

CAIRNS SHIPPING DEVELOPMENT PROJECT

Revised Draft Environmental Impact Statement

APPENDIX U: Cultural Heritage Report (2016)



Cairns Shipping Development Project Cultural Heritage Assessment



Report to Flanagan Consulting Group

Alice Buhrich

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Alice Buhrich • 5 Holmes St Stratford 4870 •

Executive Summary

The Cairns Shipping Development Project investigates options for large cruise vessels to access Trinity Wharves. This will require an upgrade of Trinity Wharves, dredging of the existing shipping channel, expansion of the existing swing basin, terrestrial disposal of dredge material and ancillary impacts. Two potential sites for terrestrial land disposal of dredge material are proposed – Northern Sands and East Trinity.

Cairns harbour is part of a living Aboriginal cultural landscape. Story places, archaeological sites, contact sites and places of contemporary Aboriginal significance are documented in the broad study area. Non-Indigenous heritage values include shipwrecks, Trinity Wharf complex and local heritage places associated with the development of Cairns.

This cultural heritage assessment provides a Values and Constraints Assessment of potential impacts to Aboriginal and non-Indigenous heritage places. Cultural heritage values have been identified through desktop research, consultation with Aboriginal parties and site inspections. The report includes an assessment of significant heritage at Northern Sands, East Trinity, the shipping channel and Trinity Wharves, mitigation measures that could be implemented to protect those values and recommendations for cultural heritage assessments.

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Acknowledgements

Yirrganydji representatives Jeanette Singleton, Patricia Singleton and Dr George Skeene participated in site inspections at Northern Sands and Thomatis Creek. Mandingalbay Yidinji representatives Dale Mundraby, Dewayne Mundraby & the Djunbunji Rangers facilitated site inspections of East Trinity. Sam Aird provided archaeological assistance, particularly relating to shellfish remains.

Ports North have commissioned a previous draft EIS relating to the Cairns Shipping Development Project. Extracts of the previous assessment are integrated into this report as referenced.

Tony Brassil from Extent Heritage conducted the Heritage Impacts Statement for Trinity Wharves, extracts of which are incorporated into the report as referenced.

Tom Hamilton of Geographica Consulting provided mapping expertise.

Table 1. List of Acronyms used in the report.

LIST OF ACRONYMS	
ACHA	Aboriginal Cultural Heritage Act 2003 (Qld)
AHPI	Australian Heritage Places Inventory
ANSDB	Australian National Shipwreck Database
ATSIHPA	Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwlth)
CHMP	Cultural Heritage Management Plan
CSDP	Cairns Shipping Development Project
EIS	Environmental Impact Statement
GWY	Gimuy Walubara Yidinji People
HSA	Historic Shipwrecks Act 1976 (Cwlth)
IPA	Indigenous Protected Area
MY	Mandingalbay Yidinji Aboriginal Corporation
NQLC	North Queensland Land Council
NTA	Native Title Act 1993 (Cwlth)
QHA	Queensland Heritage Act 1992 (Qld)
SPA	Sustainable Planning Act 2009 (Qld)
ToR	Terms of Reference
TUMRA	Traditional Use of Marine Resources Agreement
YAC	Yirrganydji Gurabana Aboriginal Corporation

1 Background

The Cairns Shipping Development Project investigates options for the upgrade of Cairns Port infrastructure to accommodate larger cruise ships and the potential future upgrade of HMAS Navy Base operations. A draft EIS (Ports North 2014) considered the marine based dredge disposal of 4.4 million cubic metres of dredge material. The current project considers the terrestrial disposal of a reduced quantity of dredge material at one of two potential sites – Northern Sands and East Trinity. The project includes upgrade of Trinity Wharves and establishment of a new swing basin in Trinity Inlet. This report provides a Values and Constraints assessment of cultural heritage implications from land based dredge disposal, the upgrade of Trinity Wharves and ancillary works for the revised EIS for the Cairns Shipping Development Project.

1.1 Project description

The project area is broadly defined as an area encompassing Trinity Inlet, Mission Bay, East Trinity and the sea and coastline north to Palm Cove (Fig 1).

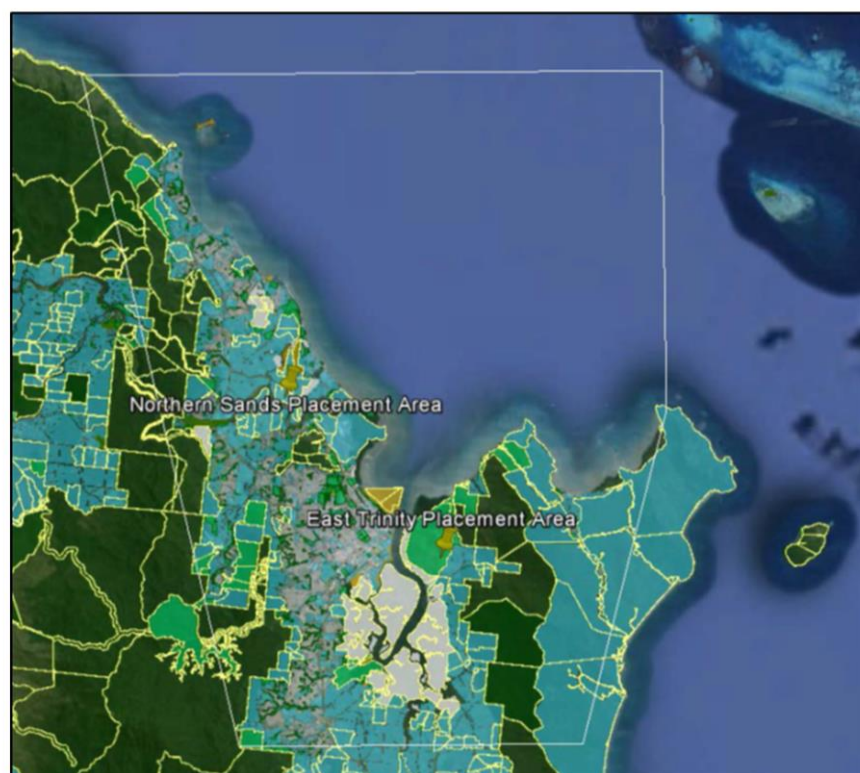


Figure 1. The project area encompasses the land and waters from Trinity Inlet to Palm Cove, with two potential placement areas, Northern Sands and East Trinity.

1.2 Scope of this report

This cultural heritage assessment is an investigation of the project impacts on Indigenous and non-Indigenous cultural heritage from the construction of distribution and containment infrastructure required for dredge material at two possible sites – East Trinity and Northern Sands. It includes heritage aspects of the proposed structural upgrades of Trinity Wharves 1-5 and possible demolition of Wharf 6 and establishment of a new swing basin in Trinity Inlet.

The cultural heritage assessment addresses the following specific operational works and ancillary impacts:

- Terrestrial placement of dredge material, pipeline route and laydown area, pump out points and discharge area at Northern Sands.
- Terrestrial placement of dredge material, pipeline route and laydown area, pump out points and discharge area at East Trinity.
- Installation of dolphins at Trinity Wharves 1-5 and possible demolition of Wharf 6.
- The upgrade of Cairns shipping channel.

This report addresses the Terms of Reference (ToR) issued by the Co-ordinator General (Queensland) (dated 30 Nov 2012) and the Department of Environment/SEWPaC (Commonwealth) (dated 21 March 2013). Appendix A contains relevant cultural heritage comments raised in the ToR and where those items are specifically addressed in this report.

Extracts of a previous cultural heritage assessment ('Cultural Heritage Chapter B13 Draft Environmental Impact Statement, Cairns Shipping Development Project', Ports North 2014) are integrated into this report as referenced.

This cultural heritage assessment excludes public notification and endorsement of Aboriginal parties. This investigation has not investigated social impacts of the project. Native title is listed in the ToR however is outside the scope of this report. Potential impacts on native title rights and interests will be investigated.

1.3 Proposed work

The proposed work involves widening and deepening the existing shipping channel and the terrestrial disposal of up to 860 000 m³ of capital dredge material at one of two possible locations – Northern Sands or East Trinity. Dredge material disposal needs to allow for bulking factors such as inclusion of tailwater and the total volume may be up to 1.9 M m³. Ancillary impacts include a temporary pipeline, pump out points and pond areas. The proposed upgrades to Trinity Wharves to allow for berthing of large cruise ships include installation of dolphins at Wharves 1- 5 and demolition of Wharf 6. Other proposed works include expansion of the Crystal swing basin and establishment of a new Smith's Creek swing basin and marine placement of future maintenance dredge material.

The Northern Sands dredge disposal option proposes to use existing voids in a sand quarry in the Barron delta (Figure 1). There are two options for the pipeline route. The first runs along Thomatis Creek to a staging pond on a cane field south of Thomatis Creek (pink line, Fig 2). The second traverses a cane field on the northern side of Thomatis Creek (AQUIS site) and crosses the creek at either of two possible locations (red and yellow lines in Fig 2). The pipeline will be constructed of 1 metre diameter flanged steel pipe segments. In the creek the pipeline will rest on the creek bed, whereas the terrestrial pipeline will sit on temporary earth pads.

The East Trinity dredge disposal option proposes to create a new bunded section or sections within the area shown in Figure 3. Dredge material will be placed above ground. The pipeline route is proposed to use an existing track which was constructed as a tramway to service Chinese market gardens.

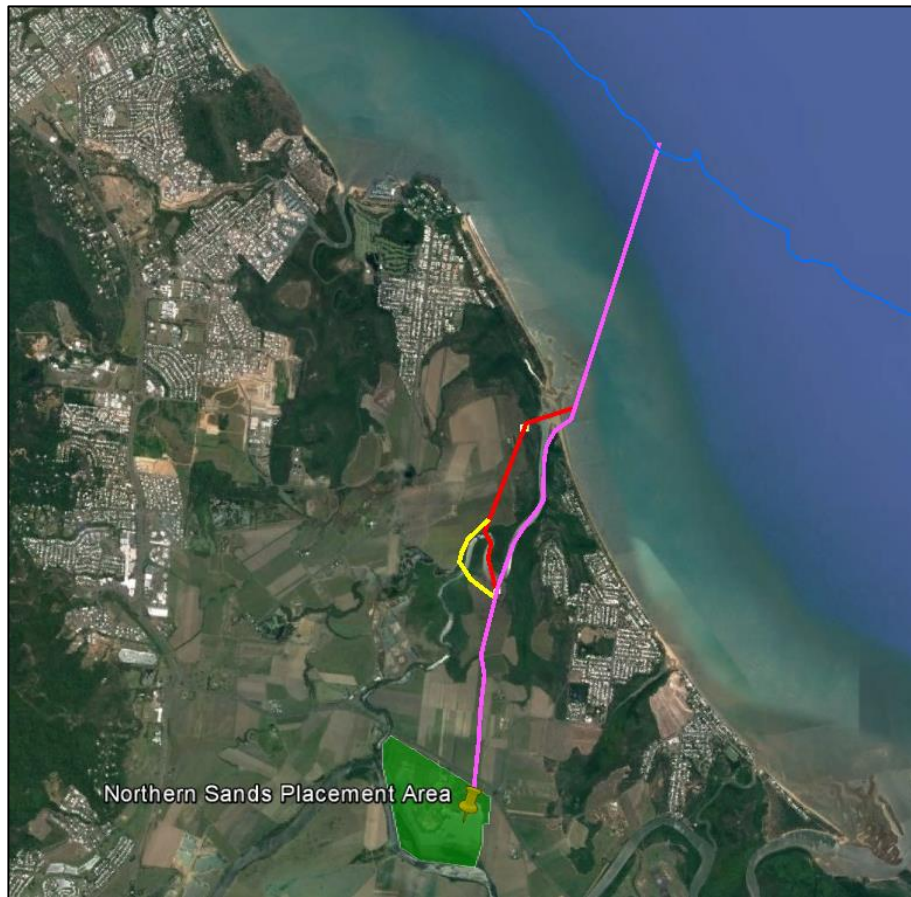


Figure 2. Pioneer Sands (in green) and potential pipeline routes, Barron delta.

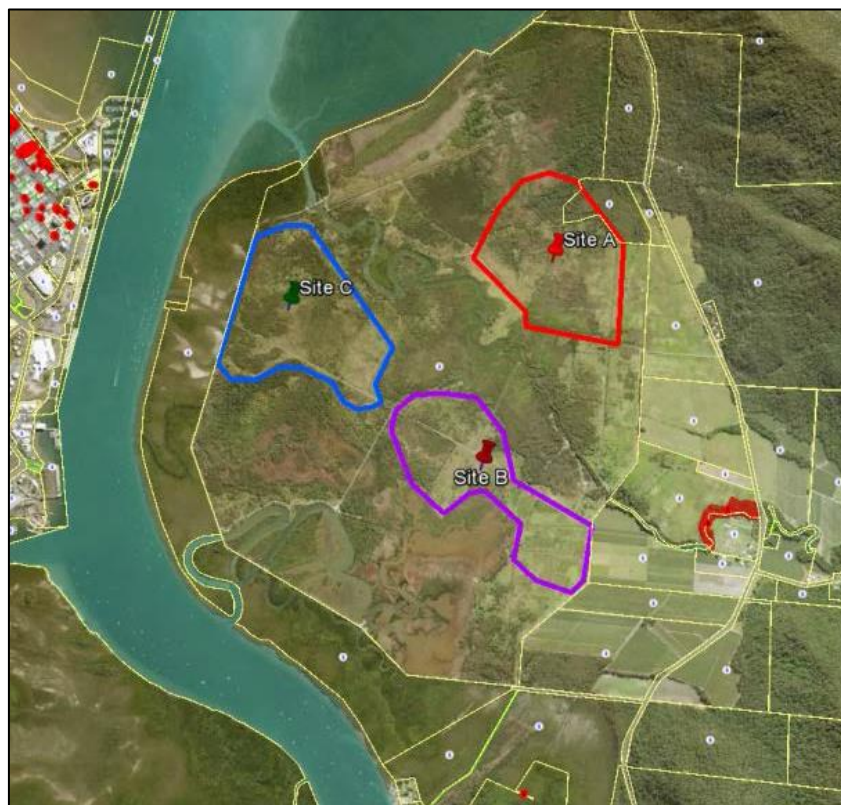


Figure 3. East Trinity showing possible dredge material placement areas.

2 Policy and legislation

Cultural heritage is embodied in the values, places and practices that are important for past, present or future generations (Australia ICOMOS 2013). Australia's cultural heritage is protected by legislation at the commonwealth, state and local levels. Terrestrial non-Indigenous heritage values are assessed against a set of criteria and threshold levels to determine international, national, state and local significance. Shipwrecks are deemed historic relics after they are 75 years old. In Queensland, significant Aboriginal heritage places are identified by the relevant Aboriginal party and can include archaeological, anthropological or contemporary places. Torres Strait Islander heritage is dealt with through separate legislation that is not relevant to this report.

2.1 The Burra Charter

The Burra Charter (Australia ICOMOS 2013) provides non-statutory best practise guidelines on how Australian cultural heritage places are identified, conserved and managed. The Burra Charter identifies the following key principles

- Significant values and elements of a place should be identified through survey, consultation and research
- Cultural heritage is the aesthetic, historic, scientific or social values for past, present or future generations
- Objects, fabric, setting, spaces and views contribute to the cultural significance of a place
- The heritage values of a place should be understood before making management decisions
- All stakeholders should be involved in looking after a heritage place, although some may have higher priority

The Burra Charter identifies four key cultural heritage values – aesthetic, historic, scientific and social. *Aesthetic values* refer to the sensory reaction a place invokes. Aesthetic values can be embodied in form, scale, texture, materials, smells and sound. *Historic values* are the association of a place with a significant person, event, phase or activity. *Scientific values* are the potential of place to contribute information not available elsewhere, such as archaeological sites. Places of *social value* are important as the focus of spiritual, political, national or other cultural sentiment to majority or minority groups (Australia ICOMOS 2013).

2.2 Commonwealth legislation

Environment Protection and Biodiversity Conservation Act 1999

This Act promotes biodiversity conservation and heritage protection and recognises the role of Indigenous people in the conservation of Australia's biodiversity. It is the key national heritage legislation and is administered by the Commonwealth Department of the Environment and Energy. Places of national heritage can be nominated to the National Heritage List while places owned or managed by the Commonwealth are located on the Commonwealth Heritage List.

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHPA) assists Indigenous people with the preservation and protection of areas and objects that are of particular significance to Indigenous people. The ATSIHPA gives Indigenous people the right to request the Federal Minister who administers the ATSIHPA to intervene in cases where they consider that their cultural heritage is at risk, and the relevant state legislation is inadequate. The ATSIHPA was introduced in the early 1980s, before the recognition of native title in Australian law. The ATSIHP Act was meant to protect particularly sacred sites and objects as a 'last resort' if protection under State or Territory law was inadequate.

Australian Heritage Council Act 2003

The Australian Heritage Council Act 2003 provides for the establishment of the Australian Heritage Council, which is the principal advisory group to the Australian Government on Federal heritage matters, including any declarations under the EPBC Act. The Australian Heritage Council Act 2003 also provides for the nomination of places considered of national significance on the National Heritage List or Commonwealth Heritage List or on the former Register of the National Estate or the APHI.

Native Title Act 1993

The *Native Title Act 1993* (NTA) provides for the protection of extant native title rights and interests held by Aboriginal and Torres Strait Islander people. It creates procedural requirements for the grant of any act by government or a third party that may impact on native title rights and interests that must be followed in order to ensure the grant is valid. In many cases the NTA creates a process under the future act regime whereby

acts that affect native title will be valid, with any impairment of native title rights and interests giving rise to a right to compensation by the native title holders. In some instances an act can only be validly done through an Indigenous Land Use Agreement. The cultural heritage regime in Queensland is separate from the NTA, however the Aboriginal party under the ACHA is identified by reference to the NTA.

Historic Shipwreck Act 1976

The *Historic Shipwrecks Act 1976* (HSA) applies to all Australian waters from the low tide mark to the edge of the continental shelf. The HSA is administered in collaboration with the states, Northern Territory and Norfolk Island. In Queensland, the HSA is administered by the DEHP. The provisions of the *Queensland Heritage Act 1992* (QHA) in conjunction with Part II of the HSA states that all shipwreck and associated relics at least 75 years old and located in Australian waters to be historic relics and, unless otherwise determined, to be protected. It applies to all wrecks located along Queensland's open coast, bays, lakes and inland waterways including Trinity Bay and Trinity Inlet. To assist in the administration of this Act the Australian National Shipwrecks Database (ANSDB) has been established.

2.3 Queensland heritage legislation

In Queensland, impacts to significant Indigenous and non-Indigenous cultural heritage are managed through separate legislative processes. Indigenous heritage is protected through duty of care guidelines for all land users. Non-Indigenous heritage is integrated into development application processes.

Aboriginal Cultural Heritage Act 2003 (ACHA)

The purpose of the ACHA is to recognise, protect and conserve Aboriginal cultural heritage in Queensland. The ACHA seeks to achieve this by establishing duty of care mechanisms for land users to protect significant Aboriginal cultural heritage from activities and ensuring Aboriginal people are involved in processes for managing Aboriginal cultural heritage.

The ACHA defines Aboriginal cultural heritage as a significant Aboriginal area or object, or significant evidence of Aboriginal occupation of Queensland. The ACHA defines significant Aboriginal heritage as an area or object significant to Aboriginal people because of Aboriginal tradition or history, including contemporary use. Aboriginal people are responsible for identifying significant Aboriginal cultural heritage.

According to the ACHA:

- A significant area does not have to contain physical markings (ie. a story place, birth place or massacre site), nor does it have to be old.
- Aboriginal people identify significance of areas or objects, although anthropological, historical, biogeographical and archaeological information can help identify significance.
- A significant area can include the surrounding area, if impacts will diminish the significance.

Impacts to cultural heritage are managed through the duty of care guidelines, which requires all land users to make reasonable and practicable steps to manage impacts to significant Aboriginal cultural heritage. Duty of care guidelines outlines the steps for managing impacts to significant Aboriginal places including consulting Aboriginal parties, conducting surveys and nature of past use of the area. Penalties for non-compliance with the duty of care are \$117,800 for an individual and \$1,178,000 for a corporation.

A Cultural Heritage Management Plan (CHMP) is an agreement between a land user and relevant Aboriginal party on how impacts to significant Aboriginal heritage will be managed. Under the ACHA, CHMPs are required when an EIS is required for a project and can also be made voluntarily.

Queensland Heritage Act 1992 (QHA)

The QHA establishes a register of places of non-Indigenous heritage significance. Queensland Heritage Council manages impacts to places of state heritage value and local councils manage impacts to local heritage places.

The QHA establishes the criteria for entry on the State heritage places in Queensland register, and links cultural heritage significance with the relevant criteria. A place must satisfy one or more of criteria (a) – (h) to be included in either state or local heritage registers (Table 2). *Criteria* for entry to the state and local heritage registers are the same, but the *thresholds* are different. Thresholds determine whether a place contains significance at a state or local level, i.e. a place must demonstrate significance to the heritage of the state to be placed on the Queensland Heritage Register, while for local

heritage places the threshold is lower. A place is not to be excluded on the ground that a place or places with similar characteristics have already been registered.

Table 2 Criterion for listing places of non-Indigenous significance on state or local registers.

Criterion for heritage listing non-Indigenous heritage	
A	The place is important in demonstrating the evolution or pattern of history.
B	The place demonstrates rare, uncommon or endangered aspects of cultural heritage.
C	The place has potential to yield information that will contribute to an understanding of history.
D	The place is important in demonstrating the principal characteristics or a particular class of cultural places.
E	The place is important in exhibiting particular aesthetic characteristics valued by the community or a particular community group.
F	The place is important in demonstrating a high degree of creative or technical achievement at a particular period.
G	The places has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
H	The place has a special association with the life or work of a particular person, group or organisation of importance in history.

The Queensland Heritage Council manages changes to Queensland Heritage Registered places. The Queensland Heritage Council is a concurrence agency for work requiring a development application under the *Sustainable Planning Act 2009*. Maintenance and emergency work does not require Queensland Heritage Council approval if it can be conducted according to an Exemption Certificate. Conservation Management Plans (CMP) are useful tools for guiding the conservation and management of state heritage listed place. A CMP identifies the significant values of a place, sets out policies to guide conservation and any proposed future changes and provides strategies for maintenance and other work to minimise impacts on heritage values.

Sustainable Planning Act 2009 (SPA)

Applications for certain types of development are assessed under the *Sustainable Planning Act 2009* (SPA). If a development is considered assessable under the SPA an application is required to be lodged through the Integrated Development Assessment System (IDAS). Proposed changes to Queensland Heritage Register places requires IDAS application unless:

- Work can be completed according to an Exemption Certificate (i.e. some types of maintenance and repair work).
- Work is conducted according to a heritage agreement between the state and the land owner.

- The project is a 'coordinated project' under the *State Development and Public Works Organisation Act 1971*.

The SPA requires local councils to develop planning schemes that manage growth and change in their local government area, taking into account relevant social, economic and environmental factors. In 2016 Cairns Regional Council released CairnsPlan2016 which maintains a register of local heritage places, as required under Part 11 of the QHA.

Local heritage places are considered under criteria A-H listed in Table 2 and must contain cultural heritage values significant to the Cairns region. Queensland Heritage Registered places are automatically listed on the CairnsPlan2016. Local heritage places can be added or removed from the local heritage register on application to Cairns Regional Council. CairnsPlan2016 makes recommendations for managing impacts to heritage places.

2.4 Cultural heritage legislation relevant to the CSDP

The CSDP potentially impacts Aboriginal and non-Indigenous terrestrial and marine heritage sites. Table 3 summarises the key heritage legislation and potential impacts on cultural heritage places in the study area.

Table 3 Summary of relevant legislation.

Legislation	Description	Potential Impacts	Details
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Protects Aboriginal places on the world, national and commonwealth registers.	Low	Aboriginal cultural values of Wet Tropics World Heritage Area.
<i>Native Title Act 1993</i>	Protects rights and interests over lands and waters held by Aboriginal people.	High	Under the ACHA, the native title party is the Aboriginal party.
<i>Historic Shipwrecks Act 1976</i>	Protects all shipwrecks and associated relics over 75 years old.	Low	Shipwrecks in Cairns waters, within the proposed development footprint.
<i>Aboriginal Cultural Heritage Act 2003</i>	Protection of Aboriginal cultural heritage in Queensland.	High	Duty of care to protect significant Aboriginal heritage. CHMP with relevant Aboriginal parties will be required.
<i>Qld Heritage Act 1992</i>	Protection of places that contain state & local heritage value.	High	Cairns Wharf Complex listed on Qld Heritage Register.
<i>Sustainable Planning Act 2009</i>	Integrates planning and	High	CSDP exempt from IDAS as a

<i>regulations</i>	development process of heritage listed places.		Coordinated project
<i>CairnsPlan2016</i>	Maintains a local heritage register.	Low	Potential impacts to places of local heritage significance eg. Wah Day tramway, East Trinity.

3 Methodology

The cultural heritage assessment includes a desktop review of known heritage places, consultation with relevant Aboriginal parties and site inspections of the two proposed dredge material placement locations. Archaeologist Alice Buhrich completed the desktop review, consultation with Aboriginal parties and site inspections to determine the cultural heritage values, and impacts to those values at three sites – Northern Sands, East Trinity and the shipping channel. Tony Brassil, a specialist in industrial heritage, investigated impacts to the state heritage listed values of Cairns Wharves.

3.1 Desktop assessment Aboriginal heritage

Desktop assessments provide important information for understanding potential impacts to Aboriginal heritage places. Previous surveys in the project area and surrounds identify the types of sites located in the region. Reports may detail site preservation as well as how the land was used by Aboriginal people pre and post contact. Publications, consultancy reports, historical sources, state heritage database and register and the author's current doctoral research were consulted to identify

- The physical context of the study areas in terms of past Aboriginal use of the landscape and preservation factors affecting Aboriginal sites and preservation of those sites.
- The cultural context of the study area in terms of relationships between Aboriginal parties and connection to country.
- A summary of archaeological research findings in the area.
- Previous recorded sites from published sources, unpublished reports and the state heritage database.

The desktop review provides information on the physical landforms, Aboriginal use of the area through time and provides detail on the contemporary cultural context.

3.2 Regional history

The non-Indigenous heritage desktop review aimed to identify the history of the sites and determine the types of heritage places potentially impacted by the proposed work. A regional history was prepared for the CSDP draft EIS (draft EIS) and this is included in Chapter 5.

3.3 Consultation with Aboriginal parties

Three Aboriginal parties were consulted for this project. Consultation took place by phone calls, email and meetings. Discussions about the project and its implications on cultural heritage took place during site inspections. MY have developed strategic and aspiration planning for the MY Indigenous Protected Area. Dawul Wuru have completed a strategic plan for managing sea country in the TUMRA. Aspirations of Aboriginal parties are incorporated into the discussion on Aboriginal interests in Chapter 6.

3.4 Site surveys Aboriginal heritage and non-Indigenous heritage

Site inspections were conducted with the aim to identify cultural heritage areas and areas requiring future examination. Northern Sands and East Trinity are highly degraded environments from previous agricultural and quarrying land use, so surveys concentrated on places of known significance and areas not previously disturbed, e.g. creek lines and extant vegetation.

Site inspections were conducted to identify potential non-Indigenous heritage at Northern Sands and East Trinity and to document the integrity of any identified heritage places. The draft EIS contained detailed documentation on potential impacts to the marine heritage (eg. shipwrecks) and this work was not replicated.

A number of registers and databases document Indigenous and historic heritage places in Queensland. Although not exhaustive, these can be useful to understand the heritage values of a specific area. The following statutory and non-statutory heritage registers and databases were consulted:

- National Heritage list
- Australian National Shipwreck Database
- Queensland State Heritage Register
- Cairns Heritage Register
- Australian Heritage Places Inventory

Results of heritage surveys include an assessment of integrity of known terrestrial sites and are presented in Chapter 7, 8 & 9.

3.5 Trinity Wharves upgrade

Trinity Wharves incorporates a Queensland Heritage Registered place (Cairns Wharf Complex Place ID: 601790). Industrial archaeologist, Tony Brassil, of Extent Heritage, prepared a Statement of Heritage Impact for the wharf complex. Excerpts of which are incorporated into Chapter 10.

3.6 Outcomes and recommendations

Outcomes of the significance assessment and heritage factors are presented in Chapter 11 including considerations of national, state, regional and local heritage values. Opportunities and constraints of the dredge material placement options and upgrade of Trinity Wharves are discussed in Chapter 12. The final chapter summarises recommendations for further cultural heritage work.

4 Desktop Aboriginal cultural heritage

The Cairns region is rich in Aboriginal cultural heritage, of both contemporary and archaeological significance. Aboriginal sites in the study area reflect the strong connection between Aboriginal people and the cultural and physical landscape, and a strong focus on marine resources. The Aboriginal cultural heritage assessment incorporates desktop modelling, consultation with relevant Aboriginal parties and site inspections.

A desktop review provides a useful framework to predict the types and extent of Aboriginal heritage with the potential to be impacted by the proposed work. The desktop review presented here provides an overview of the physical and cultural context and results of previous cultural heritage work in the area.

4.1 Physical context

Sea level change was probably a major factor for Aboriginal use of the coastal areas around Cairns. At the Last Glacial Maximum, 20,000 years ago, sea levels were 120 – 130 metres below present levels (Lewis et al 2013). At this time the coastline was at the continental shelf and islands such as Fitzroy was joined to the mainland. Any evidence of Aboriginal use of the area during this time would have been obliterated by the dramatic geomorphological changes that have taken place since. Sea levels rose dramatically from 20,000 to 7,000 years ago, including 16 metres in just 300 years (Lewis et al 2013). During this time alluvial fans weathered from the metamorphic and granite ranges and extended into the river valleys (Nott 2003). Sea levels dropped around 1 metre about 7000 years ago to stabilise at their current level around 5500 years ago (Nott 2003).

Many Aboriginal sites recorded in the Cairns region are found in sand ridges and cheniers that run parallel to the coast. Nott (2003) suggests that these were formed as a result of storm surges brought by cyclones, since the sea level stabilisation around 5500 years ago. Tropical cyclones continue to impact the archaeological record on the north Queensland coast. Comparison of midden before and after tropical cyclones At Cape Upstart and Hinchinbrook Channel found major impacts, particularly from storm surge, such as re-deposition of sand, loss of shell and in some instances exposure of new midden sites (Bird 1995; McIntyre and Buhrich 2012). It is likely that storm surges and other effects of tropical cyclones have and continue to have a significant impact on the Aboriginal archaeological record on the Cairns coast.

Pollen records from core samples are used to determine vegetation change through time, which can be attributed to climatic or anthropogenic factors. Pollen records from Offshore Drilling Program from a submerged site offshore of the Barron River identified two periods of intensive burning in the catchment, 140,000 and 45,000 years ago (Moss & Kershaw 2000). Similar changes in the pollen record, from rainforest to sclerophyll, occurred in the last 5000 years at Lynch's Crater and Lake Euramo the Atherton Tablelands. At Witherspoon Swamp an increase in grass pollen occurs around 2500 years ago, coinciding with the archaeological evidence for the arrival of Aboriginal people in the rainforest (Moss et al 2012). Pollen records have been used as evidence of Aboriginal arrival in the rainforest area, but there is still some debate about whether the evidence suggests a Pleistocene, mid Holocene or late Holocene arrival.

4.2 Cultural context

The rainforest region was home to a relatively large number of small, tightly bound language and clan groups connected to land and each other by the 'story waters' or *bulurru* (known in other areas of Australia as 'dreamtime'). The information presented here provides some context to the complexities and relationships between Aboriginal parties in the Cairns area and their connection to the cultural landscape.

Four distinctive language groups occupy the core Wet Tropics World Heritage Area. Extensive linguistic work identifies four core language groups on the coast between Cooktown and Cardwell (Dixon 1976). The languages spoken on the Cairns coast were Yidin and Yirrgay¹, which Dixon (1976) identifies as two strands of one language system because of their compatible lexicon and grammar. Aboriginal people do not necessarily share Dixon's interpretation of linguistic similarity, for example, Jeanette Singleton (pers comm) identifies Yirrgay and Djabugay as different languages, whereas Dixon linguistic classification identifies them as dialects of a single ('Djabugay') language group. In the Cairns region individual Aboriginal groups typically manage relatively small estates with defined boundaries.

Rainforest language groups are composed of a number of clans, often named after geographic features within their own estate. For example, Gimuy Yidinji are named after the slippery blue fig (*gimuy*) which grew in the Cairns area while Malanbarra Yidinji are

¹ Yirrgay is the language, Yirrganydji are the people who spoke it.

named after the flat rocks present in the lower Mulgrave River. Individuals had certain rights and responsibilities for their own clan estates, but also visited other clan estates to access seasonal resources and conduct social activities (Anderson 1984). Within the Cairns area Aboriginal groups were highly mobile, using outrigger canoes and walking tracks to access resources and to visit neighbouring estates for ceremonial and other purposes (Bottoms 2015). Moieties are another form of tribal identity that spanned language and clan boundaries. Yidinji, Djabugay and Yirrganydji had a two-moiety system where each individual was assigned one of the two moieties. For Djabugay the two moieties were *Gurrabana* (wet season) and *Gurraminya* (dry season), for Gunggandji it was *Gurrabana* and *Guragulu* (Bottoms 2015).

The Aboriginal landscape in the Cairns region is imbued with stories that linked each group to their *bulmba* (homeland), to their *Gurra Gurra* (ancestors) and to each other (Bottoms 2015:41). For example, according to oral history, *Gudju Gudju*, the rainbow serpent, resides across the whole Cairns coastal area and is embodied in specific landscape features from Double Island to Yarrabah. Damarri and Guyula were brothers whose activities traversed Trinity Inlet, the Barron River and Yarrabah, their actions link the Yidinji, Gunggandji, Yirrganydji and Djabugay estates (Bottoms 2015). For Aboriginal people the stories of the ancestral beings provide tangible links between people and place, in the past, present and future.

The special link between Aboriginal people and the rainforest was recognised through the inclusion of the Wet Tropics of Queensland for its cultural values in 2013 (Place ID: 105689). The Wet Tropics is considered an outstanding environment in the course of Australia's history as the only rainforest permanently occupied by Aboriginal people. The National Heritage Listing recognises the ability of rainforest Aboriginal people to process wide toxic plant resources, development of unique material culture including nut cracking rocks and bicornual baskets and use of fire to maintain patches or 'pockets' of open forest as outstanding heritage elements. The heritage listing recognises the significance of story places inscribed in the landscape, including those relating to Damarri and Guyula (http://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=105689).

4.3 Archaeological context

There is some debate over the arrival of the first Australians in the Wet Tropical Belt. While archaeological evidence demonstrates that Aboriginal people were occupying inland areas of north Queensland from 40,000 years ago, and possibly burning at least patches of the rainforest from 30,000 years ago, the rainforest of north Queensland appears to be one of the last environmental zones in Australia to be permanently settled. Excavations of rainforest sites have been limited to a small number of sites, mainly on the Atherton and Evelyn Tablelands. The oldest direct dates for occupation of a rainforest environment are from Murumbun Shelter on the western margins of the rainforest near Ravenshoe, where low occupational debris was found in a granite rock shelter dated to 30,000 years (Cosgrove et al 2007). Evidence from Urumbal Pocket, near Ravenshoe suggests people started to visit the rainforest more regularly around 8000 years ago, although occupation debris is still at very low levels (Cosgrove et al 2007). After 8000 years there is a complete hiatus of human activity in the rainforest for 2000 years coinciding with higher rainfall and lower temperatures. This would have been an optimum time for living in the well-watered savannah environment to the west (Cosgrove et al 2007). Around 5000 years ago El Nino-Southern Oscillation (ENSO) instability increased and the sea level stabilised. As western savannah became increasingly arid and hot, it is hypothesised the cooler rainforest became more attractive, particularly because of the permanent water sources.

The ability to process toxic rainforest seeds, which appear in the archaeological record from around 4000 years ago, appears to have provided the impetus for permanent settlement of the rainforest environment (Horsfall 1987). Low-level use of rainforest environment continued until 2000 years ago, after which a dramatic increase in occupation debris, thought to coincide with steep population increases. From 1500-1000 years ago rates of discarded nutshell, charcoal, quartz and ochre peaked at both Jiyer Cave and Urumbal Pocket (Cosgrove and Raymont 2002, Horsfall 1987). By the Late Holocene, and possibly earlier, people were also using rock shelters in the Kennedy Valley, open sites on Mulgrave River and coastal shell middens at Innisfail (Brayshaw 1990; Cosgrove et al 2007; Horsfall 1987).

One of the few archaeological excavations conducted on an Aboriginal site in the Cairns region was of a campsite on the Mulgrave River. This site, named Mulgrave River 2, was identified by a scatter of artefacts, including nut-cracking rocks, shell fragments and a small amount of European material, in an area of around 70 square metres on the bank

of a small creek at the foot of the Malbon Thompson Range (Horsfall 1996). The site was excavated to a depth of 75cm and charcoal, charred nutshell, quartz artefacts and stone tools were found as well as a small amount of ochre and one mangrove cockle shell (Horsfall 1996). A greater rate of artefactual debris was found in the higher spits, with decreasing amounts of cultural material at lower levels. Charcoal from a depth of 65cm was dated to 2,690 plus or minus 100 years BP (Horsfall 1996:184). The lower rate of artefactual debitage at the lowest levels suggests a lower level of occupation in the earlier period, it is noted that the base of the deposit was not reached and therefore occupation of this site was likely earlier than 3000 years.

4.4 Previously recorded sites

There is a relatively extensive record of cultural heritage surveys in the Cairns area, particularly in relation to proposed developments. Although not exhaustive, the following account provides an overview of the potential cultural heritage sites in the study area.

Unpublished reports

A significant number of archaeological consultancy reports have been completed in the Cairns region, these unpublished reports hold valuable information on Aboriginal sites. Consultancy reports tend to be written in response to development proposals and therefore may be limited in their geographic relevance to areas with attractive development potential. Despite this limitation, unpublished reports are an excellent source of information to understand the numbers and types of Aboriginal sites found in the region. The unpublished reports listed in Table 4 were chosen because they are accessible reports that directly relate to the Northern Sands and East Trinity areas.

Table 4 Unpublished reports that informed the predictive model for Aboriginal sites in the study area (note these reports are the full citation and not repeated in the references unless otherwise referred to in the report).

Report	Sites recorded	Relevance
Grimwade & Cribb 1991 <i>An assessment of the cultural resources of the Rainbow Harbour Development site, Yorkey's Knob, Cairns.</i>	Yorkeys Knob a high resource area with relatively little disturbance. Stone tools – hammer stone, grindstone, axe – midden. Back of beach dunes.	Good potential for arch material in river mouths, mangroves, sand dunes.
Bottoms 1990. <i>Djarragun: The Last of the Nesting</i> , MA Thesis, James Cook University, Cairns.	Gingurai – story place at East Trinity associated with Damarri and the crocodile.	Evidence of story waters in physical landscape.
Grimwade 1994 <i>Cultural Heritage Study: Proposed Development, Taylor Point, Trinity Beach, North Queensland</i>	Midden	Potential for middens in coastal areas.

Cole & Van Acker 1996 <i>Preliminary cultural heritage survey and monitoring, James Cook University.</i>	Axes found on old cane farm	Individual stone tools still present despite farming activities.
David 1994 <i>The Trinity Inlet Ethnographic Study: planning the management of traditional Yirrganydji, Yidinji and Gunggandji country.</i> Unpublished report to Trinity Inlet Management	64 sites including middens, rock art, story places and contemporary use. Trinity Inlet highly significant to Gunggandji, Yidinji & Yirrganydji	Coastal areas retain high social & archaeological value to Aboriginal custodians.
Bird & Hatte 1995. <i>Cairns International Airport Baseline Environmental Study.</i>	Middens including post-contact items	Post contact use of Ellie Point.
Grimwade & Townrow 1996 <i>Earl Hill Development, Captain Cook Highway, Cairns, Qld.</i>	3 scarred trees, possible stone pounder	Scarred trees possible in extant vegetation.
Buhrich, Border, Skeene & Skeene 2008. <i>Cultural Heritage Survey of Proposed Cairns International Airport Expansion Eastern and Western Development Sites.</i> Cairns Port Authority.	19 Middens recorded on sand ridges east of the airport (<i>Anadara granosa</i>)	High potential for middens on sand ridges above high tide mark. Ellie Point significant cultural landscape.
Horsfall, N. (2009). <i>Cultural Heritage Overview Cairns Transit Network.</i> Cairns. Environment North.	Camps, massacres sites, graves, walking tracks, middens, story places, WWII sites	Breadth of Aboriginal site types – some pre settlement but post contact sites also important to Aboriginal people.
Converge Heritage + Community Pty Ltd. (2013). <i>Aquis Resort at Great Barrier Reef: Indigenous Cultural Heritage Review.</i> Cairns.	From state database - 3 shell middens, one with hearth	Middens on river systems where relatively undisturbed. These sites should be ground truthed.
Buhrich, A., 2014. <i>Yirrganydji Intangible Cultural Heritage Values, AQUIS Development Site, Yorkeys Knob.</i> Converge Heritage.	Contemporary importance to Yirrganydji individuals	Contact sites continue to hold significance to Aboriginal people
Buhrich 2014. <i>Skeene stone tool collection.</i>	Axe found in backyard during excavation for pool, Machans Beach	Potential for stones under surface even in urban environment

The review of unpublished reports identified a number of relevant factors, including:

- Tangible and non-tangible Aboriginal cultural heritage values remain despite urban and rural development.
- The high potential for middens and other evidence of marine use in coastal areas, particularly dunes systems and sand ridges.
- Intangible heritage places including story places, campsites and resource collection sites continue to hold significance to Aboriginal people in the study area even if they contain no material evidence.
- Individual stone tools continue to be found, particularly on agricultural land below a depth of 60cm.

State heritage Indigenous Sites Database

The state heritage database records a number of Aboriginal cultural places in the study area, including Aboriginal middens, story places and contact sites. East Trinity is particularly rich in recorded sites, many of which were recorded during a detailed survey completed by David (1994). A number of cultural heritage consultancy surveys have been completed in the Cairns northern beaches, which identify middens, scar trees and stone tools. Prior to 2003 Aboriginal sites were added to the state heritage database as a result of archaeological surveys conducted under permit from the state. Since 2003 there is no longer a requirement for information on Aboriginal sites to be deposited with state, so many of the sites were recorded pre-2003, and some recordings are much older. The reliability of records on the state database is variable and requires ground-truthing to determine exact locations and integrity of the sites.

There is a strong focus of contemporary Aboriginal sites in the Cairns region, including story places, campsites, resource collection sites and contact sites. This is not surprising given the contact history in the area is only 150 years old. There is a greater concentration of recorded archaeological sites on the coastal side of Cairns, reflecting both the strong past and present marine focus of Aboriginal people in the Cairns area and also the distribution of previous surveys.

4.5 Summary of desktop review

The Cairns area is rich in cultural heritage places including archaeological sites, story places, single artefact finds and places of contemporary significance to Aboriginal people. The mountains, rivers and other geographic formations are part of a living cultural landscape that provides a tangible link between the Aboriginal past and present through story waters. Archaeological sites provide further evidence of pre-settlement land use, contact history and recent Aboriginal history.

- There is a high potential for cultural heritage sites such as middens, stone tools, campsites and resource areas in coastal areas, particularly undisturbed dune systems, river mouths and mangroves.
- Even in disturbed areas there is a potential for cultural heritage to be present, particularly at depths below 60cm, particularly stone tools.
- Post contact sites such as camps and resource collection sites continue to be important to Aboriginal people.

- Cultural sites reflect the strong ties of Aboriginal people to marine resources in the past and present.
- The physical landscape is inhabited by Ancestral beings that provide tangible links between people, place and cultural practices in the past, present and future.
- Coastal archaeological sites are unlikely to be older than 5000 years old, although age does not affect the significance under the ACHA.

5 Regional history (draft EIS)

Captain Cook passed the area on his return voyage from Tahiti in June 1770 and named the Frankland Group, Fitzroy Island, Cape Grafton, Green Island and Trinity Bay. He was followed in 1819 by Phillip Parker King on his second surveying voyage on the *Mermaid*. Captain Stanley followed in 1845, accompanied by MacGillivray and crew in the *Rattlesnake*. On 26 June 1845 they undertook an investigation of the Trinity Bay opening. Their views were not favourable; it was considered to be ‘... a useless creek’ (Jones 1976:9).

The first Europeans to discover the true nature of Trinity Inlet were beche-de-mer fishermen, of whom J.S.V. Mein is reputed to be the earliest. He claimed to have set up a station on Green Island in 1857/8 during which time he examined Trinity Inlet and tributaries. Throughout the 1860s and 1870s the beche-de-mer fishermen continued to use Trinity Inlet. William Smith, one of the founders of Cairns, was among them (Jones 1976).

In 1873, George Dalrymple was commissioned with the government botanist, Walter Hill, to undertake a survey of the land north of Cardwell to determine both its suitability for agriculture and to search for likely harbour sites. In spite of the impenetrable mangrove swamps they encountered, Dalrymple and Hill reported favourably on Trinity Bay. This was to be the access port for the Hodgkinson gold field. The government’s priorities were to swiftly establish its presence and provide port facilities. B. G. Sheridan, Cardwell’s Police Magistrate, was sent to Trinity Bay in July 1876 to identify a town site (Fig. 4). Sheridan selected what he felt to be the most suitable position for a town at the mouth of the Inlet. The new port was renamed Cairns, after the then Governor of Queensland, in 1876 (Converge Heritage + Community 2009).

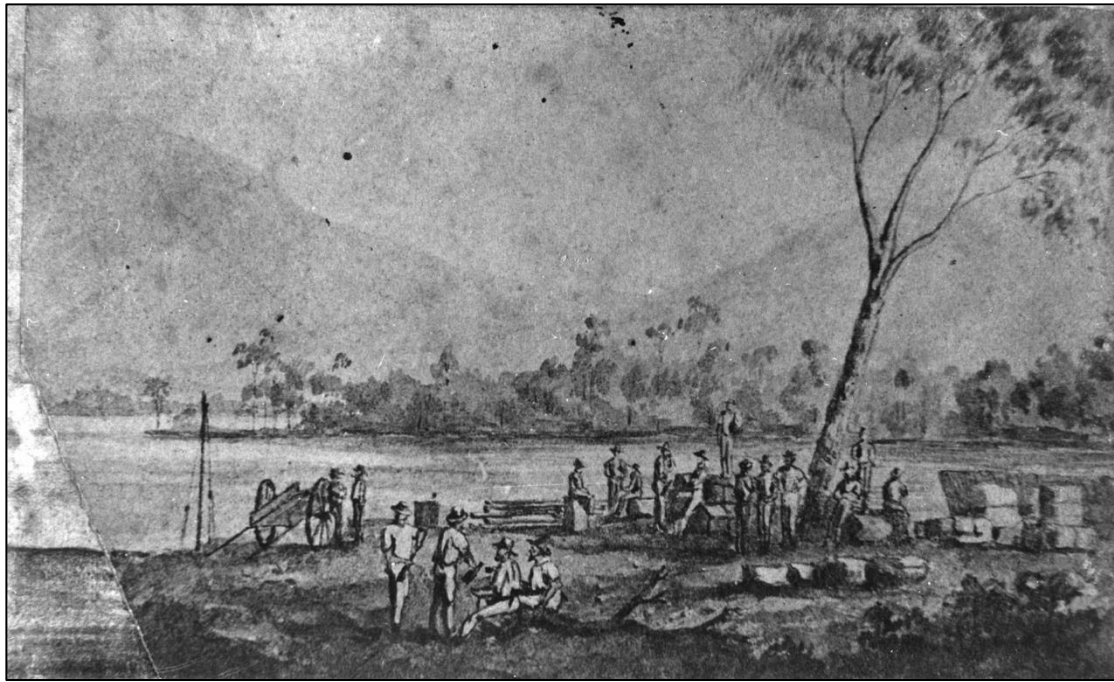


Figure 4. First landing at Cairns (background indicates this is Smiths Landing) 1876 (State Library Queensland).

On 13 January, 1877, Cairns was gazetted as a warehousing port for dutiable goods. The first survey of the town was undertaken in 1878 and on the resulting map, the depth soundings of the harbour are recorded and an inset is provided showing a plan of the town of Cairns and the wharves. These wharves were very rough and basic, “consisting of a number of jetties with piles built out across the mangroves and mud”. The early wharves were located at the end of Abbott Street. Most of the wharves consisted of jetties with an attached shed (Converge Heritage + Community 2009). Cargo was shipped to these wharves, landed at Smith’s Landing near the mouth of Smith’s Creek, or transhipped into lighters from vessels anchored near a Fairway Buoy in the bay (Jones 1976).

Cairns was practically abandoned by 1878 and was in desperate straits as the success of Port Douglas with its proximity to the “Bump Track” made it a more suitable port at this time. By 1882 sugar was being seen as an industry which could revive the region’s fortunes. Land was gradually taken up along the coastal areas. Many early farmers in the Cairns area practiced mixed agriculture, growing cane, maize and rice with some grazing cattle (Converge Heritage + Community 2008). Chinese had a strong presence in Cairns, with Chinese market gardens working near Freshwater, around Cairns and in East Trinity, cultivating not only fresh vegetables but rice and fruit, particularly bananas (May 1996) (Fig. 5). A tramline was constructed at this time to facilitate the transportation of bananas to the harbour (N. Horsfall pers. comm.).

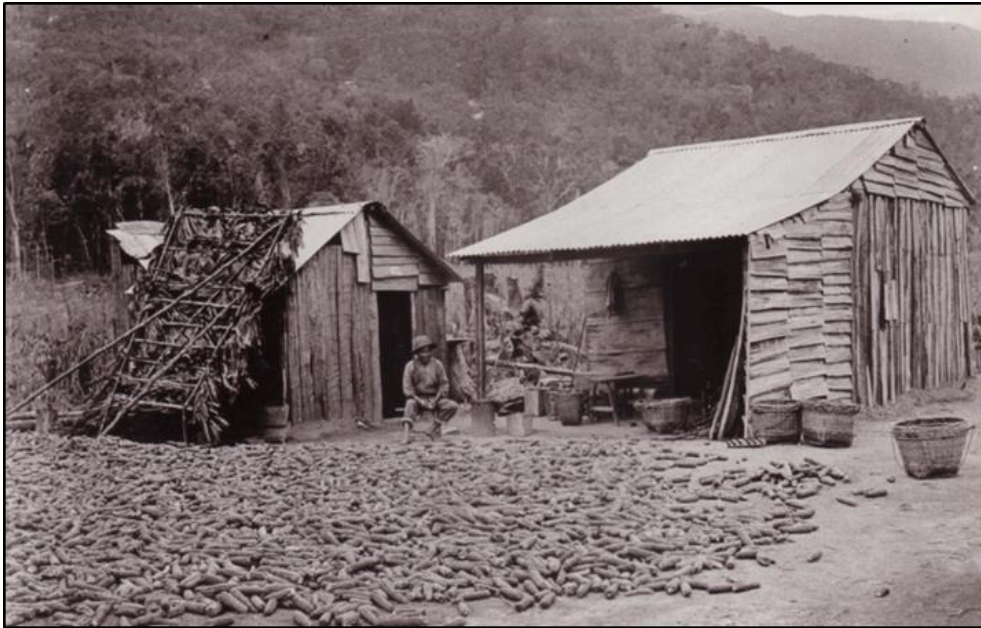


Figure 5. Chinese market gardener, Glen Broughton (near east Trinity) c1900 (Cairns Historical Society)

The selection of Cairns as the railhead for the Cairns to Kuranda railway to service the hinterland's mine fields and the construction of the line between 1886 and 1891 secured its future. The rail line brought many benefits to the region including an assured link to the hinterland's mining fields and the opening up of agricultural and pastoral lands on the Atherton Tableland.

The early history of the Cairns region is peppered with stories of conflict with Aboriginal people. In the Trinity Inlet area beche-de mer fisherman, Phil Garland, was attacked at Smith's Creek in 1870 at a location which later became known as Battle Camp (Jones 1976). Timber-getters started exploiting the area for its red cedar from the early 1870s in areas such as Wright's Creek and Green Hill. "The highly sought after cedar did not last long and in 1878 attention turned to the selection of land" (Burke et al 2000). Miners also started to make their way into the region with the discovery of gold on the Mulgrave River and patches of alluvial gold on the Russell and Johnstone Rivers. This led to conflict with the local Aboriginal people. Initially this led to an increased presence by the Native Police stationed at Cairns and the Mulgrave River. This did not prove successful as the Native Police had great difficulty in controlling the activities of the Aborigines within rainforest areas. As the land became more settled and the demand for ordinary policing increased Police Commissioner Seymour was forced to rationalise his force and native trackers began to replace native troopers.

In the Cairns region the role of the Native Police and the establishment of blanket and food distribution centres were replaced in 1892 by the founding of the Yarrabah Aboriginal Mission. Large numbers of local groups eventually settled, or were removed to, Yarrabah or other missions such as Palm Island, Mona Mona or Cherbourg. Others came to occupy fringe camps around the outskirts of towns and in later years Town Reserves. The inlet and its surrounds remained an important source of 'bush tucker' for these town dwellers to supplement store bought food. They regularly sought fish, crabs, prawns and mussels along the western fringes of the inlet and the melaleucas on the sandy ridges were sources of 'sugar bag' (Skeene 1995).

Development in the harbour was slow. It was obvious to the local businessmen that the harbour needed to be dredged to accommodate the coastal steamers and thereby obviate the need for lighters to load goods and passengers from steamers at the Fairway Buoy. However, the amount of exports from the town did not convince the government. Eventually the *Platypus* began dredging operations in December 1887. A number of ships were wrecked or stuck in the mud of Trinity Inlet during this time including *You Yangs* and *Victoria* but both appear to have been refloated (Jones 1976).

In the 1890s a creek ran from Lake Street to the inlet (probably Lily Creek) where a Chinese fishing group kept their boats and lived in houses on stilts built over the water. *"They erected fish traps all round the inlet until for some reason or another there was a hue and cry about the traps and they were forbidden in the mid-nineties"* (Jones 1976:213). A second creek, Alligator Creek, was located on the south side of this creek.

At the end of the nineteenth century, the government, under the auspices of the Sub-Collector of Customs and the Harbour Master, collected dues and duties from shipping entering and departing the port. However, it was felt by the Cairns Chamber of Commerce that the port of Cairns would be better served by forming a Harbour Board (Jones 1976). A provisional Harbour Board was established in 1899. The Cairns Harbour Board (CHB) was granted full status by an Act of Parliament in 1906 and one of the first tasks undertaken was the purchase of existing private wharves (Fig 6). With control of formerly privately-owned jetties, the CHB was able to instigate plans to redesign the harbour, wharves and foreshore. These plans included continuous concrete wharves and a sea wall. The mud flats to the rear of the seawall were to be filled-in with silt and sand from harbour dredging (Converge Heritage + Community 2011). Work on the improvements began in 1911. By the end of 1925 the majority of the wharf

improvement scheme had been completed. Despite ongoing discussion regarding the need for a slipway, it appears that nothing had been constructed in Trinity Inlet prior to World War II (Converge Heritage + Community 2011).

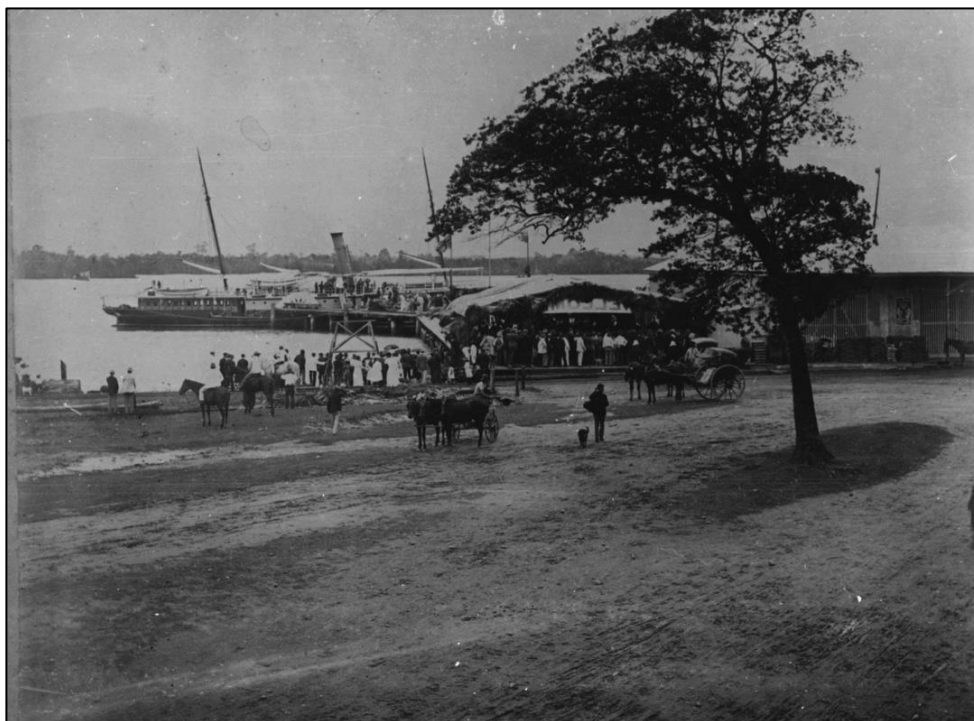


Figure 6. Steamer at Cairns Wharves c. 1898 (State Library Queensland).

In the early part of World War II, Cairns was used as an emergency port. However, after the fall of Singapore in February 1942, troops and naval traffic were rushed north to counter the Japanese push south. The Port of Cairns was then classified as a “Defended Port”. By mid-1942 the threat had eased and new plans for Cairns were put into place which resulted in the development of the port into a massive transshipment hub servicing the allied military need in North Queensland and the Pacific Theatre of Operations (S. Fowler pers. comm.). Cairns was designated “Fortress Cairns” and coastal and anti-aircraft defences were established. HMAS Kuranda was established as a Royal Australian Naval Base at the western mouth of the inlet, a United States Navy Base (144) was established at the northern mouth of Smith’s Creek, the US 411th boat building assembly plant was constructed to the south of the wharf complex, a Royal Australian Air Force (RAAF) flying boat base with moorings was established on the wharf area, and a slipway on the north side of Wharf 1, a slipway near Wharf 10, a RAAF workshop, a slipway on Admiralty Island and a floating dock at the mouth of Smiths Creek which could accommodate a corvette (Ryle 2006; Broughton 1981; Converge Heritage +

Community 2011; S. Fowler pers. comm.), were also established. Naval craft crowded the wharves and a new, albeit wooden, wharf was constructed (Wharf No. 6).

A submarine boom net was constructed across the inlet. Parts of the inlet opposite the wharves were mined and piles driven to one side of the channel in Trinity Bay so small ships could be moored and sunk to block the channel if necessary (Broughton 1981). Its construction is described by Bert Simmons:

It was constructed of high-tensile tube using an 'A' frame fabrication. It was assembled on the barge and fastened together with special clamps, then lowered into position and secured to the previously laid frame...a high-tensile net was secured over the 'A' frame on the seaward side to prevent ships being torpedoed in the harbour. The boom stretched across the inlet from approximately Bessies Point and secured to a concrete post just to The Esplanade between Minnie and Upward streets. The ship' channel area was equipped with a torpedo net supported by buoys. This was mechanically operated when the ships passed to and fro (quoted in Bradley 2003:337-8).

Catalinas flew approximately 3000 missions from the port against the Japanese (S. Fowler pers. comm.). A number of bombs and other explosives were lost in the harbour as a result of transferring equipment to Catalinas in the inlet in bad weather. This included at least one bomb near No. 1 Wharf and two mines on the eastern side of the inlet (Ryle 2006).

Other activities undertaken in close proximity to the study area included the construction of a gun emplacement at False Cape. Double Island and Haycock Island were used for target practice for bombardment (Rowney, Grimwade & Skeene, 2006). Both Australian and US armed forces used the Cairns airstrip, and, in addition to the establishment of the flying boat base, a number of crashes are recorded (Bradley 2003). In all, approximately 22 crashes are recorded in the Cairns area in Dunn's ozatwar website, of which one is listed on the AMSDB and four (including the "Liberator" listed on the AMSDB) are listed on the EPA listed sites. This includes the RAAF Hudson which crashed into the sea about 366m (400 yards) out from Machans Beach just north of the Barron River. Eleven men were killed including Major General George Alan Vasey (Dunn n.d).

After World War II the CHB began negotiations to resume ownership of the wharf area and infrastructure installed by the armed forces (Cairns Post, 12 September 1946). This included the No. 10 slipway and the RAAF slipway located to the immediate north of Wharf 1 (Cairns Post, 12 February 1947). Unstated improvements to the slipways were undertaken in 1952 and both large and small slipways remained a boon to the harbour and town through the early 1950s. However, by 1956 the large No.10 slipway was in such poor condition that it was condemned (Cairns Harbour Board 1956).

By the late 1960s a thriving boat building industry had developed in the inlet, resulting in the development of the area on the north side of Smith's Creek, in front of the Bulk Sugar Terminal, including construction of a slipway and dry dock. Game boat fishing, particularly for marlin, resulted in an increase to the recreational small boat fleet. This period also saw the development of the local prawn industry and consequent construction of a trawler base upstream of the slipway at the mouth of Smiths Creek.

Between 1971 and 1975, 700ha of the estuarine wetland area at East Trinity was drained by the construction of a bund wall and floodgates at Hill and Firewood creeks in order to grow sugar cane on the resultant land (Fig 7). Crops were planted between 1981 and 1988 but the area suffered from high salinity and acid sulphate soils and the exercise was not considered successful. The land was sold for further development in the late 1980s and then held by receivers until the Queensland Government purchased it in 2000 for the purposes of remediation (Hicks, Fitzpatrick & Bowman 2003).

Tourism also became increasingly important in Cairns from the early 1980s. From this period onward, wharf facilities were increasingly turned over for tourism or demolished for the same purpose. Wharf Shed No. 1, for example, was demolished in 1984 in order to build a cruise liner terminal (Trinity Wharf) which was completed in 1986. Wharf Sheds No. 4 and 5 were also demolished in the 1990s. The No. 2 Wharf Shed then became the terminal for cruise liners.



Figure 7. Land at East Trinity being reclaimed by CSR (Cairns Historical Society)

A derelict ship survey of the inlet in 2005 identified over 20 ships and/or wreck material which was either floating in derelict condition, grounded on the banks of Admiralty Island or wrecked on the banks of the inlet. Of this material, two areas were associated with World War II remains while the remainder represented what were considered to be relatively recent wrecking or abandonments (Ballantyne 2005).

In 2010 Ports North began implementation of several phases of port revitalization within the QHR Cairns Wharf Complex. This included the removal of Trinity Wharf and the revitalization of No. 3 Wharf Shed which became the award-winning Cairns Cruise Liner Terminal. In late 2010, the revitalization of No. 2 Wharf Shed and the upgrading of services to these sheds also occurred, including re-landscaping of the grounds to the western sides of the wharf area to integrate and link the wharf complex with the Pier and Cairns Esplanade areas.

6 Aboriginal interests

Aboriginal parties are key to the operation of the ACHA and management of Aboriginal cultural heritage in Queensland. The Aboriginal party

- Is the appropriate body to consult with about potential impacts to CH for a particular area.
- Identifies whether an area or object is significant, and therefore protected by the ACHA.
- Determines how Aboriginal heritage is lawfully managed, through a cultural heritage management plan, native title agreement or another agreement.

6.1 Relevant Aboriginal parties

Identification of the Aboriginal party is linked to native title determinations and registered claims. The Aboriginal party is determined in the following order.

1. Where native title has been determined, the Aboriginal party is the native title holder.
2. Where a native title claim is registered, the applicant is the Aboriginal party.
3. If there is no existing native title claim, but there was a previous native title claim, the previous applicant is the Aboriginal party (the last claim standing).
4. If there has never been a native title claim, the Aboriginal party is a person or group with particular knowledge about traditions, observances, customs and beliefs associated with particular area and has responsibility for that area under Aboriginal tradition. Registered Cultural Heritage Bodies, where they exist, are the appropriate group to identify the Aboriginal party.

Registered Cultural Heritage Bodies can advise on the appropriate Aboriginal party for a particular area.

There are three Aboriginal parties relevant to the CSDP, with some overlapping interests (Fig 8).

- Yirrganydji Gurabana Aboriginal Corporation YAC (QC2015/004) have a registered native claim from Trinity Inlet to Port Douglas that incorporates the Northern Sands site extending eastwards to the beach and Trinity Inlet. YAC are the Aboriginal party for the Northern Sands site (although see below for future registration of Cairns Regional Claim) and have an overlapping claim with GWY over the shipping channel.

- Mandingalbay Yidinji (MY) has a determined claim over claimable land at East Trinity (QCD2006/004). MY have a Cultural Heritage Body that includes East Trinity. MY are the Aboriginal party for East Trinity and have interests in the shipping channel.
- Gimuy Walubara Yidinji People (GWY) (QC2012/017) have a registered native claims over Cairns and Trinity Inlet that extends south near Gordonvale. GWY have an overlapping claim with YAC over the shipping channel.

Madingalbay Yidinji, Yirrganydji Gurabana and Gimuy Walubara all have interests in the shipping channel and were endorsed by Ports North in 2014 regarding marine disposal of dredge material.

In addition to the three Aboriginal parties identified above there are a number of other current and future interests by Aboriginal groups.

- Mandigalbay Yidinji (MY) currently manage part of the East Trinity site as an Indigenous Protected Area (IPA), MY aspirations for future use of the site include tourism and conservation. The MY IPA extends across half of the shipping channel.
- Dawul Wuru Aboriginal Corporation, representing Yirrganydji interests, have entered into a Traditional Use of Marine Resources Agreement (TUMRA) from north of Barron River to Port Douglas, extending to Green Island.
- North Queensland Land Council have advised a Cairns Regional native claim for this area is in the process of being finalised (email to A. Buhrich from G. Bell 29 July 2016). The Cairns Regional claim brings together five Aboriginal groups (Bulway, Djabugya, Yirrganydji, Nyakali and Guluy) under a single claim and will extend north of the Barron River to Port Douglas and west to Mareeba. Jeannette Singleton is an applicant to the Cairns Regional claim and advice from NQLC confirms Yirrganydji are the correct people to speak for the Northern Sands site.
- Jeanette Singleton has advised Yirrganydji intend to lodge a sea claim that will extend south of the existing TUMRA and potentially intersect the shipping channel.

Relevant Aboriginal interests in the study area

Date Produced: 30/07/2016
Projection: MGA94 Zone 55
Scale at A3 Size 1:150,000

0 2.5 5 10 Kms

- | | |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|  Study Area |  Native Title Determinations |
|  Site 1 |  Combined Gunggandji |
|  Site 2 Options |  Combined Mandingalbay Yidinji - Gunggandji |
|  State Controlled Roads |  Mandingalbay Yidinji People |
|  Mandingalbay Yidinji IPA |  Yirrganydji TUMRA Boundary |
|  Scheduled Native Title Applications |  Great Barrier Reef Marine Park Boundary |
|  Gimuy Walubara Yidinji People | |
|  Yirrganydji (Irukandji) People #2 | |

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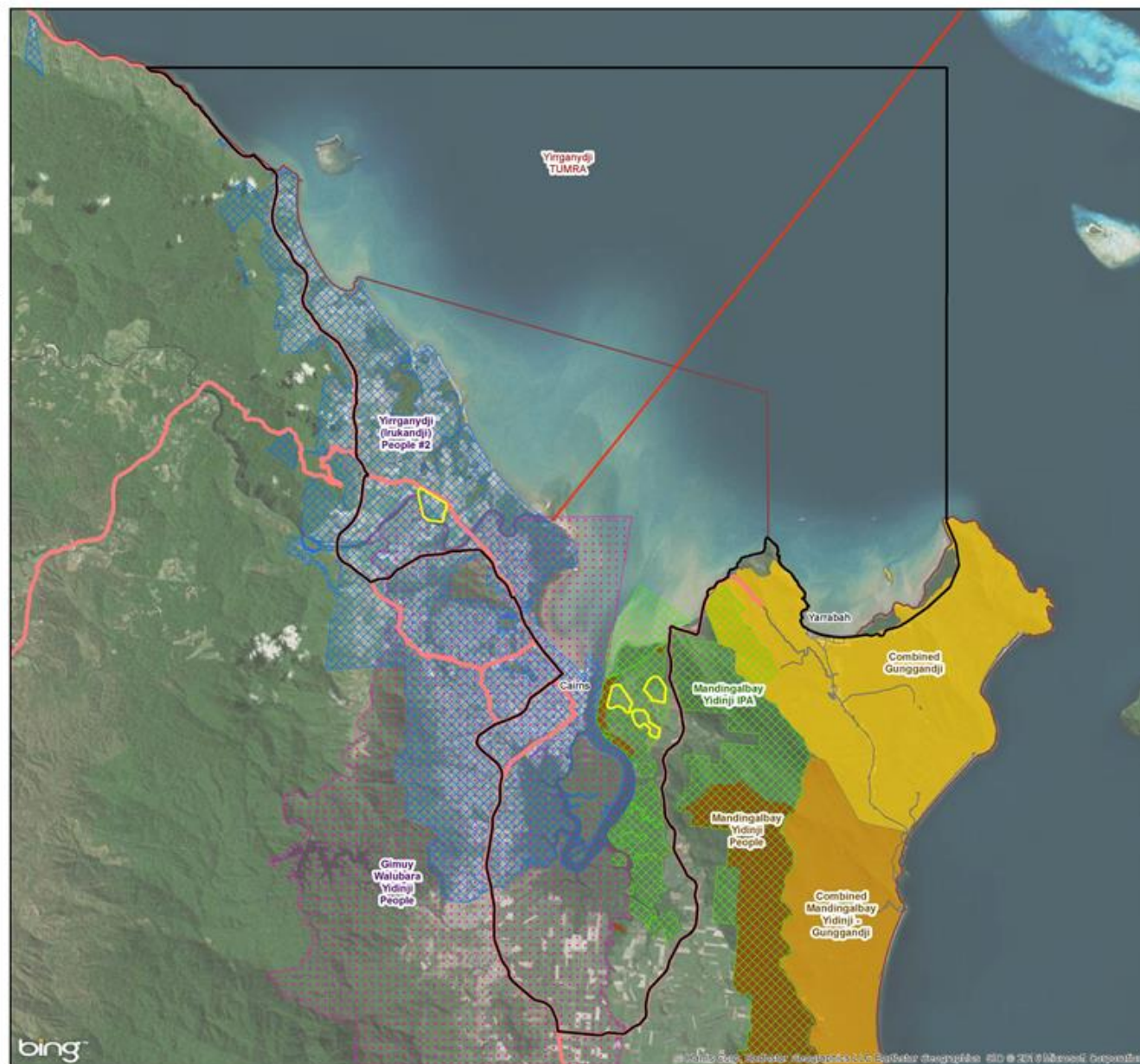


Figure 8. Relevant Aboriginal interests in the study area.

6.2 Aspirations of Aboriginal parties

Each of the Aboriginal parties maintains strong aspirations to manage their land and culture for social, cultural and economic outcomes for present and future generations. The following aspirations are not exhaustive, they are a summary of information obtained through planning documents and consultation with key representatives of Aboriginal parties.

Yirrganydji

Yirrganydji Gurabana Aboriginal Corporation are the Aboriginal party for the Northern Sands placement area. Consultation with Jeanette Singleton, Chair of YAC, identified the following issues

- Yirrganydji are concerned about potential impacts to marine resource for current and future generations. They note the impact dredging has had historically on the marine resource in the Cairns area.
- Yirrganydji welcomes long-term employment opportunities outcomes from the proposed project for caring for country (ranger) or mainstream economies.
- The YAC want to be recognised as sole custodians for the area from Trinity Inlet to Port Douglas. They consider it appropriate to be recognised as custodians through interpretive material placed at Trinity Wharves as part of the proposed upgrade.
- Jeanette Singleton has advised a proposed sea country claim incorporates part of the shipping channel.
- An agreement may need to be developed between YAC and Ports North regarding native title rights and interests. .

Dawul Wuru Aboriginal Corporation (Dawul Wuru) operate independently of YAC, although some individuals serve on the Board of both corporations. While YAC are the Aboriginal party under the AHCHA, Dawul Wuru have entered into a Traditional Use of Marine Resources Agreement (TUMRA) with Great Barrier Reef Marine Park (GBRMPA). Dawul Wuru aspirations are described in *Yirrganydji Kupul-Wu Mamangal: "Looking after Yirrgaydji Sea Country"* (2014). The following aspirations are relevant

- Protection, conservation and sustainability of the reef, resources and sea country
- Continuing, preserving, expressing and sharing cultural values including management of sites.

- Creating business, employment and other economic activities for Yirrgayndji people.
- Building partnerships to ensure effective management of sea country.

Dawul Wuru currently oversee a Land and Sea Ranger Program to meet these objectives.

Mandingalbay Yidinji

Mandingalbay Yidinji Aboriginal Corporation currently manage East Trinity as a conservation area (IPA) and have strong aspirations to develop a tourism enterprise that includes development of a nature reserve, tourism infrastructure, guided tours, nursery and arboretum, commercial boat ramp and water taxi/ferry landing at the existing tramway. Cruise ships and Chinese visitors are identified as the major source of markets to the MY proposal.

As per previous advice to Ports North, MY maintain there is one possible area for dredge material on the East Trinity site – an area currently degraded by acid sulphate soils south-southwest of Hills Creek (approximately Site B on Fig 3). MY have advised use of the areas marked as Site A & C on Fig 3 for dredge material is not compatible with the MY plans for tourism facilities.

The tramway remains and bund wall are potential features of the MY tourism development. If the tramway is used for a temporary pipeline in the dredge material placement process, there is an opportunity for MY to develop landing facilities at the tramway once the pipeline has been removed. The bund wall is currently incorporated into tourism use as it provides vehicle access across the site. There is an opportunity for MY to utilise upgraded roads and associated infrastructure if the East Trinity proceeds as a dredge material placement location. The tramway is recognised having some heritage significance and possible interest to visitors (Buckley Vann Town Planning Consultants, 2014 Appendix 2, SWOT Analysis p32 & 36).

Gimuy Walubara Yidinji

Gimuy Walubara Yidinji maintain interests in the shipping channel and Trinity Wharves. Consultation with Gudju Gudju (formerly known as Seith Fourmile) identified the following issues:

- There are three significant GWY story places within or adjacent to the shipping

channel

1. The Cassowary story associated with Admiralty Island and the inlet, including surrounding estuaries. This is a highly significant spiritual landscape for GWY.

2. A Story Rock, destroyed for shipping expansion, possibly in the 1940s or 50s, near the eastern end of Admiralty Island. Even though the rock is no longer extant the area continues to be significant.

3. Wharf 1 is the location of a story place that links coastal and Tableland Yidinji people.

- Art and interpretive material included as part of the new development should be culturally appropriate for Aboriginal custodians (eg. Local artists). Protocols should be developed to create an art and interpretive material policy.

- Effects of the project on the broader environmental health including not only the local mangroves and estuaries but the reef broader environment.

Other Aboriginal groups with an interest

Yarrabah residents and other Aboriginal people may also have interests, particularly in marine resources at East Trinity, Barron Delta and within and adjacent to shipping channel. Any interests outside of the relevant Aboriginal parties are best managed through a social impact assessment.

7 Site inspection Northern Sands

Yirrganydji representatives, Jeanette and Patricia Singleton, inspected Northern Sands, Holloways Beach and Machans Beach on 18 July 2016 and an inspection was undertaken with George Skeene on 29 July. The Northern Sands quarry is heavily disturbed and it is highly unlikely any Aboriginal cultural heritage remains on the site within quarried areas, roads or dumpsites.



Figure 9. YAC representatives Jeannette and Patricia Singleton with Northern Sands site in background.

7.1 Aboriginal heritage

The results presented here identifies Aboriginal cultural heritage through a combination of oral history and previous surveys carried out around Thomatis Creek.

Yirrganydji camp

Yirrganydji oral history identifies a pre and post contact camp on the banks of Thomatis Creek, to the north of the existing quarry (J. Singleton pers comm). This would have been an attractive location, on the confluence of Barron River and Thomatis Creek, and also halfway between the coast and significant ceremonial grounds near Freshwater Creek.

The camp area is heavily vegetated with grass and tree plantings and it is unlikely any archaeological values remain. Further work could be conducted to determine the exact location of the creek bank over time, as extreme floods have caused the banks to move in the past. The bank is currently hardened with rock fill.

Northern Sands currently maintains a buffer of 80m from the creek line as part of its environmental conditions and this is probably adequate to protect the cultural values of the Yirrganydji camp. According to the ACHA significant Aboriginal sites in Queensland are identified by the relevant Aboriginal party, so even if no archaeological material is present, the site has been identified as a significant Yirrganydji place and should be avoided by future work. Further site inspections by an archaeologist and Jeanette Singleton should take place to ensure an appropriate buffer.

	Yirrganydji camp
Significant Values	Aboriginal
Threshold	Regional
Integrity	Low
Predicted impact	Within current development footprint
Recommendation	Avoid with buffer or manage through CHMP

Thomatis Creek middens & possible scar tree

Thomatis Creek contains extensive marine resources, including mangroves, mud mussel, fish, stingray that were and continue to be exploited by Aboriginal people. The area also has land based bush tucker including fruit trees. Three middens are recorded on the AQUIS site north of Thomatis Creek, one was investigated with George Skeene (Fig 10). A possible scar tree has been recorded on the southern bank of Thomatis Creek. These sites should be avoided and managed through a CHMP with Yirrganydji Gurabana Aboriginal Corporation.

	Thomatis Creek middens & possible scar tree
Significant Values	Aboriginal
Threshold	Regional
Integrity	Unknown, probably low
Predicted impact	Nil – outside development footprint
Recommendation	Avoid



Figure 10. George Skeene inspection possible midden material at Thomatis Creek

Potential Aboriginal heritage

Sand ridges have a high potential for Aboriginal sites. The northern pipeline route crosses a sand ridge, and will need to be surveyed in detail prior to removal of any vegetation. The potential pipeline routes cross small sections of remnant vegetation and these will require detailed survey prior to commencement of work.

7.2 Non-Indigenous heritage

There is a low potential for impact to non-Indigenous heritage at the Northern Sands site or on the pipeline route. One local heritage site is upstream of the Northern Sands quarry, impacts are only relevant if the proposed dredge material placement area is expanded from the current Northern Sands proposed area.

Old Smithfield township and cemetery

The Old Smithfield township and cemetery are entered on the local heritage register. They are outside the current proposed development footprint.



Figure 11. Smithfield c 1877 (Cairns Historical Society)

Old Smithfield town & cemetery	
Significant Values	Historic, Scientific potential
Threshold	Local
Integrity	Unknown
Predicted impact	Nil – outside development footprint
Recommendation	Archaeological test pitting if the development footprint extends near the old township or cemetery

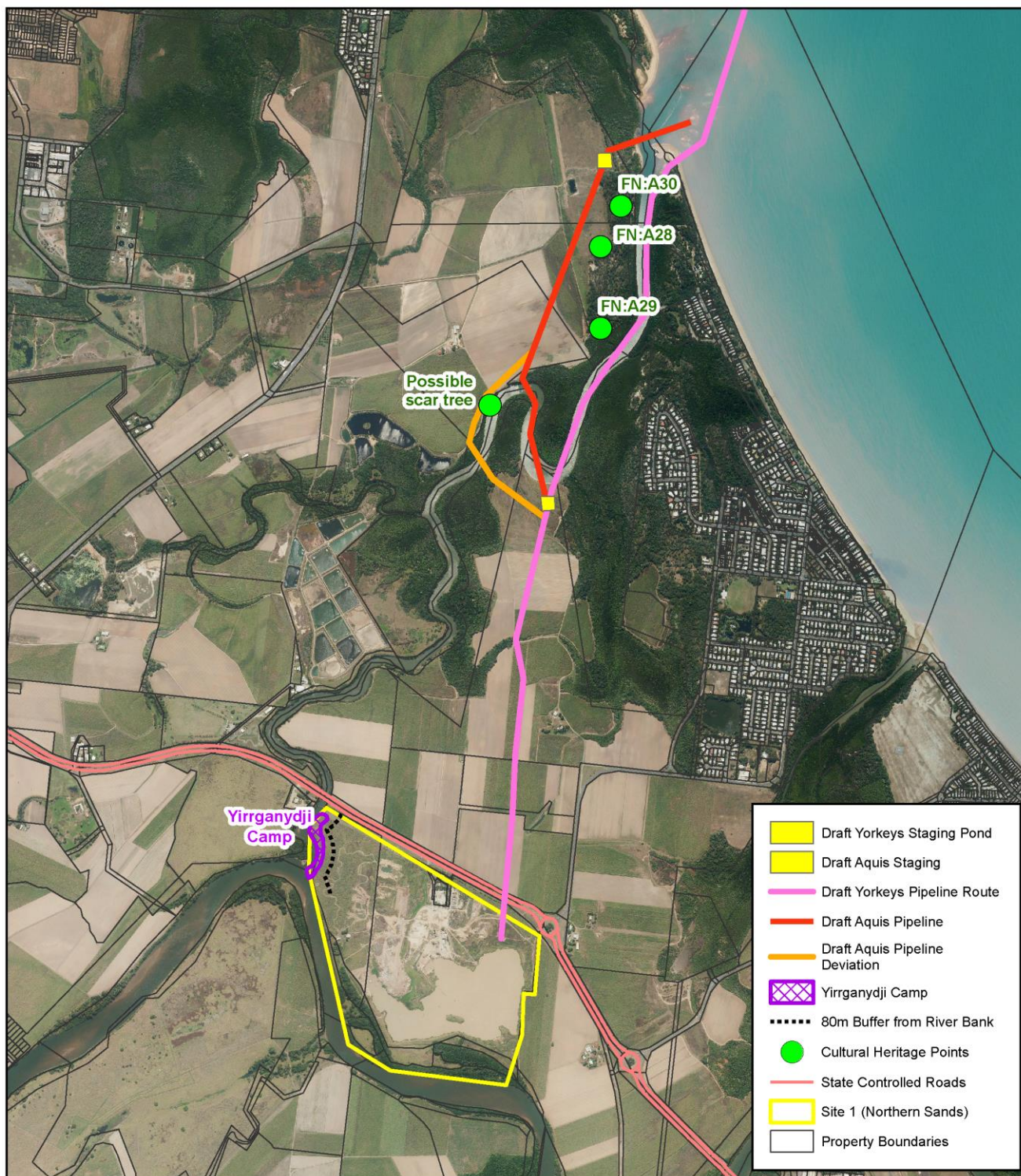
7.3 Recommendations

Relevant Aboriginal cultural sites are shown in Figure 12. No places of non-Indigenous heritage significance will be impacted by the proposed work. A CHMP should be developed with Yirrganydji Gurabana Aboriginal Corporation. A detailed survey of the pipeline route should be conducted, with particular focus on sand ridges and remnant vegetation.

The following Aboriginal sites should be avoided

- Yirrganydji camp on Thomatis Creek (buffer to be confirmed)
- Recorded middens and possible scar tree on Thomatis Creek

The Thomatis Creek pipeline option is considered to present the lowest risk for impacts on Aboriginal cultural heritage, although concerns were raised by George Skeene about the potential for environmental impacts on important cultural resources such as fish and crabs if the pipe were to leak into the creek.



**Cairns Shipping
Development Project
Revised Draft EIS**

Map CH2, Site 1 - Cultural Heritage Features

Date Produced: 3/08/2016
Projection: MGA94 Zone 55
Scale at A4 Size 1:25,000

0 250 500 1,000 Metres

**FLANAGAN
CONSULTING GROUP**
DEVELOPMENT CONSULTANTS • PROJECT MANAGERS • ENGINEERS • PLANNERS
CAIRNS (07) 4031 3199 DARWIN (08) 8943 0620 MACKAY (07) 4944 1200 TOWNSVILLE (07) 4724 5737
www.flanaganconsulting.com.au

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Figure 12. Aboriginal cultural heritage sites Northern Sands

8 Site Inspection East Trinity

East Trinity was inspected on 28 July with Dale Mundraby, Dewayne Mundraby and the Djunbunji Rangers (Fig 13). During the inspection MY demonstrated an active and ongoing connection to the cultural landscape through their environmental knowledge, oral history and resource use.



Figure 13. MY representatives & A. Buhrich discussing potential dredge material placement location on East Trinity.

8.1 Aboriginal heritage

The East Trinity area extending into the foothills of the Malbon Thompson Range which contains high Aboriginal values including story places, resource use and archaeological sites. Although the East Trinity area is highly degraded, MY have strong aspirations for future economic and conservation outcomes over the area.

Compatibility of project with MY Indigenous Protected Area (IPA)

Concerns were raised about the compatibility of the CSDP and MY aspirations for future use of the East Trinity site. The following points were made:

- MY consider only one area of East Trinity appropriate for dredge disposal, a 90 ha area to the south of Hill's Creek (approximate area shown in Fig 17, p 50).
- A sand ridge within 300m east of Middle Road is a remnant of the original sandridge formations. Although no specific sites are recorded here, the area does contain significant value to MY. The sand ridge and a buffer around it are marked on Fig 17.
- MY require ongoing vehicle access along the bund wall to access their native title determined area and the pipeline design will need to account for this.
- Previously recorded artefact scatters and shell middens will not be affected if dredge material is located in the compatible use area marked in Fig. 17.

8.2 Non-Indigenous heritage

There are possibly two locally significant heritage features on the East Trinity site. Neither are included in the Cairns Local Heritage Register. The draft EIS (Chapter B13 pp 44 & 53) identified that the sites may have some local significance. .

The Bund Wall (draft EIS)

The bund wall on the east side of Trinity Inlet is a 1970s feature. It is located in close proximity to the study area. It comprises an earthen bank raised above the tidal zone with control gates fitted at Hills and Firewood Creeks (Figure 14). Originally these gates prevented ingress from the Trinity Inlet side but they have since been adapted to control ingress and egress of water flow. This wall extends for approximately 7.2km around the mangrove tidal zone.

	East Trinity bund wall
Significant Values	Historic
Threshold	Possibly local
Integrity	High
Predicted impact	Low – minimal impact from temporary pipeline crossing bund wall
Recommendation	Discuss with Cairns Regional Council Minimise impact



Figure 14. Floodgate on bund wall. The road along the bund wall is used by MY to access native title determined area.

Chinese tramway

Chinese farmers reportedly constructed a tramway line at East Trinity tramway to transport bananas from Wah Day farm to the harbor. This site is assessed as having low integrity. On the East Trinity site only the alignment remains, this is known as 'Middle Road' or 'Abbott Street'. Approximately 25 metres of the remnant tramway was inspected into the mangroves. This section comprises a cutting through the mangroves with remnants of a low earthen bank which stands approximately 50 cm above the surrounding mangrove tidal flats and a small number of associated artefacts (Figs 15 & 16).

Members of the Wah Day family continue to maintain a farm at East Trinity. If this site is chosen for the pipeline a full recording of remnant material should be recorded and oral history collected from the Wah Day family. Information should be deposited with the Cairns Historical Society and Cairns & District Chinese Association Inc.

Chinese tramway, East Trinity	
Significant Values	Historic
Threshold	Possibly local
Integrity	Very low. Alignment visible, has been turned into a road ('Middle Rd'). Small remnant of embankment within mangroves (Fig 15). Small number of highly degrading items in mangrove section (Fig 16).
Predicted impact	High – could be used for pipeline corridor including widening
Recommendation	Prior to impact recording should include

- oral history with Wah Day family
- site survey of remnant through mangrove to identify any remnant material
- lodge information with Cairns Historical Society



Figure 15. Djunbunji Rangers standing on Chinese tramway embankment. Note poor integrity of the tramway formation and its location within tidal mangroves.



Figure 16. Remnants of Chinese tramway, steel peg and fragments.

8.3 Recommendations

A CHMP should be developed with Mandingalbay Yidinji Aboriginal Corporation that accounts for the MY future aspirations for the site. Areas of proposed impact should be surveyed for archaeological sites, taking into consideration the level of previous disturbance.

The existing bund wall is a key component of the rehabilitation process and is protecting the rehabilitated land and creek systems within. Whilst it's existing integrity is in question due to erosion and settlement (over 1km of the wall is overtopped during king tides) if impacts are unavoidable, it is recommended that further detail / site records be taken prior to construction.

Prior to construction a detailed recording of the Chinese tramway should be conducted that includes interviews with the Way Day family and documentation of any remnant material.

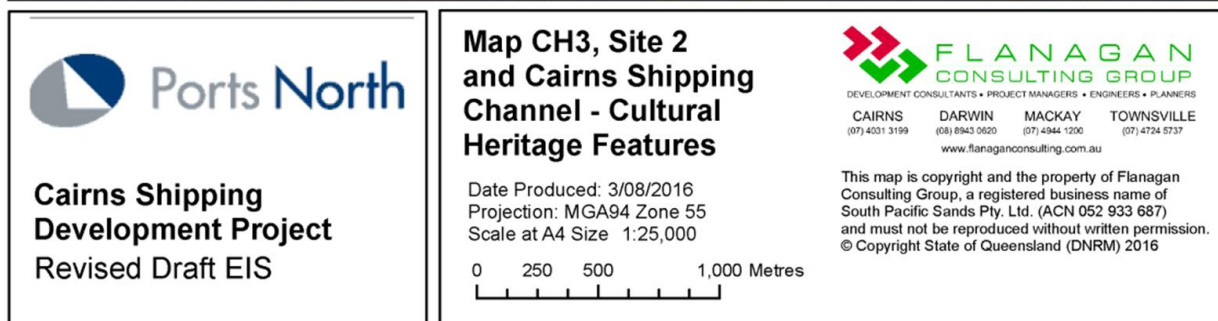
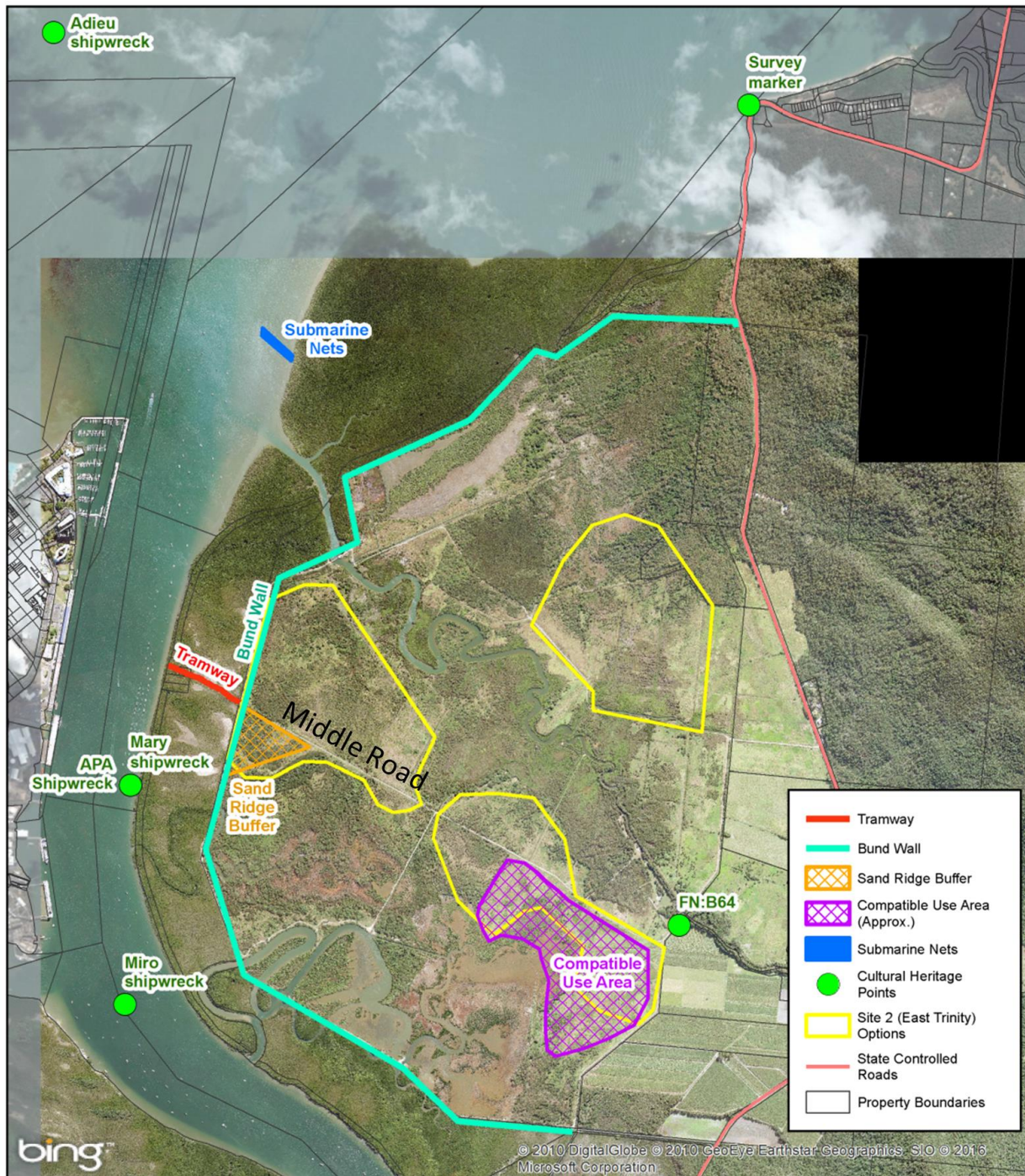


Figure 17. Cultural Heritage features, East Trinity and Cairns Shipping Channel

9 Cairns Shipping Channel

Cultural heritage values in the Cairns Shipping Channel include Aboriginal story places, shipwrecks, remnants of WWII defence installation and a state heritage listed hydrographic survey marker (Figure 17). Two of the shipwrecks, Adieu and Mary are considered of national and state heritage values respectively, however any remnants are likely to have poor integrity. One group of Aboriginal custodians expressed concern about potential impacts to the story places contained in Trinity Inlet.

9.1 Aboriginal heritage

The Cairns Shipping channel contains significant story places and marine resources.

Story places

The Cairns Shipping channel contains Aboriginal stories relating to the travels of ancestral beings including Gudju Gudju (rainbow serpent), Damarri and the crocodile and the boomerang story, the Cassowary story and others. Aspects of the stories may be shared by Aboriginal parties, but each group maintains individual interests and connections to their own stories and cannot speak on behalf of another group's story places.

YAC and MY advised these story places will not be impacted by the proposed work (J. Singleton, D. Mundraby pers comm).

GYW raised specific concerns about potential impacts to the Cassowary Story associated with Admiralty Island and Trinity Inlet and expressed the desire to control a long term environmental and cultural monitoring program of story places in the Inlet. Development of a CHMP (by both parties) will confirm any final agreements.

	Aboriginal story places
Significant Values	Cultural landscape
Threshold	National
Integrity	High
Predicted impact	Unassessed
Recommendation	Develop appropriate management strategies through CHMPs with Aboriginal parties individually.

Cairns Tidal Wetlands

Cairns Tidal wetlands comprise of tall dense mangroves and salt marshes in the Trinity Inlet and Barron River delta. The area is listed on the Australian Places Heritage Inventory (APHI) for its significant natural heritage values, which include unusual and diverse combination of landform and habitat zones for several rare and endangered bird species as well as nursery habitat for fish, prawn and crab. It includes some of the few remaining examples of sand ridges, once common in the Cairns area. The APHI notes the area also contains significant Indigenous values, presumably associated with the marine resources, story places and potential for archaeological remains.

All Aboriginal parties raised concerns about the ongoing impact to marine and terrestrial resources from the proposed dredging and land placement. For Aboriginal people, cultural heritage and environmental resources are not separate, the health of the animals, plants and waterways, both locally and regionally, are significant concerns. Results of environmental assessments should be provided to Aboriginal parties, through face to face meetings with the individual Aboriginal groups.

Cairns Tidal Wetlands	
Significant Values	Natural and cultural landscape
Threshold	National
Integrity	High
Predicted impact	Low
Recommendation	Assess predicted impacts on health of natural environment. Work with relevant Aboriginal parties to ensure minimal impacts to Aboriginal cultural landscape

9.2 Non-Indigenous heritage

The Cairns Shipping channel contains significant non-Indigenous heritage including evidence of European exploration, shipwrecks and World War II remnants. These sites are all outside the footprint of the proposed shipping channel.

Hydrographic survey bench mark, 1878, Bessie Point

The Hydrographic Survey Bench Mark is important surviving evidence of early surveys of the north Queensland coast. It is listed on the Queensland Heritage Register. The

survey mark consists of a 50 cm high arrow chiselled into the upper half of a granite boulder on the west side of Bessie Point. It is outside the proposed development area.

Hydrographic survey bench mark	
Significant Values	Historic
Threshold	State
Integrity	Fair
Predicted impact	Nil – outside development footprint
Recommendation	None



Figure 18. Hydrographic survey bench mark 1878, Bessie Point (arrow pointing up engraved into rock).

Submarine boom net (draft EIS)

The submarine boom net foundations are extremely remnant and only partly exposed at low tide (Fig 19). It is difficult to determine what materials comprise the foundations as they are thickly covered with marine growths. However, some segments of wire rope extend from the various ‘piles’ of material which are generally spaced approximately 10m apart extending into Trinity Inlet. It is unclear if any component of the site extends beyond the shallower parts of the inlet. These sites are outside the proposed shipping channel and risk of impact is considered low.

Submarine boom net	
Significant Values	Historic
Threshold	Unassessed
Integrity	Low
Predicted impact	Nil – outside development footprint
Recommendation	None



Figure 19. Example of boom net foundation (draft EIS)

Shipwrecks (draft EIS)

At least two historic shipwrecks, one of which is protected under the HSA, are possibly partly located within the proposed Crystal Swing Basin. It is difficult to determine (given the accuracy of the location data) the exact location and integrity of the wrecks however, a search of the AHSDB shows the *Adieu, A.P.A.* and the *Mary* may be located in the vicinity of the proposed expansion to the swing basin. The *Adieu* (Shipwreck ID 2127) was a sailing vessel that sank in Cairns Harbour in 1895. *Mary* (Shipwreck ID 2838) was a cutter that sank in Trinity Inlet in 1909. *A.P.A.* (Shipwreck ID 2115) was a hulk that was wrecked in Trinity Inlet in 1961.

It has also been stated (Ryle 2006) that the loading of *Catalina's* during World War II resulted in some armaments being accidentally dropped into Trinity Inlet. The veracity of the data and the likely dispersal of material as a result of tidal action on the shipwrecks through time suggests that it is possible that some material may be located within the areas proposed for dredging. It is also noted that no shipwreck or historic material has

been located during the current annual maintenance dredging of the existing channel and swing basin.

	Adieu	Mary	A.P.A.
Significant Values	Historic	Historic	Historic
Threshold	National	State	Unassessed
Integrity	Unknown, probably low	Unknown, probably low	Unknown
Predicted impact	Low	Low	Low
Recommendation	Avoid	Avoid	Avoid

9.3 Recommendations

Terrestrial and marine sites, shown on Figure 17, should be avoided. There is a possibility that unrecorded marine heritage could be located during dredging activities. Should potential historic material be located during inspections or dredging, work should cease in that area and a qualified marine archaeologist should be notified immediately.

10 Trinity Wharves

Cairns wharves 1-6 are included on the state heritage register for their historic and social values and therefore any potential impacts to Trinity Wharves 1-6 need to be considered under the *Queensland Heritage Act 1992*. These are discussed in detail in Appendix C. The wharf area was the site of the first landing of Europeans on what was to become the city of Cairns. The wharf area was reclaimed in the 1940s. Reclamation involved filling in the mouths of Lily and Alligator Creeks, which once housed a fishing settlement known as Malay Town. There is a possibility some remnants of Malay Town exist under the southern end of the existing wharves.

Trinity Wharves

The existing wharf structure is not capable of safely berthing ships of significant size and weight. The current concept design is to install berthing/mooring dolphins cut into Wharves 1-5. The dolphins will sit on their own steel pile system and concrete caps will be level with the existing concrete slab, reducing visual impact. Additional mooring dolphins will sit independently of the wharf structure. Existing Wharf 6 is in poor condition and demolition is proposed. Full details are included in Appendix C, 'Cairns Concrete Wharves Heritage Impact Assessment'.

Trinity Wharves were constructed between 1910 and 1942 and are listed on the Queensland Heritage Register for aesthetic, scientific, historic and social values. Wharves 1-5 are the oldest surviving reinforced concrete wharf structure in Australia and the second oldest outside Europe (Brassil 2016:30). In addition, the wharves demonstrate technical advancement in regional Australia.

The reinforced concrete wharves at Cairns demonstrate that many cutting edge technologies and advancements in engineering were adopted (or were located) in regional Australia well before they appeared in the major population centres (which tended to be conservative in this respect). The recognition that regional Australia was well-informed and up-to-date regarding significant world developments is important in understanding the course of Australia's historic and economic development. (Brassil 2016:30).

The current proposal includes the demolition of Wharf 6. Wharf 6 contains different historical values and construction techniques to those of Wharves 1-5. The particular significance of Wharf 6, as noted in the Queensland Heritage Register report, is:

The construction of number 6 wharf in 1942 demonstrates the importance of Cairns as a centre for Pacific forces during World War II and its timber and reinforced concrete construction reflects war-time expediency.

Wharf 6 represents physical evidence of the role of Cairns in WW2 and its demolition will remove this historical connection. It may be noted, however, that the timber substructure has only ever been visible from the seaward side and, as there is no apparent difference between Wharf 6 and the other five wharves, this aspect of its significance has not been apparent to most observers. Nonetheless, there is no other primary evidence of the impact of WW2 upon the waterfront at Cairns associated with the Trinity Wharves, although there may be evidence in other locations within Cairns. It is inevitable that Wharf 6 will be demolished at some time, as the timber substructure will continue to degrade and the poured-in-situ concrete deck makes the replacement of timber fabric extremely difficult. Puncturing the deck to gain access to the substructure (to the degree necessary) would seriously compromise the structural integrity of the deck, probably requiring its replacement in any case. Consequently, it is reasonable to contemplate alternative approaches to the retention of the significance of the wharf.

(Brassil 2016:31)

The proposed upgrade involves installation of dolphins to Wharves 1-5.

The removal of sections of deck to allow the installation of independent mooring dolphins, whilst clearly not ideal in heritage terms, may be the least worst option available for the future conservation of Wharves 1 - 5. The wharves are fundamentally utilitarian items of infrastructure that must serve their purpose (there are few, if any, practical opportunities for repurposing the wharf in the Cairns context) and their continued use for their designed purpose is the most preferable outcome in heritage terms. It is not unusual for any item of infrastructure to be modified and/or upgraded to maintain its utility and, in this case, the opportunity exists for the wharf, if modified, to continue to serve a significant economic role for at least several decades into the future. The options analysis undertaken by ARUP has established that, if Wharves 1 – 5 are to serve as the cruise ship berths for Cairns, this is least interference required to achieve the attendant level of operation (Brassil 2016:37).

Trinity wharves 1-6

Significant Values	Aesthetic, Scientific, Historic, Social
Threshold	National
Integrity	High
Predicted impact	Low
Recommendation	Begin development application process for required approvals from Queensland Heritage Council using Statement of Heritage Impact (Brassil 2016)

Malay Town

Malay Town was a notorious multiracial camp on the banks of Lily Creek that grew from the late 1890's until Cairns Harbour Board demolished it from 1941 onwards as part of the Alligator Creek land reclamation (Fig 20). The Cairns Post documents numerous reports of drunkenness, violence, deaths, illegal fishing, gambling, arson, plague, vagrancy and general untidiness of the residents that included Chinese, South Sea Islanders, Melanesians, Malays, Timorese, as well as Aboriginal and Torres Strait Islanders and other people associated with the pearling, beche-de-mer and fishing industries. Artists Donald Friend and Ian Fairweather painted Malay Town and residents, attracted by the relaxed lifestyle and northern characters. The Pitt and Douglas families from Torres Straits were notable residents.

Malay Town

Significant Values	Scientific potential
Threshold	Local
Integrity	Unknown, probably low
Predicted impact	Low
Recommendation	If excavations required in area of Alligator/Lily Creek, should be monitored by qualified archaeologist

It is possible that remnants of Malay Town still exist under the reclamation of Alligator and Lily Creek. An archaeologist should monitor excavation work conducted in the vicinity of the old Lily Creek or Alligator Creek systems during construction works to identify and manage any archaeological material.



Figure 20. Malay Town, Alligator Creek, before 1934 (Cairns Historical Society)

11 Heritage Factors

Cultural heritage factors associated with the Cairns Shipping Development Project include Aboriginal heritage values, both tangible and non-tangible heritage and places of non-Indigenous significance. Section 11.1 presents an overview of significant heritage values potentially impacted by the project and mitigation measures to manage impacts to places containing national, state and local heritage values. Section 11.2 discusses the opportunities to enhance heritage values and constraints for the project development at Trinity Wharves and each potential dredge material placement location.

11.1 Significance and mitigation

There are a number of places with Aboriginal and non Indigenous cultural heritage values that are potentially affected by the project. An assessment of these values and proposed mitigation strategies are presented in Table 5.

Table 5 Significant areas and potential impacts for inclusion in the impact assessment stage.

Level	Northern Sands	East Trinity	Shipping Channel	Trinity Wharves	Mitigation
National	Cairns Tidal Wetlands - Impacts on marine resources				Environmental management
National	Story places				None, could be incorporated into interpretative material in consultation with Aboriginal parties
National	Shipwrecks				Outside development footprint
State	Historic, social aesthetic, scientific values				Detailed treatment of exposed steelwork in wharf upgrades, interpretation of fabric
State	Survey bench mark 1878				Outside development footprint
Regional	Yirrganydji camp				Maintain buffer
Regional	Thomatis Creek middens				Avoid
Regional	Previously recorded sites				Avoid
Regional	Unrecorded sites	Unrecorded sites			Survey, CHMP
Local	Old Smithfield township and cemetery				Outside development footprint
Local Potential	Tramway				Document remaining material and oral history
Local	Bund wall				Record site details if

Potential		impacted
Local Potential	Malay Town	Monitor excavations
Unassessed	Submarine boom net foundations	Outside development footprint

National heritage places

Aboriginal story places are included in the National Heritage listing of cultural values of the Wet Tropics. Aboriginal parties have indicated that, although numerous story places exist in the study area, these are unlikely to be affected by the proposed work. It was noted by the Aboriginal parties that there has been extensive use of the Cairns shipping channel for over 100 years.

The environmental and cultural values of the Cairns Tidal Wetlands are recognised in the Australian Heritage Places Inventory. Aboriginal parties raised concerns about the potential impacts to marine resources including fish, crabs and water quality and they should be kept informed about the potential impacts and results of monitoring the environmental health of the mangroves, rivers, creeks and harbour from the proposed project.

Known shipwreck locations should be avoided. A qualified marine archaeologist should be contacted immediately if previously undocumented marine heritage is identified during the hydrographic survey.

State heritage places

The Cairns Wharves and Bessie Point Hydrographic bench marker are included on the Queensland Heritage Register.

Upgrading work is proposed to Trinity Wharves to allow large vessels to berth. Changes to heritage listed places need to be approved by the Queensland Heritage Council via a development application. It is recommended that discussions commence with (Qld) Department of Environment and Heritage, the administering body, as a matter of priority.

There are no predicted impacts to the Bessie Point hydrographic bench marker.

Regional heritage places

Aboriginal archaeological sites are considered of regional significance. Recorded sites comprise of relatively poorly preserved shell middens that are significant to Aboriginal parties. They are unlikely to hold extensive scientific or other significant heritage values.

Local heritage places

Old Smithfield township and cemetery are on the Cairns Local Heritage register, but outside the development footprint and therefore will not be impacted by the current proposal.

Possibly local heritage places

Three places of potential local significance are identified within or near possible development areas. The existing bund wall and Chinese tramway may have local historic values.

The bund wall is presently a key component of the rehabilitation process and is protecting the rehabilitated land and creek systems within. Very little impact is proposed to the bund wall however, if impacts are unavoidable, it is recommended that further detail / site records be taken prior to construction.

The Chinese tramway is in very poor condition. The only remnants are around 300m of an alignment running through mangroves in the inter-tidal zone. It should be documented prior to development.

Malay Town was an important fishing camp on the banks of Lily and Alligator Creeks. It was reclaimed in the 1940s, however some remnant may exist under the reclamation. An archaeologist should monitor any excavations in the vicinity of the original Alligator and Lily Creek mouths, if they are required.

11.2 Opportunities and constraints

Cultural heritage opportunities and constraints of dredge material placement locations, pipeline routes and upgrade of Trinity Wharves are presented in Table 6.

Table 6 Items for consideration in mapping and impact assessment stage.

	Opportunities	Constraints
Trinity Wharves	Ongoing use of the wharves ensures continuation of good maintenance practices	Structural integrity may be compromised – proposed work requires approval from Queensland Heritage Council
Northern Sands	Previously highly disturbance	Yirrganydji camp at northern side requires buffer or manage through CHMP
	Aboriginal values of proposed pipeline route well documented on north bank of Thomatis Creek	Surveys required on sand ridge and river banks
East Trinity	Highly degraded area of 90 ha south of Hill's Creek	Use of parts of East Trinity may not be compatible with MY aspirations for the area
	Tramway alignment can be used for pipeline	Pipeline crossing may interfere with MY access along bund wall

12 Recommendations

Further work is required to ensure any potential cultural heritage impacts are minimised or mitigated in the proposed Cairns Shipping Development Project. The following preliminary recommendations are based on desktop review, analysis of legislative requirements, initial consultation with relevant Aboriginal parties and site inspections.

- The docking of large cruise ships at Trinity Wharves is central to the success of the project. Changes to the heritage listed elements of Trinity Wharves to allow for berthing of large vessels require approval from the Queensland Heritage Council. Application for proposed changes should be made to Queensland Heritage Council, based on the Statement of Heritage Impact (Brassil 2016, Appendix C).
- CHMPs will need to be developed with the relevant Aboriginal party and should include precautionary measures such as survey of the proposed pipeline at Northern Sands and the proposed dredge material placement location at East Trinity.
- Develop a CHMP with GWY regarding management of impacts to story places within and adjacent to the Shipping Channel.
- Aboriginal parties have identified areas of interest at both placement areas that should be avoided. Required buffers to these areas of interest should be determined in future consultation with the relevant Aboriginal parties.
- If East Trinity is chosen as the preferred placement area a 300 metre section of the Chinese tramway should be recorded in detail and an oral history of the Wah Day's family connection and historical use of the area conducted.
- Facilitate face to face meetings with the Aboriginal parties regarding potential environmental impacts.

There are native title implications for both Northern Sands and East Trinity which need to be addressed prior to the commencement of any works

12.1 Trinity Wharves

Upgrades to Trinity Wharves need to be consistent with its state heritage listed values. The Burra Charter recognises that the ongoing use of the wharves ensures continuation of good maintenance practices. However, the proposals to upgrade wharf berthing capabilities will require some structural changes to the heritage listed wharves. Any

changes will need approval from the Queensland Heritage Council, via a development application according to the *Queensland Heritage Act 1992*. It is recommended that a development application be prepared using the Statement of Heritage Impact (Brassil 2016, Appendix C).

12.2 Northern Sands

A CHMP with YAC is required if Northern Sands is chosen as the preferred placement option.

The Northern Sands site is extensively disturbed and there is little concern about impacts to Aboriginal heritage in the areas currently used by the sand quarry. Yirrganydji oral history records a camp on the southern banks of the intersection of the Barron River and Thomatis Creek. The existing 80 metre buffer from waterways, as per existing quarry conditions, should be retained to ensure an adequate buffer around the Yirrganydji camp. This should be confirmed during further site inspections with Yirrganydji representatives during development of the CHMP.

The archaeological values of the north bank of Thomatis Creek are well documented and can be avoided, it is noted that the proposed pipeline route aims to avoid potential Aboriginal heritage by using areas of previous disturbance where possible. Cultural heritage surveys of the pipeline should be conducted to ensure no additional impacts to Aboriginal heritage.

12.3 East Trinity

A CHMP with MY is required if East Trinity is chosen as the preferred placement option.

Concerns were raised about the compatibility of the CSDP and MY aspirations for future use of the East Trinity site however, MY have identified one area of possible use for placement of dredge material, a highly degraded area of 90 ha south of Hill's Creek. This area should be surveyed for cultural heritage sites prior to site disturbance.

There are two possible locally significant non-Indigenous heritage places within East Trinity that could be impacted by the proposed pipeline.

Only minimal impact is expected on the bund wall, this impact is reversible and will not significantly impact the heritage values.

The Chinese tramway route is possibly of local significance, and this route is the preferred pipeline location. The tramway is very poorly preserved, physical remains consist of a remnant embankment and small amounts material within the tidal zone to the north of the bund wall. The tramway could hold significant values to the Wah Day family, and it is recommended that detailed recording of the tramway should be conducted including documenting material remains and Wah Day family oral history.

12.4 The Shipping channel

The shipping channel contains places of significance to multiple Aboriginal parties. The waterway is associated with travels of the ancestors including Gudju Gudju (rainbow serpent), Damarri and Guyulu and the Cassowary Story. During consultation for the project YAC and MY raised no express concerns with impacts to Aboriginal story places, however GWY raised specific concerns during the cultural heritage assessment that had not been communicated in previous engagement with Ports North. All potential impacts to Aboriginal story places should be managed through CHMPs developed with each individual group.

There is significant marine heritage present in Trinity Inlet including shipwrecks and submarine boom net foundations associated with WWII. These are documented outside the development footprint, however there is a possibility that undocumented marine heritage could be remaining within the development area. If items of possible marine heritage are found during hydrographic surveys an appropriately qualified marine archaeologist should be contacted immediately.

References

- Anderson, C., 1984. The political and economic basis of Kuku-Yalanji social history. PhD Thesis, Dept of Anthropology and Sociology, University of Queensland.
- Australia ICOMOS 2013. *The Burra Charter. The Australian ICOMOS Charter for Places of Cultural Significance*, Australia ICOMOS, Burwood, VIC.
- Ballantyne, S. 2005. *Derelict vessels in Cairns Port Authority*. Southport: Sea Transport.
- Bird, M. 1995. 'The impact of Tropical Cyclones on the Australian record: An Australian example'. *Archaeology in Oceania* 27(2): 75–86.
- Bird, M. and Hatte, L. 1995. 'International Airport baseline study'. Archaeological assessment for Sinclair Knight Merz on behalf of the Cairns Port Authority.
- Bottoms, T. 2015. *Cairns, City of the South Pacific A history 1770-1995*. Bunu Bunu Press, Cairns.
- Bradley, V. 2003. *I Didn't Know That; Cairns and Districts, Tully to Cape York, 1939 - 1946, Service Personnel and Civilians* (2nd ed.). Moorooka: Boolarong Press.
- Brassil, T. Cairns Concrete Wharves Heritage Impact Assessment. Report to Alice Buhrich.
- Brayshaw, H. 1990. *Well Beaten Paths*. Department of History, James Cook University, Townsville.
- Broughton, G. L. 1981, April. A Short History of Cairns during the War Years. *Cairns Historical Society Bulletin No. 257*.
- Buckley Vann Town Planning Consultants. 2014. *MYAC Strategic Property Management Plan for Eco-tourism Infrastructure Dec 2014*.
- Burke, H. A, A. Duke, K. Sachs & M. Moore. 2000. *Cultural Heritage Assessment; Indigenous Heritage Component, Southern Cairns Land Use and Transport Study*. Yungaburra: Unpublished report to Sinclair Knight Merz. Gordon Grimwade & Associates.
- Cairns Harbour Board. 1956. 1956 Annual Report. Cairns: Cairns Harbour Board.
- Converge Heritage + Community. 2008. *Preliminary Heritage Assessment for PNQ's Marino's Property, Kamerunga, Far North Queensland*. Cairns: Converge Heritage + Community.
- Converge Heritage + Community. 2009. *Site Master Planning Report - Historic Cultural Heritage, Cairns Cityport, Cairns Ports 09012C/2009*. Cairns: Converge Heritage + Community.
- Converge Heritage + Community. 2011. *Completion Report, Abbot St, Wharf St storm Water Drain archaeological Monitoring, Cairns, Far North Queensland*. Cairns: Converge Heritage + Community.
- Cosgrove, R., Field, J. & Ferrier, Å., 2007. The archaeology of Australia's tropical rainforests. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 251(1), pp.150–173.
- Cosgrove, R. & Raymont, E., 2002. Jiyer Cave revisited: Preliminary results from northeast Queensland rainforest. *Australian Archaeology*, 54: 29–36.
- Cummings Economics 2013. Madingalbay Tourism Park (East Trinity) Outline Development Proposal.
http://www.djunbunji.com.au/files/8114/1376/2906/J2675_MYAC_Development_Proposal.pdf
Accessed 10 July 2016.
- David, B. 1994. 'The Trinity Inlet Ethnographic Study: Planning for the Management of traditional Yiriganydji, Yidinji and Gunggandji Country'. Unpublished report for Trinity Inlet Management Program.
- Dawul Wuru Aboriginal Corporation and Yirrganydji People, 2014. *Yirrganydji Kulpul-Wu Mamingal: "Looking after Sea Country"* http://dawulwuru.com.au/Yirrganydji_Plan_ver6.pdf
Accessed 13 July 2016.

- Department of Environment and Heritage Protection. (1996, September 14). *False Cape Second World War Defence Facility*. Retrieved September 17, 2013, from CHIMS Registers and Inventories: <https://heritage-register.ehp.qld.gov.au/placeDetail.html?siteId=15750>
- Dixon, R.M.W., 1976. Tribes, languages and other boundaries in northeast Queensland. In N. Peterson, ed. *Tribes and Boundaries in Australia*. New Jersey: Australian Institute of Aboriginal Studies, pp. 207–238.
- Draft EIS. Chapter B14 Cultural Heritage Draft Environmental Impact Statement, Cairns Shipping Development Project.
- Dunn, P. n.d. *ozatwar*. Retrieved September 18, 2013 from <http://www.ozatwar.com/5mar45.htm>
- Hicks, W., R. Fitzpatrick & G. Bowman. 2003. Managing Coastal Acid Sulfate Soils: The East Trinity Example. In R. I. (Ed.), *Advances in Regolith* (pp. 174-177). CRC LEME.
- Horsfall, N., 1987. *Living in Rainforest: The Prehistoric Occupation of North Queensland's Humid Tropics*. PhD Thesis., Dept Behavioural Science, James Cook University, Townsville.
- Horsfall, N. 1996 Holocene occupation of the tropical rainforests of North Queensland. In P Veth and P Hiscock (eds.), *Archaeology of Northern Australia*, pp.175-190. Tempus 4. Brisbane: Anthropology Museum, University of Queensland.
- Jones, D. 1976. *Trinity Phoenix; A History of Cairns* (1st ed.). Cairns: Cairns Post Pty Ltd.
- Lewis, S. E., Sloss, C. R., Murray-Wallace, C. V., Woodroffe, C. D., & Smithers, S. G. 2013. Post-glacial sea-level changes around the Australian margin: A review. *Quaternary Science Reviews*, 74, 115–138.
- May, C. 1996. *Topsawyers: the Chinese in Cairns 1870 to 1920. Studies in North Queensland History Vol. 6* (2nd edition ed.). Townsville, Queensland: JCU.
- McIntyre-Tamwoy, S. and A. Buhrich. 2012. Lost in the wash: predicting the impact of losing Aboriginal coastal sites in Australia. *International Journal of Climate Change* 3(1): 53-66.
- Moss, P.T. & Kershaw, A.P., 2000. The last glacial cycle from the humid tropics of northeastern Australia: comparison of a terrestrial and marine record. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 155, pp.155–176.
- Moss, P.T., Cosgrove, R. & Haberle, S.G., 2012. Holocene environments of the sclerophyll woodlands of the Wet Tropics of northeastern Australia. In *Terra Australis* 34. pp. 329–341.
- Nott, J., 2003. The importance of Prehistoric Data and Variability of Hazard Regimes in Natural Hazard Risk Assessment - Examples from Australia. *Natural Hazards*, 30, pp.45–58.
- Rowney, M., G. Grimwade and G. Skeene. 2006. *Double Island Cultural Heritage Impact Assessment*. Yungaburra: Gordon Grimwade & Associates.
- Ryle, P. 2006. *By Air and Sea: Cairns Port Authority, the First 100 years* (1st ed.). Cairns: The Cairns Port Authority.
- Skeene, G. 1995. *Children of the Camps and Reserves*, Rams Skull Press, Cairns.

Appendices

A. Terms of Reference and how this report meets them

Table 7 Relevant Queensland Government ToR

ToR	Title	Details	Relevant section (this report)
3.8.1	Legislation and approvals	Aboriginal Cultural Heritage Act 2003 (ACH Act)	2.3
3.8.1	Legislation and approvals	Queensland Heritage Act 1992	2.3
5.3	Coastal environment	Note the Maritime Heritage Section of the Australian Government Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) is responsible for administering the Commonwealth Historic Shipwrecks Act 1976.	2.2
5.11.1	Indigenous cultural heritage	Describe the existing Indigenous cultural heritage values that may be affected by the project and the environmental values of the cultural landscapes of the affected area in terms of the physical and cultural integrity of the landforms.	4
5.11.1	Indigenous cultural heritage	Explain the significance of artefacts, items or places of Indigenous cultural heritage value likely to be affected by the project at a local, regional, state and national level.	11.1
5.11.1	Indigenous cultural heritage	Also describe how, in conjunction with the appropriate Indigenous people, subject to confidentiality requirements, the cultural heritage values were ascertained. This could include:	See below
5.11.1	Indigenous cultural heritage	The results of any Aboriginal cultural heritage survey undertaken	7, 8, 9
5.11.1	Indigenous cultural heritage	The DNRM Aboriginal Cultural Heritage Register and Database	4.4
5.11.1	Indigenous cultural heritage	Any existing literature relating to Indigenous cultural heritage in the project area.	4
5.11.2	Indigenous cultural heritage	Define and describe the objectives and practical measures for protecting or enhancing Indigenous cultural heritage environmental values. Describe how nominated quantitative standards and indicators may be achieved for cultural heritage management, and describe how the achievement of the objectives will be monitored, assessed and managed.	11
5.12.1	Non-Indigenous cultural heritage	Include a cultural heritage study/survey that describes non-Indigenous cultural heritage sites and places, and their values.	7, 8, 9
5.12.1	Non-Indigenous cultural heritage	Describe the significance of artefacts, items or places of conservation or non-Indigenous cultural heritage value likely to be affected by the project and their values at a local, regional, state and national level.	11.1
5.12.1	Non-Indigenous	Any such study should be conducted by an appropriately qualified cultural heritage practitioner and should include the following:	

ToR	Title	Details	Relevant section (this report)
	cultural heritage		
5.12.1	Non-Indigenous cultural heritage	The Australian Heritage Places Inventory	7, 8, 9
5.12.1	Non-Indigenous cultural heritage	The Queensland Heritage Register and other information regarding places of	7, 8, 9, 10
5.12.1	Non-Indigenous cultural heritage	potential non-Indigenous cultural heritage significance	11
5.12.1	Non-Indigenous cultural heritage	any local government heritage register	7, 8, 9, 10
5.12.1	Non-Indigenous cultural heritage	any existing literature relating to the heritage of the affected areas	5
5.12.1	Non-Indigenous cultural heritage	liaison with relevant community groups/organisations (for example, local historical societies) concerning places of non-Indigenous cultural heritage significance located or identified	
5.12.1	Non-Indigenous cultural heritage	a constraints analysis of the proposed development area to identify and record non-Indigenous cultural heritage places.	11
5.12.2	Non-Indigenous cultural heritage	Provide strategies to mitigate and manage any negative impacts on non-Indigenous cultural heritage values and enhance any positive impacts.	11
6.1.1	Social and cultural area	Indigenous social and cultural characteristics such as native title rights and interests, and cultural heritage.	6

Table 8 Relevant Commonwealth Government guidelines (extract from Detailed Brief TS13). Shaded items not in scope of this report.

Guideline	Title	Details	Relevant section (this report)
5.1	Executive Summary	e) Provide an overview of the existing regional and local environments, summarising the features of the physical, biological, social, cultural and economic environment relating to the proposal and associated activities;	4

Guideline	Title	Details	Relevant section (this report)
5.5	Project Description	iv. A summary of the design aspects that will be employed to minimise impacts on environmental, social, cultural and heritage values.	1.3
5.9	The Existing Environment	This section must provide a description of the project area including baseline condition and trends of coastal, terrestrial and marine environments, including hydrology, sediment characteristics, sediment flows, geography, flora and fauna, cultural and heritage values, and all relevant socio-economic considerations. This section must link to the proposal description, potential impacts, and proposed avoidance, mitigation, adaptive management framework and/or offset measures throughout the life of the project including pre-construction, construction, operation, and any decommissioning. This section is to also identify and reference any relevant (published and unpublished) studies undertaken in the area which will assist in describing patterns and trends in the environment.	4
5.9.1	Socio-Economic and Cultural Environment	Discussion of the socio-economic and cultural environment must provide (however should not be limited to):	
5.9.1	Socio-Economic and Cultural Environment	a) Baseline demographic information of the affected communities (e.g. from Australian Bureau of Statistics, Queensland Office of Economic and Statistical Research, Bureau of Rural Sciences) and a detailed description of all stakeholders, together with key social, economic and cultural issues related to the proposal (from community and stakeholder perspectives);	6
5.9.1	Socio-Economic and Cultural Environment	b) A description of all historical, current and projected types of use and users, including patterns and trends in use, of the development area and Great Barrier Reef Marine Park zones. Include a discussion of scientific research, commercial and non-commercial tourism, commercial, traditional and recreational fishing activities as well as non-fishing recreational activities;	6
5.9.1	Socio-Economic and Cultural Environment	d) A description of any places with known or anticipated heritage, social or cultural values (including any Traditional Use of Marine Resource Agreements), such that they have been recognised with listing or recording under relevant State or Commonwealth legislation or are anticipated to be listed under such legislation;	6
5.9.1	Socio-Economic and Cultural Environment	e) Information on the location (past and present considering sea level rise) and importance of sites and features of cultural significance, including anthropological and archaeological sites or features of significance to the Traditional Owners in of the area. A description of how these sites and features were identified must be provided; and	4
5.1	Relevant Impact of the Proposed Action	n) A description of anticipated positive and negative social, cultural and/or economic impacts of the proposal on key stakeholder groups and individuals. This should include a consideration of anticipated changes in the social, cultural and heritage values of the GBRMP	11
5.10.12	Other uses of the area and nearby areas	a) Social, cultural and heritage values for each stage of the proposal;	11

B. Record of consultation – Aboriginal parties

Table 9 Record of consultation – Aboriginal parties

Consulted with	Role	Date	via	Outcome
Jeanette Singleton	Chair YAC	11 July	Meeting	Planned site survey of Barron delta area for Mon 18 July
Di O'Rourke	Coordinating Anthropologist NQLC	12 July	Email	Request for information on Cairns Regional Claim
Jeanette Singleton & Patricia Singleton	YAC representatives	18 July	Site inspection	Yirrganydji camp on Thomatis Ck
Dale Mundraby, Dewayne Mundraby	MY representatives	19 July	Meeting	Discuss project and propose inspection Thurs.
Dale & Dewayne Mundraby & Djunbunji Rangers	MY representatives	28 July	Site inspection	MY aspirations for East Trinity, non Indigenous heritage assessment
George Skeene	YAC Elder	29 July	Site inspection	Locate previously recorded middens & inspect potential pipeline route
Gregory Bell	Legal Officer, NQLC	29 July	Email	Confirming Aboriginal party for Northern Sands after Cairns Regional Claim lodged
Gudju Gudju (formerly known as Seith Fourmile)	Representing GWY	5 August	Meeting	Story places within shipping channel

C. Cairns Concrete Wharves Heritage Impact Assessment, T. Brassil for
Extent Heritage Aug 2016

EXTENT

**HERITAGE ADVISORS
TO AUSTRALIA AND
THE ASIA PACIFIC**

Incorporating AHMS and Futurepast

Cairns Concrete Wharves

Heritage Impact Assessment

Final

Alice Buhrich Archaeology

August 2016



Extent Heritage Pty Ltd

ABN 24 608 666 306
ACN 608 666 306
www.extent.com.au
info@extent.com.au

SYDNEY

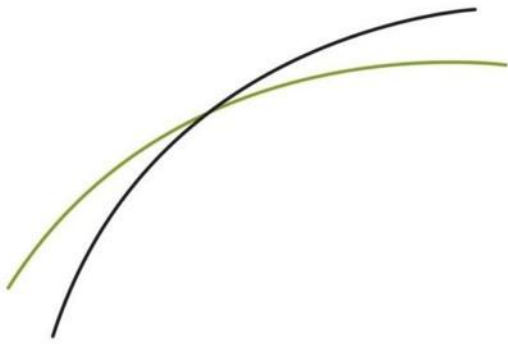
2/729 Elizabeth St
Waterloo NSW 2017
P 02 9555 4000
F 02 9555 7005

MELBOURNE

2/35 Hope St
Brunswick VIC 3056
P 03 9388 0622

PERTH

25/108 St Georges Tce
Perth WA 6000
P 08 9381 5206



Document Control Page

Client: Alice Buhrich

Report: Cairns Concrete Wharf - Heritage Impact Assessment

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WRITTEN BY	DATE	VERSION	REVIEWED	APPROVED
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1. INTRODUCTION

1.1. Project Description

In July 2016, EXTENT Heritage Pty Ltd were commissioned by Alice Buhrich to prepare a heritage values and issues analysis for the historic concrete wharves at Cairns Harbour in Queensland. The wharves are listed on the Queensland Heritage Register as a State significant heritage item. The wharves are one element in the proposed Cairns Cruise Shipping Development Project, the key features of which are:

- dredging to widen, deepen and lengthen the existing outer shipping channel (Trinity Inlet);
- widening and deepening of the existing inner harbour channel and Crystal Swing Basin;
- establishment of a new shipping swing basin (Smith's Creek Swing Basin) to enable future expansion of the HMAS Cairns Navy base;
- placement of material from capital dredging and future channel maintenance dredging at a new placement site;
- upgrade of the existing cruise shipping wharves (Trinity wharves 1 to 5); and
- relocation and installation of new navigational aids.

1.2. Approach and Methodology

The methodology used in the preparation of this Statement of Heritage Impact is in accordance with the principles and definitions as set out in '*The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*'¹.

1.3. Limitations

The Cairns Wharves 1-7 were inspected externally and photographed on 20 July, 2016. The inspection was undertaken as a visual study only. All photographs are by the author unless otherwise indicated.

The historical overview provides sufficient historical background to provide an understanding of the place in order to assess the significance and provide relevant recommendations, however, it is not intended as an exhaustive history of the site.

1.4. Authorship

The following staff members at EXTENT Heritage Pty Ltd have prepared this Statement of Heritage Impact:

Tony Brassil

Senior Heritage Advisor

Mac North

Director

1.5. Ownership

The site is owned by the Far North Queensland Ports Corporation Limited, trading as Ports North, a Queensland Government-owned Corporation responsible for the development and management of the declared Ports of Cairns, Cape Flattery, Karumba, Mourilyan, Skardon River, Quintell Beach, Thursday Island, Burketown and Cooktown.

¹ Australia ICOMOS

1.6. Terminology

The terminology in this report follows definitions presented in The Burra Charter. Article 1 provides the following definitions:

Place means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects. Places may have a range of values for different individuals or groups.

Fabric means all the physical material of the place, including components, fixtures, contents and objects.

Conservation means all the processes of looking after a *place* so to retain its *cultural significance*.

Maintenance means the continuous protective care of the *fabric* and *setting* of a *place*, and is to be distinguished from repair. Repair involves restoration or reconstruction.

Preservation means maintaining the *fabric* of a *place* in its existing state and retarding deterioration.

Restoration means returning the existing *fabric* of a *place* to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

Reconstruction means returning the *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material into the *fabric*.

Adaptation means modifying a *place* to suit the existing use or a proposed use.

Use means the functions of a place, as well as the activities and practices that may occur at the place.

Compatible use means a use that respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance.

Setting means the area around a *place*, which may include the visual catchment.

Related place means a place that contributes to the *cultural significance* of another place.

2. SITE

2.1. Location

The Cairns Concrete Wharves which are the subject of this report are known as the Trinity Wharves 1 – 6, located on the waterfront of Trinity Bay and accessed from Wharf Street, Cairns.

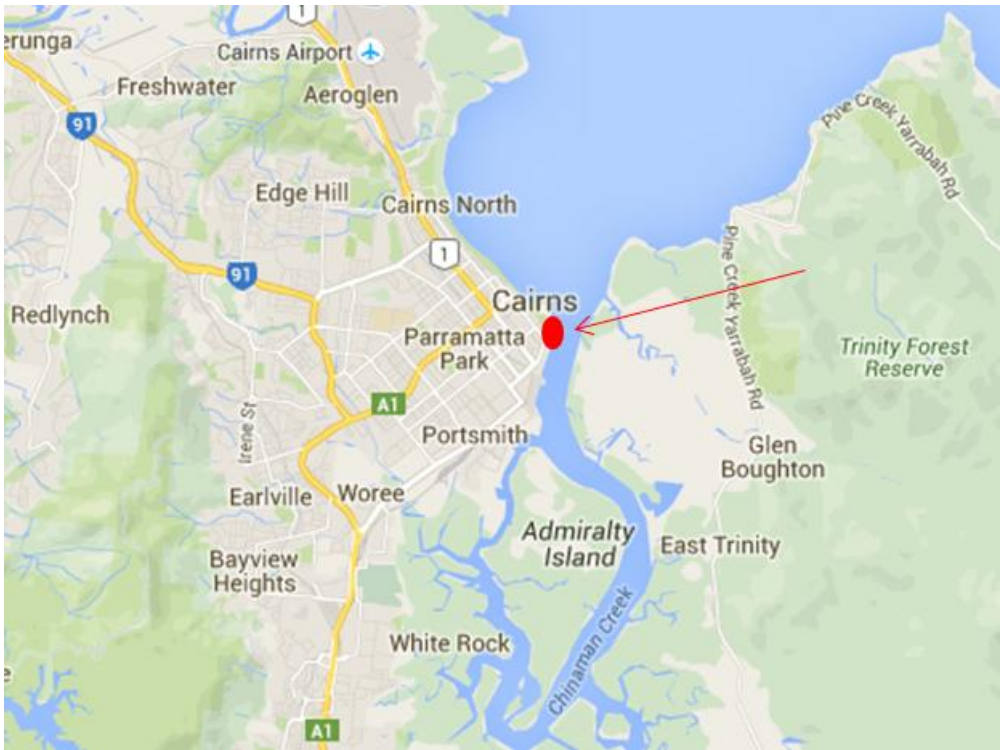


Figure 1. Map showing the location of the Trinity Wharves in relation to the Cairns region. (Source: GoogleEarth)

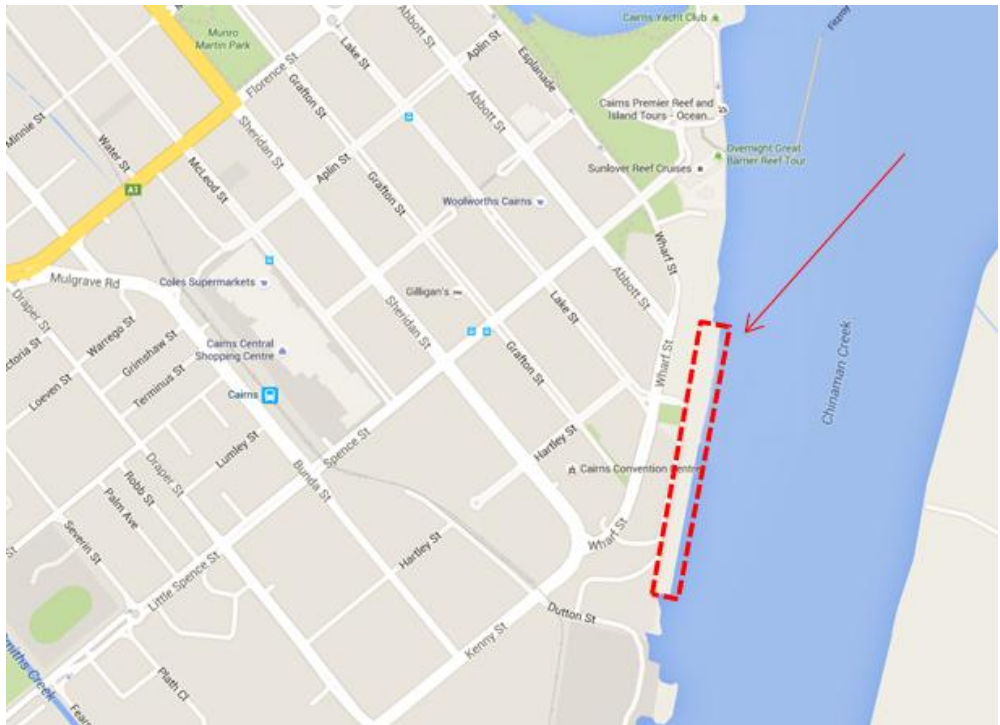


Figure 2. Map showing the location of the Trinity Wharves within Cairns. (Source: GoogleMaps)



Figure 3. Aerial view of the site of the Trinity Wharves. (Source: GoogleEarth)

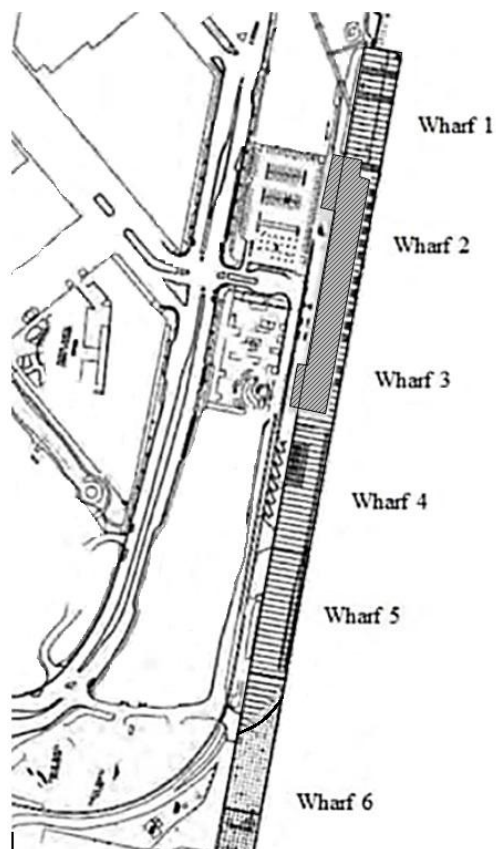


Figure 4. Layout of berths at the Trinity Wharves. (Source: CCSDP EIS)

3. STATUTORY HERITAGE LISTINGS

3.1. Environment Protection and Biodiversity Act 1999

The Trinity Wharves at Cairns are not included on the National Heritage List under the Environmental Protection and Biodiversity Act 1999.

3.2. Queensland Heritage Act 1992

Queensland Heritage Register

The Trinity Wharves at Cairns are included on the Queensland Heritage Register (QHR) as *Cairns Wharf Complex* (Place ID: 601790). The boundary of the listed area is shown in the statutory map attached to the listing report.

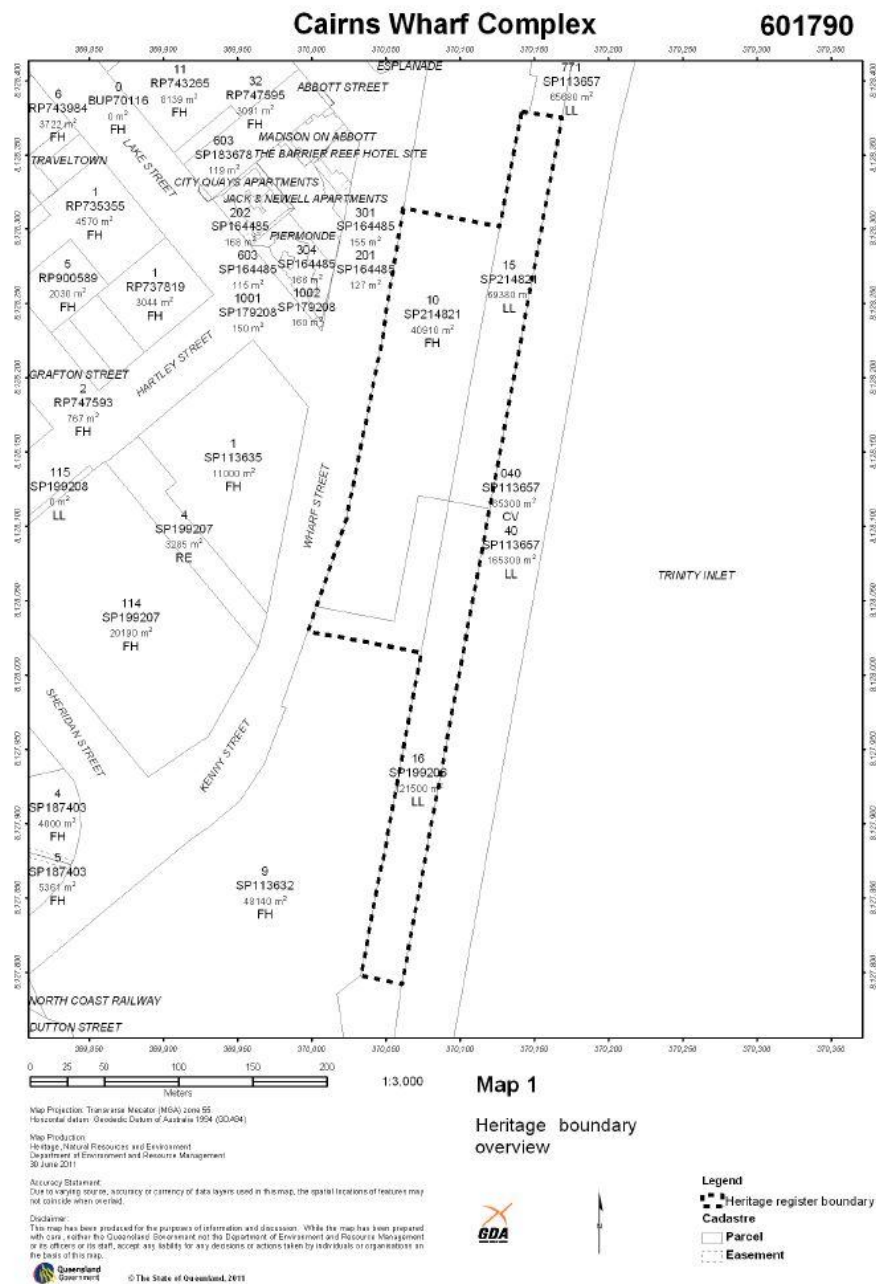


Figure 5. Heritage map from the Queensland Heritage Register, showing the Cairns Wharf Complex statutory listing boundary. (Source: Queensland Office of Environment and Resource Management)

3.3. Local Heritage Register

The *CairnsPlan 2009*, which incorporates the Ports North Land Use Plan, is the current planning scheme for the Cairns Regional Council Area. It contains the Local Heritage Register, including places and precincts. Combined with requirements under the *Queensland Heritage Act 1992* and the *Sustainable Planning Act 2009*, it sets out planning provisions in relation to development of these places. Queensland Heritage Register places are automatically included on the Local Heritage Register.

3.4. Heritage items in the Vicinity

There are three heritage items in the vicinity of the *Cairns Wharf Complex* listed in the Queensland Heritage Register. No sites in addition to those located on the QHR are identified in the Cairns Regional Council Local Heritage Register.

The three sites are:

QHR Number	Site Name	Address
601608	Barrier Reef Hotel.	Abbott St, Cairns.
601610	Jack and Newell Building (former).	29 Wharf St, Cairns.
600377	Cairns Custom House (former).	6A – 8A Abbott St.

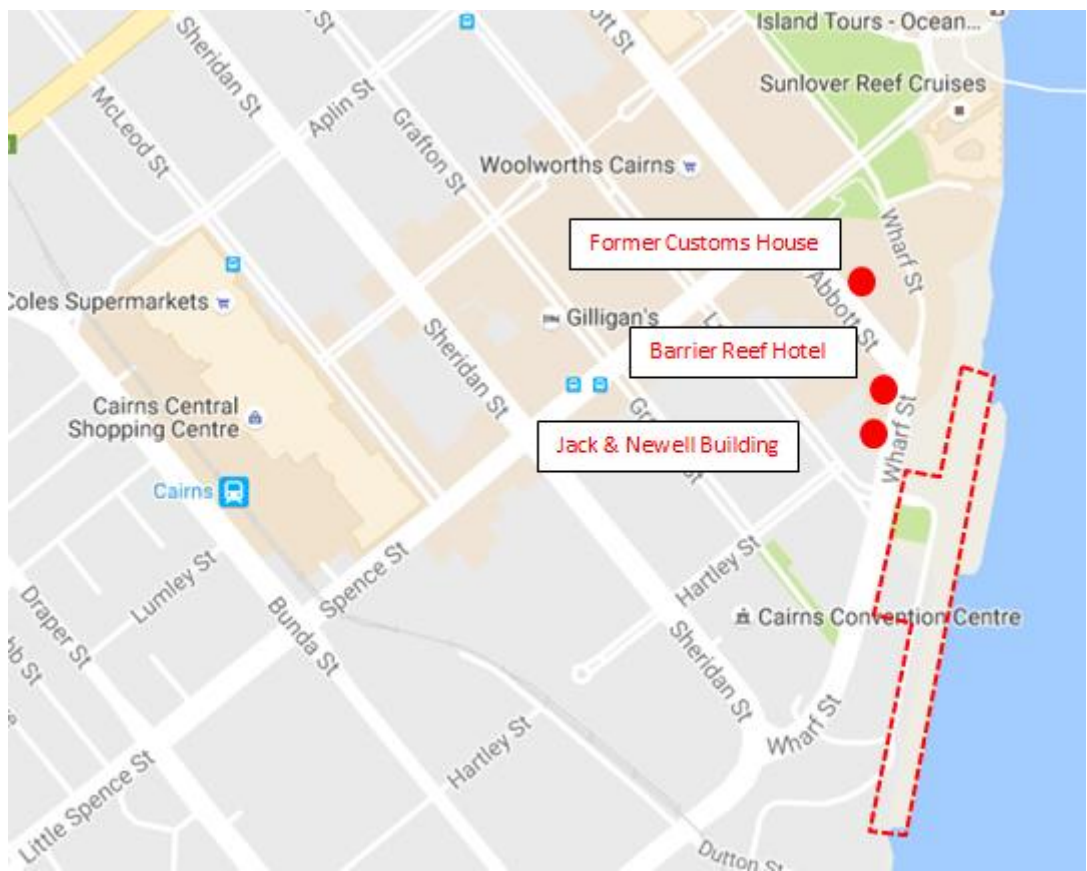


Figure 6. Street map of Cairns, showing the proximity to Cairns Wharf Complex of the other items listed in the Queensland Heritage Register. (GoogleEarth)

4. HISTORIC SUMMARY

The following historic overview is not intended as an exhaustive history but, rather, a brief overview of the historical context of the *Cairns Wharf Complex*.

4.1. Development of Cairns

In the 1870s, the discovery of the Palmer River goldfields attracted both Europeans and Chinese to far north Queensland and Cooktown was established as a port in 1873 to service this goldfield. Gold was subsequently found on the Hodgkinson River, some 300 kilometres to the south, in 1876. The colonial government, keen to collect customs revenue from the gold trade, sent the Government Surveyor to establish a town and port at Trinity Bay in late 1876. Government officials and passengers landed at Trinity Inlet, at the southern end of Trinity Bay, on 3 October 1876 and the inlet was subsequently declared a port of entry and clearance on 1 November that year.

The township of Cairns was surveyed in late 1876 and rudimentary port facilities were constructed soon after. Better facilities were later constructed by shipping and trading companies and the town, including shops, hotels, warehouses, banks, the customs house and other government offices, developed around the port area.

In 1884, Cairns was selected as the rail terminus for the Herberton tin fields and construction of the rail line was begun. A timber railway wharf was built in 1886, connecting the wharf directly to the rail line into the hinterland. As these developments progressed, increasing numbers of arriving settlers received land and established agriculture both around Cairns and on the Atherton tablelands, with sugar cane dominating on the lowlands and fruit and dairy produce on the tablelands. The other northern ports of Cooktown and Port Douglas dwindled as a result of Cairns' railway connection.

Trinity Inlet offered a deep but sheltered anchorage close to the open sea, with low-water depths of up to 5.5 metres within the channel, but a bar at the entrance prevented large vessels from entering. The first cuts to the bar, deepening it to 4 metres, were made in 1890 but, over time, it reformed and clearance was a mere 31.1 metres in 1896, when it was again dredged to 4 metres. By 1900, it was reduced to 3.2 metres².



Figure 7. View of the Cairns Wharves taken from the harbour, ca. 1907. (Source: SLQ #99872)

² Cairns Cityport Wharf Area Conservation Management Plan; Allom Lovell Pty Ltd, Report for Cairns Port Authority; 2000

During these early years, the port of Cairns comprised a series of small wharves constructed of timber on timber piles, set perpendicular to the shore line out over the mudflats. They were built and owned by shipping and trading companies such as Howard Smith, Adelaide Steamship, Burns Philp and the Australian United Steam Navigation Company.

4.2. The Cairns Harbour Board

Until the 1890s, Queensland ports were administered from Brisbane by the Department of Harbours and Rivers. The Harbour Boards Act was introduced to the Parliament in 1893, to endorse local control of ports and to encourage local financing of harbour improvements. It was not until 1896 that the first boards were established, in Rockhampton and Townsville (the two largest ports outside of Brisbane). They had wide-ranging powers over port improvements and foreshore leases and were empowered to charge fees for harbour improvements, which went to the Boards' coffers. They were also given authority to borrow money for necessary works.

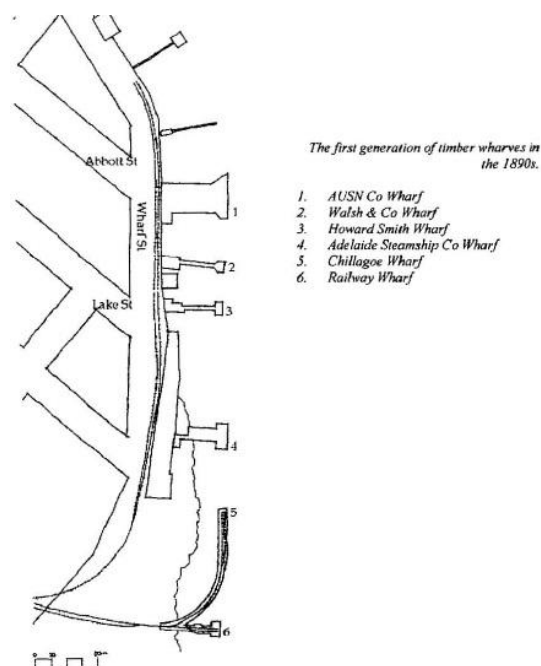


Figure 8. Plan of the private wharves at Cairns Harbour. (Source: Cairns Cityport Wharf Area Conservation Management Plan; Allom Lovell Pty Ltd, Report for Cairns Port Authority; 2000)

Cairns established a provisional Harbour Board in 1899 but, owing to a degree of local opposition, progress was slow. The Harbour Board at Cairns was formally constituted by an Act of the Queensland Parliament in 1906 and its main tasks were to maintain the entrance channel and to develop and maintain the facilities of the port. An overdraft of £500 was arranged with the Board's bank and a bucket dredge, the "Willunga", was provided by the Queensland government³. Permanent staff were appointed, with Mr. T R Hall as Secretary and Mr E G Waters as Engineer. By the end of 1907, the board had acquired most of the private wharves and began collecting the fees for their use.

The Cairns Harbour Board immediately began investigations into the improvement of the Cairns harbour wharfage. In October, 1907, the NSW firm of Gummow Forrest & Co were invited, on the recommendation of W E Adams of the Sydney Harbour Trust, to provide a report on the new form of reinforced concrete wharves, which were, at that time, considered to be the latest development in

³ Allom Lovell op cit

wharf technology. Experience with the effects of the toredo worm on marine timbers in the tropical climate had already proved that wharves constructed of timber had little more than ten years effective life before major replacements were required. Gummow Forrest & Co replied in November that, for a fee of £250, they would send an Engineer to investigate and provide any necessary report⁴.

4.3. The Arrival of Reinforced Concrete in Australia

Reinforced concrete was developed in Europe during the latter half of the nineteenth century. From a range of crudely reinforced structures, it was soon realised that the combination of the two materials provided benefits beyond the capabilities of either and the details of its arrangement and composition were closely studied. Joseph Monier patented his first reinforcement system for horticultural troughs in France in 1867 and, over the next decade, took out further patents for concrete pipes and basins (1868); concrete panels for building façades (1869); concrete bridges (1873) and reinforced concrete beams (1878). In 1875, Monier designed and built the first reinforced concrete bridge at the Castle of Chazelet⁵.

Monier had exhibited his work at the Paris Exposition in 1867 and countryman François Hennélique was one of those who saw the potential of the material. He established his own firm and carried out many experiments to determine the nature and extent of its possibilities. In 1892, he patented a complete building system based upon his own design of reinforcement and, in 1897, appointed Gustave Louis Mouchel his representative in the UK. Mouchel later took out patents for Australia and New Zealand.

In 1886, German engineer Gustav Adolf Wayss bought Monier's patent. He established the firm of Wayss & Freytag and conducted further research in the use of reinforced concrete as a building material, particularly by applying scientific analysis and mathematical calculation to the operation of forces and stresses. He published this research in 1887 in the book 'Das System Monier' and eventually gained control of the Monier patents throughout Germany and Austria⁶.

The Monier system was brought to Australia by William Julius Baltzer, who had received an engineering education in Germany and emigrated in 1884. He moved to NSW to work for the Sewerage Construction Branch of the NSW Public Works Department as a draughtsman/engineer in 1885. In 1890, owing to the economic depression, he took the opportunity to return to Germany, where he contacted Wayss & Co and studied theory and applications of reinforced concrete. He returned to Australia and persuaded a group of Sydney businessmen and contractors, particularly respected engineer Frank Moorhouse Gummow, to take out Monier patents in the Australian colonies. Trading as Carter Gummow & Co (later Gummow Forrest & Co), with Baltzer acting as Carter Gummow's technical specialist, they prevailed upon his former colleagues in the Sewerage Construction Branch to test the Monier system through the construction of two sewerage aqueducts at Annandale in Sydney in 1897. Despite many initial doubters and critics, the construction was successful and the aqueducts remain in service in 2016. Gummow Forrest & Co went on to carry out many constructions and was generally regarded as the leading exponent of the technology. They commenced manufacturing Monier concrete pipes at Alexandria in 1897 and, in an interesting aside, these pipes were used in 1899 by PWD engineer Ernest De Burgh as sheaths on timber piles to protect bridge piers from toredo worms⁷. In 1915, Gummow Forrest & Co was purchased outright by the NSW Government, which continued to operate the works as the State Monier Pipe and Reinforced Concrete Company for the next twenty years.

⁴ Cairns Morning Post; "The Wharf Scheme" 11/11/1907; via Trove.

⁵ Structurae – 'Joseph Monier'.

⁶ Archinform; Gustav Adolf Wayss

⁷ Lewis, Miles; *200 Years of Concrete in Australia*; Concrete Institute of Australia; 1988

In 1897, Carter Gummow had approached the Victorian Government to offer a Monier arch bridge to carry Anderson Street over the Yarra River and, to promote the Monier system, they organised an exhibition at the University of Melbourne. Notable local engineer, Joshua Thomas Noble Anderson, who had from 1894 been in partnership with his younger colleague, John Monash, took the opportunity to make contact and persuaded Gummow to appoint Monash & Anderson as their representatives in Victoria. In 1898, Monash visited Sydney and was coached in the theory and practice of reinforced concrete by William Julius Baltzer, who continued to check designs emanating from Monash's office until about 1910⁸. Monash & Anderson went on to build several Monier concrete arch bridges and a range of tanks, culverts and silos. In 1901, they established the Monier Pipe Co. Pty. Ltd. of Victoria. In 1905, the Monash and Anderson partnership was dissolved and a new company, the Reinforced Concrete & Monier Pipe Construction Co. Pty. Ltd was established. This was followed by the South Australian Reinforced Concrete Co. Ltd in 1907. Both companies were successful well into the twentieth century.

The third corporate proponent of reinforced concrete in Australia at this time was the Australian representative of the Hennélique system. Gustav Mouchel, the UK agent, traded the patents for Australia and New Zealand to the Ferro-Concrete Company of Australasia, under the management of William Arthur Robertson, in 1902. Their first major contract was the construction of the Kings Wharf in Auckland Harbour between 1904 and 1907 (the Harbour Engineer, W H Hamer, had previously worked with Mouchel in England) and this was followed by a second contract in 1907 for the Queens Wharf, Auckland. In 1907, they also were awarded the contract for the construction of the Grafton Bridge in Auckland. This latter project, on a difficult site and with payments withheld until the work could be tested, ultimately sent this company bankrupt in March, 1909 (although they did manage to complete the Queens Wharf before they were finally wound up)⁹.

4.4. Reinforced Concrete for Wharves

Reinforced concrete, in the first decade of the twentieth century, was considered to be a very innovative but largely untested technology. All proponents undertook educational and promotional tours and lectures and gave extensive interviews to the press. In 1903, William Robertson visited Devonport in Tasmania to sell 'ferro-concrete' to the local marine authority and spoke at length to the local press. Although it does not appear that the Devonport marine authority commissioned any works as a result of Robertson's visit, Roberson states that, at that time:

*'It is largely used at Southampton in the construction of docks and wharves; also at Portsmouth, Plymouth, Liverpool, London, Hull and other harbours in England. At Liverpool, not only is ferro-concrete the material of the wharf but, at the cattle landing stage, even the posts, flooring and beams are all built of ferro-concrete... Coming-nearer home Mr Robertson states that at the important port of Singapore a contract is under way for two miles of ferro-concrete wharf, which will be 65ft in width and piles will be 60ft in length.'*¹⁰

Locally, the earliest wharfrage of reinforced concrete by an Australian company was built in Auckland, New Zealand. As mentioned above, the Ferro-Concrete Company of Australasia commenced work on the Kings Wharf in Auckland Harbour in 1904 (completed in 1907), followed by a second contract in 1907 for the nearby Queens Wharf (completed in 1909).

In Australia, reinforced concrete began to be used for bridges and buildings after 1897. In NSW, the Department of Public Works were quietly experimenting with reinforced concrete, particularly in

⁸ structurae.net/persons/wilhelm-julius-baltzer

⁹ *Heritage Assessment - Queens Wharf Auckland*; Matthew and Matthew Architects; for Auckland City and Auckland Regional Councils, 2009

¹⁰ "Davenport Harbor Improvements"; North-Western Advocate and Emu Bay Times; 07/08/1903

relation to sewage works (no doubt influenced by their former colleague, W J Baltzer). In addition to the commissioning of the Annandale aqueducts from Carter Gummow & Co in 1895, during the late 1890s, Sewerage Construction Branch engineer, Edward G Stone, designed the underground structures of the low-level sewage pumping stations in reinforced concrete. He went on to undertake some significant works for the Sydney Harbour Trust and, in private practice as Stone and Siddeley after 1908, using the Considère reinforcement system.

Another engineer working for the Sydney Harbour Trust, W E Adams, developed a system of rat-proof seawalling using pre-cast Monier plates carried on L-shaped pre-cast trestles and this was being installed from 1902 at Darling Harbour and Millers Point. The Sydney Harbour Trust also commissioned Carter Gummow & Co in 1903/4 to design and construct a reinforced concrete lighthouse for Bradleys Head (followed by a second at Cremorne Point). However, despite the extensive wharf building programme pursued by the Sydney Harbour Trust between 1901 and the 1920s, it was not until the 1920s that a full wharf structure of reinforced concrete was erected in NSW.

The earliest contract for a reinforced concrete wharf in Australia appears to have been issued in 1906, when the CSR Company decided to replace their wharf at Glanville in Port Adelaide and invited designs in reinforced concrete. John Monash and the RCMCP provided a design which was eventually accepted and worked commenced in late 1906. Completed in November 1909, it incorporated a concrete truss on concrete piles carrying a concrete slab deck¹¹. This wharf survived until the 1970s, when a burst water main caused its collapse¹².

The Adelaide wharf may have been commissioned earlier but the first completed operational reinforced concrete wharf in Australia appears to have been that erected at Gladstone in Queensland. In January 1907, the Queensland Premier, William Kidston, visited New Zealand and inspected the construction of the concrete wharves at Auckland. He was reported as suggesting that:

*'Similar material will be used in the construction of a new jetty at Gladstone, Queensland, which will probably be the only one of its kind in Australia. He hopes that the new jetty will be an object lesson for the Harbour Boards and also for the Government in the future'*¹³

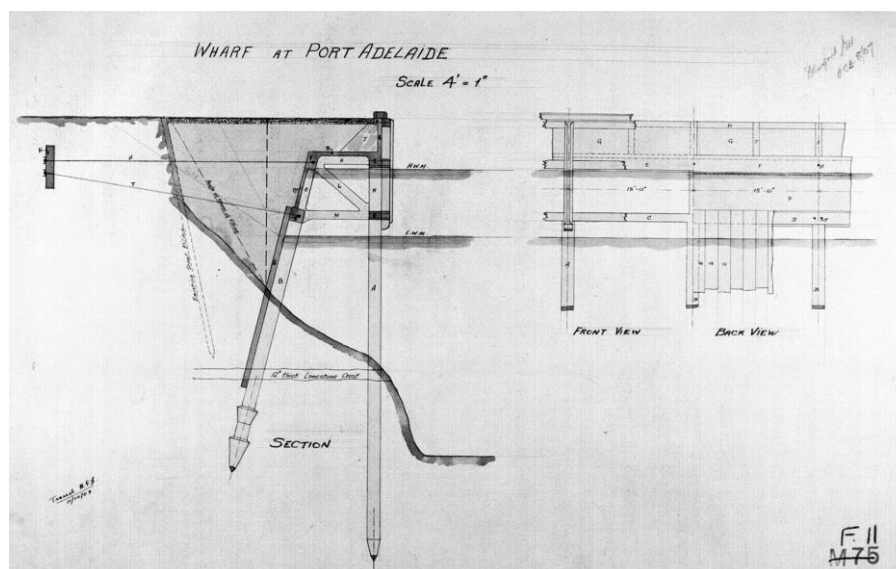


Figure 9. Original proposal prepared by John Monash for the CSR Glanville Wharf, in 1906. (Source: J Thomas Collection; in Holgate, A; Sir John Monash and The South Australian Reinforced Concrete Co; published in Transactions of the Inaugural South Australian Engineering Heritage Conference, 3 May 2012; Engineering Heritage Australia)

¹¹ Holgate, A; Sir John Monash and The South Australian Reinforced Concrete Co; published in Transactions of the Inaugural South Australian Engineering Heritage Conference, 3 May 2012; Engineering Heritage Australia.

¹² Lewis, M; op cit

¹³ 'Concrete Wharf at Gladstone'; The Brisbane Courier; 25/01/1907; via Trove.

The contract for the Gladstone jetty (co-incidentally, at 'Auckland' Point, Gladstone) was awarded to the Ferro-Concrete Company of Australasia early in 1907 and, in the first week of October 1908, the Queensland Government's Engineer for Harbours and River, E A Cullen, formally received the first stage of the completed wharf from its builders.¹⁴ This wharf was commissioned by the Harbours and Rivers Department, as the Gladstone Harbour Board wasn't formed until 1914. It is unclear whether this wharf, the foreshore around which has subsequently been extensively reclaimed, remains as part of the current Auckland Point Wharf but it appears that the original site is now occupied by the present bulk grain terminal.

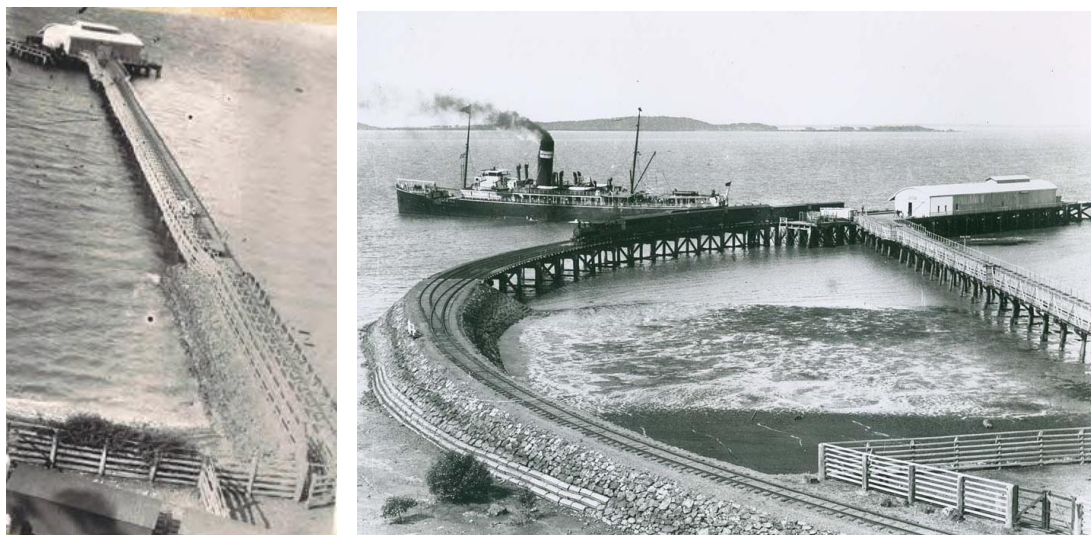


Figure 10. Auckland Point Jetty circa 1908, prior to its extension in concrete (left) (Source: Gladstone Regional Art Gallery and Museum) and (right) in the 1920s after its extension (note the railway connection).(Source: QSL)

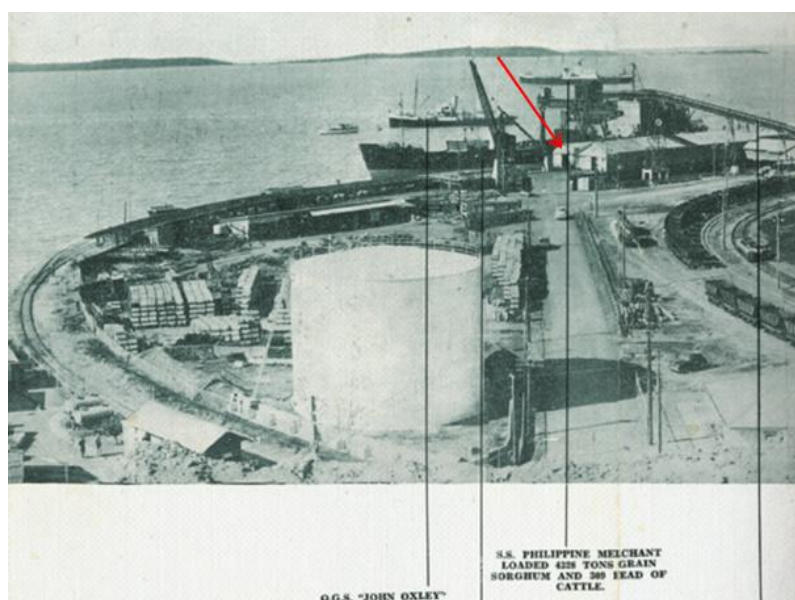


Figure 11. Auckland Point Wharf in 1955, showing original wharf now met by land reclamation (note railway line on left). The red arrow shows the original wharf shed. (Source: A Pictorial History of the Port of Gladstone; Gladstone Ports Corporation; 2009)

¹⁴ 'Gladstone'; The Capricornian; 10/10/1908

A second reinforced concrete wharf was commissioned by the Harbours and Rivers Department for Pinkenba on the Brisbane River in 1909, with construction commencing in September, 1909. This work was overseen by Engineer Mr C N Boulton, formerly employed by the (now bankrupt) Ferro-Concrete Company of Australasia.¹⁵ (It is not clear whether Boulton had been involved in the construction of the Gladstone Wharf, however, one later report indicates that he "*had experience at Gladstone and Pinkenba in ferro-concrete wharf construction*"¹⁶.) For the Pinkenba project, Boulton was directly employed by the Queensland Railways Department, for whom the wharf was being erected. The new concrete wharf was put into use, prior to its final completion, in May 1910. The survival of this early concrete wharf at Pinkenba is also unclear, although it appears likely that it was the concrete wharf that was demolished in 2007.

Other early reinforced concrete wharves were built by Stone and Siddeley at Thevenard, South Australia (completed in 1920) and at Stansbury on Yorke Peninsula (commissioned in 1918 and completed 1920/21). Both of these wharves appear to be still in use. Apart from the Glanville wharf, John Monash and the RCMCP did not build any other concrete wharves until the 1920s¹⁷.

4.5. The Development of the Cairns Wharves

In 1907, the Cairns Harbour Board began investigating options for improving the wharfage in the Port of Cairns and sought advice from a variety of sources. W E Adams of the Sydney Harbour Trust recommended they approach the NSW firm of Gummow Forrest & Co but, in November, 1907, when that firm requested a payment of £250 to send an engineer to report, the Board declined. In October, 1908, the Board received a briefing from Mr Gifford-Lodder, Senior Engineer (in New Zealand) for the Ferro-Concrete Company of Australasia¹⁸ and, in February 1909, E A Cullen, the Queensland Government's Engineer for Harbours and Rivers, visited Cairns and supplied a detailed report regarding the advantages of ferro-concrete wharfage¹⁹. He also reviewed the wharfage scheme drawn up by Cairns Harbour Engineer, E G Waters, and, in most respects, approved the scheme²⁰. He provided detailed plans, specifications and cost estimates for the Board to consider²¹ (see also Figure 12). In May 1909, W J Baltzer of Gummow Forrest & Co visited Cairns and presented to the Harbour Board (the question of payment was not mentioned at this time)²².

By the end of 1909, a decision to proceed had been agreed but, by this time, the preferred contractor, the Ferro-Concrete Company of Australasia, was in liquidation. However, their Engineer, Mr C N Boulton, had been engaged in works in Queensland and had been subsequently engaged to oversee construction of the Pinkenba Wharf. In early 1910, the Pinkenba Wharf was approaching completion and E A Cullen recommended that they approach Mr Boulton in relation to works at Cairns; Boulton indicated that he would be willing to take on the position at £600 per annum²³.

The Queensland Government approved a loan of £14,000 to the Cairns Harbour Board in March²⁴ and Boulton was engaged by April, 1910, when he made an inspection of the site²⁵. He also inspected

¹⁵ 'Disappearing Island' The Telegraph, Brisbane 02/01/1907; via Trove.

¹⁶ 'Notices of Motion'; Cairns Post 12/07/1910; via Trove.

¹⁷ Lewis op cit; Holgate op cit.

¹⁸ 'Wood or Concrete' Cairns Morning Post 26/08/1908; via Trove.

¹⁹ 'Permanent Wharf Scheme' Cairns Morning Post; 24/03/1909; via Trove.

²⁰ 'Cairns Harbour Board - Concrete Wharf Scheme' Cairns Post; 28/01/1910; via Trove.

²¹ 'The Cairns Wharves Ferro-Concrete Scheme - The Specification'; Cairns Post; 01/02/1910; via Trove.

²² 'Wharf Construction' Cairns Morning Post 28/05/1909; via Trove.

²³ 'The Cairns Harbour Board' Cairns Post 12/01/1910

²⁴ 'Concrete wharf at Cairns' Brisbane Courier; 17/03/1910; via Trove.

²⁵ 'Cairns Harbour Board Engineers Report' Cairns Post 26/09/1910; via Trove.

the quarries and foundries that would supply local materials. By September, he was reporting to the Board that: "The concrete piles are all complete ... The driving and cutting down remain to be done"²⁶.



Figure 12. Photograph of the Concrete Piles for the Cairns Harbour Board, published in 'The Week', Friday, 30 December, 1910. (Source: Trove)

Construction of wharves proceeded steadily over the ensuing months. The second section of wharf construction was approved in September 1911, while construction of the first section was approaching completion. The first vessel to dock at the new concrete wharf was the *Perthshire*, carrying immigrants from England via the Torres Straits, arriving on the 21 November, 1912. Around this time, the Cairns Harbour Board published a brochure for shipping companies, in which the port's characteristics and facilities are described. In relation to the wharfage, it states:

*'There are three deep water wharves at present: No. 4 Wharf 272 feet frontage, 20 feet low water; No. 3 Wharf (new Ferro-concrete), 300 feet frontage, 22 feet at low water: Chillagoe Wharf (privately owned, with railway on wharf), 236 feet frontage, 20 feet at low water. The Harbour Board are carrying out a scheme whereby the new concrete wharf No 3 will have 900 feet frontage and 22 feet at low water.... The railway, indirect communication with the back country, runs at the rear of all the wharves. Shed accommodation is on all the wharves except the Chillagoe Company's Wharf. Bonded stores on No. 5 and the new concrete wharf'*²⁷

A large storage shed, 73 metres by 17 metres (240 feet by 60 feet), was constructed on the wharf shortly after. Immediately, preparations were made for the construction of the next 92 metre (300 feet) section to the north of the first section (ie No.2 wharf). In September 1913, the No.2 wharf was completed, measuring 92 metres by 25 metres (300 feet by 80 feet) with a storage shed measuring 73 metres by 18 metres (240 feet by 58 feet).

The construction of the wharves continued during 1913. At that time, the concrete piles for the retaining wall for Nos. 4 and 5 wharves were made, the old No. 4 wharf demolished and construction of the new No. 4 wharf commenced. Temporary sheds were erected for the accommodation of cargo

²⁶ 'Ferro-Concrete Wharf'; Cairns Post 21/09/1910; via Trove.

²⁷ 'Cairns Harbour'; Daily Mercury 12/10/1912; via Trove

and a 10 ton travelling gantry crane was erected between Nos. 2 and 3 wharves. Roads were constructed behind the wharves and railway tracks were laid along the full length of the wharves.

<p style="text-align: center;">Cairns Post Tuesday 1st February, 1910</p> <p style="text-align: center;">The Cairns Wharves FERRO-CONCRETE SCHEME THE SPECIFICATION</p> <p>In the Post of Saturday there appeared a report from Mr. E. A. Cullen, Engineer Harbours & Rivers Department, in connection with the proposed ferro-concrete wharves to be erected for the Cairns Harbour Board. The following are some details for the specification for reinforcement.</p> <p>The cement shall be according to the specification of the Railway Department, the sand shall be clean, sharp and coarse, free from any vegetable or clayey matter. The gravel shall be absolutely clean and the stone is to be broken basalt, granite, or other rock of similar hardness. For making piles, it must be made to pass a one-inch ring and must be freed from the dust made in crushing. The steel shall consist of round bars of mild steel. The reinforcement steel shall have an ultimate strength of 28 tons per square inch and shall elongate 25 per cent on an eight-inch test before fracture. The steel must be free from all scales or rust and must be put in accurately to drawings.</p> <p>The concrete shall be composed as follows: For piles: 1 of cement, 1 ½ sand, and 2 ½ broken metal to pass a 1 inch ring; For superstructure: 1 of cement, 2 ½ sand and 3 ½ broken metal or gravel to pass a 2 inch ring; For retaining walls and anchorages: 1 of cement, 2 ½ sand and 4 ½ gravel or broken metal. Displacers of clean hard spalls may be freely used in this portion of the work, care being taken not to displace the reinforcement. The concrete shall be mixed wet enough to readily flow round the reinforcement but not so wet that the mortar can flow from the broken metal or sand. Moulds shall be made rigid and true to dimensions shown on the drawings. All re-entrant angles must be cut out as per sketch. All corners must be chamfered one inch. Great care must be used in stripping the falseworks after the concrete has set, so as not to damage the corners. The whole of the work except the top surface shall be coated with a coat of cement grout, applied while the concrete is still green. All reinforcement must be made into rigid frames and securely lashed into place before concreting is commenced.</p> <p>The piles shall be 15 in by 15 in square and shall be reinforced with 1 ½ in diameter steel rods as shown, so that the minimum covering of concrete over the wires shall be 1 ½ in. The main reinforcement 1 ½ in diameter must be welded so that the welds break joint - welds may, however, come opposite each other diagonally. The wiring shall be put on tight and free from bends and kinks. No. 8 galvanised steel wire shall be used and must be of stiff quality. Driving bars and shoes shall be moulded as shown. They.. [illegible] signs of tension cracks, preferably by the tipping table, and must be driven to the required set with a wooden dolly and sawdust or other suitable cushion. When driven, they must be pulled and fastened in line and the concrete broken away from the bars down to the level of the deep transverse bracing beams. The longitudinal shall be 26 inch deep, from the top of the deck 32 in, and the girders at haunches shall 15 inch wide. The reinforcement shall consist of six 1 in diameter bars, four of which are turned up and overlapped as shown and two run straight. Stirrups 1/4 in steel must be placed as shown on plans.</p> <p>The transverse shall be 28 in deep and 15 in wide. The reinforcement shall consist of six ¾ in diameter rods which must be welded into one length throughout. Welds must be spaced so that, in the bent rods, they come approximately 3/4 span from the centre of the longitudinal girders and straight rods shall have welds approximately at the centre of the longitudinal girders. The welds must break joint, not more the half the welds being at one place. The deep bracing beams shall be six feet deep and 15 in wide. They shall be reinforced with two 1 ¾ in diameter rods welded into single lengths, the welds in any beam breaking joints. The ends shall be turned up as shown.</p> <p>The decking shall be 8 in thick except where the rails are laid - where two rail beds each 6 feet wide by 12 in deep shall be put in. There shall be two troughs for rails as shown, the troughs to be filled in with concrete on brown paper jointing until it is required to lay rails. The decking will be reinforced in two directions: (1) longitudinal bars which shall be 18 feet long. They shall be bent up over the transverse beams as shown and shall overlap every 7ft. 6in. These bars must be arranged so that the overlap shall take place alternately over the transverse beams and deep bracing transverse beam. (2) Transverse bars shall run over these longitudinal bars except where the latter are bent up. They shall not be bent up over the longitudinal girders. The upper ½ in of the deck shall consist of one of ¾ in metal chips, 1 of sand and 1 of cement and is to be laid with the rest of the decking. Provision is to be made in this surfacing for a slope of one-half inch away from the sheds. One inch drainage holes through the decking shall be provided behind front kerb, spaced 7ft. 6in.</p> <p>A retaining wall shall be constructed as shown. The reinforcement shall consist of four 1 in diameter rods at top, two 1 in diameter rods at bottom, twelve 3/8 in diameter rods front and back. The specification for fender piles states that they shall be driven along the face of the wharf and hardwood longitudinals, 12 in by 6 in, shall be bolted to the front of the wharf.</p>

Figure 13. The transcribed text of an article printed in the Cairns Post 1st February, 1910 providing the specification for the construction of the concrete wharves. (Source: Cairns Post, via Trove)

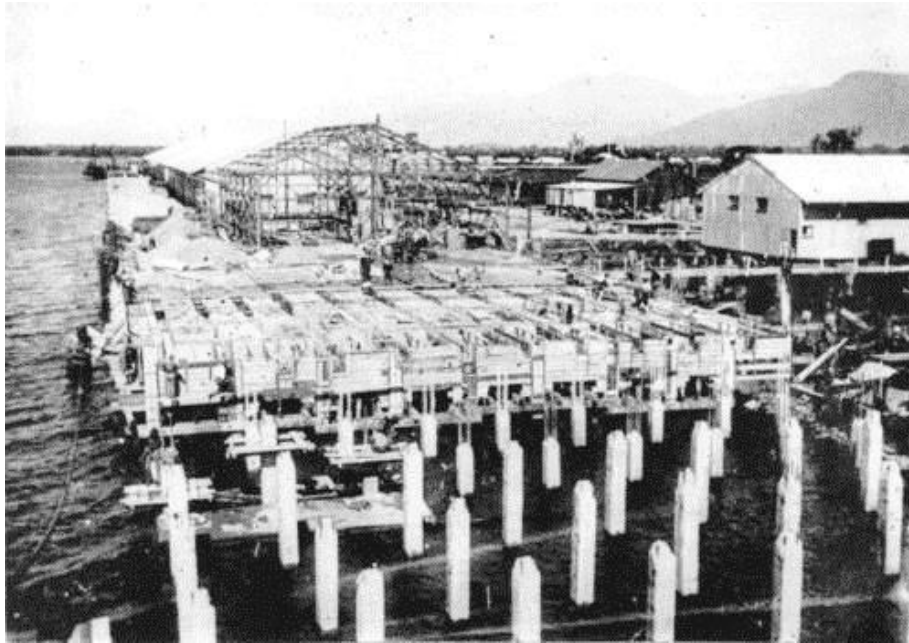


Figure 14. Construction of wharves at Cairns, 1915. (Source: SLQ #201219)

By 1915, an unbroken series of 369 metres (1,200 feet) of concrete wharf was complete and available at the port. The Chillagoe Wharves were acquired by the Harbour Board in early 1916²⁸ and another 92 metre (300 foot) section of concrete wharf was constructed in its place. More loans were taken out in the early 1920s and the wharves were extended further with the construction of the No.5 wharf in 1923. With the completion of this wharf, the port could boast a continuous 492 metres (1600 feet) of concrete wharfage, providing five berths of approximately 98.5 metres (320 feet) each (Berths 1 - 5).

4.6. Subsequent Works

In 1925, a storage shed was constructed on No.1 wharf, adjoining the existing sheds. It was 60 metres (195 feet) long and 17.8 metres (58 feet) wide. In this year also, the wharf sheds were connected to one another at roof level to form a continuous line of roofing along the wharves. In 1929, another 123 metres (400 feet) of concrete wharf was completed south of Lily Creek. Initially referred to as the No.6 wharf, it was later renamed as the overseas wharf²⁹.

The Port of Cairns wharves remained in this form until early in World War 2, when the existing wharf was extended with the construction of Wharf No. 6, on the south side of wharf No. 5. This section of wharf was built by the Allied Works Council and was constructed with a reinforced concrete deck poured on permanent corrugated-iron formwork carried on timber piles, with a shed on the wharf.

Post-war, the clock tower on top of the shed roof at wharf No.3 was added in 1948. The clock itself was manufactured in Sydney at a cost of £900.

²⁸ 'Chillagoe Wharves' The Telegraph, Brisbane, 08/01/1916

²⁹ Allom Lovell op cit



Figure 15. *New section of reinforced concrete wharf (Wharf 5) under construction at Cairns, circa 1923. (Source: SLQ #199171)*



Figure 16. *Construction of Wharf 5 at Cairns, circa 1920s. The rail tracks are set into the deck of the wharf and the future site of Wharf 6 is on the right. (Source: SLQ #186298)*

In 1984, the shed at No 1 wharf was demolished and the new terminal building erected for the development of 'Trinity Wharf' as a cruise liner terminal. Later, the sheds at wharves Nos. 4, 5 and 6 were also demolished, leaving only those at wharves Nos. 2 and 3.

In the late 1990s and early 2000s, Cairns Port Authority and Cairns Regional Council developed the Cairns Cityport Masterplan, including a heritage precinct centred on Wharves 2 - 5. In late 2007, the (new) shed at No. 1 wharf was demolished and the sheds at No's 2 and 3 Wharves were adapted to house the new Cruise Liner Terminal. These sheds were then progressively renovated between 2008 and 2012. This work was integrated with the redevelopment of the Cairns waterfront for tourism uses and, in late 2012, a new café building was erected on No. 1 Wharf.



Figure 17. Aerial view of Cairns Wharf, Queensland, 1937. Wharf 6 has yet to be constructed. (SLQ # 105056)

5. PHYSICAL CONTEXT

The following description of the Cairns Wharves and buildings is summarised from the Queensland Heritage Register Listing Report and from the descriptions provided in the Allom Lovell Conservation and Management Plan report, as well as on-site observations. It does not provide a detailed investigation of all fabric but an overview of the elements of the place.

5.1. General

At present, in 2016, Wharf Shed No. 3 is fitted out as the present Cruise Ship Terminal, with offices and facilities for Port administration purposes. Wharf Shed No. 2 has been renovated and, whilst currently vacant, is to be leased to a café/restaurant/tourism occupant. Wharf No 1 is a largely public open space area, with a small café/restaurant and public amenities building on its northern end. Wharves 4 and 5 are clear open wharf aprons. Wharf 6 is partially fenced to separate it from the other wharves and to ensure that vehicles do not cross onto the wharf deck which, in view of the currently poor condition of the timber substructure, has been severely load-limited. All wharves are in use for general shipping and fishing fleet mooring; Wharf 3 currently serves as the primary Cruise Liner berth.

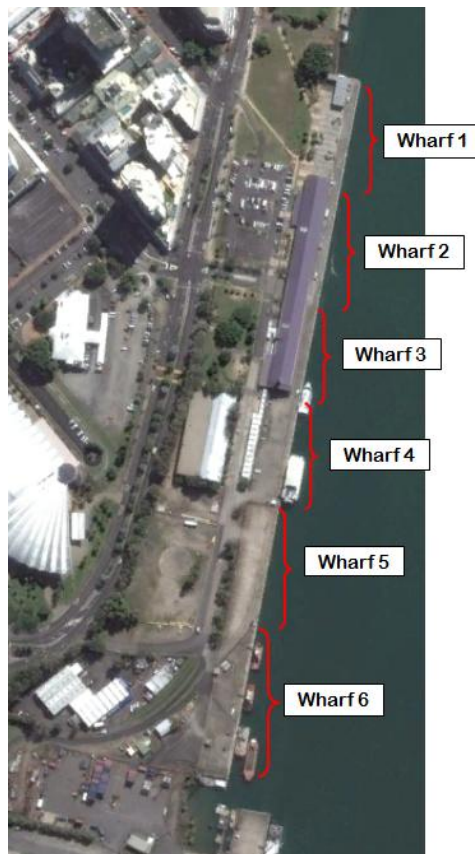


Figure 18. Layout of Wharves at Cairns (GoogleEarth).

5.2. Wharf Structures

The six wharves comprise six individual structures, although recent works have joined the structures of Wharves 1 - 5 into a continuous structural unit. Wharves 1 - 5 are constructed entirely from reinforced concrete, whilst No.6 has a reinforced concrete deck carried on a timber substructure. The total length of wharf is approximately 590 metres, with 480 metres of reinforced concrete wharf and 110 metres of timber wharf.

The concrete wharves are all of a similar design and construction. Wharves 2 - 5 are each approximately 100m long by 27.5 m wide, though No 5 curves at its southern end. Wharf 1 is approximately 80 metres length. Each wharf consists of a concrete slab on a grid of reinforced beams on concrete piles, all poured in situ with visible formwork imprints. Piles are laid in a grid approximately 4.6 metres (15 feet) by 3.1 metres (10 feet).

Tapering concrete beams 1.7 metres deep span between the piles, perpendicular to the land. Set into these beams at approximately 2 metre spacings are transverse concrete beams, 600mm deep by 410mm wide. Wharf No 1 differs from the others by having a deep concrete beam along the outer edge and the northern-eastern corner of the wharf is chamfered. A reinforced concrete seawall extends the full length of wharves on the inland side.

The seaward edge of the concrete deck has a discontinuous concrete kerb and new steel bollards alongside original 'rams-horn' bollards. The deck shows evidence of many minor penetrations and repairs. Timber fender piles bearing against rubber cone compression units are spaced at approximately 4 metre intervals along the entire wharf frontage.

Wharf 6 is approximately 110 metres long and curved on its northern end to match the equivalent south end of Wharf 5. It comprises timber piles (laid in a similar grid to the concrete wharves) with timber headstocks and transoms carrying a concrete deck poured in situ on permanent corrugated-steel sheet formwork. Timber piles are generally sheathed in concrete, with many showing damage to the sheathing and notable degradation of the timber pile within the tidal zone. The concrete deck is continuous with the adjoining wharves and contains a similar arrangement of bollards and kerbing. Three large new concrete piers have been inserted through the deck of the wharf within the last decade. These formed the footings for a tripod crane installed on the wharf in the late 1990s and removed in 2012. Owing to the poor condition of the substructure, the wharf has a restrictive load limit applied to its deck (with one area from which vehicles are specifically excluded) and has been fenced off from general access.



Figure 19. View northwards of wharves 5 and 4, with the Wharf 3 Shed in the background.



Figure 20. *The reinforced concrete structure is apparent at the north end of Wharf 1.*



Figure 21. *View northwards of wharves 3 and 2, with the Wharf 3 Shed on the left.*



Figure 22. *The timber substructure of Wharf 6 is in poor condition.*



Figure 23. *The wharf edge, showing concrete kerbing blocks and cone-mounted fender piles.*

5.3. Wharf Sheds

The two wharf sheds are simple rectangular structures with gable roofs built directly onto the concrete wharf deck. The sheds run parallel to the wharf and are approximately 16.5 m by 80 m, with an 8 metre wide roadway between the shed and the wharf edge. The roof is continuous between the two buildings, creating a covered area between the sheds. The roof frame is comprised of twenty-one Howe trusses supported on single timber posts at the ends and mid span. The top chord of each truss extends approximately 1.5 m beyond the wall framing as rafters to provide overhanging eaves. The bottom chord is a double member and trusses are jointed with metal plates. The central posts are struttled to the bottom chord and the end posts are struttled at irregular intervals to give clearance to the large timber sliding doors. Single purlins run between the trusses and are bolted through the top chord.

The walls are simply framed with timber posts and beams on a continuous bottom plate with diagonal bracing between posts. The walls are clad externally with painted corrugated iron. The iron is in small sheets, uneven and is dented from use. The exterior openings are top-hung timber sliding doors and high level ventilation openings sheeted with wire mesh.

Both sheds have been substantially renovated and upgraded. Much of the roof sheeting and external cladding has been replaced with Colourbond™ sheeting, although discrete sections of original cladding have been retained. Shed 3 is largely open on the ground floor, providing a flexible space used for storage, functions and for customs clearance when a Cruise Ship is in port. The northern wall has been replaced with glazed panels. The southern end has a two-storey section which contains offices on the upper level. A rectangular skillion roof insertion on the western side of the roof is the remains of the former conveyor connection from the sugar shed (White's Shed). Shed 2 is a single-storey open space, with glazed wall panels inserted on the northern end. It is currently vacant.

On the southern end of Shed 3 is a clock tower. The clock tower is a square shaft clad with flat metal sheeting, capped with a pyramid roof of corrugated iron with broad timber-lined eaves surmounted by a decorative steel weather van. Stabilising wires radiate out to the main shed roof. The clock presents a 2 metre diameter face to each side.

There is a 10 ton capacity hand-operated cargo crane conserved on the western side of Shed 2.



Figure 24. The wharf apron and seaward frontage of the Wharf 3 Shed, now the Cairns Cruise Liner Terminal.



Figure 25. *The Wharf street frontage of the Wharf 3 Shed; note the skillion section in the roofline which is a remnant of the former conveyor connection from White's Shed.*



Figure 26. *The redeveloped north end of Wharf Shed 2, with glazed wall panels and timber screen.*



Figure 27. *The interior of Wharf Shed 2, showing the clear space awaiting a new tenant.*



Figure 28. *The hand-operated 10ton capacity cargo crane has been conserved outside Wharf Shed 2.*

5.4. Condition Status

The Cairns Wharf Complex is essentially in very good physical condition. Major works were carried out between 2008 and 2014 to the Cairns waterfront, including the upgrade and redevelopment of the wharves, wharf buildings and surrounding areas. These included:

- The No. 3 Wharf Shed was renovated and upgraded as the Cairns Cruise Liner Terminal and Wharf administration building;
- The No. 2 Wharf Shed was renovated and prepared for adaptive reuse; and
- Wharf 1 and a large section of the surrounding site was landscaped and adapted for public open space, with parkland, boardwalk areas, cultural and heritage interpretation and tourism-focussed commercial developments.

These works have received a number of commendations and awards.

The work to Wharf Shed 3 was awarded:

- 2011 National Trust of Queensland – John Herbert Award for most outstanding nomination across all award categories;
- 2011 National Trust of Queensland – Gold Queensland Heritage Council Award for achievement in the conservation of places on the Queensland Heritage Register;
- 2011 Australian Institute of Architects National Lachlan Macquarie Award for Heritage Architecture;
- 2011 Australian Institute of Architects Queensland Don Roderick Award for Heritage Architecture; and
- 2011 Australian Institute of Architects Far North Queensland Eddie Oribin Award for Building of the Year

The Cairns Foreshore Development project, with particular emphasis upon the conservation and adaptation works to Wharf Shed 2, was the recipient of two major design awards:

- 2013 Australian Institute of Architects Queensland Don Roderick Award for Heritage Architecture; and
- 2013 Australian Institute for Architects Far North Queensland Edit Oribin Award for Building of the Year.

In addition to these works, Ports North has undertaken an extensive maintenance and repair programme for the reinforced concrete wharves. This has involved detailed investigations into the current condition of structural elements, innovative corrosion remediation techniques and the development of low-impact infrastructure upgrades such as the installation of rubber-cone mounted fender piles along the front of the wharf.

6. HERITAGE SIGNIFICANCE

'Heritage significance' and 'cultural significance' are terms used to define and describe an item's value or importance to our society. Cultural significance is defined in the Australia ICOMOS 'Charter for Places of Cultural Significance (The Burra Charter)' as:

'Aesthetic, historic, scientific, social or spiritual value for past, present and future generations'.

These values may be contained in the fabric of the item, its setting and relationship to other items, the response that the item stimulates in those who value it or the meaning of that item to contemporary society. Setting out the cultural significance of a place assists in identifying what aspects of the place contribute to that significance and the relative contribution that the various elements of the place may make to that significance. An understanding of the significance of the place is crucial to its management, in providing guidance for future work and to ensure the significance is retained.

6.1. Criteria for Assessing Cultural Heritage Significance

The *Queensland Heritage Act 1992* sets out the basis for an assessment of heritage significance of an item or place. This is achieved by evaluating the place or items significance in reference to specific criteria, which can be applied at a national, state or local level.

The eight criteria are:

Criterion A: The place is important in demonstrating the evolution or pattern of Queensland's history.

Criterion B: The place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage.

Criterion C: The place has potential to yield information that will contribute to an understanding of Queensland's history.

Criterion D: The place is important in demonstrating the principal characteristics of a particular class of cultural places.

Criterion E: The place is important because of its aesthetic significance.

Criterion F: The place is important in demonstrating a high degree of creative or technical achievement at a particular period.

Criterion G: The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Criterion H: The place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

A heritage place may be entered in the Queensland Heritage Register if it satisfies any one or more of the above criteria. A place is not to be excluded from the Queensland Heritage Register on the grounds that places with similar characteristics have already been entered in the Register.

6.2. Existing Assessments

The Trinity Wharves at Cairns are included on the Queensland Heritage Register (QHR) as *Cairns Wharf Complex* (Place ID: 601790). The following Statement of Significance is quoted from the Queensland Heritage Register listing report for *Cairns Wharf Complex* (see also Appendix A).³⁰

Criterion A: The place is important in demonstrating the evolution or pattern of Queensland's history.

The Cairns Wharf Complex is of importance in demonstrating the evolution of Queensland's history as it represents an important stage of development of Queensland and Australian wharf facilities dating from 1909 to 1942. The wharves are among the earliest Australian attempts to introduce the medium of reinforced concrete into wharf construction. The construction of number 6 wharf in 1942 demonstrates the importance of Cairns as a centre for Pacific forces during World War II, and its timber and reinforced concrete construction reflects war-time expediency. The wharf-side cargo sheds, numbers 2 and 3, are the most visible surviving remnant of the Cairns waterfront development in the early 1900s. The cargo crane is the last remaining crane from the earliest period of the wharf's history in the 1910s, and helps to convey a sense of the industrial maritime history of the wharves. White's (Sugar) Shed is a place which demonstrates an evolutionary stage of the North Queensland sugar industry and wharf practices dating to the 1920s through 1950s. The closure of the shed to sugar handling in the early 1960s was the result of the opening of Cairns bulk sugar terminal at Portsmith in 1964. The opening of the bulk terminals reduced significantly the wharf labour force required for the handling of sugar. The railway lines demonstrate the importance of rail links in establishing Cairns as the dominant regional port in far North Queensland, and consequently, as a viable town. The railway lines are also integral to an understanding of the operation of the wharves, with wharf shed platforms that aligned to the height of the rail cars.

Criterion B: The place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage.

The Cairns wharf sheds, numbers 2 and 3 and White's (Sugar) Shed, demonstrate rare aspects of Queensland's cultural heritage as surviving wharf sheds are becoming increasingly rare throughout Australia as coastal cities revitalise their waterfront areas. White's shed, with its remnant bag-stacking machinery, is the only known example of this type of structure existing in Queensland and Australia, and as such also demonstrates rare aspects of Queensland's cultural heritage.

Criterion C: The place has potential to yield information that will contribute to an understanding of Queensland's history.

The remnant bag-stacking machinery located in White's shed has the potential to yield information that will contribute to an understanding of Queensland's history. Since records of the sugar bag conveyance apparatus have disappeared in the years since abandonment of the system, the intact features along the roof of the structure's interior offer insights which are only available through study of this physical feature.

³⁰ Queensland Office of Environment and Resource Management; Queensland Heritage Register listing sheet for *Cairns Wharf Complex*.

Criterion D: The place is important in demonstrating the principal characteristics of a particular class of cultural places.

The number 2 and 3 wharf sheds are important in demonstrating the principle characteristics of a wharf-side cargo handling structure.

Criterion E: The place is important because of its aesthetic significance.

The Cairns wharves site is important because of its aesthetic significance as the wharves, number 2 gate, White's shed and wharf sheds numbers 2 and 3, including the clock tower, contribute to the streetscape of inner-city Cairns. The wharves run at right angles to the main city streets of Cairns, terminating the long views down Abbott, Lake and Grafton streets south. These views are framed by the mountains and mangroves behind and across Trinity Inlet. The clock tower is particularly of aesthetic significance as a local landmark.

Criterion F: The place is important in demonstrating a high degree of creative or technical achievement at a particular period.

The concrete wharves are important in demonstrating a high degree of technical achievement in the early twentieth century. The use of reinforced concrete for wharf construction represents one of the earliest Australian attempts to introduce this material for wharf construction.

Criterion G: The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

The Cairns wharves, sheds 2 and 3 and White's (Sugar) Shed, number 2 gate and clock tower have a special association with the Cairns community as physical evidence of the city's history and sense of identity. The clock tower affixed to the roof of the number 3 wharf shed has provided a focus for this identity, and has functioned as the city's and wharf's timepiece since 1948.

Criterion H: The place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

The place has a special association with the work of the early Cairns Harbour Board. The wharves and sheds offer a physical reminder of the importance of the Board in establishing the maritime focus of the city and the development of the region.

The Heritage Significance of the Cairns Wharves was also assessed in detail in the Conservation Management Strategy report prepared by Allom Lovell in 2000. The Summary Statement of Significance from that report is:

The primary significance of the Cairns wharfs lies in its ongoing maritime use. The City of Cairns developed around the wharfs and they are arguably the only remaining major still functioning wharfs in their original inner city location.

The concrete wharfs are some of the earliest reinforced concrete wharfs, indeed reinforced concrete structures, in Australia.

Of secondary significance, the broader site, including Sheds 2 & 3 and Whites' Shed, contain evidence of the site's continued use as a port for nearly one hundred years.

6.3. Additional aspects of significance

The statements of significance in the Queensland Heritage Register and the Conservation Management Plan have been reviewed and their content considered in the light of current conditions and state of knowledge. Additional aspects of significance have been identified through the research undertaken in the preparation of this report. These are:

- The earliest part of the Cairns reinforced concrete wharves (Wharf 3) was the fourth reinforced concrete wharf structure (comprising an integrated deck on piles) to be completed in Australia, after wharves completed at Gladstone Queensland, Glanville South Australia and Pinkenba, Queensland.
- The Cairns reinforced concrete wharves (Wharves 1 – 5) are now the oldest surviving reinforced concrete wharves in Australia, following the demolition of the Gladstone, Glanville and Pinkenba wharves. The Kings and Queens Wharves in Auckland are the only reinforced concrete wharves outside of Europe known to be older than the Cairns Wharves.
- The Cairns reinforced concrete wharves are a rare surviving example of the work and techniques of the Ferro-Concrete Company of Australasia, the only Australasian proponent of the patented Hennébique system of reinforcement and the only local entity associated with Louis Gustave Mouchel, who was widely associated with the early use of reinforced concrete in Britain and Europe.
- The reinforced concrete wharves at Cairns demonstrate that many cutting-edge technologies and advancements in engineering were adopted (or were located) in regional Australia well before they appeared in the major population centres (which tended to be conservative in this respect). The recognition that regional Australia was well-informed and up-to-date regarding significant world developments is important in understanding the course of Australia's historic and economic development.

7. PROPOSED WORKS

7.1. Outline

The Cairns Shipping Development Project is a broad-scale development project which aims to improve the berthing facilities for large cruise ships in the Port of Cairns. The expansion of cruise ship facilities in Cairns is seen as an important step in developing increased tourism opportunities in North Queensland and is likely to produce considerable benefits to the local economy and to the tourism industry generally in Far North Queensland. The key requirements, to enhance cruise ship visit numbers, are the dredging of a broader and deeper entrance channel to allow port access for larger cruise ships and the upgrade of berth infrastructure within Trinity Inlet.

It is generally considered that, whilst the existing wharf provides sufficient length for the intended use, the structure of the existing wharf is not capable of safely berthing ships of the size and weight the Cruise Liners currently in operation. Consequently, whilst design options have not, as yet, been finalised and adopted, the preferred approach is that:

- Existing Wharf 6 is in extremely poor condition and will be demolished. Wharf 6 is different to Wharves 1 - 5, in that it has a concrete deck supported by a timber substructure (timber piles, timber headstock and timber bearers) and it was constructed in the 1940's. Wharves 1 - 5 are fully reinforced concrete in construction and were built in the 1920's and earlier.
- Removal of Wharf 6 will leave a taper on the end of Wharf 5. Therefore, Wharf 5 will be 'infilled' to provide a usable quay line for cruise ships. It is envisaged that construction of the infill will be undertaken so as to be similar to the existing concrete construction of Wharf 5, for heritage purposes.
- Berthing / mooring dolphins will be cut into the exiting concrete Wharves 1 - 5 at 23m centres, with the top of the concrete dolphin to match the top of the existing concrete wharf. The dolphins will be based upon their own steel pile system and will take the berthing load via large rubber cone fenders.
- Twenty-three dolphins will be required, located at every fifth bent or panel along the wharves.
- Each Berthing Dolphin will require a section of the present concrete deck to be removed.
- In addition to the berthing / mooring dolphins, it will be necessary to provide a number of mooring only dolphins, separated from the main wharf. At this stage, it is assumed that their construction will be similar to the berthing / mooring dolphins. Access to these dolphins will be via lightweight aluminium walkways.

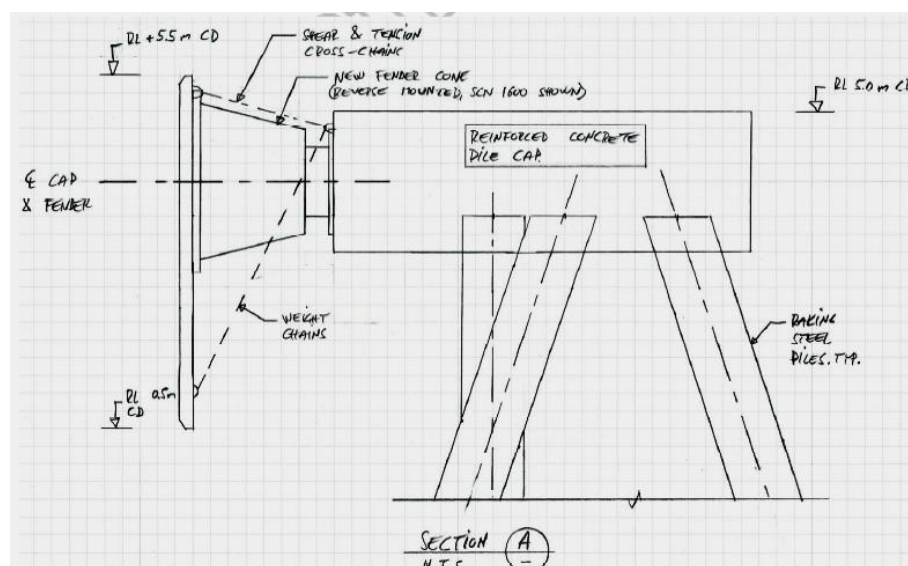


Figure 29. Elevation sketch of the proposed new berthing dolphins at Cairns (Source: Arup).



Figure 30. *Generated image of the proposed new berthing dolphins inserted into the wharf deck (visible as white/black patches along the front of the wharf. (Source: Ports North)*



Figure 31. *Indicative view of an installation of 'Super-Cone Fenders (at Bahrain) (Source: Ports North).*

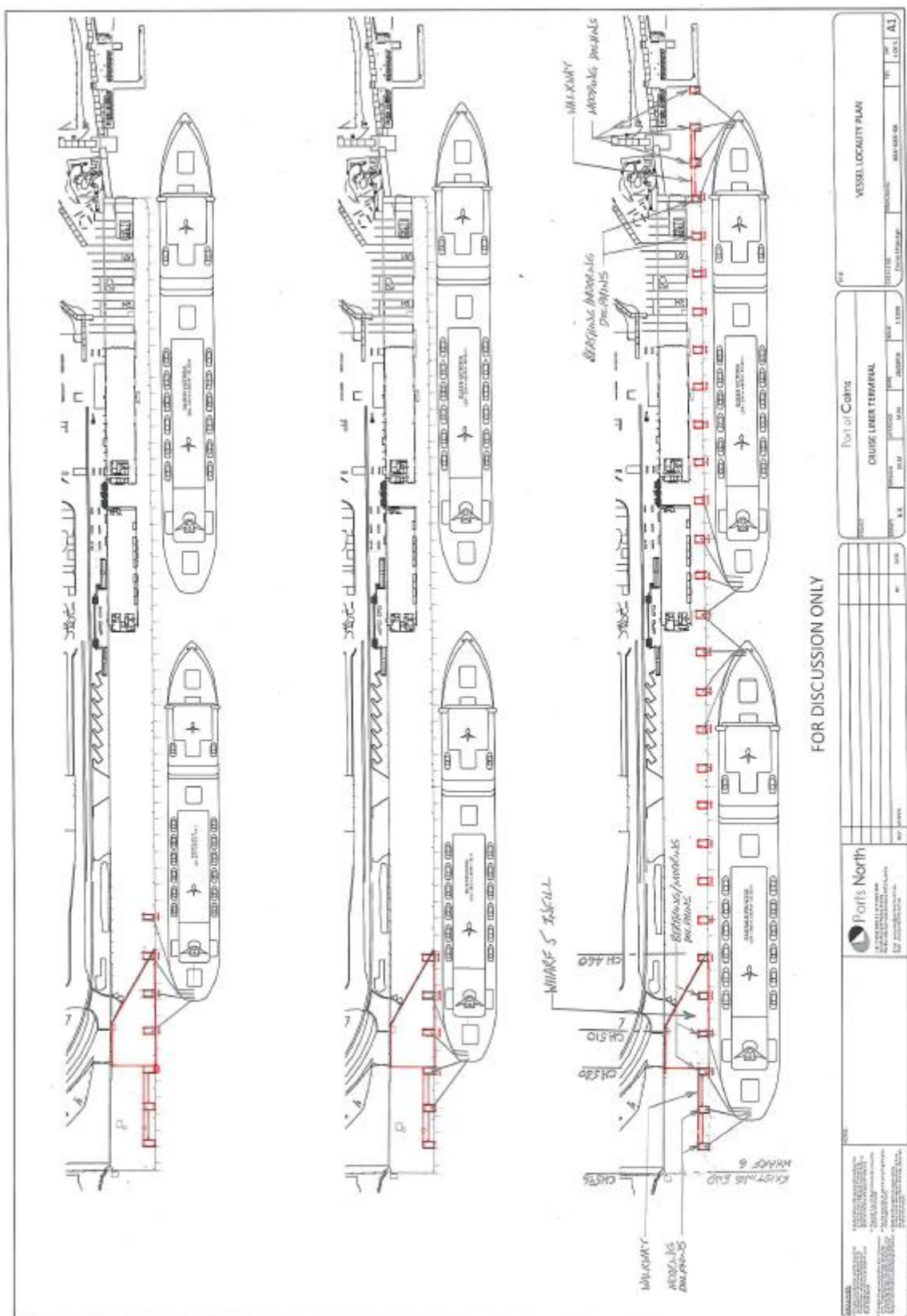


Figure 32. Indicative layout of the proposed installation of Berthing Dolphins at Cairns wharf (Ports North).

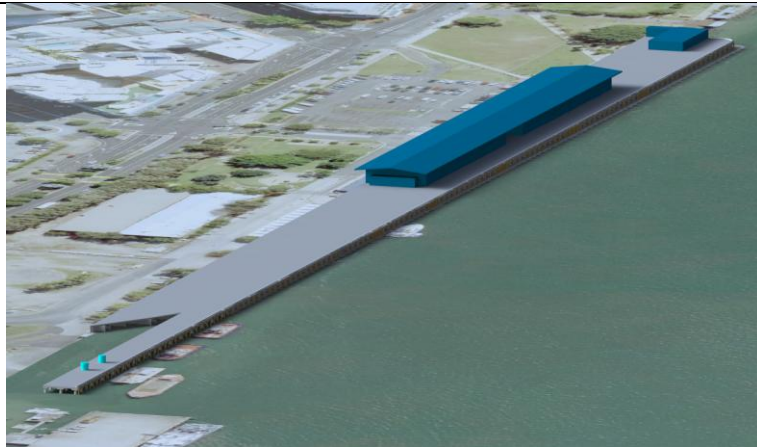


Figure 33. Option 1 – Proposed treatment of the demolition of Wharf 6 and addition of extension to Wharf 5 at Cairns wharf (Ports North).



Figure 34. Option 1 – Detail of Wharf 5 & 6 interface area - Proposed treatment of the demolition of Wharf 6 and addition of extension to Wharf 5 at Cairns wharf (Ports North).

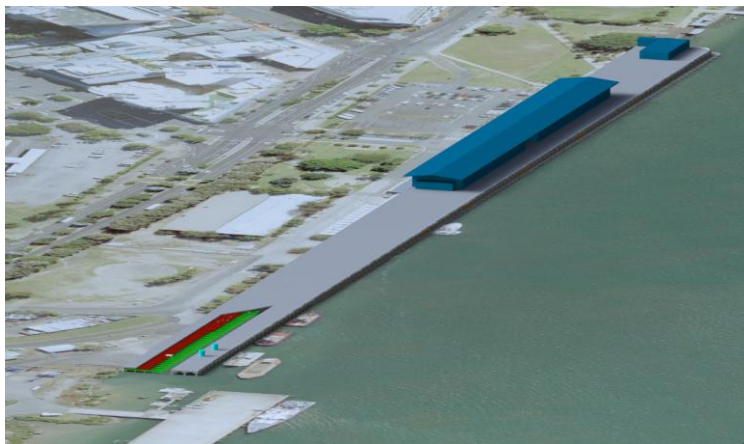


Figure 35. Option 2 – Proposed treatment of the demolition of Wharf 6 and addition of extension to Wharf 5 at Cairns wharf (Ports North) – showing a small section of Wharf 6 retained along the foreshore, with exposed piles in the waterway between.



Figure 36. Option 2 – Detail of Wharf 5 & 6 interface area - Proposed treatment of the demolition of Wharf 6 and addition of extension to Wharf 5 at Cairns wharf (Ports North) – showing a small section of Wharf 6 retained along the foreshore, with exposed piles in the waterway between.

8. ASSESSMENT OF HERITAGE IMPACT

8.1. Discussion of Impacts and Options

The proposed work, in relation to the Cairns Wharf Complex, has two major elements: the demolition of Wharf 6 and its partial replacement; and the installation of Berthing and Mooring Dolphins within and adjacent to the existing wharf structure.

8.1.1 Wharf 6

The particular significance of Wharf 6, as noted in the Queensland Heritage Register report, is:

The construction of number 6 wharf in 1942 demonstrates the importance of Cairns as a centre for Pacific forces during World War II and its timber and reinforced concrete construction reflects war-time expediency.

Wharf 6 is a later addition to the original set of five wharves, as completed between 1912 and 1923, and was built in 1942 by the Allied Works Council. It differs from the rest of the wharf in its structure, having a concrete deck carried on a timber substructure, and the concrete deck is not built to the original reinforced concrete specification using the Hennebique reinforcing system. The timber substructure is in poor condition, with many degraded timber piles and a large proportion of the headstocks and transoms suffering end rot and borer infestation.

There is nothing advanced or sophisticated about the timber wharf substructure; it is a simple post-and-beam structure relying on traditional materials, technologies and skills and wharves of this type have existed from Roman times. The timber substructure is typical of a wide variety of timber wharf structures and has little technical or rarity significance. The placement of the reinforced concrete deck on corrugated metal sheeting as permanent formwork is remarkable only for having occurred as late as 1942, where this approach was more typical of the early twentieth century.

The wharf represents physical evidence of the role of Cairns in WW2 and its demolition will remove this historical connection. It may be noted, however, that the timber substructure has only ever been visible from the seaward side and, as there is no apparent difference between Wharf 6 and the other five wharves, this aspect of its significance has not been apparent to most observers. Nonetheless, there is no other primary evidence of the impact of WW2 upon the waterfront at Cairns associated with the Trinity Wharves, although there may be evidence in other locations within Cairns.

Evidence of 'wartime expediency' is evidence of an intention to minimise time, costs and difficulty and, in this context, there was no ambition that the structures should last any longer than the wartime conditions persisted. Placement of a unitary concrete slab over a timber substructure is itself evidence of the expedient nature of this wharf as, with no in-built provision for repairs or maintenance to be undertaken economically through the deck, there was never any real prospect of it surviving beyond the lifespan of the first generation of timber elements. Wharf 6 is a 'temporary' or 'ad hoc' structure that has remained in use for a long time but the condition of its components has reached the point where replacement of the majority of its fabric is necessary for its continued survival. Retention of the wharf into the future would require substantive, if not total, reconstruction.

It is inevitable that Wharf 6 will be demolished at some time, as the timber substructure will continue to degrade and the poured-in-situ concrete deck makes the replacement of timber fabric extremely difficult. Puncturing the deck to gain access to the substructure (to the degree necessary) would seriously compromise the structural integrity of the deck, probably requiring its replacement in any case. Consequently, it is reasonable to contemplate alternative approaches to the retention of the significance of the wharf.

Options have been considered and, amongst other possibilities, the partial retention of a section of wharf deck along the foreshore, with several rows of remnant piles projecting from the tidal zone, remains an achievable outcome. This approach would retain fabric, expose the relevant characteristics relating to the heritage significance of the wharf (the timber substructure) and facilitate interpretation of the wharf's heritage values by providing a conserved 'heritage element'. It is consistent with the retention of remnant piles within the tidal zone that has occurred on the northern side of Wharves 1 – 5 as part of the Cairns Foreshore Development project. This approach is illustrated as Option 2 in Figures 35 and 36 above. Option 1 (illustrated in Figures 33 and 34) is for the complete removal of Wharf 6 and clearly provides a lower value outcome in cultural heritage terms than Option 2.

8.1.2 Installation of Berthing and Mooring Dolphins

The installation of Mooring and Berthing Dolphins may be separated into the two components, as each has differing impacts. The options analysis for the installation of Mooring and Berthing Dolphins is set out in the report: *Cairns Cruise Shipping Development Strategy – Land Based Infrastructure – Wharf Structure/01*, prepared by ARUP Pty Ltd, 23/02/2012

The installation of Mooring-only Dolphins relates to the fore and aft mooring lines of the ships and mooring points are required ahead and behind the ships, as well as alongside. For this reason (and to maximise effective use of the existing wharf frontage), mooring-only dolphins will be installed in line with the wharf but up to 50 – 80 metres beyond the extremities of Wharf 1 (northwards) and Wharf 5 (southwards). The northern mooring dolphins will be located in the waterway in front of a foreshore currently unused for maritime purposes. The southern mooring dolphins will be located in the waterway area currently occupied by Wharf 6. These will be accessed from the decks of Wharf 1 and Wharf 5 via lightweight aluminium walkways on lightweight piles. In both instances, there will be little, if any, physical impact upon the fabric of the significant wharf structures and, as maritime structures in a waterfront context, there will be no adverse aesthetic visual impact upon the setting of the significant wharves.

The installation of Berthing Dolphins (some of which will be additionally utilised as mooring dolphins) will have a physical impact upon the fabric of Wharves 1 – 5, as sections of the original wharf deck will be cut and removed to allow the installation of the new dolphins. The removal of panels of reinforced deck and the associated concrete beams would be a significant interference in original fabric and will have an adverse effect upon the originality and historic integrity of the wharves. The effect upon the structural integrity of the wharf is a potential issue but current engineering advice is that this is not a major concern.

The Berthing Dolphins would be only slightly visible from viewpoints on and above the wharf, as the concrete tops of the new dolphins would be integrated into the current concrete deck via flexible joints. The new concrete would be apparent in contrast to the existing concrete deck but, owing to a long history of use and repair to the pavement, the existing concrete is already variable in colour and texture and this contrast would not be highly prominent. The new work would be more easily discerned from the waterside but would appear as functional maritime structures and the individual dolphins would be largely subsumed in the overall vista of wharf and sheds, with the city behind.

A range of alternative approaches were considered by ARUP in determining the preferred option. These included:

- strengthening of the existing wharf structure (dismissed for its overall impact upon the original concrete structure);
- adding a new line of wharf in front of the existing (dismissed for its cost and poor functional outcomes);

- addition of mooring bollards on the landward side of the wharf (dismissed for the undesirable complications associated with mooring lines crossing the wharf deck); and
- the addition of a new row of fender piles outside of the existing line of wharf (dismissed for its impact upon non-cruise ship users of the wharf).

A central consideration in evaluation of the options is the long term effect upon the historic wharf structure. The wharf is in good condition at present, owing to a sustained and sophisticated repair and maintenance program undertaken by Ports North over the last decade. This program has been economically justified by the importance of the wharf to the local economy as an item of infrastructure. Relegation of the wharf to a lower level of use would no doubt lead to a lower level of investment in maintaining its condition, which could be interpreted as a long-term threat to its survival. The Cruise Ship industry, whilst making demands upon the wharf, has also been the agent of its conservation and, for the foreseeable future, the future of the wharf and the Cruise Ship industry in Cairns are interdependent.

All things considered, the removal of sections of deck to allow the installation of independent mooring dolphins, whilst clearly not ideal in heritage terms, may be the least-worst option available for the future conservation of Wharves 1 - 5. The wharves are fundamentally utilitarian items of infrastructure that must serve their purpose (there are few, if any, practical opportunities for repurposing the wharf in the Cairns context) and their continued use for their designed purpose is the most preferable outcome in heritage terms. It is not unusual for any item of infrastructure to be modified and/or upgraded to maintain its utility and, in this case, the opportunity exists for the wharf, if modified, to continue to serve a significant economic role for at least several decades into the future. The options analysis undertaken by ARUP has established that, if Wharves 1 – 5 are to serve as the cruise ship berths for Cairns, this is the least interference required to achieve the attendant level of operation.

In summary, the proposed works for the installation of Mooring and Berthing Dolphins will have an adverse impact upon the fabric and historic integrity of the Cairns Wharves 1 – 5. This impact, however, represents a necessary modification to the wharves to enable their continued use for economic maritime purposes and this continued use will itself consequently ensure the ongoing maintenance and repair of the wharves for the foreseeable future. For this reason, the impacts upon integrity are considered to be an acceptable compromise to ensure the long-term viability of the use of the wharves. The proposed works will not substantially reduce the cultural heritage significance of the Cairns Wharf Complex.

8.2. Curtilage and Subdivision

The proposed works will have no impact on the Cairns Wharf Complex's curtilage or subdivision.

8.3. Views and Settings

The proposed works will have no impact on the significant views and settings of the Cairns Wharf Complex.

8.4. Heritage Items in the Vicinity

As there are no heritage items in the vicinity of the subject site which would be affected by the type of works proposed, the proposed works will have no impact in this regard.

9. CONCLUSION

9.1. Conclusion

The proposed works will have an adverse impact upon the heritage values of the Cairns Wharf Complex because they will demolish Wharf 6 and will alter Wharves 1 – 5 through the removal of some original fabric from the wharf decks.

However, the demolition of Wharf 6 is unavoidable in the long term and timely in relation to its current condition. Retention of the wharf cannot be achieved without a significant interference in its heritage values, particularly in relation to its demonstration of 'wartime exigencies'. Remnant elements of the wharf can be retained and interpreted to continue to express the significance of Wharf 6, both as a relic of the role of Cairns in WW2 and as a demonstration of wartime construction techniques and approaches.

The removal of sections of the existing deck of the Wharves to allow the installation of berthing/mooring dolphins is a minimalist alteration to the wharves to allow their ongoing use for economic maritime purposes. Whilst this will compromise the historic integrity of the wharves, it will conversely ensure their ongoing use, conservation and interpretation as important elements in the history of the development of Cairns and Far North Queensland.

9.2. Recommendations

Based upon the analysis and conclusions carried out above, it is recommended that:

- A Statement of Heritage Impact should accompany a development report to be submitted to the Queensland Heritage Council for approval under S.71 of the *Queensland Heritage Act 1992*.
- The Option to retain deck fabric and pile elements of Wharf 6 should be adopted and pursued and these remnants should be interpreted to the public to explain their heritage significance.
- The Option to install berthing/mooring dolphins within the existing deck of the Wharves represents the least adverse impact upon the fabric of the wharves, if they are to be used for berthing large cruise ships. This work should be undertaken with an extraordinary level of attention to the treatment of exposed steelwork and stabilisation of existing materials.
- If possible, sample sections of removed deck, particularly where they demonstrate evidence of their internal steel reinforcement, should be retained and interpreted within the context of the wharf. Ideally, each section should be excised intact and, if not selected for direct interpretation, then they should be reused (for example, as pavement elements) as part of the general historic fabric and interpretation of the Cairns Wharf Complex.

10. REFERENCES

Publications and Reports

Allom Lovell Pty Ltd; *Cairns Cityport Wharf Area Conservation Management Plan*; Report for Cairns Port Authority; 2000.

Cilento, R (ed.); *Triumph in the Tropics – A Historical Sketch of Queensland* – Smith & Paterson, Brisbane; 1959.

Fraser, D; *‘Early Reinforced Concrete in New South Wales (1895-1915)’*; Transactions of the Institution of Engineers, Multi-disciplinary Engineering, Vol. GE9 No. 2, October 1985.

Gladstone Ports Corporation; *‘Place of Water, Place of Shells – A Pictorial History of Gladstone’*; Gladstone Ports Corporation, 2009.

Heritage Alliance; *‘Thematic History of Cairns and its Regional Towns’*; Report for Queensland Department of Environment and resource Management and Cairns Council; 2011.

Holgate, A; *Sir John Monash and The South Australian Reinforced Concrete Co*; published in Transactions of the Inaugural South Australian Engineering Heritage Conference, 3 May 2012; Engineering Heritage Australia.

Lewis, Miles; *200 Years of Concrete in Australia*; Concrete Institute of Australia; 1988.

Lewis, Miles; *‘Australian Building: A Cultural Investigation’*; Miles Lewis; <http://www.mileslewis.net>.

Matthew and Matthew Architects; *Heritage Assessment - Queens Wharf Auckland*; for Auckland City and Auckland Regional Councils, 2009.

Mitchell, G W; *‘Genesis and Development of Reinforced Concrete in Australia’*; Institution of Engineers Australia – Abstract of Papers, 1922.

Queensland Heritage Register - Queensland Office of Environment and Resource Management.

Venus R; *‘The Foundations of Concrete: Early Concrete Construction in SA’*; in 2014 South Australian Engineering Heritage Conference Transactions; Engineers Australia.

Newspaper Reports (via Trove)

‘The Wharf Scheme’ Cairns Morning Post; 11/11/1907.

‘Reinforced Concrete’ New Zealand Herald, Volume XLIII, Issue 13125, 14/03/1906.

‘Davenport Harbor Improvements’; North-Western Advocate and Emu Bay Times; 07/08/1903.

‘Concrete Wharf at Gladstone’; The Brisbane Courier; 25/01/1907.

‘Gladstone’; The Capricornian; 10/10/1908.

‘Disappearing Island’ The Telegraph, Brisbane 02/01/1907.

‘Notices of Motion’; Cairns Post 12/07/1910.

‘Wood or Concrete’ Cairns Morning Post 26/08/1908.

'Permanent Wharf Scheme' Cairns Morning Post; 24/03/1909.

'Cairns Harbour Board - Concrete Wharf Scheme' Cairns Post; 28/01/1910.

'The Cairns Wharves Ferro-Concrete Scheme - The Specification'; Cairns Post; 01/02/1910.

'Wharf Construction' Cairns Morning Post 28/05/1909.

The Cairns Harbour Board' Cairns Post 12/01/1910

'Concrete wharf at Cairns' Brisbane Courier; 17/03/1910.

'Cairns Harbour Board Engineers Report' Cairns Post 26/04/1910.

'Cairns Harbour'; Daily Mercury 12/10/1912.

'Ferro-Concrete Wharf'; Cairns Post 21/09/1910.

'Chillagoe Wharves' The Telegraph, Brisbane, 08/01/1916.

'The Cairns Wharves Ferro Concrete Scheme – The Specification' Cairns Post 01/02/ 1910.

Websites

<https://structurae.net>: 'Joseph Monier'.

<https://eng.archinform.net>: 'Gustav Adolf Wayss'

<http://www.aholgate.com/personae/relations02.html>: Frank Moorhouse Gummow (1862-1946).

<http://www.aholgate.com/personae/relations02.html>: William Julius Baltzer (1859-1948).

<http://www.fairhall.id.au/resources/fame/baltzer.htm>: William Julius Baltzer.

<http://www.kroad.com/heritage>: Willian-Arthur-Robertson.

APPENDIX A –

Queensland Heritage Register Report: *Cairns Wharf Complex* (Place ID: 601790)

QUEENSLAND HERITAGE ACT 1992

Certified Copy Of An Entry in the Heritage Register pursuant to Section 33 (1) (a)
State Heritage

Reference: CC879



Place ID	601790	
Name	Cairns Wharf Complex	
Former name(s) / other		
Location	Wharf Street CAIRNS 4870	
RPD	Lot 9 SP113632	Lot 16 SP199206
	Lot 10 SP214821	Lot 15 SP214821
Local authority	CAIRNS REGIONAL COUNCIL	
Map Sheet	CAIRNS	
Map Projection	55	
Grid	Easting: 370081	
	Northing: 8128138	
Boundary Description	See attached map	
Other Listings	National Trust of Queensland - CNS 1/034	

Heritage Significance

Cairns Wharf Complex is a place that satisfies one or more of the criteria specified in s.35(1) of the Queensland Heritage Act 1992 as evidenced by, but not exclusive to, the following statement of cultural heritage significance, based on criteria A, B, C, D, E, F, G and H.

Criterion A

The Cairns Wharf Complex is of importance in demonstrating the evolution of Queensland's history as it represents an important stage of development of Queensland and Australian wharf facilities dating from 1909 to 1942. The wharves are among the earliest Australian attempts to introduce the medium of reinforced concrete into wharf construction. The construction of number 6 wharf in 1942 demonstrates the importance of Cairns as a centre for Pacific forces during World War II, and its timber and reinforced concrete construction reflects war-time expediency. The wharf-side cargo sheds, numbers 2 and 3, are the most visible surviving remnant of the Cairns waterfront development in the early 1900s. The cargo crane is the last remaining crane from the earliest period of the wharf's history in the 1910s, and helps to convey a sense of the industrial maritime history of the wharves. White's (Sugar) Shed is a place which demonstrates an evolutionary stage of the North Queensland sugar industry and wharf practices dating to the 1920s through 1950s. The closure of the shed to sugar handling in the early 1960s was the result of the opening of Cairns bulk sugar terminal at Portsmouth in 1964. The opening of the bulk terminals reduced significantly the wharf labour force required for the handling of sugar. The railway lines demonstrate the importance of rail links in establishing Cairns as the dominant regional port in far North Queensland, and consequently, as a viable town. The railway lines are also integral to an understanding of the operation of the wharves, with wharf shed platforms that aligned to the height of the rail cars.

Criterion B

The Cairns wharf sheds, numbers 2 and 3 and White's (Sugar) Shed, demonstrate rare aspects of Queensland's cultural heritage as surviving wharf sheds are becoming increasingly rare throughout Australia as coastal cities revitalise their waterfront areas. White's shed, with its remnant bag-stacking machinery, is the only known example of this type of structure existing in Queensland and Australia, and as such also demonstrates rare aspects of Queensland's cultural heritage.

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Criterion C	The remnant bag-stacking machinery located in White's shed has the potential to yield information that will contribute to an understanding of Queensland's history. Since records of the sugar bag conveyance apparatus have disappeared in the years since abandonment of the system , the intact features along the roof of the structure's interior offer insights which are only available through study of this physical feature.
Criterion D	The number 2 and 3 wharf sheds are important in demonstrating the principle characteristics of a wharf-side cargo handling structure.
Criterion E	The Cairns wharves site is important because of its aesthetic significance as the wharves, number 2 gate, White's shed and wharf sheds, numbers 2 and 3, including the clock tower, contribute to the streetscape of inner-city Cairns. The wharves run at right angles to the main city streets of Cairns, terminating the long views down Abbott, Lake and Grafton streets south. These views are framed by the mountains and mangroves behind and across Trinity Inlet. The clock tower is particularly of aesthetic significance as a local landmark.
Criterion F	The concrete wharves are important in demonstrating a high degree of technical achievement in the early twentieth century. The use of reinforced concrete for wharf construction represents one of the earliest Australian attempts to introduce this material for wharf construction.
Criterion G	The Cairns wharves, sheds 2 and 3 and White's (Sugar) Shed, number 2 gate and clock tower have a special association with the Cairns community as physical evidence of the city's history and sense of identity. The clock tower affixed to the roof of the number 3 wharf shed has provided a focus for this identity, and has functioned as the city's and wharf's timepiece since 1948.
Criterion H	The place has a special association with the work of the early Cairns Harbour Board. The wharves and sheds offer a physical reminder of the importance of the Board in establishing the maritime focus of the city and the development of the region.

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History

Cairns was established by Europeans as a port in the second half of the nineteenth century. European passengers and government officials landed at Trinity inlet on 3 October 1876, and the inlet was subsequently declared a port of entry and clearance on 1 November that year. The township of Cairns was surveyed in late 1876. The impetus for the establishment of the port came largely from the newly-established Hodgkinson goldfields.

Upon settlement, rudimentary port facilities were constructed. These initially consisted of timber jetties with piles built out across the mud and mangroves to boats moored in deeper water. Most had an attached shed. Better facilities quickly replaced these early structures as they wore out or simply fell down. Generally these were privately constructed by shipping and trading companies such as Howard Smith, Burns Philp and AUSN. The town, including shops, hotels, warehouses, banks, the customs house and other government offices developed around the port area.

In 1884, Cairns was selected as the rail terminus for the Herberton tin fields and construction of the rail line west was begun. This assisted the fortunes of the port and in effect secured the future of the town. A timber railway wharf was built in 1886, connecting the wharf directly to the rail line into the hinterland.

The other early northern port settlements of Cooktown and Port Douglas dwindled as a result of Cairns' railway connection. Each had previously threatened the position of Cairns as a port in the north.

In 1906 the Cairns Harbour Board was instituted, chiefly to commission and oversee improvements to the port. The private wharves were progressively acquired by the harbour board and by 1915 it owned all the wharves. Regular dredging of the channel was carried out, allowing larger vessels to enter the port after 1912.

Soon after taking over control of the Cairns wharves, the Harbour Board began planning for an extensive new system of wharfage extending along the shoreline in one unbroken length. The wharves were to be built in stages of reinforced concrete to the plans of Gummow Forest and Co of Sydney. Supervision of the project was given to Edward Gregory Waters, the Harbour Board's Chief Engineer. E.G. Waters worked as an architect, surveyor and engineer at various locations in north Queensland from 1890, working in Cairns from 1909 until 1917. In 1910 construction started on the first wharf, 300 feet in length, at the end of Lake Street (number 3 wharf). This wharf was finished by 1912. Further stages were commenced shortly after, and by 1915 there was an unbroken frontage of 1200 feet of concrete wharves in Cairns. In the early 1920s, loans totalling £50 000 allowed the harbour board to further extend the wharves, and by 1925 the concrete wharves were 1500 feet long. A railway was extended along the front of the wharf. By the end of the 1920s another concrete wharf with rail approach and shed was erected, separate from the others on the other side of Lily Creek. It was initially known as number 6 wharf, and later number 8 wharf. Cairns was the first port in Queensland to adopt reinforced concrete wharves to any extent.

Cairns introduced a mechanical system of handling bagged sugar in the mid 1920s, one of the first Queensland ports to do so. A storage shed was constructed as part of this system, capable of storing 6000 to 7500 tons of sugar. It later became known as "White's Shed".

Sheds were constructed on top of the main wharves to accommodate goods waiting for export or to be distributed around the town. One shed was built for each of the five berths. The sheds at berths 1-3 were joined together in one continuous line; sheds 4-5 were built as one long structure. In 1938 the Cairns Harbour Board produced a handbook, detailing its activities in the port. This handbook described the wharfage facilities at Cairns as comprising of some 1 900 linear feet of reinforced concrete wharves, with six "airy spacious sheds having floor space of 89 020 square feet", as well as

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the shed for sugar storage. Electric and hand powered cranes were also built at the rear of the wharves to lift heavy goods onto ships.

During World War II Cairns was the centre of a great deal of activity. At the port, the wharves were extended again in 1943 to create six continuous berths, and a shed was built and became number 6 shed. Also during the 1940s, a building was constructed for the Waterside Workers, for use as an amenities hall. It housed lunch and meeting rooms, showers and toilets. This building was located on the western side of Wharf Street between Lake and Grafton Streets. It was demolished in the 1990s. In 1942, extensions were made to number 5 wharf with a new shed being erected.

A clock tower above number 3 shed was constructed in 1948. It was reported in the 1948 Annual Report of the Cairns Harbour Board "[t]he electric striking clock was long felt want, particularly on the water-front". The Cairns Post carried a photo of the clock on its front page on 23 September 1948 with the caption that it "is a valuable asset to the port". The clock was manufactured by A.L. Franklin of Sydney at a final cost of £900. Access to the clock mechanism was originally achieved via a ladder on the roof of the shed. Subsequently a hole was cut in the office immediately below the clock making it easier to periodically change the car battery.

Many hundreds of people have been employed on the waterfront in Cairns over the years. Most working activity at the Cairns wharves has shifted upstream to newer wharf developments, including the bulk sugar terminals, built in the 1960s. These earlier wharves are used mainly for recreational vessels and passenger liners, but not to the capacity or extent that they were used in the past.

CONCRETE WHARVES:

Replacement of the timber wharves with concrete ones proceeded progressively starting in about 1910.

This commenced with the manufacture of 67 concrete piles and foundation dredging. Plans were for each section of the wharf to be 300 feet long by 90 feet wide with a shed 240 feet long by 60 feet wide built directly onto each wharf. Reclamation was to take place behind the sea wall at the back of the wharf with mud from the dredge stiffened with the stone and mullock from the range railway after slips took place. The number 3 wharf was erected by 1912, number two wharf opened in 1913, and in 1914 the old number 4 wharf and buildings were demolished and replaced with a concrete wharf.

A photograph is available of the number 4 wharf during this reconstruction phase. The piles are reinforced concrete and the upper ends were apparently poured in-place in stages around four vertical iron rods. The iron reinforcing rods in the vertical posts were designed to interlock with the reinforcing rods in the concrete deck supports. Eight piles were placed between the sea wall area and the seaward edge of the wharf. Substantial wooden formwork was necessary to construct the reinforced concrete superstructure to support the decking.

The Harbour Board purchased the timber number 1 wharf in 1915, and replaced this with a concrete wharf within a year. The number 5 wharf was constructed in 1925 and was the entry/exit point for railway lines extending onto the wharf deck. Plans indicate that the number 5 wharf's deck had two pairs of railway tracks which merged at the junction with the number 4 wharf. The tracks curved onto the wharf deck at the southern end of the number 5 wharf, and the corner of the wharf was truncated parallel to this curve.

Number 6 wharf was completed in 1942 by the Allied Works Council. The design employed in constructing this wharf differed markedly to that used to construct numbers 1 to 5.: number 6 wharf was built with timber, supplemented with reinforced concrete.

NUMBERS 2 AND 3 WHARF SHEDS, CLOCK TOWER AND CARGO CRANE:

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The Wharf Sheds were constructed at various stages throughout the first half of the twentieth century.

The first to be built were numbers 2 and 3 wharf cargo sheds, constructed on the decks of the concrete wharves. The number 3 wharf was constructed in 1912, and it is suspected that the number 3 wharf shed was constructed in late 1912 or early 1913. The number 2 wharf was constructed in 1912-1913, and the original sheds on the old timber wharf were retained as long as possible prior to being demolished in 1913. The number 2 wharf shed was constructed soon after this demolition. The numbers 2 and 3 sheds were connected by a continuous roof by 1925 and probably earlier. Much of the infrastructure related to the number 2 and 3 sheds was constructed in about 1913, including the nearby railway tracks and two 10-ton cranes adjacent to the tracks and immediately behind sheds 1 and 2. Loading platforms were constructed behind number 2 wharf shed by 1925. The wharf sheds were elevated above the surrounding dock land and wharves. This raised configuration of wharf sheds was considered to be state-of-the-art design which allowed easy loading and unloading of goods to and from railway cars and into the storage sheds (facilitated by wharf shed platforms that aligned to the height of the rail cars). An "awning" was installed to the rear of the number 2 wharf shed in 1942. The wharf shed roofs were cleaned and repainted in 1947, and the whole of the roof cladding was replaced in 1954. The northern end of the number 2 wharf shed is referred to as the "old engine room" on a 1978 plan.

A clock tower was added to the end of the number 3 wharf shed in 1947-1948. On 14 September 1948, the Cairns Post included the following details of the clock:

The four dials are each six feet in diameter and are driven by a single central unit. They cannot show a different time on each face.

The bell weighs half a ton, is three feet in diameter and is struck by a 20 pound hammer.

The clock is operated electrically, but does not depend on the continuity of the mains. Timekeeping is kept by a pendulum weighing 100 lbs., which pushes the mechanism round with a force capable of overcoming all normal obstacles, yet it is so delicately powered that it takes only a fraction of the current an ordinary electric torch would consume.

The only part of the clock which would stop if electricity failed would be the bell, operated by a one quarter horse power motor directly connected to the mains. As soon as current is restored it will pick up the correct hour automatically. It is intended to silence the chimes between mid-night and 5.30 a.m.

There are 27 gear wheels in the clock and about 30 ball bearings, which are heavy enough for hundreds of years of wear.

Mr Franklin says that the clock is similar to that designed and installed by him for the Townsville Harbour Board in 1940 and others he has constructed during the last 25 years, though each successive clock has incorporated some refinement in design.

Throughout the interwar years, a shed was built for each of the other berths. The sheds at berths 1-3 were joined together in one continuous line; and sheds 4-5 were built as one long structure. In 1943, shed number 6 was constructed.

In more recent times, viewing platforms were installed above the original roof line of number 2 wharf shed. The platforms were used as part of the terminal facilities for overseas passengers. These platforms were removed sometime in 1998 or 1999.

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In 1984, number 1 wharf shed was demolished as part of the Trinity Wharf development, and in the 1990s number 4 wharf shed was demolished to provide greater wharf space. Wharf sheds 5 and 6 have also been demolished.

WHITE'S SHED:

The sugar storage shed was constructed in 1923. An electrical conveyor system was installed in the shed to move sugar bags to and from ships' holds and railway wagons, and was fully operational by 1926. The system consisted of an inclined covered conveyor extending from railway tracks on the west side of the shed up to the shed's roofline. This conveyor provided the linkage with the wharf railway system. A complicated set of conveyors and chutes was built into the roof of the sugar shed, and this system was used to stack bagged sugar at a rate of up to 80 tons per hour. A second conveyor extended between the roof of the sugar shed eastwards to the roof of number 4 wharf shed. This conveyor joined another in a T-configuration on the eastern side of the wharf shed's roof. The overhead conveyors from White's Shed to number 3 wharf were reconstructed in 1946, while maintenance and repairs to both "shore and floating plant" were made in 1947. The 27 year old facility was apparently modernised during the overhaul. Two travelling gantry cranes moved up and down the number 4 wharf's edge, loading and unloading the sugar bags into ship's holds via a set of conveyors mounted on the gantry cranes and connected to the T-conveyor.

Electric travelling cranes were located immediately adjacent to the northern end and western side of the building during this era. These cranes moved "sinker" logs from the railway tracks to the edge of the wharf between the numbers 3 and 4 wharf sheds.

The usefulness of the shed and log handling machinery declined in the late 1950s, and White's Shed was no longer in operation after the bulk sugar terminal was established at Portsmith in 1964. At this new terminal, huge volumes of sugar could be stored and delivered directly into the holds of ships, without needing to be packed into bags or other containers. This new method of sugar handling reduced significantly the wharf labour force for sugar. The sinker log crane on the west side of the shed was sold in 1959 and was later used at Rankine's Pearamon Mill, near Lake Eacham on the Atherton Tablelands, where it currently resides. The disused White's Shed was subsequently leased to mining companies, perhaps as early as the 1960s. The shed was used to store copper concentrate from the Red Dome mine between 1993 and 1997, and was leased to the Dianne Copper Mine prior to this. The name "White's Shed" derives from this period.

THE ELECTRICAL SHOP:

The existing electrical shop building is situated in the former location of the harbour workshops. The original workshops contained the fitter's and turner's shop and the blacksmith shop. This building was apparently demolished in about 1940, and the existing brick structure was built in this location in 1951. The rear shed was built and/or modified in 1967.

The existing building was used to supply power to the wharves, and as an electrical workshop. During its years as a powerhouse, the building contained a compressor, an emergency power generator, and transformers. A compressor was installed in 1955 to supply air to the wharves, and it was in this year that electrical workshop equipment was installed. The workshop maintained 21 cranes, fork lifts, and two stevedoring units. The workshop was still in use by 1958 and possibly later.

AMENITIES HALL:

The Amenities Hall was built in 1954 for the Waterside Workers Federation. The rear structure addition is possibly a "septic block" installed in 1956. The 1954 plan of the building shows the arrangement of the amenities, with the front two-thirds of the building filled with tables and the rear containing the

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amenities themselves.

The building has housed collections of the Maritime Archaeological Association of Far North Queensland since 1988. A loading door is present in the front end of the building, and was reportedly added after 1988 so that large maritime artefacts could be easily moved into the structure.

NUMBER 2 GATE, FLAGPOLE AND PLANTERS:

A 1942 map of the wharf complex shows four traffic gates to the wharf complex fronting Wharf Street. It is suspected that these gateways were in place since the early history of the wharves. The number 2 gateposts at the number 2 gate are still in their original locations.

An octagonal three-tiered flagpole base was present at the eastern end of the existing garden bed. The flagpole base was concrete, and each tier was of decreasing diameter and height. The edge was bevelled. The base measured 1.2 metres across and 0.3 metres high, and the flagpole was once affixed by four bolts. This base was removed during maintenance activities in March 1999. Another flagpole base was constructed in July 1953.

CONCRETE ROADWAYS:

Concrete roadways were constructed on the reclaimed land behind numbers 1, 2 and 3 wharves in 1945 and 1946. The roads constructed in 1945 extended behind the wharves from number 1 to number 6 and the remainder of the concrete roads were presumably constructed in 1946.

HARBOUR BOARD STORE:

The Cairns Harbour Board Store (no longer extant) is clearly visible in 1920-1930 and 1940 aerial photographs of the area. The building was originally a bond store used by Customs to house beer, alcohol, and tobacco. The floor reportedly had a steel floor during this period to prevent theft. In recent years the building housed Coxen Chemicals (a detergent manufacturer) and Rothfire Pty Ltd (a prawn merchant). The building was either moved in the last decade to the modern workshop area or was demolished to make way for the bitumen carpark.

RAILWAY TRACKS:

Several railway tracks were laid at the Cairns wharves. The existing railway lines were laid at approximately the same time as the concrete wharves. One section of the line supported a 10-ton travelling crane, and another section, a travelling crane used to sort and load logs onto the parallel railway tracks.

Rail links with the Cairns hinterland were a key element of the success of Cairns as the regional port and consequently, as a viable town.

AMENITIES HALL PARK:

The park north of the Amenities Hall was once the location of several small structures. A 1942 plan of the area indicates that the "Pay Office" and a "Kiosk", both built in c. 1930 were present in the park area at that time. A "Tally Clerk's" office, built in c. 1930 was adjacent to the railway line behind the wharves. These buildings were apparently replaced by two small sheds prior to 1967, and the small sheds were themselves removed between 1972 and 1975.

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Description

The Cairns Wharves and associated structures are bordered by Wharf Street to the west and the waters of Trinity Inlet to the east. Located to the north and south of the site are various structures associated with maritime activities. The Cairns Wharfage Complex site includes concrete wharves 2 and 3; wharf sheds 2 and 3 and the clock tower above shed 3; White's (sugar) shed; an electrical shop; an amenities hall; a cargo crane; concrete roadways; railway tracks; and number 2 gate, flagpole and planters.

CONCRETE WHARVES:

The concrete wharves are part of the actively utilised wharf facilities in this part of the Cairns waterfront.

The wharf is decked in reinforced concrete which forms an integral part of the structure. The deck edge is marked by a discontinuous wooden beam. A series of concrete sections measuring about 3 metres long are immediately adjacent to the beam and extend the length of the wharf. The concrete sections are interrupted at regular intervals by metal boxes containing power points. Water taps are present at regular intervals, and plumbing, electrical conduits, and compressed air pipes are affixed to the underside of the wharf. Mooring irons are mounted to the deck surface behind the concrete buffers. A variety of types of mooring irons are present.

NUMBERS 2 AND 3 WHARF SHEDS, CLOCK TOWER AND CARGO CRANE:

The number 2 and 3 wharf sheds are long, rectangular buildings, clad with corrugated sheeting. The structures have truss-framed roofs with support posts along the long edges and down the centre. The walls have timber rails spanning between the posts and numerous door and window openings within the framing. Like the walls, the roofs are clad with corrugated sheeting. Aside from clearly modern replacement sections, the wall cladding - much of which is affixed with lead-head nails of various sizes - appears to be the original.

The buildings are in good condition, particularly given their age, location, exposure and past industrial usage. However the framing at the southern end of number 3 wharf shed exhibits signs of accelerated deterioration due to exposure to the weather. The covered area between the number 2 and number 3 wharf sheds appears to remain in a condition similar to that when it was originally constructed.

The loading dock behind number 2 wharf shed is largely intact and consists of an array of heavily maintained timber and concrete piles supporting a concrete deck. It is aligned perpendicular to the railway tracks. The loading dock remnant existing behind number 3 wharf shed consists of rectangular, round, or half-round decking support timbers placed on log or concrete piers. This loading dock also has a concrete deck.

The southern end of the wharf shed number 3 is surmounted by a clock tower. A clock face is located on all four sides of the tower. The tower is capped with a pyramidal roof and weather vane. A door providing internal access to the clock is located on the northern wall of the tower. Vents are located on all sides of the tower, close to the base. The clock appears to be in good working order and still chimes on the hour.

The number 2 wharf shed is currently used as the Cairns cruise ship terminal. Number 3 wharf shed contains storage areas for the Port Authority, storage for other shipping operators, and offices for the Customs Service.

The cargo crane is present at the end of the loading dock attached to the rear of number 2 wharf shed. The crane is mounted on a large 12-sided concrete base. The crane's I-beam jibs are stamped

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"NORMAN LONG AND CO LD/MIDDLESBROUGH/ENGLAND". The hoist consists of a cargo hook suspended by a steel cable. The cable winding drum is timber and largely intact. A commemorative bronze plaque is installed at the base of the crane.

WHITE'S SUGAR SHED:

White's Shed is a large timber-and-iron structure situated behind number 4 wharf (not included in the listing boundary) and immediately southwest of the existing number 3 wharf shed. The building consists of the original section measuring approximately 63 metres long (oriented parallel to the wharf) and 22 metres wide, and the post-1976 addition. The cladding on the two sections overlap somewhat, and the complete width of the existing shed is about 38 metres. A fence encloses the immediate surrounds to the northern side of the shed.

The basic structure of White's Shed appear to be largely intact, including much of the sugar bag stacking apparatus on the ceiling. However, the portions of the sugar conveyor located outside of the shed are no longer extant.

White's Shed is timber framed. Thirteen transverse frames support the roof, which are in turn linked by a ridge beam, purlins and girts, a wall top plate, and diagonal wall braces. Large double doors are present in the ends of the building and central on the east and west walls. These doors are supported by I-beams. The roof is gabled and has a ventilated ridge. A complex system of conveyors and hopper chutes for the delivery of sugar bags is present attached to the ceiling of the structure. The building's wall and roof cladding is of recently-installed corrugated sheeting. A secure room is present along the inside of the north wall.

A recent building report and contamination assessment revealed that the structural integrity of the building has been compromised by termites, and that a low level of heavy metals contamination is present.

ELECTRICAL SHOP:

The Electrical Shop consists of a brick structure located immediately north of White's Shed. The building measures approximately 20 metres long and 12 metres wide, and has an 8 metre by 4 metre shed in the rear (west) yard. The building is currently the Cairns Port Authority's Social Club.

The building's walls are cavity brick. The structure was constructed on a concrete slab and covered by a gabled roof. Five 4-paned windows extend down the northern side of the building. The windows are constructed with concrete lintels and sills. Four windows extend down the eastern end. A boarded-over attic window is also present. The south side of the building is marked by loading doors and four windows and this area is landscaped and modified for social functions. The western end of the building is marked by large access doors, a window, a doorway, and an attic window.

The shed at the rear of the building consists of a brick section and a section covered in iron cladding. This shed currently contains the compressor installed in 1955. This machinery continues to supply compressed air to the wharves.

The Electrical Shop is not of cultural heritage significance.

AMENITIES HALL:

The Amenities Hall consists of a timber-framed structure located immediately north of the Electrical Shop. The building measures about 28 metres long and 8 metres wide, and has a small 2 metre by 2 metre structure added to the rear. The building houses the collections of the Maritime Archaeological Association of Far North Queensland.

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The building is a timber framed, gable-roofed structure placed on a concrete slab. The wall cladding consists of angular-rebated chamferboards. The original asbestos roof is in place. A loading door is present in the front (east) end of the building. The north and south walls of the building are symmetrically arranged with three double doors and five 6-paned windows down each side. Three 3-paned windows are present on the addition at the building's rear (west) end. Some of the original tables and benches, and the toiletries block are still in place.

The Amenities Hall is not of cultural heritage significance.

NUMBER 2 GATE, FLAGPOLE AND PLANTERS:

The ornamental gateposts at the number 2 gate are still in their original locations. The gateway consists of an entrance and exit lane separated by a concrete ornamental wall measuring about 2.5 metres wide and 4 metres tall. A concrete post flanks each side of the wall, and two gate hooks are affixed to each post. An ornamental coping is present on top of the wall. Low-relief Art Deco-style ornamentations are present on the wall faces, posts, and coping. Two matching single concrete posts are present on the opposite side of the entrance and exit lanes. These are also affixed with gate hooks, indicating that the original gates were double-hung and latched in the middle. The gates themselves are no longer present.

The entrance and exit lanes inside the wharf compound are separated by a concrete-bordered garden bed. A flagpole base is present behind the entrance wall at the western end of the garden bed.

Only the concrete gateway and side posts are deemed to be of cultural heritage significance. The concrete planter and flagpole are not culturally significant.

CONCRETE ROADWAYS:

The western edge of the 1945 concrete roadway is still visible, but the remainder is apparently underneath recent bitumen. Concrete U-shaped guttering is visible in front of the Amenities Hall and the Electrical Workshop, and may date to the original installation of the concrete roadway.

The concrete roadway presumably dating to 1946 consists of the entrance and exit lanes at the number 2 gate. The lane on the south side is pitched down the middle to ensure water drains to either side.

The concrete roadways are not of cultural heritage significance.

HARBOUR BOARD STORE FOUNDATION:

Concrete slabs are present in the parking area immediately north of the number 2 gate roadway. The southernmost of these borders a landscaped area adjacent to the roadway on the south and merges with the 1945 roadway on the east. The western edge angles southwest towards the northern gate post. The outline of the northern edged of the slab is marked by two angular "bays". The northernmost slab consists of a strip of concrete extending east-west about 14 metres north of the first slab. The intervening area is now covered with bitumen, by 20 low "humps" are discernible. These are the remains of concrete support piers arranged in a block measuring 5 piers by 4 piers. These piers mark the location of the "Cairns Harbour Board Store" or "Beer Shed".

The Harbour Board Store foundation is not of cultural heritage significance.

RAILWAY TRACKS:

Portions of two sets of tracks are visible. The portion of the first set within the area consists of a single set of double-rail tracks extending from the loading dock behind number 1 wharf southwards to the

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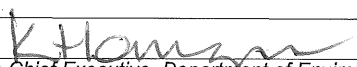
loading dock at the rear of number 3 wharf. The track extends past the original fixed 10-ton Cargo Crane behind the number 2 wharf. The tracks change from double-railed to single-railed near the southern end of the number 3 wharf loading dock.

A short section of the second railway tracks is still in place approximately 6 metres west of the number 2 gate. Two sets of tracks spaced 3 metres apart are present in this location. Both sets are double-railed.

AMENITIES HALL PARK:

Two concrete-bordered planters are present along the northern edge of the park. These planters are similar to the one currently located between the two vehicle lanes which pass through the number 2 gate.

The Amenities Hall Park is not of cultural heritage significance.


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Images



1. Cairns Wharf Complex (1997)

Date: 21/11/2011

K. Horgan
for the Chief Executive, Department of Environment and Resource Management

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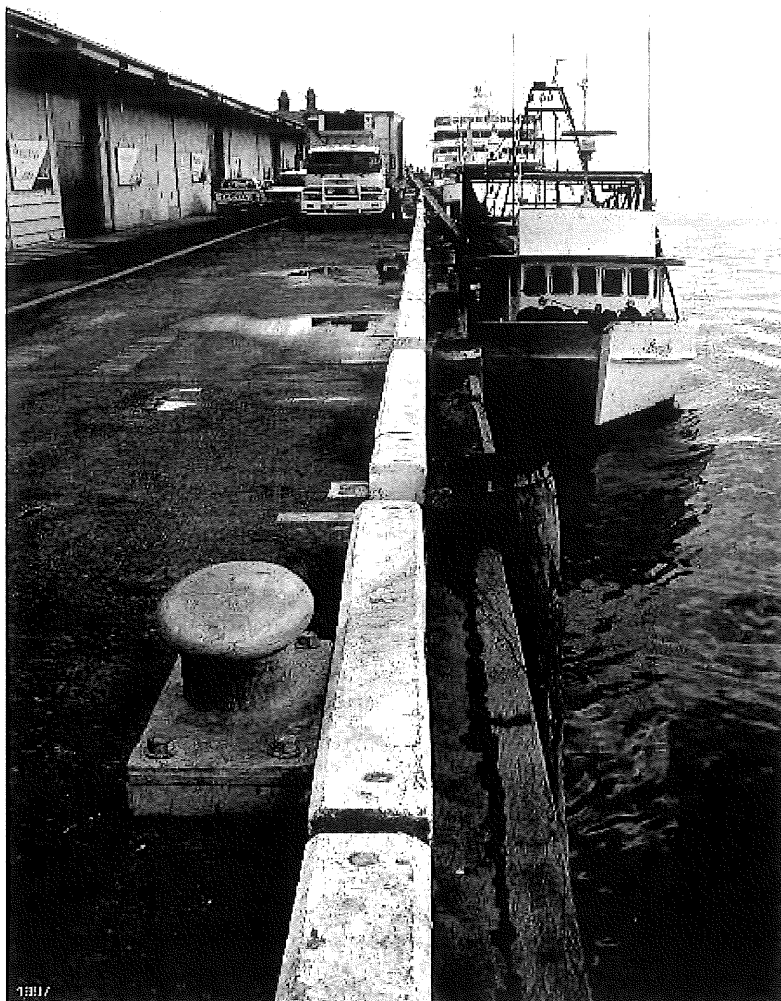
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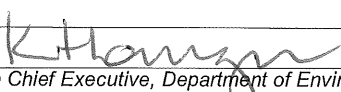
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2. Cairns Wharf Complex (1997)


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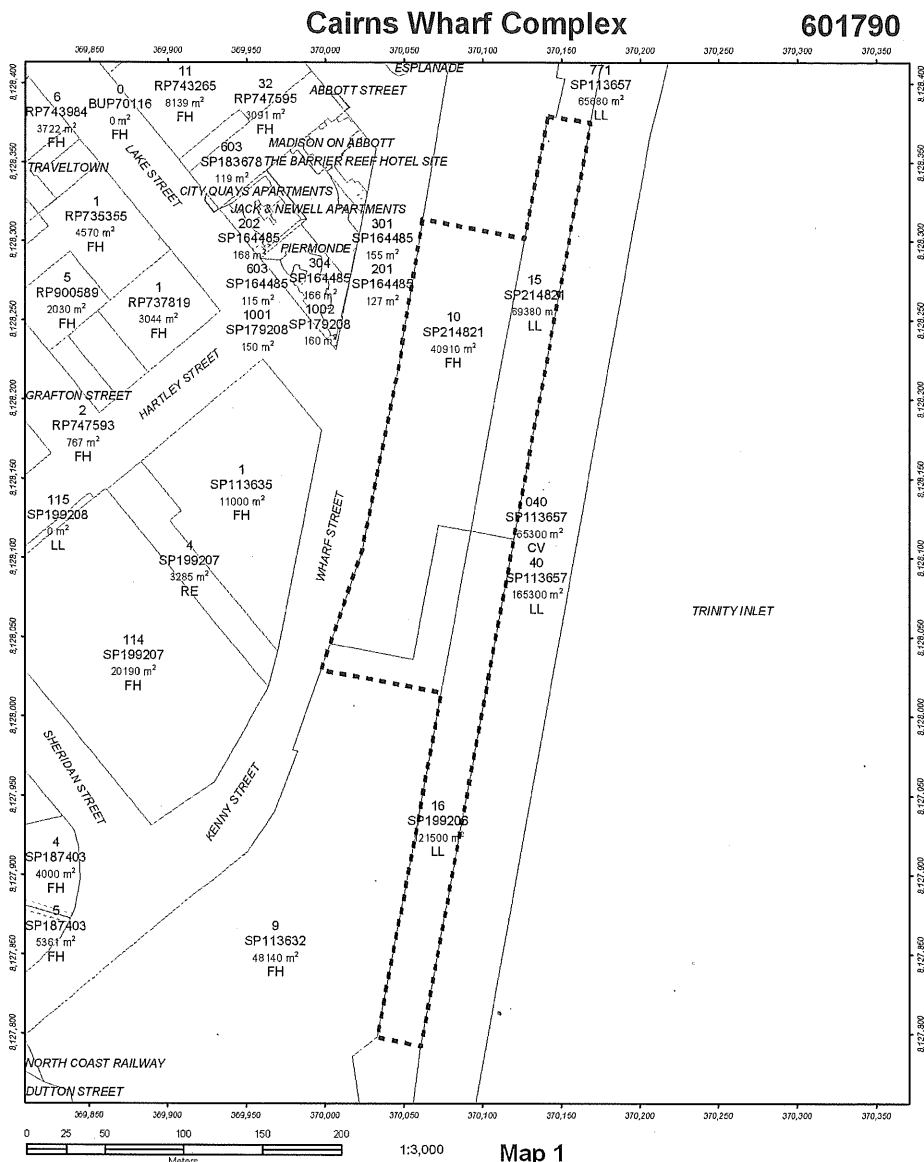
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Heritage Register Boundary



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Queensland
Government

Reference: CC879

Process Statement: Pursuant to the provisions of the Queensland Heritage Act 1992, the Heritage Council has formed the opinion that this is a place of cultural significance which satisfies one or more of the criteria for provisional entry in the Heritage Register and that it is possible for the cultural heritage significance of the place to be conserved.

The decision of the Heritage Council is recorded in the minutes of the Council meeting of 25 January 2000.

Note: This document has been prepared on the basis of current information, and assessed under the criteria in the Queensland Heritage Act. This document may be reassessed if further evidence becomes available. The statement of significance specifies the most important heritage values of the place. The purpose of this document is to provide an informed evaluation for heritage registration. This does not negate the need for a thorough conservation study by a qualified practitioner, or Cultural Heritage Branch consultation, before any action is taken which may affect the significance of the place.

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