and present a preliminary assessment of each option. A lead-consultant should be selected to produce the initial report, including regular briefings. Regular, but not excessive, consultation with a wide range of stakeholders will be essential, as will a policy and practice of transparency.

8. Indicative project time-line

There will be a critical path for this project which should be start as soon as possible. Every week that the start of the critical path is delayed will be another week that the many benefits to the Cairns community and businesses from this project will be delayed. The time-line for this proposed, or a similar, stand-alone project should start immediately.

As noted in Section 7.5, excessive regulation and overly complex processes invariably cause many negative results: excessive and unnecessary costs, delays, cancelled projects and failure to achieve benefits for businesses and the community.

The indicative time-line below starts by expediting a process and/or project(s) to assess, then implement improvements to, all regulations that effect the speed of delivery and benefits of development projects in Cairns. Some of the 'fast track' approaches adopted for the Aquis development may be applicable.

The time-line below assumes that every practical possibility to expedite this project is applied. Clearly the tasks and time-line suggested in the table below are not complete or accurate and 'indicative' only.

Year	Month	Task
2014	Ongoing	**All levels of government expedite assessment of, and improvements to, all regulations that effect the speed of delivery, benefit-costs and risks of Cairns development projects.** This should include: - Excessive 'red and green' tape - Regulatory frameworks, building and related standards - Approval processes, compliance, risk-based approval and inspection regimes - Delegated responsibilities - Adoption of appropriate best national and international practices
	Sept-Dec	- **Coordinator General receives Ports North draft EIS Report** - EIS assessed against EIS TOR after formal submission (note: interim assessments are normally carried out, so the formal EIS submission should have most, if not all, queries resolved) - EIS report release for public consideration and submissions - All EIS queries resolved, submissions considered - **EIS assessment report delivered to State Government** - Specifications to develop a project plan drafted - **Queensland State Government approves final EIS** - Tenders called for assignment to prepare a project plan (see 7.2) to establish options and value in preparation for the sale of the 943.6 ha.

2015	Jan-Mar	**- Project plan tender awarded** - Preparation for sales process, including alerting potential buyers - Project plan report first phase delivered in March, including preliminary assessment, options, projected time-line, regulatory requirements, cost estimates and indicative site sale price **- Call for tenders for dredging and associated work,** in compliance with Queensland State Government procurement policies
	Apr-Jul	- Final project plan report delivered **- Dredging tenders received, contractor selected based on price, capability, experience and <u>ability to start and complete dredging at the earliest time</u>** - Pre-treatment operations – land treatment pads and infrastructure **- Dredging operations commence** - Cruise operators invited to include Cairns CBD in their schedules for larger cruise ships (most cruises are planned at least one year in advance) - Site sales process: prospective buyers selected, negotiation starts **- Prospective buyers short-listed; short-list buyers invited to submit project plans**
	Aug-Sept	**- Dredging operations start** (see 6.5) - Some associated site preparation activities start in parallel (chemical treatment, any pre-loading, infrastructure) - Short-list project plans assessed - Negotiations with short-list buyer(s) - Preferred buyer(s)' project plan(s) approved. (Note: plans would likely be phased over several years) - Recommendation to State Government to sell site to preferred buyer(s)
	Sept	**- State Government approves sale to preferred buyer(s)** - Site sale completed, ownership transferred **- New site owner(s) commences implementation of approved project plans, including dredging and spoil management plan**
2016	Oct	**- Trinity Inlet and basin dredging completed** - larger cruise ships soon dock at cruise terminal; other operations requiring deeper channel start shortly

9. Conclusions

Several caveats are noted above. Direct benefit-costs for this proposed stand-alone residential proposal on the Queensland State-owned 943.6 ha site at East Trinity are estimated as follows.

Direct Benefits	**Lot sale revenue estimate**		**$1,510m**
Cost estimates	6.5 Dredging and pumping spoil	$75m	
	6.6 Chemical treatment	$40m	
	6.7 Preloading (if necessary)	$52m	
	6.8 Site infrastructure	$528m	
	6.9 Cost to purchase 943.6 ha site	$100m	
	6.10 Financial	$103m	
	LESS: Estimate of total cost of development		**$898m**
		Direct benefit-cost estimate	**$612m**

Obviously this estimate is not accurate, but the estimated benefit-cost is large enough to accommodate significant changes without effecting the overall conclusion.

The lot sale estimate, $1.51 Bn, is considered by real estate professionals to be conservative. The site infrastructure estimated cost, $0.528 Bn can be compared with many other large developments and shown to be comparable. The other five cost-estimates may be less accurate, but are much less material to the overall conclusion.

Indirect benefits would include:

1. Provide a more beneficial alternative to dumping the dredging spoil at sea;
2. Enable a solution to fix the State-owned degraded land at East Trinity;
3. Create major associated benefits for Cairns community and businesses;
4. Avoid Ports North and/or the Queensland State Government needing to use taxpayers funds to pay for the cost of the dredging;
5. Make a major contribution to accommodating the Cairns population growth; and
6. Expedite realisation of major benefits projected for the vital Cairns Shipping Project and other Cairns maritime and related industries.

Key conclusions from this very positive benefit-cost estimate are, the State Government:

1. Now has an excellent opportunity to fulfil its election promise to complete dredging the Trinity Inlet channel without using taxpayers funds;
2. Could transition their degraded property at East Trinity to a valuable residential area, incorporating spoil dredged from the Trinity Channel; and
3. Should immediately commission preparation of a detailed plan in parallel with the EIS to avoid delays in the achievement of the many potential benefits. This plan should include a critical path and full consideration of the proposal outlined in this report, as well as information from the EIS studies and report.

An alternative approach for this proposal would be to divide the total project into two distinct phases:

Phase 1 would comprise:

a. The Queensland State would separate the 500 ha understood to be required for spoil placement, and use half of the residual 446.3 ha, ie 223 ha, for Phase 1 development. The State would sell the 223 ha for a nominal amount to a developer on the condition that the developer will pay for all the dredging, spoil treatment and associated costs to place the dredging spoil on the approximately 500 ha of land identified for placement of the spoil. The costs estimated, as noted below, are $115m. This estimate for Phase 1 will assume the average of the costs understood to be presented in the draft EIS, ie between $200m and $250m – assume $225m; and

b. The Queensland State would expediting the regulatory processes to enable the developer to commence residential development of the 223 ha at the earliest time. The estimated benefit-cost to the developer would be a profit of $7m.

Phase 1 Project Benefits and Estimates Costs		**$ millions**	
Indirect Benefits: see Section 9 Conclusions			
Direct Benefits	**Estimate of revenue from land sales**	**$357m**	
Cost estimates	6.5 Dredging and pumping spoil	$225m	
	And 6.6 Chemical treatment (see a. above)		
	6.7 Preloading (not necessary)	0	
	6.8 Site infrastructure	$125m	
	6.9 Cost to purchase 943.6 ha site	0	
	6.10 Financial	0	
	LESS: Estimate total cost of development	**$350m**	
	Direct benefit-cost estimate	**$7m**	

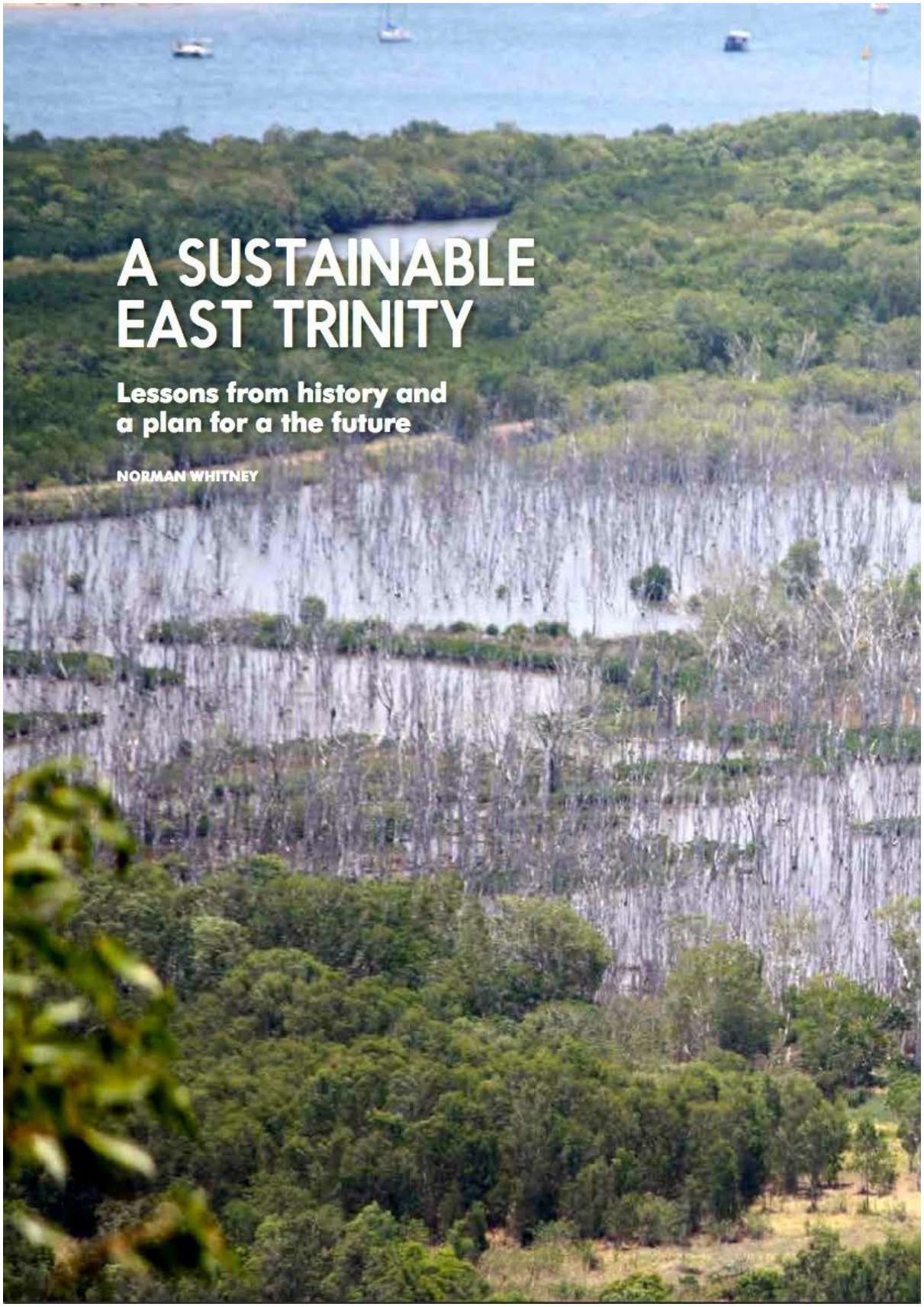
Phase 2 would complete the project as proposed elsewhere in this report, over and above those components involved in Phase 1.

The key benefits of this phased approach would be:

a. Cairns communities and business would be to enable dredging to commence at the earliest time, and expedite all the related benefits noted elsewhere in this report.

b. The Queensland State Government would be to avoid any further payment for this project using tax payers funds, to resolve the high level of pollution on their East Trinity property, and minimise current costs attempting to rectify the polluted areas on their land.

Appendix A: LNP Dialogue Magazine, Issue 6, A Sustainable East Trinity



Adjacent to the eastern shoreline of Trinity Inlet, directly opposite the newly constructed Cairns Cruise Ship Terminal and less than one kilometre from the Cairns Convention centre and the Cairns Central Business District, there is a 943.6ha freehold State Government owned property attracting considerable interest.

The State Government's election promise to upgrade the Cairns shipping channel poses a rare opportunity to improve the environmental condition of this site. Furthermore, the solution I propose is cost effective, and avoids the need to dump spoil on the Great Barrier Reef.

First let me explain the history of the site and how it was damaged. I will then outline a plan for its future.

1. 1900 TO 1980: ORCHARDS, CATTLE AND SUGAR CANE

From the early 1900s until World War II, the landholders occupying East Trinity operated dairy and cattle grazing farms. In the adjoining Glen Boughton Valley, orchards and market gardens were established. A horse drawn tram line was built to a jetty from which the produce was punted or rowed across the inlet to town markets.

Grazing and horticulture continued up until the early 1960s when sugar cane growing took over. CSR purchased one of the productive farms and some additional land from the State. Some of this land was low lying and semi tidal. In 1972 CSR constructed a "bund" wall, reclaiming land which they filled and levelled to make the 775ha flat lowlands more productive.

2. 1980S: CSR STOP GROWING CANE, EDMONTON SUGAR MILL CLOSED, DEVELOPMENT OPPORTUNITIES

During the 1980s CSR divested many of its cane growing assets and closed the Edmonton Sugar Mill.

The East Trinity property was seen by many as a potential development site for the expansion of Cairns and was eventually purchased by developers. One of the State's leading town planning consultants, led by Professor John Brannock, was engaged to design and gain approvals for what was to be the State's most innovative resort and residential integrated development.

In principle approval was granted by the State, and strongly supported by State Treasurer Keith DeLacy, then the Labor Member for Cairns. Many millions were spent on consultants researching and planning the "Royal Reef" proposal for approval in 1992.

Over the following three years numerous additional requirements and conditions were imposed, including a major financial contribution for direct city access. Accepting these, the proponents financed Main Roads Department studies to design the required bridges and roadways connecting to the Bruce Highway, also providing the vital second southern access to Cairns.

"The now well-known extreme "green" and anti-development lobby strongly objected and protested against any development or Inlet crossing with deliberate misinformation and deceptive propaganda, resulting in approval delays."

3. OBJECTIONS BY 'GREENS' AND THE ANTI-DEVELOPMENT LOBBY SUCCEED, STATE PAY COMPENSATION

During this period the now well-known extreme " green" and anti-development lobby strongly objected and protested against any development or Inlet crossing with deliberate misinformation and deceptive propaganda, resulting in approval delays.

The goal posts changed constantly, additional conditions were imposed until finally the financier abandoned the project, threatening legal action. To avoid that, the State purchased the property in 2000.

Unrelated to the development, CSIRO was investigating potential acid sulfate problems along the Australian coastline. The East Trinity property was of immense interest to them as a research area. The study concluded after three years of constant sampling and laboratory work. Details were made available to senior management of the State Environment Office, presented personally to Environment Minister Welford and sent to Premier Beattie. Each responded with disinterest.

Member for Leichardt, Warren Entsch, then Secretary to the Federal Minister for Science,

"Up to 6000 times the allowable ANZECC guidelines of aluminium, plus equivalent high levels of iron, zinc arsenic and other contaminates were being discharged into Trinity Inlet. This presented many problems for a bio-remediation method, or reflooding with normal tidal interchange."

obtained the peer-reviewed and published CSIRO Land and Water papers (titled, *Environmental impact of Acid Sulfate Soils, near Cairns - East Trinity Acid Sulfate Soils – environmental Hazards - Acid Sulfate Soils in East Trinity Inlet*). Warren understood the environmental risk at stake.

4. CSIRO REPORT CONDEMNS REMEDIATION EFFORTS, SAYS CAPPING IS THE PREFERRED OPTION

Alarmingly, it was revealed that up to 6000 times the allowable ANZECC guidelines of aluminium, plus equivalent high levels of iron, zinc arsenic and other contaminates were being discharged into Trinity Inlet. This presented many problems for a bio-remediation method, or reflooding with normal tidal interchange. Surveys had revealed depression areas, formed in the 20 years since it was last drained, and from agricultural earthworks. The CSIRO said: *'Experience of CSIRO scientists at the site indicates that remediation by conventional acid neutralisation or simple reflooding would be impractical. Moreover this approach is likely to be uneconomic and environmentally hazardous'.*

Capping, or burial beneath clean fill became the preferred recommendation *'especially since large quantities of sediment may be available from harbour dredging'.*

The Beattie Government's department was not equipped, and did not have the staff or local facilities to manage the property. The Queensland Parks and Wildlife Service became trustee of the property, and it became the State's responsibility to resolve the problems.

5. 'ECO-TOURISM' SUGGESTIONS TOO EXPENSIVE, LABOR RULE OUT DEVELOPMENT TO APPEASE 'GREENS'

Desley Boyle, then the Labor Member for Cairns, arranged numerous discussions with many sectors seeking to solve the environmental problems and map out possible future uses for the land. Several development and 'Eco Tourism' suggestions were proposed, but all needed huge amounts of State finance for infrastructure and were deemed non-viable. To retain favour with the radical Greens, residential development was ruled out.

A group calling itself the Cairns Wetland Park Committee was formed from the Green lobby, with the objective of taking control of the property. QASSIT (Queensland Acid Sulfate Soil Investigation Team) was financed, and against advice from CSIRO, 'trialled' inundation of sea water to neutralise acid production, to create a Wetland Park. Additionally, hundreds of tonnes of lime were spread and introduced into the area's waterways.

6. COSTLY MAINTENANCE EXACERBATES THIS ENVIRONMENTAL DISASTER, AS CSIRO PREDICTED

This treatment has continued for the past 13 years at great cost to taxpayers. Acid has probably now been neutralised in many of the creeks and waterways, but thousands of once-flourishing melaleuca trees are now dead, and acres of other dead vegetation are now clearly visible. Large ponds of stagnant water, unaffected by the tidal flow, are breeding clouds of mosquitoes and a crocodile habitat, all within one kilometre of the city. The surrounding dry land is over-run with weeds, providing shelter to feral pigs and other vermin.

The result is a total environmental disaster, and potentially a public health disaster. The CSIRO predictions of environmental damage have been proven correct.

7. NOW A PROPOSAL TO DREDGE SHIPPING CHANNEL TO ALLOW LARGE CRUISE SHIPS TO BERTH IN CBD

Honouring an election promise, the LNP government will be upgrading the Cairns shipping channel to allow more large cruise ships to berth, along with other major maritime activities. The dredging program is expected to remove upwards of five million cubic meters which, during the normal maintenance dredging over a number of years, has been deposited off shore in an area approved by the Great Barrier Reef Marine Park authority.

Maintenance dredging of the port has been conducted for the past 100 years. Previously, great quantities were pumped on shore: most of the Portsmith commercial/ industrial area was established on this reclaimed land, together with other sites near the CBD.

With the huge quantity of dredged material to become available, using it as filling on the East Trinity site would be a win-win opportunity.

The acid sulfate contamination problem would be solved, in the manner proposed by CSIRO. The potential health risks from mosquito-borne diseases adjacent to the shipping port would be resolved. Should the State retain the property for a future use or sale, its value could increase dramatically. Alternatively, the State could pass ownership to the Cairns Regional Council to oversee this and other related projects. Moreover there would be no need for continuing the off-shore disposal which is causing much community concern. Many 'experts' have given evidence that the off-shore dumping is not a cause for concern or damage the environment. That may be so, however, many local people are worried about this massive amount of spoil being dumped 'near our reef'.

"Acid has probably now been neutralised in many of the creeks and waterways, but thousands of once-flourishing melaleuca trees are now dead, and acres of other dead vegetation are now clearly visible. Large ponds of stagnant water, unaffected by the tidal flow, are breeding clouds of mosquitoes and a crocodile habitat, all within one kilometre of the city. The surrounding dry land is over-run with weeds, providing shelter to feral pigs and other vermin."

8. AN OPPORTUNITY SOON TO FIX THIS POLLUTION AND ENABLE MORE PEOPLE TO LIVE CLOSE TO THE CBD

Ports North currently plan to continue dumping all spoil off shore. It is treated as a costly waste product. This potentially valuable resource could be conservatively valued at $20 per cubic metre.

If this spoil is used on the East Trinity site the increased value of the property could be far in excess of any pumping, placement and other related costs. Indeed the potential revenue and could well cover the total dredging operation as well as all development costs. The calculations for such developments have not been updated from 1994 estimates, however some early estimates are favourable.

Many Cairns residents eagerly await the Ports North draft Environmental Impact Statement. That report will provide a full assessment of five possible on-land options for placement of this spoil.

Wise decision-makers, unafraid of disinformation from a very small but vocal minority, need to act now. The environmental catastrophe at East Trinity can be resolved and the property made available for the City's future growth. The land, and potentially another four square kilometres, could become an urban residential development area very close to the CBD, as advocated by town planners. A bonus would be that valuable agricultural land presently earmarked for residential development would remain productive, extending the viability of the sugar industry and the associated jobs.

Surely that is a win-win for the environment as well as most Cairns stakeholders.

* * * * * *

ABOUT THE AUTHOR

Norman Whitney and his wife Edna settled in Cairns in 1968 after selling their business interests in Bougainville and moving back to Australia. After a career that included experience in the agriculture and earthmoving industries, Norm retired in 1991 hoping to spend more time on his rural property. Instead, he was engaged by Cairns Council and the Trinity Inlet Management Program to carry out water quality sampling. He also performed work on water quality for the CSIRO. President for many years of the Eastern Trinity Inlet Ratepayers and Residents Association, Norm has been involved in many community groups, and represented them in discussions with government, council and developers. A section of Norm and Edna's property overlooks the government's ET site.

Appendix B

Cairns Shipping Development Project, Initial Advice Statement, July 2012
(Initial Advice Statement)

The following section is copied from the IAS report:

8 Benefits and Costs Summary

8.1 Economic Impact

The proposed Cairns Shipping Development project will see mega cruise ship numbers grow by 61 annual visits by 2025, with continued growth beyond that time. The additional value added in the economy, generated over the 25-year project period 2016 to 2041, is estimated at $436m.

This project delivers significant economic benefits to both Cairns and the State of Queensland. The expansion of cruise ship facilities in Cairns is seen as an important step in developing increased tourism opportunities in North Queensland and to support and grow cruise ship operations in Queensland. Improving infrastructure to facilitate this will result in considerable benefits to the local economy and the Queensland cruise industry. Having an additional alongside berth for mega cruise ships based in the north of the state will provide opportunities for increased cruise itineraries throughout the whole of the state. Dredging a broader and deeper channel to allow port access for larger cruise ships will lead to the general expansion of North Queensland's cruise industry and also bring some stability and diversity to the Cairns tourism market sector.

The fact that about a quarter of cruise ships currently visiting the area are not able to come into Cairns seaport and that this was because of their size, means that significant expenditure is being lost. Looking forward, the sector is currently growing strongly and is expected to grow strongly into the future, with most of the growth being in ship sizes not currently able to enter Cairns seaport. Major economic benefits will accrue from deepening the channel and having available fuel types suitable for large cruise ships, with the additional value added to the economy estimated at $46m pa by 2026 and $116m pa by 2041.

The estimated additional direct and flow-on jobs resulting from the increased cruise ship visits is 370 pa in 2026 and 540 pa in 2041.

8.2 Economic Efficiency (Benefit Cost Analysis)

The major justification for the project stems from Economic Efficiency gains in terms of direct benefits.

The current situation where the larger cruise ships need to stand off the coast and ferry passengers into Yorkey's Knob and then bus most of them into the city is very inefficient; in extra costs of shore transfers and bus transfers, but also in time cost. In these circumstances also, generally crew are unable to come ashore for leave and passengers are discouraged from coming ashore, especially if weather conditions are not good.

The above cost efficiency benefits are offset, in part, by higher port charges. Operating costs of coming into Trinity Wharf however, are more than outweighed by the extra crew and operating costs of remaining at sea and benefits of being able to carry out maintenance activities while wharf side.

The indications are that the net additional costs to passengers and the ship of landing via Yorkey's Knob is about $55 per passenger on board the ship in 2016 dollars.

With the projected growth in larger cruise ship visits, it is projected that over the 25-year project period, 2016 to 2041, the direct benefits to the cruise ship trade of deepening the channel, wharf improvement, and installing facilities for fuel types used by larger ships would have an NPV of $141m in 2011 prices.

8.3 Non Cruise Ships

Calculated NPV (2011 prices) of savings to existing larger fuel, fertiliser and sugar ships being able to enter the port without tidal restrictions are estimated to be of the order of $9m.

Appendix C

About the authors

Norm Whitney:

Since 1968 Norm Whitney and his family have owned and lived on a large agricultural property, recognised as Kwetu Fauna Sanctuary, in the Glen Boughton Valley, adjacent to East Trinity. Norm first became involved with the previous NatWest property in 1970 when he was contracted to clear part of the area for the original cane farmer. He also managed an orchard and farm for many years and managed a machinery parts business in Cairns until retirement in 1992. In 1995 The CSIRO Division of Land and Water contacted Norm and his wife, Edna, to carry out acid sulfate investigation field work and water sampling at the East Trinity site. Norm has been active in several local community organisations, including being President of the Ratepayers and Residents Association for many years. He was appointed a community representative on the Trinity Inlet Management program, Trinity Inlet crossing and several planning studies, and was a member of the Wet Topics Management Authority Consultative Committee for nine years.
Norm's email address is: nandem@bigpond.com.

Peter Senior:

Peter is a very experienced and pragmatic management consultant. He has specialized in two areas: reviewing organisations in both the private and public sectors in order to identify and recommend opportunities to improve their governance, operations and overall performance; and restructuring organisations, including major corporations and government departments. Peter's qualifications and memberships include: Bachelor of Science, Engineering, London University; Advanced Management, Cambridge University; Past President and Fellow, NZ Institute of Management Consultants; and Certified Management Consultant (CMC). Past roles include: General Manager of a diverse publishing group and metropolitan newspaper; Management Consultant, Deloitte Consulting; Principal Management Consultant, Senior Consulting; Systems Analyst, IBM; and director of several private companies. Peter has had several articles on organization and management subjects published in US and NZ management magazines. Peter's website, www.better-management.org, includes a section Cairns Trinity Inlet Dredging and East Trinity – opportunities.
Peter’s email address is: petersenior42@gmail.com.