

23. INDIGENOUS CULTURAL HERITAGE

This chapter provides a description of the Indigenous cultural heritage values within the project development area and an assessment of the potential for these values to be affected by direct and indirect impacts associated with the project. For the detailed findings of the project's Indigenous cultural heritage impacts, refer to Appendix Q, Aboriginal Cultural Heritage Impact Assessment.

23.1 Legislative Context

The following legislation and charter are relevant to identifying values of, and mitigating and managing impacts to, Indigenous cultural heritage during construction, operation and decommissioning of the project.

Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) (EPBC Act). This act protects natural, historic and Indigenous places on the World Heritage List, Commonwealth Heritage List and National Heritage List.

Native Title Act 1993 (Cwlth). This act provides for the recognition and protection of native title. If a petroleum tenement is to be granted over land where native title has not been extinguished, Native Title Act requirements must be met before the petroleum tenement can be granted. The Native Title Act provides valid statutory processes to allow the parties to reach agreement and for state and territory governments to grant interests over that land. Where Arrow plans to conduct petroleum activities on land where native title exists or is being negotiated, agreements may need to be reached with relevant Aboriginal parties.

Australian Heritage Council Act 2003 (Cwlth). The act appoints the Australian Heritage Council as the principal advisory body to the Australian Government on heritage matters, particularly those listed under the EPBC Act. The Australian Heritage Council nominates places for inclusion on the National Heritage List and Commonwealth Heritage List, and maintains the Register for the National Estate.

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwlth). The objective of this act is to preserve and protect, from injury or desecration, areas and objects on land or in Australian waters that are of particular significance to Indigenous peoples and their traditions.

Queensland Heritage Act 1992 (Qld). This act principally provides protection for significant non-Indigenous cultural heritage sites. However, sites deemed significant for both their non-Indigenous and Indigenous values are protected under this act.

Aboriginal Cultural Heritage Act 2003 (Qld). This act recognises and protects significant Indigenous cultural heritage in Queensland. The Aboriginal Cultural Heritage Act sets out requirements for the protection and management of Indigenous cultural heritage. Section 8 of the act defines Indigenous cultural heritage as anything that is:

- (a) a significant Aboriginal area in Queensland; or
- (b) a significant Aboriginal object; or
- (c) evidence, of archaeological or historic significance, of Aboriginal occupation of an area of Queensland.

Areas or objects must be considered significant because they play a part in Indigenous tradition and/or comprise a component of the history of an Aboriginal party for the area. Primary determination of significance lies with the Aboriginal parties for the area and must be consistent with their tradition.

The act places a 'duty of care' on any persons or company whose activities may harm or threaten Indigenous cultural heritage.

Duty-of-care guidelines have been established to guide persons and companies on how to comply with the Indigenous cultural heritage duty of care. Arrow will be required to comply with the Aboriginal Cultural Heritage Act duty of care for the Surat Gas Project either through a suitable native title agreement or agreements that do not expressly exclude cultural heritage or through an approved cultural heritage management plan (CHMP).

The Aboriginal Cultural Heritage Act requires an approved CHMP for any project that also requires completion of an EIS process. The CHMP must address the management of Indigenous cultural heritage present in the project development area. An Indigenous land use agreement (ILUA) that addresses cultural heritage management and is registered in accordance with the Commonwealth Native Title Act provides an alternative mechanism for compliance with the Aboriginal Cultural Heritage Act.

The act also provides a structured timeframe for the development of CHMPs by Arrow in consultation with the appropriate Aboriginal party. In the event that agreement cannot be reached on a CHMP, the matter may be referred to the Queensland Land Court for determination. When a CHMP is approved (or an ILUA registered), compliance with the CHMP (or ILUA) will ensure compliance with the duty of care.

Arrow's approach to developing the CHMPs will be guided by respect for Indigenous cultures and Australian and Queensland government legislation.

The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 1999 (Australia ICOMOS, 2000). Developed by the Australia International Council on Monuments and Sites (ICOMOS), the Burra Charter provides guidance on applicable criteria for assessment of the significance of cultural heritage areas, objects and values in terms of cultural and social, scientific, historical, educational, economic and aesthetic significance. The principles enshrined within the Burra Charter are generally accepted world-wide. The charter is endorsed by UNESCO for this purpose and is applied by cultural heritage practitioners and government agencies at both state and Commonwealth level.

23.2 Assessment Methods

The Indigenous cultural heritage assessment comprised of a desktop study, consultation and impact assessment. Methods are summarised below.

23.2.1 Desktop Study

The study area included the project development area plus an additional 1-km-wide zone around the project development area. In the case of review of existing and historical documentation and where the physical locations of Indigenous cultural heritage are uncertain, information and reports may have been drawn from further afield. This desktop assessment included:

- A search of lists and registers regulated by the Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPC), including the

World Heritage List, Commonwealth Heritage List, National Heritage List and Register of the National Estate.

- Investigation of lists, registers and databases regulated by the Queensland Department of Environment and Resource Management (DERM), including the Indigenous Cultural Heritage Database, Queensland Heritage Register and Cultural Heritage Information Management System for sites within the study area.
- A review of material held in publicly available archives, collections and publications for Indigenous cultural heritage information relevant to the study area. Such material includes studies completed as part of the impact assessment process for other developments in the vicinity of the project development area.
- A review of previous investigations conducted by Aboriginal parties on behalf of Arrow.
- Identification of features across the study area where Indigenous cultural heritage has the highest potential to exist.
- Development of a strategy for mitigation and management of any adverse impacts that could occur directly or indirectly as a result of project activities.
- Review and analysis of data that has been collated and compiled into a series of datasets that are maintained in Arrow's GIS database.

In addition to the desktop study, consultation with local government authorities was undertaken to determine the presence and significance of cultural heritage areas, objects and values in the study area.

23.2.2 Impact Assessment

Qualitative risk assessment was used to assess the likelihood of harm to cultural heritage sites from construction, operation and decommissioning activities, and the consequence of those impacts on these values.

The assessment included in this chapter has been aligned to the generic risk matrix presented in Chapter 7, Impact Assessment Method. This assessment was carried out for plausible incident scenarios that could occur during all phases of the project.

23.3 Existing Environment and Cultural Values

The assessment identified that the key values are associated with either archaeological significance (i.e., including physical evidence) or cultural significance (i.e., of significance to Indigenous peoples for cultural, spiritual or historical reasons). Aspects of the existing environment that contribute to the compilation of a set of Indigenous cultural heritage values include the following:

- Places with identified Indigenous values that are EPBC Act-listed and also included on the Register of the National Estate.
- Places that are included in the Queensland Indigenous Cultural Heritage Database. Notably, this database contains only broad information on each site such as its type, date recorded, general location and Aboriginal party details. The details of many of these sites have been collected during cultural heritage assessments for other projects in the region.

- Places, objects and areas of cultural heritage value identified during previous investigations conducted by Aboriginal parties on behalf of Arrow. Where Aboriginal parties have allowed it, the details of these sites are retained on Arrow's GIS database.
- Potential for places, objects and areas of cultural heritage value that are currently not identified, including those that become known through preconstruction field surveys.

23.3.1 Currently Identified Aboriginal Parties

In the case of the Surat Gas Project, the currently identified registered native title applicants in the vicinity of the project development area include the Iman People #2, Mandandanji People and the Bigambul People. The Wulli Wulli People #2 are currently identified for registration testing. The Iman People #2 and Bigambul People have registered native title applications that cover part of the project development area. Figure 4.8 (Chapter 4, Environmental, Social and Economic Context) shows the registered native title applications in the vicinity of the project development area.

23.3.2 Registration of Indigenous Cultural Heritage on Government Heritage Databases

Much of the project development area has been cleared for agricultural use. Completion of surveys for the presence of Indigenous cultural heritage has been geographically limited. It is impractical to conduct extensive on-ground surveys of the project development area before specific locations for infrastructure are proposed. It is likely that more Indigenous cultural heritage exists in the project development area than is indicated by the results of the heritage database searches. Database results are, however, indicative of the types of Indigenous cultural heritage that may be present.

A summary of the results of searches of the Australian and Queensland government Indigenous cultural heritage databases for the project development area are presented in Table 23.1. Of the Australian Government lists, only the Register for the National Estate contained listed sites. Listings contained only basic information and, in two of the three cases, carry an 'indicative place' listing status, which indicates that the site has been entered onto the database and is being assessed for inclusion on the register. Details of the sites listed on the Register of the National Estate are presented in Table 23.2.

Table 23.1 Summary of the results of Indigenous cultural heritage database searches

Database, List or Register Name	Administering Body	Places Identified Within Study Area	Places Identified Within Project Development Area	Identified Aboriginal Cultural Heritage Values
World Heritage List	DSEWPC, Commonwealth	0	0	0
Commonwealth Heritage List	DSEWPC, Commonwealth	0	0	0
National Heritage List	DSEWPC, Commonwealth	0	0	0
Register of the National Estate	DSEWPC, Commonwealth	9	7	3
Queensland Indigenous Cultural Heritage Database	DERM, Qld	398	372	372

Table 23.1 Summary of the results of Indigenous cultural heritage database searches (cont'd)

Database, List or Register Name	Administering Body	Places Identified Within Study Area	Places Identified Within Project Development Area	Identified Aboriginal Cultural Heritage Values
Queensland Heritage Register	DERM, Qld	7	7	0
Queensland Cultural Heritage Information Management System	DERM, Qld	124	99	3
	Total	538	485	378

Table 23.2 Australian Government-listed sites with Indigenous heritage values

Place Name	Description	Location	Within Project Development Area	Register of the National Estate Place ID/Listing Status
Barakula State Forest	Known to contain a range of Indigenous cultural heritage values, and a number of places listed individually on both the Queensland Indigenous Cultural Heritage Database and Queensland Cultural Heritage Information Management System are found within it.	Northwest of Chinchilla	Yes (the southwestern portion of Barakula State Forest extends into the project development area)	18062/ indicative place
Chinchilla Sands Local Fossil Fauna site	May have Indigenous cultural heritage values that are yet to be formally identified but which may be of National Estate significance. A single place (a scarred tree) recorded on the Queensland Indigenous Cultural Heritage Database falls within this area.	Warrego Highway, eastern outskirts of Chinchilla	Yes	14676/ registered
Lake Broadwater Conservation Park	Known to be a particularly important place for Indigenous people, having been used for both residential and ceremonial purposes. Associations with an important creator being (i.e., the Rainbow Serpent) have also been identified.	10 km southwest of Dalby	Yes	18052/ indicative place

Of the many places listed on the Queensland Indigenous Cultural Heritage Database (372 within the project development area), places containing stone artefacts comprise almost 60% of all sites listed. Scarred trees are the next most prevalent site type, accounting for a further 25% of sites. Other subsistence-related site types were fewer in number, i.e., shell middens, borrow pits, axe grinding grooves, hearths, ochre and other resource places. The majority of these sites are clustered in the centre of the project development area, reflecting the greater number of cultural heritage investigations conducted in this area. Furthermore, approximately 10% of registered sites show evidence of multiple values at a single location. These are predominantly located in the vicinity of the Condamine River and Dogwood/Wongongera, Kogan, Braemar, Wilkie and

Commonon creeks. A number of these sites contain three or more combinations of place types. Details of the three places listed on the Cultural Heritage Information Management System (CHIMS) are presented in Table 23.3.

Table 23.3 Queensland Cultural Heritage Information Management System listed sites

Place Name	CHIMS Place ID	Identified Indigenous Values	Within Project Development Area
Listed as Unknown Confirmed as being associated with 'Daandine' property	24101	Yes – strong Indigenous values dating to the historic period associated with 'Daandine' property (confirmed as identified location by CQCHM (2001)).	Yes
Shield tree (FB 20)	24656	Potentially – Forestry description of shield tree indicates that scarred tree is of Indigenous origin. Indigenous scarred trees have previously been identified within state forest areas.	Yes
Leichhardt October 1844 camp location (Camp 5 & L Tree) Jingi Jingi Creek, Brigalow	22981	Yes – Leichhardt documented an encounter with Indigenous people at this location.	Yes

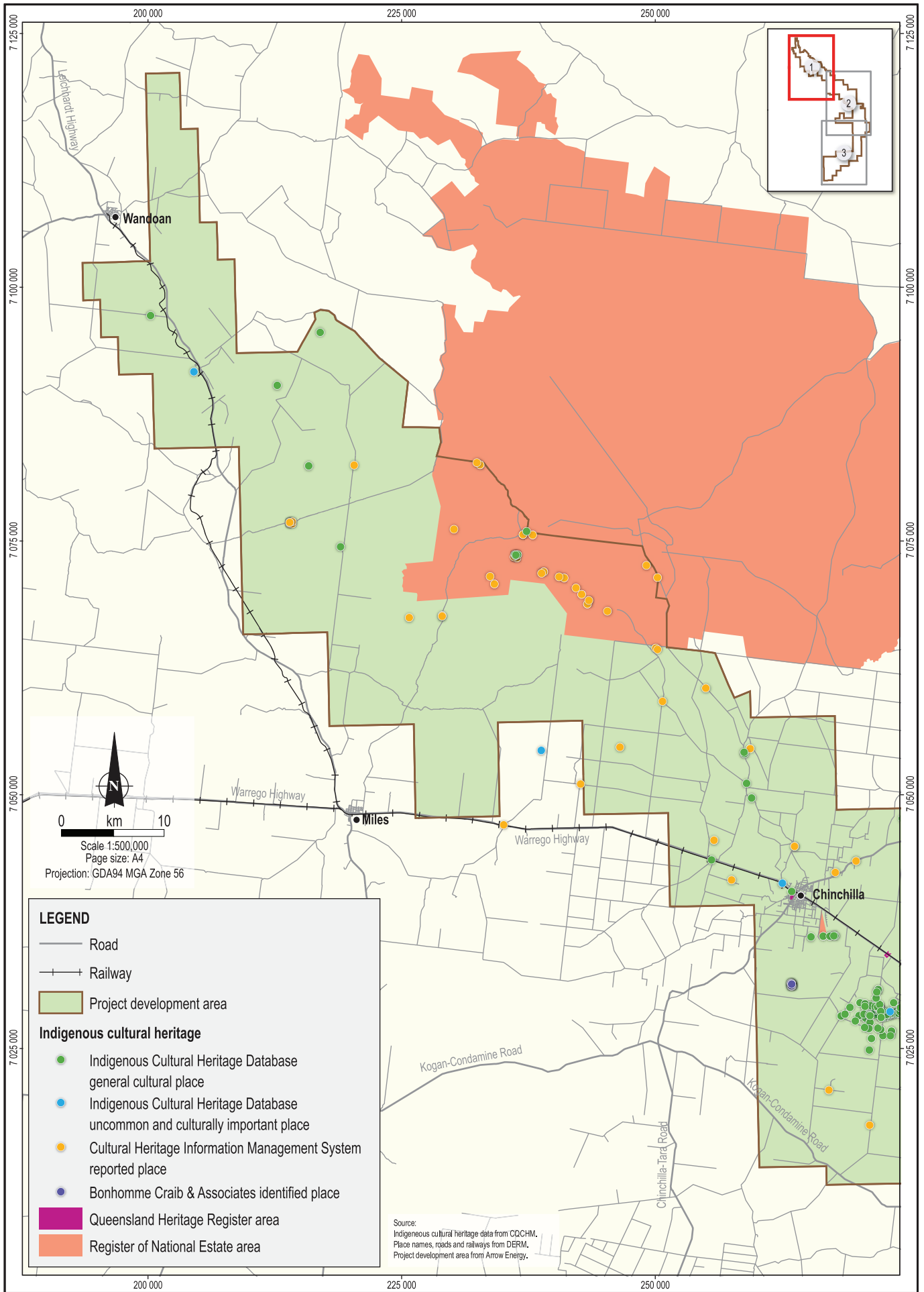
Both the Australian and Queensland registers indicate a widespread geographic distribution of places, objects and evidence of Indigenous cultural heritage. The distribution of places, objects and evidence listed on the registers and databases cited above are presented graphically in Figure 23.1.

23.3.3 Ethnohistorical Accounts of Indigenous Activity

There are a large number of ethnohistorical accounts of early explorers' and settlers' encounters with Indigenous peoples. These accounts, supported by archaeological evidence, provide an indication of widespread and long-term use of the Darling Downs by Indigenous persons. The following provides an indication of the type of information sourced during the desktop study.

Stone artefacts excavated at Mt Moffat Station, approximately 250 km north of the project development area, provide physical evidence that the Darling Downs has been a location of Indigenous activity for approximately 22,000 years (French & Waterson, 1982). The clans associated with the Darling Downs include:

- Wakka Wakka language speakers (from Toowoomba, Warwick and the Bunya Mountains).
- Kamilaroi language speakers (from the region's south and west).
- Turubul language speakers (from the region's east).



200 000 225 000 250 000

7 125 000
7 100 000
7 075 000
7 050 000
7 025 000

7 125 000
7 100 000
7 075 000
7 050 000
7 025 000

LEGEND

- Road
- +— Railway
- Project development area

Indigenous cultural heritage

- Indigenous Cultural Heritage Database general cultural place
- Indigenous Cultural Heritage Database uncommon and culturally important place
- Cultural Heritage Information Management System reported place
- Bonhomme Craib & Associates identified place
- Queensland Heritage Register area
- Register of National Estate area

Scale 1:500,000
Page size: A4
Projection: GDA94 MGA Zone 56



0 km 10

Source:
Indigenous cultural heritage data from CQCHM.
Place names, roads and railways from DERM.
Project development area from Arrow Energy.

200 000

225 000

250 000



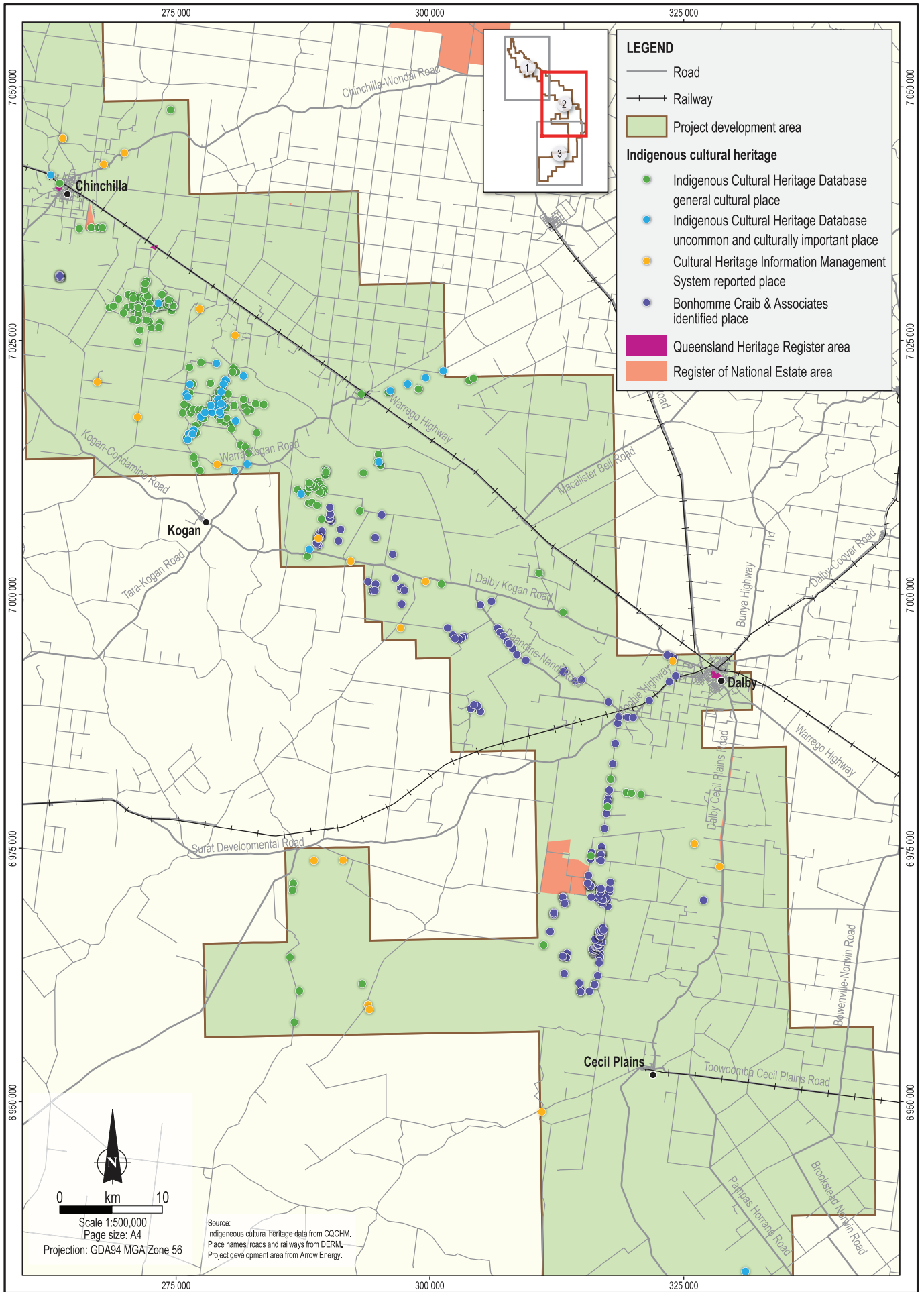
Date: 09.12.2011
MXD: 7040AC_04_GIS119a_v1_3
File Name: 7040_04_F23.01a_GIS_FT

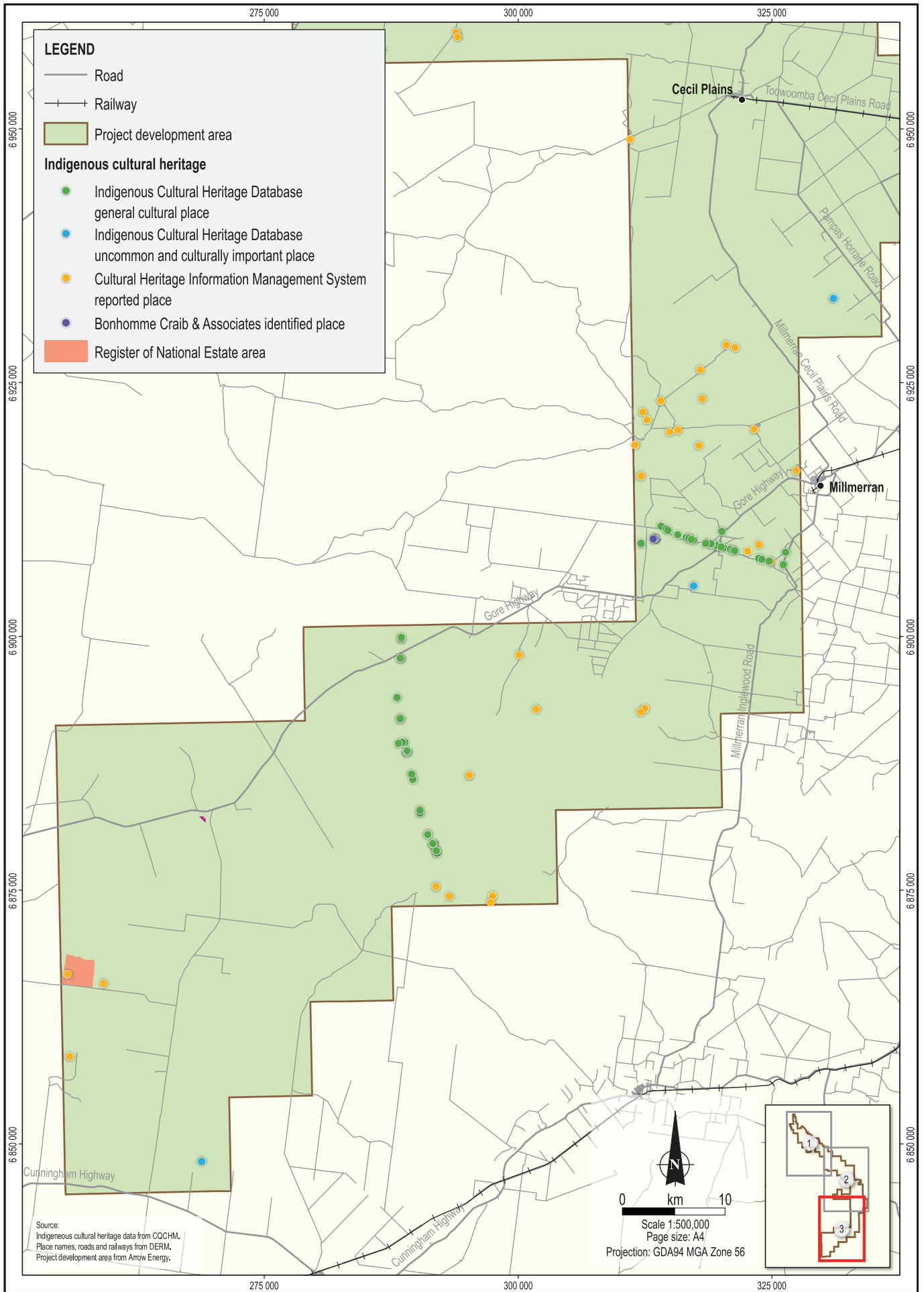
Arrow Energy
Surat Gas Project



Registered locations of Indigenous cultural heritage (northern project development area) Map 1 of 3

Figure No: **23.1a**





Botanist Allan Cunningham is believed to be the first European to provide written first-hand accounts of Indigenous activity in the Darling Downs when he explored the area in 1823. While camped at Swan Creek, 10 km east of present-day Warwick, he recorded (Hall, 1988):

Although very recent traces of natives were remarked in different parts of the vale in which we remained encamped about a week, only a solitary aborigine (a man of ordinary stature) was seen, who, in wandering forth from his retreat in quest of food, chanced to pass the tents. Immediately, however, on an attempt made by my people to approach him, he retired in great alarm to the adjacent brushes at the foot of the boundary hills, and instantly disappeared.

Acclaimed European explorer Ludwig Leichardt also wrote of established Indigenous activity in the region while exploring along the Condamine River in 1847. Leichardt (1847) wrote:

The forest on the right side of the river was tolerably open, though patches of Myal scrub several times exposed us to great inconvenience; the left bank of the Condamine, as much as we could see of it, was a fine well grassed open forest. Conglomerate and sandstone cropped out in several sections...The well-known tracks of Blackfellows are everywhere visible; such as trees recently stripped of their bark, the swellings of the apple-tree cut off to make vessels for carrying water, honey cut out, and fresh steps cut in the trees to climb for opossums. Our latitude was 26 degrees 49 minutes.

Cunningham also wrote of the region's agricultural potential, which encouraged large numbers of European settlers to move to the region in the 1840s to develop the region's fertile black soil.

C.P. Hodgson was one of the first squatters to arrive on the Darling Downs and later became a magistrate and member of parliament. With regard to the early European settlement on the Darling Downs, Hodgson observed (Feehely, 1997):

The earliest, the primitive inroads of the settlers, were marked with blood, the forests were ruthlessly seized, and the native inhabitants hunted down like their native dogs.

When non-Indigenous settlement commenced, Indigenous clans initially retreated to the mountains and heavy scrub, before returning to resist the settlement. Despite their resistance, particularly between 1842 and 1846, the Indigenous people were unable to dissuade further non-Indigenous settlement (French & Waterson, 1982).

The growth of the non-Indigenous population in the region was significantly encouraged by the Queensland Government's subdivision of large pastoral holdings in 1859. Initial growth consisted of a predominantly male population (French & Waterson, 1982). The completion of a railway linking Toowoomba to Ipswich in 1867 promoted further expansion of the region's transport infrastructure and agricultural activity, which in turn facilitated development of the region's modern-day communities.

23.3.4 Cultural Heritage Values

The above subsections provide an indication of the potential for Indigenous cultural heritage to be present in and around the project development area. The known Indigenous cultural heritage sites identified above (particularly those noted in Table 23.2) are of recognised value. The existence of Indigenous cultural heritage in an area is generally dependent on the extent of previous Indigenous activity in the area and the extent to which the area has been previously developed for agricultural activity. For example, there is strong potential for Indigenous cultural heritage to exist near watercourses and forested areas that have not been cleared for agricultural use. It is, however, less likely that evidence of Indigenous cultural heritage remains in fields that

have been extensively ploughed or along roadways that have undergone extensive construction works.

Landscape features, combined with knowledge of existing land use and level of disturbance, help to identify areas most likely to contain Indigenous cultural heritage. Table 23.4 addresses the likelihood that cultural heritage will exist in certain landscape types. The table is based on a model developed by Bonhomme Craib & Associates (2009) and is directly relevant to the project development area.

Table 23.4 Sensitivity of the landscapes in which Indigenous cultural heritage may occur

Existing Environment (Landscape Type)	Characteristics Contributing to the Value (Expected Cultural Heritage Places)	Landscape Sensitivity
Defined waterways (including lagoons) and their immediate tributary areas on sandy or sandy loam soils	Scarred trees Stone and shell scatters Axe-grinding grooves Burials	High to very high
Black soil gilgais	Stone artefacts (high frequencies of 'tools') Hearths	Moderate
Ridges and rocky uplands	Stone arrangements Wells Stone artefacts	Moderate to high
High terraces below 300 m above sea level on duplex or sandy loam soils	Scarred trees Stone artefact scatters	Moderate
Ridges and escarpments	Wells Quarries Bora grounds or stone arrangements	Moderate to high
High plains above 300 m above sea level away from hydrological features	Isolated stone artefact or artefacts Scarred trees	Low
Black soil plains (including open floodplain)	Scarred trees Isolated stone artefact or artefacts Stone sources and associated flaking	Low

23.4 Issues and Potential Impacts

The Indigenous cultural heritage specialist has identified and reported the potential impacts of the project on Indigenous cultural heritage, and has assessed the significance of the cultural heritage in the study area in accordance with the principles of the Burra Charter. The significance of potential impacts on Indigenous cultural heritage values has been interpreted and assessed from the technical specialist's report with consideration of the consequence and likelihood of the potential impact. This assessment was conducted in accordance with the method described in Chapter 7, Impact Assessment Method. Potential impacts on the Indigenous cultural heritage values from associated project activities are discussed in detail below. Potential impacts are considered to be most significantly associated with construction activities and, to a lesser extent, operations and, to an even lesser extent, decommissioning activities. Clearing activities and ground disturbance associated with the construction of the project have the potential to impact on

known and unknown Indigenous cultural heritage, places, objects and evidence. Without the implementation of appropriate management controls, project activities could:

- Destroy, damage or disturb objects of physical heritage (i.e., archaeological evidence) in the landscape.
- Encroach upon or disturb places of cultural significance to Indigenous persons.

23.4.1 Known Indigenous Sites

The project has the potential to impact on places identified on the Register of the National Estate (see Table 23.2):

- **Barakula State Forest.** Arrow may seek to conduct project activities within Barakula State Forest. Without application of management controls, there is a possibility that Indigenous cultural heritage will be destroyed, damaged or disturbed.
- **Chinchilla Sands Local Fossil Fauna Site.** The Australian Heritage Council has noted that the site may contain Indigenous cultural heritage values but that they have not been identified by the local Indigenous community or documented and assessed by the Australian Heritage Council. The Chinchilla Sands fossil fauna site has environmental values other than those associated with Indigenous cultural heritage (as discussed in Chapter 12, Geology, Landform and Soils) and it is anticipated that the location will not be subject to project petroleum activities.
- **Lake Broadwater Conservation Park.** Indigenous values may be present in the form of archaeological evidence and spiritual significance. The park also has significant ecological values and is accordingly classified as a Category A environmentally sensitive area. Intrusive petroleum activities are prohibited within and immediately adjacent to the Category A area.

With regard to sites registered on the Queensland Indigenous Cultural Heritage Database and the Queensland Cultural Heritage Information Management System, potential impacts on known Indigenous sites of significance could arise through accidental direct destruction, damage or disturbance of objects of physical heritage in the landscape, or encroachment upon or disturbance of places of cultural significance to Indigenous persons. Accidental disturbance may occur if construction crews are not aware of a site's location. Disturbance to or encroachment upon known sites of significance prior to mitigation is therefore **possible** (it could happen). The consequence of this to the environmental values will be **major** with stakeholder concern. The impact on these Indigenous heritage sites prior to mitigation is **high**.

23.4.2 Unknown Indigenous Sites

Further Indigenous cultural heritage may be found throughout the project development area. Prior to implementing mitigation measures, accidental destruction, damage or disturbance of objects of physical heritage in the landscape, or encroachment upon or disturbance of places of cultural significance to Indigenous persons may occur if construction crews are not aware that a site exists. Disturbance to unknown sites (either on the surface or beneath the surface), or encroachment upon unknown sites prior to mitigation is therefore **possible**. The consequence of this to the environmental values will be **major** with stakeholder concern. The impact to these Indigenous heritage sites prior to mitigation is **high**.

23.5 Cultural Protection Objectives

The environmental protection objectives for Indigenous cultural heritage are to:

- Avoid or minimise and manage adverse impacts from project activities on known and unknown Indigenous cultural heritage sites and objects.
- Retain a documented record of the Indigenous cultural heritage that is found through the course of the project so that the history of the area is preserved for future generations.

23.6 Compliance with the Aboriginal Cultural Heritage Act Duty of Care

Arrow recognises that the Aboriginal parties will retain a strong interest in ensuring that the cultural heritage areas, objects and values identified throughout the project area are protected or managed in a culturally appropriate fashion and with their direct input. It is anticipated that the Aboriginal parties will require the implementation of a management process that embodies culturally appropriate mechanisms for the protection or management of their cultural heritage.

The Aboriginal Cultural Heritage Act duty-of-care requirements for the project can be met through either a suitable native title agreement that does not expressly exclude cultural heritage, such as an ILUA, or an approved CHMP.

Arrow's preferred approach to meet the cultural heritage duty of care is by settlement of agreements with Native Title parties. Arrow will agree to situate cultural heritage agreements within the framework of ILUAs to be negotiated with the Native Title parties but only where this is the formally expressed wish of the relevant Native Title party. If an ILUA cannot be completed in accordance with the project timetable or one is not registered, Arrow will be required to comply with Part 7 of the Aboriginal Cultural Heritage Act in another manner (i.e., development of a CHMP for approval by the Chief Executive DERM).

It is proposed to develop CHMPs in parallel with the negotiation of ILUAs to ensure that the project remains compliant with the duty of care, irrespective of the outcomes of any Native Title negotiations.

To address these issues while still ensuring compliance with the duty of care, Arrow has decided to implement a two-component strategy:

1. Develop a staged 'process CHMP' model that directly aligns with the proposed phasing of field development.
2. Develop a 'site-management CHMP' model that will be limited to application only where necessary for the development of exploration and pilot wells and only where work is required in areas in advance of the implementation of the process CHMP.

The staged approach will see Arrow's cultural heritage processes linking directly to the phased approach to field development, where there are clearly identified stages to develop the various tenements. In accordance with the proposed development schedule, Arrow will issue notices for CHMPs approximately three years in advance of its intention to develop any particular section of a tenement. For sections now identified where the period of time to proposed development is less than three years, Arrow will issue the requisite notices in compliance with the time periods prescribed in the Aboriginal Cultural Heritage Act.

Arrow will also regularly review the notice schedule against any changes in the order that proposed tenements are developed. Where changes in the proposed production schedule are such that it requires an amendment of the CHMP notice, Arrow will respond in compliance with the time periods prescribed in the Aboriginal Cultural Heritage Act.

23.7 Avoidance, Mitigation and Management Measures

Arrow is committed to adopting a range of avoidance, mitigation and management measures to cultural heritage management within the project development area. Avoidance is the principal mechanism for minimising impact on Indigenous cultural heritage values in the project development area. Arrow will, accordingly, seek to avoid locations of Indigenous cultural heritage value that are currently known (including, but not limited to, the Chinchilla Sands fossil site and Lake Broadwater Conservation Park). Similarly, Arrow will seek to avoid sites of Indigenous cultural heritage that become known throughout the course of the project development. Furthermore, there is inherent flexibility in the siting of project infrastructure to avoid sites and objects of Indigenous cultural heritage.

The following measures will be implemented:

- Prepare CHMPs or equivalent agreements in accordance with the provisions of the Aboriginal Cultural Heritage Act. [C396]
- Complete comprehensive initial cultural heritage assessments where disturbance is proposed (noting that this will be staged in line with proposed development schedules), with direct input from relevant Aboriginal parties. [C397]
- Assess the results of the initial cultural heritage assessments in collaboration with the Aboriginal parties and develop a program for the management of all significant Aboriginal areas and objects to be affected by the project. Include management measures required prior to construction and those required throughout the life of the project. [C398]
- Commission high-order constraints papers from Aboriginal parties to identify places of Aboriginal cultural heritage significance. Ensure avoidance of these places is considered during detailed design. Ensure that operations gives effect to the avoidance principle as enunciated in the Aboriginal Cultural Heritage Act. [C399]
- Maintain a GIS database of sites of Indigenous cultural heritage that are known or found during the course of investigations and works (where Aboriginal parties allow the listing of the sites). [C400]
- Obtain all necessary permits and approvals prior to the commencement of works. [C401]
- Ensure site inductions provide cultural heritage awareness for places and objects (to avoid) and the appropriate procedures to follow should there be any new discoveries. [C402]

Ultimately, the ILUA or approved CHMP will form the governing document for project compliance with the Aboriginal Cultural Heritage Act. The general form of the cultural heritage arrangements under either the ILUA or approved CHMP will contain detail on:

- An overarching set of principles relating to the ownership of Indigenous cultural heritage, management of cultural heritage information, dispute resolution and general administrative arrangements.
- The conduct of initial cultural heritage assessments. The CHMP will provide for additional, detailed field surveys to identify Indigenous cultural heritage places or objects located within the project area of disturbance.
- Development of cultural heritage management strategies including provisions for establishing agreed strategies that detail how significant areas and objects identified during the initial cultural heritage assessment will be managed during project construction. Avoidance of

Indigenous cultural heritage places will be the preferred strategy to the extent that this is technically feasible. Where there is no flexibility to avoid a site, the loss will be offset by a suitable program of mitigation that collects and preserves the data a site may hold for future research purposes. Provisions for cultural induction processes, the development of a cultural awareness program, procedures for accidental discovery of cultural material and accidental discovery of human remains, and management of cultural heritage material, conflict resolution and other contingencies will also be addressed.

- The establishment of post-construction heritage agreements, including provisions related to developing, if necessary, formal agreements detailing ongoing management arrangements for cultural places during the operational phase of the project.

Arrow proposes to adopt, to the greatest extent possible, an agreement-based process with the Aboriginal parties for authorisation of all project activities that may harm cultural heritage. An internal permit process is envisaged. The process will require the issuance of a formal permit for undertaking any ground-disturbing activities. The permit process will be linked to the Arrow project GIS to protect locations of known Indigenous cultural heritage more accurately and to facilitate auditing.

Cultural heritage arrangements under negotiation seek to involve the Aboriginal parties in all aspects of management through the establishment of a coordinating committee that includes representatives of the Aboriginal parties in its membership. Decisions on the management of cultural heritage will be made by consensus between Arrow and the Coordinating Committee.

Arrow's cultural heritage management principles will be refined through consultation with Aboriginal parties during the development of the cultural heritage agreement as part of the ILUA or the approved CHMP. Further details on the management principles are presented in Appendix Q, Aboriginal Cultural Heritage Impact Assessment.

23.8 Residual Impacts

The application of the cultural heritage management plan will avoid impacts on, or reduce the likelihood or consequence of, known and unknown Indigenous cultural heritage sites. The residual impacts associated with construction, operation and decommissioning of the project are described below.

23.8.1 Known Indigenous Sites

Where location details are available, these will be stored for planning purposes in Arrow's GIS. Known Indigenous sites will be avoided, where practicable, through the application of site-selection procedures. Where development occurs in the vicinity of known Indigenous cultural heritage sites, mitigation measures such as flagging of agreed buffer zones around sites will be implemented to ensure that accidental destruction, damage or disturbance of objects of physical heritage in the landscape does not occur. Similarly, agreement of the buffer zones around sites of known Indigenous cultural value will ensure that encroachment upon these places will be avoided. Where it is not physically possible to avoid Indigenous cultural heritage, it is intended that disturbance that is necessary will be conducted in accordance with the agreements with the Aboriginal/endorsed parties. Given the application of mitigation measures, it is **unlikely** that project activities will adversely affect the value of the sites. If sites are disturbed or destroyed (in an uncontrolled manner) the consequence would be **major**. This produces a **medium** residual impact.

23.8.2 Unknown Indigenous Sites

Where clearing and ground disturbance works are proposed, the proactive implementation of the cultural heritage arrangements within the ILUA or CHMP will lower the potential for accidental disturbance to previously unknown sites. Given the proactive assessment, the potential for accidental direct destruction, damage or disturbance to previously unknown sites associated with planned activities is **unlikely**. Where disturbance is necessary, it will be conducted in accordance with the CHMP that will have been agreed with the Aboriginal parties; therefore, if this were to occur, the consequence will be **serious** and include public concern. The overall impact would be **medium**.

As initial cultural heritage assessments will be undertaken only on the surface, there is potential for project activities to impact upon artefacts or skeletal remains buried beneath the surface. However, due to the existing disturbance within the project development area, these finds are expected to be **unlikely**. The extent of impact will depend on whether the Indigenous cultural heritage site is identified before coming into contact with machinery. In the event that contact with machinery does occur, Arrow's actions will be in accordance with the cultural heritage arrangements under the ILUA or approved CHMP that will have been agreed with the Aboriginal parties. Based on compliance with these arrangements, the impact to the local community will be **serious** due to a reduction in the value of the artefact or skeletal remains. The resulting overall residual impact is **medium**.

Table 23.5 summarises the potential impacts prior to mitigation, along with proposed mitigation and management measures and the subsequent residual impacts assuming implementation of proposed mitigation and management measures.

23.9 Inspection and Monitoring

Inspect known Indigenous sites identified as having the potential for being impacted by the project and subsequently acknowledged for avoidance, in accordance with the relevant approval and permit conditions including the cultural heritage management plan. [C324]

Environmental Impact Statement
Surat Gas Project

Table 23.5 Summary of Indigenous cultural heritage impact assessment

Cause of Potential Impacts	Existing Environment	Pre-mitigated Impact			Summary of Mitigation Measures	Residual Impact		
		Likelihood	Consequence	Risk of Impact		Likelihood	Consequence	Risk of Impact
<i>Accidental Disturbance of Cultural Heritage Artefacts or Encroachment on Known Indigenous Cultural Heritage Sites</i>								
<p>Construction</p> <ul style="list-style-type: none"> Clearing and earthworks for development of project facilities cause accidental destruction, damage or disturbance of objects of physical heritage in the landscape. Project infrastructure and facilities are located so that they encroach upon or disturb places of cultural significance to Aboriginal parties. <p>Operations</p> <ul style="list-style-type: none"> Project workforce encroaches on locations of cultural significance to Aboriginal parties during the course of routine operations. 	<p>Sites listed on the Register of the National Estate (Lake Broadwater, Chinchilla Sands and Barakula State Forest) and sites included in state and federal registers and databases.</p>	Possible	Major	High	<p>Arrow will implement a cultural heritage management plan that will address all aspects of avoidance, mitigation and management of potential impacts to Indigenous cultural heritage values in the project development area. The strategy will be developed and implemented in agreement with Aboriginal parties and will include comprehensive initial cultural heritage assessments across the project development area and high-order constraints provided by the Aboriginal parties.</p>	Unlikely	Major	Medium

Environmental Impact Statement
Surat Gas Project

Table 23.5 Summary of Indigenous cultural heritage impact assessment (cont'd)

Cause of Potential Impacts	Existing Environment	Pre-mitigated Impact			Summary of Mitigation Measures	Residual Impact		
		Likelihood	Consequence	Risk of Impact		Likelihood	Consequence	Risk of Impact
<i>Accidental Disturbance of Cultural Heritage Artefacts or Encroachment on Unknown Indigenous Cultural Heritage Sites</i>								
<p>Construction</p> <ul style="list-style-type: none"> Clearing and earthworks for development of project facilities cause accidental destruction, damage or disturbance of objects of physical heritage in the landscape. Project infrastructure and facilities are located so that they encroach upon or disturb places of cultural significance to Aboriginal parties. 	<p>Indigenous cultural heritage may be expected throughout the project development area, with greater likelihood in areas that have not been disturbed by industrial or agricultural activity (particularly defined waterways, ridges and escarpments).</p>	Possible	Major	High	<p>Arrow will implement a cultural heritage management plan that will address all aspects of avoidance, mitigation and management of potential impacts to Indigenous cultural heritage values in the project development area. The strategy will be developed and implemented in agreement with Aboriginal parties and will include comprehensive initial cultural heritage assessments across the project development area and high-order constraints provided by the Aboriginal parties.</p>	Unlikely	Serious	Medium