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SOCIAL

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24 Social Impact Assessment

This chapter provides a summary of the social values within and surrounding the Project area and an assessment of the potential for these values to be affected, both in adverse and positive ways, by direct and indirect impacts associated with the construction, operation and decommissioning phases of the Project. The chapter also describes the measures that Arrow proposes to implement to manage adverse impacts and enhance opportunities that affect social values. The residual impact assessment assumes the effective implementation of such measures.

For a detailed assessment refer to the Social Technical Report (Appendix U) and Social Impact Management Plan (SIMP) (Appendix V) of this EIS. A cross reference to the locations where each of the requirements of the ToR has been addressed is given in Appendix B which references both the study chapters (Sections 1 through 34) and/or the Appendices (A through EE).

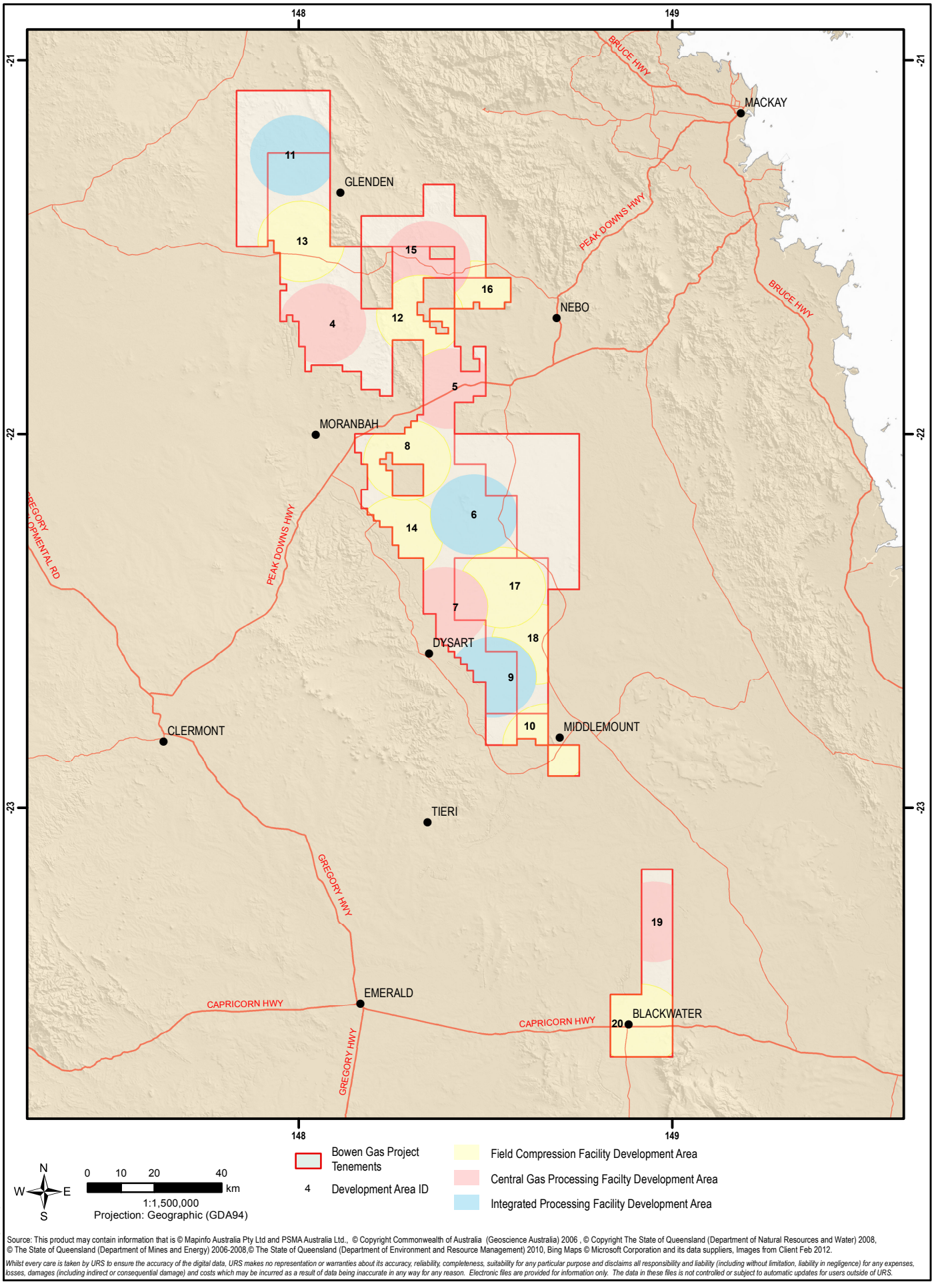
24.1 Study Area

The defined study area for this report comprises the communities of Moranbah and Dysart primarily, with regional consideration of Glenden, Nebo, Middlemount and Blackwater. Moranbah and Dysart are primary study communities because of their proximity to the proposed Project temporary workforce accommodation facilities (TWAFs) and Project infrastructure. In turn, Glenden, Middlemount and Nebo have been considered to a lesser extent due to their relative distance from these facilities; however, workforce sourcing, traffic, and transportation of Project construction materials may impact on these communities. Blackwater has been accorded less priority than the other communities listed due to the sequencing of Project development areas; however, it has still been considered in the assessment as the exact sequencing of the field development is still open to change. Table 24-1 outlines the geographic breakdown of the communities in the study area, while Figure 24-1 shows the Project and relevant communities.

Although parts of the Project also lie within Whitsunday Regional Council (WRC), the areas where this occurs are not populated and the potential Project interactions with communities within the council are highly unlikely. As such, individual landholders are the only likely impacted people from Whitsunday Regional Council, and have been captured within the whole of landholder assessment, as individual landholders could not be assessed, nor could they be reported in this assessment due to confidentiality concerns.

Table 24-1 Social Impact Assessment Study Area Geographic Breakdown

Regional Council	State Suburb / Statistical Local Area
Isaac Regional Council (IRC)	Moranbah
	Dysart
	Glenden
	Middlemount
	Nebo
Central Highlands Regional Council (CHRC)	Blackwater



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BOWEN GAS PROJECT EIS

BOWEN GAS PROJECT INDICATIVE KEY INFRASTRUCTURE LAYOUT

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SOCIAL IMPACT ASSESSMENT

Figure: **24-1**

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24.2 Legislative Context and Standards

The following legislation, guidelines and policies are relevant to managing social impacts through all Project phases and were considered in the development of the social impact assessment (SIA). For more in depth information please refer to the Section 1.3 in the Social Technical Report (Appendix U) of this EIS. The relevant legislation includes:

- Queensland Government
  - *Environmental Protection Act 1994;*
  - *Local Government Act 2009;*
  - *Transport Operations Act 1995;*
  - *Sustainable Planning Act 2009;*
  - *Water Act 2000 and the Water Safety (Supply and Reliability Act) 2008*; and
  - *Motor Vehicles Standards Act 1989.*
- State and Regional Plans and Policy
  - *Blueprint for Queensland's LNG Industry;*
  - *Major Resource Projects Housing Policy;*
  - *Queensland Infrastructure Plan;*
  - *Social Impact Assessment Fact Sheet (June 2012);*
  - *Sustainable Resources Community Policy;*
  - *Draft Queensland Regionalisation Strategy;* and
  - *Social impact assessment: Guideline to preparing a social impact management plan (2010).*
- Local Government Policies and Plans
  - *Isaac Regional Council's (IRC) 2020 Vision 2009-2020;* and
  - *Central Highlands Regional Council's (CHRC) Community Plan 2022.*

24.3 Study Method

The method used to conduct the SIA is described below and is shown at a high level in Figure 24-2.

24.3.1 Scoping

The scoping phase involved a review of relevant literature and the Project's final ToR to determine the appropriate study area, frame the scope of the assessment, and determine the key assessment criteria (e.g. population and demography, housing and accommodation, and employment and training). This phase also identified key stakeholders and developed a strategy for stakeholder engagement for the SIA.

24.3.2 Baseline Assessment

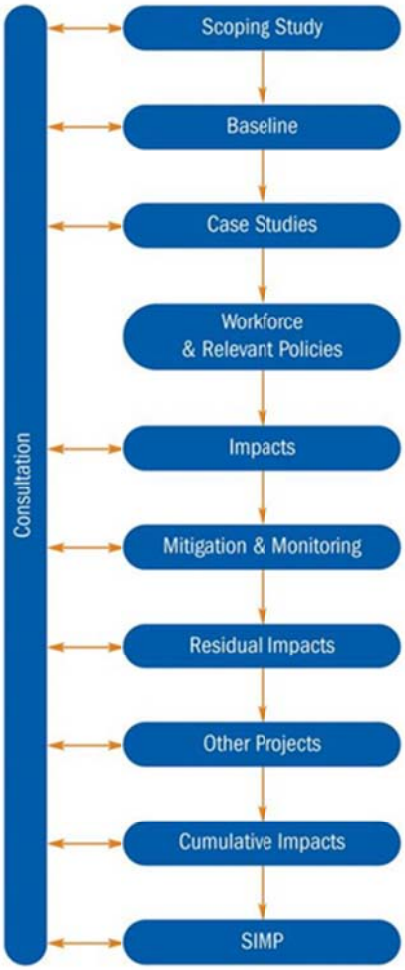
A description of the existing social environment of the study area was developed through the collection and analysis of data produced by the Australian Bureau of Statistics (ABS) and other Commonwealth

agencies, State government agencies including the Office of Economic and Statistical Research (OESR), the IRC and CHRC, Arrow, and other relevant and publically available sources.

Project area statistics are compared with data from the regional area, which has been set as the Mackay Regional Council. While non-residential workers (NRWs) will be sourced from a broad area, it is not unreasonable to assume that most will be residents in the Mackay and the Northern Queensland area. While the WRC area may host a portion of NRWs, it is not expected to be at a level that would justify inclusion of the WRC statistics in a regional area for comparative reasons.

A review of policies, programs, strategies and regional studies relevant to the Bowen Basin was conducted in order to define the regional context in which the Project will be operating and to gain an understanding of community strengths and vulnerabilities.

Figure 24-2 Methodology



24.3.3 Impact Assessment

Potential social impacts associated with the Project were identified in two phases:

- **Phase One:** An initial impact scoping assessment was undertaken to identify potential impacts (positive and negative) of the Project. This was based on review of the baseline data and desktop analysis of likely impacts, and an assessment of the current impacts (real and perceived) occurring throughout the study area due to similar project developments.
- **Phase Two:** Following phase one, a detailed study was carried out to ascertain the likely nature, magnitude, timing and duration of potential impacts, and the population segment that could be affected.

In carrying out the assessment, targeted consultation with key stakeholders relevant to the SIA was undertaken to understand the community's perception of likely impacts.

The following criteria were used to assess and understand the consequences of potential impacts:

- When in the Project life-cycle the impact could occur;
- Frequency and duration of the impact;
- Magnitude of the impact;
- Geographic context and the communities affected;
- Ability of those affected to adapt to change; and
- Reversibility or minimisation of the impact.

Impacts have been restructured to align with Arrow's previous projects, as per the SIA Unit's (under the Department of State Development, Infrastructure and Planning (DSDIP)) request. Due to these changes the impacts and mitigations do not share the same titles, nor do they contain the same content as the social baseline found in Section 24.4 this chapter. Table 24-8 in Section 24.6 of this chapter shows how the baseline and impacts / mitigation strategies are presented and relate to one another.

The SIA has considered the significance of possible impacts based on the probability (or likelihood) of occurrence, and consequences of it occurring. Impacts have been ranked as low, medium, high, or very high significance (see Table 24-2).

Table 24-2 Significance of Impacts Guideline Table

Likelihood	Magnitude				
	Insignificant	Minor	Moderate	Major	Severe
Rare	Nil	Low	Medium	High	Very High
Unlikely	Low	Low	Medium	High	Very High
Possible	Low	Medium	Medium	High	Very High
Likely	Low	Medium	High	Very High	Very High
Almost Certain	Low	Medium	High	Very High	Extreme

Note: Adapted from the AS / NZ4360:2004 Risk Management

24.3.4 Mitigation and Management

Arrow has devised measures to mitigate negative impacts and enhance positive impacts where they are identified to be of medium significance or higher. Arrow identified these measures through consultation with stakeholders and a review of industry best practice. However, because of the community's strong concerns with some impacts that are categorised as low, these low impacts have also been taken into consideration when developing management strategies and can be found in the SIMP (Appendix V) of this EIS.

Once again, the mitigations, like the impacts, follow a different structure than the social baseline for alignment purposes with Arrow's previous projects.

24.3.5 Residual Impacts

'Residual impacts' refers to those impacts that remain after mitigation measures have been implemented; therefore, they are reduced or managed but not prevented. Potential residual impacts for this Project were identified by reassessing the impact with the assumption that the mitigations had been implemented. The residual impact assessment provides an indication of the effectiveness of proposed mitigation and management measures. However, it is important to remember that not all impacts can be completely removed or managed through mitigation and that a project's impacts may be different than assessed.

For this reason, the SIMP is a live document, which can be updated and adjusted as the environment and Project change and impacts become apparent. As a result, the SIMP will be used to manage residual impacts into the future.

24.3.6 Cumulative Impacts

In areas where the social environment has already been affected or where future development will continue to add to the impacts, like the Bowen Basin, it is appropriate to consider the cumulative impacts of development. Cumulative impacts were identified through a process of aggregating individual future Project impacts and assessing impact interactions and associations where applicable. For this SIA, the baseline against which the project impacts are assessed includes the effects of

projects already in operations in the region. The cumulative section examines the additional impacts likely to occur as a result of proposed future developments.

24.3.7 Stakeholder Engagement

Arrow, JTA Australia Pty Ltd (JTA) and URS carried out a range of consultation activities as part of this EIS process for the Project. Specifically, JTA was contracted to facilitate:

- Stakeholder engagement;
- Community consultation; and
- Attendant communication activities.

URS undertook targeted consultation with key stakeholders throughout the study area in order to support the SIA process.

24.3.7.1 EIS Community Consultation Program

A number of community events were held as part of the EIS consultation program, including:

- September and November 2010: Community information sessions in Moranbah, Middlemount and Blackwater;
- November 2011: Community information sessions in Glenden, Dysart, Moranbah and Middlemount;
- June 2012: Community information sessions in Moranbah, Dysart, Middlemount, and Blackwater and a drop in session in Glenden; and
- October / November 2012: Community information sessions in Moranbah, Middlemount and Blackwater, and drop in sessions at Dysart and Glenden.

Community consultation will continue in the future. At present, Arrow is currently planning an additional round of information sessions during the public exhibition of the EIS. Stakeholder groups engaged at present include the following:

- Political (i.e. local council, State Government);
- Government agencies;
- Landholders and occupies;
- Industry / peak bodies;
- Bowen Basin interest groups;
- Local industries and businesses;
- Regional communities;
- Environmental groups
- Health services,
- Community and interest groups.
- Agricultural interest groups and bodies;
- Education and training organisations;
- Media; and
- Overlapping tenure holders.

Further detail on stakeholder engagement and community consultation for the EIS is provided within the Consultation Report (Appendix F) of this EIS, including proposed future consultation events and means for ongoing consultation opportunities.

24.3.7.2 Social Impact Assessment Consultation

Key stakeholders were interviewed during two rounds of consultation in Moranbah, Dysart, Blackwater, Mackay and Rockhampton. The first round of consultation was carried out during May 2012 and aimed to expand and gain qualitative data from the community. A further round of consultation was undertaken in June 2012, and involved engaging key stakeholders on assessing and mitigating the impacts of the Project. The stakeholder groups engaged are as follows:

- Political groups;
- Government agencies;
- Landholders and occupiers;
- Industry / peak bodies;
- Local industry and business;
- Bowen Basin interest groups;
- Regional communities;
- Environmental groups;
- Health services;
- Community and interest groups;
- Education services; and
- Media.

24.4 Social Baseline

This section provides a summarised version of the social baseline. For more details and in depth analysis please refer to the complete social baseline found in Section 4 of the Social Technical Report (Appendix U) of this EIS.

24.4.1 History and Settlement

Traditionally an agricultural region, the area's economy was transformed in the 1960s and 1970s when coal mining dramatically increased in scale. Today, coal mining dominates the region; though, agriculture remains a significant part of the economy and community identity.

Both the rapid development of resource projects and the accompanying residential development have seen a considerable change in land use across the Bowen Basin in the last three decades. While grazing and agricultural activity is still present in the region, other land uses are important and include:

- The urban communities of Moranbah, Dysart, Glenden, Middlemount, Nebo and Blackwater, the mining accommodation villages at Coppabella and Burton Gorge as well as residencies and homesteads throughout rural areas;

- Twenty-two operational coal mines as well as a large number of mining, petroleum and exploratory lease and permits; and
- Areas of conservation, tourism and recreational land uses, including Homevale National Park and Conservation Park as well as a number of Native Refuges and areas of State Forest.

24.4.2 Governance, Planning and Primary Infrastructure

The study area traverses the regional council areas of Isaac and Central Highlands. Details of relevant planning strategies are outlined within Section 24.2 of this chapter. For more detailed information please refer to Section 4.2 of the Social Technical Report (Appendix U) of this EIS.

24.4.2.1 Traffic Infrastructure and Access

The following section describes the Project area's major road, rail and air services.

Roads

Road use is high for residential and commercial users and is integral to the study area's economy.

The boom of the mining industry in the study area has led to some of the regions primary roads carrying a high portion of heavy vehicle movements, which in turn has required extensive maintenance and expansion. This has led to concerns that council assets are being damaged by resource companies at a cost to local ratepayers (Local Government Association of Queensland, 2010).

Airports

The two airports within the study area are both BHP Billiton Mitsubishi Alliance (BMA) owned and operated, and are located in Moranbah and Dysart. There are also airstrips (airplane landing areas) in Capella, Dingo, Duaringa, Rolleston and Springsure. These are owned and operated by the CHRC and while the suitability of these airstrips is not guaranteed they are for the use of landholders and emergency services. Major / commercial airports for the region are in Emerald, Mackay and Rockhampton.

Public Transport

Availability of public transport in the study area is limited, with a concentration of local services in Moranbah.

24.4.2.2 Primary Infrastructure

Power Generation

While the area has access to power, supply can be unreliable, with the IRC's *2020 Vision* committing to lobbying Ergon Energy to ensure reliable power supplies to all communities in the region (Isaac Regional Council, 2009). Power is sourced from both coal and gas fired stations. The active coal mines in the region consume a significant amount of electricity, as do some of the rail lines for coal

movement to the ports. The major power generator in the region is the Stanwell Power Station west of Rockhampton, though there are other sources of electricity as well.

Water

The level of water infrastructure development by the regional councils varies, but generally the cities and larger towns have their own supply. Since 2008, there has been widespread community concern in the towns of Tieri, Blackwater, Bluff, Middlemount and Dysart, in relation to coal mines discharging large quantities of mine-affected water into the Nogoa-Mackenzie-Fitzroy River system after severe flood events (Hart *et al*., 2008). However, the communities have not faced serious health effects or problems for agriculture to date (Hart *et al.,* 2008).

Aside from these concerns, water access and quality is a general issue in the region. For example, Moranbah's drinking water quality is adversely affected by ageing plumbing infrastructure, while Dysart's waste water treatment system no longer meets environmental regulations (Hart *et al.,* 2008; Dysart Community Action Association and Kouwenhoven, 2012). A number of towns in the region are currently (September 2012) under water restrictions, including Blackwater, Dysart and Middlemount.

Media

The study area is serviced by several local newspapers, local and regional radio networks and digital television, which provides access to all major television networks. Telstra and Optus provide terrestrial services within the region, and internet access is common in the major residential centres.

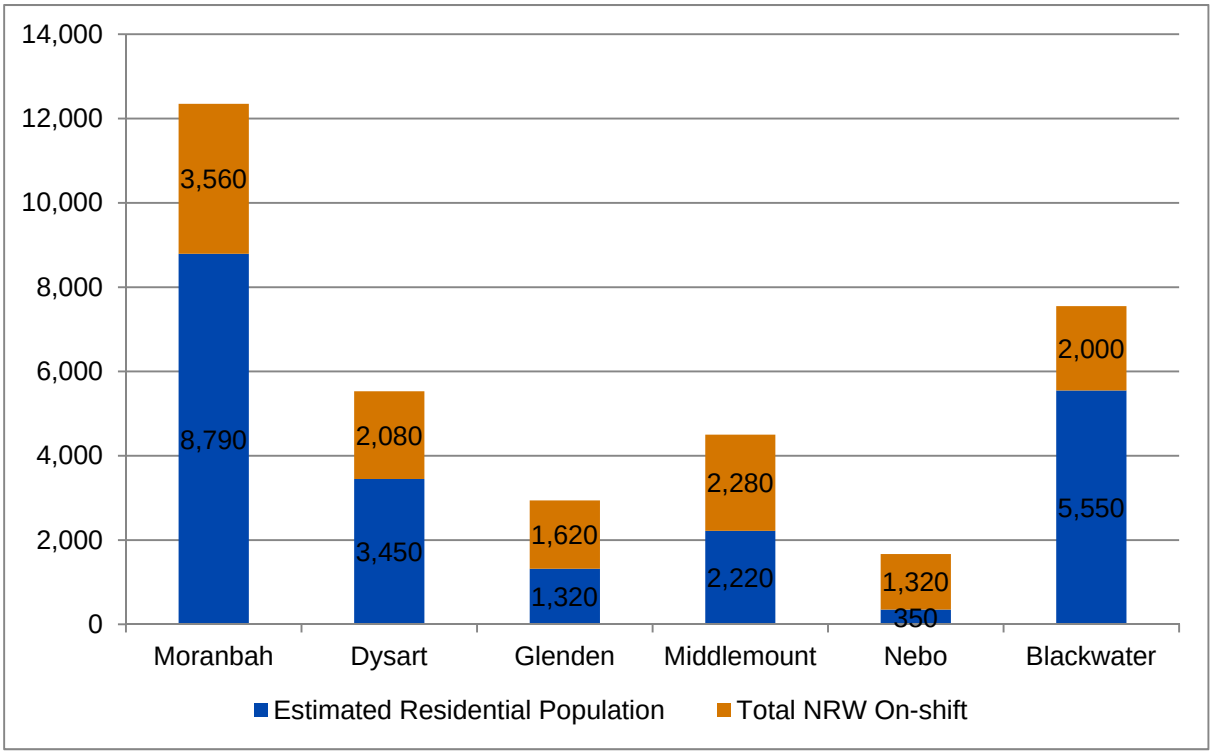
24.4.3 Demographic Profile

24.4.3.1 Population and Demographic Profile

The communities of interest have experienced rapid population growth in recent years in response to the mining boom. Residential population data in the study area is not reflective of the overall growth of the population, due to a considerable portion of workers in the mining industry in the Bowen Basin being non-residential.

Figure 24-3 shows the full time equivalent population of the study area, separated by resident and NRW as at July 2011. This gives a more accurate measure of the likely actual numbers of people in the study area's communities at any one time.

Figure 24-3 Non-Resident Worker and Resident Population Estimates



24.4.3.2 Gender, Age and Household Characteristics

The majority of communities in the study area have a high number of families with small children. All the communities have higher proportions of males in the age cohort of 25-44 than for Queensland as a whole, and higher proportions of females of working and reproductive age (25-39 years).

In the older working age population (25-44 years), the proportion of males is higher than for Queensland, and indicates that females of an older working age are not attracted to or retained in these communities.

The proportion of the semi-retired / retired population (55+ years) in the communities is generally lower than the state average. This indicates that this age cohort moves away from these towns when there are no longer work or family obligations.

24.4.3.3 Ethnic Characteristics

More than 80% of people residing in the study area are born in Australia. All towns had a higher percentage of Australian born than the State (73.7%), which is common in rural areas. Towns in the study area also had a slightly higher portion of people who speak English at home than that of Queensland (84.8%), with the percentages ranging between 87.6% and 89.0%. The only exception to this is Dysart at 84.8%.

24.4.3.4 Indigenous Population

The communities of Blackwater (4.8%) and Nebo (3.6%) have proportions of Indigenous populations consistent with or higher than the State as a whole (3.6%). However, the proportions of Indigenous people in the total population of Middlemount (3.1%), Dysart (2.8%), Glenden (2.6%) and Moranbah (2.6%) were significantly less than for Queensland. There are very few Indigenous people in the study area aged over 50, while there is a reasonable portion of Indigenous children (below 14) in the area as is common in Queensland. It is highly likely the data distributions of the Indigenous population in the study area are skewed by the small actual number of Indigenous people present but consultation confirmed the numbers are low for the region as compared to the rest of Queensland.

24.4.4 Community Values and Lifestyle (Social Capital)

The concept of 'social capital' encompasses a broad range of subjective indicators, though it is commonly defined as the "networks, together with shared norms, values and understandings which facilitate cooperation within or among groups" (cited in ABS, 2006).

A high level of social capital is likely to:

- Encourage interaction in community groups and services;
- Foster social cohesion;
- Generate a sense of belonging to community;
- Inspire commitment to place;
- Build leadership capacity; and
- Be inclusive of vulnerable and marginalised groups (Shearer, 2010).

In order to ascertain the extent and degree of social capital in the study area, the following characteristics of the key communities in the study area were considered: social and cultural values, community cohesion, and liveability, including community safety and social order, and socio-economic wellbeing.

Community perceptions are a standard means by which to elicit and measure social capital indicators, due to many of the indicators being intangible, hard to define, or different for different people in the community. Consultation with a spectrum of community members, as well as analysis of various media commentaries and the results of council community satisfaction surveys provide a picture of the level of resilience the communities have to cope with adverse events.

The main points identified for the social capital of the study area are provided below:

- Key community social values such as; community spirit, friendliness and mix of people, safe and secure environment for raising children and relaxed outdoor lifestyles.
- Sport - this is seen as integral to the social fabric and integration of the rural communities.
- Perception of some people in the study area communities, that TWAFs and fly-in fly-out (FIFO) work practices are a destabilising and undermining element to their community sustainability.
- The out-migration of female spouses from the communities is said to be a significant factor in the loss of town services.
- The demographics of communities such as Moranbah are changing, with some workers and retirees taking advantage of high property prices to sell their homes and move to the coast.

- Many people in the communities believe that NRWs are not contributing to the local economy, which is hurting local businesses.
- Many local residents do the majority of their shopping outside the region, thus reducing the amount of money spent in local businesses.
- There has been a resurgence in the sense of community in Moranbah, especially through new social media such as Facebook groups and forums.
- In Moranbah, some local residents refer to feelings of unease being surrounded by 'hordes' of young single men, with the perception, rather than experience, that anti-social behaviours could occur.
- Doctors at Moranbah Hospital report that alcohol-related violence in Moranbah is increasing.
- There is an increasing complexity in family and domestic violence issues in the Bowen Basin and the Queensland Police Service (QPS) indicated that domestic violence is an increasing issue in coastal areas, such as Mackay.
- Residents in Middlemount earn more than three times ($1,514) the weekly median personal income than in the State ($587), and the weekly median incomes of the all the other communities in the study area are more than double those of the State, apart from Nebo ($890).
- Excluding housing costs from the All Items Index reveals that Mackay had the highest Index of retail prices in the region at 2.5% above Brisbane, followed by Emerald at 2.2% higher, Blackwater at 1.8% higher, Rockhampton at 0.5% higher, and Moranbah at 0.1% higher than Brisbane.
- Medical service providers in Mackay and Rockhampton described a growth over the previous two year period in the numbers of Indigenous people relocating to coastal areas from the regional southern study area due to the rising cost of living, creating places 'of need' in locations such as Gracemere (outside the study area).
- The major challenges to Moranbah's sustainability and liveability include; housing affordability, infrastructure / services to population ratio, rising cost of living, and men's health.

24.4.5 Community Services and Facilities

Community services and recreational facilities stimulate social participation, which in turn strengthens community networks ("A Truly Civil Society," 1995). The availability of community services in the study area provides insight into the ways networks can be fostered and strengthened. Enjoying activities away from work and household chores is important to developing a sense of wellbeing and community spirit through participation. Many community services and recreational facilities are dependent on their membership base and volunteer contributions in order to be viable.

The main points relating to the community services and recreational facilities in the communities of interest are outlined below:

- There are a number of sporting and recreational clubs and associations in the communities in the study area covering a range of activities such as: cricket, netball, little athletics, rugby union and league, tennis, squash, bowls, an aero club, line dancing, motorcycle, triathlon, horse performance, swimming and shooting.
- The Plan C report for Urban Land Development Authority (ULDA) identified that mining communities were more likely to have an adequate supply of physical and recreational infrastructure and services at the expense of community support services (2011).

- A common model for community service provision in the communities in the study area is a 'one stop information and referral centre'.
- People with disabilities are increasingly relocating to coastal areas.
- Generally, Indigenous people in the study area have to access local mainstream community development services, which may not cater to culturally-specific needs.
- The long-term sustainability of many voluntary associations is being threatened by a reduction in their membership base, either through out-migration of community members, a reduction in available time due to long shifts, or increasing unaffordability of rent.

24.4.6 Health, Emergency Services and the Environment

The study area is serviced by three hospitals and two community health centres. The major referral centres are located in Mackay for the northern portion and Emerald for the southern portion of the study area. The main points identified for health and emergency services are detailed below:

- The prevalence of those reporting to be overweight or obese in the Central Queensland health service district is deemed significantly higher than in both Mackay health service district and the State average.
- NRW are associated with health risk behaviours such as a tendency to alcohol and substance abuse, obesity and overweight issues, and chronic fatigue relating to the block shift roster (Queensland Health pers. comm., June 2012).
- Another health risk factor associated with the mobility of the NRW population is the increased likelihood of bringing in viruses and diseases, which can quickly spread in camp environments or to the residential population.
- Nearly one-quarter (23%) of Moranbah Medical's workload in June 2011 came from NRW, and March 2012 data indicate that one in three patients is a NRW.
- The KPMG study (KPMG International, 2011) into the influence of mining in increasing demand on infrastructure in the IRC found that there was an undersupply in health services and infrastructure.
- Queensland Health's model (Basins' Plan) enables the delivery of health services across the healthcare continuum through an integrated service network of hospitals, community facilities and primary care arrangements.
- The major Indigenous health issues found in Blackwater are diabetes and nutrition-related illnesses.
- All of the communities, except for Nebo, have an auxiliary fire station, with permanent stations located at Emerald, Rockhampton and Mackay.
- Moranbah is fully staffed with seven full-time police officers, and assists with Dysart and Middlemount which are understaffed, with one police officer each, instead of the required two.
- The Queensland Ambulance Service has branch stations at Moranbah, Dysart, Glenden and Middlemount.
- Consultations revealed that the high proportion of the population involved in shift work is a contributing factor to lower State Emergency Services volunteerism, though Emergency Management Queensland is involved in providing training to Mines Rescue staff.
- A concern around environmental health is growing in the region. Specifically, consultation identified concern around contamination of the water supply and the impact of CSG extraction and mining accidents.

24.4.7 Housing and Accommodation

Local and regional housing markets are fundamental to the sustainability of a community and the resident's quality of life. Housing interconnects with a number of social indicators, such as health, education, and social capital through its impact on the distribution of wealth and the welfare of occupants (Haslam McKenzie *et al*, 2008). Increased population in an area creating housing demand that results in increased housing prices can make it particularly difficult for low-income earners to secure or maintain accommodation and for new industry to find appropriate housing for its workforce.

A number of housing affordability-related concerns felt by residents of the Bowen Basin, such as forced relocation of non-mining residents and community difficulties in attracting and retaining service workers are inextricably linked with the phenomenon of the block shift roster and FIFO workforce strategy (Haslam McKenzie *et al.*, 2008). The 'housing issue' in Moranbah, and nearby Dysart, was felt to be at an unprecedented peak in 2011. However, the housing market in the study area, particularly Moranbah, has historically been prone to boom and bust cycles. The dominance of the mining industry in the study area has resulted in market volatility, where housing prices are heavily influenced by commodity prices and resource company policies. For example, the Moranbah housing market has recently experienced a decrease in prices; community consultation indicated that the decrease was the result of a mining company freeze on rentals, among other factors. This is on top of a significant housing / rental cost increase over several years, which though it has decreased slightly, is still well above the State average and largely unaffordable for anyone not employed in the mining industry entering the market.

Mining booms in the region are synonymous with high housing and rental prices, low / no supply, high demand, and high levels of property investors active in the region. Mining busts are synonymous with low housing and rental prices, population decline, over supply and lower levels of property investors active in the region.

While the SIA was written based on a boom cycle, the SIMP will be adaptive and will re-examine housing strategies as they evolve. Detailed analysis informing the housing affordability issue is found in Section 5.3 of the Economic Technical Report (Appendix T) and in Section 4.7 of the Social Technical Report (Appendix U) of this EIS.

Further, a number of towns in the study area are constrained by the lack of available land for residential development as many are land locked by mining leases. This is particularly so for Moranbah and Dysart. Further detail is provided in the Social Technical Report (Appendix U) of this EIS.

The main points identified for housing and accommodation in the study area are as follows:

- The majority of dwelling structures in the study area were separate houses, a housing type commonly associated with families, with significantly higher proportions of separate houses than for Queensland as a whole.
- All the communities in the study area in 2011, apart from Dysart (0.4%) and Glenden (0.8%) had much higher proportions of 'other' housing types than for the State as a whole. This is indicative of mining.
- Renting is the most common tenure type in all the communities studied, and the proportion of rented dwellings is significantly higher than that of the State (33.2%). Consultation revealed that

mining employers currently provide incentives to rent, rather than buy, through heavily subsidised rents (Moranbah Real Estate pers. comm., May 2012), though this was not always the case.

- The most common type of landlord in the study area is 'other' while the majority of people report paying rent below the State average, despite advertised rental rates being considerably above the State average. This is indicative of mining companies acting as leasee's and subsidising rents.
- Moranbah had the highest median property sale price and highest growth rate of 79% in 2010/2011, reflecting its growth as a major mining community. Dysart and Middlemount had the lowest rates of growth for 2010/2011 at 18%.
- The IRC has established the Isaac Affordable Housing Trust, under the National Rental Affordability Scheme (NRAS) in order to deliver rental properties set at a maximum of 80% of market value.
- Property sales in Moranbah are linked with rental demand. Consultations revealed that up to 95% of buyers may be investors, with the majority located interstate or overseas.
- The Moranbah and Blackwater Urban Development Areas (UDAs) have been established by the ULDA to help meet housing pressures expected from growth in the resource sector. UDAs serve as an incentive from the state government to improve housing affordability.
- In the study area, there is a wide range of short-term accommodation options including hotel-motels, caravan parks, bed and breakfasts, cottages, guesthouses and workers accommodation.

24.4.8 Education and Training

Education facilities available in the study area include child care centres, schools (offering preparation to Year 12 in some places), TAFE, and private training facilities. The main points identified for education, training and employment in the study area are presented below:

- Moranbah State School, Dysart State School, Blackwater State School and Blackwater State High School have experienced a steady decline in enrolment numbers between 2009 and 2011.
- Moranbah East State School and Moranbah State High School (SHS) both had substantial increases in student enrolment numbers between 2010 and 2011, whereas enrolment numbers at Nebo State School, Blackwater North State School, Glenden State School and Middlemount Community School have remained more or less steady over the 2008 to 2011 time period.
- Student enrolment continuity is less likely in the primary schools than in the secondary schools. This significant student turnover is mainly attributed to families with young children moving to and from the mining industry.
- Divergence from the national trend for distribution of educational advantage can be explained by the high socio-economic backgrounds, yet relatively low levels of parental tertiary education achievement in the student population, as reported by Moranbah schools.
- Year 12 outcomes reported by the Queensland Studies Authority show that in 2010, all students in Moranbah and Glenden, and all but one in Dysart and Blackwater, received a vocational education and training (VET) qualification on completion of Year 12.
- Moranbah SHS offers a range of training programs for school students to prepare for employment in the resource sector.
- Consultation in Moranbah and Dysart revealed that current opportunities for tertiary scholarships and fast tracking programs into tertiary institutions were not being fully exploited.

24.4.9 Employment, Enterprise and the Economy

The main points identified for employment, enterprise and economy in the study area are as follows:

- Nebo has the highest rate of unemployment for males (3.9%) in all communities of the study area.
- The widest gender disparity in unemployment in the study area is in Nebo, where the unemployment rate for females (10.7%) is almost twice that of females in the State (5.4%).
- The mining and construction industries increased their share of employment over the period 2006 to 2011, whereas the agriculture, forestry and fishing industry reduced its share of employment over the same period. This is likely reflective of employee attrition from these industries to mining in addition to out-migration of families who are not employed in the mining sector due to housing costs.
- Indigenous people remain under-represented in the mining workforce in Duaringa SLA and Nebo SLA relative to their proportion of its total population, despite specific programs targeting increasing Indigenous training and employment.
- The predominant skill base of the resident populations of the study area relates to the mining, construction and manufacturing sectors. Slightly more than half of the resident populations have relevant skills to transfer or up-skill to the CSG industry.
- Consultation revealed that business support required in Moranbah is very different to other towns of comparable size, in terms of provision of housing for staff, and above award wages.
- Consultation revealed that local buying policies can be problematic if the resource companies' payment systems do not allow payment of invoices within specified timeframes.
- Staffing has been highlighted as a key barrier to business operation and growth, as many local businesses in Moranbah and Dysart rely on spouses of mine workers as employees. Businesses must be flexible in aligning employees' rosters with their partners' shifts and child care responsibilities.
- There is very little economic diversity with limited flow-on effects from the mining industry into other industries in the region.
- Since 2006, the local industry gross regional product has increased by 29.2% but the local residents' gross regional product by 7.1%, demonstrating a significant increase in other regions' residents who are economically active in the IRC.

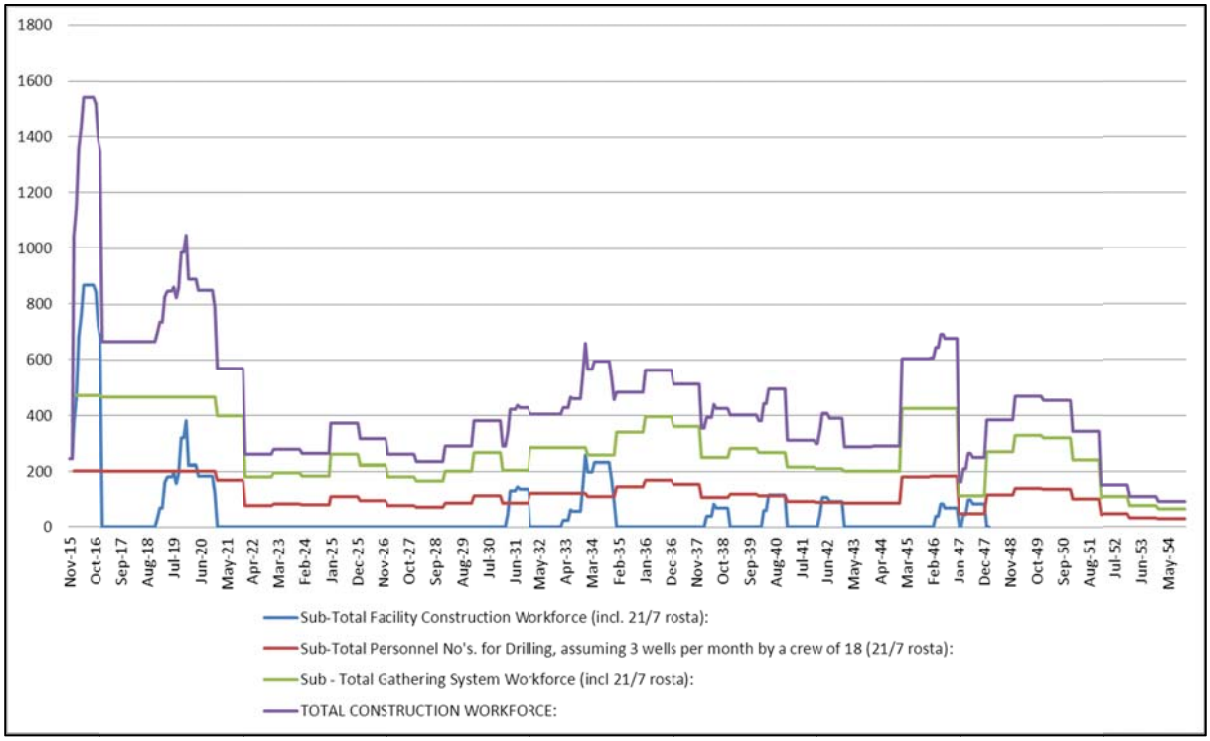
24.5 Workforce Profile

The following section outlines the projected Project workforce throughout the construction, operation and decommissioning phases based on the Reference Case. Workforce predictions will continue to evolve as development planning is matured. The size of the decommissioning workforce is a best estimate, as the decommissioning strategy has not been finalised.

24.5.1 Construction Workforce

Construction is due to commence in 2014, with drilling to commence in 2016. Figure 24-4 presents total indicative construction workforce requirements over the life of the Project.

Figure 24-4 Total Indicative Construction Workforce Numbers



Source: Arrow, 2012

Table 24-3 indicates the key peaks in total construction workforce numbers during the Project.

Table 24-3 Key Peaks in Indicative Construction Workforce

Peak Year	2016	2019	2025	2033	2036	2040	2042	2046	2049
Total construction workforce	1,542	1,048	371	659	563	497	406	693	470

Source: Arrow, 2012

Peak employment period for the construction workforce will be from 2015 to 2022. After those dates total construction workforce numbers will range from 371 to 693 approximately.

Table 24-4 illustrates the average number of construction personnel required to support a nominal construction period for a field compression facility (FCF), the compression, power generation and water treatment components of both an(IPF, and CGPF.

Table 24-4 Average Workforce and Duration of Construction per Facility Component

Facility Component		Avg. Workforce	Duration (Months)
FCF	30 (TJ/d)	15	5
	60 (TJ/d)	25	6
Compression – IPF / CGPF	30 (TJ/d)	27	7
	60 (TJ/d)	50	8
	90 (TJ/d)	60	8
	120 (TJ/d)	60	9
	150 (TJ/d)	60	13
Power Generation – IPF / CGPF	6 (MW)	10	9
	18 (MW)	20	9
	30 (MW)	25	11
Water Treatment – IPF / CGPF	12 ML	10	6
	24 ML	17	6

Note: MW: Megawatts. TJ/d: Terajoules per day. IPF: integrated processing facility. CGPF: central gas processing facilities.

Source: Arrow, 2012

All facility and gathering system construction related personnel are likely to work 12 hour shifts on a 21 days on and 7 days off roster, as is common in the Queensland industry. It is important to note that drilling and gathering system construction is ongoing throughout much of the life of the Project, and will behave more like an operations workforce than a construction. The key point to note is that their activities will move throughout the field area as new fields are developed for the Project. Therefore, although they will be active in the field as a whole for most of the duration of the Project, they will only be in specific geographic locations for several weeks to months at a time, before moving to a new area.

24.5.2 Operational Workforce

It is expected that operations workforce requirements begin in Year 2 of Project life. The forecasted operations workforce is expected to reach its peak of 607 personnel in 2034. Ramp up in the operations workforce will occur in the years as indicated in Table 24-5.

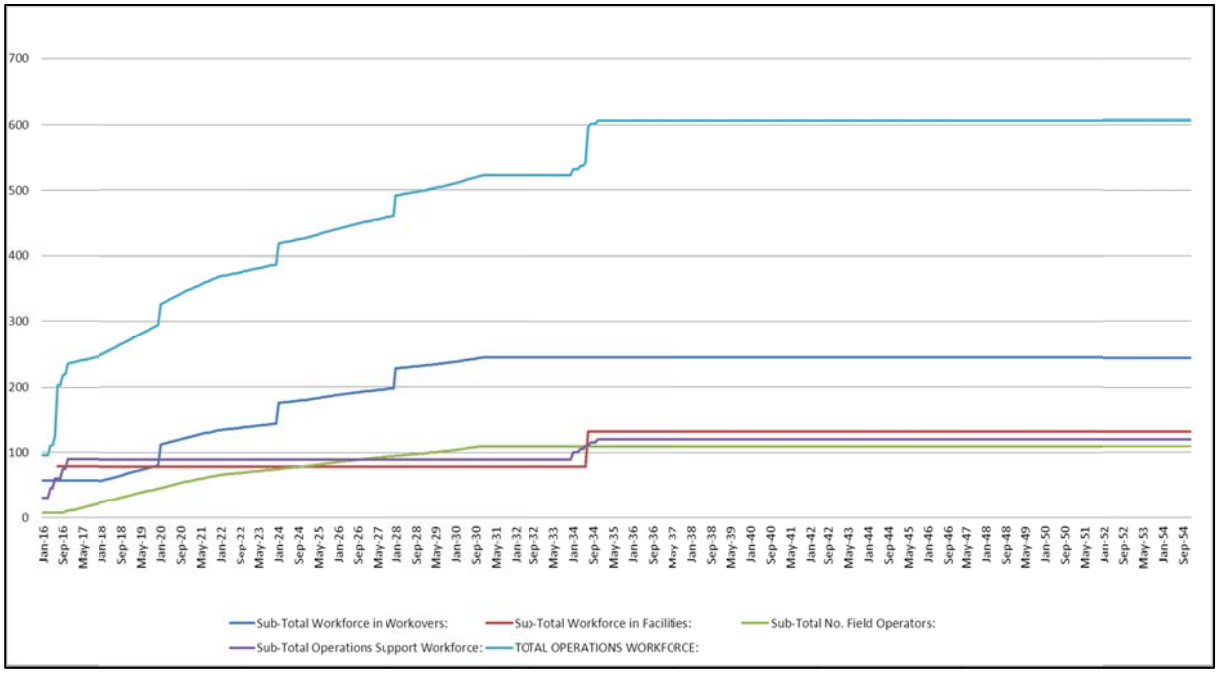
Table 24-5 Ramp Ups of Operations Workforce

Ramp Up Year	2016	2020	2024	2028	2034
Total operations workforce	203	326	418	492	597

Source: Arrow, 2012

Figure 24-5 shows the estimated total operations workforce.

Figure 24-5 Total indicative Operations Workforce Numbers



Source: Arrow, 2012

Operations roles will be in three areas:

- Support staff;
- Field staff for commissioned production wells; and
- Facility operations workforce.

Table 24-6 Positions Required for Project Operations

Support Staff
On-site staff: • Centralised administration, stores, four depots located at IPFs; • Land access: Includes a land agent, cultural heritage agent and monitors, and an environmental agent; • General support: Construction superintendent, field engineer, quality assurance engineer; • OH&S support; • Earthworks: Earthworks supervision; • Pipelines: Pipeline supervision; and • Drilling: Arrow supervision, geologist, site drilling and completions engineers. Brisbane-based support staff: • Access: Land access, cultural heritage and environment managers; and • Management and engineering: Project management, Project engineering, mechanical engineer, pipeline designer, cost controller, scheduler, GIS manager, and contract administrator.

Well Workover Crew and Well Operations Staff for Commissioned Production Wells
• Well operators and workover crews develop and maintain the production wells, including recovering and redeploying down-hole equipment periodically over the life of a production well. • Assume 0.0317 persons / well / year and that the number of crews / personnel plateaus after Year 13 when a reasonably steady amount of wells will be maintained. • Workover personnel numbers will be added from 2016 at increments of around 30 until workforce numbers plateau at approximately 250 within 15 years.
Facility Operations Workforce
• IPF- 1 x manager, 6 x compression, 2 x water and 2 x power generation; and • CGPF- 1 x manager, 6 x compression and 2 x power generation

Source: Arrow, 2012

Operational workforce shifts are likely to be as outlined below:

- It is assumed operations and maintenance staff will work a 15 days on and 13 days off roster with 12 hour shifts; and
- A roster of 21 days on and 7 days off has been assumed for all workover staff.

24.5.3 Workforce Accommodation

For the purpose of informing the SIA, the locations of TWAFs is assumed to be co-located with each IPF.

Occupancy rates of TWAFs will fluctuate according to development. Peak TWAF occupancy occurs during construction of production facilities. Once these production facilities have been commissioned, TWAFs will be downsized to accommodate the smaller well installation crew and operations staff.

Estimated TWAF sizes for each of the four IPF locations are shown in Table 24-7 below.

Table 24-7 Estimated Temporary Worker Accommodation Facility Sizes for Each Development

TWAF Location	Maximum TWAF Capacity Requirements	Year Maximum TWAF Capacity Requirements Expected
Area 4	291	2020
Area 5	259	2016
Area 7	298	2016
Area 19	386	2034

Source: Arrow, 2012

The TWAF location selection process will satisfy regional council requirements while minimising the impact on local residents and the environment.

24.5.4 Decommissioning Workforce

The exact requirements for the closure workforce will likely depend on the phase of the Project at closure. For example, in the event that the gas processing facilities are no longer required at the end of their 15 to 20 year design life, decommissioning activity may require higher / lower personnel levels than an unexpected closure during operations. As noted above, decommissioning has not yet been finalised. Decommissioning of the fields will be ongoing, and will not likely have any noticeable social disruption above the construction and operations, it will essentially be indistinguishable, with the exception that once complete there will be a reclaimed habitat, and capped and marked well.

24.6 Issues and Potential Impacts

Impacts and mitigations have been restructured to align with Arrow's previous projects, as per the SIA unit's request. Due to these changes the impacts and mitigations do not share the same titles, nor do they contain the same content as the social baseline found in Section 4 of the Social Technical Report (Appendix U) of this EIS. Table 24-8 shows how the information is arranged in the baseline and consequently how it has been modified for the impacts and mitigations section.

Table 24-8 Baseline to Impacts and Mitigations Alignment

Baseline	Impacts and Mitigations
Demographic Profile	Population and Demographic Profile
Housing and Accommodation	Housing and Accommodation
Governance, Planning and Primary Infrastructure	Land Use and Property
	Community Infrastructure and Services
Community Values and Lifestyles	Community Values and Lifestyles
Community Services and Facilities	Community Values and Lifestyles
Health and Emergency Services	Community Infrastructure and Services
	Health, Safety and Environment
Education and Training	Employment Skills and Business
Economy, Employment and Enterprise	

A summary of potential impacts, including their likelihood and magnitude, proposed mitigation and management measures, and subsequent residual impacts is detailed in Table 24-11 in Section 24.11 of this chapter.

24.6.1 Key Issues Raised Through Consultation

A summary of the key issues raised through consultation are presented in Table 24-9 below:

Table 24-9 Summary of Key Issues Raised Through Consultation

Aspect	Key Issues
Workforce and Worker Accommodation	• Construction camp size, location and timeframe; • Workforce accommodation and impacts on housing; • Workforce size and composition; • FIFO versus locally-based workforce; and • Staff housing strategies.
Water and Salt Management	• Water extraction and processing; • Waste water and salt management; • Impact on aquifers and bores; • Water allocation; • Dam size, fencing and treatment of water; • Beneficial uses of water and salt; • Gas in water bores; and • Reverse osmosis, waste water and associated infrastructure.
Land / Property	• Property access and landholder rights; • Impacts on land value and compensation; • Land / site rehabilitation; • Safety risk to people and livestock; • Land access agreements and compensation; • Weed management; • Voluntary versus involuntary land access; • Make good arrangements; • Impact on food production and quality; and • Land access rules.
Wells	• Location and size of wells; • Depth of drilling; • Extraction process and subsidence; • Well closure and monitoring; • Hydraulic fracturing and chemicals including BTEX; • Proximity of wells to residences / community; • Difference between test bores, pilot wells and production wells; • Well construction and associated infrastructure; • Well integrity and safety; and • Emergency management.
Social and Economic Issues	• Benefits and impacts; • Local supply and procurement policy and program; • Impact of workforce on local services; • School-based traineeships; and • Brighter Futures program.
Market	• Ownership of Arrow Energy; • Domestic versus export markets; • Future of Blackwater power station; • Gas supply to local community; • Tenure ownerships and management / shared tenure (Arrow and

Aspect	Key Issues
	QGC); • Quality and quantity of gas reserves in Bowen Basin; • CSG and underground mining compatibility; and • Future plans for the Bowen Basin.
Environmental Impacts	• Cumulative and long-term impacts; • Noise and air emissions; • Offset policy; • CSG emissions; and • Difference between CSG and shale gas.
EIS	• EIS timeline and approvals; • ToR and Initial Advice Statement release; and • Terms of Reference content and submissions.
Arrow Bowen Pipeline	• Pipeline route; • Pipeline design and construction; • Pipeline restrictions, safety and exclusion zones; • Pipeline maintenance and monitoring; • Pipeline marking and easements; and • Landholder consultation on route.

24.6.2 Population and Demographic Profile

The Project has a small potential to result in a decline in population in the study area as a result of families out-migrating related to changing lifestyle from residential to FIFO / drive-in-drive-out (DIDO). The potential for this to occur is low; as it is expected that that the local resident uptake of Project employment will be low due to the low unemployment in the study area, particularly in trades and extractive industry fields, where unemployment is effectively zero. Further, it is likely that the current demand in the region should result in a replacement of population numbers as a result of out-migration, but the replacement may not necessarily be a family, which is the desired outcome from some in the community.

The current skills shortage may result in the sourcing of Project workforce from other regions or overseas. This would result in increased ethnic diversity in the FTE population.

The Project is likely to exacerbate the OESR's FTE population projected peak in 2016, though the Project's contribution to the NRW peak of populations is ultimately insignificant when considered with the other active projects in the region.

The construction phase of the Project will likely involve an influx of men, which would exacerbate the gender imbalance in the FTE population more so than is currently experienced. However, the construction workforce will be generally located out of communities, including the ongoing construction workforce (drillers and gathering lines) which tend to reside in camps either at the drill site or in the IPF areas.

The volatility of the regional housing market, particularly in Moranbah and Dysart are the largest influencers in demographic profile and population. As discussed in the baseline, the region is currently experiencing a mining boom, which has created the existing housing reality. Changes to the mining

industry will influence housing prices, which in turn will influence demographic and population trends. The Project is not deemed large enough to influence the housing and population because of the scale of mining. Should a mining decline or bust occur, this situation would change dramatically, and if mining dropped to a large extent that it removed mines and NRW from the region, the Project would become a larger influencer in housing and demographic trends.

24.6.3 Housing and Accommodation

The Project is unlikely to have a significant direct impact on the housing market in the study area due to the proposed workforce accommodation strategy. Meaning, the workforce is largely assumed to be sourced from outside the study area and will be housed outside of the communities' housing markets. While Arrow would prefer operational staff to be resident within the region, it acknowledges that there are not likely to be a significant number of workers who choose to relocate to the area. As a result, the Project is not expected to directly increase demand on housing.

Furthermore, the Project is not expected to have a large direct impact on the housing market in the study area as accommodation for construction and operational workers will be provided through TWAFs. However, as indicated previously, as Arrow has a stated preference for operational staff to be resident within the region, it could be expected that there will be a minimal to very modest demand on housing through operational workers who seek to relocate to the region. This increased demand, though minimal, will add to the current high demand on housing being experienced. It is also possible that contractors engaged by the Project may seek to secure some permanent accommodation in the region to enhance the efficiency of their operations by being located closer to work sites. There could possibly also be a level of speculative investment activity in the local housing market in the expectation of approval of the Project, however this is expected to be minimal and beyond the control of the Project. Lastly, it is possible that the approval and development of the Project will result in increased speculative activity, which in turn will increase housing prices in Moranbah, Dysart and Blackwater. While these markets are sensitive to increased pressure on housing prices, it will be unlikely that the Project's impact will be noticeable above the current cumulative environment.

As discussed in Section 24.4.7, it is important to note that the volatility of the regional housing market, particularly in Moranbah and Dysart are the largest influencers in all other social impacts. As discussed in the baseline, the region is currently experiencing a mining boom, which has created the existing housing reality. Changes to the mining industry will influence housing prices to a significantly different scale to the Project due to scale, duration and legacy. The Project is not deemed large enough to influence the housing in the region because of the overwhelming scale of mining activity in the region, both existing and proposed. Should a mining decline or 'bust' occur, this situation would change dramatically, and if mining dropped to a large extent that it removed mines and NRW from the region, the Project would become a larger influencer in housing availability and affordability; however, this level of decline would also fundamentally change the social environment, and likely population opinions and attitudes to the extractive industry. It is also important to note that the gas price is not tied to the coal price, and therefore changes in one industry should not result in changes in the other. Changes could however occur at the same time but for different reasons resulting in the same outcome.

24.6.4 Employment, Skills and Business

As a result of the demand for labour in the region, high salaries offered by resource and energy companies, and the lack of affordability in the local housing market there would be increased labour costs for other industries and businesses not servicing the Project. Therefore, the Project is likely to add to the existing high level of demand for skilled and semi-skilled labour in the region.

Regarding skills the Project is likely to have the following positive, medium level impacts on the study area:

- Increase in the number of apprenticeship and training places offered in the region as a result of increased funding and provision of industry specific training and education pathways;
- Improvements in regional training facilities through funding and collaborative partnerships; and
- Potential retention of senior students to Year 12 in Moranbah and Dysart through the growth in demand for CSG workforce roles that require post-secondary qualifications. However, this potential is constrained by the existing preference in the region for vocational pathways and low uptake of tertiary scholarships.

The Project may increase opportunities for small local businesses to gain wider and diversified business opportunities; however, the potential for local businesses to benefit through supplying the Project also presents the potential for stress associated with insolvency to occur due to non-compliance with payment terms. This is an existing issue in the study area and is a product of non-aligning cost structures and cash-flow regimes between small local suppliers with short contract terms and large companies with longer payment schedules.

There is also the potential for diversification of local employment and economic industry base through the addition of energy / gas employment and skillsets.

24.6.5 Land Use and Property

At a high level, the expected impacts of the Project on land use in the study area are as follows:

- The Project's use of landholders' roads may deteriorate the roads themselves and through this have a detrimental effect on agricultural activity. This impact will be particularly marked as landholder's roads are not constructed for heavy vehicles, whose use will be necessary during construction;
- It is likely that the Project will increase vehicle movements in the Project area. This may result in increased maintenance needs, congestion and increases the potential for accidents; and
- Project activities, particularly TWAF development may result in increased demand on council physical resources (water, sewerage, power).

24.6.6 Community Values and Lifestyles

Communities acknowledge the dilemma between wanting greater interaction and participation in their communities, and the challenges that a temporary and substantially male–dominated construction workforce will bring.

The likelihood of these concerns materialising is assessed as being low. While there will be a large cumulative influx of NRW into the area (predominantly during construction), there will be limited

interaction between many workers and the general community as they will be operating from remote sites and staying at self-contained TWAFs. Communities in the study area have experienced influxes of NRW on resource projects in the past, and could be expected to have developed a degree of resilience to their presence as was identified in consultation in these communities.

Potential impacts (real or perceived) to social capital and community lifestyles from the Project include:

- Loss of family orientated values through the continuation of FIFO rather than residential workforces and the associated influx of single men rather than families. This trend has a flow on effect whereby social spaces have the potential to become dominated by men creating a perception that public spaces are not 'family friendly'.
- Reduced perception of safety through a continuation of the trend of largely male transient workforces.
- Community divisions over issues related to FIFO / DIDO and TWAF development in the region and how it results in a diminished contribution of workforces to the local economy and community.
- Antisocial behaviour and exacerbation of domestic violence incidences in the home or base communities of FIFO / DIDO workers. It should be noted that there are no significant links between resource industry employment and domestic violence.

Furthermore, Project employment of existing residents may result in a loss of membership base of sporting clubs and community-based organisations. This impact would be a result of existing residents being employed by the Project with the change in shift pattern not facilitating either precluding or necessitating a changed level of involvement. The present levels of unemployment and associated skill shortage in the region makes this impact unlikely.

The Project's increase in the FTE population may increase the use of recreational facilities by NRW, which may increase the viability of local clubs. This would largely be dependent on local clubs membership criteria being adapted or made flexible enough to accommodate NRWs transiency.

24.6.7 Community Infrastructure and Services

The Project may result in reduced access and amenity for local residents to essential services in town resulting from NRWs increasing the demand for such services. This may result in the perception that the spaces are 'over-crowded'. However, it is important to note that this impact is largely cumulative and the Project's contribution to the NRW population is minimal.

Regarding health and emergency services the Project may contribute to cumulative increased demand on local GP and hospital services in Moranbah. In the short term, this is likely to be present through increased demand for 'fitness for work' checks and non-urgent medical conditions. Due to this Arrow will Arrow will consider the need for medical services at each facility and construction camp, during the Workforce Management and Accommodation planning and as well as the Emergency Response planning.

The Project's contribution to community anxiety and concern around FIFO / DIDO and TWAF development may result in increased social anxiety in existing residents. This may result in an increased demand on local mental health services in Moranbah.

There is anecdotal opinion, including from medical sources, that long-term residence in accommodation camps can have detrimental health outcomes due to encouraging non-desirable behaviours (such as making poor dietary choices and consuming excessive levels of alcohol). This is then assumed to potentially place pressure on local health services. While this possible outcome is not discounted, there is no firm evidence to indicate that it is a major risk, and it is noted that accommodation facilities are equipped with exercise and recreational facilities and often adopt a proactive avoidance approach by implementing education programs encouraging healthy choices to be made by residents. Furthermore, there is a potential for Arrow to exacerbate and become embroiled in existing socio-political debates regarding TWAFs, FIFO / DIDO and their effect on host communities. This may reduce the perception of liveability in the region and is contrary to the IRC's stated planning preferences.

Stemming from this, there is potential for community disenchantment with regional councils as a result of the Project's accommodation strategy misaligning with regional community plans and aspirations.

24.6.8 Health, Safety and the Environment

There is a latent community anxiety over potential environmentally harmful effects of the Project, particularly around potential groundwater contamination. Accidents from resulting spills are another concern being raised in community consultation regarding the potential impact of CSG operations.

Potential for an incident to occur (e.g. gas leak, chemical spill, fire) and any impacts on workers and the broader community are discussed in the Preliminary Hazard and Risk Technical Report (Appendix Y) of this EIS.

24.6.9 Summary of Potential Impacts Prior to Mitigation

Positive impacts identified that may result from the Project include employment, education, and recreation opportunities. These impacts are anticipated to have benefits locally, regionally and nationally for the duration of the Project.

While there is expected to be a low level of direct impact imposed by the Project in areas such as the delivery of community services (such as health and emergency services) and housing demand (through relocating operational workers and contractors seeking a local base), these levels will still contribute to the cumulative impact being felt in the communities due to overall level of resource development in the region. Arrow will implement mitigation measures to manage these impacts, as well as monitor the actual level of impacts arising from the Project, and participate in regional planning forums with key stakeholders and service providers to ensure a coordinated approach to the mitigation of cumulative impacts and the targeting of social investment to build the community capacity.

Potential adverse impacts related to cumulative community perceptions and anxiety regarding continued TWAF development is likely to be limited to Moranbah and Dysart within the study area and would be mainly felt by low income and disadvantaged sections of the community. This may also occur in Blackwater, though according to the current Project development timeline, a lot could change in the southern area before development is started in 2035.

24.7 Social Protection Objectives

The protection objectives for the social environment are to:

- Maximise the positive benefits of the Project from employment and training opportunities and opportunities for local businesses;
- Minimise the interaction with the housing and accommodation market;
- Minimise impacts on existing services and social infrastructure; and
- Maintain or enhance the wellbeing of the community including health, safety and amenity values.

24.8 Avoidance, Mitigation, Management and Enhancement Measures

Arrow has formulated the following strategies to manage and mitigate negative impacts and enhance positive impacts that are considered likely to occur as a result of the Project according to the social characteristics described below. This has been done through the implementation of the SIMP (Appendix V) of this EIS. The SIMP is developed in consultation with councils, other service providers, State government, communities and other relevant stakeholders. In recognition of the changing nature of impacts over the life of the Project, the SIMP should be adaptive and reassessed at regular intervals. Benchmarks should be established and monitored continuously throughout implementation and the management plan adapted as required.

Action plans and mitigations strategies developed for the SIMP have been grouped in the following categories:

- Population and Demographic Profile;
- Housing and Accommodation;
- Employment, Skills and Business;
- Land Use and Property;
- Community Values and Lifestyles;
- Community Infrastructure and Services; and
- Health, Safety and Environment.

Action plans and mitigation are described below.

24.8.1 Population and Demographic Profile

Arrow recognises that attracting and retaining residents is an objective of many of the communities affected by this Project. Arrow will give its continued support for this community goal:

- Continue to increase the cultural diversity of FTE population in the region.
- Adopted hierarchy of preferred employment – with preference for local applicants, particularly for operations positions.
- Close engagement with other industries, government, and service providers to plan and share information relating to preferred growth patterns and managing potential impacts associated with any population growth or decline resulting from Project activities.

- Close engagement with other industries, government, and service providers to plan and share information relating to preferred growth patterns and managing potential impacts associated with any population growth or decline resulting from Project activities.

24.8.2 Housing and Accommodation

Because of Arrow's accommodation strategy, the Project is unlikely to have a significant impact on housing in the study area. However, Arrow understands that housing and accommodation in the study area is under considerable stress. Arrow has identified the following strategies to mitigate the Project's impacts:

- Participate in discussions with State government, councils, the building industry and other project proponents to foster an understanding of cumulative housing demands.
- Monitor, through Human Resources, the number of workers moving into the local and regional area and formulate a housing strategy for implementation and monitoring within the evolving SIMP as required.
- Visiting workers will stay in TWAFs in preference to hotel / motel accommodation wherever possible to reduce stress on accommodation.
- Examine opportunities to invest in the Isaac Affordable Housing Trust in consultation with IRC as means to help alleviate housing stresses in the region.

24.8.3 Employment, Skills and Business

Arrow will maximise business benefits in the Project area by supporting local industry to access capability building programs and identifying opportunities and barriers to industry participation. Identified strategies include:

- Establish a process providing means of contact for local Project areas businesses to contact Arrow with billing issues.
- Organise local supplier information sessions to inform business of Arrow's development plans, tender opportunities for local business; and how to complete tender requirements.
- Continue to use Industry Capability Network (ICN) database for potential suppliers in the area.
- Develop and maintain the Arrow Business Vendor Register.
- Develop an Australian Industry Participation Plan (AIPP) in consultation with AusIndustry and DSDIP that is consistent with the state and federal Industry Participation frameworks.

To develop and attract a skilled workforce Arrow will implement the following enhancement strategies in the study area:

- Liaise with local employment and education / training organisations on training and skill development programs, to identify workers within the region who have the ability to obtain qualifications based on Recognition of Prior Learning.
- Implement training and skill development programs including: apprenticeships, scholarships, vocational training, support for work readiness programs and pre-trade training.
- Identify the range of skills required for the labour force and undertake a gap analysis against skills availability. Where gaps exist, in consultation with the Energy Skills Queensland, Manufacturing

Skills Queensland and Construction Skills Queensland, identify the method or strategy through which these skills will be filled.
- Undertake regular review of labour requirements and current skills sets to ensure that training strategies meet these needs.
- Continue to provide School Based Apprenticeship and Training (SAT) Program for Year 11 and 12 students.
- Consider establishing a SAT program similar to that run in Moranbah in other projects areas within the Bowen Basin.

24.8.4 Land Use and Property

Arrow has devised the following strategies to address potential impacts on land use and property:

- Close engagement with landholders to minimise impacts on their land and existing agricultural activities.
- Develop and implement a compensation framework which is consistent for all landholders and which seeks to 'add value' rather than just compensating for impacts (a nil sum game).
- Adherence to the Conduct and Compensation Agreements between Arrow (and contractors) and landholders.
- Traffic management plans developed including:
  - preferred routes for travel and measures to reduce risk of accidents;
  - road safety awareness initiatives for Project personnel and local residents; and
  - procedure for notifying council and road authorities for any disruptions / road closures.
- Road management strategy to manage any increased road maintenance requirements imposed by the Project.
- Details of the approved traffic management plans will be made available on the Arrow website.
- Ongoing consultation will occur with appropriate levels of QPS regarding the development and implementation of the traffic management plan including vehicle movements and coordination of efforts where possible.
- Communicate with landholders at least three months before activities take place on private property.
- Maintain a grievance mechanism for the community to register complaint / issue / comment / suggestion within the community feedback mechanism, and action issues in a timely manner.

24.8.5 Community Values and Lifestyles

Arrow will consider a range of measures to maintain and enhance community values and lifestyles through continued community liaison and consideration of the following:

- Development of a Community Engagement Plan that includes:
  - a grievance mechanism for the community to register complaint / issue / comment / suggestion within the community feedback mechanism, and action issues in a timely manner;
  - community Engagement Plan to include dissemination of environmental management plans and monitoring information;

  - close engagement with landholders to minimise impacts on their land and adhere to the agreed Conduct and Compensation Agreement;
  - development of a Community Engagement Plan that includes the provision of opportunities to discuss community concerns, e.g. Arrow website, regional community information centres, 1800 free call number, etc.; and
  - post details on the Arrow website of projects which receive funding or in kind support to offset or mitigate direct project impacts.
- Delivering the following through the Social Investment Plan that:
  - encourages employees and contractors to integrate and become involved in local community sporting and recreational activities;
  - expands the opportunities available for the region under the Brighter Futures program and the Social Investment Plan;
  - consult with Council for their views on which social, community or recreational infrastructure in the IRC or CHRC is being directly impacted by the Project and to what extent. Liaise with the relevant body to coordinate efforts across all proponents and identify opportunities that may potentially ease or mitigate impacts;
  - in the development of the TWAF strategy, Arrow will consider opportunities to access / use community facilities, including consideration of appropriate timing where feasible in consultation with key stakeholders; and
  - participation in community events aimed at enhancing positive and friendly interaction between residents of nearby communities and NRWs; such options may include alcohol free social events at a community centre or a Shed within the community.
- Develop a Code of Conduct that:
  - develops and provides workers with an induction and welcome kit which includes a statement of community expectations for new arrivals. Where FIFO workers come from overseas, ensure they are provided with an adequate Australian cultural awareness briefing and information on how to undertake day to day activities, for example banking or shopping;
  - ensures that all direct employees and contractors adhere to the Code of Conduct and that disciplinary procedures for inappropriate behaviour of employees will be documented; Code of Conduct will include a zero tolerance for drugs and alcohol and random drug testing will be conducted on all personnel;
  - Arrow will develop an Employee Engagement Plan to educate its employees and contractors on the health, safety and legal risks of drug use. Arrow will communicate this plan to employees, contractors, the general public in the study area, and key agencies and service providers as applicable;
  - all Project personnel access land only in accordance with accepted Land Access Conditions and protocols;
  - communicate with landholders at least three months before activities take place on private property; and
  - ongoing provisions of Community Officers, Land Liaison Officers and the 1800 free call number, for people to ask questions or raise concerns about Arrow's activities.
- Provision of high quality TWAF accommodation for workforce.

- Arrow will consider options for a wet mess at TWAFs in consultation with key stakeholders including through Conduct and Compensation Agreements with landholders if TWAFs are built on private property.
- Arrow will continue to consult with the appropriate Traditional Owners in regards to Native Title and the management of Cultural Heritage.

24.8.6 Community Infrastructure and Services

Arrow will enhance the Project's positive impacts on the study area's community infrastructure and services through:

- Develop a Social Investment Plan:
  - early and ongoing engagement with key stakeholders, including regional councils, regarding the Social Investment Plan and other community support strategies; and
  - development of a Community Engagement Plan that includes the provision of opportunities to discuss community concerns, e.g. Arrow website, regional community information centres, 1800 free call number, etc.
- Develop Health Management Plan that reduce Project employees use of local health services and improve the workforces health through:
  - developing an employee wellbeing program that monitors the mental and physical health of employees and contractors. Information on support services to be provided on induction with updates provided at regular intervals. This program should allow for monitoring employee wellbeing with the potential to undertake surveys to measure progress;
  - employee and contractor inductions to include the clinical service capability framework of local health services;
  - provide Queensland Health and other health service representatives with expected workforce numbers in a timely manner;
  - consideration of workforce health issues in health, safety and environment (HSE) planning;
  - consider linking with existing men's health service providers and programs in the region;
  - provision of an on-site health service for the workforce in TWAFs and liaison with emergency services and Queensland Health in the planning of this facility;
  - health promotion through information and educational tools on the issue of healthy eating;
  - promote alternative education and alcohol-free recreational activities for NRW outside working hours; and
  - consideration of medical contractors openly communicating with community health service providers, diagnostic services and allied health services.
- In accordance with Project requirements, an emergency management plan will be developed that will cover joint emergency response planning in collaboration with emergency service providers.
- Consider the joint provision of a medivac service for Project related emergencies in the region.
- Arrow will discuss with QPS the opportunities and applicability for QPS to utilise Arrow's communication networks throughout the Project area to assist the QPS' (and other emergency services) gaps in coverage.

- Ongoing consultation will occur with appropriate levels of QPS regarding the development and implementation of the traffic management plan including vehicle movements and coordination of efforts where possible.
- Future reviews of the SIMP will consider ongoing revisions of community plans by regional councils. Conversely, Arrow will communicate issues in the implementation (and reporting) of the SIMP to the regional councils which may assist councils in their updates of their regional community plans.
- Traffic management plans developed including:
  - preferred routes for travel and measures to reduce risk of accidents;
  - road safety awareness initiatives for Project personnel and local residents;
  - procedure for notifying council and road authorities for any disruptions / road closures;
  - road management strategy to manage any increased road maintenance requirements imposed by the Project; and
  - details of the approved traffic management plans will be made available on the Arrow website.

24.8.7 Health, Safety and Environment

Arrow will alleviate some of these impacts through the following plans and strategies:

- HSE Plans:
  - implementation of EM Plans that address a range of potential environmental impacts, e.g. those relating to groundwater, water management, salt management, dust and noise generation;
  - Arrow will publicly release information on how environmental impacts are being offset by the Project;
  - ensure progress of workplace health and safety is communicated to the public, if applicable, as part of Arrow's annual sustainability reporting;
  - Land Liaison Officers and Community Officers are available to discuss landholder and residents' concerns; and
  - implement a community safety awareness program covering Project activities in conjunction with industry and government partners.
- Community Engagement Plan:
  - continue to implement a robust community engagement program and other measures to notify community of Project activities and to identify and address community issues;
  - in accordance with Project requirements, an emergency management plan will be developed that will cover joint emergency response planning in collaboration with emergency service providers; and
  - maintain a community feedback mechanism, including grievance process, for community contact.

24.9 Significance of Residual Impacts

The SIMP details the mitigation measures that will be implemented by Arrow through the life of the Project. The SIMP is a living document and addresses both positive and negative social impacts. A summary of the residual positive and negative impacts of the Project, assuming all mitigation measures in the SIMP are effectively implemented, is provided in Table 24-11.

The significance of residual impacts is then assessed. Highly significant residual social impacts are positive and include the creation of employment, training and business opportunities. No highly significant residual negative impacts remain after implementation of the measures outlined in the SIMP.

24.10 Cumulative Impacts

Cumulative effects may occur due to the compounding and synergistic interactions arising from other developments, occurring in the same area or over similar time frames to the Project being assessed. Environmental (including social) values may be impacted as a result of a geographic overlap of Project areas, scheduling overlap or using the same infrastructure, services and resources. Many of the cumulative effects associated with the Project are derived on a broader regional scale from transport, economic and social interactions between the Project and other existing or proposed Projects within the Project vicinity. They are likely to be evident in regional townships, or on regional elements such as road networks linking rural properties to townships and regional centres (such as Mackay and Rockhampton). Closer to the Project site, cumulative effects associated with the Project may include air quality (dust), groundwater, surface water, noise etc. Where possible, adverse impacts are avoided or mitigated via implementation of sound environmental protection and management criteria.

Table 24-10 below lists key considerations in each thematic category assessed in the SIA.

Table 24-10 Key Consultations for the Regional Area regarding Cumulative Impacts

Impact Domain	Potential Impacts
Population and Demographic Profile	• Increase in the proportion of NRWs within the full-time equivalent regional population; and • Change in the regional sex-ratio due to additional male construction workers moving to the region.
Housing and Accommodation	• Maintenance of high demand for housing and rental accommodation in regional towns.
Employment, Skills and Business	• Increased in the availability and diversity of employment and training opportunities; • Increased opportunity for supply chain participation by local enterprises; and • Increased business costs for local businesses due to labour shortages and increased wage costs.
Land Use and Property	• Potential for localised adverse impacts on agricultural enterprise productivity.
Community Values and Lifestyles	• Perceived negative impact on community fabric due to increase in TWAFs and NRWs;

	• Potential increased intra-community conflict stemming from increased income disparity between workers in different industry sectors; • Heightened concern for diminished environmental integrity resulting from CSG production operations; and • Enhanced regional sustainability resulting from industry diversification.
Community Infrastructure and Services	• Accelerated deterioration of local road conditions; • Higher demand on local services (medical, emergency services, police etc) in the absence of an expansion in capacity; • Disaffection with local governing bodies should local levels of service fall; and • Potential for increase in rate revenue.
Health, Safety and Environment	• Heightened anxiety of local residents in relation to perceptions of elevated road safety risks due to Project traffic.

The key element in an effective approach to the management of cumulative impacts is close collaboration between all stakeholders (communities, local and state governments and Project proponents, including their major contractors) at all stages of the Project development and implementation cycle. Supporting this collaboration is a prime purpose of the Queensland Government's *Sustainable Resources Community Policy*. This Policy focuses on communities being impacted by rapid development driven by the resource industry, and aims to foster equitable and sustainable resource communities. One of the four key themes under the policy is "Fostering partnerships with local government, industry and community". These partnerships will seek to establish local leadership groups to focus on regional planning issues and identify social investment measures that will address cumulative or regional issues arising from resource development.

Arrow will pro-actively explore opportunities for collaboration in cumulative impact management in consultation with the Queensland Government SIA Unit, State and local governments, industry and communities. Through early engagement with key stakeholders, Arrow can supply relevant information on workforce projections and housing requirements which can inform better planning for infrastructure and services in the communities in proximity to the Project. The SIMP (Appendix V of this EIS) includes a number of planning and consultation mechanisms which Arrow will consider in mitigating potential cumulative impacts of the Project.

24.11 Inspection and Monitoring

The SIMP has been developed in accordance with the *Queensland Sustainable Communities Policy* (2010) and articulates action plans addressing each of the following key impact areas:

- Demographic Profile;
- Housing and Accommodation;
- Employment, Skills and Business;
- Land Use and Property;

- Community Values and Lifestyles;
- Community Infrastructure and Services; and
- Health, Safety and Environment.

Section 1.3 of the SIMP (Appendix V) of this EIS provides details on the monitoring, reporting and review processes for each of these action plans. These processes aim to determine whether the specific actions contained in the action plans are meeting identified targets.

Table 24-11 shows a high level view of the Project's impacts, mitigation strategies and residual impacts.

Table 24-11 Summary of Social Impacts and Significance Assessment

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
Population and Demographic Profile									
Increased cultural diversity of FTE population	C	Pos	Almost certain	Minor	Medium	• Continue to increase the cultural diversity of FTE population in the region.	Likely	Minor	Medium
Decline in population numbers of local communities	C, O	Neg	Possible	Moderate	Medium	• Adopted hierarchy of preferred employment – with preference for local applicants, particularly for operations positions.	Unlikely	Minor	Low
Cumulative increase in NRW in peak period 2016	C (2016)	Neg	Possible	Moderate	Medium	• Close engagement with other industries, government, and service providers to plan and share information relating to preferred growth patterns and managing potential impacts associated with any population growth or decline resulting from Project activities.	Likely	Insignificant	Low
Increase in males aged 20-44 in the FTE population	C, O	Neg	Unlikely	Minor	Low	• Close engagement with other industries, government, and service providers to plan and share information relating to preferred growth patterns and managing potential impacts associated with any population growth or decline resulting from Project activities.	Likely	Insignificant	Low
Housing and Accommodation									
Increase in regional rental and property prices from speculative activity	PC, C	Neg	Unlikely	Minor	Low	• Participate in discussions with State government, councils, the building industry and other project proponents to foster an understanding of cumulative housing demands. • Monitor, through HR, the number of workers moving into the local and regional area and formulate a housing strategy for	Unlikely	Minor	Low

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						• implementation and monitoring within the evolving SIMP as required. • Visiting workers will stay in TWAFs in preference to hotel / motel accommodation wherever possible to reduce stress on accommodation. • Examine opportunities to invest in the Isaac Affordable Housing Trust in consultation with IRC as means to help alleviate housing stresses in the region.			
Employment, Skills and Business									
Increased training and skill development opportunities for the local population	LoP	Pos	Almost Certain	Minor	Medium	• Liaise with local employment and education / training organisations on training and skill development programs, to identify workers within the region who have the ability to obtain qualifications based on Recognition of Prior Learning. • Implement training and skill development programs including: apprenticeships, scholarships, vocational training, support for work readiness programs and pre-trade training. • Identify the range of skills required for the labour force and undertake a gap analysis against skills availability. Where gaps exist, in consultation with the Energy Skills Queensland, Manufacturing Skills Queensland and Construction Skills Queensland, identify the method or strategy	Almost Certain	Minor	Medium

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						through which these skills will be filled.			
Increase in retention of senior students to Year 12 in local high schools	C, O	Pos	Unlikely	Moderate	Medium	• Undertake regular review of labour requirements and current skills sets to ensure that training strategies meet these needs. • Continue to provide SAT Program for Year 11 and 12 students. • Consider establishing a SAT program similar to that run in Moranbah in other projects areas within the Bowen Basin.	Possible	Moderate	Medium
Potential stress on small businesses in the Project area over billing issues	LoP	Neg	Possible	Major	High	• Establish a process providing means of contact for local Project areas businesses to contact Arrow with billing issues. • Organise local supplier information sessions to inform business of Arrow's development plans, tender opportunities for local business; and how to complete tender requirements. • Continue to use ICN database for potential suppliers in the area.	Unlikely	Moderate	Medium
Local business difficulties faced by competition for labour	C	Neg	Unlikely	Moderate	Medium	• Develop an AIPP in consultation with AusIndustry and DSDIP that is consistent with the state and federal Industry Participation frameworks.	Unlikely	Minor	Low

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
Land Use and Property									
Deterioration of landholders' roads and detrimental effect on agricultural activity	PC, C	Neg	Possible	Major	High	• Close engagement with landholders to minimise impacts on their land and existing agricultural activities. • Develop and implement a compensation framework which is consistent for all landholders and which seeks to 'add value' rather than just compensating for impacts (a nil sum game). • Adherence to the Conduct and Compensation Agreements between Arrow (and contractors) and landholders.	Unlikely	Moderate	Medium
Increase in vehicle movements in the Project area	C, O	Neg	Almost certain	Minor	Medium	• Traffic management plans developed including: — preferred routes for travel and measures to reduce risk of accidents; — road safety awareness initiatives for Project personnel and local residents; and — procedure for notifying council and road authorities for any disruptions / road closures. • Road management strategy to manage any increased road maintenance requirements imposed by the Project. • Details of the approved traffic management plans will be made available on the Arrow	Almost Certain	Insignificant	Low

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						website. • Ongoing consultation will occur with appropriate levels of QPS regarding the development and implementation of the traffic management plan including vehicle movements and coordination of efforts where possible. • Communicate with landholders at least three months before activities take place on private property. • Maintain a grievance mechanism for the community to register complaint / issue / comment / suggestion within the community feedback mechanism, and action issues in a timely manner.			
Community Values and Lifestyles									
Improvement and increased viability of local sporting and recreation facilities through greater use by NRW	C, O	Pos	Possible	Moderate	Medium	• Consult with Council for their views on which social, community or recreational infrastructure in the IRC or CHRC is being directly impacted by the Project and to what extent. Liaise with the relevant body to coordinate efforts across all proponents and identify opportunities that may potentially ease or mitigate impacts. • In the development of the TWAF strategy, Arrow will consider opportunities to access / use community facilities, including consideration of appropriate timing where feasible in consultation with key stakeholders.	Possible	Minor	Medium

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						• Encourage employees and contractors to integrate and become involved in local community sporting and recreational activities. • Expand the opportunities available for the region under the Brighter Futures program and the Social Investment Plan. • Post details on the Arrow website of projects which receive funding or in kind support to offset or mitigate direct Project impacts.			
Increase in community concern regarding development of TWAFs in the region	PC, C	Neg	Possible	Moderate	Medium	• Development of a Community Engagement Plan that includes the provision of opportunities to discuss concerns with the community. • Provision of high quality TWAF accommodation for workforce. • Ongoing provisions of Community Officers, Land Liaison Officers and the 1800 free call number, for people to ask questions or raise concerns about Arrow's activities. • Close engagement with landholders to minimise impacts on their land and adhere to the agreed Conduct and Compensation Agreement.	Unlikely	Moderate	Medium
Amplification of community concern regarding potential CSG impacts through the use of social media	LoP	Neg	Possible	Moderate	Medium	• Community Engagement Plan to include dissemination of environmental management plans and monitoring information. • Close engagement with landholders to minimise impacts on their land and adhere to	Unlikely	Moderate	Medium

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						the agreed Conduct and Compensation Agreement. • Communicate with landholders at least three months before activities take place on private property. • Maintain a grievance mechanism for the community to register complaint / issue / comment / suggestion within the community feedback mechanism, and action issues in a timely manner.			
Exacerbation of community divisions and conflict related to an increase in proportion of NRW	C	Neg	Possible	Moderate	Medium	• Expand the opportunities available for the region under the Brighter Futures program and the Social Investment Plan. • Post details on the Arrow website of projects which receive funding or in kind support to offset or mitigate direct Project impacts. • Participation in community events aimed at enhancing positive and friendly interaction between residents of nearby communities and NRWs; such options may include alcohol free social events at a community centre or a Shed within the community. • Encourage employees and contractors to integrate and become involved in local community (e.g. volunteer work, participation in clubs and organisations). • Develop and provide workers with an induction and welcome kit which includes a statement of community expectations for new arrivals. Where FIFO workers come from overseas, ensure they are provided	Unlikely	Minor	Low

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						with an adequate Australian cultural awareness briefing and information on how to undertake day to day activities, for example banking or shopping. • Ensure that all direct employees and contractors adhere to the Code of Conduct and that disciplinary procedures for inappropriate behaviour of employees will be documented. • Arrow will consider options for a wet mess at TWAFs in consultation with key stakeholders including through Conduct and Compensation Agreements with landholders if TWAFs are built on private property.			
Increased anxiety over cultural heritage disturbance	PC, C	Neg	Unlikely	Moderate	Medium	• Arrow will continue to consult with the appropriate Traditional Owners in regards to Native Title and the management of Cultural Heritage. • All Project personnel access land only in accordance with accepted Land Access Conditions and protocols.	Unlikely	Moderate	Medium
Potential increase in drug-related antisocial and criminal behaviour in the region	C,O	Neg	Unlikely	Moderate	Medium	• Ensure that all direct employees and contractors adhere to the Code of Conduct and that disciplinary procedures for inappropriate behaviour of employees will be documented; Code of Conduct will include a zero tolerance for drugs and alcohol and random drug testing will be conducted on all personnel.	Unlikely	Moderate	Medium

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						• Arrow will develop an Employee Engagement Plan to educate its employees and contractors on the health, safety and legal risks of drug use. Arrow to communicate this plan to employees, contractors, the general public in the study area, and key agencies and service providers as applicable.			
Reduced perceptions of safety relating to increase in number of male NRW accommodated in TWAFs	C,O	Neg	Possible	Minor	Medium	• Maintain a grievance mechanism for the community to register complaint / issue / comment / suggestion within the community feedback mechanism, and action issues in a timely manner. • Development of a Community Engagement Plan that includes the provision of opportunities to discuss community concerns, e.g. Arrow website, regional community information centres, 1800 free call number, etc.	Unlikely	Minor	Low
Community Infrastructure and Services									
Increase in potential for disease and illness outbreaks in TWAFs and local communities	C, O	Neg	Possible	Major	High	• Provision of an on-site health service for the workforce in TWAFs and liaison with emergency services and Queensland Health in the planning of this facility. • Consideration of medical contractors openly communicating with community health service providers, diagnostic services and	Unlikely	Moderate	Medium

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						allied health services. • Consideration of workforce health issues in HSE planning. • In accordance with Project requirements, an emergency management plan will be developed that will cover joint emergency response planning in collaboration with emergency service providers.			
Increased demand on emergency services	C, O	Neg	Unlikely	Moderate	Medium	• In accordance with Project requirements, an emergency management plan will be developed that will cover joint emergency response planning in collaboration with emergency service providers. • Arrow will consider provision of a medivac service to respond to various Project related emergency situations in consortium with other proponents. • Arrow will discuss with QPS the opportunities and applicability for QPS to utilise Arrow's communication networks throughout the Project area to assist the QPS (and other emergency services) gaps in coverage.	Unlikely	Minor	Low
Increased demand on local medical centres / hospitals	C, O	Neg	Unlikely	Moderate	Medium	• Provide Queensland Health and other health service representatives with expected workforce numbers in a timely manner. • Provision of an on-site health service for the workforce in TWAFs and liaison with	Unlikely	Minor	Low

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						• emergency services and Queensland Health in the planning of this facility. • Consideration of medical contractors openly communicating with community health service providers, diagnostic services and allied health services. • Health promotion through information and educational tools on the issue of healthy eating. • Employee and contractor inductions to include the clinical service capability framework of local health services.			
Heightened road safety risk	C, O	Neg	Possible	Moderate	Medium	• Traffic management plans developed including: — preferred routes for travel and measures to reduce risk of accidents; — road safety awareness initiatives for Project personnel and local residents; and — procedure for notifying council and road authorities for any disruptions / road closures. • Road management strategy to manage any increased road maintenance requirements imposed by the Project. • Ongoing consultation will occur with appropriate levels of QPS regarding the development and implementation of the traffic management plan including vehicle	Unlikely	Minor	Low

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						movements and coordination of efforts where possible • Details of the approved traffic management plans will be made available on the Arrow website.			
Increase in potentially long term men's health issues as a consequence of TWAF lifestyle	C, O, PPR	Neg	Possible	Minor	Medium	• Health promotion through information and educational tools on the issue of healthy eating. • Promote alternative education and alcohol-free recreational activities for NRW outside working hours. • Consider linkages with existing men's health service providers and programs in the region. • Develop an employee well-being program that monitors the mental and physical health of employees and contractors. Information on support services to be provided on induction with updates provided at regular intervals. This program should allow for monitoring employee wellbeing with the potential to undertake surveys to measure progress.	Unlikely	Minor	Low
Potential for Arrow to exacerbate and become embroiled in existing socio-political debates regarding TWAFs, FIFO / DIDO	PC, C	Neg	Possible	Moderate	Medium	• Early and ongoing engagement with key stakeholders, including regional councils, regarding the Social Investment Plan and other community support strategies.	Unlikely	Minor	Low
Community disenchantment with	PC	Neg	Possible	Moderate	Medium	• Development of a Community Engagement	Unlikely	Moderate	Medium

Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
regional council from potential misalignment between the Project and regional community plans and aspirations						Plan that includes the provision of opportunities to discuss community concerns, e.g. Arrow website, regional community information centres, 1800 free call number, etc. • Future reviews of the SIMP will consider ongoing revisions of community plans by regional councils. Conversely, Arrow will communicate issues in the implementation (and reporting) of the SIMP to the regional councils which may assist councils in their updates of their regional community plans.			
Health, Safety and Environment									
Increased community anxiety in relation to potential health, safety and environmental effects of the Project	LoP	Neg	Unlikely	Moderate	Medium	• In accordance with Project requirements, an emergency management plan will be developed that will cover joint emergency response planning in collaboration with emergency service providers. • Maintain a community feedback mechanism, including grievance process, for community contact. • Continue to implement a robust community engagement program and other measures to notify community of Project activities and to identify and address community issues.	Unlikely	Minor	Low

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Potential Impact	Phase	Pos / Neg	Potential Impact			Summary of Mitigation and Management Measures	Residual Impact		
			Likeli-hood	Magni-tude	Level		Likeli-hood	Magni-tude	Level
						• Implementation of Environmental Management Plans that address a range of potential environmental impacts, e.g. those relating to groundwater, water management, salt management, dust and noise generation. • Arrow will publicly release information on how environmental impacts are being offset by the Project. • Ensure progress of workplace health and safety is communicated to the public, if applicable, as part of Arrow's annual sustainability reporting. • Land Liaison Officers and Community Officers are available to discuss landholder and residents' concerns. • Implement a community safety awareness program covering Project activities in conjunction with industry and government partners.			