

QGC Upstream Components

Landscape and Visual Assessment

For Queensland Gas Corporation

FINAL

0094119 June 2009



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Reference: Upstream Components

For and on behalf of	
Environmental Resources Management	
Australia	
Approved by:	Allan Wyatt
Position:	Partner
Date	11 June 2009

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ANNEX A PARAMETERS OF HUMAN VISION

1 INTRODUCTION

BG Group (BG) and Queensland Gas Company (QGC) seek to further develop existing gas fields located in the Surat Basin, Queensland.

This project forms part of the 'upstream' works associated with the Queensland Curtis Liquefied Natural Gas Project (QC LNG Project), which seeks to construct an LNG Plant on Curtis Island near Gladstone. The LNG Plant will serve both export and domestic gas markets.

The upstream components cover the expansion of QGC's existing Coal Seam Gas (CSG) operations in the Surat Basin and the delivery of this gas to the proposed LNG plant

The Project has been declared a "Significant Project", for which an Environmental Impact Statement (EIS) will be required.

Environmental Resources Management (ERM) have been commissioned to prepare a Landscape and Visual Impact Assessment (LVIA) which establishes the existing conditions of the proposed CSG investigation areas, reviews the potential landscape and visual impacts of the proposal and recommends management measures to mitigate these impacts if required.

The CSG areas and associated works will be referred to as the Project in this report.

1.1 REPORT OBJECTIVES

The objective of this LVIA is to fulfil the obligations set out in the *Draft Terms of Reference for an Environmental Impact Statement Queensland Curtis LNG Project (BG – QGC)*. The Terms of Reference require that a LVIA be conducted to assess potential landscape and visual impacts and recommend mitigation measures. The sections that are relevant to this LVIA are summarised in Section 1.2.

1.2 TERMS OF REFERENCE

The *Draft Terms of Reference for an Environmental Impact Statement Queensland Curtis LNG Project* (*BG* – *QGC*) set out the guidelines for undertaking an LVIA. The guidelines are set out below.

Description of Environmental Values

This section should describe existing landscape features, panoramas and views that have, or could be expected to have, value to the community whether of local, regional, state-wide, national or international significance. In particular, reference should be made to areas of state significance (scenic coastal landscapes) in the Curtis Coast Regional Coastal Management Plan. Information in the form of maps, sections, elevations and photographs are to be used, particularly where addressing the following issues:

- major views, viewsheds, existing viewing outlooks, ridgelines and other features contributing to the amenity of the area, including assessment from private residences, Curtis Island National Park, the GBRMP and future transport corridors that service Curtis Island;
- *identification of elements within the proposal and surrounding area that contribute to their image of the town/city as discussed in the local government strategic plan city image and townscape objectives and associated maps;*
- focal points, landmarks (built form or topography), gateways associated with project site and immediate surrounding areas, waterways, and other features contributing to the visual quality of the area and the project site;

- character of the local and surrounding areas including character of built form (scale, form, materials and colours) and vegetation (natural and cultural vegetation) directional signage and land use;
- *identification of the areas of the project that have the capacity to absorb land use changes without detriment to the existing visual quality and landscape character; and*
- *the value of existing vegetation as a visual screen.*

Potential impacts and mitigation methods

This section should also discuss the visual impact of the construction and operation of the Project as it relates to the surrounding landscape on particular panoramas and outlooks.

The assessment should address the local and broader visual impacts of the Project structures. Appropriate simulations to portray the near views and far views of the completed structures and their surroundings from visually sensitive locations should be utilised. The significance of any clearing of vegetation, from a local amenity, landscape and visual perspective should be discussed.

Information should be supplied on the techniques proposed to minimise visual impacts. Special consideration should be given to public roads/ thoroughfares or places of residence, recreation, worship or work which are within the line-of-sight of the Project sites.

Details of the design and colour of any major structures, buildings or fixed plant and proposed screenings either vegetative or material should be described and discussed where relevant to the minimisation of the visual impacts of the Project.

The obstruction of sunlight due to the construction of buildings or alteration of landforms should be considered, as well as major illumination or reflection impacts on adjacent properties or roads.

Existing Light Sources

Determine the existing light sources within the Project site and its immediate surroundings. Of particular interest would be:

- visual aspect at night in relation to the location of the project in a predominantly rural setting and impacts of the LNG facility on marine usage in Gladstone harbour;
- vehicular and rail movements at night within the surrounding area;
- impacts on port users in the northern section of the Gladstone harbour, in particular navigation of vessels on the North China bay precinct; and
- Proximity of existing light sources to significant receptor areas such as fauna habitats, residential and business establishments.

Potential impacts and mitigation methods

An assessment of potential impacts of lighting of the Project and means for mitigation of these projects should be undertaken both during the construction and operational phases, with particular reference to:

- *alterations to visual impact at night;*
- potential impact of increase in vehicular and rail traffic in the area;
- effects of lighting from night operations and maintenance on residents; and
- Changed habitat conditions for nocturnal fauna and associated impacts.

2 METHODOLOGY

This section outlines the methodology adopted for the LVIA of the proposed Upstream Components of the Project.

Step 1 - Project Description: Describe the visual components of the Project

A description of the main visual components of the Project during both the construction and operation phases. This will usually include above ground components such as Central Processing Plants, Field Compressor Stations, Well Head infrastructure, and underground elements such as the pipelines. Some of this construction will also entail vegetation removal, which can have a visual impact.

Step 2- Define the viewshed of the project components that are pertinent to assessing landscape and visual impacts.

The viewshed is used to define the study area. The study area will include the CSG investigation areas and QC LNG land tenement areas defined in the Upstream Components Project and the surrounding viewshed. The viewshed can be determined by reference to the extent to which a development would intrude into the central field of vision (both horizontally and vertically). The rationale behind the definition of the viewshed and its relationship to the parameters of human vision is explained in further detail in Annexure A to this report.

Step 3 – Description of Environmental Values

Environmental values are best described as the Landscape Units which are based on the physical characteristics of the area within the viewshed. The characteristics that assist in defining the Landscape Units include vegetation, topography and drainage patterns as well as the extent of man-made modifications including urban development and farmed areas. These take into account focal points, landmarks, gateways and other features contributing to the visual quality of the area.

The sensitivity of the Landscape Units is primarily an assessment of the extent to which the Landscape Units can accommodate further change. As a general principle, the greater the extent of man-made modification that exists within a Landscape Unit the lesser the visual sensitivity will be as a Landscape Unit can usually absorb further change.

Step 4 - Assessment of potential Impacts from Publicly Accessible Viewpoints

Visual impact of a development is determined by:

- location and extent of the proposed change in the view;
- The degree of modification within the surrounding landscape (sensitivity);
- Viewer numbers;
- Distance to the proposed alteration (where applicable);
- duration of impacts in the construction and operation phases; and
- Reversibility of the change.

The visual impact is rated accordingly to the following criteria:

Negligible – little or no change from a viewpoint with low, medium or high sensitivity, i.e., minute level of effect that is barely discernable over ordinary day to day effects. The assessment of a "*negligible*" level of impact is usually based on distance. That is, the Project or its relevant components are at such a distance that, when visible in good weather, it would be a minute

element in the view across a man-modified landscape. However sometimes the screening afforded by vegetation can lead to a similar level of assessment.

Low adverse effect - low level of visual impact from a viewpoint with low to medium sensitivity/quality, i.e., adverse effects that are noticeable however, will not cause any significant adverse impacts. If the distance to the Project is great (i.e. towards the edge of the viewshed) then even if the viewer numbers and the landscape sensitivity where high, the overall visual impact would be minor as the Project would only just be visible in the landscape. If viewer numbers are low (i.e. few people can see the Project from the nominated publicly accessible viewpoint) then even if the Project was close to the viewpoint and the landscape sensitivity was high, the overall visual impact would be minor, as the change to the landscape is not seen by many viewers. In a LVIA it is important to differentiate between a "visual impact" and a "landscape impact". Viewer numbers are important in the assessment of a visual impact, for example, if no one sees a particular development then the visual impact is nil, even though there may be a significant change to the landscape and hence a large landscape impact. If landscape sensitivity was low (i.e. within a highly man modified landscape) then even if the Project was in close proximity to the viewpoint and it was visible to a large number of viewers, the overall visual impact would be low. This is, as the viewpoint is not in a landscape of such sensitivity that further change would be unacceptable.

Medium adverse effect – The assessment of a visual effect higher the Low or adverse, will depend on one or more of the assessment criteria being greater that low. That is, sensitivity of the Landscape Unit, distance and viewer numbers.

High or unacceptable adverse effect – The assessment of a "high" or "unacceptable adverse effect" from a publicly accessible viewpoint usually requires the assessment of all three elements, viewer numbers, landscape sensitivity and distance to be high. For example a highly sensitive landscape, viewed by many people, with the development in close proximity would be assessed as having an un-acceptable adverse effect or high visual impact. This assessment is also usually based on the assumption that such a view cannot be mitigated. An example may be a well frequented viewpoint within a national park, with infrastructure located in close proximity to a viewpoint that currently overlooks what would appear as a natural, pristine, unmodified landscape. Landscape treatment would block this view and even though it would also block the view. This would therefore mean that there were also no landscape mitigation measures available to reduce the visual impact from such locations from a high level of visual impact to low.

Step 5 - Mitigation Measures for Publicly Accessible Viewpoints

Mitigation measures are also considered. If required they may be appropriate in reducing the visual impact from publicly assessable viewpoints. For example, roadside planting along a section of a highway may significantly reduce the visual impact of the Project or the incorporation of a landscape buffer around the perimeter of a key piece of infrastructure.

Step 6 - Identification of existing Light sources within the project viewshed

Identification of existing light sources within the defined project viewshed. The terms of reference discuss sensitive areas and receptors such as the Gladstone Harbour, impacts to port users in the northern section of the Gladstone Harbour in particular the areas around China Bay and the proximity of existing light sources to significant receptor areas such as fauna habitats, residential and business areas. This report will identify the potential light sources within the defined project viewshed as well as those proposed as part of this project. Light impacts of sensitive and significant fauna habitats are discussed in the Flora and Fauna Report.

UPSTREAM COMPONENTS / FINAL / JUNE 2009

2.1 STUDY LIMITATIONS

This report has been prepared for QGC, to assess the landscape and visual impacts associated with the construction and operation of the CSG and upstream components of the Project. The results of this investigation should not be used for any other purpose than that for which it is specifically intended.

3 PROJECT DESCRIPTION

This section describes the Project location, and the visual characteristics of the Project description that are relevant to this LVIA. The project components summarised in this section are based upon the 2008_10_30_QGCLNG-Pipeline Project Description_Rev C prepared by QGC.

In summary, the Queensland Gas Company (QGC) currently holds nine Authorities to Prospect (ATP) covering 7,500 km² in the Surat Basin. QGC also hold thirteen Petroleum Leases (PL) (including current applications) and four pipeline licences. These are shown in *Figure 3.1*.





1 Petroleum Leases and Pipeline Licenses (Collection Header Route)

The Project is also located within the boundaries of the Dalby Regional Council.

Visible project components include:

- Construction equipment;
- Production wells;
- Low pressure pipelines;

- Gas and water-gathering systems (pipeline connections between well heads and collection header);
- Central Processing Plants;
- Field Compressor stations;
- Production water infrastructure (dams); and
- Approximately 7000 km of access roads.

3.1 VISUAL CHARACTERISTICS OF THE UPSTREAM COMPONENETS

This section describes the project and the visual characteristics.

3.2 CONSTRUCTION PHASE

Construction works associated with the development of the Project will involve clearing of vegetation, earthworks to create trenches, lay down and hardstand areas as well as site compounds and Well Heads. This will involve:

- Visual impact throughout construction is associated with the use of heavy earthmoving equipment, deliveries and stockpiling of materials for construction;
 - o Drill rigs;
 - o Excavators;
 - o Scrapers;
 - o Graders;
 - o Trenchers;
 - Rock cutters;
 - Side booms;
 - o Cranes;
 - o Forklifts;
 - o Generators;
 - o Welders;
 - Compressors;
 - Water trucks;
 - o Low loaders; and
 - o Semi- trailers.

The visual impact associated with construction may be more apparent from elevated viewing locations or across open areas with little or no intervening vegetation. This is due to elevated viewing locations usually provided more expansive views of longer sections of the pipeline easements. Screening effects of vegetation can be less apparent than when viewed from flatter or forested areas.

There are no landscape techniques that can be employed to mitigate the visual impacts associated with the construction activities however construction management practices can be employed to maintain construction areas to the minimum visual standards required.

3.3 WELLS HEADS

There will be up to 6000 investigation and production Well Heads installed over the life of the Project. Investigation and production Well Heads are the locations where the coal seam gas is extracted from the ground for distribution.

For optimisation of gas extraction, the Well Heads will be spaced approximately 750m apart.

During construction, well sites require a cleared hardstand of approximately 100m x 100m for the drilling rigs, storage of pipes, site offices and other associated temporary infrastructure.

Once construction is complete, this area can be reduced to approximately 25m X 25m and the remaining area rehabilitated.

The above-ground or visible infrastructure at these locations includes gas separators, flare pits and water sumps. *Figure 3.2* shows a typical layout of a newly constructed well area.



Figure 3.2 recently constructed Well Head

The gas separator, flair and compressor are the most visible components at the well sites. *Figure* 3.3 shows a close up view of the gas separator and flair in operation.



Figure 3.3 Typical Gas separator and Flair in operation

The gas separator units are approximately 4.0m in height. Once the well sites are established, the gas separators and flair will be the most visually noticeable structures at the well sites.

Other than flaring, there is no permanent lighting proposed associated with the well heads. Because of the absence of nigh time lighting associated with the Well Heads, there is no night time lighting impact that can be assessed.

Selection of Well sites

Well site selection is based on a number of factors. These include

- The geology of the area and potential yield;
- The ability to achieve a relatively level construction pad;
- Environmental and heritage constraints;
- Minimising disturbance to the host landholder;
- Proximity to existing residential dwellings; and
- The ability to locate well sites close to existing tracks and/or adjacent to fence lines where practicable.

The Well Heads are required to be setback approximately 750 m from residential dwellings for safety purposes.

BG Group and QGC will work with relevant associated landholders to select the well sites which minimise, amongst other factors, visual impact to the landowners dwelling.

As the landowner is party to the well site selection process, they have the ability to influence the final location of the well and therefore manage an acceptable level of visual impact to their own dwellings.

Landowners on adjoining properties and users of the surrounding road networks do not have the ability to influence the well site selection process. This is the greatest potential for visual impact associated with the Well Heads.

Well head rehabilitation

Each operational Well Head will only require approximately 100 m/2 of cleared area surrounding the Well Head. Once constructing is complete, the Well Head sites can be partially restored. Final restoration will occur once the well ceases operation and is removed. Final landscape rehabilitation following decommissioning will involve the following landscape works:

- Dewatering, drying and backfilling of drill pits (where used);
- Removal of surplus hardstand and gravel material;
- Partial ripping and respreading of topsoil on cleared areas not required during production to promote revegetation and stabilisation ;
- Ripping of excess roads and tracks used during drilling unless otherwise requested by the landholder;
- Removal of excess material off-site;
- Respreading stockpiled topsoil; and
- Respreading and fertilising as required and in accordance with landowner requirements.

3.4 FIELD COMPRESSOR STATIONS

There are up to 27 Field Compressor Stations proposed in for the Project. They will be installed at various locations throughout the existing tenements.

Figure 3.4 shows the existing Field Compressor Station located within the Windibrie Camp



Figure 3.4 View looking east towards Field Compressor at Windibrie Camp

The Field Compressor Stations are located within a fenced compound of approximately 15.0m long by 100 m wide. The tallest permanent structures are the screw compressors which are approximately 4.5m in height. *Figure 3.4* shows the trial Field Compressor Station located at the Windibrie Camp. The work lights are approximately 8.5 m in height and are the tallest structures at this location. These lights will not be installed at the working Field Compressor Stations.

The final number and location of the Field Compressor Stations will be determined by the number, location and productivity of the Well Head infrastructure. That is, in areas where there is a greater concentration of Well Heads, or well heads have a high yield, there is likely to be a higher number of Field Compressor Stations Required.

The existing lights that can be seen in *Figure 3.4* are for trial and maintenance purposes only. The only permanent lighting associated with the Field Compressor Stations is for the access to the control room only. These will be low level shielded lights and will be similar to that found adjacent to the front door of a farm house.

There may also be flares installed at some or all of the Field Compressor Stations. This is yet to be determined.

Field Compressor Station rehabilitation

Rehabilitation and reinstatement measures for the areas disturbed throughout the construction of the access Field Compressor Stations will include

- access tracks; and
- Any proposed or existing campsites.

Landscape rehabilitation will be undertaken in consultation with the relevant landholder / owner where required.

Rehabilitation and reinstatement involves removal of foreign material, surface contouring, and respreading topsoil, respreading vegetation and reseeding. Plant species will be comprise native grass or other approved species.

Reinstatement of pipeline areas will be undertaken in accordance with the Australia Pipeline Industry Association *Code* (APIA). These works will ensure that:

- Topsoil cover is re-established and all land and waterways disturbed by Project activities are returned to a stable condition as soon as possible after construction;
- Land is returned as close as possible to its previous productivity;
- Stable landforms are re-established to original topographic contours;
- Natural drainage patterns are reinstated;
- Erosion control measures (e.g. contour banks, filter strips) are installed in erosion prone areas; and
- The environment is reinstated to the condition of the surrounding area and disturbed habitats recreated.

The aim is to leave the land such that full rehabilitation can be achieved as follows:

- 40% vegetation cover after 6 months;
- 60% vegetation cover after 12 months; and
- 80% vegetation cover after 18 months.

Siting and landscape mitigation will be a key to minimising the visual impacts for the majority of the Field Compressor Stations.

3.5 CENTRAL PROCESSING PLANT

There are up to 9 Central Processing Plants proposed in the QGC LNG project. They will be installed at various locations throughout the existing tenements. Each of the Central Processing Plants will comprise a bank of compressors. The number of compressors will be determined based on the capacity of the gas fields and pressures required.

Figure 3.5 shows the existing Central Processing Plant located within the Windibrie Camp.



Figure 3.5 View looking west towards the existing Central Processing Plant.

The trial Central Processing Plant located at the Windibrie Camp comprises eight individual units. The Central Processing Plants will be located within a fenced compound of approximately 50 m in width by 120 m in length. The compressor infrastructure located in the Windibrie Camp is approximately 8.5 m in height.

The existing lights that can be seen in *Figure 3.5* are for maintenance only. These are controlled via an access panel within the control room and a manually operated. The only permanent lighting associated with the Central Processing Plants is for access to the control room. These

well be low level shielded lights and will be similar to that found adjacent to the front door of a farm house.

Flares will be installed at each of the 9 proposed Central Processing Plants. Flaring will occur for emergency shut downs and to where large amounts of gas are required to be vented from the plant. Emergency shutdowns are anticipated to occur up to five times per year. Other flaring is anticipated to take place up to 500 times per year and will be less that one hour in duration.

Central Processing Plants rehabilitation

Rehabilitation and reinstatement measures for the areas disturbed throughout the construction of the access Central Processing Plants will include

- access tracks; and
- Any proposed or existing campsites.

Landscape rehabilitation will be undertaken in consultation with the relevant landholder / owner where required.

Rehabilitation and reinstatement involves removal of foreign material, surface contouring, and respreading topsoil, respreading vegetation and reseeding. Plant species will be comprise native grass or other approved species.

Reinstatement of pipeline areas will be undertaken in accordance with the Australia Pipeline Industry Association *Code* (APIA). These works will ensure that:

- Topsoil cover is re-established and all land and waterways disturbed by Project activities are returned to a stable condition as soon as possible after construction;
- Land is returned as close as possible to its previous productivity;
- Stable landforms are re-established to original topographic contours;
- Natural drainage patterns are reinstated;
- Erosion control measures (e.g. contour banks, filter strips) are installed in erosion prone areas; and
- The environment is reinstated to the condition of the surrounding area and disturbed habitats recreated.

The aim is to leave the land such that full rehabilitation can be achieved as follows:

- 40% vegetation cover after 6 months;
- 60% vegetation cover after 12 months; and
- 80% vegetation cover after 18 months.

As with the Field Compressor Stations, the siting and landscape mitigation will be a key to minimising the visual impacts for the majority of the Central Processing Plants.

3.6 ACCESS TRACKS AND PIPELINE EASEMENTS

Access tracks will be required for construction and maintenance of the pipeline easements, Well Heads and associated infrastructure. Where possible, the existing roads and farm tracks will be used to limit the construction of new roads and tracks.

Access tracks will be approximately 4.0 m wide and gravelled where required. Where new access tracks are required to be constructed on private properties, they will be constructed by the QGC in consultation with the respective individual landowners. Although the location of new access tracks will be determined when final Well Head sites have been chosen, it is

anticipated that there will be approximately 2000 km of new access tracks required throughout the construction and operational life of the Project.

Figure 3.6 shows a typical gas pipeline that is currently under construction in a cleared area. The construction access track can also be seen in the right of this figure.



Figure 3.6 Typical pipeline construction easement in cleared farmland

In this example, the pipeline construction easement is located in a cleared area where there has been minimal vegetation removal required to construct the pipeline easement and associated access track.

Figure 3.7 shows the view looking in the opposite direction *Figure 3.6* and along the same pipeline easement and from the same location but through a vegetated area.



Figure 3.7 Typical pipeline construction easement in vegetated areas

In this example the pipeline construction easement has been located in a vegetated area. At this location vegetation removal was required to enable the construction of the pipeline easement and access track.

It is anticipated that the pipeline corridor shown in *Figure 3.6* and *Figure 3.7* will be rehabilitated once construction is complete. However revegetation will not include the re-establishment of trees over the pipeline easement.

There are no landscape techniques that can be employed to mitigate the visual impacts associated with the construction activities however construction management practices can be employed to maintain construction areas to maintain visually neat and orderly site.

As part of the QGC Upstream works components, all new access tracks or pipeline easement will be located to minimise impacts to remnant vegetation. Where possible, the new tracks will also be constructed to be beneficial for the landowner. Any tracks that are not required after contraction works are complete will be removed and rehabilitated. Once the gas pipeline easements have been created and rehabilitated, they will be visually similar to farm access gates and tracks already found in many cleared rural areas in this area.

Where vegetation is required to be removed, the tracks and pipeline easements will be more prominent; however they will be visually similar to other farm access gates and tracks already found in many rural areas.

Access track and Pipeline easement rehabilitation

Rehabilitation and reinstatement measures for the areas disturbed throughout the construction of the access track and pipeline easements will include

- the right of way areas (ROW);
- access tracks; and
- Any proposed or existing campsites.

Landscape rehabilitation will be undertaken in consultation with the relevant landholder / owner where required.

Rehabilitation and reinstatement involves removal of foreign material, surface contouring, and respreading topsoil, respreading vegetation and reseeding. Plant species will be comprise native grass or other approved species. No plant matter is removed from the ROW however rather it is respread over the ROW to assist in both stabilising the ground and re-establishing vegetation regrowth.

Reinstatement of pipelines will be undertaken in accordance with the Australia Pipeline Industry Association *Code* (APIA). These works will ensure that:

- Topsoil cover is re-established and all land and waterways disturbed by Project activities are returned to a stable condition as soon as possible after construction;
- Land is returned as close as possible to its previous productivity;
- Stable landforms are re-established to original topographic contours;
- Natural drainage patterns are reinstated;
- Erosion control measures (e.g. contour banks, filter strips) are installed in erosion prone areas; and
- The environment is reinstated to the condition of the surrounding area and disturbed habitats recreated, except in areas where revegetation is limited to grass only.

The aim is to leave the land such that full rehabilitation can be achieved as follows:

- 40% vegetation cover after 6 months;
- 60% vegetation cover after 12 months; and
- 80% vegetation cover after 18 months.

Landscape mitigation will be a key to minimising the visual impacts for the majority of the access tracks and pipeline components of the Project, especially in areas where land is already cleared.

3.7 DAMS AND ASSOCIATED WATER MANAGEMENT

Part of the gas collection process includes harvesting ground water from each of the Well Head sites. This water is either stored locally within the Well Head site or pumped via underground pipe to a central storage dam for re-use either as part of the gas field operations or irrigation in the surrounding districts.

There are three water dams proposed as part of the QC LNG Project. One of these has already been constructed and is located at the Windibrie Camp.

Figure 3.8 and Figure 3.9 shows the eastern edge of an existing water storage dam located within the Windibrie Camp.



Figure 3.8 View looking north along earth dam bank



Figure 3.9 View looking south along earth dam bank

The bank of the water storage dam is lightly scoured and contains no vegetation. The earthen bund is visible in the landscape, however with revegetation, would be barely discernable from any distance.

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3.8 SIGNIFICANCE OF THE PIPELINE PROJECT DESCRIPTION

This chapter has described the visual components of the Project. Where possible, examples of similar infrastructure to the outlined in the Project description have been used to demonstrate the range of visual change that might be expected through the construction of operation of the Project.

This analysis has shown that where vegetation removal is required to construct Project, these areas may be a noticeable feature in the landscape.

4 DEFINING THE VIEWSHED

This section discusses the visual catchment or viewshed of the Project.

A viewshed is usually described as the area that can be potentially visually affected by a development. This is also called the Zone of Visual Influence (ZVI). This report will use the term "Project viewshed". The viewshed is also considered as the study area of the project.

4.1 VIEWSHED FOR THE PURPOSES OF VISUAL ASSESSMENT OF THE PROJECT

There are two main components of the project, the above ground or visible components and the buried pipelines.

For the pipeline easement there are no direct visual impacts of the pipeline components of the project. Construction impacts however may involve the clearance of vegetation to facilitate the construction of the pipeline easements. Where this occurs, there can be a visual impact. Vegetation can be up to 20 m high. But pipeline easement corridors can stretch many kilometres and from elevated viewing locations can be visible for up to 10 – 15 km's, however in most instances, the pipeline easement is only visible from a few hundred meters.

For these reasons a nominal viewshed of 500 m to either side of the pipeline easement has be assigned to the construction stage of the pipeline easement.

Above ground structures may be more visible. The largest above ground components of the project are the:

- Well Heads, which are approximately 4.0 m in height;
- Field Compressor Stations (Screw Compressors) which are approximately 8.5 m in height and of varying width, depending on the compressor units required at each Field Compressor Station; and
- Central Processing Plants, which are approximately 10.0m in height and of varying width, depending on the number of individual units required at each Central Processing Plant.

The exact location of each of these structures in uncertain. To be conservative, the viewshed for the project has been based the Central Processing Plant, which is the tallest of the proposed structures, and will therefore provide the most conservative basis for a visual assessment.

The following viewshed calculations are based upon the parameters of human vision that are outlined in Annexure A and the physical characteristics of the visible components of the Project.

Assessing a 10.0 m high structure in the landscape, the viewshed would extend out to a distance of 1.0 km. The Zones of Visual Influence within the viewshed would be as follows:

- 0 0.25 km high level of visual impact;
- 0.25 0.5 km medium level of visual impact;
- 0.5 1.0 km low level of visual impact; and
- \geq 1.0 km visually insignificant.

In summary, because there is the potential for any of the above ground structures including Well Heads, Central Processing Plants and Field Compressor Stations, the project viewshed is considered to extend to a maximum distance of:

- 1.0 km outside of the land tenement areas; and
- 0.5 km to either side of the Collection header pipeline.

5 DESCRIPTION OF ENVIRONMENT VALUES WITHIN THE VIEWSHED

A description of the environmental values is best done by describing the Landscape Units which are based on areas with similar visual characteristics in terms of topography, geological features, soil, vegetation, and land use. The following chapter describes the Landscape Units within defined Project viewshed.

The areas found within the viewshed comprise a mix of highly modified landscapes including large areas of cleared farm land and heavily forested areas such as those of the Braemar State Forest. The landscape of the viewshed also hosts many forms of visible infrastructure including roads, rail, transmission lines, communication towers, power and fence lines, as well as existing gas pipelines, Well Heads, processing equipment and Power stations.

5.1 VEGETATION/LAND USE

The existing Vegetation of the areas associated with the Project tends to be a reflection of past land uses and particularly the extensive clearing that accompanied European settlement. The distribution of existing vegetation is shown in *Figure 5.1*. The Project areas are defined by the yellow outline.



Figure 5.1 Vegetation within the Project viewshed

Areas of higher soil quality associated with alluvium deposits or better quality soils are cleared.

In these areas, natural vegetation is limited to linear bands along streams, drainage lines and road sides. Similarly hilly areas with limited access or areas of poorer soils were left untouched.

Figure 5.2 also shows an example of the many shelter belts and boundary plantings that line roads, paddock and property boundaries in this area.



Figure 5.2 Remnant roadside vegetation

Shelter belts also assist to screen views and are particularly effective in flat landscapes such as that of the Project viewshed.

5.2 TOPOGRAPHY

The landscape of the project viewshed is predominantly flat. There are some areas that become undulating and hilly towards the north-western land tenements and those areas that are influenced by the Great Dividing Range.

There were also no prominent elevated locations or lookouts that were able to be identified within the Project viewshed.

5.3 LANDSCAPE UNITS

Based on an analysis of vegetation and topography, four distinct landscape character types can be defined in the landscape surrounding the land tenements of the QC LNG Project.

These have been assessed on the basis of topography, geology and vegetation. These landscape character types can be defined as follows:

- Landscape Unit 1 Flat Farmland;
- Landscape Unit 2 Hilly Farmland;
- Landscape Unit 3 Forest; and
- Landscape Unit 4 Rural Townships.

• The following provides a description of the Landscape Units that have been identified in the Project viewshed. They are as follows:

5.4 LANDSCAPE UNIT 1 – FLAT FARMLAND

Landscape Unit 1 – "Flat Farmland" is the most common Landscape Unit within the Project viewshed. These areas are generally cleared paddocks, that contain trees along paddock or property boundaries or along drainage lines. This Landscape Unit also contains many instances of constructed elements including road and rail network, farm buildings and fences.

Figure 5.3 shows an illustrative view of this Landscape Unit.



Figure 5.3 Landscape Unit 1 – "Flat Farmland

The land within this view has been largely cleared, leaving the occasional remnant tree, wind breaks, hedgerows and planting to creeks and drainage lines.

5.5 LANDSCAPE UNIT 2 – HILLY FARMLAND

Landscape Unit 2 – "Hilly Farmland" describes area of cleared hills used for agricultural practices. Landscapes of this type are usually limited to the north-western areas of the Project viewshed and those areas close to the Great Dividing Range.



Figure 5.4 Landscape Unit 2 – "Hilly Farmland"

There are very limited areas in the Project viewshed where this Landscape Unit can be found.

5.6 LANDSCAPE UNIT 3 – FOREST

Landscape Unit 3 – "Forest" occur primarily in State Forests, State Parks, Regional Parks and local reserves. These are the Braemar State Forest, the Daandine State Forest, the Weranga State Forest, the Condamine State Forest, the Gurulmundie State Forest, the Hincheley State Forest, and the Mt Organ State Forest.

Figure 5.5 shows a view looking west from within the Braemar State Forest.



Figure 5.5 Landscape Unit 3 – "Forested Hills"

Views in these areas are contained to the immediate vicinity due to the existing dense vegetation.

Long views are only possible where roads, or lineal easements run for long distances as seen in *Figure 5.5.*

5.7 LANDSCAPE UNIT 4 – RURAL TOWNSHIPS

Landscape Unit 4 – "Rural Townships" defines the towns and villages that are located within the Project viewshed.

Condamine is the only Rural Township that lies within the Project viewshed, however there are several rural townships that are located close to the Project viewshed. These include:

- Tara to the south;
- Dalby to the east;
- Chinchilla (relatively central);
- Miles (relatively central); and
- Wandoan (to the north).

5.8 LANDSCAPE SENSITIVITY

Landscape sensitivity can be defined as the ability of a landscape to absorb visual change, and its visual influence thereof on the viewers. While change is an integral part of any landscape, development and infrastructure are significantly different to the natural processes that occur in a landscape. The sensitivity of viewers to change in the previously described landscape units will depend upon a number of factors, such as:

- Location. The sensitivity of a potential viewer varies according to location. For example, visitors to a National or State Park where the landscape appears untouched or pristine will be more sensitive to the imposition of new or artificial elements within that landscape. The same viewer travelling along a rural highway, which contains existing examples of modifications and artificial elements, will be less sensitive to the presence of new elements. Modifications or artificial elements are not confined to vertical structures or built form, they also include removal of native vegetation, visibility of roads, tracks, fences and other rural infrastructure all of which decrease the sensitivity of a landscape to further change.
- The rarity of a particular landscape. Landscapes that are considered rare or threatened are valued more highly by a particular community with an attachment to the particular landscape.
- The scenic qualities of a particular landscape. Landscapes that are considered scenic as a result of dramatic topographical changes, the presence of water, coastlines, etc, may be extensive, however viewers have greater sensitivity to alterations within these scenic landscapes. As discussed above, the presence of modifications or artificial elements including built form, roads, tracks, fences, silos and rail as well as farming practices including land clearing, cropping and burning, all decrease the sensitivity of a landscape's scenic qualities.

The pre-European landscape of the area surrounding the proposed development has been heavily modified through agricultural practices that have included the clearing of native vegetation for cropping and grazing. The resultant cleared landscape is interspersed with agricultural buildings including farmhouses, outbuildings, sheds, stockyards, access roads, silos as well as road and rail networks. Associated with these structures are plantings along roadsides or as shelter belts. This Landscape Unit is not rare, nor is it high in scenic quality and for these reasons the landscape sensitivity is considered to be low. However, it must be recognised that some people value the appearance of cleared farmland with minimal signs of built form such as houses and farm sheds. For these viewers change may be perceived as a high visual impact due to the presence of large-scale structures in a rural landscape.

Servicing the rural areas are settlements, which in the larger townships also include commercial and public buildings as well as recreational areas. These rural townships are not uncommon, nor are the scenic qualities particularly high as they often contain many forms of infrastructure and development. However given the concentration of housing, which is a sensitive land use these have been given a medium sensitivity rating.

Table 5.1 rates the sensitivity of the various Landscape Units within the viewshed of the Project. These have been based on the analysis discussed of this report.

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Table 5.1Landscape Sensitivity

Landscape Unit	Sensitivity
Unit 1 – "Flat Farmland"	Low This unit is highly modified, contains visible infrastructure, is not topographically dramatic and does not contain large areas of water.
Unit 2 – "Hilly Farmland"	Low This unit is highly modified, contains visible infrastructure, is not topographically dramatic however is varying and does not contain large areas of water.
Unit 3 – "Forested Hills"	Medium to High This landscape is attractive represents increasingly rare areas of vegetation that appear natural or are representative of a pre- European landscape.
Unit 4 – "Rural Townships"	Medium The concentration of houses increases the visual sensitivity of this Landscape Unit.

The following section outlines key findings of the flora and fauna report that are relevant to assessing the Landscape and Visual Impact of the Project.

6

ASSESSMENT OF POTENTIAL IMPACTS FROM PUBLICLY ACCESSIBLE VIEWPOINTS

The following section examines the existing environmental features of the landscapes found within the Project viewshed and will discuss the potential visual impacts of the construction and operation of the Project structures. This is achieved through assessing the project through a series of viewpoints that have been selected from publicly accessible locations, and provide a suitable sample representation of the landscape types found within the land tenement areas.

Figure 6.1 shows the viewpoint locations in yellow and the associated QC LNG Land Tenements in blue.



Figure 6.1 Viewpoint Locations

This analysis will assist in understanding the extent of visual change that has already occurred in the landscape and the ability of the landscape in these areas to absorb further visual change associated with the proposed above-ground infrastructure of the QC LNG Project.

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6.1 VIEW POINT 1 - ROMA TO BRISBANE GAS PIPELINE- MONTROSE ROAD

Viewpoint 1 is located within the Project viewshed and adjacent to an existing pipeline easement. This viewpoint will assist to provide a useful example on which to understand and asses the likely visual impact resulting from the rehabilitation and maintenance of a pipeline in this landscape. For these reasons, this location has been included within the viewpoint assessment.

Viewpoint 1 is located on Montrose Road, approximately 15.0 km west of the township of Kogan.

The Roma-to-Brisbane Gas Pipeline easement crosses Montrose Road at this location.

The most visible landscape unit at this location is Landscape Unit 1 - Flat Farmland and Landscape Unit 3 - Forest.

The Braemar State Forest is east of this location and contains extensive canopy vegetation.



VP1 (GPS 56J 262743, 7008665)

Figure 6.2 shows the view looking east from this location. Existing vegetation located within the forest has been removed to allow for the construction and maintenance of the Roma to Brisbane underground Pipeline and easement.



Figure 6.2 View Looking East along Roma to Brisbane Gas Pipeline from Montrose Road

The warning signage posted on the fence line and the access gate highlight the fact that there is a buried gas pipeline at this location. In the absence of such signage, the existing pipeline easement would be visually similar to a farm access track which is not uncommon in the surrounding area.



Figure 6.3 shows the view looking west from the same location. Looking west, the foreground vegetation has been removed, and the land is used for grazing purposes.

Figure 6.3 View looking west along Roma to Brisbane Gas Pipeline from Montrose Road

Looking west, the pipeline easement is noticeable due to the warning signs posted in the road reserve, and where the pipeline cuts through the remnant vegetation seen in the background of this figure.

Looking east, Landscape Unit 3 – Forest has a medium to high visual sensitivity. The construction of pipeline easements in this landscape unit is more noticeable due to the removal of vegetation that is required. Although the pipeline easement will be rehabilitated in forested areas, the landscape can not be returned to the same condition prior to construction. Even though the location of the pipeline is noticeable, the easement will only be visible for a short distance when travelling along the road. For these reasons, the visual impact would be assessed as being low.

Looking west, Landscape Unit 1 – Cleared Flat Farmland has a low visual sensitivity. The landscape has been rehabilitated where the pipeline crosses the cleared farmland. The only distinguishable feature of the buried pipelines is the signage and gate near to the road and the gap in the existing vegetation. Even though the location of the pipeline is noticeable, due to a combination of the low landscape sensitivity, few visitor numbers and rehabilitation of the landscape, the visual impact would be assessed as being negligible.

6.2 VIEW POINT 2 - MONTROSE ROAD

This viewpoint is located on an existing pipeline easement that is currently under construction within the Project viewshed. This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction a pipeline in the Project Viewshed. For these reasons, this location has been included within the viewpoint assessment.

Viewpoint 2 is located on Montrose Road approximately 500 m south of viewpoint 1.

This location is approximately 15.4 km to the west of the township of Kogan.

The most visible landscape unit at this location is Landscape Unit 1 - Flat Farmland and Landscape Unit 3 - Forest.

There is a gas pipeline currently under construction at this location. This pipeline is not part of the QC LNG Project.

The Braemar State Forest is also to the east of this location.



VP2 (GPS 56J 262743.0, 7008664.6)



Figure 6.4 View looking east along pipeline

Vegetation has been removed to the east of Montrose Road at this location to enable the construction and on-going maintenance associated with the pipeline easement.



Figure 6.5 shows the view looking west along the existing pipeline easement under construction from this location.

Figure 6.5 View looking west along pipeline from Montrose Road

The landscape to the west of this location has been cleared, to enable the construction of the pipeline easement.

This viewpoint demonstrates the likely visual impact that can be expected through construction in Landscape Unit 1 – Cleared Flat Farmland and Landscape Unit 3 – Forest.

The view looking west shows an example of an underground pipeline being constructed in Landscape Unit 1 – Cleared Flat Farmland. This landscape unit has a low visual sensitivity. Even though the location of the pipeline easement during construction is noticeable, the construction activity is confined to a narrow corridor.

When looking west, the visual impact would be assessed as being low. This is due to the low landscape sensitivity and low landscape sensitivity.

Landscape Unit 3 – Forest has a medium to high visual sensitivity. The construction of pipeline easements in this landscape unit is more noticeable due to the removal of vegetation that is required for construction and maintenance of the easement. In contrast to construction in Landscape Unit 1 – Cleared Flat Farmland, the most noticeable visual impact is associated with the removal of existing vegetation throughout construction of the pipeline easement. Even though the pipeline easement will be noticeable due to the removal of existing vegetation, the vegetation that is retained on either side of the easement will screen views to the easement when travelling along Montrose Road.

When looking east from Montrose the easement will be visually similar to a gated access track that is not uncommon in the area. There are also few visitors to this area. For these reasons, the visual impact during construction would be assessed as being low in flat landscapes for both cleared farmland and forested areas.

Once the landscape is rehabilitated, the visual impact would be assessed as being low – negligible in flat landscapes and low in forested areas.
6.3 VIEW POINT 3 – INTERSECTION OF MONTROSE AND 26 MILE ROAD

This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction and operation of a Well Head in the Project Viewshed.

Viewpoint 3 is located near the intersection of Montrose Road and 26 Mile Creek Road.

26 Mile Creek Road runs northsouth and Montrose Road runs in a north-east – south-west direction.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

This location is approximately 18.5 km west of the township of Kogan.

There is existing Well Head infrastructure close to this location.

Figure 6.6 shows the view looking west from intersection of Montrose and 26 Mile Road.



VP3 (GPS 56J 259506.1, 7007852.3)

The existing Well Head and associated infrastructure is located within a cleared area in the Braemar State Forest. The Well Head is also set back from the road.



Figure 6.6 View looking west toward an existing Well Head

Figure 6.7 shows the view looking east towards the 26 Mile Road intersection and the existing Well Head infrastructure. 26 Mile Road is located behind the existing vegetation in the background of *Figure 6.7*.



Figure 6.7 View looking East toward Montrose Road and 26 Mile Road Intersection

The existing vegetation assists to filter views to the Well Head from 26 Mile Road.

The Well Head seen in this viewpoint is located within an area of Forest, which has a medium to high landscape sensitivity. There has been some vegetation removal required to establish the Well Head. The area is also yet to be rehabilitated

Even though the Well Head is located in Landscape Unit 3 – Forest, which has a medium to high landscape sensitive, there are few visitors to this location. The existing vegetation that has been retained around the perimeter of the Well Head site assists to filter views to the Well Head from both the 26 Mile and Montrose Roads.

For these reasons, this location is assessed as having a low visual impact. This assessment would also apply to similar infrastructure constructed within a similar Landscape Unit.

6.4 VIEW POINT 4 - CHINCHILLA - TARA ROAD

This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction and operation of a Well Head in the Project Viewshed.

Viewpoint 4 is located on Chinchilla-Tara Road.

Chinchilla – Tara Road runs in a north-south direction in this location.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

There is also a minor unnamed road that runs east – west at this location.

This location is approximately 25.2 km west of the township of Kogan and 25.5 km north of the township of Tara. It is located within the Braemar State Forest.

Figure 6.8 shows the view looking west from Chinchilla – Tara Road.



VP4 (GPS 56J 253143.1, 7005129.2)

Figure 6.8 shows the view looking west from the Chinchilla-Tara Road.



Figure 6.8 View looking west from Chinchilla-Tara Road.

Beyond the existing vegetation, there is a cleared area where a newly constructed Well Head is located. The Well Head is not visible from the road due to the existing vegetation that has been retained between the road edge and the Well Head.



Figure 6.9 shows the Well Head and existing infrastructure beyond the vegetation.

Figure 6.9 Looking West to Existing Well Head and Infrastructure from Un-named Road

Vegetation has been cleared to enable the construction of the Well Head infrastructure at this location.

When travelling east – west along the un-named road, the Well Head is visible where there are breaks in the remnant vegetation.

When travelling north or south along the Chinchilla – Tara Road, views to the existing Well Head are screened by the remnant vegetation as seen in *Figure 6.8*.

Even though the Well Head seen in this viewpoint is located in Landsape Unit 3 – Forest, which has a medium to high landscape sensitivity, there are limited viewing opportunities and few visitors to this location. For these reasons, the visual impact to this location is assessed as low.

This viewpoint also demonstrates the effectiveness of a vegetation buffer between viewing locations and the proposed infrastructure.

6.5 VIEW POINT 5 - ROMA TO BRISBANE GAS PIPELINE. CHINCHILLA - TARA ROAD

This viewpoint is located on an existing pipeline easement within the Project viewshed. This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction and maintenance of a pipeline and associated infrastructre. For these reasons, this location has been included within the viewpoint assessment.

Viewpoint 5 is located on Chinchilla – Tara Road.

The Chinchilla – Tara Road runs in a north-south direction in this location.

The most visible landscape unit at this location is Landscape Unit 1 - Flat Farmland and Landscape Unit 3 - Forest.

The Roma to Brisbane Gas Pipeline crosses Chinchilla-Tara Road at this location. There is also an existing gas pumping station.



VP5 (GPS 56J 251506.5, 7011446.9)

Figure 6.10 shows the view looking east along the Roma to Brisbane Gas Pipeline, towards the gas pumping station.



Figure 6.10 View looking east to existing gas pumping station

The gas pumping station is located approximately 15 – 20m from Chinchilla – Tara Road behind security fencing and signage. The signage and fencing are the most noticeable components

when looking east from this location. Note that the gap in the existing vegetation isn't as noticeable because the view angle does not directly line up with the pipeline corridor.

Figure 6.11 shows the view looking west along the Roma to Brisbane Gas Pipeline from the same location.



Figure 6.11 View looking west along existing Roma - Brisbane gas pipeline

The Roma to Brisbane gas pipeline easement has been located on the margin of the Braemar State Forest. There also appears to have been some minor vegetation removal required for construction and maintenance of the pipeline.

The most visible feature of the pipeline easement form this location is the security fencing around the gas pumping station and the warning signs posted on the fences. The above ground infrastructure associated with the gas pumping station is set back from the road. Even without screening vegetation, this infrastructure does not dominate views.

The visual impact associated with the pipeline and the above ground infrastructure at this location is assessed as low – negligible. This is due to the low landscape sensitivity of the surrounding landscape, few visitor numbers to the area and limited visibility of the existing infrastructure.

6.6 VIEW POINT 6 - WEIMBILLA ROAD

This viewpoint is located on an existing pipeline easement that is also under construction within the Project viewshed. This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction of a pipeline in the Project Viewshed. For these reasons, this location has been included within the viewpoint assessment.

Viewpoint 6 is located on Weimbilla Road.

Weimbilla Road runs in an east-west direction in this location.

The most visible landscape unit at this location is Landscape Unit 1 - Flat Farmland.

There is an existing gas pipeline currently under construction at this location. This pipeline is not part of the QC LNG Project.

There is a new gas pipeline currently being constructed directly north of this location as seen in *Figure 6.12*.



VP6 (GPS 56J 248791.6, 7010073.1)

Figure 6.12 shows the view looking north along the existing pipeline easement from this location.



Figure 6.12 View looking north along the construction easement

The pipeline turns to the east and runs along the northern side of Weimbilla Road at this location.

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This viewpoint demonstrates the likely visual impact that can be expected through the construction of a pipeline easement in Landscape Unit 1 – Cleared Flat Farmland.

Landscape Unit 1 – Cleared Flat Farmland has a low sensitivity to visual change. This landscape readily undergoes seasonal visual change associated with cropping and grazing activity. There are also few visitors to this area. Even though the pipeline easement construction is noticeable, the construction activity is limited in time and duration. The effects are also only temporal and can be rehabilitated once construction is completed. For these reasons the overall visual impact is considered to be low.

Due to the low landscape sensitivity and few visitor numbers the visual impact is assessed as being low. This is also the case for impacts during construction. Once construction is completed and the landscape is rehabilitated the visual impact would be assessed as being negligible.

6.7 VIEW POINT 7 - OLD TARA ROAD

This viewpoint is located on an existing pipeline easement that is currently under construction within the Project viewshed. This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction and maintenance of a pipeline in the defined project viewshed. For these reasons, this location has been included within the viewpoint assessment.

Viewpoint 7 is located on Old Tara Road.

Old Tara Road runs roughly northsouth in this location within the Braemar State Forest.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

There is a gas pipeline currently under construction at this location. This pipeline is not part of the QC LNG Project.

Figure 6.13 shows the view looking south along Old Tara Road and the new gas pipeline easement.



VP7 (GPS 56J 248382.5, 7009768.8)

A new gas pipeline similar to that proposed for the QC LNG project is being installed within the Old Tara Road reserve.



Figure 6.13 Old Tara Road looking south

Vegetation has been cleared on the eastern side (left of figure) of the Old Tara Road reserve of Old Tara Road. The extent of clearing is only noticeable due to the presence of construction activity, stockpiles and equipment. In the absence of construction activity, Old Tara Road, would look like a wide road reserve.

The most visible landscape unit at this location is Landscape Unit 3 – Forest which has a medium to high sensitivity to visual change. There are few visitors to this location.

Throughout construction the presences of construction machinery and stockpiles materials, the visual change is obvious. This change will be temporary and limited to the vegetation removal. Even though the landscape sensitivity is potentially medium – high, there are few visitors to this location and the visual change will not be readily discernable. For these reasons, the visual impact would be assessed as being medium to low during construction. Once construction works are completed, Old Tara Road will appear as a wide road reserve that is not uncommon in the area. The visual impact after construction would be assessed as being a low to negligible level of visual impact.

6.8 VIEW POINT 8 - UNMADE ROAD - EDGE OF LAND TENEMENT

Viewpoint 8 is located on an un-named road.

This location is on the south western edge of one of the land tenements.

The most visible landscape unit at this location is Landscape Unit 1 - Flat Farmland and Landscape Unit 3 - Forest.

This location is also on the western edge of the Marmadua State Forest.



VP8 (GPS 56J 261058.1, 6968692.5)

Figure 6.14 shows a Satellite image of this location.



Figure 6.14 Satellite image of Viewpoint 8 and the surrounding landscape

The existing vegetation is associated with the Marmadua State Forest are the areas of green. Cleared farmland exists to the north of this location.

The Marmadua State Forest also extends to the east of the location and around to the north.

Figure 6.15 shows the view looking north over Landscape Unit 1 – Cleared Flat Farmland. The Marmadua State Forest can bee seen in the background of this figure.



Figure 6.15 View looking north toward Marmadua State Forest

Figure 6.16 shows the view looking east from this location towards the vegetation located within the forest.



Figure 6.16 View looking east from this location

Views are restricted to approximately 10-15 m into the forest.

Views to the north as seen in *Figure 6.15* are over Landscape Unit 1 – Cleared Flat Farmland. This landscape has a low sensitivity to visual change.

Views to the south, east and west are through Landscape Unit 3 – Forest, which has a medium to high level of sensitivity to visual change. Views into Landscape Unit 3 – Forest are limited to approximately 15 – 20 m by the existing vegetation.

The landscape sensitivity rating of this location can be rated as medium to high, however there are few visitors to these areas and the existing vegetation restricts views into the forest. Because of the limited viewing opportunities, screening affect of the existing vegetation found within the forested area and low visitor numbers, the visual impact to this location is assessed as low.

6.9 VIEW POINT 9 - MARMADUA STATE FOREST

Viewpoint 9 is located on an unnamed road in the Marmadua State Forest.

This road runs roughly north-west to south- east.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

This location is also near the western edge of one of the Project viewshed.

Figure 6.17 shows the view looking south-east along the forest access track from this location.



VP9 (GPS 56J 370320, 572948)

The vegetation found within the Marmadua State is dense and close to the access track, as seen in *Figure 6.17*.



Figure 6.17 State Forest Un-named Road looking south east along Road

This existing vegetation confines views to the roadway and limits views into the forest to approximately 5 – 10 m. This area also has low visitor numbers.

Visual change in this landscape unit will be noticeable where vegetation removal occurs near to the access track or where vegetation removal allows long views into the forest.

This viewpoint is located within an area of state forest or Landscape Unit 3 - Forest. This Landscape Unit has a medium to high sensitivity to visual change. The existing vegetation confines views to the access tracks and limits views to the margins of the road.

If pipelines where required to be constructed within the road way, the visual impact will be similar to the example shown in viewpoint 7. That is if the pipeline was to be located within the existing road reserve, and vegetation removal as required, after construction, the existing road would look like a wide reserve.

If well heads were to be located in this area, the visual impact would be similar to the examples shown in viewpoint 3 and viewpoint 4.

Even though the landscape sensitivity rating of this location is medium to high there are few visitors to this location and therefore few viewing opportunities. Viewpoints of 3, 4 and 7 can also demonstrate the potential visual impacts that can be expected as a result of the construction and operation of the Project within this landscape unit.

For these reasons, the visual impact to this location is considered to be low - negligible.

6.10 VIEW POINT 10 - MARMADUA STATE FOREST ENTRANCE

Viewpoint 10 is located at the entrance to the Marmadua State Forest.

The most visible landscape unit at this location is Landscape Unit 3 -Forest.

Figure 6.18 shows the view looking south towards the entrance to the Marmadua State Forest.



VP10 (GPS 56J 370320, 572948)

There has been local vegetation clearance around the entrance to the State Forest at this location as seen in *Figure 6.18*.



Figure 6.18 Marmadua State Forest Entrance looking South

Figure 6.18 also shows that immediately beyond the entrance to the state forest, the vegetation closes back towards the access track and limits views into the forest.

This viewpoint is located within an area of state forest. This Landscape Unit has a medium to high sensitivity rating.

This viewpoint is located at the entrance to the Marmadua State Forest. This Landscape Unit has a medium to high sensitivity to visual change. The existing vegetation confines views to the access tracks and limits views to the margins of the road.

The landscape sensitivity rating of this location is medium to high. However there are few visitors to this area and the existing vegetation restricts views into the forest.

If pipelines where required to be constructed within the road way, the visual impact will be similar to the example shown in viewpoint 7. That is if the pipeline was to be located within the existing road reserve, and vegetation removal as required, after construction, the existing road would look like a wide reserve.

If well heads were to be located in this area, the visual impact would be similar to the examples shown in viewpoint 3 and viewpoint 4.

Even though the landscape sensitivity rating of this location is medium to high there are few visitors to this location and therefore few viewing opportunities. Viewpoints of 3, 4 and 7 can also demonstrate the potential visual impacts that can be expected as a result of the construction and operation of the Project within this landscape unit.

For these reasons, the visual impact to this location is considered to be low - negligible.

6.11 VIEW POINT 11 – MOONIE HIGHWAY #1

Viewpoint 11 is located on the Moonie Highway.

The Moonie Highway runs between St George, approximately 230 km to the south-west and Dalby which is approximately 62 km to the north-east.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

The Braemar State Forest is located on both sides of the Moonie Highway at this location.

Figure 6.19 shows the view looking north east from this location along the Moonie Highway.



VP11 (GPS 56J 275814.9, 6958031.6)

The Moonie Highway is one of the few major roads that run through the southern portion of the land tenements.



Figure 6.19 View looking north- east along the Moonie Highway.

The Moonie Highway is a single lane two-way sealed road within a wide road reserve. The vegetation found within the Braemar State Forest at this location confines views to within the Moonie Highway Road reserve. Views sideways into the forest itself are restricted to approximately 15-20 m.

The visual impact at this location will be similar to the examples shown in Viewpoints of 7, 9 and 10.

The visual impact to this location is considered to be low - negligible.

6.12 VIEW POINT 12 – MOONIE HIGHWAY #2

Viewpoint 12 is located on the Moonie Highway near its intersection with Gulera Road

The Moonie Highway runs between St. George approximately 230 km to the south-west and Dalby, which is approximately 62 km to the north-east.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

The Braemar State Forest is located on both sides of the Moonie Highway at this location.

The proposed gas pipeline that connects to the south eastern edge of the land tenements crosses the highway at this location.



VP12 (GPS 56J 370320, 572948)

Figure 6.20 shows the view looking east from this location along the Moonie Highway



Figure 6.20 Moonie Highway looking east

The Moonie Highway is a single lane, two-way sealed road within a wide road reserve. The vegetation found within the Braemar State Forest at this location confines views to the Moonie Highway Road reserve. Views sideways into the forest are restricted to approximately 15-20m.

Figure 6.21 shows the view looking south-east from the Moonie Highway along the proposed Collection Header pipeline. The proposed pipeline will cross the Moonie Highway close to the farm entrance seen in the centre of *Figure 6.21*.



Figure 6.21 View looking south- east from the Moonie Highway

The vegetation found within the Moonie Highway Road reserve and on private lots restricts views to within the road reserve.

The proposed Collection Header pipeline will cross the Moonie Highway at this location. The pipeline easement may be noticeable throughout construction due to the presence of construction activity and equipment. However due to the presence of existing infrastructure and roads; the proposed pipeline would be barely distinguishable in this landscape. Because the pipeline will cross at right angles to the highway, when travelling at approximately 100 km per hour there will be limited viewing opportunity of the pipeline easement. In addition to this, the existing vegetation located on both sides of the Moonie Highway will also assist to confine visibility of the pipeline to a short distance when travelling along the highway.

For these reasons, the visual impact at this location is assessed as low to negligible.

6.13 VIEW POINT 13 – BRAEMAR STATE FOREST

Viewpoint 13 is located on an unnamed Road or track in the Braemar State Forest.

This road runs roughly in an east-west direction.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

The road is unsealed and follows the undulating topography.

Figure 6.17 shows the view looking south-east along the road from this location.



VP13 (GPS 56J 288639.8, 6990731.4)



The vegetation found within the Braemar State Forest at this location is dense and close to the roadway as seen in *Figure 6.17*.

Figure 6.22 View looking east along the un-named track

This existing vegetation confines views to within the immediacy of the roadway and limits views into the forest to approximately 5 – 10 m. There are also few visitors to this location.

Visual change in this landscape unit will be noticeable where vegetation removal occurs near to the access track or where vegetation removal allows long views into the forest.

This viewpoint is located within an area of state forest or Landscape Unit 3 - Forest. This Landscape Unit has a medium to high sensitivity to visual change. The existing vegetation confines views to the access tracks and limits views to the margins of the road.

If pipelines where required to be constructed within the road way, the visual impact will be similar to the example shown in viewpoint 7. That is if the pipeline was to be located within the existing road reserve, and vegetation removal as required, after construction, the existing road would look like a wide reserve.

If well heads were to be located in this area, the visual impact would be similar to the examples shown in viewpoint 3 and viewpoint 4.

Even though the landscape sensitivity rating of this location is medium to high there are few visitors to this location and therefore few viewing opportunities. Viewpoints of 3, 4 and 7 demonstrate the potential visual impacts that can be expected as a result of the construction and operation of the Project within this landscape unit.

For these reasons, the visual impact to this location is considered to be low - negligible.

6.14 VIEW POINT 14 – BRAEMAR STATE FOREST

Viewpoint 14 is located in the Braemar State Forest.

The proposed Collection Header pipeline will run in a north-south direction at this location.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

The ruins of the former Forest Homestead are also located to the east of this location.



VP14 (GPS 56J 280254.6, 6990716.4)

Figure 6.23 is an aerial photograph showing the viewpoint location, proposed Collection Header pipeline alignment (blue line), the former Forest Homestead site in the clearing to the east of this viewpoint location and numerous access tracks that can be found in the area.



Figure 6.23 Aerial Photograph of Viewpoint 14 and the surrounding landscape

There is also an area of cleared farmland to the north and North West of this location.



Figure 6.24 shows the view looking south along the existing access track and proposed Collection Header pipeline alignment.

Figure 6.24 View looking south along access track

Figure 6.24 also shows that the existing vegetation to the south of this location is dense and close to the access track.

Figure 6.25 shows the view looking north - west towards the area of cleared farmland from this viewing location.



Figure 6.25 View looking north - west

The proposed Collection Header pipeline will follow the existing access track to the south of this location and continue to the north through an area of fragmented vegetation as seen in *Figure 6.23*.

Should the proposed Collection Header be constructed at this location, vegetation clearing will be required along the existing access track to the south as well as to the north of this location. Even though this landscape unit has a medium to high sensitivity to change, there are few visitors to this area and the vegetation is already extensively cleared and fragmented by existing paths and tracks. For these reasons, it is considered that this area can accommodate further visual change to that outlined in the project description and that the the visual impact to this location is assessed as being low.

6.15 VIEW POINT 15 - WINDIBRIE CAMP LNG CENTRAL PROCESSING PLANT

Viewpoint 15 is located within the Windibrie Camp.

The Windibrie Camp is currently used as a worker's camp, site office, storage and training facility for works associated with the investigation and construction of the QC LNG Project.

The most visible landscape unit at this location is Landscape Unit 1 -Flat Farmland.

Figure 6.26 shows the view looking south-west towards the existing Central Processing Plant.



VP15 (GPS 56J 233793.8, 7024524.8)



Figure 6.26 View looking west towards the existing gas compressor station.

There are a number of examples of key pieces of infrastructure that inform this visual impact assessment, including Well Heads, Field Compressor Stations, and a Central Processing Plant.

In this Landscape Unit, the visual impact of these structures would be assessed as low-medium.

If these structures incorporated a planted landscape buffer or were located behind landscape screening, their visual impact would be further reduced.

6.16 VIEW POINT 16 - WINDIBRIE CAMP - SCREW COMPRESSOR STATION

Viewpoint 16 is located within the Windibrie Camp.

The Windibrie Camp is currently used as a workers camp, site office, storage and training facility for works associated with the investigation and construction of the QC LNG Project.

The most visible landscape unit at this location is Landscape Unit 1 -Flat Farmland.

Figure 6.27 shows the view looking east towards an existing screw compressor or Field Compressor Station within the camp.



VP16 (GPS 56J 233126.8, 7025666.0)

Figure 6.27 shows the view looking east towards an existing Field Compressor Station that has been recently constructed. This location is approximately 15 - 20m from the compressor station.



Figure 6.27 View looking east towards Screw Compressor

A second existing Field Compressor Station, located approximately 1.0km north-west, is also visible from this location. *Figure 6.28* shows the view looking north - west from this location.



Figure 6.28 Existing Field Compressor approximately 1.0 away.

At a distance of approximately 1.0 km the existing Field Compressor station is difficult to discern.

Figure 6.27, shows that from a distance of less that 100 m, the Field Compressor stations have the potential to dominate views. *Figure 6.28* shows that visibility of these structures diminishes over distance. Even though the structures are still visible, they comprise a small component of the view and lie below the existing background tree canopy.

The proposed Field Compressor stations will be located in areas of cleared farmland or landscapes that have already undergone a large amount of visual change. These landscapes there fore have a low sensitivity to visual change and have few visitor numbers.

For these reasons, the visual impact demonstrated through this viewpoint description is considered to be low.

Should the field compressor stations be required to be constructed in areas that are not already highly modified or near to frequented public viewing locations, then a landscape buffer should be incorporated into the site layout.

6.17 VIEW POINT 17 - NOEL ROBINSON ROAD

Viewpoint 17 is located on Noel Robinson Road, south of the Kogan-Condamine Road.

Noel Robinson Road is a local gravel road.

The most visible landscape unit at this location is Landscape Unit 1 – Cleared Flat Farmland.

There are several existing Well Heads located in the landscape to the west of this location.

Figure 6.29 shows the view looking south through west from this location.



VP17 (GPS 56J 249107.7, 7021913.1)



Figure 6.29 View looking south through west from Noel Robinson Road

Figure 6.30 shows the view looking west from this location.



Figure 6.30 View looking west from Noel Robinson Road

There are approximately five existing Well Heads that can be found within Figure 6.29 and Figure 6.30. The nearest Well Head can be seen in Figure 6.30 and is approximately 750 m directly to the west of this location.

Figure 6.31 shows an enlargement of the nearest Well Head outlined in Figure 6.30.



Figure 6.31 Enlargement of Figure 6.30

Figure 6.31 shows that at 750 m the existing Well Head and associated infrastructure is barely discernable in the landscape. This is also in a cleared field with no intervening vegetation or landscape screening.

These small structures are almost indiscernible in a rural landscape. They have the appearance of a small rural farming structure and their visual impact on this broader landscape is negligible.

6.18 VIEW POINT 18 - CONDAMINE - CHINCHILLA KOGAN ROAD

Viewpoint 18 is located at the intersection of the Condamine – Kogan and Chinchilla Road

The Condamine - Kogan Road runs in a north west south east direction. The Chinchilla Road runs north south.

The most visible landscape unit at this location is Landscape Unit 3 - Forest.

Figure 6.32 shows the view looking east along the Condamine - Kogan Road.



VP 18 (GPS 56J 264931.0, 7015494.3)

This existing vegetation seen in *Figure 6.32* confines most views to the Condamine – Kogan Road when travelling south-east or north-west.



Figure 6.32 View looking south-east along Condamine - Kogan Road from the Chinchilla Road Intersection

Figure 6.33 shows the view looking north along the Chinchilla Road from the intersection with Condamine – Kogan Road.

Figure 6.33 View looking north along Chinchilla Road

This existing vegetation seen in *Figure 6.33* confines most views to the Chinchilla Road road reserve when travelling north.

Figure 6.34 shows the view looking north-west along Condamine - Kogan Road from its intersection with Chinchilla Road.



Figure 6.34 View looking west

When travelling along this section of the Condamine – Kogan Road, views to the surrounding landscape are confined by the existing roadside vegetation.

Even though the most visible landscape unit at this location is Landscape Unit 3 – Forest, these views also take in many other visual modifications including the road surface, signage and fencing. For safety reasons, the proposed Project infrastructure will be set back from the road way. Therefore the existing vegetation that is found in the road reserve and the surrounding landscape will filter or limit views to the proposed Project infrastructure.

For these reasons, the visual impact resulting from the Project at this locations is considered to be low - negligible.

6.19 VIEW POINT 19- KUMMEROW ROAD

Viewpoint 19 is located on Kummerow Road.

Kummerow Road is a local gravel road that runs in an east - west direction between.

The LINC Energy Power Station is located approximately 1.2 km to the north-east of this location.

Landscape Unit 1 - Flat Farmland is the most visible landscape unit at this location.

This viewpoint was selected where a break in the roadside vegetation allowed a view to the existing power station.



VP19 (GPS 56J 370320, 572948)

Figure 6.35 shows the view looking north-east from this location towards the LINC Energy Power Station.



Figure 6.35 View looking north-east from Kummerow Road

The landscape surrounding this viewing location is mainly used for agricultural purposes and is characterised by predominantly cleared farmlands.

There are many instances of windbreaks, hedgerows and roadside vegetation that limit views to the surrounding landscape from Kummerow Road. This is illustrated in *Figure 6.35*.

The landscape at this location has been extensively cleared for agricultural practices and has low landscape sensitivity. Views from this location already include the existing LINC Energy Power Station. Other visual change includes roads, fence lines and rural infrastructure including sheds, silos, machinery and equipment. There are few visitor numbers.

The landscape at this location has the capacity to absorb the visual change proposed by the Project.

The landsape surrounding this location is predominantly cleared farm land. This Landscape Unit has a low sensitivity to visual change. There are also few visitors to this location. For these reasons the visual impact at this location resulting from the construction and operation of the Project would be assessed as low - negligible.

6.20 VIEW POINT 20– 16 MILE HALL ROAD

Viewpoint 20 is located on 16 Mile Hall Road.

16 Mile Hall Road is a local gravel road that runs in a north-south direction.

Landscape Unit 1 - Flat Farmland is the most visible landscape unit at this location.

Figure 6.36 shows the view looking south-west from this location



VP20 (GPS 56J 271785.9, 7022110.2)

The landscape surrounding this viewing location is predominantly cleared flat farmlands. With

the exception of the LINC Power Station to the south-west, the majority of the area is currently used for agricultural purposes. This is illustrated by the large paddock of crops in *Figure 6.36*.



Figure 6.36 View looking south-west from 16 Mile Hall Road

There are also many instances of wind breaks and hedgerows planted along property boundaries and fence lines, as well as roadside vegetation as seen in *Figure 6.36*. This vegetation contributes to limiting views outwards to the surrounding landscape from roadways.

The landscape at this location has been cleared for agricultural. Views from this location already include roads, fence and train lines. Other visual change includes rural infrastructure including sheds, silos, machinery and equipment. There are few visitor numbers.

The landscape at this location has the capacity to absorb the visual change proposed by the Project and the overall visual impact will be negligible.

6.21 VIEW POINT 21 – WARREGO HIGHWAY

Viewpoint 21 is located on the Warrego Highway. The Warrego Highway is a two-way sealed road and runs between Dalby to the south-east and Chinchilla to the north-west.

The Western Line Railway parallels the northern side of the highway in this location.

Chinchilla is approximately 16 km to the north-west of this location.

Landscape Unit 1 - Flat Farmland is the most visible landscape unit at this location.

Figure 6.37 shows the view looking south from this location.



VP21 (GPS 56J 277374.6, 7031107.0)



Figure 6.37 View looking south from the Warrego Highway

The Condamine River is also approximately 1.0 km to the south of this location and is behind the stand of trees seen on the horizon of *Figure 6.37*.

Figure 6.38 shows the view looking north-west along the Warrego Highway in the direction of the township of Chinchilla which is 15 km from this location. The Western Railway Line runs along the northern side of the highway in this location and can also been seen in the background of this figure.



Figure 6.38 View looking west along the Warrego Highway

There are overhead powerlines on both sides of the highway at this location which can also be seen in *Figure 6.38*.

The Warrego Highway has a wide road easement at this location, set within a flat landscape that contains extensive areas of vegetation found within both the road reserves and adjoining paddocks.

Views to the surrounding landscape from the highway often take in many signs of visual infrastructure including fence lines, constructed roads, farm buildings and equipment, as well as railway and overhead powerlines.

The landscape at this location has been extensively cleared for agricultural practices and has low landscape sensitivity. Views from this location already include roads, fence and train lines. Other visual change includes rural infrastructure including sheds, silos, machinery and equipment. There are few visitor numbers.

It is considered that the landscape at this location has the capacity to absorb the visual change proposed by the Project.

6.22 VIEW POINT 22 - CONDAMINE SPORTING AND RECREATION CENTRE

Viewpoint 22 is located at the entrance to the Condamine Sporting Club grounds.

The entrance is located on the eastern side of the Leichardt Highway, approximately 2.3 km south of the township of Condamine.

The Condamine Sporting Club comprises a Golf Course, a Gun Club, a Tennis Club, Lawn Bowls and Camp Draft – Rodeo Grounds facilities.

Figure 6.39 shows the entrance to the Condamine Sporting Club, looking east from the Leichardt highway.



VP22 (GPS 56J 215871.9, 7015876.2)

The entrance to the Condamine Sporting Club is filtered by the existing vegetation located within the Leichardt Highway road reserve as shown in *Figure 6.39*.



Figure 6.39 Condamine Sporting Club Entrance.

The main Administration building and club house can be seen in *Figure 6.39*.

Figure 6.40 shows the view looking north along the Leichardt Highway towards Condamine which is approximately 2.3 km to north of this location.



Figure 6.40 View looking north along the Leichardt Highway

Figure 6.40 also shows the existing vegetation located in the Leichardt Highway road reserve to the north of this location.

Figure 6.41 shows the view looking south along the Leichardt Highway from the same location.



Figure 6.41 View looking south along the Leichardt Highway

Figure 6.41 shows that the vegetation located in the Leichardt Highway road reserve continues to the south.


Figure 6.42 shows a view looking west towards the Condamine Sporting Club administration building. This building also serves as the Club House for the lawn Bowles and Tennis Club.

Figure 6.42 View looking west towards the Condamine Sporting Club tennis courts, Club house and Bowling Greens

Figure 6.43 shows the view looking south-east over the golf course from the internal access road of the Condamine Sporting Club.



Figure 6.43 View looking south-east over the golf course from the Condamine Sporting Club

Figure 6.43 also shows the existing vegetation assist to define the golf course and screens views to the surrounding landscape.

The Condamine Sporting Club is a recreational hub for the township oif Condamine and the surrounding district, and is therefore likely to attract medium to high visitor numbers. The grounds of the sporting and the Leichardt Highway which serves as the amin entrance to facility host areas of trees and shrubs that as seen in this viewpoint description screen views to the surrounding landscape.

Even though this location has the potential to attract medium to high visitor numbers, the grounds of the Condamine Sporting Club contain many built structures including club houses

fencing and Rodeo Grounds. There is also extensive areas of vegetation that screen most views to the surrounding landscape.

Because of the extent of modification to the landscape of the sporting club and the and limited viewing opportunities beyond the site, the visual impact to this location as a result of the Project, is assessed as being low.

6.23 VIEW POINT 23 - CORNER LEICHARDT HIGHWAY AND HENRY ROAD

Viewpoint 25 is located at the intersection of the Leichardt Highway and Henry Road, approximately 2 km north of the township of Condamine.

The Leichardt Highway is a twoway sealed Road that runs in a nort- south direction.

Henry Road is a no-through road that truncates approximately 5.0 km to the north-west of this location.

Landscape Unit 1 - Flat Farmland is the most visible landscape unit at this location.

Figure 6.44 shows the view looking north along the Leichardt highway from this location.



VP23 (GPS 56J 215767.2, 7020503.4)

The Leichardt Highway comprises a wide road reserve at this location containing many trees and shrubs of varying stages of maturity, as seen in *Figure 6.44*. This vegetation assists in confining views to the Leichardt Highway road reserve when travelling along the highway and filters views to the surrounding landscape.



Figure 6.44 View looking north along the Leichardt Highway

The landscape surrounding this location is predominantly flat and has been cleared for farming.

Figure 6.45 shows the view looking west along Henry Road. Henry Road is also a wide road, and is used for local access only and truncates approximately 5.0km west of this location.



Figure 6.45 View looking west along Henry Road

There are also extensive areas of vegetation of varying stages of maturity found in the road reserve of Henry Road.

The landscape at this location has been extensively cleared for agricultural practices. Being highly modified already, this landscape has low sensitivity to further visual change. Views from this location also take in roads, fence lines and associated rural infrastructure including sheds, silos, machinery and equipment. There are few visitor numbers.

For these reasons, the visual impact to this location resulting from the Project is assessed as low.

6.24 VIEW POINT 24 - KENTARA ROAD

Viewpoint 24 is located on Kentara Road. Kentara Road is a local gravel access track.

Landscape Unit 1 - Flat Farmland is the most visible landscape unit at this location.

Figure 6.46 shows the view looking south along Kentara Road. The landscape surrounding this location comprises predominantly flat farm land.



VP26 (GPS 56J 213754.6, 7032478.1)

The area has been partially cleared, however it does contain many areas of existing mature vegetation or regrowth as seen in *Figure 6.46*.



Figure 6.46 View looking south along Kentara Road

Figure 6.46 also shows that views to the surrounding landscape are often confined by areas of existing mature vegetation or regrowth vegetation.

The landscape at this location has been extensively cleared for agricultural practices and has low landscape sensitivity. Views at this location take in roads, fence lines and associated rural infrastructure including sheds, silos, machinery and equipment. There are also few visitor numbers to this location.

The landscape surrounding this location is predominantly cleared farmland. There are also few visitors to this location.

The visual impact to this location resulting from the construction and operation of the project is assessed as low to negligible.

6.25 VIEW POINT 25 - CONDAMINE POWER STATION

This viewpoint is located at the entrance to the existing Condamine Power Station which is located within the Project viewshed. This viewpoint assists to provide a useful example on which to understand and asses the likely visual impact resulting from the construction some of the larger project infrastructure including the Central Processing Plants and the Field Compressor Stations. For these reasons, this location has been included within the viewpoint assessment.

Viewpoint 25 is at the entrance to the Condamine Power Station, just south of the Warrego Highway.

The Condamine Power Station is setback approximately 200–300 m from the Warrego Highway and within an area of cleared vegetation.

The most visible Landscape Unit at this location is Landscape Unit 3 – Forest.

Figure 6.47 shows the view looking west at the entrance of the Condamine Power Station.



VP25 (GPS 56J 228469.2, 7047186.2)



Figure 6.47 View looking West towards the Condamine Power Station

The Condamine Power Station is a large structure found within the landscape of the Project viewshed. It is nestled amongst an area of retained vegetation that assists to filter views to the site from the surrounding landscape.

Further vegetation in the foreground has the potential to screen views as is demonstrated by the small tree on seen on the left hand side of *Figure 6.47*.

6.26 VIEW POINT 26 - WARREGO HIGHWAY

Viewpoint 26 is located on the Warrego Highway, approximately 7 km east of the township of Miles.

The Warrego Highway is a twoway sealed road and runs between the township of Chinchilla to the south-east and the township of Miles to the west.

The Western Line Railway also runs along the southern side of the highway at this location.

This viewpoint is approximately 200 m to the north of the Condamine Power Station, discussed in Viewpoint 25.

Figure 6.48 shows the view looking south from this location.



VP26 (GPS 56J 228271.8, 7047853.0)

Figure 6.48 shows the view looking south along the existing transmission line that connects the Condamine Power Station, seen in View point 25, to the state electricity grid. The Western Railway line can also be seen in the foreground of this figure.



Figure 6.48 View looking south from the Warrego Highway

The transmission line crosses the Warrego Highway and continues to the north. The area to the north of the Warrego Highway is outside of the project viewshed. The landscape to the south of the Warrego Highway is predominantly Landscape Unit 3 – Forest, which has a medium to high sensitivity to visual change.



Figure 6.49 shows an enlargement of *Figure 6.48* and marks the location of the existing Condamine Power Station.

Figure 6.49 Enlargement of Figure 6.48

The Condamine Power Station (viewpoint 25) is larger that any of the proposed structures associated with the QC LNG Project. *Figure 6.49* shows that even at a distance of approximately 200 m, the existing vegetation that has been retained between the existing Condamine Power Station and the Warrego Highway is sufficient to screen the power station from view.

Because of the extent of visual change that is already present at this location, it is considered that the landscape can absorb further visual change. It is also considered that the visual impact to this location resulting from the Project is assessed as being low to negligible.

This viewpoint also demonstrates the effectiveness of vegetation buffers in reducing visual impact for even that largest of structures.

6.27 VIEW POINT 27 – WARREGO HIGHWAY – EXPORT PIPELINE

Viewpoint 27 is located on the Warrego Highway, approximately 6.5 km east of the township of Miles.

Landscape Unit 3 – Forest is the most visible landscape unit at this location.

This viewpoint near to the proposed Export Pipeline that connects the Project to the proposed LNG Plant to be located on Curtis Island.

Figure 6.50 shows the view looking south-west from this location where the proposed export pipeline will cross the Warrego Highway.



VP27 (GPS 56J 227123.1, 7047978.7)



Figure 6.50 View looking South-West from the Warrego Highway

Figure 6.50 shows that the landscape to the south of this location is predominantly flat and contains large areas of either remnant or regrowth vegetation. This vegetation confines views to the highway.



Figure 6.51 shows the view looking north-west from this same location on the Warrego Highway.

Figure 6.51 View looking North-West from the Warrego Highway

Similar to *Figure 6.50,* the landscape to the north of this location is also flat and also contains large areas of either remnant or regrowth vegetation.

This vegetation is close to the highway and restricts views to the surrounding landscape.

This viewpoint is located on the Warrego Highway which carries high traffic numbers. The predominate landscape to the north and south of the Warrego Highway at this location is Landscape Unit 3 – Forest, which has a medium to high landscape sensitivity.

Even though there are potentially high viewer numbers and the surrounding landscape has a medium to high sensitivity rating, the vegetation found in the road reserves will limit visibility of the proposed pipeline easement. Previous viewpoints have also demonstrated that, once the pipeline easement is rehabilitated, the pipeline easement will be visually similar a farm access track that are not uncommon in the surrounding landscape. For these reasons, the visual impact is assessed as low.

6.28 VIEW POINT 28 - UN NAMED ROAD

Viewpoint 28 is located on an un-named road. This viewpoint is located within the most north-western land tenement associated with the Project.

This location is also located in an area influenced by the Great Dividing Range.

Landscape Unit 2 – Hilly Farmland is the most visible Landscape Unit at this location.

Figure 6.52 shows the view looking east from this location.



VP28 (GPS 55J 771605.8, 7096888.8)



Figure 6.52 shows that the landscape in this location becomes undulating in nature.

Figure 6.52 View looking East along an un-named Road

The landscape contains many trees and other vegetation in road reserves, within open paddocks and also along fence lines and property boundaries.

Figure 6.53 shows the view looking west along the un-named road from this location.



Figure 6.53 View looking west from an un-named Road

Although the landscape to the west appears flat in this figure, it is also undulating in nature and contains many trees and other vegetation within road reserves, paddocks and along fence lines and property boundaries. This vegetation assists to limit views to the surrounding landscape, as seen in *Figure 6.53*.

Landscape Unit 2 – Hilly Farmland is the most visible landscape type at this location. This landscape has been extensively cleared, contains farm roads and tracks as well as fence lines and associated rural infrastructure including sheds, silos, machinery and equipment. There are also few visitors to this area.

The landscape at this location is already highly modified and contains many structures. It is considered that this landscape has the capacity to absorb the visual change proposed by the Project, and that the visual impact to this location will be low.

6.29 VIEW POINT 29 - LEICHARDT HIGHWAY - MYALL PARK ROAD

Viewpoint 29 is located at the intersection of the Leichardt Highway and Myall Park Drive.

This location is approximately 5.0 km north of the township of Miles.

This viewpoint is near the location where the proposed Collection Header pipeline crosses the Leichardt Highway.

Figure 6.54 shows the view looking north along the Leichardt Highway from this location.



VP29 (GPS 56J 218124.5, 7053745.6)



Figure 6.54 View looking north along the Leichardt Highway

Looking north along the Leichardt Highway, there are extensive areas of vegetation located on either side of the road. This vegetation confines views to the road reserve and limits vies to the surrounding landscape.

Figure 6.55 shows the view looking east along Myall Park Road.



Figure 6.55 View looking east along Myall Park Road

The intersection made by the Leichardt Highway and Myall Park Road is a wide intersection.

The existing vegetation to the west of this location is close to the road and limits views to the west.

The proposed Collection Header pipeline will cross the Leichardt Highway at this location.

Because of the extensive vegetation clearing already undertaken on the eastern side of the Leichardt Highway – Myall Park Road intersection the construction of the proposed Collection Header easement will be barely noticeable.

Because the pipeline will cross at right angles to the highway, when travelling at approximately 100 km per hour there will be limited viewing opportunity of the pipeline easement.

Even though there are potentially high viewer numbers at this location, the landscape is already highly modified. Views from this location are already high take in the Leichardt Highway, fencing, signage and areas of vegetation clearing. For these reasons, it is considered that the visual impact to this location will be low - negligible.

6.30 SUMMARY OF THE ANALYSIS OF THE SURROUNDING LANDSCAPE

This section has demonstrated that the landscape of the Project viewshed is a highly diverse landscape comprising a range of landscape types ranging from cleared flat farmland to forest.

The landscape is also one that has been highly modified over time and includes many instances of visual change, both permanent and dynamic.

Permanent change includes the construction of towns, roadways, fence transmission and train lines as well as buildings and infrastructure such as power stations and farm buildings.

Dynamic change in this landscape is often found in the large areas that have been cleared for farming. These farming landscapes regularly undergo seasonal visual change through cropping and grazing. Other dynamic change includes the removal of vegetation.

There are large areas of existing vegetation that can be found within the Project viewshed. This analysis has demonstrated the effectiveness of vegetation to screen views to the surrounding landscape. This is particularly useful in demonstrating the effectiveness of vegetation as a landscape mitigation measure to filter and in some instances potential screen structures from sensitive viewing locations.

When near main roads the pipeline can either:

- Run parallel to the roadway; or
- Cross the road at right angles.

This analysis has shown that where the pipeline runs parallel to the roads, once rehabilitated it has the appearance of a widened road reserve and creates little visual impact.

Furthermore, when a pipeline crosses a road, generally at right angles, the visual impact in a vegetated or forest landscape is restricted to a view along an easement, which is not dissimilar to view along minor roads or access tracks. Therefore the visual impact in forested areas is low – negligible and in cleared areas the pipeline becomes indistinguishable against the existing pasture and the visual impact becomes nil.

This analysis has also shown that because of the extent of change already found in much of the project viewshed, the Project viewshed has the capacity to absorb level of visual change associated with the Project. This is demonstrated in viewpoints 3, 4, 15, 16 and 25 where infrastructure similar to that proposed in the project is already installed in the landscape. These viewpoints therefore provided a useful guide to assessing the level of visual impact that can be expected as well as the effectiveness of mitigation measures for sensitive viewing locations.

7 ASSESSMENT OF THE IMPACTS OF NIGHT TIME LIGHTING

This section responds to the night time lighting impacts as outlined in the Terms of reference for the Project. Accordingly permanent sources of light found in the landscape of the project as well as light sources identified within the project description will be addressed. The impact of Fauna is assessed in the Flora and Fauna report.

7.1 EXISTING LIGHT SOURCES

There are several light sources that can be found within the project view shed. These are both permanent sources such as around the existing towns of Miles, Chinchilla, Condamine and Tara, as well as around farm houses and buildings and existing infrastructure such as the Condamine power station. Other, non permanent light sources include head and tail lights of vehicles travelling along the surrounding roads as well as trains and agricultural machinery that when required can be found working 24 hours a day.

7.2 **PROJECT LIGHTING**

Light sources for the Project include both permanent and intermittent sources and of light.

Permanent light sources that have been identified with the project are limited to access lights to the control rooms within the Field Compressor Stations and Central Processing Plants. Additional lighting of these areas may be required from time to time for routine maintenance or emergency shut downs.

Intermittent lighting will include flaring of Well Heads, Field Compressor Stations and the Central Processing Plants. Each of these structures is to be located in relatively isolated locations where there are few receptors.

7.3 LIGHTING DURING CONSTRUCTION

Intense lighting will be required consistently during the construction period for the Field Compressor Stations and Central Processing Plants. Construction lighting for the proposed Well Heads will include vehicle and drill rig lights as well as safety and work area lighting. Construction lighting will have a much greater impact than operational lighting and flaring as it will be more concentrated and an obvious change in the Landscape. This lighting will also be in relatively remote areas and will be temporary only.

The night time lighting impacts of Well Heads is considered to be low. This is due to the relative isolation of well heads, lack of permanent light sources and intermitted light sources limited to limited flaring only.

The night time lighting impacts of Field Compressor Stations and Central Processing Plants is also considered to be low, even though these are the largest of the proposed structures and contain permanent sources of light. This is because the permanent lighting to these structures is limited to control room access lights that will not be dissimilar to lighting found at a farm house or shed. In additional to this, the Field Compressor Stations and Central Processing Plants will also be located in relatively isolated locations.

8 **RECOMMENDATIONS**

The preceding analysis has shown that the major visual impact for the project will be during construction.

This will be due to the visual change, associated with the disturbance of the surrounding landscape and general construction related activities such as deliveries, storage and stockpiling of equipment and materials as well as construction and fabrication activities.

There are no measures that can be implemented to mitigate this stage of the works. Visual mitigation measures in this time relate more to construction management practices, rather than landscaping options.

Where construction works are undertaken in heavily vegetated areas such as state forests, the effects of construction will be more noticeable due to the removal.

To limit these impacts the recommendations outlined Flora and Fauna report, will assist to limit the visual impacts associated with the construction and operation of the project.

Following construction, the majority of the disturbed areas that are located in areas of cleared farmland will have pasture/grasses re-established. Viewers may be able to discern a slight change in colour however such a change would only be a negligible impact at worst. The landscape rehabilitation methods outlined in the project description are considered to the adequate to mitigate the majority of the likely visual impacts that can be expected through the development of the project.

The greatest potential impact is on neighbouring properties to the Project. It is assumed that the land owners, on which assets are to be located, have had the ability to negotiate with the proponent as to the siting and location of assets on their land. It is also therefore assumed that the relevant land owners would also negotiate for the best possible outcomes with respects to visual and other forms amenity.

The project outline prepared by the project proponents has indicated that the proposed Well Heads will not be located within 750 m of existing residential dwellings. This is in consideration of safety and amenity issues. The analysis of the landscape discussed in Chapter 5 of this report shows that at this distance (approximately 750 m) the Well Heads and associated infrastructure will be barely noticeable features in the landscape. Viewpoints 3, 4 and 17 found in Chapter 6 of this report have also demonstrated that, for many areas within the viewshed, the proposed Well Heads can be visually accommodated into the surrounding landscape.

Chapter 6 has also demonstrated that, for many areas, the larger Field Compressor Stations and Central Processing Units can also be visually accommodated in to the surrounding landscape.

Visual impact associated with the construction and operation of larger structures, such as Field Compressor Stations and Central Processing Plants may also be reduced by planting along the local roads. Any impact that becomes apparent along these roads may be easily screened by the establishment of indigenous vegetation.

Therefore the recommended mitigation measures additional to those outlined in the Rehabilitation Measures section of the Project Description are detailed below:

• Larger structures such as the Field Compressor Stations and Central Processing Plants should not be located in areas where views to the surrounding landscape do not already contain constructed elements. These elements include but are not limited to fences, stock feeding equipment, water tanks, buildings, sheds and driveways.

- Where large structures such as the Field Compressor Stations and Central Processing Plants are required, the site layout and location should allow for a landscape buffer to be installed to the perimeter of the sites.
- For larger structures, colours darker than the surrounding grass and vegetation should be used. This includes protective barriers to mainline valves and scraper stations.
- If, after the construction of any larger structures there is an un-acceptable level of impact, there may be the opportunity to undertake additional planting adjacent to the local roads to mitigate these views.

CONCLUSION

9

In summary, this landscape and visual impact assessment demonstrates that the Project will have a generally low to negligible visual impact on its surrounds. Furthermore, it is considered that the viewshed or Project area is a suitable landscape for the construction of the Project. This conclusion is supported by:

Level of Visual Change in the surrounding landscape

• The Project is located in a landscape that has been extensively modified since European habitation. The landscape units in the viewshed are also well represented across this area. Agricultural activity, associated structures and other signs of human intervention have also created a landscape that can absorb other changes.

Visual impact to towns

• Condamine is the only township within the Project Viewshed. No infrastructure is proposed in the township of Condamine.

Visual impact to the parks, reserves and recreation areas

• The majority of the areas located within Parks, Reserves and state forests are covered by vegetation. This vegetation is dense and limits view to the immediate vicinity. Access to parks and state forests is via the surrounding road network that cuts through the existing vegetation. The recommendations both within this LVIA and the Flora and Fauna report seek to limit construction in these areas near to previously modified/cleared areas such as the existing access tracks. If this is achieved, views to the proposed infrastructure will be limited by the existing vegetation. Therefore the only visual impact will be in locations where there is existing visual change. Therefore the visual impact will be limited and is considered as having a low level of visual impact.

Visual impact to the surrounding road network

- There is minimal visibility from major roads. The Moonie, Warrego and Leichardt Highway are the major roads within the region. Although there will be views from these two highways the overall impact is expected to be low due to the predominately low landscape sensitivity and limited viewing opportunities afforded by topography and vegetation.
- Where Pipelines cross roads and highways at right angles, their visibility is also limited to only a very short section of the journey.
- There will be a visual impact on viewers using the minor roads within the locality. Visibility from these minor roads, which have far fewer users than the highways and main roads, is sometimes restricted by roadside vegetation. It is considered that the visual impact will be low to negligible from these locations partly as the viewer numbers are low, but also because this rural landscape can absorb further change.

Landscape Mitigation

Chapter 7 has demonstrated that for many areas, even the larger of the above ground structures can be visually accommodated into the surrounding landscape. The analysis has also shown that where there are potentially sensitive locations, landscape mitigation measures such as planting or retention of screening vegetation will assist to reduce or remove visual impacts for mainline valves, scraper stations and the In-line compressor station. This is demonstrated in *Viewpoint 9-Condamine Power Station* and *Viewpoint 10-Warrego Highway*. These viewpoints demonstrate the effectiveness of landscape mitigation measures and screen plantings for large items such as the existing Condamine Power Station.

Impacts of night time lighting

- The Project components are located in relatively remote locations.
- There are existing light sources within the project viewshed including towns, the surrounding road network, rail and other large infrastructure.
- There permanent light sources of the project are limited to control room access only. This lighting will be similar to existing lights found around existing farm houses and sheds already found in the landscape.
- Because of the relatively remote location of the project components, there are few receptors of the intermittent lighting that may be associated with flaring of Well Heads, Field Compressor Stations and Central Processing Plants.

Because of the minimal visual impact to the surrounding landscape, it is considered that the Project can be easily accommodated into the surrounding landscape. Where there are sensitive views, the proposed on site landscape mitigation measures or revegetation and screen planting will assist to reduce the visual impact to these locations.

Annexure A

Parameters of Human Vision

PARAMETERS OF HUMAN VISION

The visual impact of a development can be quantified by reference to the degree of influence on a person's field of vision. The diagrams on the following pages illustrate the typical parameters of human vision. These provide a basis for assessing and interpreting the impact of a development by comparing the extent to which the development would intrude into the central field of vision (both horizontally and vertically).

Horizontal Cone of View

The central field of vision for most people covers an angle of between 50° to 60°. Within this angle, both eyes observe an object simultaneously. This creates a central field of greater magnitude than that possible by each eye separately.

This central field of vision is termed the 'binocular field' and within this field images are sharp, depth perception occurs and colour discrimination is possible.

These physical parameters are illustrated in the figure opposite.

The visual impact of a development will vary according to the proportion in which a development impacts on the central field of vision. Developments, which take up less that 5% of the central binocular field, are usually insignificant in most landscapes (5% of $50^\circ = 2.5^\circ$).



Figure A.1 Horizontal Field Of View

These calculations mean that a transmission tower approximately 5m wide would reduce to insignificance at 115m, a 10m wide tower would be insignificant at 230m as the transmission towers would form less than 5% or 2.5° of the horizontal field of view.

It is obvious that transmission towers are still very apparent at this distance and that their height, rather than their width gives a better, and more conservative, measurement on which to base the viewshed.

Horizontal Field of View

The table below analyses the degree to which development would impact on a typical horizontal field of view. 100m has been used as the typical distance as it is similar in width the proposed Field Compressor Stations and Central Processing Plants.

Table A.1Visual Impact, based on the Horizontal Field of View of a 100m wide development

Horizontal Field of View	Impact	Distance from an observer to a 100m wide development
<2.5 ⁰ of view	Insignificant A 100m wide development would take up less than 5% of	> 2.5 km
	the central field of view. The face, unless particularly conspicuous against the background, will not intrude significantly into the view. The extent of the vertical angle will also affect the visual impact.	
2.5 ^o - 30 ^o	Potentially noticeable	150 m – 2.5 km
of view	A 100m wide development may be noticeable and its degree of visual intrusion will depend greatly on its ability to blend in with its surroundings.	
>30° of	Potentially visually dominant	< 150 m
view	At this distance, a 100m wide development will fill more than 30 percent of the central field of vision and will always be noticed by the viewer, regardless of the surroundings.	

The calculations shown in the Table 5.1 suggest that the impact of a 100 m wide development reduces to insignificance at 2.5 km, as the width of the development face would, at this distance, form less than 5% or 2.5° of the horizontal field of view. However, this calculation is based on the visual impact of a 100 m wide development being fully visible. Usually only portions of development are visible. The viewshed is better determined by the point at which a development becomes an indistinct line on the landscape. That is the point at which the vertical size diminishes to an imperceptible component within the vertical field on view.

The sketch below shows how the viewshed of a long horizontal object such as this proposal is determined by its height.



Figure A.1 The effect of distance on a wide object

This effect of distance on a wide object can also be demonstrated by the example of a farm fence that may be many kilometres in width. As one moves further away from the fence it becomes less apparent until at some distance it is not possible to separate this element from the horizontal plane of the landscape.

A more useful viewshed is one that is determined by height.

The table below shows the relationship between impact and the proportion that an exposed 15 m high development will occupy within the vertical field of view, which in the table below is assumed to be 10°. Where objects take up 5% of this field of view (5% of $10^\circ = 0.5^\circ$) they can be considered to visually insignificant. Once objects take up at least 10% of the vertical they can be more readily discernible (10% of $10^\circ = 1^\circ$). This distance is also used to determine the outer extent of a viewshed or limit of study area. When and object takes up 65% of the vertical field of view they will always dominate the view.

Vertical Field of View

A similar analysis can be undertaken based upon the vertical line of sight for human vision.

The typical line of sight is considered to be horizontal or 0°. A person's natural or normal line of sight is normally a 10° cone of view below the horizontal and, if sitting, approximately 15°.

Objects, which take up 5% of this cone of view (5% of $10^\circ = 0.5^\circ$) would only take up a small proportion of the vertical field of view, and are only visible when one focuses on them directly. However, they are not dominant, nor do they create a significant change to the existing environment when such short objects are placed within a disturbed or man-modified landscape.



The table below shows the relationship between impact and the proportion that the development occupies within the vertical line of sight.

Vertical Line of Sight	Impact	Distance from an observer to a 60m high built form
< 0.50 of vertical angle	<i>Insignificant</i> A thin line in the landscape.	>7000 metres
0.50 – 2.50 of vertical angle	<i>Potentially noticeable</i> The degree of visual intrusion will depend on the development's ability to blend in with the surroundings.	1400 -7000 metres
> 2.50 of vertical angle	<i>Visually evident</i> Usually visible, however the degree of visual intrusion will depend of the width of the object and its placement within the landscape.	< 1400 metres

Table A.2Visual Impact based on the Vertical Field of View

These calculations suggest distances at which the magnitude of visual impact of the transmission towers is reduced with distance. At distances greater than 7km, a fully visible 60m high transmission tower would be an insignificant element within the landscape. At distances less than 1.4km the transmission towers would be potentially noticeable and could dominate the landscape. To make this assessment more conservative a greater weighting has been given to transmission towers that are within 0.7km of the towers

The zones of visual influence that have been used within this assessment are shown on Table A3.

observer to the Desalination Plant				
>7km	<i>Visually insignificant – outside the viewshed</i> A very small element which are difficult to discern and transmission towers will be invisible in some lighting or weather conditions.			
1.4-7km	Potentially noticeable, but will not dominate the landscape. The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer, however transmission towers do not dominate the landscape.			
0.7 - 1.4 km	<i>Potentially noticeable and can dominate the landscape.</i> The degree of visual intrusion will depend on the landscape sensitivity and the sensitivity of the viewer			
<0.7km	<i>Highly visible and will usually dominate the landscape</i> The degree of visual intrusion will depend on the transmission towers placement within the landscape and factors such as foreground screening.			

Distance from an Zones of visual influence observer to the