Ports North

APPENDIX E.2

Draft : Environmental Impact Statement

Appendix E.2

Ports North - Development Options for Land at East Trinity, RPS, 2014

Ports North – Proposed Shipping Development Project

Development Options for Land at East Trinity

Prepared by:

RPS AUSTRALIA EAST PTY LTD

135 Abbott Street
PO Box 1949
CAIRNS QLD 4870

T: +61 7 4031 1336
F: +61 7 4031 2942
E: owen.dalton@rpsgroup.com.au

Prepared for:

PORTS NORTH

Cnr Grafton & Hartley Streets
PO Box 594
CAIRNS QLD 4870

T: +61 7 4052 3888
E: enquiries@portsnorth.com.au
W: www.portsnorth.com.au

Client Manager: Owen Dalton
Report Number: PR122287 / R74057
Version / Date: 24 October 2014

IMPORTANT NOTE

We have prepared this report for the sole purposes of Ports North ("**Client**") for the specific purpose of only for which it is supplied ("**Purpose**"). This report is strictly limited to the purpose and the facts and matters stated in it and does not apply directly or indirectly and will not be used for any other application, purpose, use or matter.

In preparing this report we have made certain assumptions. We have assumed that all information and documents provided to us by the Client or as a result of a specific request or enquiry were complete, accurate and up-to-date. Where we have obtained information from a government register or database, we have assumed that the information is accurate. Where an assumption has been made, we have not made any independent investigations with respect to the matters the subject of that assumption. We are not aware of any reason why any of the assumptions are incorrect.

This report is presented without the assumption of a duty of care to any other person (other than the Client) ("**Third Party**"). The report may not contain sufficient information for the purposes of a Third Party or for other uses. Without the prior written consent of RPS Australia East Pty Ltd:

(a) this report may not be relied on by a Third Party; and

(b) RPS Australia East Pty Ltd will not be liable to a Third Party for any loss, damage, liability or claim arising out of or incidental to a Third Party publishing, using or relying on the facts, content, opinions or subject matter contained in this report.

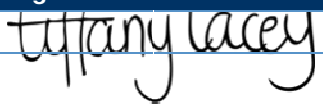
If a Third Party uses or relies on the facts, content, opinions or subject matter contained in this report with or without the consent of RPS Australia East Pty Ltd, RPS Australia East Pty Ltd disclaims all risk and the Third Party assumes all risk and releases and indemnifies and agrees to keep indemnified RPS Australia East Pty Ltd from any loss, damage, claim or liability arising directly or indirectly from the use of or reliance on this report.

In this note, a reference to loss and damage includes past and prospective economic loss, loss of profits, damage to property, injury to any person (including death) costs and expenses incurred in taking measures to prevent, mitigate or rectify any harm, loss of opportunity, legal costs, compensation, interest and any other direct, indirect, consequential or financial or other loss.

Document Status

Version	Purpose of Document	Orig	Review	Review Date
Final	Planning Report	T Lacey		24 October

Approval for Issue

Name	Signature	Date
Tiffany Lacey		24 October 2014

Contents

Appendices

1.0 Introduction

This report has been prepared by RPS, with assistance and input from HTW (Valuers) and Jacobs (Engineers), under instruction from Ports North. It is intended to provide a preliminary analysis of a range of factors associated with the potential development of land at East Trinity under a number of development scenarios.

As part of the Environmental Impact Assessment (EIS) process for the proposed Shipping Development Project being prepared by Arup, various options for the disposal of dredge soil are being investigated. One of these options provides for land-based disposal of dredge spoil, upon part of the State-owned land commonly referred to as "East Trinity".

Analysis undertaken as part of the EIS process assessing this option concluded that disposal of dredge spoil on this land would result in a total area of 518 hectares being filled on average to a level of RL1.65m AHD and would result in the creation of what we hereinafter refer to as "the Development Site".

This report (Development Options for Land at East Trinity) investigates potential future use / development options that could be considered for the Development Site. It then goes on to consider a range of matters considered relevant to each option, including statutory / planning, environmental, infrastructure and cost implications, before providing a preliminary "cost/benefit" analysis of each development option.

1.1 Assumptions & Caveats

The following assumptions and caveats apply to this report:

- the Development Site is delivered "development ready", in that the site will be filled to RL1.65m AHD and any dredge disposal mitigation conditions have been/are being implemented.
- the analysis is from a post-handover development feasibility perspective only and does not address any costs, including costs associated with the disposal of dredge spoil on the Development Site, prior to handover to a developer.
- the Development Site is not waterfront land - rather it is an isolated site set back approximately 400m from Trinity Inlet. This setback area (Lot 36 on AP7415 & Lot 34 on USL9876) is primarily tidal mangroves and subject to a Native Title Determination in favour of the Mandingalbay Yidinji People. As such, development potential on waterfront portion of East Trinity is extremely limited.
- There is no change in broad State, regional and local planning policy regarding the ongoing and future development of identified growth corridors (e.g. Edmonton - Gordonvale).
- The principle form of development on the Development Site is for detached and attached, low-rise (no more than 2 storeys) residential development. Other than convenience retailing, no commercial or retail development (e.g. Town Centre, suburban retail, offices etc) are proposed.
- No government funding/subsidies/credits are provided for major infrastructure (e.g. roadway duplications, bridges, sewer and water treatment plants, sport, recreation and community facilities etc.). All infrastructure costs (trunk and non-trunk) are a developer cost.
- Does not contemplate a commercial ferry services between the Cairns City Centre and East Trinity (so as to reduce impacts upon existing roads) as:
  - utilisation of such services, even in cities with far greater population levels, is generally such that service must be heavily subsidised to remain operational; and
  - there would be major cost implications in addressing CBD-side issues associated with any ferry service, such as car parking, berthing facilities etc.

- While the redevelopment of East Trinity for urban purposes will require a rigorous State and local government assessment and obtaining approval is not guaranteed, for the purposes of this report, it is assumed that approval to proceed with the development is granted by State and local governments.

2.0 Development Options

Preliminary analysis indicates that there are only three (3) potentially viable future development options for the Development Site. Each of these options, and the assumptions applied to each, are summarised in the following sections of this report.

2.1 Option 1 – Development for Rural Purposes

This option provides for future use of the land for bona-fide rural uses. Given the area of land involved, it has been assumed that the most likely form of rural use would be for the production of sugar cane.

Under this option, it is assumed that at completion of dredging, additional fill would need to be imported onto the Development Site, so as to achieve appropriate flood immunity for agricultural use – HAT + 300mm.

Factors which have NOT been taken into consideration in respect to this option include assessment of time delays that would be incurred between completion of dredging activities and commencement of cultivation, to allow for the leaching of salt from dredge spoil or other treatment options to sufficiently neutralise salt context (e.g. gypsum).

2.2 Option 2 – Development for Urban Purposes – Access via Pine Creek Road

This option provides for development of the site for conventional detached residential development, and assumes that road access would be via the existing Pine Creek Road. In recognition of the remoteness of the site relative to established urban areas under this assumption, and the likely resulting market demand for above-average lot size, a theoretical yield of 10 residential lots per site hectare has been adopted.

Applying these figures to the total site area of 518 hectares reveals a total yield of 5,180 allotments. Average recorded detached housing occupancy rates for the Cairns region of 2.8 persons per dwelling (as per 2011 ABS Census data) indicates a likely total population yield under this scenario of 14,504 persons.

Under this scenario, additional fill would need to be imported to the site in order to achieve required Q100 flood immunity. We have been advised that this would involve increasing the level of the site from RL1.65m AHD to RL2.8m AHD. We have also been advised that this would necessitate the import of an additional 5.26 million cubic metres of fill onto the site, additional to the fill sourced via dredging operations.

Given the resultant site population under this scenario, it has also been assumed that some upgrading of the existing road network to Cairns would be required.

2.3 Option 3 – Development for Urban Purposes (Access via Bridge over Trinity Inlet)

This option provides for development of the site for conventional detached residential development, but with access to be provided via construction of a new bridge access as an extension of Aumuller Street, over Smith's Creek, Admiralty Island and Trinity Inlet.

In recognition of shorter and more convenient travel times associated with this option, and hence the likely market acceptance of smaller average lot sizes, a theoretical yield of 15 residential lots per site hectare, (which reflects FNQ2031 Regional Plan targets) has been adopted.

Applying this figure to the total site area of 518 hectares reveals a total site yield under this option of 7,700 residential allotments. Average recorded detached housing occupancy rates for the Cairns region of 2.8

persons per dwelling (as per 2011 ABS Census data) indicates a likely total population yield under this scenario of 21,560 persons.

Under this scenario, additional fill would need to be imported to the site in order to achieve required Q100 flood immunity. We have been advised that this would involve increasing the level of the site from RL1.65m AHD to RL2.8m AHD. We have also been advised that this would necessitate the import of an additional 5.26 million cubic metres of fill onto the site, additional to the fill sourced via dredging operations.

No allowance has been made for upgrading of existing road networks, on the assumption that the proposed new bridge would accommodate all associated traffic flows.

3.0 Factors for Consideration

When assessing the merits and prospects of each of the identified Development Options, there are a range of factors which should be taken into consideration. These include planning, environmental, and site establishment / infrastructure considerations. Cost / financial considerations will be addressed in Section 4.

Each of these factors as they relate to each of the identified Development Options is discussed in the following sections of this report.

3.1 Planning Considerations

3.1.1 Local Level Conflicts

3.1.1.1 Development Option 1

There are minimal planning implications associated with Option 1. This is due to the fact that under the current applicable Planning Scheme (i.e. CairnsPlan 2009), as well as the proposed new Planning Scheme, the Development Site is included within the "Rural" Planning Area (nee zone), wherein the defined use of "Primary Industry" is listed as a self-assessable land use.

3.1.1.2 Development Option 2

Under the existing (CairnsPlan 2009) and proposed new (Cairns Region) Planning Schemes, the Development Site is designated as "Rural" land, with the long term intent under both Schemes being that land so designated is to be preserved in a rural state so as to:

- Provide for a wide range of rural uses;
- Provide opportunities for non-rural uses that do not comprise long term rural uses; and
- Protect or manage significant natural features, resources and processes.

Conversion of the Development Site for urban purposes as proposed under Option 2, would be in direct conflict with stated objectives and would require a significant departure from Cairns Regional Council's forward planning and land use strategies, particularly those embedded within the draft Planning Scheme.

3.1.1.3 Development Option 3

Under the existing (CairnsPlan 2009) and proposed draft (Cairns Region) Planning Schemes, the Development Site is designated as "Rural" land, with the long term intent under both Schemes being that land so designated is to be preserved in a rural state so as to:

- Provide for a wide range of rural uses;
- Provide opportunities for non-rural uses that do not comprise long term rural uses; and
- Protect or manage significant natural features, resources and processes.

Conversion of the Development Site for urban purposes as proposed under Option 2, would be in direct conflict with stated objectives and would require a significant departure from Cairns Regional Council's forward planning and land use strategies, particularly those embedded within the draft Planning Scheme.

3.1.2 Regional Level Conflicts

3.1.2.1 Development Option 1

There are minimal regional level planning implications associated with Development Option 1. This is due to the fact that the Development Site is situated within the "Rural Landscape and Rural Production Area" under the FNQ 2031 Regional Plan, the intent of which is, amongst other things, to protect areas so designated from inappropriate development, particularly urban or rural residential uses.

By virtue of the rural nature of use proposed under Development Option 1, there is no perceived conflict with the FNQ 2031 Regional Plan.

3.1.2.2 Development Option 2

The Development Site is located outside the "Urban Footprint" designated under the FNQ 2031 Regional Plan, being located within the "Rural Landscape and Rural Production Area" designation. These designations, which evolved from an extensive consultative process involving community, Local and State agencies, seek to consolidate urban development into those areas having an "Urban Footprint" designation, so as to ensure the most efficient and equitable provision of both "hard" and "soft" infrastructure.

Use of the Development Site for urban (residential) purposes would be in direct conflict with the provisions of FNQ 2031 and potentially threaten the orderly sequence of infrastructure provision to areas already designated for future urban growth and/or already identified as being under-serviced.

The "Urban Footprint" designation under FNQ 2031 has been derived from assessment of a range of factors, including current population trends, residential land demands, service infrastructure provision etc., and has been accepted as being sufficient to accommodate growth demands through to the year 2031. With there being sufficient broad-hectare land designated for future urban purposes, the "out-of-sequence" development associated with urbanisation of the Development Site would threaten the economic viability of designated urban growth areas, by giving rise to too many competing development fronts and rendering catchments too small to support the economic provision of service infrastructure.

In summary, the urban use of the Development Site should only proceed once existing urban designated land is fully committed, and then only subject to further, more detailed investigations into new future growth areas.

3.1.2.3 Development Option 3

The Development Site is located outside the "Urban Footprint" designated under the FNQ 2031 Regional Plan, being located within the "Rural Landscape and Rural Production Area" designation. These designations, which evolved from an extensive consultative process involving community, Local and State agencies, seek to consolidate urban development into those areas having an "Urban Footprint" designation, so as to ensure the most efficient and equitable provision of both "hard" and "soft" infrastructure.

Use of the Development Site for urban (residential) purposes would be in direct conflict with the provisions of FNQ 2031 and potentially threaten the orderly sequence of infrastructure provision to areas already designated for future urban growth and/or already identified as being under-serviced.

The "Urban Footprint" designation under FNQ 2031 has been derived from assessment of a range of factors, including current population trends, residential land demands, service infrastructure provision etc., and has been accepted as being sufficient to accommodate growth demands through to the year 2031. With there being sufficient broad-hectare land designated for future urban purposes, the "out-of-sequence" development associated with urbanisation of the Development Site would threaten the economic viability of designated

urban growth areas, by giving rise to too many competing development fronts and rendering catchments too small to support the economic provision of service infrastructure.

In summary, the urban use of the Development Site should only proceed once existing urban designated land is fully committed, and then only subject to further, more detailed investigations into new future growth areas.

3.1.3 State Level Conflicts

3.1.3.1 Development Option 1

Use of the Development Site for agricultural purposes, as proposed under Development Option 1, has the potential to give rise to conflicts with State-level controls relating to fish habitat areas.

The Development Site includes and is surrounded by key fish habitat areas, which in turn support an extensive fishing industry. The State has a long-held position of protecting such key fish habitat and nursery areas, so as to ensure the sustainability and longevity of the fishing industry.

Establishment of agricultural land use upon the Development Site has the potential to have significant adverse impacts upon surrounding fish habitat areas, either through direct destruction of or disturbance to natural systems or through secondary impacts associated with acid sulphate soils and increased nutrient runoff from cultivated areas.

3.1.3.2 Development Option 2

Urbanisation of the Development Site, as proposed under Development Option 2, has the potential to give rise to conflict with a broader range of State-level planning initiatives, including:

Agricultural Land

The protection of agricultural land is a central pillar of the States' targets in respect to economic productivity and employment, with the current State policy seeking to double agricultural production by 2040. Actions which would result in the loss or fragmentation of agricultural land, or that would arise from the impact of incompatible land uses proximate to agricultural land, would conflict with these initiatives.

Such impacts would be likely to arise from the urbanisation of the Development Site, by potentially giving rise to conflict with on-going agricultural activities upon adjoining and neighbouring rural land.

Coastal Development

In response to recent natural events, and in the light of potential impacts associated with global warming (e.g. sea level rises), the State Government has implemented broad ranging initiatives targeted at reducing the risk to development associated with coastal hazards. These initiatives seek to reduce the amount of development, and hence the number of people, within areas susceptible to coastal hazards.

The urbanisation of the Development Site, which, even when filled to achieve minimal immunity from current Q100 flood levels, would result in the exposure of a significant population to risk from coastal hazards (e.g. storm surge, sea-level rises, flooding).

Fish Habitat

The Development Site is surrounded by key fish habitat areas, which in turn support an extensive fishing industry. The State has a long-held position of protecting such key fish habitat/nursery areas, so as to ensure the sustainability and longevity of fishing industries.

Urbanisation of the Development Site has the potential to have significant adverse impact upon surrounding fish habitat areas, either through direct destruction of natural systems, or through secondary impacts associated with acid sulphate soils, water pollution from urban runoff and/or simple increased human presence and interaction with natural areas.

3.1.3.3 Development Option 3

In addition to giving rise to the same range of conflicts with State-level planning initiatives as those identified in respect to Development Option 2, Development Option 3 has the potential to cause greater degrees of conflict, primarily as a consequence of inclusion of the proposed bridge access.

This bridge would need to traverse parts of Smiths Creek, Admiralty Island and the Inlet, all of which are within designated Fish Habitat reserves. Whilst the form of this bridge and construction techniques would be the subject of far more detailed studies and design, it is likely that any form of construction is likely to have some level of impact, associated with mangrove destruction, ground disturbance and general construction activity.

3.2 Environmental Conflicts

Use of the Development Site under any of the three (3) identified development options would need to give due consideration to a broad range of potential adverse environmental impacts that would be associated with the filling and urbanisation of the Development Site. These can be summarised as including (but certainly not limited to) the following:

- A large proportion of the dredge spoil intended to be utilised as fill upon the site is likely to be Potential Acid Sulphate Soil (PASS) – exposure of this material to air will generate acidic runoff. Such runoff would be extremely difficult to manage on such a large site in such close proximity to such a sensitive 'downstream' environment;
- Surcharging of dredge spoil, required to ensure consolidation of underlying soils to a level suitable for urban development, is likely to induce generation of acidic conditions in adjacent underlying acid sulphate soils;
- Filling of the Development Site to a level required to accommodate urban development is likely to result in a raising of local ground water levels and degradation of groundwater quality, which in turn would adversely impact adjacent natural areas, more particularly intact mangrove and Melaleuca wetlands, as well as adjoining agricultural areas;
- Recent initiatives by the State in restoring ecosystem functions over the East Trinity site would be thwarted by conversion of the site to urban purposes; and
- Urbanisation of the Development Site is likely to give rise to a range of adverse off-site impacts including:
  - » Degradation of local marine ecology, most importantly mangrove, seagrass and fish nursery areas, through impacts of nutrient and/or stormwater runoff quality;
  - » Increased pressure upon fish stocks, as a result of better access to marine areas by a greater number of residents;

- Reduced water quality, as a result of increased sewerage effluent discharge in close proximity to sensitive receiving areas;
- Adverse impacts on waders and other sensitive terrestrial bird species, through increased noise, light and human presence associated with resident population increases; and
- Increased levels of vegetation disturbance and/or clearing on adjacent/surrounding properties, as a consequence of increased pressure from secondary development, installation of external access and service infrastructure corridors etc.

The level of potential conflict will increase under each Development Option, culminating in Development Option 3 having the highest level of potential conflict, as a consequence of inclusion of bridge access and the broader potential for impact associated with the construction of the bridge.

3.3 Site Establishment and Infrastructure Considerations

Use of the Development Site for either agricultural or urban purposes would be dependant firstly upon establishment of the site in a form suitable for either form of development.

For the purposes of this report, it is assumed that the disposal of dredge spoil upon the Development Site would result in the establishment of the entire 518 hectare site with a minimum finished surface level of RL1.65m AHD.

The extent of further establishment works required beyond this point for each of the three Development Options can be summarised as follows:

3.3.1 Development Option 1

No significant utilities need to be brought to the site to accommodate the primary industry activities on the site, however to ensure the site is not subject to inundation by salt water, additional fill will be required to raise the site to RL1.857m AHD. No additional site establishment works are proposed under Development Option 1. It is assumed that once established and treated, as provided for under the analysis contained within the EIS, and the additional fill imported onto site, the land would be able to be cultivated without the need for any further infrastructure upgrade.

Jacobs (Consulting Engineers) have undertaken a preliminary assessment of fill requirements and costs associated with providing the required additional fill. Jacobs estimate this cost to be in the order of $79,000,000 – refer to **Appendix 1**. We note that there is the potential to reduce fill requirements, and thus cost, if bund walls are upgraded to protect the site from salt water inundation.

3.3.2 Development Option 2

As noted in Section 2 of this report, this Development Option would result in the entire 518 hectare site area being developed for urban (i.e. residential) purposes. At an adopted yield of 10 lots per site hectare, this would result in a total site population of 14,504 persons (@ 2.8 persons/lot).

Such development would trigger the need for a range of further site establishment and service infrastructure works, including:

- The import of an additional 5.26Mm^3 of fill, to raise the Development Site to a minimum of RL2.8m AHD (to achieve Q100 flood immunity); and
- The provision of service infrastructure (water, sewer and electricity) with the necessary capacity to service the demands of a resident population of 14,504 persons.
- The need to upgrade existing road network links between the Development Site and Cairns, to

accommodate increased traffic flows.

Notes:

(1) For the purposes of this analysis, it is assumed that the costs of service reticulation and stormwater reticulation within the site would be incorporated into site development costs, and hence reflected in site valuations;

(2) It is also assumed that full responsibility for provision of required service infrastructure would be borne by the development, given that the development would be out of sequence with proposed service infrastructure planning.

Jacobs (Consulting Engineers) have undertaken a preliminary assessment of the likely service infrastructure demands required to service residential development of this scale, the likely preferred option to service these demands, and the likely costs associated with providing this infrastructure as summarised below – refer to **Appendix 1**

Infrastructure Costs

Imported Fill and Surcharge	$431,260,000
Road Access via Warner Road Upgrade	$83,320,000
Provision of Service Infrastructure to site boundary	
▪ Water Reticulation and Supply	$28,630,000
▪ Sewer Reticulation and Treatment	$29,000,000
▪ Electricity Supply and Communication	$45,090,000
Total	**$617,300,000**
Per Lot (5,180 lots)	**$119,169.88/lot**

In addition to development infrastructure costs, consideration needs to be given to social infrastructure costs such as parks and community facilities. While a specific assessment has not been undertaken in regard to East Trinity, as a guide, the Mount Peter Structure Plan estimated an infrastructure charge of $7,215 per EDU (1 DEU = 1 dwelling).

3.3.3 Development Option 3

As noted in Section 2 of this report, this Development Option would result in the entire 518 hectare site area being developed for urban (i.e. residential) purposes. At an adopted yield of 15 lots per site hectare, this would result in a total site population of 21,756 persons (@ 2.8 persons / lot).

Such development would trigger the need for a range of further site establishment and service infrastructure works, including:

- The import of an additional 5.26Mm^3 of fill, to raise the Development Site to a minimum of RL2.8m AHD (to achieve Q100 flood immunity); and
- The provision of service infrastructure (water, sewer and electricity) with the necessary capacity to service the demands of a resident population of 21,756 persons.
- The construction of a bridge over Trinity Inlet, so as to provide more direct vehicular access between the Development Site and the CBD/employment/service centres within Cairns.

Notes:

(1) For the purposes of this analysis, it is assumed that the costs of service reticulation and stormwater reticulation within the site would be incorporated into site development costs, and hence reflected in site valuations;

(2) It is also assumed that full responsibility for provision of required service infrastructure would be borne by the

development, given that the development would be out of sequence with proposed infrastructure planning.

Jacobs (Consulting Engineers) have undertaken a preliminary assessment of the likely service infrastructure demands required to service residential development of this scale, the likely preferred option to service these demands, and the likely costs associated with providing this infrastructure as summarised below – refer to **Appendix 1**

Infrastructure Costs

Imported Fill and Surcharge	$431,260,000
Road Access via new Bridge	$281,370,000
Provision of Service Infrastructure to site boundary	
▪ Water Reticulation & Supply	$40,110,000
▪ Sewer Reticulation and Treatment	$37,000,000
▪ Electricity Supply and Communication	$47,010,000
Total	**$836,750,000**
Per Lot (7,700 lots)	**$108,668.83/lot**

In addition to development infrastructure costs, consideration needs to be given to social infrastructure costs such as parks and community facilities. While a specific assessment has not been undertaken in regard to East Trinity, as a guide, the Mount Peter Structure Plan estimated an infrastructure charge of $7,215 per EDU (1 EDU = 1 dwelling).

3.4 Approvals & Timing

3.4.1 Development Option 1

The establishment of a rural uses, such as primary industries, is self-assessable and would unlikely require any prior planning approvals from Council. Any proposed subdivision of the Development Site would require a Development Permit from Council. Additional approvals, in accordance with Schedule 3 of the Sustainable Planning Regulations 2009, may be required. Such an application would be code assessable and assessed by SARA and typically take 3-6 months for approval.

3.4.2 Development Option 2

The establishment of urban use with East Trinity will require State and local government approval. Given the development is out-of-sequence with State and local planning policy, two approval options are available:

A. *Lodgement of a s242 Preliminary Approval to Override the Planning Scheme.* This would initially involve the lodgement of an impact assessable development application with Cairns Regional Council and referral to SARA (and potentially other referral agencies). Such an application would require public notification and would be subject to third party appeal rights. Applications of this nature and size typically take 18+ months for approval, with subsequent subdivision applications taking approximately 3-6 months.

B. *Coordinated Project*. Under the State Development & Public Organisation Act 1991, the Coordinator General can declare a project to be a Coordinated Project, to reflect the complexity of approvals required, potential environmental and infrastructure impacts and/or job creation. Under this process, the Coordinator Generally typically requires the developer to submit an Environmental Impact Assessment

for assessment and approval. Such a process typically requires the developer to undertake significant public consultation and typically takes 18-24 months. Subsequent subdivision approvals would need to be lodged with and assessed by Cairns Regional Council.

3.4.3 Development Option 3

The establishment of urban use with East Trinity will require State and local government approval. Given the development is out-of-sequence with State and local planning policy two approval options are available:

A. *Lodgement of a s242 Preliminary Approval to overwrite the Planning Scheme.* This would initially involve the lodgement of an impact assessable development application with Cairns Regional Council and referral to SARA (and potentially other referral agencies). Such an application would require public notification and would be subject to third party appeal rights. Applications of this nature typically take 12+ month for approval with subsequent subdivision applications taking approximately 3-6 months.

B. *Coordinated Project*. Under the State Development & Public Organisation Act 1991 the Coordinator General can declare a project to be a Coordinated Project due to the complexity of approvals required, potential environmental and infrastructure impacts and job creation. Under this progress, the Coordinator Generally typically requires the developer to submit and Environmental Impact Assessment for its assessment and approval. Such as process typically requires the developer to undertake significant public consultation. This process typically takes 18-24 months. Subsequent subdivision approvals would be lodged with Cairns Regional Council.

   Given Development Option 3 includes the provision of a bridge extending Aumuller Street to East Trinity via Admiralty Island, it is considered that Option B would be the preferred approval strategy.

3.5 Native Title

It is likely that the development of East Trinity will bring rise to some Native Title constraints. It is our understanding, based on advice received by Ports North from Archaeo-Converge, the EIS specialist consultant for Cultural Heritage / Native Title, that native title has been determined to continue to exist in two out of the four lots within the site and there is a determined native title holder for these lots. Native title has been extinguished on the other two lots, due to their previous freehold tenure, however there is uncertainty in relation to the Aboriginal Party for these lots which requires public notification for development of any CHMP.

The site is also complicated by the overlay with an Indigenous Protected Area. There is registered Aboriginal cultural heritage within the site, and overall, the site is of such a nature that it is very likely to include intangible and resource areas of cultural heritage significance. There may however be opportunities for Project activities to take place in accordance with Ports North's rights, interests and powers specifically recognised in the relevant native title determination, and in the Cairns Regional Council's ILUA which was entered into as part of this determination.

As such, from a development feasibility perspective, in addition to obtaining the necessary State and local government approvals, the establishment of a bridge to East Trinity and provision of infrastructure may require the negotiation of an Indigenous Land use Agreement (ILUA) as the alignment of the bridge and co-located utilities via Admiralty Island will like traverse land subject to a Native Title determination and other water areas subject to current registered Native Title claim with a second party.

3.6 Market Considerations

Herron Todd White (HTW) have undertaken a preliminary market feasibility of Options 2 & 3. The findings of their review are outlined below and included as **Appendix 2.**

	Option 2	Option 3
Yield	5180 lots	7700 lots
External Infrastructure Costs (as per Jacobs)	$617,300,000	$836,750,000
Internal Infrastructure Costs (assume $70,000/lot)	$362,600,000	$539,000,000
Total Infrastructure Costs	$979,900,000	$1,375,750,000
Average Selling Price/lot	$125,000	$200.000
Total sales Price	$647,500,000	$1,540,000,000
Sales Rates	N/A	50 lots/month
Timeframe	N/A	12.8 years
Interest Rate	N/A	6%
Cost of Filled Site	$0	$0
Project Profit	**-$332,440,000**	**-$600,000,000**

Note:
The above calculation are before any interest/holding charges, advertising, commissions, GST on sales and is on the basis the land is given to a potential developer for free.

4.0 Summary

This Report aims to investigate the development potential of East Trinity to be released to the market and development for a variety of uses, predominately either primary industries or urban purposes. From a planning perspective, the site is most suited for rural uses, such as cane sugar, assuming that any environmental impacts can be appropriately mitigated. However, the estimated $80M in fill to minimise the potential for salt water inundation significantly prejudices the viability of the site, in comparison to rehabilitating good quality agricultural land elsewhere is the Cairns region.

However, in regard to potential urban development of the site, both Options 2 & 3 contravene current State and local government planning policy, and would conflict with the current regional growth management strategy, which is focused on the Edmonton-Gordonvale Growth Corridor. Almost a decade of planning has been undertaken to identify and facilitate the development of this corridor to accommodate the region's projected growth over the next 20+ years. To establish a 5,000-8,000 dwelling development at East Trinity would directly compete with the Edmonton-Gordonvale growth corridor, not only in land sales and centres viability, but also for much needed regional infrastructure (utility infrastructure improvements, major road upgrades, community and recreational facilities), resulting in both areas being underserviced.

Putting that to one side, and simply looking at East Trinity's development potential in isolation, the provision of trunk infrastructure to service the site significantly burdens any development viability.

Under options 2 & 3, $617M and $836M in trunk infrastructure costs are required respectively to provide services to the site boundary. While it is acknowledged that the provision of services can be staged, assuming that 50 percent of the infrastructure is required up front, $308 – $418M is required to be funded up front without any development works occurring internally. This represents a significant cash flow issue, and it is assumed even the largest national developers would struggle to secure upfront financing to fund such large-scale work.

In terms of being able to recover infrastructure costs, under Option 2, the per lot infrastructure cost to deliver trunk infrastructure to the site (excluding parks, recreation and community facilities, Bruce Highway upgrades) is approximately $119,200/lot, and approximately $108,770/lot under Option 3. In this regard, we note that:

- The Infrastructure Charge SPRP mandates a maximum infrastructure charge of $20,000 per 1 or 2 bedroom dwelling or $28,000 per 3 bedroom dwelling.
- Cairns Regional Council has adopted a lower infrastructure rate, and to provide comparative context, the infrastructure charges per EDU (1 EDU/dwelling) in Edmonton is $16,434.56 for water, sewer and traffic.
- Mount Peter Structure Plan Area is estimated to have an infrastructure contribution of $28,334 per EDU (1 EDU/dwelling) for water, sewer and traffic (Mount Peter Structure Plan Part 4 – Trunk Infrastructure Report).

Assuming no government funding/subsidies are available, the cost of infrastructure will need to be absorbed into lot prices. On a dollar for dollar ratio, that could potentially add $100,000+ to land prices in East Trinity which would significantly influence land sale velocity due to lack of competitiveness with Edmonton-Gordonvale.

Furthermore, the feasibility analysis undertaken by HTW indicate that even without factoring in dredge spoil costs to prepare the Development Site for sale, the development of East Trinity under Scenario 2 results in an approx. $332M loss, and approx. $600M for Scenario 3. Furthermore the report states that demand of residential englobo land is limited, and the sales rates contemplated in this report are generous.

This analysis clearly shows at in the context of current market conditions, the site has negligible development potential for urban development, due to massive infrastructure costs and competition with better located, and better serviced land (e.g. Edmonton-Gordonvale Growth Corridor).

We note that our report does not account for the original dredging costs associated with filling the site with dredge spoil to RL1.65m, AHD which will also needed to be absorbed into land prices.

In light of the above, given the complexity of the approval process and significant infrastructure costs, on a cost benefit comparison, we do not consider the development of the site for urban purposes feasible.

Appendix 1

Jacobs – Engineering Report

Jacobs Group (Australia) Pty Limited
2 James Street
PO Box 1062
Cairns QLD 4870 Australia

T +61 7 4031 4599
F +61 7 4031 3967
www.jacobs.com

JACOBS

RPS Group (RPS)
135 Abbott Street
CAIRNS QLD 4870

Attention: Owen Dalton

20 October 2014

Dear Owen

East Trinity Trunk Infrastructure Costings

Jacobs were engaged by RPS on behalf of Ports North to prepare indicative trunk infrastructure costings for three development scenarios on the State Government owned land known as East Trinity in Cairns. The purpose of the development scenarios was to consider the potential for development of the site if an initial quantity of fill was placed in the area through land based disposal of dredge spoil from Trinity Inlet. It is noted that these estimates are not all encompassing and are intended to be inputs to an overall cost estimate exercise being coordinated by RPS.

Jacobs have investigated the broad needs and indicative cost of providing trunk infrastructure connections (roads, water, sewerage, electricity and communications) to the boundary of the site, plus additional conventional fill to give the site an appropriate level of flood immunity, for each of the three development scenarios. These assessments have not been based on detailed assessment and were prepared with limited available information and consultation. They should therefore be treated as indicative order of magnitude cost estimates only.

The scope and assumptions adopted in the investigations are outlined below.

Basic Information and Assumptions

- Site total area is 518 hectares based on Arup dredge spoil extent.
- Assume all lots < 900 m^2 for purposes of water and sewer EP calculations.
- The 100 year ARI flood level adopted is RL 2.8 m AHD.
- The cost estimates are for trunk infrastructure to the East Trinity site boundary.
- The cost per lot for internal roads, drainage, water, power and sewerage is not included.
- Filling costs to include fill from RL 1.65 m to RL 2.8 m AHD plus surcharge and grading allowances.

JACOBS

A description of the three development scenarios which required Jacobs' input to develop cost estimates are as follows:

Development Scenario 1 (DS1): Agricultural Land

- Assume fill to HAT + 300 mm freeboard so not inundated by salt water (nominal assumption only).
- Imported fill volume based on pro-rata on level to volume between 1.65 m AHD and 2.8 m AHD.
- HAT = 3.5 m, therefore level of HAT = 3.5 - 1.643 = 1.857 m AHD (from Cairns Standard Port Datum).
- Assumed level of fill = HAT + 300 mm = 2.16 m AHD.

Development Scenario 2 (DS2): Residential Development

- Additional 5.26 million m^3 fill to RL2.8 m AHD plus allowance for grading, settlement and surcharge.
- Water and sewer for 10 lots per hectare = 5180 lots @ 2.8 EP/lot = 14,504 EP.
- Access via upgraded road (assumes via Warner Rd and Pine Creek Rd, no bridge over inlet).
- Electricity supply to 5180 lots.
- Optic fibre communications.

Development Scenario 3 (DS3): Residential Development (increased density)

- Additional 5.26 million m^3 fill to RL2.8 m AHD plus allowance for grading, settlement and surcharge.
- Water and sewer for 15 lots per hectare = 7770 lots @ 2.8 EP/lot = 21,756 EP.
- Access via bridge (Aumuller Street - Admiralty Island - East Trinity).
- Electricity supply to 7770 lots.
- Optic fibre communications.

JACOBS

Cost Estimates Summary

A summary of the three development scenarios' rounded inputs to overall cost estimates are as follows:

Development Scenario 1 (DS1)

Imported Fill	$79,330,000.00
Total for Development Scenario 1	**$79,330,000.00**

Development Scenario 2 (DS2)

Imported Fill and Surcharge	$431,260,000.00
Road Access via Warner Rd Upgrade	$83,320,000.00
Water Supply	$28,630,000.00
Sewerage	$29,000,000.00
Electricity Supply & Communications	$45,090,000.00
Total for Development Scenario 2	**$617,300,000.00**

Development Scenario (DS3)

Imported Fill and Surcharge	$431,260,000.00
Road Access via new Bridge	$281,370,000.00
Water Supply	$40,110,000.00
Sewerage	$37,000,000.00
Electricity Supply & Communications	$47,010,000.00
Total for Development Scenario 3	**$836,750,000.00**

Additional assumptions, calculations and reference information is included on the attached sheets which outline the process taken to arrive at these figures. Should you have any questions or require any clarification, please do not hesitate to contact the undersigned.

Yours sincerely

Jeremy Evans
Senior Civil Engineer
07 4031 4599
jeremy.evans@jacobs.com

Enc Costings – Detailed Information

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenarios - Scope

JACOBS

Basic Information and Assumptions:

- Site total area is 518 hectares based on Arup dredge spoil extent.
- Assume all lots < 900 m^2 for purposes of water and sewer EP calculations.
- The 100 year ARI flood level adopted is RL 2.8 m AHD.
- The cost estimates are for trunk infrastructure to the East Trinity site boundary.
- The cost per lot for internal roads, drainage, water, power and sewerage is not included.
- Filling costs to include fill from RL 1.65 m to RL 2.8 m AHD plus surcharge and grading allowances.

Three scenarios requiring input to cost estimates are as follows:

Development Scenario 1:

- Assume fill to Highest Astronomical Tide (HAT) + 300 mm freeboard so not inundated by salt water (nominal assumption only)
- Imported fill volume based on pro-rata on level to volume between 1.65m AHD and 2.8 m AHD.
- HAT = 3.5m, therefore level of HAT = 3.5 - 1.643 = 1.857m AHD (from Cairns Standard Port Datum).
- Assumed level of fill = HAT + 300 mm = 2.16m AHD.

Development Scenario 2:

- Additional 5.26 million m^3 fill to RL2.8m AHD plus allowance for grading, settlement and surcharge.
- Water and sewer for 10 lots per hectare = 5180 lots @ 2.8 EP/lot = 14,504 EP.
- Access via upgraded road (assumes via Warner Rd and Pine Creek Rd, no bridge over inlet).
- Electricity supply to 5180 lots.
- Optic fibre communications

Development Scenario 3:

- Additional 5.26 million m^3 fill to RL2.8m AHD plus allowance for grading, settlement and surcharge.
- Water and sewer for 15 lots per hectare = 7770 lots @ 2.8 EP/lot = 21,756 EP.
- Access via bridge (Aumuller St - Admiralty Island - East Trinity).
- Electricity supply to 7770 lots.
- Optic fibre communications

Likely Major Infrastructure:

1. Wastewater Treatment Plant - new WWTP, or Pump Station, rising main and upgrade to existing WWTP.
2. New reservoir at East Trinity and trunk main to Bruce Highway via Warner Road.
3. Road upgrade / bridge to create dual lane dual carriageway access with bicycle paths.
4. 132 kV switching station, transmission line and zone substation
5. Optic fibre cable link and fibre access node

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 2 - Road Upgrade

JACOBS

Assumptions:

- Existing access via Warner Rd and Pine Creek Rd is 2 lanes.
- Assume connection to Cairns City via Bruce Highway requires duplication of existing.
- Assume existing 2-way 2-lane single carriageway converted to 2-lanes in one direction.
- New 2 lane single direction carriageway constructed offline as separate formation.
- Assume rural formation embankment construction throughout for duplicated road.
- Bridge lengths estimated from aerial photography of existing bridges.
- No allowance for any land resumption costs.

	Bridge length
- Estimate cost of bridges separately:	
- 1 new bridge on Warner Rd	30 m
- 4 new bridges on Pine Creek Rd	15 m
	15 m
	20 m
	30 m
Total length =	110 m

Assumed bridge width including cycle path = 13.4 m

Length of new road =	15,590 m	(overall distance less bridges length)	
Length of Bridges	110 m		
Total length =	15,700 m	Area of bridges =	1,474 m^2

Reference Projects for Costings:

Southern Cairns Integrated Land Use and Transportation Study (ILUTS) (2000)

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 2 - Road Upgrade

JACOBS

Cost Assessment - Road Duplication:

Assume existing road carriageway condition is acceptable so no allowance for upgrade.
Assume Southern Cairns ILUTS road construction rates similar as through nearby rural land.
Length of road link approximately 15,700 m similar order of magnitude to overall Sth Cairns ILUTS.

Length of road:

Length =	800	m	(Example: Option 6 Embankment - Typical Thompson Rd to Swallow Rd)

Estimate for 4-lane Embankment - Typical in 2000, total cost =	$3,000,000	(Sth Cairns ILUTS)
For single 2-lane carriageway, halve above cost for 4-lane =	$1,500,000	
CERI rate assumed based on trend of data 2003-2011 =	7.00%	
over	14	years
Factored up cost to 2014 rates using CERI over 14 years =	$3,867,801	
Road construction rate for 2-lane single carriageway =	$4,834.75	/m

Cost Assessment - Bridges:

Southern Cairns ILUTS included cost estimate for 4 lane bridging - Typical, prepared in 2000.
Length of bridge section in estimate 100 m.
Assume overall width of lanes plus barriers is 20.1 m (excluding separate bicycle/pedestrian path).
Area of bridge:

Length =	100	m	(Example: Option 6 Four Lane Bridging - Typical Portsmith Rd to Swallow Rd)
Width =	20.1	m	
Area =	2,010	m2	

Estimate for typical 4-lane bridging in 2000, total cost =	$4,200,000	(Sth Cairns ILUTS)
CERI rate assumed based on trend of data 2003-2011 =	7.00%	
over	14	years
Factored up cost to 2014 rates using CERI over 14 years =	$10,829,843	
Bridge construction rate - typical =	$5,388	/m^2

Cost Estimate for Road Link via Warner Rd and Pine Creek Rd:

New road =	15,590	m		
at	$4,835	/m	=	$75,373,776
New bridges =	1,474	m2		
at	$5,388	/m2	=	$7,941,885
Overall length of new road =	15,700	m	=	**$83,315,662**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 3 - Bridge Estimate

Assumptions:

- Bridge is 4 road lanes plus 2-way bicycle and pedestrian path: 24.9 m wide
- Connection to Cairns City at Aumuller St - Tingira St Intersection.
- Connection to East Trinity Site at line of existing bund.
- Alignment approximately as shown in aerial photo below:

- Bridge required over water and over mangroves (no embankment construction allowed):

Length over water =	700 m	Area over water =	17,430 m^2
Length over mangroves =	800 m	Area over mangroves =	19,920 m^2
Total length =	1500 m	Total Area =	37,350 m^2

Reference Projects for Costings:

Over water - Ted Smout Memorial Bridge, Redcliffe (2010).
Over mangroves - Southern Cairns ILUTS, Option 3 (2000).

Assumed Alignment of New Bridge Crossing:

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 3 - Bridge Estimate

JACOBS

Cost Assessment - Over Water Section:

- Ted Smout Memorial Bridge has 3 road lanes plus a 2-way bicycle and pedestrian path.
- Assume construction rates are similar to a 4 lane road plus 2-way bicycle and pedestrian path.
- Length of bridge approximately 2,700 m.
- Overall width of lanes plus barriers is 18.9 m.

Area of bridge:

Length =	2,700	m		Also included a fishing platform:	
Width =	18.9	m			
Area =	51,030	m2	plus	10 m x 50 m =	500 m^2

Ted Smout Memorial Bridge completed in 2010 - total cost =	$315,000,000	(total project)
CERI rate assumed based on trend of data 2003-2011 =	7.00%	
over	4	years
Factored up cost to 2014 rates using CERI over 4 years =	$412,900,743	
Bridge construction rate over extended open water =	$8,013 /$m^2$	

Cost Assessment - Over Mangroves Section:

- Southern Cairns ILUTS included cost estimate for 4 lane bridge over mangroves, prepared in 2000.
- Length of bridge section in estimate 550 m.
- Assume overall width of lanes plus barriers is 20.1 m (in 2000 no separate path, only bike lanes).

Area of bridge:

Length =	550	m
Width =	20.1	m
Area =	11,055	m^2

Estimate for 4-lane bridge over mangroves in 2000, total cost =	$30,500,000	(Sth Cairns ILUTS)
CERI rate assumed based on trend of data 2003-2011 =	7.00%	
over	14	years
Factored up cost to 2014 rates using CERI over 14 years =	$78,645,292	
Bridge construction rate over mangroves =	$7,114 /$m^2$	

Cost Estimate for Bridge Link - Aumuller St to East Trinity:

Section over water =	17,430	m^2		
at	$8,013 /$m^2$		=	$139,663,496
Section over mangroves =	19,920	m^2		
at	$7,114 /$m^2$		=	$141,710,919
Overall bridge Link =	37,350	m^2	=	**$281,374,415**

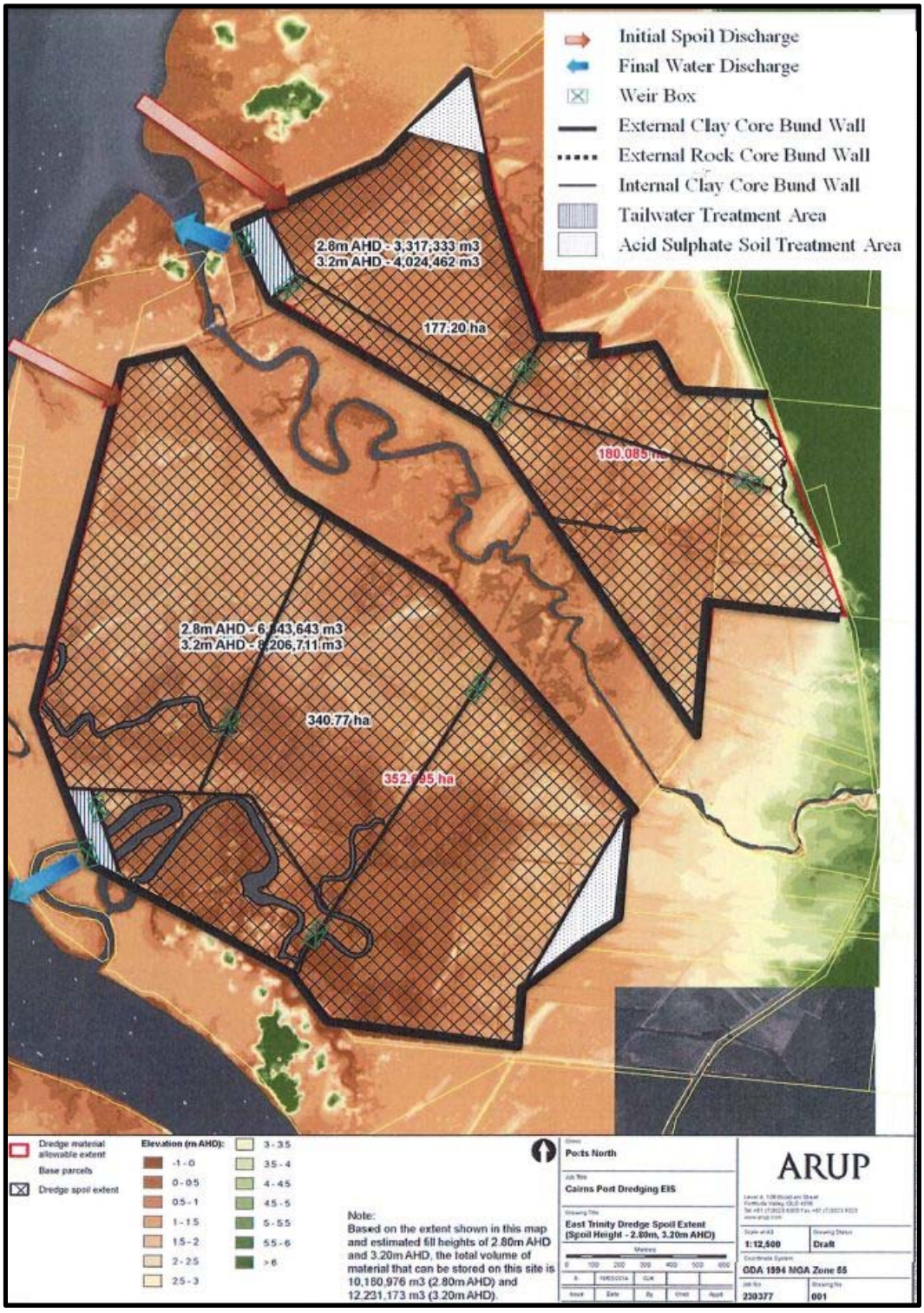
RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenarios 1, 2 and 3 - Additional Fill

JACOBS

Assumptions on Site Area:

Site area covers two areas of dredge spoil disposal as per the Arup Drawing below:

Southern (larger) area =	341 ha	Fill to RL 1.6m AHD	4,400,000 m^3
Northern (smaller) area =	177 ha	Fill to RL 2.8m AHD	9,660,976 m^3
Total combined site area =	518 ha	Volume =	5,260,976 m^3



RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenarios 2 and 3 - Additional Fill

JACOBS

Calculation of Additional Fill Volume for Grading - Development Scenarios 2 and 3:

Considering the larger southern area, the overall length is in the order of 2,272m and the width is approx. 1,500 m. Assume this area is broken into 6 with deep (possibly tidal) channels between. In terms of what this means for extra fill height in the centre of each area to achieve surface runoff discharging above RL 2.8 m AHD as a minimum, the following are the additional heights of fill in the centre of each area for a range of grades. Assuming this area is filled as six pyramids over the 341 ha, maximum graded runs are approx. 400m long and the extra fill quantity is as shown below:

Grade	Path (m)	Height (m)	RL (m) AHD	Base L (m)	Base W (m)	Area (m^2)		Volume (m^3)
1.00%	400	4.00	6.80	2,272	1,500	3,407,700	=	4,543,600
0.50%	400	2.00	4.80	2,272	1,500	3,407,700	=	2,271,800
0.30%	400	1.20	4.00	2,272	1,500	3,407,700	=	1,363,080
0.25%	400	1.00	3.80	2,272	1,500	3,407,700	=	1,135,900

Considering the smaller northern area, the maximum width in the short direction is approximately 800 m, suggesting drainage runs in the order of 400 m long in each direction. In terms of what this means for extra fill elevation at the centre to achieve surface runoff discharging above RL 2.8 m AHD as a minimum, the following are the additional heights of fill in the centre of the 2 halves for a range of grades. Assuming this area is filled as two pyramids over 177 ha, with a deep channel in between the two halves, the extra fill quantity is as shown below:

Grade	Path (m)	Height (m)	RL (m) AHD	Base L (m)	Base W (m)	Area (m^2)		Volume (m^3)
1.00%	400	4.00	6.80	2,215	800	1,772,000	=	2,362,667
0.50%	400	2.00	4.80	2,215	800	1,772,000	=	1,181,333
0.30%	400	1.20	4.00	2,215	800	1,772,000	=	708,800
0.25%	400	1.00	3.80	2,215	800	1,772,000	=	590,667

On the basis that an additional 5.26 million m^3 of fill is required to bring the site up to a level of RL 2.8 m AHD, from the dredge spoil fill level of 1.65 m AHD, the additional grading fill contribution from the two areas combined is summarised as follows:

Grade	North Volume (m^3)		South Volume (m^3)		Total Volume (m^3)	% Increase
1.00%	4,543,600	+	2,362,667	=	6,906,267	131%
0.50%	2,271,800	+	1,181,333	=	3,453,133	66%
0.30%	1,363,080	+	708,800	=	2,071,880	39%
0.25%	1,135,900	+	590,667	=	1,726,567	33%

Based on the numbers above this is a significant and sensitive assumption, and ignoring the grading altogether is too conservative. It is likely that adopting 1.0% or 0.5% is not realistic as a designer would seek other ways to solve the problem rather than spending this sort of extra money, especially since this sort of quantity is extremely difficult to source locally. At 0.3% you are providing minimum kerb and channel grade and at 0.25% you are providing minimum grade for concrete lined drains. Realistically this is still very flat and would be difficult to solve, but as a conservative approach, adopt 0.25% (min. average surface grade)

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenarios 1, 2 and 3 - Additional Fill

JACOBS

Cost Estimate for Additional Filling - Development Scenario 1:

Assume fill placed to HAT level + 300 mm =	2.16	m AHD
Assume pro-rata of fill volume =	44%	
of	5,260,976	m^3
=	2,333,128	m^3
Rate for import and place general fill =	$34.00	$/m^3$
Cost Estimate for Additional Filling - Development Scenario 1 =	**$79,326,369**	

Cost Estimate for Additional Filling - Development Scenarios 2 and 3:

Permanent Additional Engineered Fill - Initial Level plus Grading

Volume of fill up to minimum level RL 2.8 m AHD =	5,260,976	m^3
Volume of additional fill for grading of site at 0.25% =	1,726,567	m^3
Total volume of permanent additional fill =	6,987,543	m^3
Rate for import and place engineered fill =	$42.00	$/m^3$
Cost estimate for permanent additional fill =	$293,476,792	

Permanent Additional Engineered Fill - Settlement Allowance

Total area to be surcharge loaded =	5,180,000	m^2
Average settlement height under surcharge =	0.3	m
Volume of additional fill for settlement =	1,554,000	m^3
Rate for import and place engineered fill =	$42.00	$/m^3$
Cost estimate for additional fill =	$65,268,000	

Temporary Surcharge Fill Material

Assumed height of surcharge fill =	1	m
Assumed area of surcharge in place at any one time =	259,000	m^2
Assumed volume of surcharge fill material required =	259,000	m^3
Rate for cut to fill placement only in engineered fill =	$14.00	$/m^3$
Cost estimate for each placement of surcharge fill =	$3,626,000	
Number of times material is placed and compacted =	20	(assumed)
Total cost estimate for placement of surcharge fill =	$72,520,000	

Total Cost Estimate for Additional Filling - Dev. Scenarios 2 & 3 = $431,264,792

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenarios 2 and 3 - New WWTP Internal to East Trinity Site

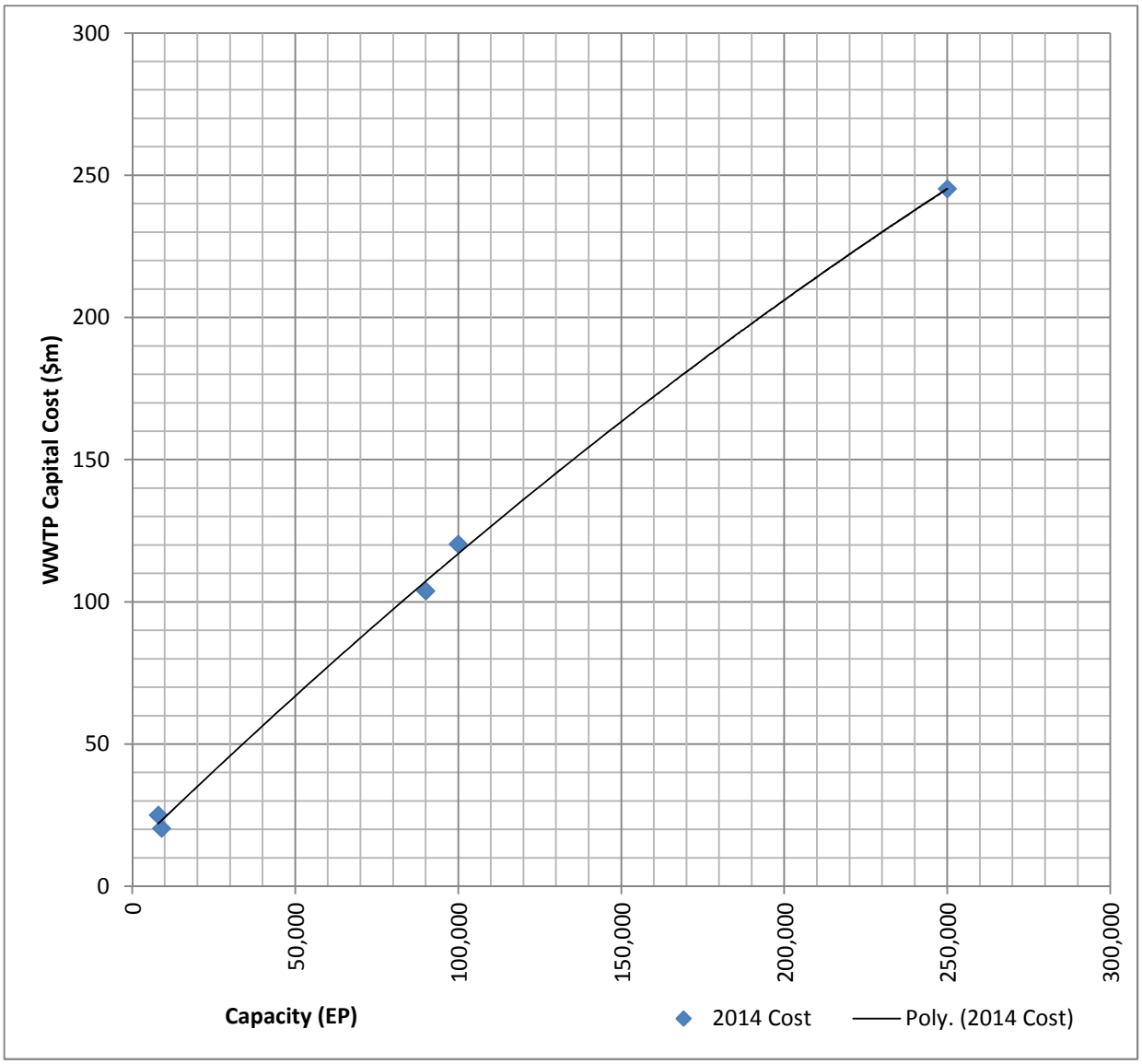
JACOBS

Assumptions:

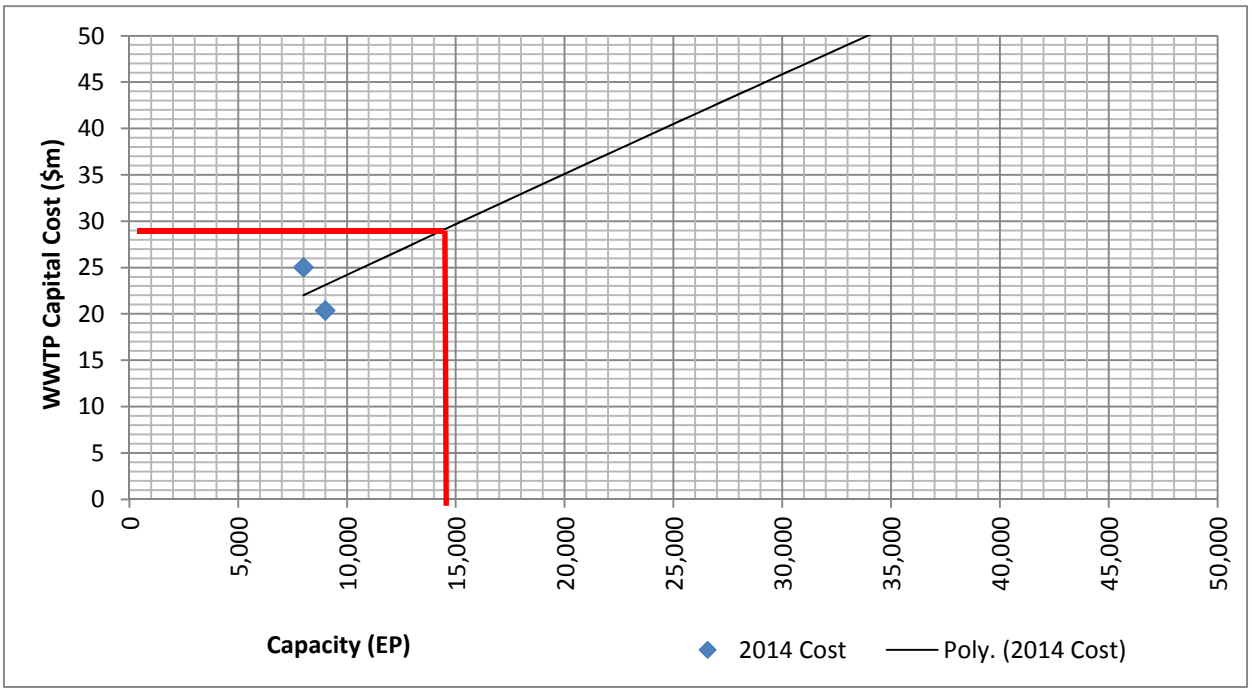
- % for factoring up costs to 2014 = 7% (CERI rate assumed based on trend data 2003-2011)
- Assumes it is possible and desirable to obtain a new WWTP licence. May not be feasible in reality.

Reference Projects for Costings:

Plant	EP	Actual Cost $m	Year	No. of Years	2014 Cost $m
Goodna	90,000	97	2013	1	104
Mt St John	100,000	105	2012	2	120
Sarina	8,000	25	2014	0	25
Maleny	9,000	19	2013	1	20
CSA	250,000	187	2010	4	245

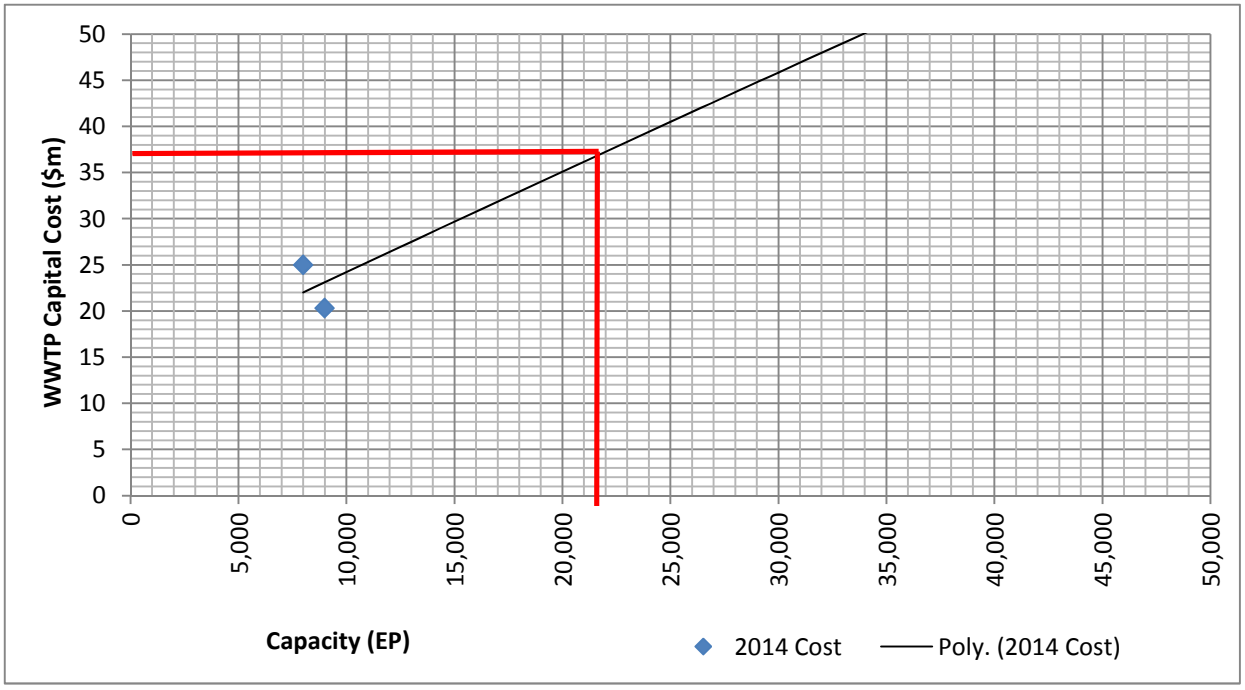


Development Scenario 2:



Estimated cost of new 14,504 EP WWTP = **$29,000,000**

Development Scenario 3:



Estimated cost of new 21,756 EP WWTP = **$37,000,000**

East Trinity Trunk Infrastructure Costings
Development Scenario 2 - Sewer

JACOBS

Assumptions:

- On site pump station plus intermediate pump stations for long rising main
- Pump raw sewage to Edmonton WWTP
- Operational costs not considered

Reference Projects for Costings:

- TB1 Rising Main
- CH2MHill Edmonton WWTP Planning Study
- Cairns Regional Council Infrastructure Works Schedule for Wastewater - PS TB1 (2009)
- DC1 Odour Control

Cost Assessment - Edmonton WWTP Upgrades:

CH2MHill report nominates Stage 1 upgrade required now and Stage 2 upgrade required when plant load reaches 40,000EP. Current plant load approximately 23,000EP. Additional load from DS2 is approximately 14,504 EP giving a total load of 37,504EP. With growth in the Edmonton area it is likely that DS2 will trigger the need for both upgrades.

In order to get an average upgrade cost per EP, the cost for Stages 1 and 2 upgrades are divided by the assumed total EP capcity increase associated, or 35,000 EP.

Edmonton WWTP Upgrade:	Stage 1 upgrade =	$24,700,000	
	Stage 2 upgrade =	$10,500,000	
	Total upgrade cost (2011$) =	$35,200,000	
	CERI rate assumed based on trend of data 2003-2011 =	7.0%	
	over	3	years
	Assumed total upgrade cost (2014$) =	$43,121,514	
	Assumed additional load for upgrade =	35,000	EP
	Assumed upgrade cost per EP =	$1,232	/EP
	DS2 Sewage load based on	14,504	EP
	Cost of Contribution to Edmonton WWTP Upgrade =	$17,869,555	

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 2 - Sewer

Cost Assessment - Sewer Rising Main and Pump Stations:

- Assume rising main via Warner Rd and Bruce Hwy to Edmonton WWTP
- Length of rising main approximately 24,700 m
- Pipe diameter 450 mm to achieve acceptable velocities
- Maximum spacing of pump stations 8 km (based on max. 60 m head) - 3 pump stations required
- Detention time significant in each rising main, allow for MHL dosing at each Pump Station

Rate estimate for 450 mm diameter rising main (2014$) =	$1,133	/m
Length =	24,700	m
	$27,985,100	
Sewage Pump Station Cost (2009$) =	$1,107,000	
CERI rate assumed based on trend of data 2003-2011 =	7.0%	
over	5	year
Adopted cost per pump station (2014$) =	$1,552,625	
Number of pump stations =	3	
	$4,657,874	
MHL Dosing System =	$150,000	
Number of pump stations =	3	
	$450,000	

Cost Estimate Summary for Development Scenario 2 - External Sewage Treatment:

Rising Main =	$27,985,100
Pump Stations =	$4,657,874
Chemical Dosing =	$450,000
Edmonton WWTP Upgrade Contribution =	$17,869,555
Total =	**$50,962,530**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 3 - Sewer

JACOBS

Assumptions:

- On site pump station
- Pump raw sewage to Southern WWTP
- Operational costs not considered

Reference Projects for Costings:

- Northern Beaches Trunk Mains
- Cairns Regional Council Infrastructure Works Schedule for Wastewater - PS TB1 (2009)
- DC1 Odour Control

Cost Assessment - Southern WWTP Upgrades:

Assume costs incurred for upgrade of Southern WWTP same as Edmonton WWTP costs for DS2

Assumed total upgrade cost (2011$) =	$35,200,000	(from DS2)
CERI rate assumed based on trend of data 2003-2011 =	7.0%	
over	3	years
Assumed total upgrade cost (2014$) =	$43,121,514	
Assumed additional load for upgrade =	35,000	EP (as per DS2)
Assumed upgrade cost per EP =	$1,232	/EP
DS3 Sewage load based on	21,756	EP
Cost of Contribution to Southern WWTP Upgrade =	$26,804,333	

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 3 - Sewer

Cost Assessment - Sewer Rising Main and Pump Stations:

- Assume single pump station located at East Trinity Site
- Assume single rising main via proposed bridge to Southern WWTP
- Length of rising main approximately 6,750 m
- Pipe diameter 600 mm to achieve acceptable velocities
- Detention time significant in each rising main, allow for MHL dosing at each Pump Station

Rate estimate for 600 mm diameter rising main (2014$) =	$1,622	
Length =	6,750	m
	$10,948,500	
Pump Station Cost (2009$) =	$1,107,000	
CERI rate assumed based on trend of data 2003-2011 =	7.00%	
over	5	year
Adopted cost per pump station (2014$) =	$1,552,625	
Number of pump stations =	1	
	$1,552,625	
MHL Dosing System =	$150,000	
Number of pump stations =	1	
	$150,000	

Cost Estimate Summary for Development Scenario 3 - External Sewage Treatment:

Rising Main =	$10,948,500
Pump Station =	$1,552,625
Chemical Dosing =	$150,000
Southern WWTP Upgrade Contribution =	$26,804,333
Total =	**$39,455,458**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 2 - Water

JACOBS

Assumptions:

- Operational costs not considered
- No allowance made for headworks charges or external bulk water source/treatment upgrades

Reference Projects for Costings:

- TB1 Rising Main
- Northern Beaches Trunk Water Mains
- CRC Infrastructure Works Schedule for Water Supply Network

Cost Assessment - Trunk Water Mains:

- Assume connection to 800 mm trunk water main at intersection of Bruce Highway and Warner Rd
- Trunk inlet main continues to new reservoir sized for development
- Inlet main pipe diameter 450 mm from connection point to reservoir
- Outlet main pipe diameter 600 mm from reservoir to development
- Length of inlet main 17,900 m to reservoir
- Length of outlet main 2,900 m from reservoir to development
- Reservoir size 16.5 ML

Rate estimate for 450 mm diameter inlet main (2014$) =	$1,133	/m
Length =	17,900	m
	$20,280,700	
Rate estimate for 600 mm diameter outlet main (2014$) =	$1,622	/m
Length =	2,900	m
	$4,703,800	
Reservoir (2009$) =	$2,600,000	
CERI rate assumed based on trend of data 2003-2011 =	7.0%	
over	5	years
Adopted reservoir cost (2014$) =	$3,646,634	

Cost Estimate Summary for Development Scenario 2 - Trunk Water Supply:

Trunk inlet main =	$20,280,700
Trunk outlet main =	$4,703,800
Reservoir =	$3,646,634
Total =	**$28,631,134**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 3 - Water

JACOBS

Assumptions:

- Operational costs not considered
- No allowance made for headworks charges or external bulk water source/treatment upgrades

Reference Projects for Costings:

- Northern Beaches Trunk Water Mains
- CRC Infrastructure Works Schedule for Water Supply Network

Cost Assessment - Trunk Water Mains:

- Assume connection to 800 mm trunk water main at intersection of Bruce Highway and Warner Rd
- Trunk inlet main continues to new reservoir sized for development
- Inlet main pipe diameter 600 mm from connection point to reservoir
- Outlet main pipe diameter 600 mm from reservoir to development
- Length of inlet main 17,900 m to reservoir
- Length of outlet main 2,900 m from reservoir to development
- Reservoir size 24.5 ML

Rate estimate for 600 mm dia. inlet main (2014$) =	$1,622	/m
Length =	17,900	m
	$29,033,800	

Rate estimate for 700 mm dia. outlet main (2009$) =	$1,483	/m
CERI rate assumed based on trend of data 2003-2011 =	7.0%	
over	5	years
Adopted rate estimate for 700 mm dia. outlet main (2014$) =	$2,080	/m
Length =	2,900	m
	$6,031,954	

Reservoir cost (2009$) =	$3,600,000	
CERI rate assumed based on trend of data 2003-2011 =	7.0%	
over	5	years
Adopted reservoir cost (2014$) =	$5,049,186	

Cost Estimate Summary for Development Scenario 3 - Trunk Water Supply:

Trunk inlet main =	$29,033,800
Trunk outlet main =	$6,031,954
Reservoir =	$5,049,186
Total =	**$40,114,940**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 2 - Electricity and Comunications

JACOBS

Assumptions

- Powerlink transmission line between Cairns and Innisfail has capacity to service DS2
- Neither the City Zone substation nor the Edmonton Zone substation have capacity fto service DS2
- Necessary to establish a new Ergon Energy zone substation to serve DS2

Cost Assessment - Electricity Supply

- New 132 kV switching station near Warner Rd including augmentation of existign transmission towers, new switching station with circuit breakes, metering, etc

Item cost =	$14,000,000

- New 132 kV high reliability, dual overhead transmission line from Warner Rd to Site

Rate =	$650
Length =	12,950
Total =	$8,417,500

- New zone substation complete with dual 15 MV transformers, 132 kV incoming circuit breakers, 22 kV switchboard, statisitical metering, telementry, etc based on external transformer yard with demountable type switchrooms.

Item cost =	$20,000,000
Total Electricity Supply Cost - Development Scenario 2 =	**$42,417,500**

Cost Assessment - Communications

- Optic fibre from Bruce Highway intersection with Warner Road to a new fibre access node at site.

- New Optic Fibre:	Rate =	$100
	Length =	18,700
	Total =	$1,870,000
- New Fibre Access Node at site:	Item cost =	$800,000
	Total Communications Cost - Development Scenario 2 =	**$2,670,000**

Cost Estimate Summary for Development Scenario 2 - Electricity Supply and Commnications:

Electricity Supply =	$42,417,500
Communications =	$2,670,000
Total Development Scenario 2 Electricity Supply and Communications =	**$45,087,500**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenario 3 - Electricity and Comunications

Assumptions

- Powerlink transmission line between Cairns and Innisfail has capacity to service DS3
- Neither the City Zone substation nor the Edmonton Zone substation have capacity fto service DS3
- Necessary to establish a new Ergon Energy zone substation to serve DS3

Cost Assessment - Electricity Supply

- New 132 kV switching station near Warner Rd including augmentation of existign transmission towers, new switching station with circuit breakers, metering, etc	Item cost =	$14,000,000
- New 132 kV high reliability, dual overhead transmission line from Warner Rd to Site	Rate =	$730
	Length =	12,950
	Total =	$9,453,500
- New zone substation complete with dual 15 MV transformers, 132 kV incoming circuit breakers, 22 kV switchboard, statisitical metering, telementry, etc based on external transformer yard with demountable type switchrooms.	Item cost =	$21,500,000
	Total Electricity SupplyCost - Development Scenario 3 =	**$44,953,500**

Cost Assessment - Communications

- New optic fibre from Cairns City Telephone exchange to the eastern side of the proposed bridge

- New optic fibre - City to Bridge:		- New optic fibre - Bridge to Site:	
Rate =	$200 /m	Rate =	$100
Length =	5,390 m	Length =	1,800
Total =	$1,078,000	Total =	$180,000

	Total Optic Fibre Cost =	$1,258,000
- New Fibre Access Node at site:	Item cost =	$800,000
	Total Communications Cost - Development Scenario 3 =	**$2,058,000**

Cost Estimate Summary for Development Scenario 3 - Electricity Supply and Commnications:

Electricity Supply =	$44,953,500
Communications =	$2,058,000
Total Development Scenario 3 Electricity Supply and Communications =	**$47,011,500**

RPS - Ports North
East Trinity Trunk Infrastructure Costings
Development Scenarios - Cost Estimate Summary

Cost Estimates Summary

Three development scenarios' rounded inputs to cost estimates are as follows :

Development Scenario 1:

			Imported Fill =	$79,330,000
			TOTAL FOR DEVELOPMENT SCENARIO 1 =	**$79,330,000**

Development Scenario 2:

			Imported Fill and Surcharge =	$431,260,000
			Road Access via Warner Rd Upgrade =	$83,320,000
			Water Supply =	$28,630,000
Internal WWTP =	$29,000,000			
External PS & SRM =	$50,960,000	adopt	Sewerage =	$29,000,000
			Electricity Supply and Communications =	$45,090,000
			TOTAL FOR DEVELOPMENT SCENARIO 2 =	**$617,300,000**

Development Scenario 3:

			Imported Fill and Surcharge =	$431,260,000
			Road Access via new Bridge =	$281,370,000
			Water Supply =	$40,110,000
Internal WWTP =	$37,000,000			
External PS & SRM =	$39,460,000	adopt	Sewerage =	$37,000,000
			Electricity Supply and Communications =	$47,010,000
			TOTAL FOR DEVELOPMENT SCENARIO 3 =	**$836,750,000**

Appendix 2

HTW – Valuation Report

17 October 2014

HERRON TODD WHITE

RPS
PO Box 1949
Cairns Qld 4870

Attn: Owen Dalton

Dear Owen,

RE: Preliminary Market Advice

We refer to your recent correspondence wherein you requested a brief outline of present and potential values of a parcel of land located to the south of Cairns. We will refer to the parcel as East Trinity, being approximately 518 hectares of very low lying mangrove intrusion area located directly opposite the city across Trinity Inlet.

As instructed we have not undertaken a full inspection of the property and this advice is provided utilising aerial photography.

East Trinity Site

Current Value Nil/Nominal Value

If filled with dredge spoil to a level above known flood levels, the site would be suitable for grazing and cane and would be considered to have a value range of $10,000 to $15,000 per hectare. Proximity to haul out points and mill infrastructure may tend to keep the price of potential cane land at this level. However given an area of 500 plus hectares of land was suitable for cane production and the owners gave an undertaking to grow cane, a mill may provide infrastructure/haul out points within the parcel, therefore lowering harvesting costs and potentially increasing the value of this land by a further $5,000 per hectare.

To determine a value if filled to a level suitable for residential subdivision and with appropriate Council approvals in place for same, we have undertaken a cash flow analysis.

When undertaking the feasibility analysis we have had regard to the RPS planning report and costings provided by JACOBS.

We have undertaken two scenarios with the first being subdivision of the 518 hectares at a yield of 10 lots per hectare (5,180 lots). Access via existing Pine Creek Road.

Scenario Two subdivides 518 hectares at a yield of 15 lots per hectare (7,700 lots). Access via a new bridge extending from Aumuller Street over Smiths Creek, Admiralty Island and Trinity Inlet.

External infrastructure costs for Scenario One have been estimated by JACOBS at $617,300,000. We have allowed for a further $70,000 per lot for interval headworks and civil costs or $362,600,000.

Cairns

Herron Todd White (Cairns) Pty Ltd
ABN 43 661 062 790

Level 1
95 Sheridan St
Cairns QLD 4870
PO Box 6843
Cairns QLD 4870

Telephone 07 4057 0200
cairns@htw.com.au
htw.com.au

External infrastructure costs for Scenario Two have been estimated by JACOBS at $836,750,000 which includes a new bridge access. We have allowed for a further $70,000 per lot for interval headworks and civil costs or $539,000,000.

Feasibility Analysis Scenario One

The driving time from Cairns to the subject site will be well in excess of driving time to established/ developing estates in Edmonton and Gordonvale. Therefore to achieve sales the proposed allotments would have to be discounted well below these existing markets. We have estimated an average selling price of $125,000 per allotment.

It is not necessary to undertake a feasibility analysis to provide the likely result in Scenario One. The all up cost (excluding interest of holding charges) is approximately $979,900,000. The total sale price of the 5180 allotments will be approximately $647,500,000. Providing for a shortfall of - $332,400,000.

This shortfall is also before any interest / holding charges, advertising, commissions, GST on sales and is on the basis the land is given to a potential developer for free.

Feasibility Analysis Scenario Two

Input Data

Area	518 Hectares
Number of Allotments	7,700
External Infrastructure Provision	$836,750,000
Internal Headworks and Civils	$539,000,000
Selling Price Per Allotment	$200,000
Selling Period	50 lots per month (considered overly generous)
Interest Rate	6%
Cost of Filled Site	NIL
Developers Profit (%)	NIL

Utilizing the above data the proposed development provides for a shortfall of funds of approximately - $600,000,000.

HERRON TODD WHITE

It is assumed for the purposes of this exercise the dredge spoil used to fill the above sites is of a quality suitable for both agricultural and residential purposes.

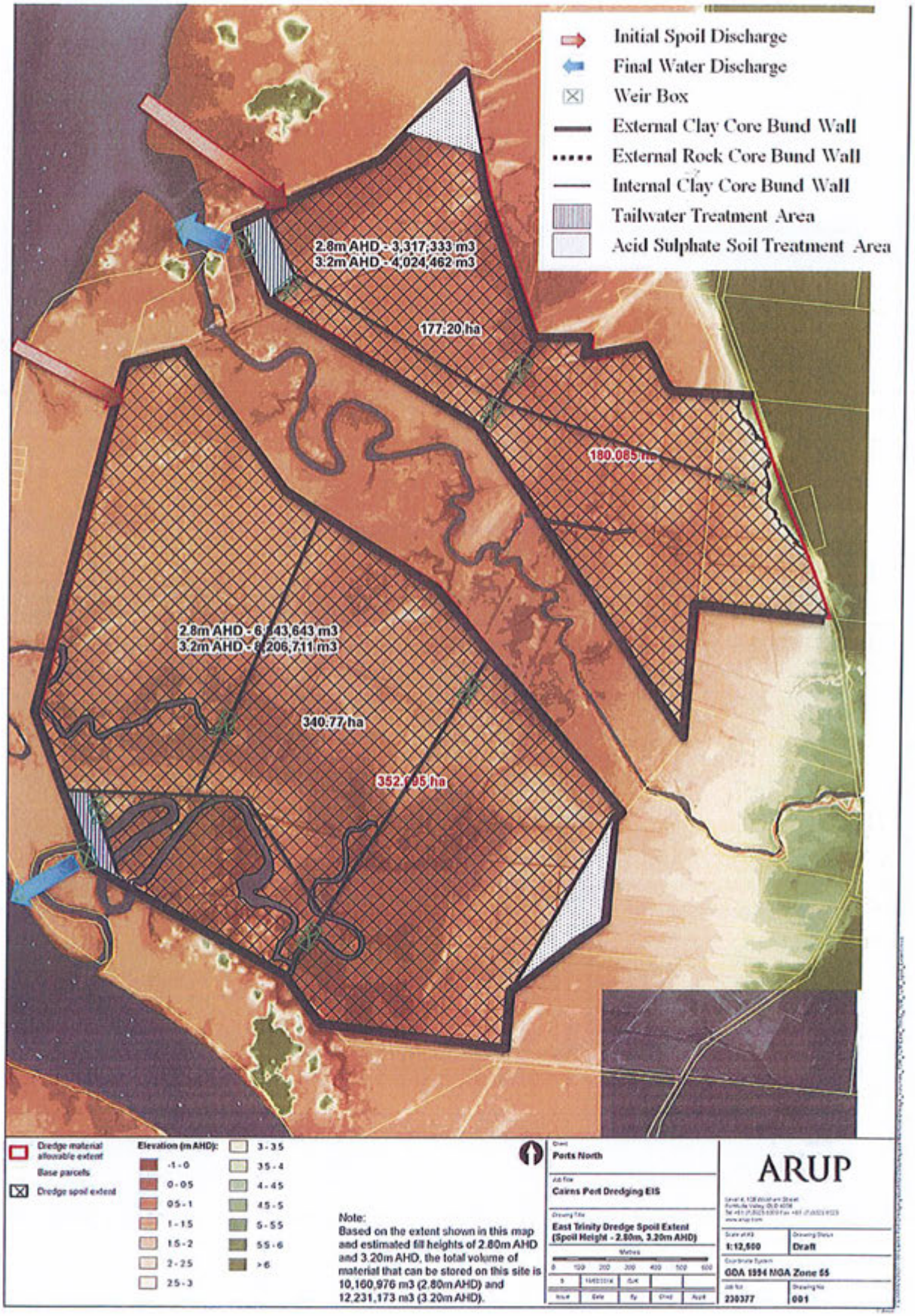
The above values are also as at today, that is, demand for residential englobo land is limited today. As the residential market becomes more buoyant and developed land prices increase, so to will the demand for and value of residential englobo land.

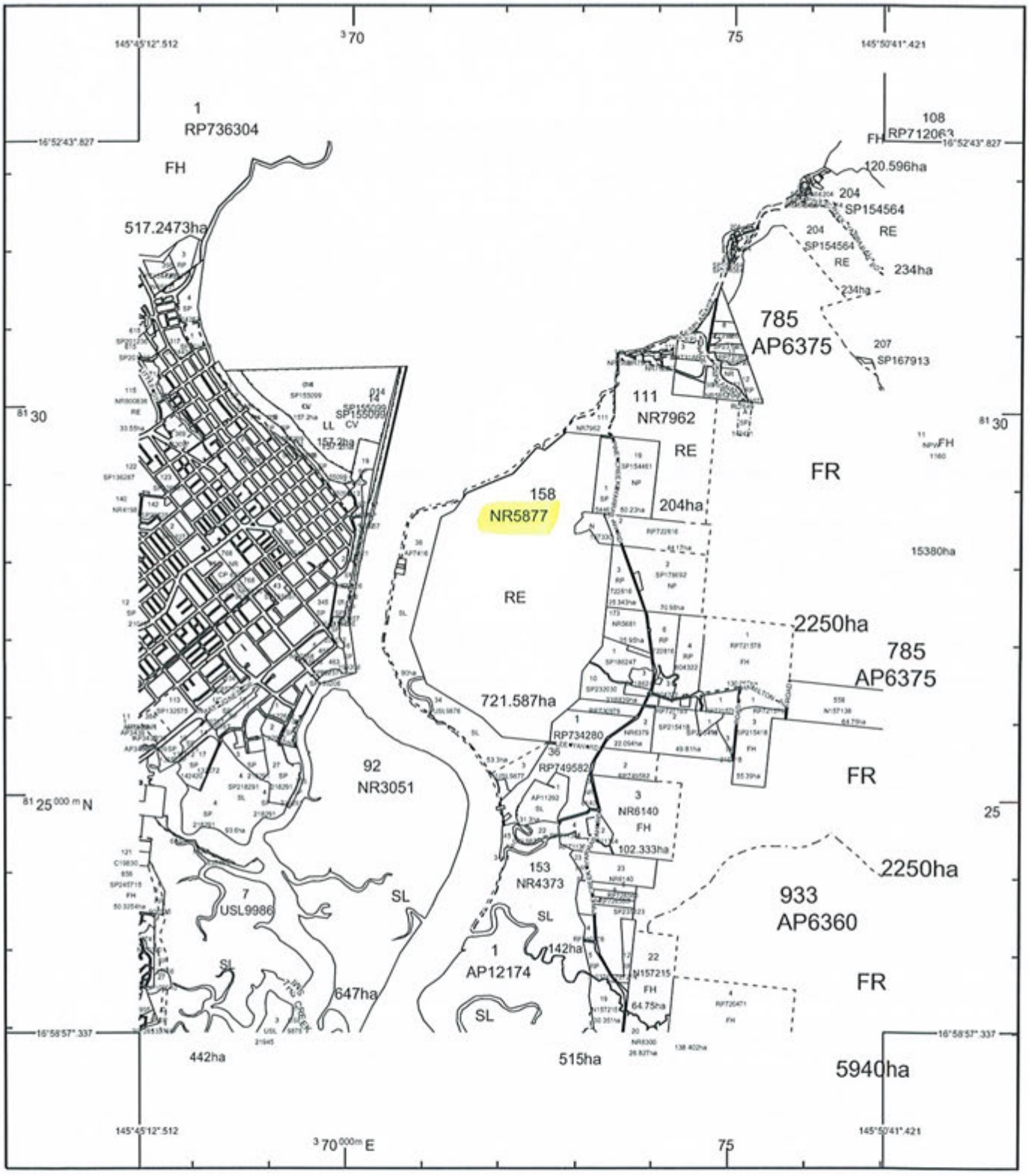
If you require any further information regarding the above please do not hesitate to contact our office.

Yours faithfully

S. M. Quinn

SHANE QUINN AAPI
DIRECTOR
Registration No. 1330


Initial Spoil Discharge
Final Water Discharge
Weir Box
External Clay Core Bund Wall
External Rock Core Bund Wall
Internal Clay Core Bund Wall
Tailwater Treatment Area
Acid Sulphate Soil Treatment Area
2.8m AHD - 3,317,333 m3
3.2m AHD - 4,024,462 m3
177.20 ha
180.085 ha
2.8m AHD - 6,843,643 m3
3.2m AHD - 8,206,711 m3
340.77 ha
352.695 ha
Dredge material allowable extent
Base parcels
Dredge spoil extent
Elevation (m AHD):
-1 - 0
0 - 0.5
0.5 - 1
1 - 1.5
1.5 - 2
2 - 2.5
2.5 - 3
3 - 3.5
3.5 - 4
4 - 4.5
4.5 - 5
5 - 5.5
5.5 - 6
> 6
Note:
Based on the extent shown in this map and estimated fill heights of 2.80m AHD and 3.20m AHD, the total volume of material that can be stored on this site is 10,160,976 m3 (2.80m AHD) and 12,231,173 m3 (3.20m AHD).
Client
Ports North
Job Title
Cairns Port Dredging EIS
Drawing Title
East Trinity Dredge Spoil Extent (Spoil Height - 2.80m, 3.20m AHD)
Metres
0 100 200 300 400 500 600
ARUP
Scale at A3
1:12,500
Drawing Status
Draft
Coordinate System
GDA 1994 MGA Zone 55
Job No
230377
Drawing No
001



STANDARD MAP NUMBER
8064-23422

0 1.4 2.8 4.2 5.6 7.0 km

HORIZONTAL DATUM GDA94 ZONE 55 SCALE 1 : 70000

MAP WINDOW POSITION & NEAREST LOCATION

145°47'56".967
16°55'50".562
CAIRNS
2.62 KM

GDA

SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	158/NR5877
Area/Volume	721.587ha
Tenure	RESERVE
Local Government	CAIRNS REGIONAL
Locality	EAST TRINITY
Parish	TRINITY
County	NARES
Segment/Parcel	9876/716

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 17/10/2014

DCDB 16/10/2014 (Lots with an area less than 4.000ha are not shown)

Users of the information recorded in this document (the Information) accept all responsibility and risk associated with the use of the Information and should seek independent professional advice in relation to dealings with property.

Despite Department of Natural Resources and Mines(DNRM)'s best efforts, DNRM makes no representations or warranties in relation to the Information, and, to the extent permitted by law, exclude or limit all warranties relating to correctness, accuracy, reliability, completeness or currency and all liability for any direct, indirect and consequential costs, losses, damages and expenses incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the Information

For further information on SmartMap products visit http://nrw.qld.gov.au/property/mapping/blinmap

SmartMap

An External Product of SmartMap Information Services

Based upon an extraction from the Digital Cadastral Data Base

Queensland Government

Summary of Project Returns

ESTATEMASTER PROPERTY SOFTWARE

Development Feasibility

East Trinity

Hypothetical Development

Whole Development

Time Span:	Oct-14 to Oct-29	**Project Size:**	7,700. Lots
Type:	Residential		1 per 0.07 Ha of Site Area
Status:	Under Review	**Project Size:**	
Site Area:	518. Ha		
FSR:	0:1	**Equated GFA:**	0.0

Estate Master for Excel Licensed to: Herron Todd White Australia Pty Ltd

HERRON TODD WHITE

COSTS & REVENUES	Quantity	SqM	AUD/SqM	AUD Total	AUD Per Lot	AUD Per GFA
REVENUE						
Total Sales Revenue	7,700	-	-	1,540,000,000	200,000	
Not Classified	7,700	-	-	1,540,000,000		
Less Selling Costs				-	-	
NET SALE PROCEEDS				1,540,000,000	200,000	
TOTAL REVENUE (before GST paid)				1,540,000,000	200,000	
Less GST paid				(140,000,000)	18,182	
TOTAL REVENUE (after GST paid)				**1,400,000,000**	**181,818**	
COSTS						
Land Purchase Cost				-	-	
Land Transaction Costs				-	-	
Land Holding Costs				-	-	
Interest Expense				623,700,393	81,000	
TOTAL COSTS (before GST reclaimed)				2,137,025,393	277,536	
Less GST reclaimed				(137,575,000)	17,867	
TOTAL COSTS (after GST reclaimed)				**1,999,450,393**	**259,669**	

PERFORMANCE INDICATORS

Net Development Profit [1]	**(599,450,393)**	
Development Margin (or Profit/Risk Margin) [3]	**-29.98%**	on total development costs (net of selling and leasing costs).
Residual Land Value (Target Margin) [4]	(281,049,630)	(at 0% target development margin - Inclusive of GST)
Net Present Value [5]	**(599,450,393)**	(at 0% per ann. discount rate, effective)
Benefit Cost Ratio [6]	0.7002	(at 0% per ann. discount rate, effective)
Project Internal Rate of Return (IRR) [7]	**-11.19%**	(per ann. effective)
Residual Land Value (based on NPV) [8]	(281,045,736)	(Inclusive of GST)
Equity IRR	N.A.	(per ann. effective)
Equity Contribution	599,450,393	
Peak Debt Exposure	928,416,538	
Equity to Debt Ratio	68.26%	
Weighted Average Cost of Capital (WACC) [9]	3.57%	
Breakeven Date for Cumulative Cash Flow [10]	N.A.	(Profit is negative)
Rent Cover [11]	N.A.	
Profit Erosion [12]	N.A.	

Footnotes:

1. Development Profit: is total revenue less total cost including interest paid and received
2. Note: No redistribution of Developer's Gross Profit
3. Development Margin: is profit divided by total development costs (net of selling and leasing costs).
4. Residual Land Value: is the maximum purchase price for the land whilst achieving the target development margin.
5. Net Present Value: is the project's cash flow stream discounted to present value. It includes all financing costs and interest but excludes corp tax.
6. Benefit Cost Ratio: is the ratio of discounted incomes to discounted costs and includes all financing costs and interest but excludes corp tax.
7. Internal Rate of Return: is the discount rate where the NPV above equals Zero.
8. Residual Land Value (based on NPV): is the purchase price for the land to achieve a zero NPV.
9. The Weighted Average Cost of Capital (WACC) is the rate that a company is expected to pay to finance its assets.
10. Breakeven date for Cumulative Cash Flow: is the last date when total debt and equity is repaid (ie when profit is realised).
11. The total net development profit divided by the current net annual rental expressed as a a number of years/months.
12. The period of time post practical completion that it can remain unsold (but leased out) until finance and land holding costs erodes the profit for the development to zero.

Summary of Project Returns

ESTATEMASTER
PROPERTY SOFTWARE
Development Feasibility

East Trinity

Hypothetical Development

Whole Development

HERRON TODD WHITE

Time Span: Oct-14 to Oct-29
Type: Residential
Status: Under Review
Site Area: 518. Ha
FSR: 0.1
Project Size: 7,700. Lots
1 per 0.07 Ha of Site Area
Project Size:
Equated GFA: 0.0

RETURNS ON FUNDS INVESTED	Equity				Senior Loan	Total Debt
					0	
Funds Invested (Cash Outlay) [1]	599,450,393				878,211,538	878,211,538
% of Total Funds Invested	40.57%				59.43%	59.43%
Peak Exposure [2]	599,450,393				928,416,538	928,416,538
Date of Peak Exposure	Oct-29				Oct-17	Oct-17
Year of Peak Exposure	Year 15				Year 3	Year 3
Weighted Average Interest Rate	N.A.				6.00%	6.00%
Interest Charged	-				623,700,393	623,700,393
Line Fees Charged	-				-	-
Application Fees Charged	-				-	-
Profit Share Received	-				-	-
Total Profit to Funders [3]	(599,450,393)				623,700,393	623,700,393
Margin on Funds Invested [4]	-100.00%				71.02%	71.02%
Payback Date [5]	Oct-30				Oct-29	N.A.
Year of Payback	Year 16				Year 15	Not Repaid
IRR on Funds Invested [6]	N.A.				6.00%	6.00%
Equity to Debt Ratio [7]					68.26%	68.26%
Loan to Value Ratio [8]	38.93%				60.29%	60.29%
Loan Ratio [9]	42.82% of Sales (net of GST).				107.28% of Sales (net of GST).	107.28% of Sales (net of GST).

Footnotes:

1. The total amount of funding injected into the project cash flow.
2. The maximum cash flow exposure of that equity/debt facility including capitalised interest.
3. The total repayments less funds invested, including profit share paid or received.
4. Margin is net profit divided by total funds invested (cash outlay).
5. Payback date for the equity/debt facility is the last date when total equity/debt is repaid.
6. IRR on Funds Invested is the IRR of the equity cash flow including the return of equity and realisation of project profits.
7. Equity to Debt Ratio is the amount of equity contributed into the project as a percentage of debt funding.
8. Loan to Value ratio is the Peak Equity/Debt Exposure divided by Total Sales Revenue.
9. Loan Ratio is the total funds invested by the lender (cash outlay) divided by the nominated ratio calculation method. It includes capitalised interest and fees.