

Australia Pacific LNG Project

Volume 5: Attachments

Attachment 41: Non-Indigenous Heritage Technical Report - LNG Facility

Australia Pacific LNG Facility

Non-Indigenous heritage

A report to Australia Pacific LNG

by

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1. Introduction

Australia Pacific LNG Pty Limited proposes to develop a project enabling the creation of a world scale, long-term industry, utilising Australia Pacific LNG's substantial coal seam gas resources in Queensland. APLNG holds significant interests in less developed areas across the Walloons Fairway in the Surat Basin, which together with the Talinga coal seam gas field, constitutes the Walloons gas field development area.

The LNG facility will include up to four LNG trains with an installed capacity of approximately 18 MTPA, associated wharf and marine off-loading facilities to be located at Laird Point within the Curtis Island Industry Precinct of the Gladstone State Development Area and a ferry terminal to be located on the mainland. The LNG facility will utilise ConocoPhillips' proprietary Optimised Cascade® technology.

1.1 Study Area

The study area for the LNG facility component of the non-Indigenous heritage includes assessment of Curtis Island, in particular Laird Point, and adjacent marine areas. This study has not assessed proposed locations for mainland facilities. A separate assessment will be undertaken on these locations when confirmed. Laird Point is situated on the western side of Curtis Island, on the southern edge of Graham Creek and opposite industrial estates to the north of the City of Gladstone. The study area is shown in Appendix 1, Figure 1.

Curtis Island is approximately 40km long and 10-20km wide and is oriented in a north-south direction, parallel with the coast. It is the largest of the islands that enclose Gladstone Harbour and is one of the group of offshore islands included in the World Heritage listed Great Barrier Reef Marine Park. Curtis Island has some connection to early maritime exploration in the region.

There is a small settlement (South End), begun as a fishing village on an earlier grazing lease, on the southeast tip of the Island. The island remains relatively isolated, due to the absence of road access from the mainland, with much of it undeveloped and some annexed as National Park.

Laird Point is visually separated from South End and other areas of the island by a range of hills, and is modified open forest and is fringed by mangroves. The impacts that have been experienced in the area have come from pastoral activity and bushfire regeneration. The entire island has, because of its location and history of isolation, remained relatively wooded, in stark contrast to the heavily industrialised landscape around Gladstone on the mainland opposite.

1.2 Purpose

This study describes the non-Indigenous heritage and post-contact land use history of Curtis Island and the Laird Point area in particular. It documents the registered heritage places and potentially significant site locations in and around the project area, and proposes measures to mitigate any impacts that might result from development of the LNG facility.

The specific aims of this non-Indigenous heritage assessment are to:

- Meet the conditions for non-Indigenous heritage in the project Terms of Reference.
- Identify historical themes relevant to the non-Indigenous use of Curtis Island.
- Identify known non-Indigenous heritage sites in and around the proposed LNG facility site.

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- Assess the likelihood of further items of heritage significance occurring in the proposed LNG facility site.
 - Assess the significance of sites located in and around the LNG facility site, in terms of their meeting criteria defined for inclusion in Local, State or National heritage registers.
 - Provide advice on measures for the mitigation of impacts to identified heritage sites, appropriate to their level of significance.
 - Propose a methodology for the management of non-Indigenous heritage sites identified during construction on Curtis Island.

A small number of sites have been located during preliminary fieldwork conducted in the Australia Pacific LNG facility site study area (See Figure 1). These have been incorporated into the assessment. These provide an indication of non-Indigenous heritage sites that occur in the region to be affected by LNG facility development.



Plate 1 Remnant of fence line along the edge of mud flats in the Australia Pacific LNG facility site.

1.3 Legislative framework

In Queensland, both Commonwealth and State legislation protects non-Indigenous heritage sites. This heritage legislation works in concert with planning instruments, which require consideration of heritage sites in the planning approval process.

1.3.1 Commonwealth legislation

Three pieces of Commonwealth legislation serve to protect Australia's heritage. These are the *Environment Protection and Biodiversity Conservation Act*, 1999, the *Australian Heritage Council Act*, 2003, and the *Historic Shipwrecks Act*, 1976. The Commonwealth authority responsible for the administration of this legislation is the Department of Environment, Water, Heritage and the Arts (DEWHA).

Environment Protection and Biodiversity Conservation Act, 1999

This legislation provides protection for items and places with World, National or Commonwealth heritage values. It is the primary piece of Federal environmental legislation in Australia, providing the legal framework for the protection and management of nationally and internationally recognised flora, fauna, ecological communities and, of greatest relevance to this discussion, cultural heritage places defined under the Act as being of national significance.

Both nominated or listed cultural heritage sites can be protected under this Act, either through inclusion on the National Heritage List or, on the Commonwealth Heritage List if they are on Commonwealth land. This legislation also provides protection for cultural heritage items and places on the World Heritage list. The criteria used for inclusion on the National (and Commonwealth) Heritage List include:

- Importance in the course of Australia 's natural or cultural history
- Possession of uncommon or endangered aspects of Australia 's natural or cultural history
- Potential to contribute to an understanding of Australia 's natural or cultural history
- Importance in demonstrating the key characteristics of a class of natural or cultural places
- Importance in exhibiting aesthetic characteristics valued by a community or cultural group
- Importance in demonstrating creative or technical achievement at a particular period
- Special association with a particular community for social, cultural or spiritual reasons
- Special association with the life or works of persons of importance in Australia's history, and
- Importance as part of Indigenous tradition.

Any development that could impact on a listed heritage place of national or international importance, requires Ministerial approval before it can proceed.

In 2003 The *Australian Heritage Council Act, 2003*, established the Australian Heritage Council to administer the National Heritage List and Commonwealth Heritage List.

The Australian Heritage Council Act, 2003

The *Australian Heritage Council Act, 2003* established the Australian Heritage Council as the principal advisory body to the Australian Government on heritage matters, particularly in relation to administering the lists created under the *Environment Protection and Biodiversity Conservation Act, 1999*. It replaced the Australian Heritage Commission, the authority previously responsible for assisting in the administration of Federal heritage legislation and for creating the Register of the National Estate on which were placed items of recognised heritage value.

The role of the Australian Heritage Council is to:

- Assess cultural heritage items and places for inclusion in the National Heritage List or Commonwealth Heritage List
- Advise the Minister in relation to the inclusion of places in, and the removal of places from, the List of Overseas Places of Historic Significance to Australia
- Advise the minister on matters relating to the condition of places included in the National Heritage List or Commonwealth Heritage List

- Advise the minister on the Commonwealth's responsibilities for historic shipwrecks
- Promote the identification, assessment, conservation and monitoring of heritage, and
- Keep the Register of the National Estate.

The Australian Heritage Commission had from 1975 maintained a list of significant heritage locations on the *Register of the National Estate*. More than 13,000 items were listed, including non-Indigenous heritage sites. With the introduction of the *Australian Heritage Council Act*, 2003, the Register of the National Estate was closed to new entries from 19 February 2007. From then, until February 2012, it will remain a statutory instrument, with the Minister required to consider it when making decisions under the *Environment Protection and Biodiversity Conservation Act*, 1999. In the transition period, entries on the Register of the National Estate are being transferred to local, State and National heritage registers, where appropriate. From February 2012, the Register of the National Estate will remain as a publicly available archive, but all reference to it will be removed from the *Environment Protection and Biodiversity Conservation Act*.

The National Heritage Places Inventory is maintained by DEWHA, and contains summary information about places listed in State, Territory and Commonwealth Heritage Registers and Lists. It is as an online, searchable database.

Historic Shipwrecks Act, 1976

This Commonwealth legislation protects shipwrecks and associated relics more than 75 years old in Commonwealth waters. All wrecks are recorded in the Australian National Shipwrecks Database with details of their location, if this is known. Each of the States and the Northern Territory has complementary legislation for State waters including bays, harbours and rivers. The Minister for DEWHA can also make a determination to protect historically significant wrecks or relics less than 75 years old.

1.3.2 State legislation

The Queensland authority responsible for non-Indigenous heritage protection in the state is the Department of Environment and Resource Management (DERM). This State Department keeps a register of significant heritage places and sites, the *Queensland Heritage Register*, and administers the *Queensland Heritage Act*, 1992 (QHA).

Queensland Heritage Act, 1992

For non-Indigenous heritage, the *Queensland Heritage Act, 1992* provides specific pathways to protection. Its stated aim is 'to provide for the conservation of Queensland's cultural heritage for the benefit of the community and future generations.' (Section 2.1). To meet these objectives, the Act (Section 2) enabled:

- The establishment of the Queensland Heritage Council
- Creation of the Queensland Heritage Register
- Creation of local heritage registers
- Regulation, in conjunction with other legislation, of development affecting the cultural heritage significance of registered places
- Provision for heritage agreements to encourage appropriate management of registered places, and

- Provision for appropriate enforcement powers to help protect Queensland's cultural heritage.

The Queensland Heritage Register, established under Section 31 of the Act, is a record of State heritage places and protected areas (Section 6), and, since amendments in 2008, also includes archaeological sites. Register entries include details of the boundaries of the area or place, its history, a description of its fabric and whether it is the subject of a heritage agreement. For State heritage places, a statement of significance is required, addressing cultural heritage criteria defined by the Act. For archaeological places, a statement of significance, relating to established archaeological criteria, is required. For protected areas, a statement of significance, relevant to its declaration as a protected area, is required. The Register is a public document.

The Act addresses the obligations and rights of developers. The main requirement is that, under Section 68 of the Act, development of a place listed on the Queensland Heritage Register can only proceed with the approval of the Chief Executive. Any damage to a site or place listed or provisionally listed on the Queensland Heritage Register, attracts a penalty.

Not all places and objects of heritage value are known prior to development. This is particularly the case with archaeological sites, sometimes unearthed during construction. The obligation here, under Section 89 of the Act, is for a person to advise the chief executive about any archaeological artefacts that are an important source of information about an aspect of Queensland's history. The discovery must be notified in a timely manner with advice on where it was discovered, photographs and a description. Once artefacts have been reported, it is an offence under Section 90 of the Act to interfere with these artefacts, within 20 business days of informing the Chief Executive of their discovery. 'Interfere' includes: 'damage, destroy, disturb, expose or move' (Section 88).

Places of heritage significance are not always listed on the register, but are nevertheless known to members of the public. A place can be nominated for inclusion on the Queensland Heritage Register at any time and pending development may prompt such nomination. The Minister may issue a stop order to protect from damage any place (entered on the Register or not) considered to be of cultural heritage significance. A stop order will operate for up to 40 business days until the place has been assessed and further decisions made about its fate (Section 154).

1.3.3 Local legislation

Amendments to the *Queensland Heritage Act* 1992, introduced in 2008, required local government agencies to establish their own registers of heritage places, unless they already had satisfactory measures in place to protect sites under existing planning instruments (Sections 112,113).

A further 2008 amendment also provided for the integration of State and local government assessment and approval processes under the Integrated Development Assessment System (IDAS) of the *Integrated Planning Act* 1997 (Section 121). Sites listed on local government heritage schedules within the project area are subject to assessment provisions specified under this Act.

1.4 Cultural heritage significance

Cultural heritage can be defined as the integration of the links between history and humanity. Places with cultural heritage significance provide a sense of the connections between the community and landscape, between the past and the present and are the tangible traces of the Australian identity and experience.

The evaluation of site significance undertaken in this study derives from a framework identified in the Burra Charter which urges consideration of the aesthetic, historic, scientific, social and spiritual values

of places from the past, in the present and for the future (Marquis-Kyle and Walker 1994). Within this framework, the significance assessment of locations identified along the pipeline route has been carried out using criteria laid down in Section 35 of the *Queensland Heritage Act*, 1992 to identify heritage items of State significance. These criteria are:

- a) The place is important in demonstrating the evolution or pattern of Queensland's history
- b) The place demonstrates rare, uncommon or endangered aspects of Queensland's cultural heritage
- c) The place has potential to yield information that will contribute to an understanding of Queensland's history
- d) The place is important in demonstrating the principal characteristics of a particular class of cultural places
- e) The place is important because of its aesthetic significance
- f) The place is important in demonstrating a high degree of creative or technical achievement at a particular period;
- g) The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; and/or
- 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.

These criteria are founded on five *cultural heritage values*: aesthetic, architectural, historical, scientific, social and technological.

To be entered into the Queensland Heritage Register as an archaeological place, a site or place must have the potential to contain an archaeological artefact that is an important source of information about Queensland's history (Section 60).

Any site or place, which meets the criteria, may be included on the Queensland Heritage Register. The legislation clearly states that places are not to be excluded on the grounds that similar sites have previously been listed (Section 35.2).

In addition to locations deemed to be of National, State or Local significance, and recognised through their listing on relevant heritage lists and registers, are other sites that do not meet register listing criteria, but which still provide a setting in which to understand the region's historical land-use. These locations have been described in recent studies as being sites of historical interest (HI) (Archaeo Cultural Heritage Services 2009). This assessed low heritage value does not warrant the level of protection necessary for sites of Local, State and National heritage significance.

1.4.1 Scientific assessment criteria

Most of the sites found in the proposed LNG Plant site are archaeological sites. These do not necessarily rate highly in terms of the values used to evaluate significance: aesthetic, architectural, historical, social or technological. They do, however, rate more highly when evaluated for their scientific values.

There are a number of criteria used to assess site significance from a scientific perspective. These criteria include the site's integrity, its structure and contents: qualities allowing the assessment of its

value for research purposes. In addition to the above criteria, a site may also be of scientific significance simply because it is rare.

Site integrity

Site integrity refers to the degree to which a site has been disturbed, or alternatively, to how well it has been preserved. Disturbance may have occurred in the past through repeated use of a site, or may be recent, resulting from erosion or recent land-use. The spatial distribution of artefacts and features at a site can provide important clues about the nature of a site's use, and therefore, sites which are least disturbed, are generally of greater value for research purposes.

Site structure

Structure refers to the physical dimensions of a site, including stratigraphy, size and the patterning of archaeological material and presence or absence of built structures. A site with undisturbed sub-surface deposits has greater research potential than a site that has been modified by subsequent land-use. Often a site's structure can only be determined through remote sensing techniques or from sub-surface examination.

Site contents

This category refers to the range of occupation material and structures found in a site. Some sites contain a diverse range of cultural items, allowing various aspects of site's history to be elucidated. An evaluation of site contents provides some indication of the potential of a site to address current and future research questions.

It is necessary to consider the scientific values, in addition to the community values of non-Indigenous heritage sites, more commonly assessed in terms of their aesthetic, architectural, historical, social or technological aspects, to decide on the most appropriate level of protection during development.

2. Methodology

2.1 Method

The non-Indigenous heritage assessment for the LNG facility portion of the project was carried out using:

- On-line resources, principally for information on legislation, heritage site data bases, histories, general information
- A search of the Commonwealth register for listed sites of international and national significance (World Heritage List, National Heritage List, and Register of the National Estate)
- A search of the National Shipwrecks database
- A search of the Queensland Heritage Register. A GIS layer was created for recorded sites in and around the Project area and compared with planned project infrastructure
- A search of the register of the Queensland National Trust
- A search of data in heritage studies previously carried out in the area. In particular, one written for the Coastal Planning Unit of the Environmental Protection Agency, identifying sites of local heritage significance along the Curtis Coast, by historian Lorna McDonald in 2001; and a similar study of regional heritage sites, prepared by Allom and Lovell in 1999. These two documents are referenced in the Curtis Coast Regional Coastal Management Plan as forming the basis for a list of significant non-Indigenous heritage places in the district
- Requests for information to local Councils and historical societies
- Publicly available books and histories
- Discussions with individuals and organisations with an interest in the region's heritage, and
- A two day field survey covering areas likely to be affected by construction and operations of the LNG facility.

A contextual history of the area has been provided and previous studies reviewed. Site information from the various site databases and data sources, has been collated and mapped. To provide a context in which to assess the heritage values of the sites in the project area, heritage locations in the surrounding area have also been considered. While this may have resulted in the inclusion of sites well distant from the location of the planned development, it has ensured that significant heritage places that might be indirectly impacted by the project are also identified and helps to contextualise sites in the study area.

2.2 Field investigations

To test the validity of the site distribution models and to examine locations identified from consultation, three field studies were undertaken at the LNG facility site to identify locations with non-Indigenous heritage values. This was valuable, in identifying several heritage sites along Graham Creek and in the LNG facility site itself. Field investigations included land-based surveys undertaken over nine days in September, October and December 2009. In addition to land-based site investigations, a review of sites along Graham Creek was undertaken by boat. Sites located during these investigations have been included in this analysis.

2.3 Consultation

Information on non-Indigenous heritage sites on Curtis Island came from a wide range of sources, however, the most valuable of these were long-term residents of the district; people with a passion for the recording of local history and the protection of sites associated with that history. Many of the sites they identified were recorded in no other source, or were only known from vague written references. Additionally, representatives of organisations charged with protecting heritage sites, including Regional Council officers and the National Trust of Queensland, provided insights into the listed sites in region. The people contacted as part of this investigation are listed in Table 1.

Table 1 List of heritage contacts for the LNG facility portion of the Australia Pacific LNG Project

Contact	Organisation or location	Region
J.W. Harris	Gladstone	Curtis Island, Gladstone, Calliope region
Information Officer	Calliope River Historical Village	Port Curtis
Information Officer	Gladstone Regional Council	Gladstone and district
Neville Robertson-Hughes	Gladstone Maritime Museum	Gladstone and district
Danny Aischlemann	Gladstone Maritime Museum	Gladstone and district
Information Officer	Miriam Vale Museum	Miriam Vale and district
Dr Val Dennis - Heritage Information Officer	National Trust of Queensland	Entire Project Area

While individuals and groups from the local community have been consulted about non-Indigenous heritage sites in the vicinity of the proposed Australia Pacific LNG facility on Curtis Island, further documentation of the Island's heritage values will be sought from the community. This will inevitably provide additional information on the nature and location of sites in and around the LNG facility site.

2.4 Limitations

There are limitations in the data collected for this project. The data is limited because heritage lists, the first source of information on non-Indigenous heritage sites, contain a bias in the types of sites recorded. The bias is essentially toward built heritage and away from archaeological sites. Most registered non-Indigenous cultural heritage sites and places in Queensland have been recorded as a result of the interests of members of local historical societies, the National Trust and in more recent times by academics, heritage architects and cultural heritage practitioners. There is an overwhelming bias in favour of public buildings, homesteads and monuments, with few listed archaeological sites other than mine sites. Admittedly, only since early-2008 has heritage legislation in Queensland recognised the value of non-Indigenous archaeological sites as well as buildings.

Field surveys and to a greater extent, the community consultation program have addressed some of these limitations. Further field surveys were conducted on Curtis Island to examine locations identified from public consultation. This fieldwork confirmed that suspected sites are not located in the vicinity of the LNG facility site.

3. Existing Environment

Included in this section is a brief history of the area in and around Curtis Island, investigating relevant themes to provide a context for any known or potential non-Indigenous heritage places and sites.

There is also a summary of known non-Indigenous heritage places and sites on Curtis Island.

3.1 Historical Context

3.1.1 Maritime exploration and mapping

Lieutenant James Cook sighted Curtis Island in 1770 when he passed by in the HM Bark Endeavour. The next verified non-Indigenous sighting of the area was not until 1802, when Matthew Flinders spent four days mapping the bay and adjacent shores. He named Port Curtis and several other landmarks in the area.

In 1823 John Oxley explored the coastline and in 1848 Owen Stanley again surveyed the entrance to the port.

The non-Indigenous heritage legacy of this maritime mapping includes the diaries and maps, recording the landscape before it was so dramatically altered by nearly two centuries of settlement. There are unlikely to be recognisable traces of explorer visitation of the island. If evidence still remains on Curtis Island, it is likely to be debris from campsites, ballast from the ships, or stone cairns or marks on trees, used to assist in their surveying. These traces are likely to be so slight as to be unrecognisable.

Contact with Indigenous people

Throughout Queensland much of the early non-Indigenous history involves Indigenous people. This includes assistance to early explorers and, as land was taken over, numerous and often fierce conflicts (killing of white people, retaliatory massacres of Indigenous people, conflict between Indigenous people and the large numbers of settlers and Chinese miners). There is considerable detail on the conflict occurring on the mainland. A few accounts refer directly to Curtis Island. One was an encounter by members of Matthew Flinders' party with the Aboriginal people there. When he landed at the southern coast:

A number of blacks gathered on the shore and protested against the landing of the white men by volleys of stones, but they disappeared when two or three muscats [sic] were fired over their heads. Seven bark canoes were found lying on the shore, and near them, hanging upon a tree, were some parts of a turtle and some scoop nets. [Hogan 1898:10]

Another description of early contact is by Rosa Praed, a renowned Australian novelist, who lived on Curtis Island for three years from 1872 and later wrote thinly disguised descriptions of it in her book *An Australia Heroine*:

[Curtis] Island is divided from the mainland by a straight called the Narrows, four miles wide thereabouts at its northern and southern ends, and differing at the middle, according to tidal changes, from two miles to less than a mile. At this narrowest portion [they] are able to swim their cattle across to the mainland. At the opening of this story the greatest part of the island was merged in a large cattle station called [Monte Christo], upon which grazed the herds of [Mr Campbell]... [his] predecessor at [Monte Christo] had been, fourteen years previously, the first

pioneer of civilisation upon this northern shore. He had, by the terror of his firearms, driven the aborigines onto the mainland ... [Campbell Praed 1890:11].

There are numerous descriptions of contact with Indigenous people nearby in the early years of Gladstone, first on Facing Island, when the first Europeans sent to build a penal settlement on the mainland, instead ran aground and were stranded for weeks (the Aboriginal people pelted them with stones); and later when Maurice Charles O'Connell was in charge of the government residency at Port Curtis, and afforded the Indigenous people some protection.

The early history of the Gladstone districts was a volatile and dangerous period for the new squatters, workers and miners, and for the local Indigenous people. A late 19th Century reference to the region, including Curtis Island reveals the dramatic effects of settlement on Indigenous people in and around Curtis Island:

The country of the Byellee tribe stretches from Keppel Bay to the Calliope River, and includes Curtis Island. It was occupied by the Whites in 1855. The tribe at that time numbered about 300 persons, and is now (1882) reduced to 32. [Curr 1887 III:114]

Sites with evidence of contact on Curtis Island are likely to contain 'contact artefacts'. These are items made in a traditional way, but using materials obtained from European explorers, seamen and settlers. These are most often metal, ceramic and glass. Aboriginal people frequenting the camps around Gladstone were quick to use hoop iron for their spears (McDonald 1988).

McCabe's survey on the site of Gladstone

In 1853, Francis McCabe was sent to survey allotments for the new town he would call Gladstone, in honour of the Colonial Secretary. At the time of his arrival there were two squatting runs in the area, however he met no Europeans. McCabe's survey party encountered many difficulties including lack of fresh provisions, but eventually surveyed the town site and hinterland. Maurice Charles O'Connell took over the running of the nascent town but was recalled in 1859 when Queensland became a separate colony and a government residency for North Australia was no longer required. This was a setback for the township but the whole exercise commenced the European expansion into the area. At this stage Curtis Island still saw few impacts from Europeans.

Canoona goldrush

In the late 1850s a goldrush on the mainland near the northern end of Curtis Island was launched from a newly established pastoral station on the Fitzroy River. It moved the action quite suddenly from Gladstone to Rockhampton and swelled the population, with people streaming northward from Sydney and Melbourne:

This sudden increase in shipping prompted the establishment of a pilot station at Sea Hill at the northern end of Curtis Island, later to become the site of the first lighthouse on the island. The rush was not to last:

The fleet of vessels that within a few weeks carried the population of a new colony to those waste regions have returned to the older settlements that sent them forth, and have restored their thousands of adventurers to their old places and occupations. [Frederick Sinnett 1859]

Although most of the diggers went home, some stayed on in Rockhampton and took advantage of new discoveries of gold in 1862. At the time of the renewed gold rush, Curtis Island became a cattle station, with the pastoralist aiming to profit from the miners.

First European settlement on Curtis Island

By 1856 the population of Gladstone had reached 200 and people were setting up sheep and cattle runs, such as that on Boyne Island. The first settlement on Curtis Island was the small pilot station at Sea Hill, established in 1858 to aid navigation. It soon became the site of a lighthouse and supported a small settlement. The lighthouse was built to assist shipping into the Fitzroy River. Rosa Praed, who lived at Monte Christo station nearby, described it as follows:

[The island's] northern extremity forms a bluff narrow cape upon which stands a lighthouse and a pilot and telegraph station; the business of the officials to guide ships past the great barrier reef and to signal and report vessels bound northward, and much small coasting steamers as find their way up the [Fitzroy] river to the town of [Rockhampton]. [Praed 1890:11]

The Sea Hill lighthouse community and another at Cape Capricorn, set up in 1875 on the north eastern tip of the island, help tell the story of the island's role in navigation and opening up of the Queensland coast and hinterland. The remains of these two places are discrete and while additional sites may be found at the northern end of the island associated with these settlements, their influence did not spread to the southern end of the island: into the study area.

Pastoral settlement on Curtis Island

The first cattle station registered on Curtis Island was *Monte Christo*, which took up almost the entire island. It was registered in 1862 but indications are that it was first stocked in 1858 (Praed 1890:11). Rosa Praed went there after her marriage in 1872.

The greatest part of the island was merged in a large cattle station ... and the remainder comprised the pilot station above mentioned, and an extensive tract of land formerly appropriated by the government for a mission station for conversion of aboriginals, but never used for that purpose ... at that time, except the huts at the pilot station and the owners residence [at the cattle station] there was not a habitation upon it. [Praed 1890:11]

Curtis Island continued as a cattle station, then as three smaller cattle stations (Monte Christo, Spadeleigh and Randalls) and still retains the original cattle station. Cattle were, and still are depending on the tide, swum or walked across the Narrows to Gracemere saleyards. A meatworks was established at Gladstone in the 1890s. Gladstone's main role continued as one of servicing the local cattle industry until the early 1960s, when the shipping of Moura coal from Gladstone's deep-water port, began its transformation into the major industrial centre it is today.

Several heritage places and sites, relating to the pastoral phase of settlement, are known from Curtis Island. None are on legislated heritage lists, although McDonald (2001) identified these in her review of the heritage resources of the Curtis Coast. McDonald ascribed State or Local significance to some of the sites, including Monte Christo Station, although these have not yet been listed.

While the pastoral industry expanded onto Curtis Island, shipping activity along the Narrows increased, leading to maritime misadventure and loss of shipping. Curtis Island, while providing the cattle needed to feed the rapidly increasing population on the mainland, remained isolated. Unlike parts of the adjacent mainland, Curtis Island played little part in the influential historical themes of gold rushes, the Chinese and the major conflicts with Indigenous people that occurred in the mainland goldfields.

Navigation along the Narrows

Colin Archer, the renowned early explorer and squatter in the Fitzroy River district, regularly navigated the Narrows from 1855 until at least 1861, sailing stores north to Rockhampton in the *Ellida* and backloading wool from Rockhampton for shipment to Sydney. The channel was first beacons in 1867 and in the 1890s there were several attempts to dredge it: in 1890 and again in 1896 (Lucas 1994:103). It was finally dredged manually so that a regular steamer could maintain communication between Gladstone and Rockhampton. A steamer service was begun in the Narrows in August 1896. Until 1898 the Narrows was serviced by the Government steamer the *Miner* when it was replaced with a shallow draught paddle steamer, *Premier*, specifically built for the Narrows (Kerr 1990:87 cited in Archaeo Cultural Heritage Services 2009:27). At that time, the Narrows had a system of ten light beacons and a lightkeeper's residence on Monte Christo Island (Lucas 1994:103). The wrecks of four timber barges, used to transport timber, are still known from the Narrows, two on Curtis Island, of which one is found at the entrance to Pacific Creek (Sea Hill), the other on the northern bank of Graham Creek, near its entrance. One of the other barges is reported from Targinnie Creek, the other on Friend Point, opposite Laird Point. The entrance into Graham Creek provides one of the few safe anchorages along the Narrows, where ships can anchor waiting for the tide to turn.

Timber

The Narrows was used to transport timber and numerous sawmills operated near Gladstone. Curtis Island played a part in this industry. Timber felling was carried out on Curtis Island in the early years of the 20th Century, with logs loaded on barges in Ramsey Creek, three kilometres from the Narrows (McDonald 2001:42).

Mining

Curtis Island was by-passed by the major gold rushes and mining and prospecting on the island was fleeting. Oxley discovered indications of copper ore on the island (Traill 1980:84) and in 1887 five gold prospecting leases were taken out. "Ore brought from the island was said to show free gold throughout but, apart from that one mention, nothing further was ever noted and the exact location of the find is unknown" (de Havilland 1987:238). Pipe clay was also found.

Industrial development on the mainland

Since 1961, Gladstone has developed into Queensland second largest industrial city. Again, Curtis Island has remained isolated from this nearby activity, and the heritage places and sites on the island do not relate to heavy industry. A number of proposed LNG facilities are the first industrial developments planned for the island.

3.2 Known non-Indigenous heritage sites on Curtis Island

Sites known for Curtis Island include those listed on heritage registers and sites described in other information sources. Heritage lists used by the Gladstone Regional Council contain only the sites of State heritage significance, however, regional heritage studies also include locally significant sites.

3.2.1 Registered sites

Sites on Curtis Island are registered on a number of heritage lists. These include the Australian Heritage Places Inventory, and associated contributing lists: the World Heritage List, National Heritage List, State Heritage Register and the Register of the National Estate (with much overlap). There are no

sites listed for Curtis Island on the list of the National Trust of Queensland. Registered and listed non-Indigenous heritage sites on Curtis Island are described in Table 2.

Table 2 Registered and listed heritage sites on Curtis Island

Place	Heritage register	Significance rating
Great Barrier Reef	World Heritage List, WHL ID 105060; Indicative listing on both the National Heritage and Commonwealth Heritage lists, NHL ID 105709 & CHL ID 105573; Register of the National Estate, RNE ID 103284	International, National
Sea Hill Point Lighthouse	Register of the National Estate, ID101513	State
Cape Capricorn Lightstation	Queensland Heritage Register ID 601723; Register of the National Estate ID100379	State

Great Barrier Reef

The whole of Curtis Island is listed as part of the Great Barrier Reef World Heritage Area. This World Heritage Site is divided into World Heritage Area (Marine) and World Heritage Area (Land). Curtis Island is the largest of the islands included in the World Heritage Area (Land). The criteria supporting its listing relate to evolutionary history, geological processes, biological diversity, rare phenomena, exceptional natural beauty, and habitat for endangered plant and animal species. Non-Indigenous cultural heritage values have also been highlighted and include lighthouses, shipwrecks and ruins.

To ensure that these non-Indigenous heritage values are protected, and because the island is a World Heritage Site, impacts are being assessed jointly by the State and Commonwealth Governments under sections 12 and 15a of the *Environmental Protection and Biodiversity Conservation Act, 1999* (as amended 2003). Two sites are identified in State and Commonwealth heritage registers on Curtis Island. These are the Sea Hill Point Lighthouse, listed on the Register of the National Estate, but on neither the Queensland Heritage Register nor the National Heritage List; and the Cape Capricorn Lightstation, listed on the Queensland Heritage Register and the Register of the National Estate.

Sea Hill Point Lighthouse

This lighthouse is located on the northwestern tip of Curtis Island, and dates from 1873. It was replaced in the 1920s and the original lighthouse was transported to the Gladstone Maritime Museum. It marked the eastern side of the entrance to Keppel Bay and was apparently deactivated in 2006 and demolished in early 2009. It was accompanied by a pilot station established in 1858. Sea Hill developed into a small township with a primary school, and became a quarantine station (McDonald 2001).

Cape Capricorn Lightstation

This lighthouse is located on the Northeast tip of Curtis Island and comprises a lighthouse and associated cottages, keeper's quarters, sheds, store, winch-house and powerhouse. It was built in 1875, with further rebuilding in the 1930s and 1960s. This area is especially significant for its definition of the life of the lightkeepers, their families and workers. It is an isolated and almost self-sufficient complex, contributing to the network of navigational aids set up along the coast.

Both lighthouses are distant from the proposed development of the LNG facility at Laird Point and neither will be affected.

3.2.2 Additional sites listed in other sources

Lorna McDonald (2001) compiled a list of non-Indigenous heritage sites on the Curtis Coast and this list is referenced in the Curtis Coast Regional Management Plan. McDonald did not intend it to be comprehensive, as it was developed from historical research and discussions with local residents, rather than systematic field survey.

In addition to these locally significant sites, additional sites were discovered following discussions with local historian Mr. J.W. Harris. Mr. Harris is very familiar with the pastoral history of Curtis Island and is aware of several unlisted sites on Laird Point. These include a house site associated with the Price family, an underground, brick-lined water tank and a child's grave. These were not located during a field survey of Laird Point, but will be relocated prior to finalisation of the pipeline route. These sites are listed in Table 3.



Plate 2 Sea Hill Point Lighthouse dating from 1960s, removed to the Gladstone Museum in 2009.

MaritimeTable 3 Curtis Island sites identified by local research

Place	Description	Significance rating
The Narrows	Matthew Flinders first noted the channel but did not name it. The Narrows has a long history as the difficult to navigate link between Gladstone and Rockhampton.	State/ Local
Ramsey Crossing	McDonald identifies this as the cattle crossing used by	Local

Place	Description	Significance rating
	<i>Monte Christo</i> station since the 1860s.	
Graham Creek	Graham Creek has a deep-water entry extending some kilometers and used by boats as a safe anchorage.	Local
Yellow Patch	This body of coloured sand is located on the northwestern shore of Cape Capricorn and was a popular tourist destination for local residents.	Local
Joey Lee's Cave and Beach	Joseph Lee took up an oyster lease in this location, as a returned soldier after World War II. He built a shack and sold his oysters in Gladstone. He used an old car to get to Graham Creek and then travelled by boat. Cattle from Monte Christo station used a fresh water spring near his shack.	Local
Sea Hill	This site is listed on the Register of the National Estate. McDonald (2001) outlines the early history of the location, when a Captain Robertson camped with his crew of five at Sea Hill, all armed against Aboriginal attack. The pilot station was built to guide boats bringing 15,000 people coming by ship to the Canoona goldfields.	State/ Local
Quarantine Station	This quarantine station was established at Sea Hill in 1862 to quarantine arriving British migrants. A graveyard is associated with this site.	State/ Local
Monte Christo Station	<p>This is the home of celebrated novelist Rosa Praed, who reportedly lived a miserable, lonely existence at the station for two years after her marriage in 1872. The homestead was a stark wooden building facing west. She brought with her three horses, a piano and a case of household goods, transported from the Narrows in a dray.</p> <p>Three of Rosa Praed's novels were inspired by her time at Curtis Island and her writings in general are recognised as significant contributions to the history of Queensland. Her family prior to her marriage had moved from a station not far from Hornet Bank on the Dawson, after the murder of nearly the entire Fraser family. She wrote about these incidents in 'Australian Life: Black and White (1885). The novel which most relates to Curtis Island is <i>An Australian Heroine</i> (1880).</p> <p>Monte Christo is significant both because of its connections to a famous person, Rosa Praed, and as an early and surviving cattle station. It may qualify for</p>	State/ Local

Place	Description	Significance rating
	inclusion on the Queensland Heritage Register.	
South End	South End was a weekend retreat visited by local residents from the early 1900s. By 1925 there were 125 houses and five permanent residents. South End is listed in the Curtis Coast Regional Management Plan for its history as a recreation place (Allom and Lovell 1999).	Local
Cattle Crossing	<p>There are numerous mentions of the crossing used to herd cattle from Curtis Island to the mainland. An early settler describes it as follows:</p> <p>(The Narrows has) ... ample depth and scope for the passage of large vessels, save at one spot, where a natural causeway of rock supplies a ford which cattle can cross at low water, and consequently bars the channel against shipping. Voyagers are thus compelled to submit to a long detour by the exterior of the island, skirting the ocean marge of its rugged and mountainous length. [Traill 1980:84]</p> <p>Lucas (1994) provides a map showing two cattle crossings, Ramsey Crossing, and a short distance further south, Cattle Crossing. Each has a corresponding ramp on the mainland side. An undated photograph (Lucas 1994:102) shows the 'famous Cattle Crossing' with a wooden race extending into the water.</p>	Local
Price family house site	This house was occupied by the Price family, including 14 children. They lived in a house on a low rise overlooking Graham Creek. When visited approximately 40 years ago, the location had a surviving brick-lined underground water tank and posts (Personal communication J.W. Harris)	Local
Grave of William Alfred Price	This is the grave of William Alfred Price, who died aged approximately 3 or 15 months (depending on the source of information) on 15.1.1905, during a cyclone. William had been ill and due to a cyclone, the family had been unable to transport him across the Narrows to get medical assistance. He was buried near the house site. Laird Point (Personal communication Thelma Price, J.W. Harris,)	Local

A recent heritage study was undertaken to investigate the potential impacts to non-Indigenous cultural heritage of another major infrastructure project on Curtis Island (GLNG Project) conducted by Archaeo Cultural Heritage Services (2009). This led to the discovery and description of a small number of sites

that help to further document the Island's history and provide the local context in which to assess sites found in the Project area. These are described in Table 4.

Table 4 Sites located during the assessment of impacts from the GLNG Project

Place	Description	Significance rating
Curtis Island Fence Line (HI-08)	56K 315474 7372209 Numerous fence alignments were located across the island. They comprise timber posts without wire at the northern end of Laird Point. These provide evidence of early to mid-20 th Century pastoralism. Some are located around the inter-tidal and mangrove zones, presumably to keep cattle from the unstable mud flats.	Historical interest
Stockyards and dam (HI-09)	56K 318584 7368834 A small dam fenced to exclude stock and a metal loading ramp.	Historical interest
Stockyards near fishing hut (HI-10)	56K 319490 7368864 Large steel stockyards located near Fisherman's hut.	Historical interest
Chinaman Bay Loading Facilities (HAS-29)	56K 317858 7368136 Loading areas from island to bay and rubbish dump/hut likely used by people loading on the wharf and slipway. Includes dump of scattered machinery and household refuse on Hambledon selection (Monte Christo Station). Timber stockyard with loading ramp. Wharf with four tall vertical stumps set into dune sand. Slipway built with logs set into edge of bay.	Local significance
Curtis Island Industrial Working Site (HAS-30)	56K 318141 7368983 Fences, old machinery, wire, windmill, tanks and engine footings, sheds and boardwalk.	Local significance
Fishermans Hut (HAS-33)	56K 319257 7368751 Two huts, steel and fibro and an early construction with adzed timbers and old wire drawn nails. Fenced yard to the west with water tanks and domestic plantings; cattle dip and associated farm infrastructure.	Local significance

3.2.3 Sites identified during local field investigation

To complement the information on non-Indigenous heritage sites on Curtis Island found in published and unpublished sources, a field inspection of the proposed Australia Pacific LNG facility site and surrounding waterways was conducted in late September 2009.

As a result of this field inspection, two additional sites of local heritage significance were identified. Each of these is described below and in Table 5.

Graham Creek jetty

Three uprights that mark the location of a former jetty were found on the southern bank of Graham Creek, 1.2km to the northeast of the proposed LNG facility site (Plate 3). Submerged in the water 70 metres to the east of this location are found at least 5 substantial, dressed timber beams from the jetty. This site is of local heritage significance and will not be affected by proposed construction activities associated with the development of the LNG Plant.

Pastoral Station fence lines

Lines of old station fence posts were identified during a recent heritage survey on the western side of Curtis Island (Archaeo Cultural Heritage Services 2009). While these posts were noted, their full extent was not fully documented. As part of the present investigation, these derelict fence lines were followed and mapped. One line was found to extend south from the mangroves on the southern side of Graham Creek to enter the proposed LNG facility site from the north western boundary. This fence line continues 440m in a southeasterly direction to the shore of an extensive mud flat, then skirts the edge of this mud flat to the mangroves facing North Passage Island (Plates 1 and 4). Another fence line branches southward for 480m to a dam and abandoned concrete cattle trough. The fences have been used to keep cattle from straying onto the mud flats. A similar line of fence posts is found around a mud flat to the south of the project area. Scattered posts are also found elsewhere through the project area and will be fully mapped prior to construction.



Plate 3 Jetty remnants on southern bank of Graham Creek.



Plate 4 Pastoral fence line crossing mud flats in the Australia Pacific LNG Plant site. Mount Larcom is in the background.

The fence posts originally supported 3 strands of wire, and traces of rusted barbed wire remain in places. In other areas, more recent wire is present, and near the dam at the southern end of the fence line, and in the mangroves adjacent to Graham Creek are found fallen rails. The sites located during the field survey are listed in Table 5.

Table 5 Sites located during field surveys for the Australia Pacific LNG project

Place	Description	Significance assessment	Significance rating
Graham Creek jetty	56K 316542 7373813 56K 316615 7373806 This remains of this jetty are found on the shore in mangroves on the southern bank of Graham Creek and submerged 70m to the east. These jetty remnants are associated with the pastoral industry on the island, with materials brought from the mainland unloaded at this jetty.	Criterion (c) the place has a potential to yield information that will contribute to an understanding of Queensland's history. <i>The jetty is significant for its connection with the pastoral industry, particularly with transporting goods to service the pastoral station on the island in the early part of the 20th Century. It documents the connection between mainland and Curtis Island.</i> As an archaeological site, the	Local significance

Place	Description	Significance assessment	Significance rating
		<p>significance also needs to be assessed for its research potential and representativeness.</p> <p>Research potential:</p> <p>Integrity: Although the jetty has collapsed and displaced from its original location, many of the large structural beams remain.</p> <p>Structure and contents: The site will reveal details of construction techniques used for maritime structures on the island.</p> <p>Representativeness: The jetty is more substantial than the other surviving jetties in Graham Creek and is therefore unique.</p>	
<p>Pastoral station fence lines</p>	<p>56K 314740 7372304</p> <p>This location is the northwestern point of an extensive network of fences found on the western edge of the island. The fences extend across the proposed LNG Plant site.</p> <p>Fence posts had bored holes that held three strands of barbed wire. Rusted strands of wire are found adhering to some posts.</p> <p>The posts vary in height, width and thickness, with the tallest posts found on the mud flats, where they stand up to 1.5m high, the lower portion having been exposed by erosion. Most posts stand</p>	<p>Criterion (c) the place has a potential to yield information that will contribute to an understanding of Queensland's history.</p> <p><i>The fence posts are significant due to the connection with the pastoral industry on Curtis Island in the late 19th and early 20th Centuries.</i></p> <p>The fences contain redundant information about pastoralism on Curtis Island and therefore, these fences do not meet the criteria for State heritage listing.</p> <p>As an archaeological site, the significance also needs to be assessed for its research potential and representativeness.</p>	<p>Local significance</p>

Place	Description	Significance assessment	Significance rating
	<p>approximately 1.0m high.</p> <p>At the southern end of one fence line is a concrete stock watering trough. The watering point is still used, although a windmill originally used at this site has been removed to be replaced by an electrically-powered pump. The trough is no longer used.</p>	<p>Research potential:</p> <p>Integrity: While some fence posts have been affected by termite attack or burnt in bushfires, many intact posts remain <i>in situ</i>.</p> <p>Structure and contents: The fence posts provide evidence of the techniques used for fencing on the island. There is little variation between the posts.</p> <p>Representativeness: The fence posts are represented by posts found near Laird Point in areas where they will not be affected by planned development.</p>	

4. Potential Impacts

Only one non-Indigenous heritage site is known from the LNG Plant site near Laird Point. This is an extensive network of fences with an associated dam and stock watering trough, dating from the early-mid 20th Century. Approximately 2.58km of fence lines occur in the proposed LNG Plant site, and this would be destroyed by construction. As this site is potentially of local heritage significance, it will be necessary for detailed recording of the site prior to construction in this area.

The jetty on Graham Creek will not be affected by direct construction impacts, as it is situated at least 700m from the nearest Plant associated impacts. It is thought unlikely that indirect impacts, such as might arise from pipeline construction (560m to south), or increased wash from vessels using the Narrows or Graham Creek, will have any impact on these archaeological traces.

4.1 Potential impacts to undetected sites

There is a possibility that previously undetected, non-Indigenous heritage sites remain in the project area. These would most likely include sites associated with the pastoral history of Curtis Island. These may include further fences, cattle yards, stock watering points, machinery or loading facilities. Based on the results of earlier site investigations, and the range of sites previously documented, these are unlikely to be of great heritage significance. It is a very small possibility that sites associated with the early contact period and conflict with Indigenous people might be found on the island.

Further sites associated with the maritime use of the Narrows may also exist along the shores of Curtis Island. These may include items lost when vessels were stranded. It is probable, however, that dredging has removed historical traces from the seabed.

4.2 Cumulative impacts

In addition to impacts that will arise from construction of the LNG facility, other associated infrastructure is planned. A pipeline to supply the LNG Plant with gas will be built to the north and east of the Plant. It will then be routed south to supply proposed Gladstone LNG and Queensland Curtis LNG facilities. This pipeline will result in further impacts to non-Indigenous heritage sites on Curtis Island. The proposed pipeline route crosses the identified historical fence line, 350m to the north of the LNG Plant boundary, and will result in the loss of a further 5 fence posts, however, two of these are no longer standing.

The other LNG projects will also result in impacts to sites associated with Curtis Island's pastoral industry. Two pastoral sites will be lost through development of the GLNG LNG plant site (Archaeo 2009): the Chinaman's Bay Loading Site (HAS-29) and Curtis Island Industrial Working Site (HAS-30). Disused cattle yards (Site CINICH01) will be destroyed by the construction of the QCLNG LNG Plant facility (QGC 2009 Volume 8: 78).

Through archival recording of these impacted sites, recovery of information on the use of the island will ensure that any loss of information on the pastoral use of the island is minimised.

4.3 Matters of National Environmental Significance

Two registered heritage places on the National Heritage List, Sea Hill Point Lighthouse and the Cape Capricorn Lightstation, both identified as having State heritage significance and listed on the Register of the National Estate, are situated at the northern end of Curtis Island, and are at least 28km from the

proposed development. Neither would be affected directly or indirectly by construction of the proposed LNG facility.

A number of shipwrecks are known from the Port Curtis district. These include 20 on the National Shipwreck database and another six less than 75 years old, and therefore not protected by Commonwealth shipwreck legislation. None of these wrecks are found near the proposed LNG facility on Laird Point. The nearest wreck to the site is the Una, a fishing vessel sunk in Graham Creek in 1956, and more than 600m from the Plant site. This too would not be affected by construction at the LNG Plant site.

No items of State heritage significance are found at or near the proposed LNG facility. The nearest on Curtis Island is the Cape Capricorn Lightstation (QHR ID 105060) found 28km distant.

5. Mitigation and management

Procedures to be followed to ensure that non-Indigenous heritage sites are protected during construction at the Australia Pacific LNG facility site will include:

5.1 Design

- Avoidance, wherever possible, of previously recorded non-Indigenous heritage sites through careful placement of infrastructure
- Investigation of proposed mainland facilities
- Detailed field studies and archival recording of sites of local significance to be impacted, prior to disturbance

5.2 Construction and Operation

- Procedures to be put in place to ensure the timely reporting of heritage items uncovered during construction
- Induction of all workers on the LNG facility about the importance of non-Indigenous heritage sites and the procedures to be followed on their discovery
- Further consultation to take place with DERM to ensure that the most appropriate protection, recording and remediation measures are put in place, when listed and non-listed locally significant sites are threatened by construction
- Assessment of non-Indigenous site significance using criteria established under the Queensland Heritage Act, to determine the appropriate protection measures for sites identified during previous field inspections or uncovered during construction.

There are five options available for the management of development impacts to heritage sites. These encompass: avoidance, relocation, salvage, archival recording and interpretation. In most cases a combination of these measures is the best approach to preserving a site's heritage values. These principles will be followed when deciding on the impact mitigation measures at the LNG facility.

- Avoidance** The simplest means of protecting heritage sites from development impacts entails relocation of facilities so the sites are avoided. Where the sites remain in close proximity to construction activities it may be necessary to erect barriers to protect the site from accidental impacts.
- Relocation** In some instances where impacts are unavoidable, it may be possible for relocation of the heritage items, either to a nearby area that is not threatened by construction impacts, or to a museum.
- Salvage** Controlled archaeological excavation may be an option for recovery of information and relics from sites threatened by construction impacts. Once the site has been investigated and the information or relics recovered, development proceeds in the site area.
- Archival recording** Detailed archival recording of heritage items that are to be impacted by development is a minimum requirement. DERM has guidelines for archival photographic recording and plan drawings for heritage sites to ensure that these records accurately document threatened sites.

- e) **Interpretation** Either as part of a salvage and recovery program, or in isolation, the public interpretation of a site likely to be impacted by development can inform the community of the heritage values of sites that might be lost or damaged through development. In some instances, it is possible to incorporate elements of the archaeological features in public displays as part of the development.

5.3 Mitigation of impacts at the LNG facility site

Ideally, all heritage sites would be protected during the development of the LNG facility, however, impacts to heritage sites will occur in the project area. These proposed facilities encompass an area containing approximately 2.58km of historical fence lines and a stock watering point with dam and concrete watering trough, with local heritage values.

As the proposed LNG facilities are extensive, occupying most of the land that has been provided to Australia Pacific LNG, and as the fence lines cross the entire area, options for their protection are limited. The extent of the fences makes avoidance by redesign of the proposed facilities untenable and the low significance rating for the fences would not warrant such an approach. The low significance rating of the fences also does not warrant relocation or archaeological salvage of individual fence posts or the water trough. In this instance, the most appropriate management strategy for the pastoral sites on the LNG Plant site is detailed archival recording. The local community, through the Port Curtis Historical Society, would be provided with the results of this recording program.

As the recorded pastoral sites are deemed to have low archaeological potential and be of low heritage significance, their loss will not adversely impact on Curtis Island's heritage values. Nevertheless, a portion of the historical fence line will remain largely intact in the reserve to the north of the proposed LNG facility site. This area with only localised disturbance will provide a representative sample of this feature for future analysis and interpretation.

6. Recommendations

Non-Indigenous heritage sites are protected under the *Environmental Protection and Biodiversity Conservation Act, 1999* (for sites on the National or World Lists), and by the *Queensland Heritage Act, 1992* (for sites on the Queensland Heritage Register). Sites on the Register of the National Estate must also be considered prior to development. Sites of local significance are protected in local planning regulations. No non-Indigenous heritage sites in the vicinity of the LNG Plant site have been assessed as having highly significant heritage values, to warrant protection under national or state legislation. Nevertheless, as the island is part of a larger world heritage site and because identified non-Indigenous heritage sites are present, it will be necessary to ensure that recommended measures are put in place to minimise construction impacts to non-Indigenous heritage.

It is recommended that a non-indigenous heritage assessment be undertaken on the proposed locations for mainland facilities.

6.1 Previously undetected sites

Undetected non-Indigenous heritage sites may occur in the Project area. If so, these are likely to include archaeological sites associated with the pastoral, timber and maritime use of Curtis Island and The Narrows. To ensure that these are recorded and their heritage values assessed, the following steps will be implemented during construction, should they be uncovered:

- a) All work in the vicinity of the suspected heritage site will cease and a temporary buffer established.
- b) The Australia Pacific LNG Site Manager will be notified as per notification protocols established for the Project
- c) The Australia Pacific LNG Project's cultural heritage personnel will be advised of the finding, and will inspect the suspected heritage items to assess them and ensure that the provisions of the Queensland Heritage Act 1992 in relation to non-Indigenous archaeological sites are met

The Australia Pacific LNG Stakeholder & Indigenous Relations Officer will liaise with officers of DERM, as required, to ensure heritage items are properly recorded, their significance assessed and appropriate management measures implemented. These measures may include protecting and avoiding the site; investigating and recording heritage items; or excavation of the heritage items and removing these for safekeeping.

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Appendix A Figures





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Project No: 301001-00752		Figure: 00752-00-EN-DAL-111		Rev: 0		