CHAPTER 09

Landscape and Visual Impact Assessment

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

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9.1 Introduction

The purpose of the landscape and visual impact assessment (LVIA) is to assess the impact of the Inland Rail—Border to Gowrie Project (the Project) on landscape, visual and lighting values, including potential impacts on landscape character and views.

The key objectives of the LVIA include to:

- Undertake a baseline assessment describing existing environmental values of the impact assessment area (defined in Section 9.4.1) with respect to landscape character and visual amenity, including scenic viewpoints
- Describe the existing landscape, including references to any landscape or visual values identified in planning schemes (landscape receptors) and identify those people who experience and value views of the landscape (visual receptors)
- Identify key Project impacts on landscape and/or visual values during the day (and consider the potential for any night-time impacts)
- Evaluate the significance of the impacts of the Project activities on landscape, views and visual receptors during construction and operation during day and night
- Describe any Project modifications or management techniques that can mitigate identified landscape and visual impacts
- Illustrate the visual impacts using visualisation techniques to assist members of the public in understanding potential impacts.

This chapter should be read in conjunction with Appendix I: Landscape and Visual Impact Assessment Technical Report.

9.2 Terms of Reference requirements

This chapter has been prepared to address sections 10.10 (p) and 11.84 to 11.87 of the ToR. A compliance check of this chapter against each of the relevant components of the ToR is presented in Table 9.1. Relevant sections of the ToR have also been addressed in Appendix I: Landscape and Visual Impact Assessment Technical Report.

Compliance of the draft EIS against the full ToR is documented in Appendix B: Terms of Reference Compliance Table.

TABLE 9.1 COMPLIANCE AGAINST RELEVANT SECTIONS OF THE TERMS OF REFERENCE

Landscape visual impact assessment Terms of Reference requirements		EIS section
Proposed construction and operations		
10.10	Describe the following information about the proposed project: (p) landscaping and the rehabilitation of affected areas after construction and during operation.	Section 9.7
Landscape and visual amenity		
Existing environment		
11.84	Describe and illustrate the existing landscape character and environment, including key natural landscape features, major views, view sheds and outlooks that contribute to the amenity of the area.	Section 9.5
Impact assessment		
11.85	Describe and illustrate the visual impact of the construction and operation of the Project. Include major views, view sheds, outlooks, and features contributing to the amenity of the area. Such views should be representative of public and private viewpoints, including places of residence, work, and recreation.	Sections 9.6.1 and 9.6.2

Landscape visual impact assessment Terms of Reference requirements		EIS section
11.86	Address any applicable policy outcomes regarding regional landscape values and scenic amenity in the South East Queensland Regional Plan 2017, Shaping SEQ Background paper 4: Sustain and the Darling Downs Regional Plan 2013.	Consideration of regional scenic amenity is included in Section 9.3 and a description of existing values is described in Section 9.5.1.4 Section 9.8 as required, discusses impacts on these values
Mitigation measures		
11.87	Describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity.	Section 9.7 Chapter 22: Outline Environmental Management Plan

9.3 Policies, standards and guidelines

LVIA can assist the development of a design that is integrated into its landscape context across the whole Project. For this reason, it is necessary to consider policies and guidelines (particularly at the higher national, State and regional levels) that may extend beyond the immediate context in which the Project is sited, as well as those that apply at the local level. As an example, consideration of urban design principles set out in both NSW and Queensland guidelines will ensure that a common approach is adopted that fulfils the separate requirements of these jurisdictions while ensuring design consistency across borders.

Similarly, as potential landscape and visual impacts may cross boundaries (e.g. views between adjoining LGAs), consideration has also been given to the policies applying to adjacent jurisdictions at the local level.

The list below identifies relevant policies, standards and guidelines that exist to protect or manage landscape and visual values in the context of the Project. A detailed discussion of the relevance of each reference to the Project is presented in Appendix I: Landscape and Visual Impact Assessment Technical Report. The relevant local planning schemes do not apply to the Project (refer Chapter 3: Legislation and Project Approvals) but are appropriate to consider in terms of local context for landscape and visual amenity.

- National:
  - AS4282-1997 *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997)
  - AS4970 *Protection of Trees on Development Sites* (Standards Australia, 2009)
  - Disability (Access to Premises—Buildings) Standards 2010
- State:
  - Queensland
    - *Road Landscape Manual* (DTMR, 2013b)
    - *Crime Prevention through Environmental Design (*Queensland Government, 2007*)*
    - *South East Queensland Regional Plan* (ShapingSEQ) (Department of Infrastructure, Local Government and Planning (DILGP), 2017a)
    - *Shaping SEQ Background paper 4: Sustain* (DILGP, 2017b)
    - *South East Queensland Regional Plan Implementation Guideline No 8 Identifying and protecting scenic amenity values* (Department of Infrastructure, 2007)
    - *Darling Downs Regional Plan* (Department of State Development, Infrastructure and Planning (DSDIP), 2013b)
  - New South Wales
    - *Beyond the Pavement: RTA urban design policy, procedures and design principles* (Department of Roads and Maritime Services (RMS), 2014)
    - *The Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact assessment EIA–N04 (practice note EIA-N04)* (RMS, 2018)
    - *Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW* (RMS, 2012)
    - *NSW Sustainable Design Guidelines Version 3.0* (Transport for NSW (TfNSW), 2013)
    - *Crime prevention and the assessment of development applications* (Department of Urban Affairs and Planning, 2001)
    - *Urban Green Cover in NSW—Technical Guidelines.* (Office of Environment and Heritage (OEH), 2015)
    - *Healthy Urban Development Checklist* (NSW Health, 2009)

- Local:
  - Queensland
    - *Goondiwindi Regional Council Planning Scheme 2016* (Goondiwindi Regional Council (GRC), 2018a)
    - *Toowoomba Regional Planning Scheme 2012* (Toowoomba Regional Council (TRC), 2012)
    - *Toowoomba Regional Council—Scenic Amenity Study 2009* (TRC, 2009)
    - *Toowoomba Regional Council—Open Space Strategy 2016* (TRC, 2016a)
    - *West Toowoomba Land Use Investigations 2016* (TRC, 2017a)
  - New South Wales
    - *Moree Plains Local Environment Plan 2011* (NSW Government, 2011)
    - *Moree Plains Shire Growth Management Strategy* (Moree Plains Shire Council, 2009).

In addition to the above, reference was made to guidelines and techniques used in Australia and internationally to develop the methodology for LVIA. These include the following:

- *Guidance Note for Landscape and Visual Assessment* (Australian Institute of Landscape Architects Queensland, 2018)
- *Environmental Impact Assessment Practice Note – Guideline for Landscape Character and Visual Impact assessment EIA–N04* (practice note EIA-N04) (RMS, 2018)
- *Guidelines for Landscape and Visual Impact assessment, Third Edition*, Routledge (The Landscape Institute and the Institute of Environmental Management and Assessment, 2013)
- *Guidelines for Landscape and Visual Impact assessment, Second Edition* (The Landscape Institute and the Institute of Environmental Management and Assessment, 2002)
- *South East Queensland Regional Plan (SEQRP) Implementation Guideline No 8 Identifying and protecting scenic amenity values* (Department of Infrastructure, 2007)
- *Technical Guidance Note: Photography and Photomontage in Landscape and Visual Impact assessment, Public Consultation Draft 2018-06-01* (Landscape Institute, 2018)
- *Landscape Institute Advice Note 01/09: Use of photography and photomontage in landscape and visual assessment* (Landscape Institute, 2011)
- *Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity* (Scottish Natural Heritage and The Countryside Agency, 2006)
- *Australian Standard 4282—Control of Obtrusive Effects of Outdoor Lighting* (Standards Australia,1997)
- *Guidance Notes for Reduction of Obstructive Lighting*, (The Institution of Lighting Engineers UK, 2005).

9.4 Methodology

This section summarises the tasks that were undertaken to achieve the objectives of the landscape and visual impact assessment. Detailed methodology descriptions are presented in Appendix I: Landscape and Visual Impact Assessment Technical Report.

9.4.1 Impact assessment area

For the purposes of the LVIA, an impact assessment area has been defined as the area within which the Project has the potential to influence landscape and/or visual values and receptors, as illustrated in Figure 9.2. The impact assessment area is a 10.0 km buffer from the centre line of the Project rail alignment; a distance derived from visibility analysis mapping and fieldwork. The impact assessment area commences at the NSW/QLD border (median line of the Macintyre River), approximately 18.0 km to the southeast of Goondiwindi near Kurumbul and continues through to the west of Gowrie Mountain and crosses the Warrego Highway before tying into the Gowrie to Helidon Inland Rail project, between Leesons Road and Draper Road, on the southern outskirts of Kingsthorpe.

9.4.2 Existing conditions assessment

A desktop analysis of existing landscape character and visual amenity for the impact assessment area was undertaken and supplemented with field assessments to ground truth findings and identify sensitive viewpoints requiring further assessment.

9.4.3 Assessment of potential impacts

Assessment of potential impacts included describing infrastructure likely to be associated with the Project, such as embankments, bridges, cuttings, fencing, noise barriers and level crossings. Potential impacts were then assessed using a qualitative significance assessment method (refer Chapter 4: Assessment Methodology for further details).

It is noted that the LVIA methodology has defined its own thresholds for sensitivity and magnitude that are different from the criteria defined in Chapter 4: Assessment Methodology and follow criteria and principles more widely used for the assessment of landscape and visual impacts. This is because many landscape values, including views, are rarely listed on statutory State, national or international registers. Assessment at the LGA level of landscape and visual values is also not always available and is frequently inconsistent. Therefore, establishing common criteria specific to landscape and visual values is more likely to result in a fair assessment of values and sensitivity. Similarly, magnitude criteria need to be defined that recognise the range of factors relevant to LVIA, for example the number of people experiencing a change in view and the intensity of the change.

The significance assessment matrix has also been streamlined to remove 'major' for sensitivity and magnitude established in Chapter 4: Assessment Methodology, since these thresholds are difficult to translate to landscape and visual values. For example, major sensitivity elements are not anticipated to be present since there are no entirely intact landscapes within the impact assessment area as all have been influenced by human activities. Similarly, major magnitude is unlikely because any Project impacts on landscape or visual values would be reversible, with sufficient time and budget.

9.4.3.1 Landscape assessment

A landscape assessment was carried out based on analysis of landscape character, including landscape features that contribute to the amenity of the area. The assessment also considered landscape values identified in legislation, planning documents or during stakeholder and community consultation. The landscape impact assessment defined the sensitivity of the landscape (refer Section 9.4.3.4) and the magnitude of change to the landscape (refer Section 9.4.3.5). The significance of potential impacts on the landscape character were rated based on an evaluation of the sensitivity of the existing landscape to change and the magnitude of change that is likely to occur (refer Section 9.4.3.6).

9.4.3.2 Visual assessment

A visual assessment was undertaken based on an analysis of views and viewsheds; particularly major views or outlooks identified in legislation or planning documents or through stakeholder and community consultation. Viewpoints and the visual receptor audiences they represent were defined and rated for sensitivity (refer Section 9.4.3.4). The magnitude of change to views and visual amenity was then determined (refer Section 9.4.3.5). The magnitude of change is dependent on the nature, scale and duration of the change that is expected to occur. The magnitude of change also depends on the loss, change or addition of any feature in the field of view of the receptor; or any change to the backdrop to, or outlook from, a viewpoint. The significance of the overall potential impacts on visual amenity was then determined based on the sensitivity of existing views to change and the magnitude of change that is likely to occur (refer Section 9.4.3.6).

Visualisations have been prepared to represent the potential visual impact of the presence of the Project from a selection of the representative viewpoints identified. Visualisations are illustrations/photomontages that aim to represent an observer's view of a proposed development. It is noted that visualisations produced are representative of the Project design as developed at reference design stage, and subject to change during the detail design stage.

Visualisations have not been prepared for all viewpoints. Visualisations have been selected on the basis of those illustrating key infrastructure elements likely to be of interest to the community and/or the most sensitive viewpoints, such as from regionally significant scenic lookouts.

9.4.3.3 Lighting assessment

A lighting assessment was carried out based on analysis of representative views identified through the visual assessment. Lighting impacts are considered during both construction and operation phases of the Project. The sensitivity of viewpoints with respect to changes in after-dark lighting conditions were defined based on elements such as proximity to a lighting source associated with the Project and the accessibility of the viewpoint to viewers at night (refer Section 9.4.3.4). The assessment determined that the magnitude of change to views and visual amenity due to lighting depends on the nature, scale and duration of the change to lighting that is expected to occur (refer Section 9.4.3.5). The magnitude of change also considers any change to the backdrop to, or outlook from, the representative viewpoint. The significance of lighting impact in each representative viewpoint was made by considering the sensitivity of each representative night-time viewpoint and the magnitude of change that is likely to occur (refer Section 9.4.3.6).

Concern has been raised through stakeholder engagement regarding the potential for lighting from the construction and operation of the Project to impact on the operations of the University of Southern Queensland's Mt Kent Observatory. The observatory is Queensland's only professional astronomical research facility and is located approximately 21 km southeast from the Project (closest Project point is Southbrook), beyond the extent of the impact assessment area. The Mt Kent Observatory has not been considered in this assessment due to:

- The substantial distance between the Project and the observatory
- The limited lighting associated with the construction (flashing beacons and temporary spotlights in support of short-duration night works, if required) and operation (head lamp on rollingstock and safety lighting at road–rail interfaces) of the Project
- The presence of several more substantial light sources that are located closer, or equally distant, to the observatory. These other light sources include:
  - The presence of existing townships in close proximity to the observatory with the potential for night-time lighting, including the settlements of Greenmount, Nobby and Cambooya (approximately 4.5 km, 7.5 km and 9 km from the observatory respectively)
  - Proximity to Toowoomba urban area (approximately 22 km to southwestern outskirts)
  - Presence of the existing South Western System railway (which facilitates freight movements), approximately 4.5 km from the observatory
  - The Gore Highway is located between the Project and the Mt Kent Observatory
  - Existing presences of lighting within the settlements of Pittsworth and Southbrook.

9.4.3.4 Sensitivity to change

The sensitivity categories used in this assessment are defined in Table 9.2. Separate definitions are provided for the sensitivity of:

- A landscape
- A viewpoint, and the visual receptor audiences that it represents
- A representative viewpoint to changes in after-dark lighting conditions.

TABLE 9.2 DEFINITIONS OF SENSITIVITY

Sensitivity	Aspect	Attributes of categories
High	Landscape	A landscape protected by national designation (such as a national park) and/or widely acknowledged for its quality and value; a landscape with distinctive character and low capacity to accommodate the type of change envisaged.
	Visual sensitivity	Large numbers of viewers or those with proprietary interest and prolonged viewing opportunities, such as residents and users of attractive and/or well-used recreational facilities. Views from a regionally important location whose interest is specifically focused on the landscape (e.g. a national park).
	Sensitivity to lighting	Easily accessible at night with large numbers of viewers or those with proprietary interest and prolonged viewing opportunities located at very close distances (typically less than 200 m) to the light source.
Moderate	Landscape	A moderately valued landscape, perhaps a regionally important landscape and/or protected by regional/State designation, or where its character, land use, pattern and scale may have some capacity to accommodate a degree of the type of change envisaged.
	Visual sensitivity	Medium numbers of residents (e.g. rural communities and townships) and moderate numbers of visitors with an interest in their environment (e.g. visitors to State forests, including bush walkers, horse riders and/or trail bikers). Larger numbers of travellers with an interest in their surroundings (e.g. local designated scenic routes).
	Sensitivity to lighting	Relatively accessible at night with medium numbers of viewers, and close to the site or easily accessible with propriety interest but located some distance (typically up to 500 m) from the light source.
Low	Landscape	A landscape valued to a limited extent—perhaps a locally important landscape or where its character, land use, pattern and scale is likely to have the capacity to accommodate the type of change envisaged.
	Visual sensitivity	Small numbers of visitors with a passing interest in their surroundings or transient views (e.g. those travelling along principal roads). Viewers whose interest is not specifically focused on the landscape (e.g. workers, commuters and/or truck drivers).
	Sensitivity to lighting	Typically, location not accessed at night, with small numbers of visitors with a passing interest in their surroundings (e.g. those travelling along principal roads or greater numbers of viewers but located at considerable distance from the light source (typically less than 1.0 km)).
Negligible	Landscape	A landscape that is not valued for its scenic quality or where its character, existing land use, pattern and scale are tolerant of the type of change envisaged, and the landscape has capacity to accommodate change.
	Visual sensitivity	Very occasional numbers of viewers with a passing interest in their surroundings (e.g. those travelling along minor roads and views from the air).
	Sensitivity to lighting	Rarely accessed at night. Rural locations with very occasional numbers of viewers with a passing interest in their surroundings (e.g. those travelling along minor roads and views from the air or located at greater than 1.0 km from the light source).

9.4.3.5 Magnitude of change

The magnitude of change categories used in this assessment are defined in Table 9.3. Separate definitions are provided for the magnitude of change to a:

- Landscape
- Viewpoint and the visual receptor audiences which it represents
- Representative viewpoint to changes in after-dark lighting conditions.

There is no standard methodology for the quantification of the magnitude of effects; however, it is generally based on the scale or degree of change to the landscape or visual resource, the nature of the effect and its duration.

TABLE 9.3 DEFINITIONS OF MAGNITUDE OF CHANGE

Magnitude	Aspect	Attributes of categories
High	Landscape	Dominant change: A clearly evident and frequent/continuous change in landscape characteristics affecting an extensive area, which is likely to fundamentally change the character of the landscape.
	Visual	Dominant change: Major changes in view at close distances, affecting a substantial part of the view, continuously visible for a long duration, or obstructing a substantial part or important elements of view. Generally, short distances (typically < 250.0 m) to the nearest Project infrastructure element.
	Lighting	Dominant change: Occurs when an intrinsically dark landscape becomes brightly lit.
Moderate	Landscape	Considerable change: A considerable change in landscape characteristics, frequent or continuous and over a wide area, or a clearly evident change, but over a restricted area.
	Visual	Considerable change: Clearly perceptible changes in views at intermediate distances, resulting in either a distinct new element in a significant part of the view, or a more wide-ranging, less concentrated change across a wider area. Generally, short-to-medium views (typically 250.0 m to 1.0 km) to the nearest Project infrastructure.
	Lighting	Considerable change: Occurs when an intrinsically dark landscape becomes predominantly lit or a predominantly dark landscape becomes brightly lit.
Low	Landscape	Noticeable change: A noticeable change in landscape characteristics over a wide area or a considerable change over a restricted area but will not fundamentally change the character of the landscape.
	Visual	Noticeable change: Minor changes in views at long distances or visible for a short duration, and/or are expected to blend in with the existing view to a moderate extent. Generally, medium to long distance views (typically 1.0 km to 2.5 km to the nearest Project infrastructure).
	Lighting	Noticeable change: Occurs when an intrinsically dark landscape become predominantly dark, a predominantly dark landscape becomes predominantly lit or a predominantly lit landscape becomes brightly lit.
Negligible	Landscape	Barely perceptible change: An imperceptible, barely or rarely perceptible change in landscape characteristics.
	Visual	Barely perceptible change: Change which is barely visible at a very long distance or visible for a very short duration, and/or is expected to blend with the existing view. Distant views (generally, > 2.5 km to the nearest Project infrastructure.
	Lighting	Barely perceptible change: Occurs when a landscape experiences negligible changes from the existing lighting conditions to the proposed lighting conditions.
No impact	Landscape, Visual and Lighting	No change in landscape, visual or lighting characteristics.

9.4.3.6 Significance of impact

An evaluation of overall potential effect has been based on a combination of the sensitivity to change and the magnitude of change that is likely to occur and has been determined using the matrix presented in Table 9.4. As described in section 9.4.3, the LVIA significance matrix has been modified from the criteria defined in Chapter 4: Assessment Methodology.

TABLE 9.4 SIGNIFICANCE OF IMPACT MATRIX

		Magnitude of change			
Level of effect		**High (dominant change)**	**Moderate (considerable change)**	**Low (noticeable change)**	**Negligible (barely perceptible change)**
Sensitivity	High	Major	High	Moderate	Low
	Moderate	High	Moderate	Low	Low
	Low	Moderate	Low	Negligible	Negligible
	Negligible	Low	Low	Negligible	Negligible

Where magnitude of change is 'no impact' the level of effect is 'no impact'.

9.5 Existing environment

9.5.1 Regional landscape context

The impact assessment area includes extensive areas of agricultural land and State forest areas within the Darling Downs region. In the western part of the impact assessment area, between Goondiwindi and Inglewood, the landscape is dominated by dryland cropping, irrigated agriculture and intensive animal production on the fertile soils and floodplains associated with the Macintyre River, Dumaresq River and Macintyre Brook.

North of Inglewood, the Project passes through the undulating and densely forested landscapes of Whetstone and Bringalily State Forests. The Project then traverses the gently undulating agricultural areas near Millmerran before crossing the extensive Condamine River floodplain. The rail alignment deviates from the existing railway line north of Yarranlea to pass through the hilly landscapes surrounding Pittsworth, Southbrook and Athol before crossing Westbrook Creek near Toowoomba Wellcamp Airport and joining the Gowrie to Helidon Section of Inland Rail near Gowrie Junction.

Within the impact assessment area, large areas of land have been cleared for pasture, agricultural production and for rural and urban residential settlements. Tracts of remnant vegetation are also present, limited to the steep, isolated mountains and hills (typically associated with granite and basaltic outcrops and sandstone hills) and State forest reserves.

The Project and its wider landscape context are illustrated in Figure 9.1 and Figure 9.2. Figure 9.2 is discussed further below.

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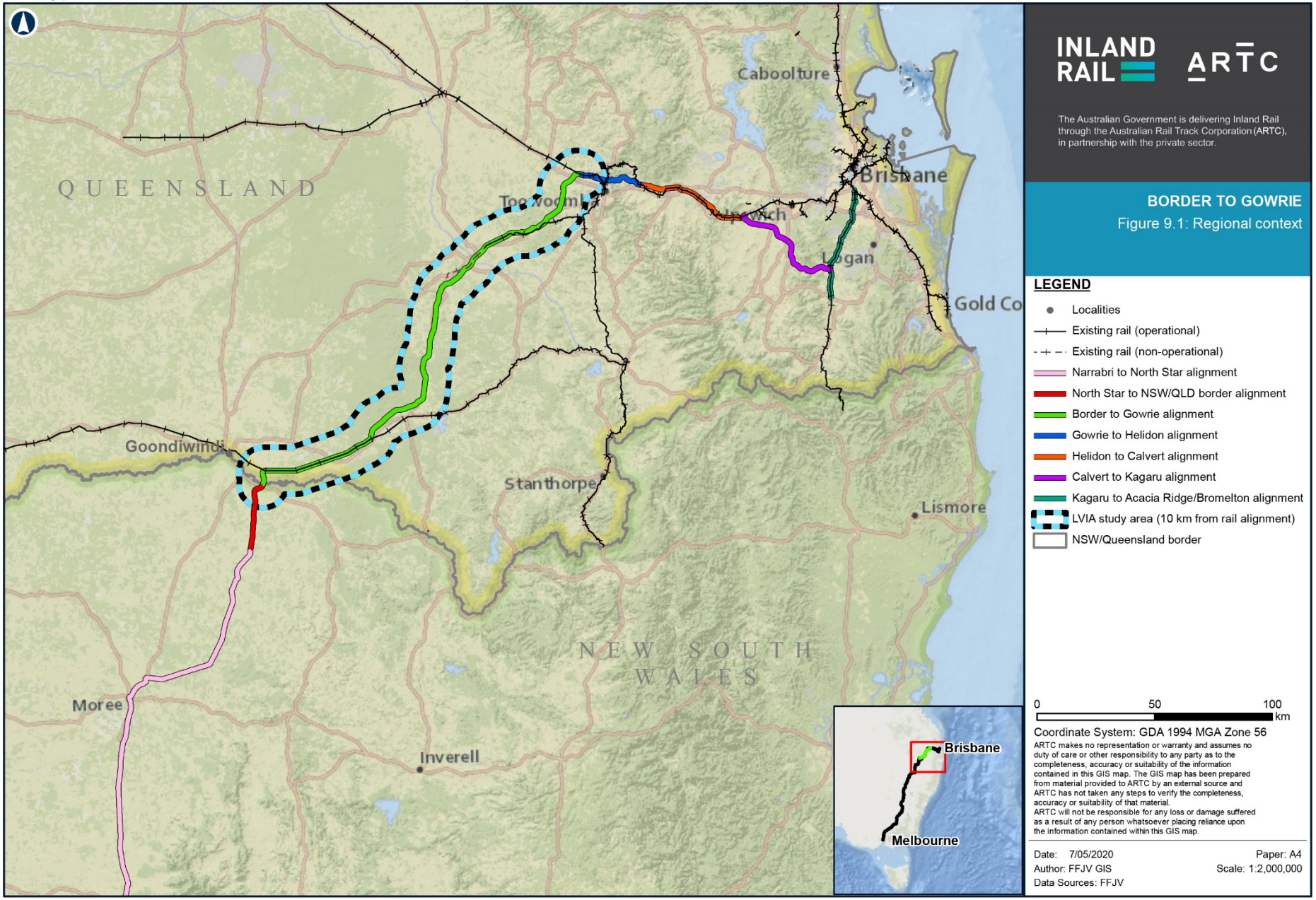

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BORDER TO GOWRIE

Figure 9.1: Regional context

LEGEND

- Localities
- Existing rail (operational)
- Existing rail (non-operational)
- Narrabri to North Star alignment
- North Star to NSW/QLD border alignment
- Border to Gowrie alignment
- Gowrie to Helidon alignment
- Helidon to Calvert alignment
- Calvert to Kagaru alignment
- Kagaru to Acacia Ridge/Bromelton alignment
- LVIA study area (10 km from rail alignment)
- NSW/Queensland border

0 50 100 km

Coordinate System: GDA 1994 MGA Zone 56

Date: 7/05/2020 Paper: A4
Author: FFJV GIS Scale: 1:2,000,000
Data Sources: FFJV

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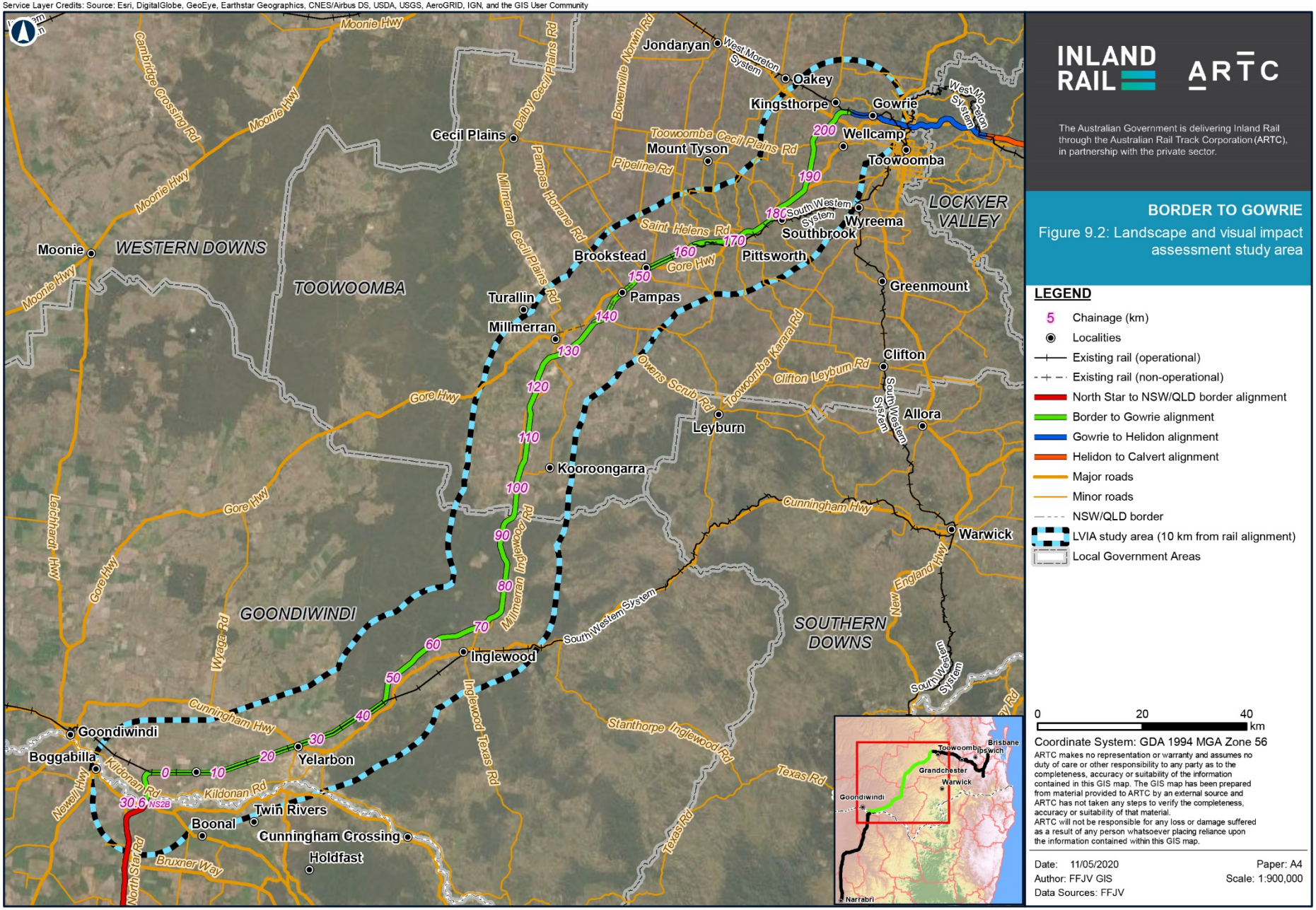
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INLAND RAIL
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The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.
BORDER TO GOWRIE
Figure 9.2: Landscape and visual impact assessment study area
LEGEND
Chainage (km)
Localities
Existing rail (operational)
Existing rail (non-operational)
North Star to NSW/QLD border alignment
Border to Gowrie alignment
Gowrie to Helidon alignment
Helidon to Calvert alignment
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
Local Government Areas
Jondaryan
Oakey
Kingsthorpe
Gowrie
Wellcamp
Cecil Plains
Mount Tyson
Toowoomba
Wyreema
Southbrook
Brookstead
Pittsworth
Greenmount
Turallin
Pampas
Millmerran
Clifton
Allora
Leyburn
Kooroongarra
Warwick
Inglewood
Goondiwindi
Boggabilla
Yelarbon
Twin Rivers
Boonal
Cunningham Crossing
Holdfast
Moonie
WESTERN DOWNS
TOOWOOMBA
LOCKYER VALLEY
GOONDIWINDI
SOUTHERN DOWNS
Moonie Hwy
Gore Hwy
Cunningham Hwy
New England Hwy
Leichhardt Hwy
Newell Hwy
Bruxner Way
Kildonan Rd
Toowoomba Cecil Plains Rd
Saint Helens Rd
Pipeline Rd
Clifton Leyburn Rd
Owens Scrub Rd
Toowoomba Karara Rd
Millmerran Cecil Plains Rd
Pampas Horrane Rd
Millmerran Inglewood Rd
Inglewood Texas Rd
Stanthorpe Inglewood Rd
Texas Rd
Wyaga Rd
North Star Rd
Cambridge Crossing Rd
Dalby Cecil Plains Rd
Bowenville Nowin Rd
West Moreton System
South Western System
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9.5.1.1 Settlement and infrastructure

The presence of a settlement indicates locations where there are likely to be concentrations of people who may be interested in views and visual amenity. The largest settlement in the impact assessment area is the regional city of Toowoomba, situated on an escarpment on the western side of the Great Dividing Range, approximately 700.0 m above sea level and 130.0 km west of Brisbane with a population of 149,512 (Australian Bureau of Statistics (ABS), 2016a). The largest town in the impact assessment area is Oakey, situated 29.0 km west of Toowoomba with a population of 4,529 (ABS, 2016a). It is noted that Oakey is located on the periphery of the impact assessment area, approximately 10.0 km from the Project. Pittsworth is the second largest town in the impact assessment area, located 41.0 km southwest of Toowoomba, with a population of 3,294 (ABS, 2016a).

Other towns, rural settlements and localities within the impact assessment area include:

- Athol (population 277)
- Boggabilla (population 551)
- Brookstead (population 305)
- Gowrie Junction (population 1,217)
- Gowrie Mountain (population 224)
- Inglewood (population 954)
- Kingsthorpe (population 1,820)
- Kurumbul (population 46)
- Millmerran (population 1,566)
- Pampas (population 62)
- Yelarbon (population 448).

Transport corridors provide opportunities for travellers to view the landscape and indicate the presence of existing transport infrastructure. There are three major roads within the impact assessment area—the Gore Highway, Warrego Highway and the Cunningham Highway. Other key roads include Toowoomba–Cecil Plains Road, Kingsthorpe–Haden Road, Oakey–Pittsworth Road, Pittsworth–Felton Road, Brookstead–Norwin Road, Millmerran–Leyburn Road, Millmerran–Cecil Plains Road, Millmerran–Inglewood and Inglewood–Texas Road.

The Warrego Highway recently opened in the eastern part of the impact assessment area and will become a key route through the region.

Within the impact assessment area, there are several existing railway lines. There are three railway lines relevant to the Project—the West Moreton Line, the South Western Line and the Millmerran Branch Line. There are also large industrial precincts, feedlots and poultry facilities within close proximity to the alignment, including the Toowoomba Wellcamp Airport (Wellcamp), Commodore Mine (Millmerran), Millmerran Power Station (Millmerran), Doug Hall Poultry (Millmerran), Yarranbrook Feedlot (Inglewood) and Sapphire Feedlot (Kildonan).

9.5.1.2 Geology, landform and hydrology

Within the impact assessment area, the landscape varies greatly due to the scale of the area, varying landform and underlying geology. Landform indicates elevated locations (that may create the potential for longer range views), which, along with geology and hydrology, forms the basis for the assessment of landscape character. The Project and its wider landform and hydrological context are illustrated in Figure 9.3. There are five distinctive regions within the impact assessment area:

- Low-lying alluvial floodplains of the Macintyre River (typically 200 m Australian height datum (AHD) to 250 mAHD)
- Forested sandstone hills of the Macintyre Brook catchment (typically 250 mAHD to 350 mAHD)
- Undulating grazing lands and peaks near Millmerran (typically 300 mAHD to 650 mAHD)
- Broad cultivated alluvial plains of the Condamine River (typically 300 mAHD to 350 mAHD)
- Basaltic uplands and isolated peaks of the Toowoomba plateau (typically 325 mAHD to 700 mAHD).

Detailed discussion on the occurrence of each region in proximity to the Project is in Appendix I: Landscape and Visual Impact Assessment Technical Report.

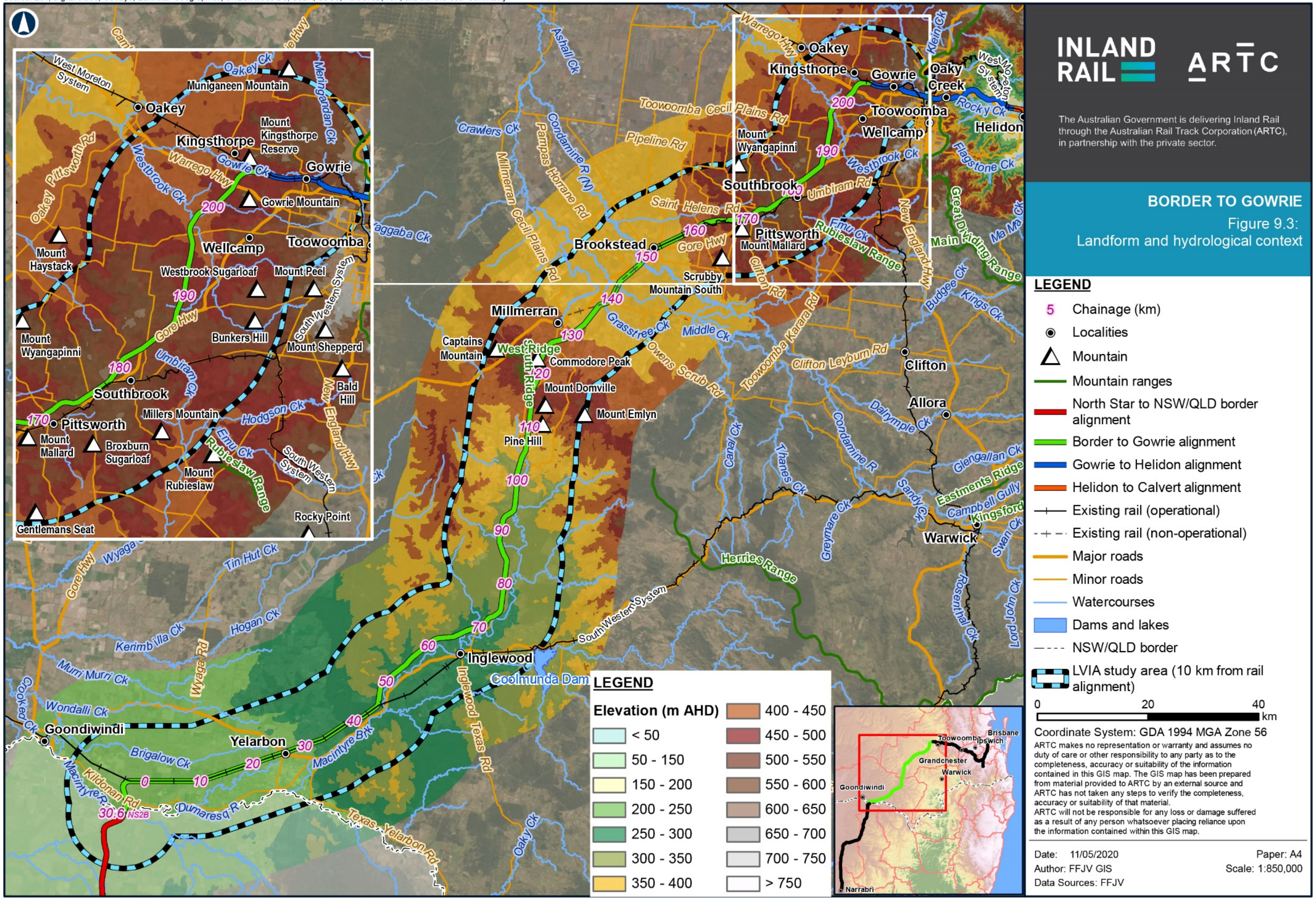
9.5.1.3 Soils, vegetation and land use

Landcover elements, including soils and the vegetation and rural land uses they support, strongly affect the character of the landscape. They also influence the extent to which views can be obtained (e.g. views may be restricted within forested landscapes). Existing land use within and adjacent to the impact assessment area is largely characterised by rural activities on a variety of allotment sizes. A diverse range of other land uses are also present within the impact assessment area, including rural properties, urban development, industrial areas and localised specialist land uses (e.g. poultry farms, cattle feedlots and mining operations).

The impact assessment area has been extensively cleared for agricultural, urban development and industrial land uses, particularly within the low-lying fertile floodplains associated with the Dumaresq River, Macintyre River, Macintyre Brook and Condamine River. These areas are renowned for their fertile soils and productive agricultural landscapes. They are dominated by vertosols and dermosols (alluvial soils), typically found on flat, slightly sloping and undulating land along watercourses in low-lying flood-prone areas, which support irrigated agricultural production. These productive landscapes are surrounded by dryland cropping, cattle grazing (predominately beef cattle) and production forestry on soils with lower fertility dominated by sodosols.

Despite the extensive clearing, the region is rich in biodiversity and supports a range of different ecosystems. Native remnant vegetation varies greatly across the extent of the impact assessment area. There is one national park within the impact assessment area, Wondul Range National Park (14,695 ha); one conservation park, the Irongate Conservation Park (29 ha); and seven State Forests, including McEwan State Forest (306 ha), Domville State Forest (228 ha), Millmerran State Forest (583 ha), Bringalily State Forest 35,695 ha), Devine State Forest (4,665 ha), Yelarbon State Forest (30,772 ha) and Whetstone State Forest (41,282 ha).

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Map by: RB/LS Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.3_B2G_ARTC_LandFormHydroContext_rev2.mxd Date: 11/05/2020 15:34

9.5.1.4 SEQRP regional and Toowoomba Regional Council local landscape values

Most of the impact assessment area falls outside the area studied within the ShapingSEQ plan and therefore regionally significant scenic amenity mapping is not consistently available across the extent of the impact assessment area. As shown on Figure 9.5, there are no large contiguous areas of high scenic amenity value identified within the impact assessment area; however, the *Toowoomba Regional Council Scenic Amenity Study* (TRC, 2009) does identify the following key areas within the impact assessment area as having high scenic amenity values:

- The mesas, hills and mountains across the central plains and the north eastern ranges (i.e. elevated areas near Toowoomba, Kingsthorpe, Gowrie Mountain and Pittsworth)
- The isolated peaks of Captains Mountain, Commodore Peak and Mount Domville.

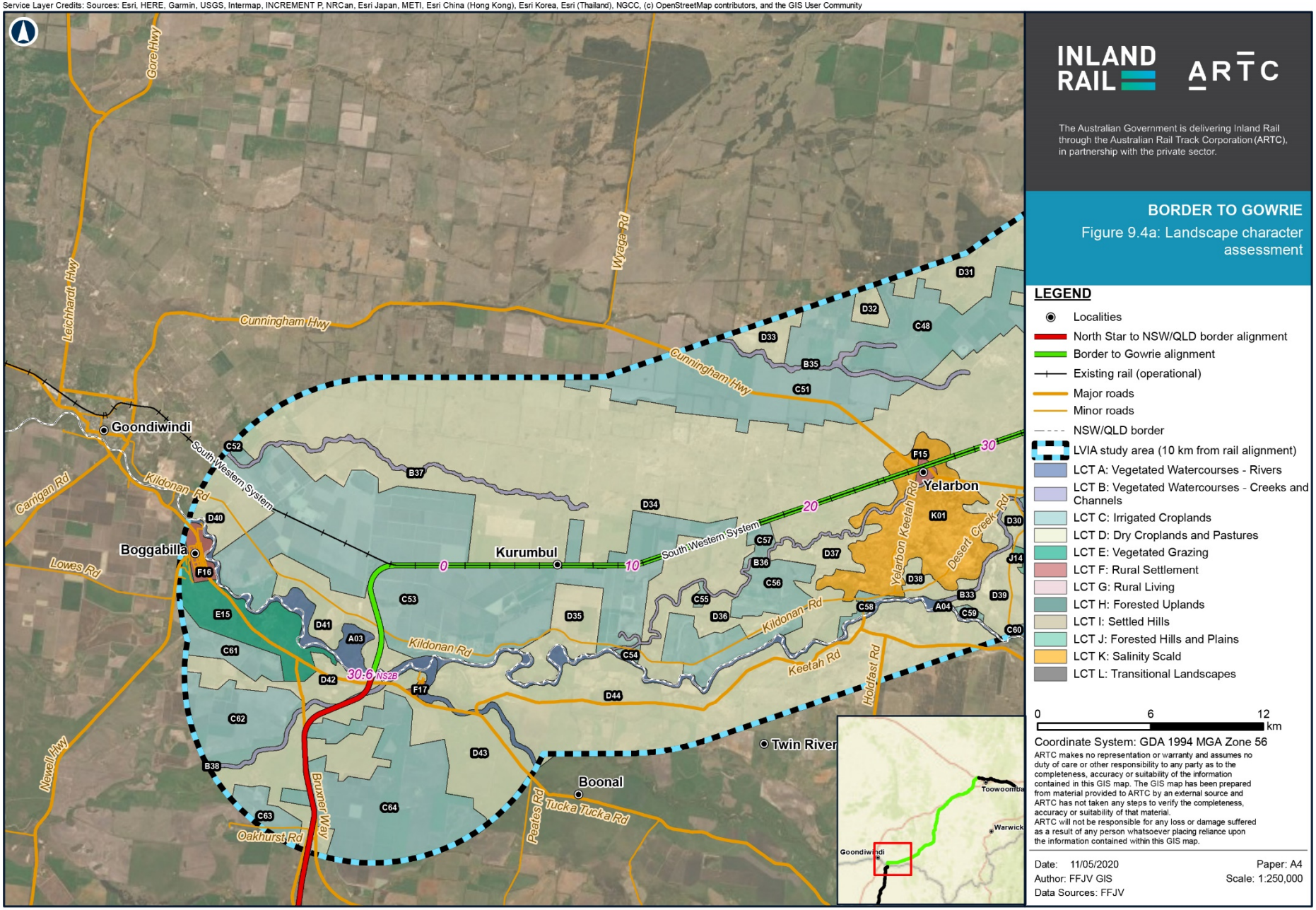
Rural landscapes within the TRC area are rated as high in scenic amenity by respondents to the TRC and SEQ preference surveys.

The value of rural landscapes is supported by the *Goondiwindi Regional Council Planning Scheme* (GRC, 2018a), which outlines specific outcomes relating to scenic amenity and regional landscape character requiring protection of the productive use of rural land and the dominance of natural landforms and open space over built form in rural areas.

Areas of 'regionally significant scenic amenity' (within the SEQ region) are illustrated in Figure 9.5.

9.5.2 Landscape character

The identified landscape character types (LCTs) and landscape character areas (LCAs) falling within the impact assessment area are shown on Figure 9.4 and summarised in Table 9.5. Full descriptions of the LCTs and their associated LCAs areas are included in Appendix I: Landscape and Visual Impact Assessment Technical Report, with further discussion presented in Section 9.6.3.


Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Gore Hwy
Leichhardt Hwy
Wyaga Rd
Cunningham Hwy
Goondiwindi
South Western System
Carrigan Rd
Kildonan Rd
Boggabilla
Lowes Rd
Kurumbul
Yelarbon
Yelarbon Keetah Rd
Desert Creek Rd
Keetah Rd
Holdfast Rd
Twin River
Boonal
Tucka Tucka Rd
Peates Rd
Bruxner Way
Oakhurst Rd
Newell Hwy
30:6 NS2B
0
10
20
30
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BORDER TO GOWRIE
Figure 9.4a: Landscape character assessment
LEGEND
Localities
North Star to NSW/QLD border alignment
Border to Gowrie alignment
Existing rail (operational)
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
LCT A: Vegetated Watercourses - Rivers
LCT B: Vegetated Watercourses - Creeks and Channels
LCT C: Irrigated Croplands
LCT D: Dry Croplands and Pastures
LCT E: Vegetated Grazing
LCT F: Rural Settlement
LCT G: Rural Living
LCT H: Forested Uplands
LCT I: Settled Hills
LCT J: Forested Hills and Plains
LCT K: Salinity Scald
LCT L: Transitional Landscapes
0
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12
km
Coordinate System: GDA 1994 MGA Zone 56
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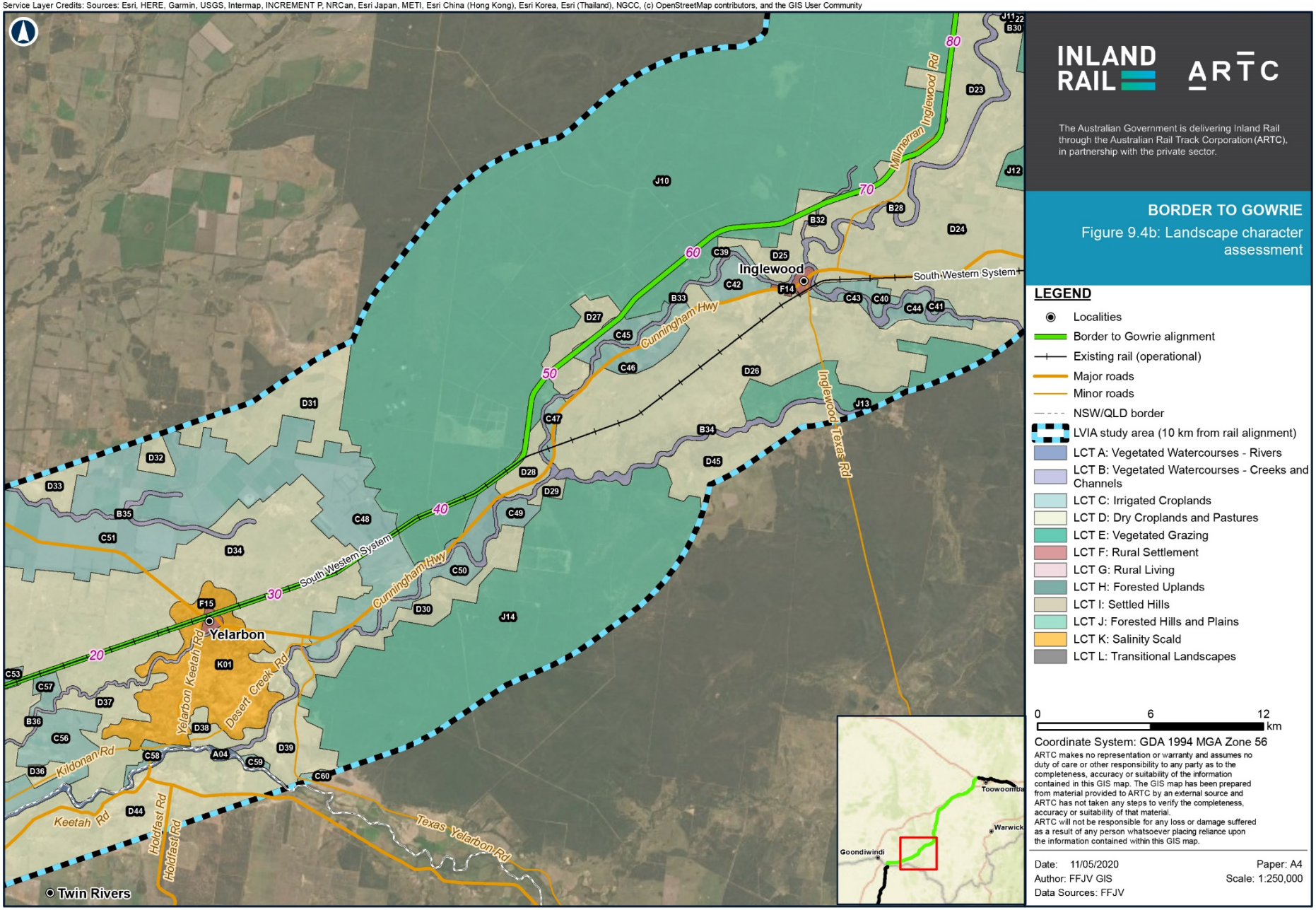
Toowoomba
Warwick
Goondiwindi
Map by: MEF/RB Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.4_B2G_ARTC_LandContext_rev5.mxd Date: 11/05/2020 16:05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BORDER TO GOWRIE
Figure 9.4b: Landscape character assessment
LEGEND
Localities
Border to Gowrie alignment
Existing rail (operational)
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
LCT A: Vegetated Watercourses - Rivers
LCT B: Vegetated Watercourses - Creeks and Channels
LCT C: Irrigated Croplands
LCT D: Dry Croplands and Pastures
LCT E: Vegetated Grazing
LCT F: Rural Settlement
LCT G: Rural Living
LCT H: Forested Uplands
LCT I: Settled Hills
LCT J: Forested Hills and Plains
LCT K: Salinity Scald
LCT L: Transitional Landscapes
0 6 12 km
Coordinate System: GDA 1994 MGA Zone 56
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Author: FFJV GIS
Scale: 1:250,000
Data Sources: FFJV
Inglewood
Yelarbon
Twin Rivers
Millmerran Inglewood Rd
Cunningham Hwy
South Western System
Inglewood Texas Rd
Yelarbon Keetah Rd
Desert Creek Rd
Kildonan Rd
Keetah Rd
Holdfast Rd
Texas Yelarbon Rd
Toowoomba
Warwick
Goondiwindi
Map by: MEF/RB Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.4_B2G_ARTC_LandContext_rev5.mxd Date: 11/05/2020 16:05

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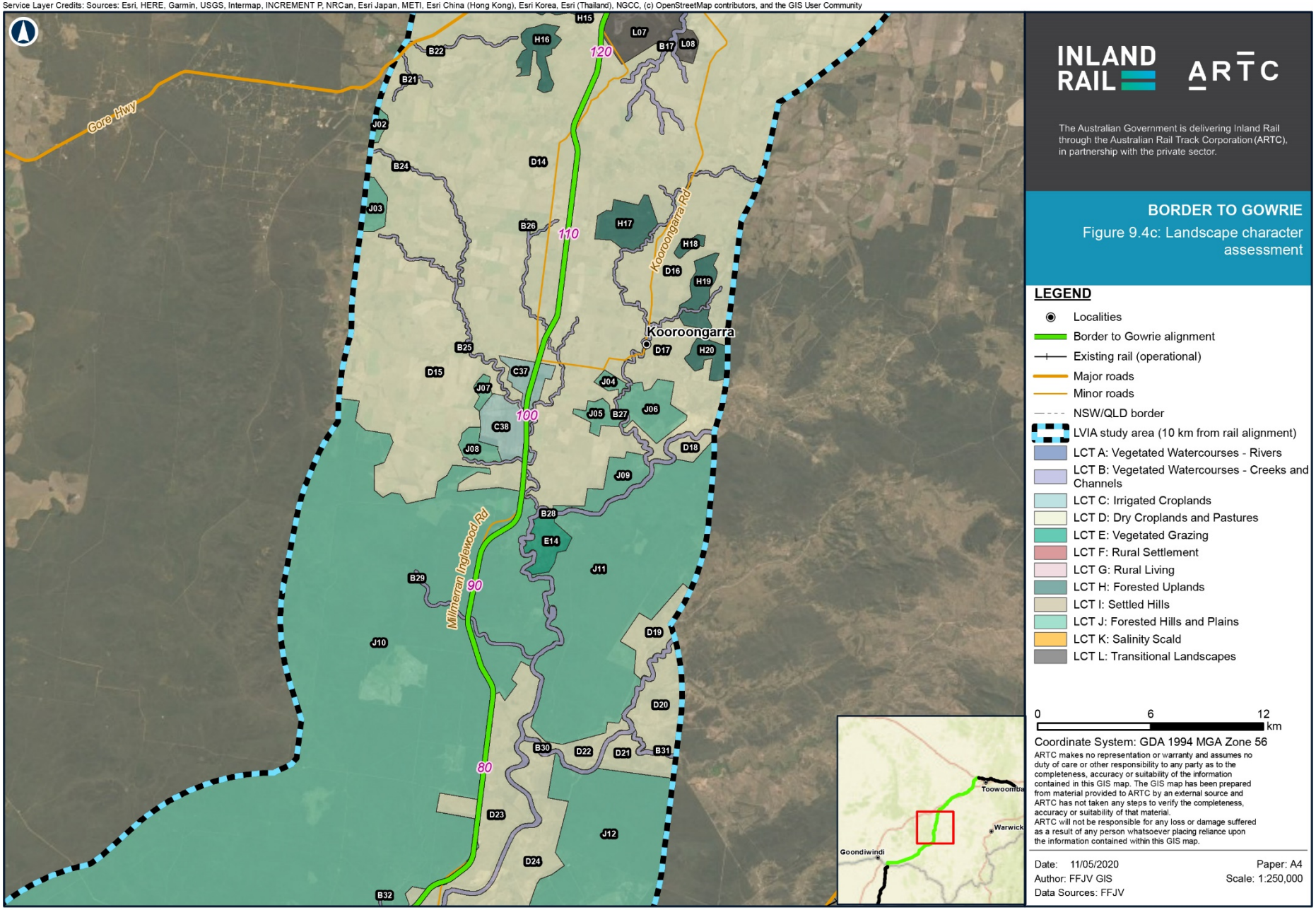

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BORDER TO GOWRIE

Figure 9.4c: Landscape character assessment

LEGEND

- Localities
- Border to Gowrie alignment
- Existing rail (operational)
- Major roads
- Minor roads
- NSW/QLD border
- LVIA study area (10 km from rail alignment)
- LCT A: Vegetated Watercourses - Rivers
- LCT B: Vegetated Watercourses - Creeks and Channels
- LCT C: Irrigated Croplands
- LCT D: Dry Croplands and Pastures
- LCT E: Vegetated Grazing
- LCT F: Rural Settlement
- LCT G: Rural Living
- LCT H: Forested Uplands
- LCT I: Settled Hills
- LCT J: Forested Hills and Plains
- LCT K: Salinity Scald
- LCT L: Transitional Landscapes

0 6 12 km

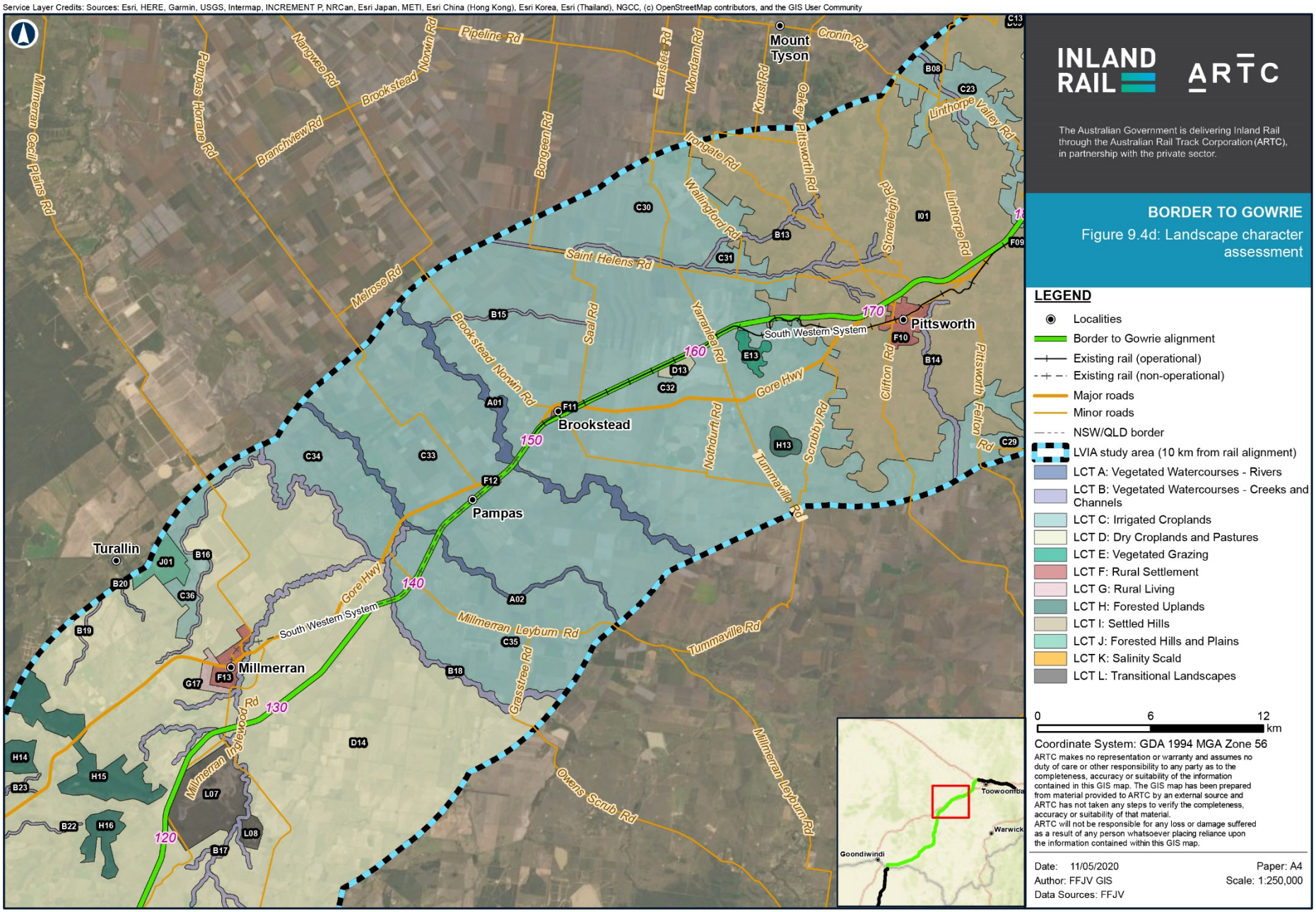
Coordinate System: GDA 1994 MGA Zone 56

Date: 11/05/2020 Paper: A4

Author: FFJV GIS Scale: 1:250,000

Data Sources: FFJV

Map by: MEF/RB Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.4_B2G_ARTC_LandContext_rev5.mxd Date: 11/05/2020 16:05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Mount Tyson
Pittsworth
Brookstead
Pampas
Millmerran
Turallin
Gore Hwy
South Western System
Millmerran Leyburn Rd
Tummaville Rd
Owens Scrub Rd
Millmerran Inglewood Rd
Saint Helens Rd
Melrose Rd
Brookstead Norwin Rd
Branchview Rd
Millmerran Cecil Plains Rd
Pampas Horrane Rd
Nangwee Rd
Pipeline Rd
Bongeen Rd
Evansleas Rd
Mondam Rd
Cronin Rd
Knust Rd
Oakey Pittsworth Rd
Linthorpe Valley Rd
Irongate Rd
Wallingford Rd
Stoneleigh Rd
Linthorpe Rd
Saal Rd
Yarranlea Rd
Clifton Rd
Pittsworth Felton Rd
Nothdurft Rd
Scrubby Rd
Grasstree Rd
Millmerran Leyburn Rd
120
130
140
150
160
170
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BORDER TO GOWRIE
Figure 9.4d: Landscape character assessment
LEGEND
Localities
Border to Gowrie alignment
Existing rail (operational)
Existing rail (non-operational)
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
LCT A: Vegetated Watercourses - Rivers
LCT B: Vegetated Watercourses - Creeks and Channels
LCT C: Irrigated Croplands
LCT D: Dry Croplands and Pastures
LCT E: Vegetated Grazing
LCT F: Rural Settlement
LCT G: Rural Living
LCT H: Forested Uplands
LCT I: Settled Hills
LCT J: Forested Hills and Plains
LCT K: Salinity Scald
LCT L: Transitional Landscapes
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km
Coordinate System: GDA 1994 MGA Zone 56
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Data Sources: FFJV
Toowoomba
Warwick
Goondiwindi
Map by: MEF/RB Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.4_B2G_ARTC_LandContext_rev5.mxd Date: 11/05/2020 16:05

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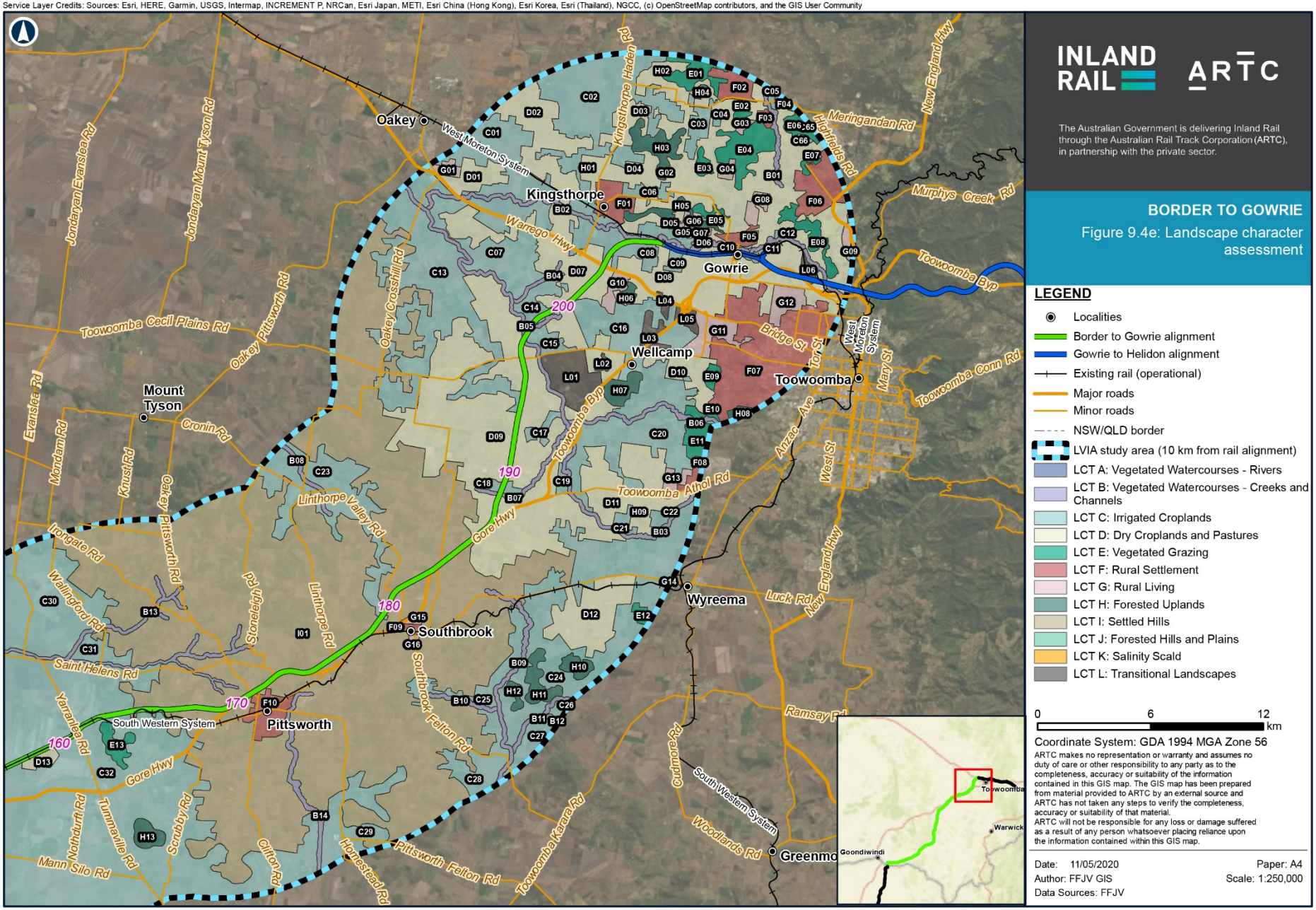

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BORDER TO GOWRIE

Figure 9.4e: Landscape character assessment

LEGEND

- Localities
- Border to Gowrie alignment
- Gowrie to Helidon alignment
- Existing rail (operational)
- Major roads
- Minor roads
- NSW/QLD border
- LVIA study area (10 km from rail alignment)
- LCT A: Vegetated Watercourses - Rivers
- LCT B: Vegetated Watercourses - Creeks and Channels
- LCT C: Irrigated Croplands
- LCT D: Dry Croplands and Pastures
- LCT E: Vegetated Grazing
- LCT F: Rural Settlement
- LCT G: Rural Living
- LCT H: Forested Uplands
- LCT I: Settled Hills
- LCT J: Forested Hills and Plains
- LCT K: Salinity Scald
- LCT L: Transitional Landscapes

0 6 12 km

Coordinate System: GDA 1994 MGA Zone 56

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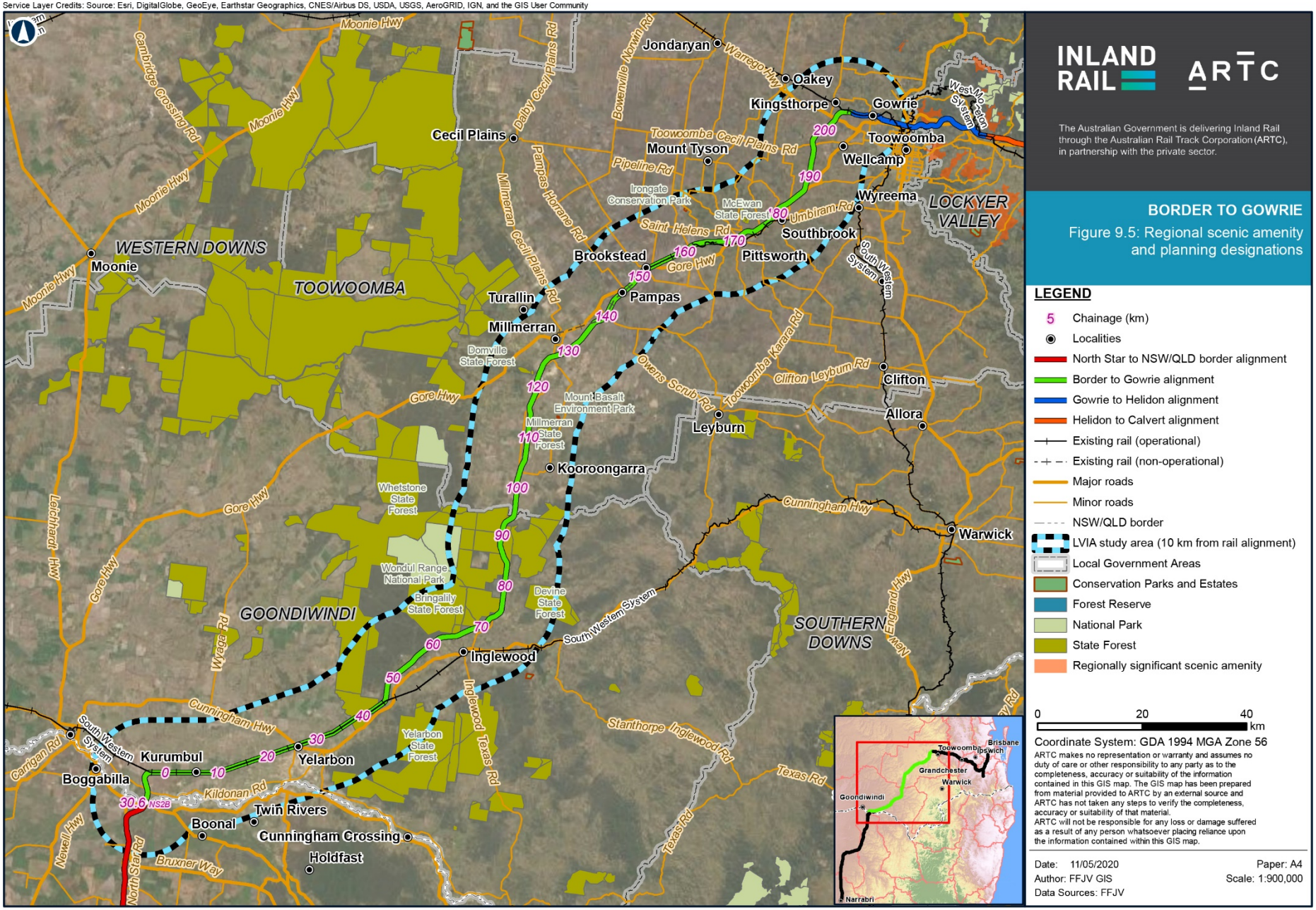

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BORDER TO GOWRIE

Figure 9.5: Regional scenic amenity and planning designations

LEGEND

- 5 Chainage (km)
- Localities
- North Star to NSW/QLD border alignment
- Border to Gowrie alignment
- Gowrie to Helidon alignment
- Helidon to Calvert alignment
- Existing rail (operational)
- Existing rail (non-operational)
- Major roads
- Minor roads
- NSW/QLD border
- LVIA study area (10 km from rail alignment)
- Local Government Areas
- Conservation Parks and Estates
- Forest Reserve
- National Park
- State Forest
- Regionally significant scenic amenity

0 20 40 km

Coordinate System: GDA 1994 MGA Zone 56

Date: 11/05/2020
Author: FFJV GIS
Data Sources: FFJV

Paper: A4
Scale: 1:900,000

Map by: MEF/RB/LS Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.5_B2G_ARTC_RSAS_rev6.mxd Date: 11/05/2020 16:19

TABLE 9.5 LANDSCAPE CHARACTER TYPES AND AREAS

Landscape character type	Associated landscape character areas
LCT A: Vegetated Watercourses—Rivers	This LCT is located in both the western and central parts of the impact assessment area, associated with the Dumaresq River, Macintyre River and Condamine River. There are four LCAs of this type in the impact assessment area.
LCT B: Vegetated Watercourses—Creeks and Channels	This LCT is located throughout the impact assessment area, associated with the many small tributaries of the Condamine River (near Pampas) and Macintyre River (along the NSW/QLD border). There are 38 LCAs of this type in the impact assessment area.
LCT C: Irrigated Croplands	This LCT is located within the alluvial valleys and fertile floodplains of the Macintyre and Weir Rivers, Macintyre Brook and Condamine River catchments. There are 64 LCAs of this type in the impact assessment area.
LCT D: Dry Croplands and Pastures	This LCT extends across a considerable part of the impact assessment area and is largely defined by extensively cleared, often undulating, open rural properties used for agriculture and livestock production. In the western extent of the impact assessment area, the landscape is typically flatter and prone to flooding. There are 44 LCAs of this type in the impact assessment area.
LCT E: Vegetated Grazing	This LCT occurs in isolated patches, particularly near Toowoomba, and comprises grazing areas set within vegetated landscapes. While LCT E: Vegetated Grazing falls within the impact assessment area, it is not affected by the Project and has not been assessed.
LCT F: Rural Settlement	Seventeen rural settlements are located within the impact assessment area. They include the city of Toowoomba; the towns of Kingsthorpe, Meringandan, Gowrie Junction, Highfields, Westbrook, Southbrook, Pittsworth, Brookstead, Millmerran, Inglewood and Yelarbon; the Indigenous settlement Boggabilla; and the small rural settlement of Pampas. There are 17 LCAs of this type in the impact assessment area.
LCT G: Rural Living	This LCT is typically located in elevated parts of the impact assessment area, near major transport infrastructure with access to towns and services and is characterised by large-lot rural residential development and is typically somewhat vegetated. There are 17 LCAs of this type in the impact assessment area.
LCT H: Forested Uplands	This LCT is typically associated with elevated, undulating areas within the impact assessment area, including parts of the Great Dividing Range, West Ridge and South Ridge. There are 20 LCAs of this type in the impact assessment area.
LCT I: Settled Hills	This LCT is associated with the elevated, undulating areas and basaltic uplands of the Darling Downs, surrounding Pittsworth. There is one landscape character area of this type—the Pittsworth Hills (LCA I1).
LCT J: Forested Hills and Plains	This LCT is typically associated with the densely vegetated, lower-lying and gently undulating areas of the impact assessment area, typically west of Millmerran. This landscape type includes Wondul Range National Park, while other areas are predominately designated as State forests, which typically have very limited recreational opportunity. There are 14 LCAs of this type.
LCT K: Salinity Scald	This LCT is associated with the dryland salinity scald surrounding Yelarbon, in the western extent of the impact assessment area. There is one landscape character area of this type—the Yelarbon Salinity Scald (LCA K1).
LCT L: Transitional Landscapes	This LCT comprises disturbed and developing landscapes, such as around Commodore Mine near Millmerran, that are not valued for their existing landscape character or quality. While LCT L: Transitional Landscapes falls within the impact assessment area, it is not affected by the Project and has not been assessed.

9.5.3 Visual assessment

Representative viewpoints were selected to provide a representative assessment of the potential landscape and visual impacts of the Project on a range of visual audiences and landscape settings at a range of distances from the alignment within the impact assessment area, including, but not limited to, the views experienced by the following:

- Local residents and workers in towns and rural settlements (including Yelarbon, Inglewood, Millmerran, Pampas, Brookstead, Pittsworth, Southbrook, Athol, Gowrie Mountain and Kingsthorpe)
- Local residents and workers on rural and acreage properties within the impact assessment area
- Travellers on main and local roads
- Tourists on roads including users of scenic drives and visitors staying in tourist accommodation within the impact assessment area
- Tourists on the Westlander train
- Recreational users of the landscape, particularly those using walking trails within national parks (Wondul Range National Park), State forests (such as Whetstone State Forest) and other nature reserves.

The selected viewpoints are summarised in Table 9.6 and shown in Figure 9.6. These are discussed further in Appendix I: Landscape and Visual Impact Assessment Technical Report.

TABLE 9.6 VIEWPOINT SELECTION

Viewpoint name	Anticipated approximate distance to alignment	Key visual receptors
Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Alignment is approximately 300 m to the east of this viewpoint	Represents typical and accessible views of residents of local rural properties, visitors and campers at Rainbow Reserve and those travelling along Kildonan Road.
Viewpoint 2: Yelarbon rest area. Over existing level crossing and rail.	Alignment is approximately 50 m to the north of this viewpoint	Represents typical and accessible views of residents and of visitors, workers and tourists in Yelarbon, as well as those travelling along the Cunningham Highway.
Viewpoint 3: Cunningham Highway Near Whetstone Rest Area	Alignment is approximately 1 km to the northwest of this viewpoint	Represents typical and accessible views of those travelling along the Cunningham Highway as well as those stopping at the rest area.
Viewpoint 4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #1	Alignment is approximately 30 m to the west of this viewpoint	Represents typical and accessible views of those travelling along Millmerran–Inglewood Road.
Viewpoint 5: Millmerran–Inglewood Road near Nicol Creek Road	Alignment is approximately 1 km to the east of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Millmerran–Inglewood Road.
Viewpoint 6: Millmerran-Inglewood Road towards Millmerran-Inglewood Road rail bridge #2	Alignment is approximately 210 m to the west of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Millmerran-Inglewood Road.
Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	Alignment is approximately 5.5 km to the west of this viewpoint	Represents typical and accessible views of those visiting Mount Basalt Reserve and walking on the Mount Basalt Circuit—a walking track with lookouts and elevated views.
Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Alignment is approximately 390 m to the west of this viewpoint	Represents typical and accessible views of nearby isolated rural residents, as well as visitors, workers and tourists travelling along Blackwell Road.
Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	Alignment is approximately 530 m to the southeast of this viewpoint	Represents typical and accessible views of those visiting Commodore Peak picnic area.

Viewpoint name	Anticipated approximate distance to alignment	Key visual receptors
Viewpoint 10: Millmerran–Inglewood Road near property	Alignment is approximately 50 m to the southeast of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Millmerran–Inglewood Road.
Viewpoint 11: Nardoo Street edge of Millmerran	Alignment is approximately 3 km to the southeast of this viewpoint	Represents typical and accessible views of residents of Millmerran.
Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Alignment is approximately 1.2 km to the southeast of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along the Gore Highway.
Viewpoint 13: Gore Highway near service station, Pampas	Alignment is approximately 900 m to the southeast of this viewpoint	Represents typical and accessible views of nearby residents of Pampas and of visitors, workers and tourists travelling along the Gore Highway.
Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Alignment is approximately 40 m to the southeast of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along the Gore Highway.
Viewpoint 15: Near Brookstead State School	Alignment is approximately 70 m to the southeast of this viewpoint	Represents typical and accessible views of school patrons, residents of Brookstead and of visitors, workers and tourists travelling along Ware Street and using nearby facilities (i.e. playground, amenities and barbecue/picnic facilities) at the historic railway station.
Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	Alignment is approximately 230 m to the south of this viewpoint	Represents typical and accessible views of nearby elevated and isolated rural residential properties.
Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	Alignment is approximately 190 m to the northwest of this viewpoint	Represents typical and accessible views of nearby residents of Pittsworth, guest of Pittsworth Motor Inn and of visitors, workers and tourists travelling along Pittsworth–Felton Road.
Viewpoint 18: Gore Highway near Southbrook	Alignment is approximately 1.5 km northwest of this viewpoint	Represents typical and accessible views of nearby isolated rural residents, elevated residential properties of Southbrook and of visitors, workers and tourists travelling along the Gore Highway.
Viewpoint 19: View from Athol	Alignment is approximately 200 m to the west of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Athol School Road.
Viewpoint 20: Toowoomba–Cecil Plains Road, near private property 'Burton'	Alignment is approximately 200 m to the northeast of this viewpoint	Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Toowoomba–Cecil Plains Road.
Viewpoint 21: Linora Drive, Gowrie Mountain	Alignment is approximately 1.2 km to the northwest of this viewpoint	Represents typical and accessible views of nearby elevated residential properties of Gowrie Mountain.
Viewpoint 22a: Mount Kingsthorpe summit scenic lookout Viewpoint 22b: Southern Cross Drive, Kingsthorpe	Alignment is approximately 1.5 km, and 3.0 km to the south of these viewpoints	Represents typical and accessible views of those visiting Mount Kingsthorpe Bushland Park and walking on the Mount Kingsthorpe Walk—a walking track to the summit, which provides expansive elevated views. Also representative of typical and accessible views of nearby elevated residential areas of Kingsthorpe.

9.6 Potential impacts

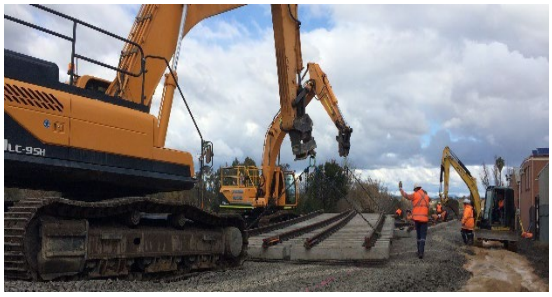
This section includes a summary of the potential landscape and visual amenity impacts that are associated with the Project, prior to mitigation. Further details are included in Appendix I: Landscape and Visual Impact Assessment Technical Report.

9.6.1 Construction phase potential impacts

The construction phase of the Project will involve various activities, each with the potential to result in impacts to landscape and visual amenity values. These potential impacts are summarised in Table 9.7.

TABLE 9.7 POTENTIAL LANDSCAPE AND VISUAL IMPACTS DURING CONSTRUCTION PHASE

Construction activities and infrastructure	Indicative imagery
Construction	
Demolition of existing infrastructure The demolition and removal of existing redundant rail infrastructure would convey construction traffic to and within the construction areas, resulting in short-term impacts on landscape and visual values.	 Source: Lat27
Vegetation clearing and associated earthworks Much of the landscape is already cleared for agricultural purposes. Where required, large-scale machinery will be used to assist in vegetation clearance or trimming activities. This will generate traffic on surrounding roads. Temporary stockpiles of cleared vegetation may also be present. Topsoil, subsoil, rock and other unsuitable materials will be removed, where necessary, to create stable and level areas for infrastructure to be constructed. This will result in the temporary presence of exposed areas of land.	 Source: ARTC
Road and railway construction The construction of new haul roads within the Project would convey construction traffic to and within the construction areas resulting in short-term impacts on landscape and visual values.	 Source: Lat27
Bridge construction Bridges, culverts and viaducts will be constructed over creeks, rivers, floodplains and existing road corridors. The construction of new infrastructure would introduce construction traffic to and within the construction areas, resulting in short-term impacts on landscape and visual values.	 Source: ARTC

Construction activities and infrastructure	Indicative imagery
Borrow pits Twelve potential borrow pit locations have been identified to provide fill and other construction materials for the Project. Landscape and visual impacts associated with borrow pits include clearance of vegetation, presence of bare soil associated with earthworks and landform modification.	 Source: Lat27
Creation of stockpiles (existing material from site) Stockpiles of materials cleared from site will be present in the laydown areas in the construction footprint, where they will be stored prior to use, re-use or disposal. This includes ballast from the existing rail corridor, rail tracks, and soil from cut-and-fill sites.	 Source: Lat27
Creation of stockpiles (material delivered to site) Stockpiles of materials delivered to site will be present in the laydown areas and beside the existing rail corridor, where they will be stored prior to use. This includes clean ballast, soil stockpiles and rail materials, including tracks and sleepers.	 Source: ARTC
Presence and movement of construction equipment Large-scale construction equipment and machinery, such as cranes, excavators, trucks, water trucks, scrapers, graders, heavy bulldozers, generators and dump trucks, will be required for construction activities.	 Source: ARTC

Construction activities and infrastructure	Indicative imagery
Non-resident workforce accommodation and workers Presence of construction workers wearing high visibility personal protective equipment. The construction workforce is expected to peak at around 950 team members between week 50 and 70 of the construction schedule. Three non-resident workforce accommodation facilities are proposed near Yelarbon, Inglewood and Turallin. At a minimum, each non-resident workforce accommodation facility will be self-contained and will include accommodation units with kitchen, dining, ablution and laundry facilities (refer Chapter 5: Project Description).	 Example of a non-resident workforce accommodation layout. Dalby, Queensland
Construction traffic movement There will be increased traffic movement on existing State-controlled and local government roads. This will include a variety of light and heavy vehicle types.	 Source: Lat27
Temporary construction lighting Site preparation activities undertaken to provide access to the rail corridor are commonly conducted during daylight hours; however, some activities may be undertaken outside of standard daytime hours. Night lighting will be required at the non-resident workforce accommodation, site offices and fuel storage areas. Night lighting may also be required at bridge laydown areas. The primary light source will be from large-scale temporary security lighting.	 Source: FFJV
Embankments and mounding Many embankments and mounds will be created to establish the proposed rail corridor. This will be evident in areas where there is a change in levels with the existing ground (e.g. major cuts). In addition, abutments in support of culverts and bridges will be required adjacent to creeks and existing road corridors.	 Source: Lat27
Shipping containers and storage sheds Shipping containers will be delivered to construction sites via crane trucks and then stored in laydown areas. The containers commonly contain construction equipment.	 Source: FFJV

Construction activities and infrastructure	Indicative imagery
Site offices and associated car parking areas The Project will require several temporary buildings, including site offices and workshops and car parking areas, as follows: ▸ LDN025.9: Yelarbon (north)—satellite offices ▸ LDN054.0: Cremascos Rd—satellite offices ▸ LDN084.5: Millmerran-Inglewood Rd—satellite offices ▸ LDN116.0: Millmerran-Inglewood Rd—southern project main site offices ▸ LDN160.5: Yarranlea Rd—southern project main site offices ▸ LDN176.7: Gore Hwy—satellite offices ▸ LDN189.9: Athol School Rd—satellite offices ▸ LDN208.2: Leesons Rd—satellite offices. These sites will introduce additional traffic, staff and machinery to the impact assessment area. The new, temporary built forms may be seen as uncharacteristic elements in a predominantly rural landscape.	 Source: FFJV
Construction of drainage infrastructure, including concrete piping Temporary and permanent drainage infrastructure will be present, including in areas in proximity to existing road corridors.	 Source: FFJV
Signage A large number of signs will be displayed around construction sites, especially where existing road corridors are in proximity to the proposed rail corridor. Signage will include speed signs, stop signs, and safety signs, and construction signage such as truck access signage.	 Source: FFJV

9.6.2 Operation phase potential impacts

Table 9.8 describes potential impacts, prior to the application of mitigation measures, during the operation phase of the Project.

TABLE 9.8 POTENTIAL LANDSCAPE AND VISUAL IMPACTS DURING OPERATION PHASE

Operation activities and infrastructure	Indicative imagery
Operation	
Lighting infrastructure No permanent lighting is proposed for the Project; however, there will be standard flashing lights located at all of the active level crossings (refer Section 9.4.3.3 for locations).	 Source: ARTC
Freight trains Trains may at times be visible in the landscape from existing roads and residential properties. Current operational modelling projects an average of 14 train movements per day by 2026, increasing to 20 trains per day (average) and 25 per day (peak) in 2040. These will be double stacked and up to 1.8 km long (potentially up to 3.6 km long in the future) and 6.5 m high. The wait time for a 1.8 km train to pass at a speed of 115 km/h will be up to 199 seconds, at the Owens Scrub Road active level crossing. The trains will have a headlight.	 Source: ARTC  Source: ARTC
Road and rail bridges Bridges are an obvious visible feature for viewers and are typically landmarks for motorists. The bridges are proposed as single-track, Super-T girder type structures. The Project has three rail-over-road bridges as follows: ▸ Cunningham Highway Rail Bridge: 104 m ▸ Gore Highway Rail Bridge: 108 m ▸ Linthorpe Road Rail Bridge: 66 m The Project has 11 rail-over-road bridges as follows: ▸ Millmerran–Inglewood Road Rail Bridge (Heckendorfs Road) #2: 75 m ▸ Millmerran–Inglewood Road Rail Bridge (Commodore Mine) #3: 167 m ▸ Yarranlea Road Rail Bridge: 69 m ▸ Roche Road Rail Bridge: 121 m ▸ Oakey–Pittsworth Road Rail Bridge: 69 m ▸ Lochaber Road Rail Bridge: 75 m ▸ Biddenston–Southbrook Road Rail Bridge: 144 m ▸ Toowoomba–Cecil Plains Road Rail Bridge: 92 m ▸ Brimblecombe Road Rail Bridge: 75 m ▸ Warrego Highway Rail Bridge: 132 m ▸ Chamberlain Road Rail Bridge: 115 m	Road-over-rail bridge  Source: Lat27 *(Visualisation)* Rail-over-road bridge  Source: Lat27 *(Visualisation)*

Operation activities and infrastructure	Indicative imagery
River and creek bridges Rail-over-watercourse bridges are typically lower, with their height determined by flood levels, except where they also pass over adjacent roads. They are also obvious built landmarks for viewers where visible from roads and residential areas. The Project has 20 rail-over-watercourse bridges, as follows: ▸ Macintyre River Viaduct 435 m ▸ Macintyre River Floodplain Bridge #1 140 m ▸ Macintyre River Floodplain Bridge #2 546 m ▸ Macintyre Brook Rail Bridge #1 207 m ▸ Macintyre Brook Rail Bridge #2 207 m ▸ Pariagara Creek Rail Bridge 345 m ▸ Cattle Creek Rail Bridge 138 m ▸ Native Dog Creek Rail Bridge 184 m ▸ Bringalily Creek #1 Rail Bridge 299 m ▸ Bringalily Creek #2 Rail Bridge 621 m ▸ Nicol Creek Rail Bridge 92 m ▸ Back Creek Rail Bridge 230 m ▸ Grasstree Creek #1 Rail Bridge 336 m ▸ Grasstree Creek #2 Rail Bridge 952 m ▸ Condamine River #1 Rail Bridge 658 m ▸ Condamine River #2 Rail Bridge 1918 m ▸ Condamine River #3 Rail Bridge 602 m ▸ Condamine River North Branch Rail Bridge 1568 m ▸ Westbrook Creek Rail Bridge 230 m ▸ Dry Creek Rail Bridge 184 m	Rail-over-watercourse bridge  Source: Lat27 *(Visualisation)*
Level crossings Crossings occur where the rail alignment intersects a road. Infrastructure includes rail tracks, crossing protection measures (as required) and signage. The Project reference design includes 20 new and existing passive level crossings of public roads and 17 new and existing active level crossings (with lights and barriers) of public roads.	 Source: ARTC
Railway tracks Railway tracks will be present along the alignment and may be sighted from adjacent roads and residents' properties in locations where the rail corridor is not screened by vegetation or topographic features.	 Source: ARTC
Culverts Culverts, including multiple barrel culverts, are required where road and rail corridors traverse watercourses, drainage lines and land subject to periodic inundation.	 Source: ARTC
Track Formation The railway track will be laid on layers of ballast and sub-ballast above prepared subgrade formation. In places the rail will be elevated on embankments.	 Source: Lat27

Operation activities and infrastructure	Indicative imagery
Cuttings Cuts will be created through areas of elevated landform, for example in the undulating areas surrounding Pittsworth, to accommodate the proposed rail infrastructure.	 Source: ARTC
Fencing Fencing will be provided for the majority of the rail corridor and its primary purpose is to limit access to the railway. Fencing will act to protect adjoining lands from trespass and to prevent stock on such adjoining land from gaining access to the railway. As the Project comprises substantial greenfield works in rural agricultural and grazing areas, standard rural fencing will typically be provided according to ARTC fencing procedure, Boundary Fencing ETM–17–02. Where superior fencing is required (e.g. where tracks are in close proximity to roads and/or communities, or where trespass is anticipated to occur) a 1.8 m chain link boundary fence may be provided. Fencing will not be provided across flood-prone areas due to the risk of debris being caught in the fencing during flood events. Instead, guideposts will be used to demarcate the extent of the rail corridor across the floodplain. Opportunities to provide fauna exclusion fencing have been identified as part of the reference design. This fencing would guide animals towards a fauna crossing structure or passage, while reducing their potential to be struck by vehicles or trains. The appropriateness of fauna fencing opportunities will be investigated further during the detail design phase of the Project.	 Source: FFJV  Source: FFJV
Noise barriers Noise barriers are generally only considered as a mitigation measure for operational noise where groups of triggered receptors are apparent. For isolated receptors, such as single dwellings in rural areas, noise barriers would generally not be considered. Where noise barriers are to be considered, they would primarily be located on land within the Project's rail corridor. Whether rail noise barriers would be a feasible and reasonable noise mitigation outcome will be determined by ARTC during the detail design phase of the Project. This analysis will consider all design and engineering factors that determine the location, extent and height of the noise barriers (or similar structures). Visual amenity will be a consideration of the design of noise barriers, as described further in Section 9.7: Mitigation measures	*Note that no indicative imagery is available for noise barriers. Locations and dimensions of any potential noise barriers will be subject to confirmation through the detail design process.*

9.6.3 Landscape character impact assessment

Twelve LCTs have been identified within the impact assessment area. These are identified in Figure 9.4 and summarised in Table 9.5. Ten of these LCTs are directly intersected by the Project, as follows:

- LCT A: Vegetated Watercourses—Rivers
- LCT B: Vegetated Watercourses—Creeks and Channels
- LCT C: Irrigated Croplands
- LCT D: Dry Croplands and Pastures
- LCT F: Rural Settlement
- LCT G: Rural Living
- LCT H: Forested Uplands
- LCT I: Settled Hills
- LCT J: Forested Hills and Plains
- LCT K: Salinity Scald.

Two other LCTs provided below are present in the wider impact assessment area but as they are not intersected by the Project any impacts would be indirect and are not assessed in detail:

- LCT E: Vegetated Grazing
- LCT L: Transitional Landscapes.

The LCTs and associated LCAs are described in Table 9.9 to Table 9.18. These tables also assess the likely sensitivities for each identified LCT in relation to the Project and provide a preliminary indication of the likely magnitude of change and consequent significance of that effect on landscape amenity.

Potential construction impacts on landscape character are temporary and relate to things such as removal of vegetation, which persist into the operation phase. Therefore, the assessment presented below is a combined assessment of impacts during both construction and operation; reflecting elements removed or disturbed during construction as well as the introduction of structures that affect the perception and character of the landscape over the longer term.

9.6.3.1 Landscape Character Type A

TABLE 9.9 LANDSCAPE IMPACT ASSESSMENT OF LCT A: VEGETATED WATERCOURSES—RIVERS

Type A: Vegetated Watercourses—Rivers

Landscape baseline assessment	
Location and boundaries	This LCT is located in both the western and central parts of the impact assessment area, associated with the Dumaresq River, Macintyre River and Condamine River There are four LCAs of this type in the impact assessment area, including: ▸ Condamine River (North Branch) Vegetated Watercourse (LCA A1) ▸ Condamine River Vegetated Watercourse (LCA A2) ▸ Macintyre River Vegetated Watercourse (LCA A3) ▸ Dumaresq River Vegetated Watercourse (LCA A4).
Typical character images:	
     	
Key characteristics	▸ The majority of the Macintyre and Condamine river systems exist on a gently undulating landscape ▸ Both river channels have slight slopes, so water movement is usually quite slow ▸ Macintyre and Condamine Rivers convey large amounts of water in flood ▸ Vegetation clearance, construction of weirs and dams, and extraction of water for irrigation have greatly altered the hydrology of these river systems ▸ Typically, well-vegetated riverbanks with mature forest red gums (*Eucalyptus tereticornis*) and paperbark (*Melaleuca spp.)* fringing woodland creating a visually interesting natural character ▸ This LCT is not the subject of any landscape planning designations but likely to be valued locally for scenic amenity.
Precedent modifications and infrastructure elements	▸ Natural landscape with few built infrastructure elements ▸ Occasional irrigation pump stations located along the river systems ▸ Public and private water storage for irrigation and town water supply ▸ Existing rail and road bridge crossings across the river allowing views of the river.

Type A: Vegetated Watercourses—Rivers	
Landscape character sensitivity assessment	▸ High degree of perceived naturalness, with localised waterway modifications and crossings (such as bridges) and facilities to support informal recreation (such as small car parks) ▸ Significant areas of fringing vegetation on the riverbanks, and floodplains contain views to and from the waterways, reducing visual sensitivity ▸ Parts of the Macintyre River near Toomelah (in NSW), as well as Rainbow Reserve and lagoon (in Queensland) are listed as cultural heritage sites (Queensland Aboriginal Party) ▸ Parts of this landscape type may be valued for local recreation, including fishing and informal picnicking ▸ The overall sensitivity is considered to be, at greatest, **moderate**. This recognises the relative intactness and high quality of the landscape and its value for the local Aboriginal community; however, it is noted that there are no formal landscape designations.
Impact assessment	
Magnitude of change assessment	▸ The Project crosses both the Macintyre and Condamine Rivers ▸ The alignment crosses the Macintyre River (LCA A3) near Boggabilla ▸ The alignment crosses the Condamine River (LCA A1 and LCA A2) through a large alluvial floodplain near Pampas ▸ New bridge and railway infrastructure will result in highly localised removal of vegetation and the intrusion of built infrastructure within what is currently a relatively un-developed landscape ▸ The Project will cross the Macintyre River, approximately 2.5 km south of Rainbow Reserve ▸ The Macintyre River is relatively inaccessible in this location, as the crossing is situated on private land ▸ This location and the Macintyre River crossing will not be visible from Rainbow Reserve and Kildonan Road due to remnant vegetation ▸ The Project will cross the Condamine River approximately 4 km southwest of Pampas ▸ Distant views to this location and the river crossing will be visible from the Gore Highway and Millmerran–Leyburn Road ▸ The proposed alignment will cross the Condamine River (North Branch), approximately 1.7 km northeast of Pampas ▸ Close views towards the proposed river crossing will be possible from the Gore Highway, approximately 20 m to the west of the alignment ▸ The proposed crossing will replace an existing rail bridge in this location ▸ Due to the transient nature of views from the highway and State-controlled roads, the primary impact of any changes in character would be on private landowners adjacent to the alignment and river crossings ▸ The overall magnitude of change is predicted to be **moderate**. There will be no fundamental change to the character of this LCT; however, localised areas will be affected by removal of vegetation and introduction of bridges.
Potential effect	▸ The effect of the Project on LCT A: Vegetated Watercourses—Rivers is **low** during construction and operation.

9.6.3.2 Landscape Character Type B

TABLE 9.10 LANDSCAPE IMPACT ASSESSMENT OF LCT B: VEGETATED WATERCOURSES—CREEKS AND CHANNELS

Type B: Vegetated Watercourses—Creeks and Channels

Landscape baseline assessment	
Location and boundaries	This LCT is located throughout the impact assessment area, associated with the many small tributaries of the Condamine River (near Pampas) and Macintyre River (along the NSW/QLD border). There are 38 LCAs of this type in the impact assessment area, including: ▸ Meringandan Creek Vegetated Watercourse (LCA B1) ▸ Gowrie Creek Vegetated Watercourse (LCA B2) ▸ Westbrook Creek Vegetated Watercourse (LCA B3) ▸ Upper Westbrook Creek Vegetated Watercourse (LCA B4) ▸ Dry Creek Vegetated Watercourse (LCA B5) ▸ Spring Creek Vegetated Watercourse (LCA B6) ▸ Upper Westbrook Creek upper tributary (UT) Vegetated Watercourse (LCA B7) ▸ Linthorpe Creek Vegetated Watercourse (LCA B8) ▸ Umbriam Creek Vegetated Watercourse (LCA B9) ▸ Umbriam Creek UT1 Vegetated Watercourse (LCA B10) ▸ Hodgson Creek Vegetated Watercourse (LCA B11) ▸ Emu Creek Vegetated Watercourse (LCA B12) ▸ Upper 14 Mile Creek Vegetated Watercourse (LCA B13) ▸ Perrier Gully Vegetated Watercourse (LCA B14) ▸ 14 Mile Creek Vegetated Watercourse (LCA B15) ▸ Back Creek Vegetated Watercourse (LCA B16) ▸ Leonard (Back Creek) Vegetated Watercourse (LCA B17) ▸ Grass Tree Creek Vegetated Watercourse (LCA B18) ▸ Pine Creek Vegetated Watercourse (LCA B19) ▸ Pine Creek UT1 Vegetated Watercourse (LCA B20) ▸ Bora Creek Vegetated Watercourse (LCA B21) ▸ Bora Creek UT1 Vegetated Watercourse (LCA B22) ▸ Bora Creek UT2 Vegetated Watercourse (LCA B23) ▸ Bringalily Creek Vegetated Watercourse (LCA B24) ▸ Boola Creek Vegetated Watercourse (LCA B25) ▸ Nicol Creek Vegetated Watercourse (LCA B26) ▸ Mingimarny Creek Vegetated Watercourse (LCA B27) ▸ Canning Creek Vegetated Watercourse (LCA B28) ▸ Cattle Creek Vegetated Watercourse (LCA B29) ▸ Mosquito Creek Vegetated Watercourse (LCA B30) ▸ Bodumba Creek Vegetated Watercourse (LCA B31) ▸ Pariagara Creek Vegetated Watercourse (LCA B32) ▸ Macintyre Brook Vegetated Watercourse (LCA B33) ▸ Catfish Creek Vegetated Watercourse (LCA B34) ▸ Wondalli Creek Vegetated Watercourse (LCA B35) ▸ Kippenbung Creek Vegetated Watercourse (LCA B36) ▸ Brigalow Creek Vegetated Watercourse (LCA B37) ▸ Forest Creek Vegetated Watercourse (LCA B38).

Type B: Vegetated Watercourses—Creeks and Channels

Typical character images:		
		
		

Key characteristics	▸ Includes creeks and low-lying channels that form part of Macintyre and Weir Rivers, Macintyre Brook, Dumaresq River and Condamine River catchments, conveying large amounts of floodwaters away from the main river channels when in flood ▸ Remnant areas of flood-dependent forest/woodlands and wetlands ▸ Natural landscape with few built infrastructure elements.
Precedent modifications and infrastructure elements	▸ Relatively natural landscape with minimal infrastructure, comprising road and existing rail bridges over the main creek channels within the impact assessment area ▸ Fringing vegetation has generally been retained and creates a buffer between adjacent land uses ▸ Telecommunication infrastructure including telegraph poles typically follows the road alignment.
Landscape character sensitivity assessment	▸ Moderate degree of perceived naturalness, with some instances of evidence of human uses and modifications to the waterways ▸ Significant areas of fringing vegetation in some locations contain views to and from creek lines, reducing the sensitivity. Vegetation is sparser in low- lying agricultural areas. ▸ The overall sensitivity is considered to be **low**. This recognises that there are no formal landscape designations associated with this LCT and the landscape does not appear to be used by the local community for recreation. Additionally, parts of the LCT are already affected by the presence of road and rail infrastructure (albeit some of which is disused) so it has capacity to accommodate further change.
Impact assessment	
Magnitude of change assessment	▸ The Project follows the existing rail alignment between Kildonan and Whetstone and Yandilla and Yarranlea ▸ Between Whetstone and Yandilla and Yarranlea to Kingsthorpe, the alignment is on greenfield land ▸ Where it deviates from the existing South Western Line rail corridor, it traverses a variety of landscapes and land uses, including the densely vegetated and undulating landscapes of Whetstone and Bringalily State Forests, rural landscapes, intensive agricultural areas and the urban areas fringing existing townships.

Type B: Vegetated Watercourses—Creeks and Channels	
Magnitude of change assessment (continued)	▸ There are anticipated to be direct impacts on LCA B2, LCA B5, LCA B7, LCA B8, LCA B17, LCA B18, LCA B8, LCA B17, LCA B25, LCA B26, LCA B28, LCA B29 and LCA B32. These comprise the introduction of new rail infrastructure into the rural and urban setting, including around 14 creek crossings, where the alignment crosses Macintyre Brook, Pariagara Creek, Cattle Creek, Native Dog Creek, Bringalily Creek, Nicol Creek, Back Creek, Grasstree Creek, Westbrook Creek and Dry Creek. ▸ New bridge and railway infrastructure, as well as associated drainage infrastructure (e.g. culverts) will result in localised removal of vegetation ▸ Typically, these works would introduce new infrastructure into what is a relatively intact rural and natural setting ▸ Changes to the landscape character associated with creek and floodplain infrastructure will be evident from Yarranbrook Feedlot and Cremascos Road, Millmerran–Inglewood Road, Hall Road, Millmerran–Leyburn Road, the Gore Highway, Toowoomba–Cecil Plains Road and Brimblecombe Road ▸ The overall magnitude of change is predicted to be **moderate**.
Potential effect	▸ The effect of the Project on LCT B: Vegetated Watercourses—Creeks and Channels is **low** during construction and operation.

9.6.3.3 Landscape Character Type C

TABLE 9.11 LANDSCAPE IMPACT ASSESSMENT OF LCT C: IRRIGATED CROPLANDS

Type C: Irrigated Croplands	
Landscape baseline assessment	
Location and boundaries	This LCT is located within the alluvial valleys and fertile floodplains of the Macintyre and Weir Rivers, Macintyre Brook and Condamine River catchments. There are 64 LCAs of this type in the impact assessment area, including: ▸ Oakey North Irrigated Croplands (LCA C1) ▸ Yalungur Irrigated Croplands (LCA C2) ▸ Lilydale West Irrigated Croplands (LCA C3) ▸ Lilydale East Irrigated Croplands (LCA C4) ▸ Meringandan Irrigated Croplands (LCA C5) ▸ Glencoe Irrigated Croplands (LCA C6) ▸ Oakey South Irrigated Croplands (LCA C7) ▸ Kingsthorpe Irrigated Croplands (LCA C8) ▸ Charlton Irrigated Croplands (LCA C9) ▸ Gowrie Junction Irrigated Croplands (LCA C10) ▸ Morris Road Irrigated Croplands (LCA C11) ▸ Birnam Irrigated Croplands (LCA C12) ▸ Westbrook Creek Irrigated Croplands (LCA C13) ▸ Brimblecombe Road Irrigated Croplands (LCA C14) ▸ Wellcamp Airport Irrigated Croplands (LCA C15) ▸ Westbrook Irrigated Croplands (LCA C16) ▸ Wellcamp Airport South Irrigated Croplands (LCA C17) ▸ Athol Irrigated Croplands (LCA C18) ▸ Half Mile Gully Irrigated Croplands (LCA C19) ▸ Wellcamp Irrigated Croplands (LCA C20) ▸ Bunkers Hill West Irrigated Croplands (LCA C21) ▸ Bunkers Hill East Irrigated Croplands (LCA C22) ▸ Linthorpe Creek Irrigated Croplands (LCA C23) ▸ Wyreema Irrigated Croplands (LCA C24)

Type C: Irrigated Croplands	
Location and boundaries (continued)	▸ Jimna Springs Irrigated Croplands (LCA C25) ▸ Hodgson Creek Irrigated Croplands (LCA C26) ▸ Emu Creek Irrigated Croplands (LCA C27) ▸ Umbriam Creek Irrigated Croplands (LCA C28) ▸ Perrier Gully Irrigated Croplands (LCA C29) ▸ Mount Taylor Irrigated Croplands (LCA C30) ▸ 14 Mile Creek Irrigated Croplands (LCA C31) ▸ Brookstead Irrigated Croplands (LCA C32) ▸ Pampas Irrigated Croplands (LCA C33) ▸ Lemon Tree Irrigated Croplands (LCA C34) ▸ Grass Tree Creek Irrigated Croplands (LCA C35) ▸ Back Creek Irrigated Croplands (LCA C36) ▸ Bringalily Creek North Irrigated Croplands (LCA C37) ▸ Bringalily Creek South Irrigated Croplands (LCA C38) ▸ Bybera Road North Irrigated Croplands (LCA C39) ▸ Inglewood Airport Irrigated Croplands (LCA C40) ▸ Coolmunda Irrigated Croplands (LCA C41) ▸ Bybera Road South Irrigated Croplands (LCA C42) ▸ Inglewood Irrigated Croplands (LCA C43) ▸ Tobacco Road Irrigated Croplands (LCA C44) ▸ Yarranbrook West Irrigated Croplands (LCA C45) ▸ Yarranbrook East Irrigated Croplands (LCA C46) ▸ Whetstone Irrigated Croplands (LCA C47) ▸ Wondalli Creek North Irrigated Croplands (LCA C48) ▸ Macintyre Brook North Irrigated Croplands (LCA C49) ▸ Macintyre Brook South Irrigated Croplands (LCA C50) ▸ Wondalli Creek South Irrigated Croplands (LCA C51) ▸ Brigalow Creek Irrigated Croplands (LCA C52) ▸ Kurumbul Irrigated Croplands (LCA C53) ▸ Bengalla Reserve Irrigated Croplands (LCA C54) ▸ Kippenbung Creek Irrigated Croplands (LCA C55) ▸ Dumaresq River Irrigated Croplands (LCA C56) ▸ Gibinbell Irrigated Croplands (LCA C57) ▸ Woodleigh Irrigated Croplands (LCA C58) ▸ Glenhurst Irrigated Croplands (LCA C59) ▸ Texas–Yelarbon Road Irrigated Croplands (LCA C60) ▸ Boggabilla Irrigated Croplands (LCA C61) ▸ Melon Ridge Irrigated Croplands (LCA C62) ▸ Humptybung West Irrigated Croplands (LCA C63) ▸ Humptybung East Irrigated Croplands (LCA C64).

Type C: Irrigated Croplands

Typical character images:






Key characteristics	▸ Extensively developed agricultural areas ▸ Irrigation channels occur in flatter areas ▸ Typically located in areas with highly fertile vertosol soils ▸ The vertosols are typically cracking clay soils with high nutrients, capable of supporting agriculture ▸ Extensive large and relatively flat open fields of irrigated cropland ▸ Landscape substantially cleared of vegetation, except at the periphery, along waterways (LCT A and LCT B) on the skyline and local roads ▸ In addition to irrigated production, current land use activities include grazing and dryland farming with localised recreation.
Precedent modifications and infrastructure elements	▸ Modifications have been made to the floodplain to improve land used for grazing, dryland cropping and irrigated cropping to enhance agricultural productivity ▸ Channels are present across the landscape that have been constructed to manage and store irrigation and domestic water. These channels are particularly evident near Kurumbul, the Condamine River floodplain and low-lying areas surrounding Gowrie Creek. ▸ Leslie Dam (near Warwick, outside of the impact assessment area) is the main water storage for the Upper Condamine Water Supply Scheme, providing water to irrigators along the North Branch of the Condamine River. Other bulk water assets within the impact assessment area include Yarramalong Weir and Lemon Tree Weir. ▸ Coolmunda Dam is situated on Macintyre Brook, approximately 13.4 km east of Inglewood and is the main storage facility for the Macintyre Brook Water Supply Scheme, providing recreational opportunities and supplying water for irrigation, potable water supply and industrial use. Other bulk water assets include Whetstone Weir, Ben Dor Weir and Greenup Weir. ▸ Farm infrastructure is also present throughout the landscape.
Landscape character sensitivity assessment	▸ The irrigated croplands LCT is predominantly visually open, with a sparsely settled rural character and no large-scale infrastructure elements. It has long distant views and strong skylines. ▸ Vegetation within low-lying areas is extensively cleared and very sparse, with denser remnant vegetation along waterways. ▸ Due to the extensively modified character and local value of the landscape in terms of amenity, the overall inherent sensitivity is considered to be **low**.

Impact assessment	
Magnitude of change assessment	▸ The primary impact will be on private land where new rail infrastructure is being introduced ▸ Typically, the alignment follows the existing rail corridor when passing through this landscape character type, apart from land surrounding Westbrook Creek, where there is no existing rail infrastructure ▸ There would be direct impacts on LCA C8: Kingsthorpe, LCA C14: Brimblecombe Road, LCA C18: Athol, LCA C32: Brookstead, LCA C33: Pampas, LCA C35: Grass Tree Creek, LCA C37: Bringalily Creek North, LCA C38: Bringalily Creek South, LCA C48: Wondalli Creek North, and LCA C53: Kurumbul ▸ The impact on private land and irrigated cropping areas will be most evident between Pittsworth and Gowrie Junction (LCA C8, LCA C14 and LCA C18), where the alignment deviates from the existing railway corridor ▸ New earthwork infrastructure within this landscape will generally be consistent with the current landscape character; however, the Project will also introduce large embankments (up to 24.5 m), viaduct and bridge structures. ▸ The overall magnitude of change is predicted to be **low**.
Potential effect	▸ The effect of the Project on LCT C: Irrigated Croplands is negligible during construction and operation.

9.6.3.4 Landscape Character Type D

TABLE 9.12 LANDSCAPE IMPACT ASSESSMENT OF LCT D: DRY CROPLANDS AND PASTURES

Type D: Dry Croplands and Pastures

Landscape baseline assessment	
Location and boundaries	This LCT extends across a considerable part of the impact assessment area and is largely defined by extensively cleared, often undulating, open rural properties used for agriculture and livestock production. In the western extent of the impact assessment area, the landscape is typically flatter and prone to flooding. There are 44 LCAs of this type in the impact assessment area, including: ▸ Oakey Dry Croplands and Pastures (LCA D1) ▸ Kings Siding Dry Croplands and Pastures (LCA D2) ▸ Gowrie Little Plain Dry Croplands and Pastures (LCA D3) ▸ Glencoe Dry Croplands and Pastures (LCA D4) ▸ Mount Kingsthorpe Dry Croplands and Pastures (LCA D5) ▸ Gowrie Junction Dry Croplands and Pastures (LCA D6) ▸ Gowrie Mountain Dry Croplands and Pastures (LCA D7) ▸ Charlton Dry Croplands and Pastures (LCA D8) ▸ Biddeston Dry Croplands and Pastures (LCA D9) ▸ Wellcamp Dry Croplands and Pastures (LCA D10) ▸ Westbrook Dry Croplands and Pastures (LCA D11) ▸ Wyreema Dry Croplands and Pastures (LCA D12) ▸ Longhurst Road Dry Croplands and Pastures (LCA D13) ▸ Millmerran Dry Croplands and Pastures (LCA D14) ▸ Bringalily West Dry Croplands and Pastures (LCA D15) ▸ Kooroongarra Dry Croplands and Pastures (LCA D16) ▸ Bringalily East Dry Croplands and Pastures (LCA D17) ▸ Canning Creek Northern Dry Croplands and Pastures (LCA D18) ▸ Mosquito Creek North Dry Croplands and Pastures (LCA D19) ▸ Bodumba Creek Dry Croplands and Pastures (LCA D20) ▸ Devine Dry Croplands and Pastures (LCA D21) ▸ Mosquito Creek South Dry Croplands and Pastures (LCA D22)

Type D: Dry Croplands and Pastures

Location and boundaries (continued)	▸ Canning Creek West Dry Croplands and Pastures (LCA D23) ▸ Canning Creek East Dry Croplands and Pastures (LCA D24) ▸ Bybera Road Dry Croplands and Pastures (LCA D25) ▸ Yelarbon Dry Croplands and Pastures (LCA D26) ▸ Yarranbrook Dry Croplands and Pastures (LCA D27) ▸ Whetstone East Dry Croplands and Pastures (LCA D28) ▸ Catfish Creek Dry Croplands and Pastures (LCA D29) ▸ Macintyre Brook Dry Croplands and Pastures (LCA D30) ▸ Whetstone West Dry Croplands and Pastures (LCA D31) ▸ Wondalli Creek North Dry Croplands and Pastures (LCA D32) ▸ Wondalli Creek South Dry Croplands and Pastures (LCA D33) ▸ Yelarbon Dry Croplands and Pastures (LCA D34) ▸ Kurumbul Dry Croplands and Pastures (LCA D35) ▸ Kippenbung Creek Dry Croplands and Pastures (LCA D36) ▸ Dumaresq River North Dry Croplands and Pastures (LCA D37) ▸ Yelarbon Salt Pan Dry Croplands and Pastures (LCA D38) ▸ Glenhurst Dry Croplands and Pastures (LCA D39) ▸ Goondiwindi Dry Croplands and Pastures (LCA D40) ▸ Macintyre River Dry Croplands and Pastures (LCA D41) ▸ Boggabilla Dry Croplands and Pastures (LCA D42) ▸ Toomelah Dry Croplands and Pastures (LCA D43) ▸ Dumaresq River South Dry Croplands and Pastures (LCA D44).

Typical character images:






Type D: Dry Croplands and Pastures

Key characteristics	▸ The landscape is typically found on the undulating, poorer foothills of the impact assessment area surrounding the low-lying alluvial floodplains (LCT C—Irrigated Croplands) ▸ Soils typically comprise sodosols, dermosols and vertosols supporting a range of rural land uses ▸ Land use is predominately farmland, characterised by dryland cropping and pastoral properties for livestock production, with isolated instances of irrigated agriculture in parts, particularly near Bringalily and Millmerran ▸ The sodosols have a gravelly, sandy character, often exposed in areas and vulnerable to tunnel and gully erosion and are principally used for livestock ▸ Dermosols are associated with previous volcanic activity and are found in higher rainfall coastal regions. These soils are used for intensive crop production. ▸ The vertosols are typically cracking clay soils with high nutrients capable of supporting agriculture ▸ Vegetation comprises native roadside shelter belts and sporadic riparian vegetation associated with creek lines, as well as views to isolated vegetated hills and peaks associated with LCT H—Forested Uplands and LCT J—Forested Hills and Plains ▸ Transport corridors are typically straight in character, reflecting the flat topography with subtle curves associated with topographic variation that connect the key settlements and rural properties. State-controlled roads are sealed but other roads are typically unsealed gravel. ▸ Open and exposed character with long distant views and strong skylines, except where views are contained by roadside or creek-side vegetation ▸ Sparsely settled landscape, with scattered homesteads and cottages, and small rural villages, such as Kurumbul and Athol. Farmsteads are typically located on gently elevated areas in the eastern extent of the impact assessment area (west of Bringalily State Forest). ▸ Harmonious but fairly typical rural character, which is valued at a local level by local communities and visitors.
Precedent modifications and infrastructure elements	▸ Highly modified for agricultural practices, including clearing and levelling of land for cultivation of arable farmland and pastures for grazing ▸ Construction of roads, railways and bridges ▸ Telecommunication infrastructure including telegraph poles.
Landscape character sensitivity assessment	▸ The dry croplands and pastures LCT is predominantly visually open, with a sparsely settled rural character and little large-scale infrastructure. It has long distant views and strong skylines. ▸ Roadside shelter belts and sporadic riparian vegetation associated with creek lines and flood channels provide some screening ▸ Very small isolated areas within this LCT associated with the isolated mesas and hills of Mt Kingsthorpe and Gowrie Mountain are considered to have high scenic amenity values and are acknowledged in the *Toowoomba Regional Council Scenic Amenity Study* (TRC, 2009) ▸ Overall, due to the simple character and local value of the landscape, which is not protected in any planning scheme, the overall inherent sensitivity is considered to be **low**.

Type D: Dry Croplands and Pastures

Impact assessment	
Magnitude of change assessment	▸ Parts of the following LCAs would be directly affected: LCA D7: Gowrie Mountain, D9: Biddeston, D14: Millmerran, D15: Bringalily West, D23: Canning Creek West, D25: Bybera Road, D27: Yarranbrook, D28: Whetstone, D34: Yelarbon and D41: Macintyre River ▸ Impact on private land, including agricultural and pastoral areas will be evident in the vicinity of Gowrie Mountain, Biddeston, Millmerran, Bringalily, Bybera Road, Caning Creek, Yarranbrook, Whetstone and Kurumbul (near the Macintyre River) (LCA D7, D9, D14, D15, D23, D25, D27, D28 and D41), where the Project deviates from the existing railway corridor ▸ The Project will be introducing new infrastructure into what is a relatively intact rural environment ▸ Impacts within this LCT will be due to localised vegetation removal, major earthworks (e.g. cuts and embankments) and proposed road and creek bridges ▸ Overall, therefore, the impact on this LCT is **high**.
Potential effect	▸ The effect of the Project on LCT D: Dry Croplands and Pastures is **moderate** during construction and operation.

9.6.3.5 Landscape Character Type E

LCT E: Vegetated Grazing falls within the impact assessment area but is not affected by the Project (the Project does not traverse any areas of this LCT) so is not assessed. There are outlying patches of this type throughout the area, particularly in the north near Toowoomba.

9.6.3.6 Landscape Character Type F

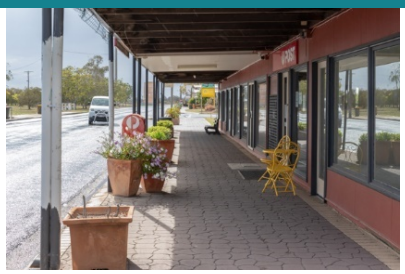
TABLE 9.13 LANDSCAPE IMPACT ASSESSMENT OF LCT F: RURAL SETTLEMENT

Type F: Rural Settlement

Landscape baseline assessment	
Location and boundaries	Seventeen rural settlements are located within the impact assessment area. They include the city of Toowoomba, the towns of Kingsthorpe, Meringandan, Gowrie Junction, Highfields, Westbrook, Southbrook, Pittsworth, Brookstead, Millmerran, Inglewood, Yelarbon, the Indigenous settlement Boggabilla, and the small rural settlement of Pampas. Accordingly, there are 17 LCAs of this type in the impact assessment area, including: ▸ Kingsthorpe (LCA F1) ▸ Meringandan West (LCA F2) ▸ Meringandan (LCA F3) ▸ Meringandan South (LCA F4) ▸ Gowrie Junction (LCA F5) ▸ Highfields (LCA F6) ▸ Toowoomba (LCA F7) ▸ Westbrook (LCA F8) ▸ Southbrook (LCA F9) ▸ Pittsworth (LCA F10) ▸ Brookstead (LCA F11) ▸ Pampas (LCA F12) ▸ Millmerran (LCA F13) ▸ Inglewood (LCA F14) ▸ Yelarbon (LCA F15) ▸ Boggabilla (LCA F16) ▸ Toomelah Indigenous Settlement (LCA F17).

Type F: Rural Settlement

Typical character images:


Key characteristics	▸ Comprises the settled area, including small rural towns, villages and communities as well as the regional city of Toowoomba ▸ Within rural towns, buildings are typically single storey and of varying age and condition. While Toowoomba's urban centre is denser, it still has a low-scale built form and several Heritage-listed buildings. ▸ Toowoomba and the larger settlements of Kingsthorpe, Meringandan, Gowrie Junction, Highfields, Westbrook, Southbrook, Pittsworth, Brookstead, Millmerran, Inglewood, Boggabilla and Toomelah have social infrastructure including parks, public schools and sport facilities ▸ The alignment follows the existing South Western Line rail corridor between Kildonan and Whetstone, before deviating away from the existing corridor to the north and following the approximate alignment of Millmerran–Inglewood Road, passing to the south of Millmerran and re-joining the existing rail corridor and the Millmerran Branch Line. The alignment then follows the existing rail corridor before deviating again to pass to the north of Pittsworth and Southbrook before heading north and tying into the West Moreton railway system near Gowrie Junction. ▸ Kingsthorpe (LCA F1) is a town situated approximately 20 km northwest of Toowoomba. A short distance from the town centre is Kingsthorpe Mountain, the summit of which, at 610 mAHD, provides elevated panoramic views of the town and surrounding landscape. It is located around 1 km of the alignment ▸ Meringandan West (LCA F2) is a locality situated to the west of Meringandan township, around 10 km from the alignment ▸ Meringandan (LCA F3) is a small country town located near Highfields, approximately 19 km north-northwest of Toowoomba and 10 km from the alignment ▸ Meringandan South (LCA F4) is a locality situated to the south of Meringandan township, around 8 km from the alignment ▸ Gowrie Junction (LCA F5) is a town and locality situated approximately 10 km northwest of Toowoomba, around 1.5 km from the alignment ▸ Highfields (LCA F6) is a town and locality situated approximately 13 km to the north of Toowoomba and over 7 km from the alignment that serves as a satellite suburb of the city of Toowoomba ▸ Toowoomba (LCA F7) is the largest settlement in the impact assessment area and is a regional city servicing the Darling Downs region, situated on an escarpment on the western side of the Great Dividing Range, approximately 700 m above sea level and 130 km west of Brisbane. The closest suburb (Cotswold Hills) is over 7 km from the alignment. ▸ Westbrook (LCA F8) is a town and locality situated approximately 10.6 km southwest of Toowoomba and nearly 10 km from the alignment

Type F: Rural Settlement	
Key characteristics (continued)	▸ Southbrook (LCA F9) is a town approximately 8.5 km northwest of Pittsworth and 1 km from the alignment (with outlying rural properties at even closer distances). The Gore Highway passes through the north of the town. ▸ Pittsworth (LCA F10) is a town and locality approximately 41 km southwest of Toowoomba, and a service centre for the surrounding agricultural areas. It is situated on the undulating uplands of the Darling Downs. The alignment passes along the northern edge of the town. ▸ Brookstead (LCA F11) is a town and locality situated on the Gore Highway, approximately 18.7 km southwest of Pittsworth. The alignment passes along the southern edge of the town. ▸ Pampas (LCA F12) is a small rural settlement situated on the Gore Highway approximately 5.3 km southwest of Brookstead. The alignment passes through the town. ▸ Millmerran (LCA F13) is a town situated on the Gore Highway, approximately 75.6 km southwest of Toowoomba and around 2 km at its closest point to the alignment ▸ Inglewood (LCA F14) is the second largest town in the Goondiwindi region, situated midway between Warwick and Goondiwindi on the Cunningham Highway. It is around 2.5 km from the alignment. ▸ Yelarbon (LCA F15) is a small town situated on the Cunningham Highway, between Goondiwindi and Inglewood, located immediately south of the alignment ▸ Boggabilla (LCA F16) is a small town in NSW, located southeast of Goondiwindi and around 9 km west of the alignment ▸ Toomelah Indigenous Settlement (LCA F17) is situated near the confluence of the Macintyre and Dumaresq rivers, around 2 km from the alignment.
Precedent modifications and infrastructure elements	▸ Highly modified for urban land uses, including clearing of remnant vegetation and levelling of land for construction ▸ Presence of roads, railways and bridges ▸ Telecommunication infrastructure, including telegraph poles.
Landscape character sensitivity assessment	▸ The rural settlements landscape type has a settled rural character. Smaller rural communities such as Pampas are very sparsely settled. ▸ Buildings, street trees and remnant vegetation are of local value ▸ The sensitivity of these settlements is considered to be **moderate**. While not valued on account of visual amenity values within planning schemes, these settlements have a distinctive character with some elements of interest (such as heritage buildings and silos) and are also likely to be valued by the people that reside in or visit them.
Impact assessment	
Magnitude of change assessment	▸ The Project passes directly through or along the edges of the following towns, so therefore only directly affects the character of these areas: Brookstead (LCA F11), Pampas (LCA F12), and Yelarbon (LCA F15). In these settlements, the alignment is situated along or close to existing railway infrastructure ▸ The Project also influences the setting of Pittsworth (LCA F10) and Southbrook (LCA F9) through introducing large-scale infrastructure (embankments and bridges into the rural setting of the town) ▸ While Boggabilla and Toomelah are within the impact assessment area, the North Star to NSW/QLD Border section of the Inland Rail is closer and would have a potentially greater influence than this Project so are not considered further here ▸ Similarly, Gowrie Junction, Highfields and Toowoomba are impacted to a greater extent by the Gowrie to Helidon Section of the Inland Rail so are not considered further here ▸ Meringandan West, Meringandan and Meringandan South (LCA F2, F3 and F4) are situated approximately 8 to 10 km northeast of the alignment and are not anticipated to be affected ▸ Inglewood is approximately 3.4 km south of the proposed alignment, while Millmerran is approximately 3 km northwest. It is considered unlikely that the setting of these towns would be affected due to the presence of riparian vegetation along Macintyre Brook and Leonard (Back Creek) Creek, which limits inter-visibility.

Type F: Rural Settlement	
Magnitude of change assessment (continued)	▸ Residents of Southbrook will not be impacted, due to screening topography and vegetation ▸ Other towns of this LCT will not experience direct impacts, although indirect impacts on character may arise on towns close to the alignment due to the possibility of views towards the alignment (e.g. elevated areas of Kingsthorpe (LCA F1) ▸ The impact of the Project on views from relevant settlements is discussed separately in Section 9.6.4 ▸ Overall, the impact on this LCT is considered to be up to **high**. There would be limited loss of features of value, although in places such as Kingsthorpe, Pampas, Southbrook and Yelarbon the introduction of large embankments and bridge structures are distinct new elements that will change the perception of rural settlement character.
Potential effect	▸ The effect of the Project on LCT F: Rural Settlement is **high** during construction and operation.

9.6.3.7 Landscape Character Type G

TABLE 9.14 LANDSCAPE IMPACT ASSESSMENT OF LCT G: RURAL LIVING

Type G: Rural Living	
Landscape baseline assessment	
Location and boundaries	This LCT is typically located in elevated parts of the impact assessment area, near major transport infrastructure with access to towns and services, and is characterised by large lot rural residential development, and is typically somewhat vegetated. There are 17 LCAs of this type in the impact assessment area, including: ▸ Oakey (LCA G1) ▸ Westview Rural Living (LCA G2) ▸ Meringandan West Rural Living (LCA G3) ▸ Glencoe Rural Living (LCA G4) ▸ Redlands Drive Rural Living (LCA G5) ▸ Hilltop Drive Rural Living (LCA G6) ▸ Gowrie Junction Rural Living (LCA G7) ▸ Highfield Ridge Rural Living (LCA G8) ▸ Blue Mountain Heights Rural Living (LCA G9) ▸ Gowrie Mountain Rural Living (LCA G10) ▸ Torrington Rural Living (LCA G11) ▸ Cranley Rural Living (LCA G12) ▸ Westbrook Rural Living (LCA G13) ▸ Wyreema Rural Living (LCA G14) ▸ Southbrook North Rural Living (LCA G15) ▸ Southbrook South Rural Living (LCA G16) ▸ Millmerran Rural Living (LCA G17).
Typical character images:	
	
	

Type G: Rural Living	
Key characteristics	▸ Private residential dwellings on large lots, typically on elevated and undulating topography, with low-scale built form and limited local services ▸ Typically, single storey buildings of varying age and condition ▸ Some rural residential areas are densely vegetated, while others are quite open ▸ Mixture of native and garden vegetation/street trees ▸ Generally, an enclosed landscape, with the exception of elevated properties, vegetation has been cleared (consequently views towards the alignment can be achieved, particularly evident near Kingsthorpe and Gowrie Junction as discussed in Section 9.6.4 ▸ Highly visible landscape type throughout the impact assessment area.
Precedent modifications and infrastructure elements	▸ Highly modified for urban land uses, including clearing of remnant vegetation and levelling of land for construction ▸ Presence of roads, railways and bridges ▸ Telecommunication infrastructure including telegraph poles.
Landscape character sensitivity assessment	▸ The rural living landscape type is predominantly visually closed, with a sparsely settled rural character. Typically, services are limited. ▸ Street trees and remnant vegetation provide some screening effect ▸ The sensitivity of these rural residential areas is considered to be **moderate**. These areas have a distinctive character but are valued at the local level, principally by residents.
Impact assessment	
Magnitude of change assessment	▸ There are no direct impacts on the rural living landscape type; however, due to proximity the Project is considered likely to have an effect on the setting on LCA G10: Gowrie Mountain and LCA G15: Southbrook North ▸ Impacts within this LCT relate to localised vegetation removal, major earthworks (e.g. cuts and embankments) and proposed road and creek bridges, close to the settled landscape ▸ It is considered that the impact on the Project will be most evident for Gowrie Mountain (LCA G10), which will be affected by the proposed embankment located to the north and west of the settled area (at its closest point around 600 m away) and which includes a new Warrego Highway Rail Bridge, which collectively will decrease the inherently rural setting of the area and sense of tranquillity ▸ The rural residential areas to the north of Southbrook (LCA G15) will also be affected by the proximity of the proposed alignment and embankments but the LCT is only anticipated to be affected along the northern periphery of the area ▸ The rural residential areas of LCA G1, G2, G3, G4, G13, G14, G16 and G17 are at a significant distance from the alignment so there would be no meaningful direct or indirect impacts on landscape character: Oakey (10 km), Westview (10 km), Meringandan West (10 km), Glencoe (5 km), Westbrook (6 km), and Wyreema (10 km) ▸ Due to the distance of residents of Redlands Drive, Gowrie Junction, Highfield Ridge, Blue Mountain Heights, Torrington and Cranley, (LCA G6, G7, G8, G9, G11 and G12) from the Project, the impact of the Project on these rural residential areas are not considered in this assessment as they lie closer to the Gowrie to Helidon project ▸ Rural residential properties of Millmerran will not be impacted, due to their distance from the alignment and screening riparian vegetation along Leonard (Back Creek) Creek ▸ The impact of the Project on views from relevant settlements is discussed separately in Section 9.6.4 ▸ Overall, there are no direct impacts, but the indirect impacts of the Project on this LCT are considered to be **moderate**.
Potential effect	▸ The effect of the Project on LCT G: Rural living is **moderate** during construction and operation.

9.6.3.8 Landscape Character Type H

TABLE 9.15 LANDSCAPE IMPACT ASSESSMENT OF LCT H: FORESTED UPLANDS

Type H: Forested Uplands

Landscape baseline assessment	
Location and boundaries	This LCT is typically associated with elevated, undulating areas within the impact assessment area, including parts of the Great Dividing Range, West Ridge and South Ridge. There are 20 LCAs of this type in the impact assessment area, including: ▸ Sugar Loaf Mountain forested uplands (LCA H1) ▸ McGregor Mountain forested uplands (LCA H2) ▸ Storey Mountain forested uplands (LCA H3) ▸ Meringandan West forested uplands (LCA H4) ▸ Mount Kingsthorpe forested uplands (LCA H5) ▸ Gowrie Mountain forested uplands (LCA H6) ▸ Wellcamp forested uplands (LCA H7) ▸ Glenvale Mountain forested uplands (LCA H8) ▸ Bunkers Hill forested uplands (LCA H9) ▸ Umbriam forested uplands (LCA H10) ▸ Hodgson Creek forested uplands (LCA H11) ▸ Umbriam Creek forested uplands (LCA H12) ▸ Scrubby Mountain forested uplands (LCA H13) ▸ Captains Mountain forested uplands (LCA H14) ▸ Commodore Peak forested uplands (LCA H15) ▸ Commodore Peak South forested uplands (LCA H16) ▸ Pine Hill forested uplands (LCA H17) ▸ Kooroongarra North forested uplands (LCA H18) ▸ Kooroongarra forested uplands (LCA H19) ▸ Kooroongarra South forested uplands (LCA H20).
Typical character images:	






Type H: Forested Uplands	
Key characteristics	▸ Elevated and undulating topography, typically above 100 mAHD ▸ Areas of very steep slopes ▸ Distinctive landform including mountain peaks and prominent ridgelines, such as those of the Great Dividing Range ▸ Incised dry creek valleys where waterways drain the elevated area ▸ Typically, eucalyptus woodland or forest but microclimatic variation includes areas of other vegetation including fragment rainforest ▸ Generally, an enclosed landscape with limited public access and limited views ▸ Highly visible landscape type throughout the impact assessment area ▸ Most elevated areas of this type, including peaks of the Great Dividing Range, are considered to have high scenic amenity and are included on the SEQ Regional Significant Scenic Amenity overlay.
Precedent modifications and infrastructure elements	▸ Due to the undulating steep terrain, much of the vegetation is remnant due to the inaccessibility to clear the areas ▸ Natural landscape with very limited settlement and little large-scale infrastructure elements ▸ Mount Kingsthorpe scenic lookout is located within this character type ▸ The existing West Moreton System rail line transects the Great Dividing Range at the most north-eastern extent of the impact assessment area ▸ Some telecommunications towers and powerlines in elevated locations ▸ Some instances of mining and quarrying, typically, these operations are screened by dense native vegetation.
Landscape character sensitivity assessment	▸ This landscape character type has little capacity to accommodate development as this would require vegetation clearance, which would be visually intrusive in this elevated and undulating landscape ▸ Key areas of this landscape are also protected for their scenic qualities and are of state significance (e.g. peaks of the Great Dividing Range) or are identified in the Toowoomba Regional Council Scenic Amenity Study as having high value (including the area around Storey Mountain, Mount Kingsthorpe, Gowrie Mountain, Captains Mountain and Commodore Peak) ▸ Therefore, the landscape sensitivity of this landscape type is considered to be up to **high**.
Impact assessment	
Magnitude of change assessment	▸ The alignment does not directly transect any of the landscape character areas, however LCA H5: Mount Kingsthorpe is impacted due to its proximity to the alignment (approximately 1.4 km) and the presence of Mount Kingsthorpe summit scenic lookout ▸ Elsewhere, this landscape type is not within proximity to the alignment, or views are contained by dense vegetation, therefore the impacts on other parts of this landscape type would be indirect ▸ There is no impact on this character type. Views from Mount Kingsthorpe summit scenic lookout are considered elsewhere (refer Section 9.6.5).
Potential effect	▸ The effect of the Project on LCT H: Forested Uplands is **no impact** during construction and operation.

9.6.3.9 Landscape Character Type I

TABLE 9.16 LANDSCAPE IMPACT ASSESSMENT OF LCT I: SETTLED HILLS

Type I: Settled Hills

Landscape baseline assessment	
Location and boundaries	This LCT is associated with the elevated, undulating areas and basaltic uplands of the Darling Downs, surrounding Pittsworth. There is one landscape character area of this type—the Pittsworth Hills (LCA I1).
Typical character images:	  
Key characteristics	▸ Elevated and gently undulating topography, typically between 450 m and 680 m AHD and associated with the basalt uplands of the Darling Downs ▸ Distinctive from the surrounding floodplains of the Condamine River and Gowrie Creek ▸ Incised dry creek valleys where waterways drain the elevated area ▸ Typically, grassy open eucalyptus woodland or forest ▸ Generally, an enclosed landscape with limited views due to undulating topography.
Precedent modifications and infrastructure elements	▸ Due to the undulating terrain, patches of remnant vegetation remain due to the inaccessibility to clear the areas ▸ Somewhat natural landscape with very limited settlement (some rural residential properties) and little large-scale infrastructure elements ▸ The existing Millmerran Branch Line transects the basalt uplands, passing through Pittsworth ▸ Some telecommunications towers and powerlines in elevated locations.
Landscape character sensitivity assessment	▸ This landscape character type has some capacity to accommodate development, as views would be visually contained by the undulating landscape; however, there are a moderate number of rural residential residents with a specific interest in views within this character area in proximity to the alignment ▸ Views towards the alignment within this landscape character type will be possible from the Gore Highway. A moderate number of receptors travel along the Gore Highway (annual average daily traffic (AADT) around 1,538 per day, of which up to 43.74 per cent are heavy vehicles) and would experience changes to the view. However, it is noted that these viewers are passing at speed and would only experience transient views. ▸ Views towards this landscape character area are also possible for residents on the northern side of Pittsworth overlooking the Gore Highway and for elevated rural residents to the north of Southbrook ▸ Therefore, the landscape sensitivity of this landscape type is considered to be up to **moderate**.
Impact assessment	
Magnitude of change assessment	▸ The alignment directly transects LCA I1: Pittsworth Hills ▸ Within LCA I1, the alignment passes through privately owned land, deviating from the existing railway corridor. The key impact within this area will be due to extensive earthworks and clearing of vegetation to enable the construction of the railway corridor, embankments and new road infrastructure. ▸ The impact will fundamentally change the character of the landscape from natural and rural landscape to one dominated by infrastructure. Views to the alignment will be contained by the undulating topography, therefore impacts will be most apparent for nearby rural residential residents and residents to the north of the towns of Pittsworth and Southbrook. ▸ This represents an overall **high** magnitude of change.
Potential effect	▸ The effect of the Project on LCT I: Settled Hills is **high** during construction and operation.

9.6.3.10 Landscape Character Type J

TABLE 9.17 LANDSCAPE IMPACT ASSESSMENT OF LCT J: FORESTED HILLS AND PLAINS

Type J: Forested Hills and Plains

Landscape baseline assessment	
Location and boundaries	This LCT is typically associated with the densely vegetated, lower-lying and gently undulating areas of the impact assessment area, typically west of Millmerran. This LCT includes Wondul Range National Park, while other areas are predominately designated as State forests, which typically have very limited recreational opportunity. There are 14 character areas of this type, including: ▸ Turallin (LCA J1) ▸ Millmerran Downs (LCA J2) ▸ Wondul Creek State Forest (LCA J3) ▸ Kooroongarra Road (LCA J4) ▸ Mingimarny Creek West (LCA J5) ▸ Mingimarny Creek East (LCA J6) ▸ Bringalily Creek North (LCA J7) ▸ Bringalily Creek South (LCA J8) ▸ Canning Creek (LCA J9) ▸ Bringalily State Forest West (LCA J10) ▸ Bringalily State Forest East (LCA J11) ▸ Devine State Forest (LCA J12) ▸ Yelarbon State Forest North (LCA J13) ▸ Yelarbon State Forest South (LCA J14).
Typical character images:	
	     
Key characteristics	▸ Undulating to low hilly country on deeply weathered sandstones, typically between 250 m and 450 m AHD ▸ Incised dry, typically sandy creek valleys where waterways drain elevated areas ▸ Vegetation is typically dominated by narrow-leaved ironbark (*Eucalyptus crebra*) on hillsides, cypress pine (*Callitris glaucophylla*) and bulloak (*Allocasuarina luehmannii*) on solodic soils in gently undulating parts and poplar box (*E. populnea*) on lower slopes and flats. There are also minor areas of brigalow (*Acacia harpophylla*) and belah (*Casuarina cristata*). ▸ Generally, an enclosed landscape with limited public access and limited views ▸ Comprises a high level of naturalness and remoteness and is a highly visible landscape type throughout the western extent of the impact assessment area, between Yelarbon and Bringalily.

Type J: Forested Hills and Plains	
Precedent modifications and infrastructure elements	▸ Natural landscape with very limited settlement and little large-scale infrastructure elements ▸ Limited recreational facilities within national park and State forest areas, typically used for wildlife watching and bushwalking ▸ The existing South Western Line transects the western most extent of Whetstone State Forest, near Whetstone ▸ Some telecommunications towers and powerlines in elevated locations ▸ Some instances of clearing for grazing, agriculture and forestry, as well as minor mining operations (borrow pits). Typically, these operations are screened by dense native vegetation.
Landscape character sensitivity assessment	▸ This landscape character type has some capacity to accommodate development, due to its heavily vegetated nature and enclosed views ▸ Development would however require vegetation clearance which would be visually intrusive in this densely vegetated and gently undulating landscape ▸ This landscape offers a refuge from clearing and increasing mining pressures and is, therefore, a locally and regionally valued landscape ▸ Therefore, the landscape sensitivity of this landscape type is considered to be up to **moderate**.
Impact assessment	
Magnitude of change assessment	▸ The alignment transects LCA J10: Bringalily State Forest West, which includes parts of Bringalily State Forest and Whetstone State Forest to the west of Millmerran–Inglewood Road and the Cunningham Highway ▸ The key impact within this area will be due to extensive clearing due to proposed earth works to facilitate the construction of the railway corridor, embankments and new road infrastructure ▸ Elsewhere, this LCT is not within proximity to the alignment, therefore, the impacts on this landscape type would be **indirect** ▸ The impact will be localised and will not fundamentally change the character of the landscape as there is existing rail infrastructure within Whetstone State Forest and the surrounding area and, for the most part, the corridor skirts the edges of the forest. This results in an overall **low** magnitude of change.
Potential effect	▸ The effect of the Project on LCT J: Forested Hills and Plains is **low** during construction and operation.

9.6.3.11 Landscape Character Type K

TABLE 9.18 LANDSCAPE IMPACT ASSESSMENT OF LCT K: SALINITY SCALD

Type K: Salinity Scald

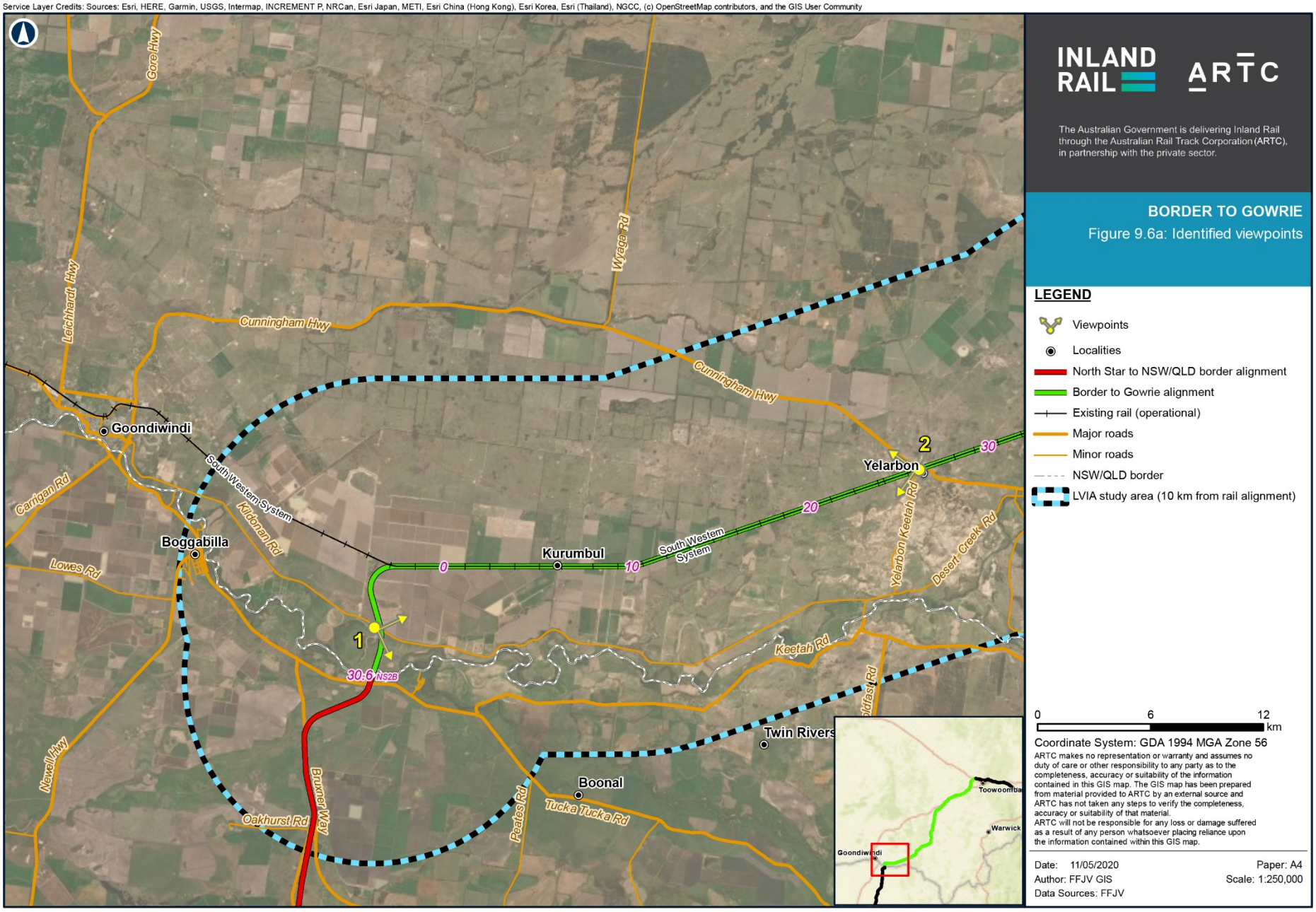
Landscape baseline assessment	
Location and boundaries	This LCT is associated with the dryland salinity scald surrounding Yelarbon, in the western extent of the impact assessment area. There is one landscape character area of this type—the Yelarbon Salinity Scald (LCA K1).
Typical character images:	
     	
Key characteristics	▸ Low-lying and flat landscape, typically above 100 m AHD ▸ Multiple streams, such as Desert Creek, drain the area ▸ Distinctive landscape, easily identified from the surrounding areas due to the characteristic white tone of soils, caused by the severe erosion of topsoil and salt encrustation ▸ Salt-tolerant vegetation, including grasses such as Spinifex grass, are well established between patches of bare ground ▸ Generally, an open landscape with limited public access and limited views.
Precedent modifications and infrastructure elements	▸ Dryland salinity in this region is caused by a major fault beneath the scald, that has allowed saline groundwater to leak upwards ▸ Erosion of the geologically caused saline scald has been aggravated by overgrazing ▸ The existing South Western Line transects the northern extent of the scald near Yelarbon, while Yelarbon–Keetah Road transects the scald in a north–south direction ▸ Very limited development.
Landscape character sensitivity assessment	▸ This LCT is typically inaccessible to the public ▸ Therefore, the landscape sensitivity of this landscape type is considered to be up to **low**.
Impact assessment	
Magnitude of change assessment	▸ The alignment directly transects LCA K1: Yelarbon Salinity Scald ▸ The alignment follows the existing rail corridor and the key impact within this area will be the realignment of the Cunningham Highway and construction of the Cunningham Highway road bridge, due to selective vegetation clearing and earthworks required to facilitate the construction of the railway corridor, embankments and new road infrastructure ▸ The impact will be clearly evident, however restricted to a small area near Yelarbon, and will therefore not fundamentally change the character of the landscape. This represents an overall **low** magnitude of change.
Potential effect	▸ The effect of the Project on LCT K: Salinity Scald is **negligible** during construction and operation.

9.6.3.12 Landscape Character Type L

LCT L: Transitional Landscapes falls within the impact assessment area but is not affected by the Project so is not assessed. These landscapes comprise disturbed and developing landscapes, such as around Commodore Mine near Millmerran, that are not valued for their existing landscape character or quality.

9.6.4 Visual Impact assessment

The identified viewpoints are shown on Figure 9.6 and the assessment of each is described in Table 9.19 to Table 9.40.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BORDER TO GOWRIE
Figure 9.6a: Identified viewpoints
LEGEND
Viewpoints
Localities
North Star to NSW/QLD border alignment
Border to Gowrie alignment
Existing rail (operational)
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
Goondiwindi
Boggabilla
Kurumbul
Yelarbon
Twin Rivers
Boonal
Gore Hwy
Leichhardt Hwy
Cunningham Hwy
Wyaga Rd
Carrigan Rd
Lowes Rd
Newell Hwy
Oakhurst Rd
Bruxner Way
Peates Rd
Tucka Tucka Rd
Keetah Rd
Yelarbon Keetah Rd
Desert Creek Rd
South Western System
Kildonan Rd
0
10
20
30
1
2
30:6 NS2B
0
6
12
km
Coordinate System: GDA 1994 MGA Zone 56
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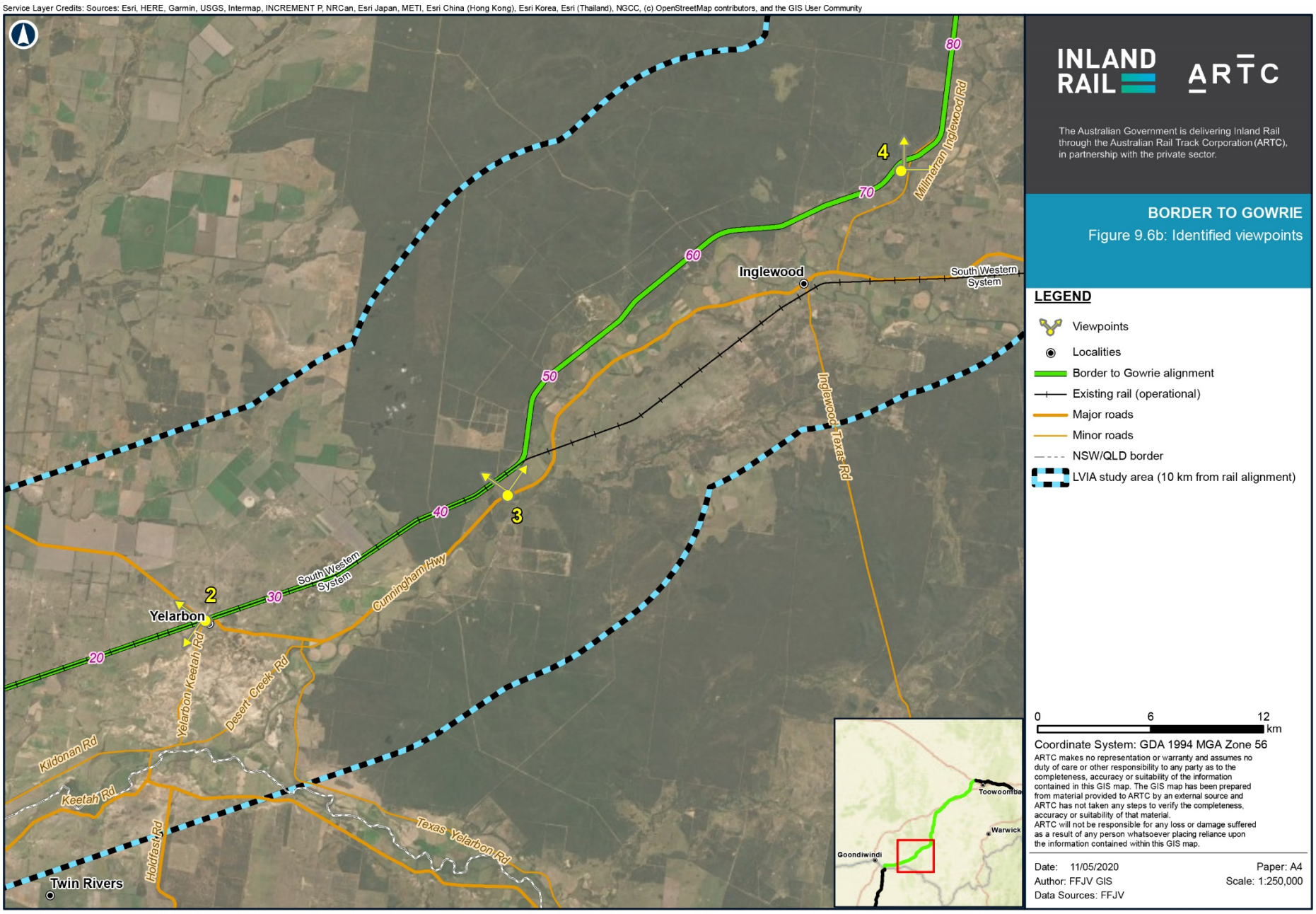
Data Sources: FFJV
Paper: A4
Scale: 1:250,000
Toowoomba
Warwick
Goondiwindi
Map by: MEF/RB/LS Z:\GIS\GIS_General\Tasks\Environment\390-ELE-201808061159_LVIA\B2G\390-ELE-201808061159_ARTC_Fig9.6_B2G_ARTC_VP_rev5.mxd Date: 13/05/2020 12:08



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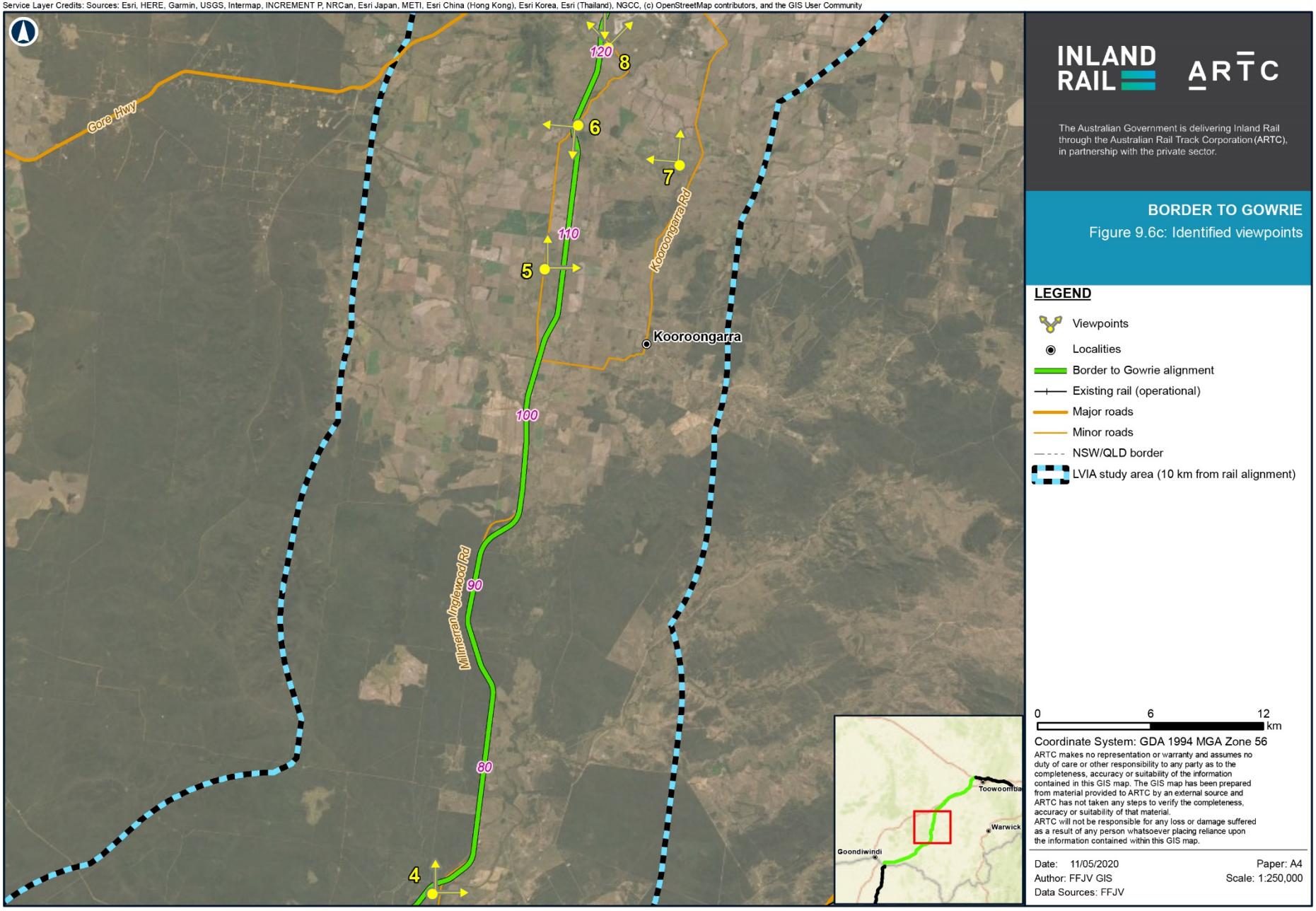
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Gore Hwy
120
8
6
7
110
5
Kooroongarra Rd
Kooroongarra
100
Millmerran Inglewood Rd
90
80
4
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BORDER TO GOWRIE
Figure 9.6c: Identified viewpoints
LEGEND
Viewpoints
Localities
Border to Gowrie alignment
Existing rail (operational)
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
Toowoomba
Warwick
Goondiwindi
0
6
12
km
Coordinate System: GDA 1994 MGA Zone 56
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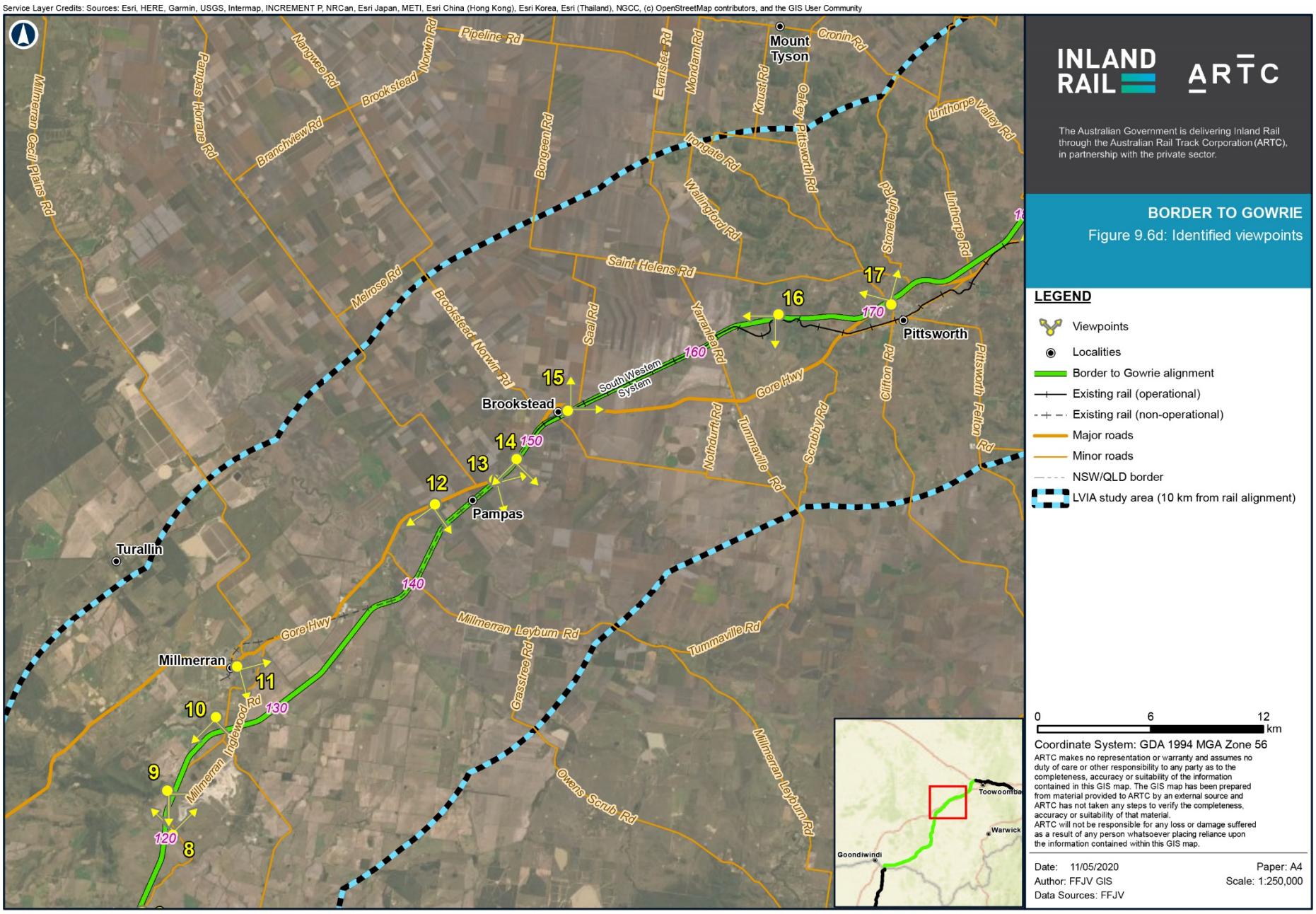
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BORDER TO GOWRIE
Figure 9.6d: Identified viewpoints
LEGEND
Viewpoints
Localities
Border to Gowrie alignment
Existing rail (operational)
Existing rail (non-operational)
Major roads
Minor roads
NSW/QLD border
LVIA study area (10 km from rail alignment)
Mount Tyson
Pittsworth
Brookstead
Pampas
Turallin
Millmerran
South Western System
Millmerran Cecil Plains Rd
Pampas Horrane Rd
Nangwee Rd
Brookstead Norwin Rd
Pipeline Rd
Branchview Rd
Bongeen Rd
Evanslea Rd
Mondam Rd
Knust Rd
Cronin Rd
Oakey Pittsworth Rd
Linthorpe Valley Rd
Irongate Rd
Wellingford Rd
Stoneleigh Rd
Linthorpe Rd
Saint Helens Rd
Melrose Rd
Saal Rd
Yarranlea Rd
Gore Hwy
Clifton Rd
Pittsworth Felton Rd
Nothdurft Rd
Tummaville Rd
Scrubby Rd
Millmerran Leyburn Rd
Grasstree Rd
Inglewood Rd
Owens Scrub Rd
Millmerran Inglewood Rd
Toowoomba
Warwick
Goondiwindi
0 6 12 km
Coordinate System: GDA 1994 MGA Zone 56
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Data Sources: FFJV
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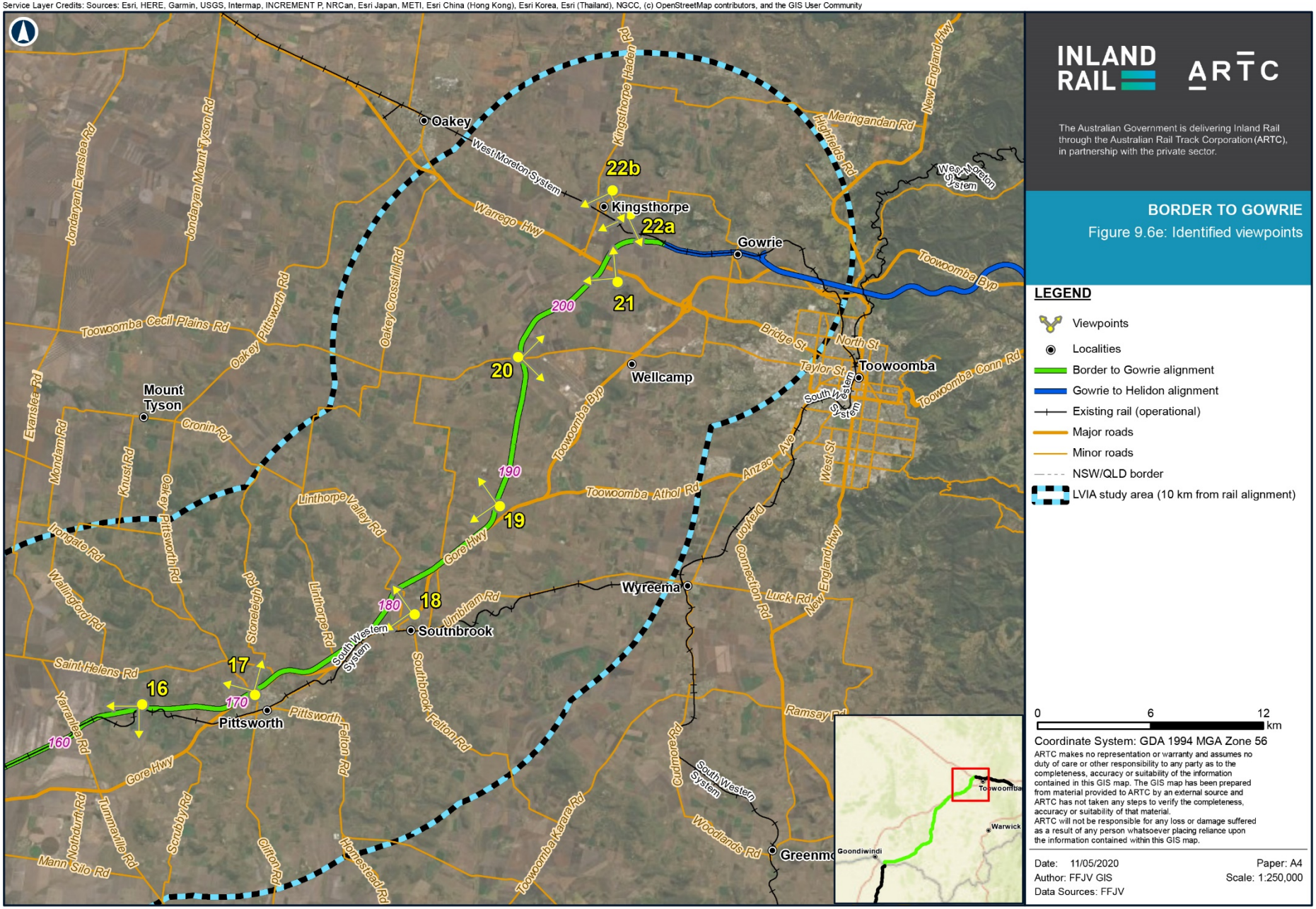

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BORDER TO GOWRIE

Figure 9.6e: Identified viewpoints

LEGEND

- Viewpoints
- Localities
- Border to Gowrie alignment
- Gowrie to Helidon alignment
- Existing rail (operational)
- Major roads
- Minor roads
- NSW/QLD border
- LVIA study area (10 km from rail alignment)

0 6 12 km

Coordinate System: GDA 1994 MGA Zone 56

Date: 11/05/2020
Author: FFJV GIS
Data Sources: FFJV

Paper: A4
Scale: 1:250,000

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9.6.4.1 Viewpoint 1

TABLE 9.19 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 1

VP1: Rainbow Reserve near Kildonan Road, Kurumbul

Visual baseline assessment	
 Existing view from Viewpoint 1	
Location and description	▸ GPS Location: 28°38'35.52" S 150°27'15.948" E ▸ Elevation: 220.0 m ▸ Easterly view from the edge of Rainbow Lagoon, within Rainbow Reserve (a significant Aboriginal heritage site) located off Kildonan Road ▸ Proposed alignment is approximately 300 m to the east of this viewpoint ▸ Realignment of Eukabilla Road is situated approximately 180 m to the north east of this viewpoint ▸ The Macintyre River and proposed Macintyre River Rail Bridge crossing is situated approximately 2.5 km to the south of this viewpoint ▸ Represents typical and accessible views of visitors and campers staying at Rainbow Reserve ▸ Easterly views from this point provide open views towards the proposed alignment and landscapes typical of LCT A: Vegetated Watercourses—Rivers ▸ Views are contained due to riparian vegetation.
Key visual sensitivities	▸ Moderate sensitivity of receptors, including people camping at or visiting Rainbow Reserve ▸ Lies close to the Border Rivers local tourist drive ▸ Rainbow Reserve and lagoon are listed as cultural heritage sites and are known to be of value to the local Aboriginal community ▸ The lack of existing infrastructure, high scenic value of the reserve and the Indigenous significance of this site increase the overall sensitivity of this view ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the type and number of viewers (e.g. visitors to the reserve, which accommodates overnight camping).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ Areas proposed as construction laydown areas within this vicinity are partially screened from this location due to existing vegetation ▸ Rainbow Reserve is a popular camping spot and recreational reserve; therefore, construction works could have a significant impact on visitors to the area ▸ Construction of proposed embankments, rail and bridge infrastructure, access roads, vegetation clearing, and the realignment of Eukabilla Road will cause significant disturbance within the landscape ▸ At this distance, construction works and laydown areas will be noticeable; however, they will be largely screened by existing vegetation and topography. While noticeable, it will not fundamentally change the visual character of the landscape. ▸ This represents a **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP01 during construction is considered to be **low**.

VP1: Rainbow Reserve near Kildonan Road, Kurumbul

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 300 m to the east of this viewpoint. The proposed alignment, level crossing and realignment of Eukabilla Road will be mostly screened by existing vegetation. ▸ The magnitude of change on this receptor is anticipated to be noticeable, due to the following factors: ▸ Noticeable change due to proposed earthworks and the provision of new rail infrastructure within what is currently a landscape with high scenic value ▸ The typical height of the alignment is approximately 0.5 m above the existing level of Kildonan Road ▸ Fencing is to be provided for the extent of the rail corridor (except for the Condamine River floodplain), typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, while the alignment and proposed access road alongside it will be evident, the Project will not change the fundamental visual character of the landscape, as it will be predominately screened by existing vegetation. The alignment will blend into the existing view to a considerable extent. Therefore, the magnitude of change is considered to be **low**.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will have a noticeable impact on people within the reserve. These views will be experienced by, at worst, a moderate number of people with an interest in their surroundings and prolonged viewing opportunities (as camping is permitted within the reserve). ▸ Trains will be evident to travellers on Kildonan Road, part of the Border Rivers Tourist Drive, but only experienced occasionally due to the low number and transient nature of travellers on this road ▸ The magnitude of change is considered to be, at most, **moderate**.
Potential effect (operation)	The effect of the Project on VP01 during operation is considered to be **moderate**.

9.6.4.2 Viewpoint 2

TABLE 9.20 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 2

VP2: Yelarbon Rest Area

Visual baseline assessment	
	
Existing view from Viewpoint 2	
Location and description	▸ GPS Location: 28°34'21.767" S 150°45'6.636" E ▸ Elevation: 240 m ▸ Westerly view in the direction of Goondiwindi from the Cunningham Highway, where it passes through Yelarbon ▸ Proposed alignment is approximately 50 m to the north of this viewpoint ▸ Represents typical and accessible views of residents and of visitors, workers and tourists in Yelarbon, as well as those travelling along the Cunningham Highway ▸ Location is adjacent to the Yelarbon rest area and represents views from the Cunningham Highway (and main street) of Yelarbon and is intended to represent more generally the views from the rest of the town towards the alignment ▸ Westerly views from this point provide close views towards the proposed alignment, Cunningham Highway Bridge, non-resident workforce accommodation and laydown area, including landscapes typical of LCT F: Rural Settlement (F15: Yelarbon) and LCT D: Dry Croplands and Pastures (D34: Yelarbon).
Key visual sensitivities	▸ Receptors, including a relatively high number of nearby residents, workers and travellers driving along the Cunningham Highway and visitors to Yelarbon using rest stop facilities. ▸ Yelarbon is located on the Border Rivers local tourist drive. ▸ A moderate number of receptors travel along the Cunningham Highway (AADT around 1,538 per day, of which up to 43.74 per cent are heavy vehicles) and would experience changes to the view; however, it is noted that these viewers are typically passing at speed and would only experience transient views. ▸ This viewpoint is considered to have a **moderate** sensitivity overall to the change proposed, due to the Yelarbon town centre location with a medium number of receptors, most of whom would have an interest in views from this location (e.g. nearby residents, commercial operators and people using the rest stop); albeit that this is not a particularly scenic viewpoint, which already includes existing railway infrastructure and is not specifically visited for its scenic amenity value.

VP2: Yelarbon Rest Area

Visual Evaluation

Photomontage view from Viewpoint 2—pre-reinstatement of rest node

Photomontage view from Viewpoint 2—reinstatement of rest node

Construction	
Magnitude of change assessment	▸ The construction of the alignment, the Cunningham Highway Road Bridge and the realignment of the Cunningham Highway, Yelarbon–Kurumbul Road, Yelarbon–Keetah Road and Kera Street will result in extensive disturbance, creating a considerable temporary change in the landscape character of this viewpoint ▸ Vegetation clearing for the construction of the proposed alignment, bridge structures and laydown areas will remove existing vegetation that provides some visual screening of the existing rail alignment, increasing the visibility of the alignment from the Cunningham Highway and surrounding residential properties ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The presence of a non-resident workforce accommodation facility, plant constructing the alignment, Cunningham Highway Road Bridge, realigned roads, cuts and embankments will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction works will be clearly evident from this vantage point, the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP02 during construction is considered to be **moderate**.

VP2: Yelarbon Rest Area

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 50 m to the north of this viewpoint, while the proposed Cunningham Highway Road Bridge is approximately 455 m to the west ▸ The skyline is already affected by the presence of powerlines, power poles and existing rail infrastructure ▸ The infrastructure is anticipated to be dominant, therefore a **high** magnitude of change, due to the following factors: ▸ Noticeable change due to the provision of a new single-track dual-gauge railway to the north of the existing rail line ▸ Existing residential properties within Yelarbon, particularly those on Kera Street, will have direct, close views to the proposed new road bridge ▸ Existing level crossing will be removed and replaced by the realignment of the Cunningham Highway, including the provision of large embankments and the Cunningham Highway Bridge (7.1 m minimum clearance over rail) in the centre of the view ▸ Vegetation clearing for the construction of the proposed alignment, bridge structures and laydown area will increase the visibility of the alignment from the Cunningham Highway and surrounding residential properties. ▸ Fencing is to be provided for the extent of the rail corridor. Fencing is to extend between the corridor and private land adjoining the railway and will be a standard chain link boundary fence ▸ At this distance, the alignment, embankments and the Cunningham Highway Road Bridge will be highly evident and will have a dominant impact on this viewpoint as it will be introducing new road infrastructure within close proximity to residential properties on the western side of Yelarbon. This represents a **high** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident due to the proximity of the rail alignment to nearby residential and commercial properties of Yelarbon, particularly those on Taloom Street and Kera Street. Close views to the alignment will be possible for travellers passing over the new Cunningham Highway Road Bridge. While anticipated to be experienced by numerous motorists, these views are of a transient nature, and the key visual receptors will be nearby residents. It is noted that the existing rail line currently facilitates freight train movements, albeit single stacked. Therefore, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP02 during operation is considered to be **high**.

9.6.4.3 Viewpoint 3

TABLE 9.21 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 3

VP3: Cunningham Highway Near Whetstone Rest Area

Visual baseline assessment	
 **Existing view from Viewpoint 3**	
Location and description	▸ GPS Location: 28°30'55.451" S 150°55'2.214" E ▸ Elevation: 260 m ▸ Northerly view towards Whetstone State Forest from the Cunningham Highway near Whetstone Rest Area ▸ Proposed alignment is approximately 1 km to the northwest of this viewpoint ▸ Represents typical and accessible views of those travelling along the Cunningham Highway, as well as those stopping at the rest area ▸ Northerly views from this point provide open views towards the existing railway line, the proposed alignment, as well as landscapes typical of LCT D: Dry Croplands and Pastures (D28: Whetstone East) and LCT J: Forested Hills and Plains (J10: Bringalily West).
Key visual sensitivities	▸ Receptors include isolated rural residents, workers and travellers experiencing transient views at speed along the Cunningham Highway (AADT around 1,538 per day, of which up to 43.74 per cent are heavy vehicles) drivers using rest stop facilities ▸ This viewpoint is not located on or near any tourist drives ▸ The presence of existing infrastructure (railway line) reduces the overall sensitivity of this view ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the low number of isolated rural properties near this viewpoint, and the relatively low interest of travellers passing at some speed along the Cunningham Highway, who are the primary visual audience in this location.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ Due to the distance from the highway, the construction of the Project within the existing rail corridor, the provision for a flash butt welding facility and the presence of construction plant constructing the alignment the Project will create a barely perceptible change in this viewpoint ▸ Due to the open nature of grazing land the alignment passes through in this location, vegetation clearing for the construction of the proposed alignment is considered to have **negligible** impact on screening vegetation ▸ This temporary impact represents a **negligible** magnitude of change.
Potential effect (construction)	The effect of the Project on VP03 during construction is considered to be **negligible**.

VP3: Cunningham Highway Near Whetstone Rest Area

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 1 km to the northwest of this viewpoint. The skyline is already affected by the presence of existing rail infrastructure. ▸ The magnitude of change on this receptor is anticipated to be barely perceptible, therefore **negligible**, due to the following factors: ▸ Provision of new rail infrastructure within the existing rail corridor, on low embankment up to around 1.5 m high ▸ Potential vegetation clearing for the flash butt welding facility, subject to construction methodology, will have a marginal impact on fringing vegetation of Whetstone State Forest. It will not impact the visibility of the alignment due to the situation of the laydown area to the far side of the railway line. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. A combination of standard rural chain wire fencing and wild dog check fencing is proposed throughout this section, consistent with existing provisions. ▸ At this distance, the alignment will be barely perceptible and will blend into the existing rural view to some extent. This represents a **negligible** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be noticeable due to the slightly elevated situation of the railway track. Distant views to the alignment will be possible for travellers along the Cunningham Highway and those stopping at Whetstone Rest Area. While anticipated to be experienced by numerous motorists, these views are of a transient nature. It is noted that the existing rail line currently facilitates freight train movements, albeit single stacked. Therefore, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP03 during operation is considered to be **negligible**.

9.6.4.4 Viewpoint 4

TABLE 9.22 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 4

VP4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road level crossing

Visual baseline assessment	
 **Existing view from Viewpoint 4**	
Location and description	▸ GPS Location: 28°21'26.267" S 151°8'20.957" E ▸ Elevation: 300 m ▸ North-easterly view towards Millmerran–Inglewood Road and proposed active level crossing ▸ Proposed alignment and Millmerran–Inglewood Road rail bridge #1 is approximately 90 m to the northwest of this viewpoint ▸ Represents typical and accessible views of those travelling north along Millmerran–Inglewood Road towards Millmerran ▸ North-easterly views from this point provide open views towards the proposed alignment and Millmerran–Inglewood Road rail bridge #1 ▸ Views encompass LCT J: Forested Hills and Plains (J10: Bringalily West) ▸ Views are contained due to dense remnant vegetation.
Key visual sensitivities	▸ Receptors include workers and travellers experiencing transient views at speed along Millmerran–Inglewood Road (AADT around 303 per day, of which up to 32.27 per cent are heavy vehicles) and visitors of Bringalily State Forest ▸ This viewpoint is not located on or near any tourist drives. The lack of existing infrastructure and natural setting increases the overall sensitivity of this view. ▸ This viewpoint is considered to have a **low** sensitivity overall to the change proposed, due to the relatively low interest of viewers (i.e. very low numbers of travellers passing at some speed along Millmerran–Inglewood Road).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment, Millmerran–Inglewood Road level crossing will introduce new rail infrastructure elements into the existing forested landscape, creating a **low** change in the landscape character of this viewpoint during construction ▸ The most evident construction impact will be the clearance of vegetation for the construction of the alignment, and minor earthworks and roadworks associated with the level crossing ▸ This represents a **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP04 during construction is considered to be **negligible**.

VP4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road level crossing

Operation	
Magnitude of change assessment—permanent Infrastructure	▸ The nearest section of the alignment is approximately 90 m to the northwest of this viewpoint, while there is a laydown area immediately west of this location ▸ The magnitude of change on this receptor is anticipated to be clearly evident, due to the following factors: ▸ Introduction of new rail infrastructure, including the Millmerran–Inglewood Road level crossing within what is currently a densely vegetated road reserve, adjacent to Bringalily State Forest ▸ Due to the dense nature of existing vegetation and minimal clearance work associated with the alignment, existing retained vegetation will screen views of the level crossing until close range and will provide screening of the level crossing from all nearby isolated rural properties. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed in this location and will be in keeping with the existing rural character. ▸ At this distance, the alignment and Millmerran–Inglewood Road level crossing and alignment will be noticeable, but this type of infrastructure accords with the character of the road. This represents a **low** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be clearly evident due to the proximity of the railway track to Millmerran–Inglewood Road. Close views to the alignment and Millmerran–Inglewood Road level crossing will be possible for travellers along Millmerran–Inglewood Road. These views are experienced by a low number of motorists and are of a transient nature. Therefore, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP04 during operation is considered to be **negligible**.

9.6.4.5 Viewpoint 5

TABLE 9.23 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 5

VP5: Millmerran–Inglewood Road near Nicol Creek Road

Visual baseline assessment	
	
Existing view from Viewpoint 5	
Location and description	▸ GPS Location: 28°3'50.663" S 151°11'57.906" E ▸ Elevation: 400 m ▸ North-easterly view towards Millmerran State Forest from Millmerran–Inglewood Road ▸ Proposed alignment is located approximately 1 km to the east of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Millmerran–Inglewood Road ▸ North-easterly views from this point provide open views towards the proposed alignment within LCT D: Dry Croplands and Pastures (D14: Millmerran).

VP5: Millmerran–Inglewood Road near Nicol Creek Road	
Key visual sensitivities	▸ Receptors include isolated rural residents, workers and travellers experiencing transient views at speed along Millmerran–Inglewood Road (AADT around 1,020 per day, of which up to 24.92 per cent are heavy vehicles) ▸ This viewpoint is not located on or near any tourist drives ▸ This view comprises a strong character due to the views to Millmerran State Forest, Pine Hill, Mount Domville and Mt Basalt Reserve beyond and rural character in the foreground ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the relatively low interest of viewers (i.e. very low numbers of nearby rural residents and travellers passing at some speed along Millmerran–Inglewood Road).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ Significant construction areas proposed within this viewpoint ▸ Vegetation clearing to facilitate development be minimal due to the open nature of the rural landscape ▸ Construction of proposed embankments, cuts, rail and Nicol Creek Road will cause disturbance within the landscape ▸ Construction of the Project will not require the demolition or resumption of the property shown in this viewpoint (centre of view) ▸ While construction works will be evident from this vantage point the impact of these is temporary, which represents a noticeable and therefore **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP05 during construction is considered to be **negligible.**
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest Section of the alignment is located approximately 1 km to the east of this viewpoint ▸ The magnitude of change on this receptor is anticipated to be considerable, due to the following factors: ▸ Widespread change in the view due to the introduction of new rail infrastructure into the rural landscape, with embankments reaching heights up to around 7.5 m above the existing surface level, and the deepest cut being approximately -5.5 m below existing surveyed level ▸ Realignment of Nicol Creek Road ▸ Due to the sparse nature of existing vegetation, vegetation clearance will have minimal impact on the screening of the alignment. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed in this location, which will be in keeping with the existing rural character. ▸ At this distance, the alignment and associated infrastructure will be clearly evident, and represent a considerable change to the view, although will largely accord with the existing character of the landscape. This represents a **moderate** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be clearly evident from this vantage point ▸ Trains will be evident to nearby isolated rural residents and travellers on Millmerran–Inglewood Road and Nicol Creek Road. Driver views will be experienced intermittently due to the moderate number and transient nature of travellers on these roads. Therefore, the magnitude of impact is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP05 during operation is considered to be **low**.

9.6.4.6 Viewpoint 6

TABLE 9.24 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 6

VP6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2

Visual baseline assessment	
 **Existing view from Viewpoint 6**	
Location and description	▸ GPS Location: 27°59'43.434" S 151°13'6.773" E ▸ Elevation: 460 m ▸ South-westerly view towards the proposed alignment and Millmerran-Inglewood Road rail bridge #2 ▸ Proposed alignment is approximately 210 m to the west of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling north along Millmerran–Inglewood Road towards Millmerran ▸ South-westerly views from this point provide contained views towards the proposed alignment, including landscapes typical of LCT D: Dry Croplands and Pastures (D14: Millmerran) ▸ Views are contained due to dense roadside vegetation.
Key visual sensitivities	▸ Low sensitivity of receptors, including isolated rural residents, workers and travellers experiencing transient views at speed along Millmerran–Inglewood Road (AADT around 1,020 per day, of which up to 24.92 per cent are heavy vehicles) ▸ This viewpoint is not located on or near any tourist drives ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the relatively low interest of viewers (i.e. very low numbers of nearby rural residents and travellers passing at some speed along Millmerran–Inglewood Road).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ Considerable construction areas within proximity to nearby isolated rural residential properties are proposed that would be visible from this viewpoint, including a bridge construction laydown area ▸ Construction of proposed embankments, cuts, Millmerran–Inglewood Road rail bridge #2 and the realignment of Heckendorfs Road (part of the local tourist route Rolling Hills and Scenic Lookouts Drive) will cause temporary disturbance within the landscape ▸ Earthworks associated with the proposed alignment will require large volumes of material and vegetation to be removed ▸ At this distance, construction works and laydown areas will be highly evident and change the visual character of the landscape, albeit temporarily. This is considered to be a **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP06 during construction is considered to be **low**.

VP6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2

Operation	
Magnitude of change assessment— permanent infrastructure	▸ The nearest section of the alignment is approximately 210.0 m to the west of this viewpoint ▸ The magnitude of change on this receptor is anticipated to be dominant, therefore **high**, due to the following factors: ▸ Dominant change due to proposed earthworks and the provision of significant new rail infrastructure, including the Millmerran–Inglewood Road rail bridge #2 (rail-over-road), the realignment of Heckendorfs Road and the resurfacing and regrading of Millmerran–Inglewood Road ▸ Height of proposed embankments varies, with the maximum proposed height 11.4 m above surveyed surface level at the northern end of the bridge structure ▸ The deepest cut in this area will be -12.3 m below surveyed surface level ▸ Due to the dense nature of existing roadside vegetation, vegetation removal will greatly enhance the visibility of the alignment from Millmerran–Inglewood Road. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed in this location and will be in keeping with the existing rural character. ▸ At this distance, the alignment and associated infrastructure will be clearly evident, and represent a dominant change to the visual character of the landscape, introducing new, dominant visual elements into the landscape, considered to be up to **high** magnitude of change.
Magnitude of Change Assessment— train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be clearly evident from this vantage point ▸ Trains will be evident to nearby isolated rural residents and travellers on Millmerran–Inglewood Road and Heckendorfs Road. Driver views will be experienced intermittently due to the moderate number and transient nature of travellers on these roads. Therefore, the magnitude of impact is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP06 during operation is considered to be, at most, **moderate**.

9.6.4.7 Viewpoint 7

TABLE 9.25 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 7

VP7: Mount Basalt Reserve, looking towards Millmerran

Visual baseline assessment	
 **Existing view from Viewpoint 7**	
Location and description	▸ GPS Location: 28°0'54.569" S 151°16'23.297" E ▸ Elevation: 530 m ▸ North-westerly view towards Commodore Peak, Commodore Mine, Millmerran Power Station and Millmerran ▸ Proposed alignment is approximately 5.5 km to the west of this viewpoint ▸ Represents typical and accessible views of those visiting Mount Basalt Reserve (a destination on the local Rolling Hills and Scenic Lookouts Drive) and walking on the Mount Basalt Circuit, a walking track with lookouts and elevated views ▸ North-westerly views from this point provide views towards the proposed alignment, as well as landscapes typical of LCT D: Dry Croplands and Pastures (D14: Millmerran) and distant views towards landscapes typical of LCT H: Forested Uplands (H15: Commodore Peak and H16: Commodore Peak South) and LCT L: Transitional Landscapes (L:7 Commodore Mine and L8: Millmerran Power Station).
Key visual sensitivities	▸ Low number of visitors undertaking the Mount Basalt Circuit hiking track, due to its classification as a Class 4–rough track and its remote location. However, these visitors have a very high level of interest in this environment and views obtained from the summit and trail. ▸ Representative of views obtained from the picnic facilities at the Mount Basalt Reserve car park. ▸ Although this view comprises a strong rural character, the presence of the existing rural infrastructure and distant views of Commodore Mine (an open cut coal mine) and Millmerran Power Station detract from the rural and natural qualities and sense of remoteness. ▸ This viewpoint is considered to have a **moderate** sensitivity overall to the change proposed, due to the low number, but **high** sensitivity of viewers (e.g. hikers) who are walking specifically to obtain panoramic views from the elevated points within Mount Basalt Reserve, a unique geological and environmental area.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce new rail infrastructure into the existing rural landscape, creating a noticeable change in the landscape character of this viewpoint. ▸ Due to the distance from the alignment, the most evident construction impact will be the clearance of vegetation for the construction of the Project. ▸ This represents a **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP07 during construction is considered to be **low**.

VP7: Mount Basalt Reserve, looking towards Millmerran

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 5.5 km to the west of this viewpoint. The skyline is already affected by the presence of transmission towers, the Commodore Mine and the Millmerran Power Station. ▸ The magnitude of change on this receptor is anticipated to be barely perceptible due to the following factors: ▸ The provision of new rail infrastructure, which will, at this distance, become another element in the rural landscape ▸ Vegetation clearing during bulk earthworks and for the construction of the proposed alignment will have limited impact due to how sparse vegetation is at this location ▸ At this distance, the alignment will be barely perceptible and will not change the fundamental visual character of the landscape, as it will blend into the existing rural landscape to a considerable extent. ▸ This represents a **negligible** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will only be experienced occasionally due to the low number of people undertaking the Mount Basalt Circuit hiking track. Therefore, the magnitude of impact is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP07 during operation is considered to be **low**.

9.6.4.8 Viewpoint 8

TABLE 9.26 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 8

VP8: Blackwell Road looking towards Millmerran–Inglewood Road

Visual baseline assessment	
 **Existing view from Viewpoint 8**	
Location and description	▸ GPS Location: 27°57'30.204" S 151°14'8.213" E ▸ Elevation: 450 m ▸ Northerly view towards Commodore Peak and Millmerran–Inglewood Road ▸ Proposed alignment is approximately 410 m to the west of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents, as well as visitors, workers and tourists travelling along Blackwell Road ▸ Northerly views from this point provide close views towards the proposed alignment, as well as landscapes typical of LCT D: Dry Croplands and Pastures (D14: Millmerran) and distant views towards landscapes typical of LCT H: Forested Uplands (H15: Commodore Peak and H16: Commodore Peak South).
Key visual sensitivities	▸ Receptors, including isolated rural residents, workers and travellers experiencing transient views along Blackwell Road ▸ Also representative of views from Millmerran–Inglewood Road (AADT around 1,041 per day, of which up to 14.5 per cent are heavy vehicles) ▸ This viewpoint is not located on or near any tourist drives ▸ The presence of existing infrastructure (transmission towers) reduces the overall sensitivity of this view ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the relatively low interest of viewers (i.e. very low numbers of nearby rural residents and travellers passing at some speed along Blackwell Road and Millmerran–Inglewood Road).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view. This change will be exacerbated by the relatively open and flat nature of the landscape in this location. ▸ The proposed location of two laydown areas to the west and north of this viewpoint would cause a reduction in visual amenity from this viewpoint ▸ The key impacts will relate to the presence of construction plant and disturbance due to the construction of the alignment and associated cuts and embankments ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ Due to the sparse nature of vegetation within the rural landscape, clearing for the construction of the proposed alignment and laydown areas will not greatly reduce the density of screening vegetation, however, or impact the visibility of the alignment from Blackwell Road and surrounding isolated rural properties ▸ While construction works will be clearly evident from this vantage point, the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.

VP8: Blackwell Road looking towards Millmerran–Inglewood Road	
Potential effect (construction)	The effect of the Project on VP08 during construction is considered to have a **low** impact.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest Section of the alignment is approximately 390 m to the west of this viewpoint. The skyline is already affected by the presence of transmission towers. ▸ The magnitude of change on this receptor is anticipated to be considerable due to the following factors: ▸ Introduction of significant new rail infrastructure, large cuts and embankments ▸ Provision of a controlled level crossing on Blackwell Road ▸ Vegetation clearing for the construction of the proposed alignment will have marginal impact on the density of screening vegetation due to the open rural character of this location. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed in this location and will be in keeping with the existing rural character. ▸ At this distance, the alignment, embankments, cuts and controlled level crossing will be clearly perceptible and will have a considerable impact on the character of the landscape as it will be introducing new rail infrastructure into the existing rural setting. This represents a **moderate** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be experienced by a small number of isolated rural residents and by those travelling on Blackwell Road and Millmerran–Inglewood Road. While experienced by a moderate number of motorists, these views are of a transient nature. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP08 during operation is considered to be **low**.

9.6.4.9 Viewpoint 9

TABLE 9.27 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 9

VP9: Commodore Peak picnic area looking towards Millmerran Power Station

Visual baseline assessment	
 **Existing view from Viewpoint 9**	
Location and description	▸ GPS Location: 27°56'13.763" S 151°13'59.183" E ▸ Elevation: 500 m ▸ South-easterly view towards Millmerran–Inglewood Road and Commodore Mine ▸ Proposed alignment is approximately 370 m to the southeast of this viewpoint ▸ Represents typical and accessible views of those visiting Commodore Peak picnic area, a destination on the local Rolling Hills and Scenic Lookouts Drive ▸ Views towards the proposed alignment from LCT D: Dry Croplands and Pastures (D14: Millmerran), including views towards landscapes typical of LCT L: Transitional Landscapes (L7: Commodore Mine and L8: Millmerran Power Station).
Key visual sensitivities	▸ Moderate number of visitors to Commodore Peak picnic area who have a high level of interest in views obtained from the picnic area ▸ Also representative of views obtained from nearby isolated rural residential properties ▸ Although this view comprises a strong rural character; the presence of the existing rural infrastructure and views towards Commodore Mine and Millmerran Power Station detract from the rural and natural qualities and sense of remoteness ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the medium number, but high sensitivity of viewers (e.g. those using Commodore Peak picnic facilities).
Visual Evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view and require the resumption of a nearby rural residential property ▸ The key impacts will relate to the presence of construction plant and disturbance due to the construction of the alignment, and associated cuts and embankments ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ Minor vegetation clearing to facilitate development is anticipated to be negligible, due to the open nature of the rural landscape in this location ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP09 during construction is considered to have **moderate** impact.

VP9: Commodore Peak picnic area looking towards Millmerran Power Station

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest Section of the alignment is approximately 370 m to the southeast of this viewpoint ▸ The magnitude of change on this receptor is anticipated to be considerable due to the following factors: ▸ Widespread change due to the introduction of significant new rail infrastructure and the realignment of Rifle Range Road and Scraggs Road ▸ Views towards Millmerran–Inglewood Road are partially obscured due to foreground vegetation and topography ▸ Open, close views to the alignment from Commodore Peak picnic area will be possible, however, as the alignment is at a lower elevation and in cut within the view (depths up to approximately -11.0 m) it is anticipated that the alignment will blend somewhat into the existing rural landscape ▸ Vegetation clearing for the construction of the proposed alignment will have marginal impact on the density of screening vegetation due to the open rural character of this location. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway, including Commodore Mine. Standard rural chain wire fencing is proposed along both boundaries in this location and will be in keeping with the existing rural character. ▸ At this distance, the new rail infrastructure will be noticeable, while views to the alignment will be limited due to its lower elevation. This represents a **low** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be limited and partially screened due to the lower design level of the railway track and screening foreground vegetation. Therefore, the magnitude of impact is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP09 during operation is considered to be **low**.

9.6.4.10 Viewpoint 10

TABLE 9.28 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 10

VP10: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #3

Visual baseline assessment	
 **Existing view from Viewpoint 10**	
Location and description	▸ GPS Location: 27°54'24.233" S 151°15'53.718" E ▸ Elevation: 410 m ▸ Southerly view towards Millmerran–Inglewood Road and Millmerran–Inglewood Road rail bridge #3 ▸ Proposed alignment and Millmerran–Inglewood Road rail bridge #3 is approximately 210 m to the south of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling south along Millmerran-Inglewood Road towards Inglewood ▸ Southerly views from this point provide views towards the proposed alignment, including landscapes typical of LCT B: Vegetated Watercourses—Creeks (B17: Leonard (Back Creek)) and LCT D: Dry Croplands and Pastures (D14 Millmerran).
Key visual sensitivities	▸ Low sensitivity of receptors, including isolated rural residents, workers and travellers experiencing transient views at speed along Millmerran–Inglewood Road (AADT around 1,020 per day, of which up to 24.92 per cent are heavy vehicles) ▸ This viewpoint is not located on or near any tourist drives ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the relatively low interest of viewers (i.e. very low numbers of nearby rural residents and travellers passing at some speed along Millmerran– Inglewood Road).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ Considerable construction areas, including a bridge construction laydown area are proposed within proximity to this viewpoint. These would be visible from this viewpoint and nearby isolated rural residential properties. ▸ Substantial vegetation clearing for the construction of the proposed alignment and Millmerran–Inglewood Road rail bridge #3 will reduce the density of screening vegetation, increasing the visibility of the alignment from Millmerran–Inglewood Road and surrounding isolated rural residential properties ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The presence of plant constructing the alignment, Millmerran–Inglewood Road rail bridge #3 and embankments will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.

VP10: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #3	
	▸ The presence of plant constructing the alignment, Millmerran–Inglewood Road rail bridge #3 and embankments will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The significance of the effect of the Project on VP10 during construction is considered to be **low**.
Operation	
Magnitude of change assessment— permanent infrastructure	▸ The nearest section of the alignment is approximately 210 m to the south of this viewpoint. ▸ The magnitude of change on this receptor is anticipated to be considerable, therefore **moderate**, due to the following factors: ▸ Dominant change due to proposed earthworks and the provision of significant new rail infrastructure, including the Millmerran–Inglewood Road rail bridge #3 (rail-over-road) ▸ Height of proposed embankments varies, with the maximum proposed height being approximately 10.2 m above surveyed surface level at the southern end of the bridge structure ▸ Selective clearing of roadside and riparian vegetation will enhance the visibility of the alignment from Millmerran–Inglewood Road and nearby isolated rural residential properties. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, the alignment and Millmerran–Inglewood Road rail bridge #3 will be clearly evident, as it will be introducing new rail infrastructure into the existing rural setting. This represents a **high** magnitude of change.
Magnitude of change assessment— train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be clearly evident from this vantage point ▸ Trains will be evident to nearby isolated rural residents and to a moderate number of travellers on the Millmerran–Inglewood Road. Views obtained by drivers would be transient as cars are moving at speed along this road. Therefore, the magnitude of impact is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP10 during operation is considered to be **moderate**.

9.6.4.11 Viewpoint 11

TABLE 9.29 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 11

VP11: Nardoo Street edge of Millmerran

Visual baseline assessment	
 **Existing view from Viewpoint 11**	
Location and description	▸ GPS Location: 27°52'42.036" S 151°16'18.162" E ▸ Elevation: 400 m ▸ South-easterly view towards Back Creek, showing properties of Nardoo Street in the foreground ▸ Proposed alignment is approximately 3 km to the southeast of this viewpoint ▸ Represents typical and accessible views of residents of Millmerran ▸ South-easterly views from this viewpoint provide views towards the proposed alignment and Back Creek, including landscapes typical of F: Rural Settlement (F13: Millmerran) and LCT B: Vegetated Watercourses—Creeks and Channels (B17: Leonard (Back Creek)).
Key visual sensitivities	▸ Receptors include residents of Millmerran, particularly properties on Nardoo Street and Margaret Street ▸ This view is also representative of views from Millmerran Golf Course, approximately 670 m to the south of this viewpoint ▸ This viewpoint is located close to the Open Plains Country Dive local tourist route ▸ The presence of residential properties and existing infrastructure (power poles and powerlines) reduces the overall sensitivity of this view ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view and the proximity of this viewpoint to the alignment.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ Due to the distance of this viewpoint from the alignment and screening vegetation along Back Creek, construction works will be barely perceptible ▸ This represents a **negligible** magnitude of change.
Potential effect (construction)	The effect of the Project on VP11 during construction is considered to have **low** impact.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 3 km to the southeast of this viewpoint ▸ The magnitude of change on this receptor is anticipated to be **negligible**, due to the following factors: ▸ The distance of the viewpoint from the alignment and screening of the alignment by existing riparian vegetation along Back Creek. ▸ This represents a **negligible** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be typically screened by riparian vegetation along Back Creek. Therefore, the magnitude of impact is considered to be **negligible**.
Potential effect (operation)	The effect of the Project on VP11 during operation is considered to be **low**.

9.6.4.12 Viewpoint 12

TABLE 9.30 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 12

VP12: Gore Highway towards Condamine River crossing and floodplain

Visual baseline assessment

Existing view from Viewpoint 12

Location and description	▸ GPS Location: 27°48'6.336" S 151°22'46.547" E ▸ Elevation: 370 m ▸ Southerly views towards the Condamine River and private rural properties ▸ Proposed alignment is approximately 1.2 km to the southeast of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along the Gore Highway ▸ Southerly views from this point provide open views towards landscapes typical of LCT C: Irrigated Croplands (C33: Pampas) and distant views to LCT A: Vegetated Watercourses—Rivers (A2: Condamine River).
Key visual sensitivities	▸ Receptors include isolated rural residents, workers and travellers experiencing distant transient views at speed along the Gore Highway (AADT around 2,666 per day, of which up to 30.16 per cent are heavy vehicles), albeit noting that the Open Plains Country Drive tourist route passes along this Section of road ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the relatively low interest of viewers (i.e. small numbers of nearby rural residents and travellers passing at some speed along the Gore Highway).

Visual evaluation

Photomontage view from Viewpoint 12

VP12: Gore Highway towards Condamine River crossing and floodplain

Construction	
Magnitude of change assessment	▸ The construction of the proposed alignment and Condamine River Main Branch Rail Bridge and associated infrastructure will introduce considerable construction works into the view. This change will be exacerbated by the open flat landscape and lack of remnant screening vegetation. ▸ The proposed location of a laydown for bridge construction 1.5 km to the south of this viewpoint would cause a temporary reduction in visual amenity from this viewpoint ▸ Due to the distance from the alignment and temporary nature of construction work, the impact represents a noticeable and therefore **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP12 during construction is considered to have **negligible** impact.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 1.2 km to the southeast of this viewpoint ▸ The magnitude of change on this receptor is anticipated to be a noticeable change due to the following factors: ▸ The provision of new rail infrastructure on bridge structure within the existing rail corridor ▸ High visibility towards the proposed alignment from the Gore Highway due to the lack of existing remnant vegetation ▸ It is not considered that isolated vegetation removal for the construction of the Condamine River crossing will have a noticeable impact on the density of screening vegetation, as views towards the river crossing are partially screened by an existing dam on private property. ▸ Fencing is not anticipated to be provided within the Condamine River floodplain (guideposts only will be provided); however, there will be fencing associated with the bridge structure ▸ At this distance, the alignment and new Condamine River Main Branch Rail Bridge (typically between 2 m to 3 m above the existing rail line) will be noticeable; however, will not change the visual character of the landscape, as it will be replacing existing rail infrastructure into what is highly modified agricultural setting. This represents a **low** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be experienced by a small number of rural residents and by those travelling on the Gore Highway. While experienced by a moderate number of motorists, these views are of a transient nature. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP12 during operation is considered to be **low**.

9.6.4.13 Viewpoint 13

TABLE 9.31 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 13

VP13: Gore Highway near service station, Pampas

Visual baseline assessment	
 **Existing view from Viewpoint 13**	
Location and description	▸ GPS Location: 27°47'25.625" S 151°24'42.882" E ▸ Elevation: 380 m ▸ North-easterly view towards properties of Pampas and distant views to the Condamine River (north branch) ▸ Proposed alignment is approximately 90 m to the southeast of this viewpoint ▸ Represents typical and accessible views of nearby residents of Pampas and of visitors, workers and tourists travelling along the Gore Highway ▸ North-easterly view from this point provides open views towards the proposed alignment, as well as landscapes typical of LCT C: Irrigated Croplands (C33: Pampas) and distant views to LCT A: Vegetated Watercourses—Rivers (A1: Condamine River (North Branch).
Key visual sensitivities	▸ Receptors include low number of Pampas residents who are located in very close proximity to the alignment, workers and travellers experiencing transient views at speed along the Gore Highway (AADT around 2,666 per day, of which up to 30.16 per cent are heavy vehicles), albeit noting that the Open Plains Country Drive tourist route passes along this Section of road ▸ The presence of existing infrastructure (power poles, powerlines, and the existing Millmerran Branch Line (disused) reduces the overall sensitivity of this view ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view, the proximity of this viewpoint to the alignment and large numbers of travellers passing at some speed along the Gore Highway.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view. This change will be exacerbated by the relatively open and flat nature of the landscape in this location, lack of remnant screening vegetation and the high visibility and proximity of construction works to the Gore Highway and nearby residential properties of Pampas. ▸ The proposed location of a laydown immediately east of this viewpoint would cause a reduction in visual amenity from this viewpoint; however, this would be temporary
	▸ The key impacts will relate to the presence of construction plant and disturbance due to the construction of the proposed alignment, realignment of Fysh Road, Harris Road and the construction of a proposed active level crossing ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP13 during construction is considered to have a **moderate** impact.

VP13: Gore Highway near service station, Pampas

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 90 m to the southeast of this viewpoint. The skyline is already affected by the presence of powerlines, power poles and existing rail infrastructure. ▸ The magnitude of change on this receptor is anticipated to be noticeable change due to the following factors: ▸ The provision of new rail infrastructure within the existing rail corridor, realignment of Fysh Road and Harris Road and provision of a new active level crossing ▸ Infrastructure is on low embankment, up to around 1.3 m high, so will blend with the existing rural view to some extent. It is noted that there is existing rail infrastructure in this view, and that rail infrastructure is part of the existing visual character of the wider area. ▸ Due to the open nature of agricultural land the alignment passes through in this location, vegetation clearing for the construction of the proposed alignment is considered to have negligible impact on screening vegetation. ▸ Fencing is not anticipated to be provided within the Condamine River floodplain; however, a standard chain link boundary fence will be provided through Pampas to enhance safety ▸ At this close distance, the alignment, provision of an active level crossing and realignment of Fysh Road and Harris Road will be noticeable; however, will not change the visual character of the landscape, as it will be replacing existing rail infrastructure within the existing railway corridor, within a highly modified agricultural setting. This represents a **low** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident due to the open views of the railway track from this viewpoint. Close views to the alignment will be possible for nearby residents of Pampas. While experienced by close residential properties and by a moderate number of motorists travelling on the Gore Highway, these views are of a transient nature. It is noted that the existing rail line is not in use. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP13 during operation is considered to be **moderate**.

9.6.4.14 Viewpoint 14

TABLE 9.32 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 14

VP14: Gore Highway towards Condamine River (north branch) crossing

Visual baseline assessment	
 **Existing view from Viewpoint 14.**	
Location and description	▸ GPS Location: 27°46'49.236" S 151°25'25.577" E ▸ Elevation: 380 m ▸ Southerly view towards the Condamine River North Branch Rail Bridge and distant views towards Pampas ▸ Proposed alignment is approximately 60 m to the southeast of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along the Gore Highway ▸ Southerly views from this point provide open views towards the existing rail line and proposed alignment, as well as landscapes typical of LCT C: Irrigated Croplands (C33: Pampas) and close views towards LCT A: Vegetated Watercourses—Rivers (A1: Condamine River (North Branch)).
Key visual sensitivities	▸ Receptors include isolated rural residents, workers and travellers experiencing transient views at speed along the Gore Highway (AADT around 2,666 per day, of which up to 30.16 per cent are heavy vehicles), albeit noting that the Open Plains Country Drive tourist route passes along this section of road ▸ Overall, this viewpoint is considered to have a **low** sensitivity to the change proposed, due to the relatively low interest of viewers (i.e. small numbers of nearby rural residents and travellers passing at some speed along the Gore Highway).
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The construction of the proposed alignment and Condamine River North Branch Rail Bridge and associated infrastructure will create a considerable change in the landscape character of this viewpoint ▸ This change will be exacerbated by the relatively open and flat nature of the landscape in this location, sparse nature of remnant vegetation (restricted to the river channel) and the high visibility and proximity of construction works to the Gore Highway ▸ Selective vegetation clearing will reduce the density of riparian vegetation, increasing the visibility of the alignment from the Gore Highway ▸ The proposed location of a laydown immediately southeast of this viewpoint would cause a reduction in visual amenity from this viewpoint, however this would be temporary ▸ The presence of plant constructing the alignment and Condamine River North Branch Rail Bridge will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP14 during construction is considered to be **low**.

VP14: Gore Highway towards Condamine River (north branch) crossing

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 60 m to the southeast of this viewpoint ▸ The magnitude of change on this receptor is anticipated to be noticeable, due to the following factors: ▸ There is already a road and rail bridge present over the Condamine River (north branch) in this location ▸ The skyline is already affected by the presence of power poles and powerlines ▸ Noticeable change due to the provision of new rail infrastructure on bridge structure within the existing rail corridor ▸ High visibility towards and proximity to the proposed alignment from the Gore Highway ▸ Localised vegetation removal for the construction of the Condamine River crossing will have a noticeable impact on the density of screening vegetation. ▸ Fencing will not be constructed within the Condamine River floodplain—only guideposts will be provided ▸ At this distance, the alignment and new Condamine River North Branch Rail Bridge (typically between 1 m to 2 m above the existing rail line) will be clearly evident; however, will not change the visual character of the landscape, as it will be replacing existing rail infrastructure within what is a highly modified agricultural setting. This represents a **low** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident due to the open views of the railway track from this viewpoint. Close views to the alignment will be possible for those travelling on the Gore Highway. While experienced by a moderate number of motorists, these views are of a transient nature. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP14 during operation is considered to be **low**.

9.6.4.15 Viewpoint 15

TABLE 9.33 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 15

VP15: Near Brookstead State School

Visual baseline assessment

Existing view from Viewpoint 15

VP15: Near Brookstead State School

Location and description	▸ GPS Location: 27°45'27.563" S 151°27'7.205" E ▸ Elevation: 390 m ▸ North-easterly view towards the Gore Highway from Ware Street, near Brookstead State School ▸ Proposed alignment is approximately 80 m to the southeast of this viewpoint ▸ Represents typical and accessible views of school patrons, residents of Brookstead and of visitors, workers and tourists travelling along Ware Street and using nearby facilities (playground, amenities and barbecue/picnic facilities) at the historic railway station ▸ North-easterly views from this point provide open views towards the existing rail line and proposed alignment from LCT F: Rural Settlement (F11: Brookstead) across LCT C: Irrigated Croplands (C32: Brookstead).
Key visual sensitivities	▸ Moderate sensitivity of receptors, including a relatively low number of residents of Brookstead with residential properties situated in very close proximity to the alignment and the Gore Highway Road Bridge ▸ The Open Plains Country Drive tourist route passes close to this viewpoint ▸ The presence of existing infrastructure (existing railway tracks and railway sidings) reduces the overall sensitivity of this view ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view and the proximity of this viewpoint to the alignment.

Visual evaluation

Photomontage view from Viewpoint 15

VP15: Near Brookstead State School

Aerial visualisation from vicinity of Viewpoint 15

Construction	
Magnitude of change assessment	▸ The construction of the proposed alignment will be within greenfield land, approximately 50 m to the southeast of the existing rail corridor and will create a noticeable change in the landscape character of this viewpoint. ▸ Existing vegetation along Ware Street provides some screening of views from nearby residential properties and the school towards the proposed alignment; however, vegetation removal may be required to facilitate the construction of the new rail alignment and provision of the new rail corridor. ▸ Selective vegetation clearance and earthworks to construct embankments, the Gore Highway Road Bridge, the alignment and to facilitate the reconfiguration of local roads will cause a reduction in visual amenity, particularly views obtained from the Gore Highway. ▸ The presence of construction plant constructing the alignment and Gore Highway Road Bridge will temporarily change the character of the landscape, creating a noticeable change in the landscape character of this viewpoint. ▸ This represents a **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP15 during construction is considered to be **moderate**.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 80 m to the southeast of this viewpoint. The view is already affected by the presence of existing rail infrastructure. ▸ The magnitude of change on this receptor is anticipated to be noticeable due to the following factors: ▸ Considerable change due to the provision of a new single-track dual-gauge railway to the south of the existing rail line, access road to the silos and railway siding, Gore Highway Road Bridge and the realignment of Saal Road and Ware Street. The rail line will be largely at grade so will be similar in appearance to the existing rail line. ▸ Vegetation clearing for the construction of the proposed alignment will increase the visibility of the alignment from properties situated on Ware Street. ▸ Fencing will extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed where the corridor adjoins agricultural land that will be in keeping with the existing rural character. Within the Brookstead settlement area (including in this view) standard chain link boundary fence will be provided. ▸ At this distance, the alignment and associated infrastructure will be clearly evident, and represent a considerable change to the view, although will largely accord with the existing character of the landscape. Therefore, it is considered to be up to **high** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident due to the proximity of the railway track to this viewpoint. Close views to the alignment will be possible for nearby residents of Brookstead and from Brookstead State School. While experienced by close residential properties, these views are of a transient nature. It is noted that while the existing Millmerran Branch Line currently facilitates freight train movements (single stacked), the line to the south of Brookstead is disused, while the existing GrainCorp Silo Facility, siding and Millmerran Branch Line to the north of Brookstead are currently operational. Therefore, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP15 during operation is considered to be **high**.

9.6.4.16 Viewpoint 16

TABLE 9.34 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 16

VP16: Glen Devon Road looking south from elevated private residential properties

Visual baseline assessment	
 **Existing view from Viewpoint 16.**	
Location and description	▸ GPS Location: 27°42'45.551" S 151°33'57.708" E ▸ Elevation: 490 m ▸ South-westerly view towards Murlaggan Road and the existing railway line ▸ Proposed alignment is approximately 220 m to the south of this viewpoint ▸ Represents typical and accessible views of nearby elevated and isolated rural residential properties ▸ South-westerly views from this point provide open views towards the existing rail line, proposed alignment, and views of LCT I: Settled Hills (I1: Pittsworth Hills).
Key visual sensitivities	▸ Low sensitivity of receptors, particularly very low number of nearby rural residents who are, however, located in very close proximity to the alignment ▸ There are no tourist drives located close to this viewpoint ▸ The presence of existing infrastructure (existing railway tracks) reduces the overall sensitivity of this view ▸ This viewpoint is considered to have a **low** overall sensitivity to the change proposed, due to the very low number of nearby rural residential viewers with a specific interest in this view and the proximity of this viewpoint to the alignment.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view. This change will be exacerbated by the proximity of the isolated rural residences to the works in this location. ▸ The key impacts will relate to the presence of construction plant and disturbance due to the construction of the alignment, associated cuts and embankments and the closure of Kahler Road, realignment of Murlaggan Road connection to Roche Road, connection of Glen Devon Road to Roche Road, via Murlaggan Road and new tie in to the existing Millmerran Branch Line ▸ The construction of the proposed alignment will require the resumption and removal of a nearby property (close to, but not visible in, this viewpoint) ▸ The proposed location of a laydown area approximately 400 m to the southwest of this viewpoint would cause a temporary reduction in visual amenity ▸ During construction, demolition of the existing railway is likely to occur. The fate of the existing Millmerran Branch Line south of Ch 167.80 km will be decided by QR. ▸ Earthworks associated with the proposed alignment will require large volumes of material and isolated pockets of vegetation to be removed ▸ While construction works will be clearly evident and occupy a large proportion of the view from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP16 during construction is considered to be **low**.

VP16: Glen Devon Road looking south from elevated private residential properties

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 220 m to the south of this viewpoint. The view is already affected by the presence of existing rail infrastructure. ▸ The magnitude of change on this receptor is anticipated to be considerable due to the following factors: ▸ Considerable change due to the provision of a new single-track dual-gauge railway primarily to the north of the existing rail line, closure of Kahler Rd, realignment of Murlaggan Road connection to Roche Rd, connection of Glen Devon Road to Roche Road, via Murlaggan Road and new tie into the existing Millmerran Branch Line ▸ The rail line will be largely in cut, at depths up to around -19.5 m below the existing surface level, however distant views to large embankments and the Roche Road rail-over-road bridge may be possible from nearby rural residential properties ▸ Vegetation clearing for the construction of the proposed alignment, cuts, embankments and road infrastructure will be noticeable. Removal of this vegetation will open views towards the embankment and the Roche Road rail-over-road bridge.
	▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, the proposed alignment, closure of Kahler Road, realignment of Murlaggan Road connection to Roche Road, connection of Glen Devon Road to Roche Road, via Murlaggan Road and new tie-in to the existing Millmerran Branch Line. will be clearly evident; however, will not change the fundamental visual character of the landscape, as the additional rail and road infrastructure will blend somewhat into the existing rural setting. It is anticipated that close views to the alignment and cuts will be possible from nearby rural residential properties, while distant views towards the alignment, embankments and Roche Road rail bridge may be possible. This represents a **moderate** magnitude of change.
Magnitude of change assessment—train	▸ The existing rail line is currently in use. Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be partially screened due to the lower elevation of the railway track in the proximity of this viewpoint. It is anticipated that close views towards the alignment in cut will be possible from nearby isolated rural residential properties, while distant views towards embankments and the Roche Road Rail Bridge may also be possible. Therefore, overall, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP16 during operation is considered to be **low**.

9.6.4.17 Viewpoint 17

TABLE 9.35 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 17

VP17: Pittsworth–Felton Road near Pittsworth Motor Inn

Visual baseline assessment	
 **Existing view from Viewpoint 17A**  **Existing view from Viewpoint 17B**	
Location and description	▸ GPS Location: 27°42'30.6" S 151°37'36.299" E ▸ Elevation: 510 m ▸ Northerly view from Pittsworth–Felton Road near Pittsworth Motor Inn towards the Gore Highway and elevated properties situated on Dallman Road ▸ Proposed alignment is approximately 190 m to the northwest of this viewpoint ▸ Represents accessible views typically obtained by residents of the northern edge of Pittsworth, guest of Pittsworth Motor Inn and of visitors, workers and tourists travelling along Pittsworth–Felton Road. It is also representative of travellers on the A39 Gore Highway. ▸ Northerly views from this point provide open views from LCT F: Rural Settlement (F10: Pittsworth) across of LCT I: Settled Hills (I1: Pittsworth Hills) towards proposed alignment.
Key visual sensitivities	▸ Moderate sensitivity of receptors, particularly residents of Pittsworth who are located in very close proximity to the alignment ▸ This viewpoint is located close to the Open Plains Country Drive tourist route ▸ The presence of existing infrastructure (i.e. power poles, powerlines and streetlights) reduces the overall sensitivity of this view ▸ This viewpoint it is considered to have a **moderate** sensitivity, overall, to the change proposed, due to the proximity of nearby residential viewers with a specific interest in this view, including those staying at Pittsworth Motor Inn.

VP17: Pittsworth–Felton Road near Pittsworth Motor Inn

Visual evaluation	
	
Photomontage view from Viewpoint 17A: Pittsworth–Felton Road near Pittsworth Motor Inn (75° field of view)	
	
Photomontage view from Viewpoint 17B: Pittsworth–Felton Road near Pittsworth Motor Inn (75° field of view)	
Construction	
Magnitude of change assessment	▸ The construction of the proposed alignment, Oakey–Pittsworth Road rail-over-road bridge and realignment of Dallman Road will create a considerable change in the landscape character and views obtained from this viewpoint ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The lack of existing mature vegetation provides open views from nearby residential properties and the Pittsworth Motor Inn to the proposed alignment ▸ The presence of plant constructing the alignment, roads, cuts, embankments and Oakey–Pittsworth Road Rail Bridge and will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP17 during construction is considered to be **moderate**.

VP17: Pittsworth–Felton Road near Pittsworth Motor Inn

Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 200 m to the northwest of this viewpoint. ▸ The magnitude of change on this receptor is anticipated to be dominant due to the following factors: ▸ The provision of a new single-track dual-gauge railway on private land on a large embankment and the provision of a rail-over-road bridge over Oakey–Pittsworth Road ▸ Proposed earthworks include large embankments and cuts. The height of proposed embankments varies, with the maximum proposed height being approximately 13.6 m above natural ground, and the deepest cut being approximately -9.0 m below existing surveyed level. ▸ Due to the sparse nature of existing vegetation, vegetation clearance will have minimal impact on the screening of the alignment ▸ Provision of a new rail-over-road bridge over Oakey–Pittsworth Road will introduce new infrastructure into the view. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, the alignment, realignment of Dallman Road and new rail-over-road bridge will be clearly evident and will have a considerable impact on the character of the landscape, as it will be introducing new rail infrastructure into the current view. This represents a **high** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.50 m will be highly evident due to the open, elevated views of the railway track from this viewpoint. Close views to the alignment will be possible for nearby residents of Pittsworth and residents on Dallman Road and Quibet Road. While experienced by close residential properties, these views are of a transient nature. Due to the lack of existing rail infrastructure, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP17 during operation is considered to be **high**.

9.6.4.18 Viewpoint 18

TABLE 9.36 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 18

VP18: Gore Highway near Southbrook

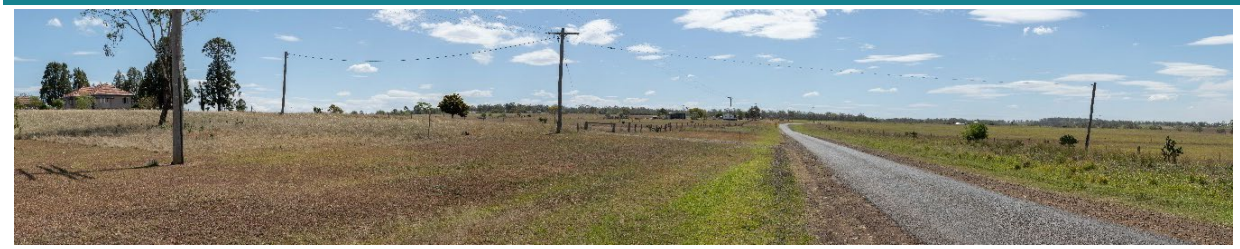
Visual baseline assessment	
 **Existing view from Viewpoint 18**	
Location and description	▸ GPS Location: 27°40'14.352" S 151°42'47.502" E ▸ Elevation: 540 m ▸ South-westerly view towards Southbrook ▸ Proposed alignment is approximately 1.5 km northwest of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents, elevated residential properties of Southbrook and of visitors, workers and tourists travelling along the Gore Highway ▸ South-westerly views from this point provide open views from the Gore Highway near Southbrook towards the Project, encompassing landscapes of LCT I: Settled Hills (I1: Pittsworth Hills).
Key visual sensitivities	▸ Moderate numbers of isolated rural residential properties and a high number of receptors travel along the Gore Highway (AADT around 4,503 per day, of which up to 19.45 per cent are heavy vehicles) and would experience changes to the view; however, it is noted that these viewers are passing at speed and would only experience transient views ▸ This viewpoint is located along the Open Plains Country Drive ▸ Also representative of close views possible from isolated rural residential properties and residential properties on the outskirts of Southbrook ▸ The presence of existing infrastructure (e.g. power poles, powerlines) reduces the overall sensitivity of this view ▸ Overall, this viewpoint it is considered to have a **moderate** sensitivity to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view and the large number of travellers passing at some speed along the Gore Highway with a transient view and lack of specific interest in the views.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view ▸ Substantial vegetation clearing for the construction of the proposed alignment will reduce the density of screening vegetation, increasing the visibility of the alignment from the Gore Highway and surrounding rural properties ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The presence of plant constructing the alignment, cuts and embankments will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction works will be clearly evident from this vantage point the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.

VP18: Gore Highway near Southbrook	
Potential effect (construction)	The effect of the Project on VP18 during construction is considered to be **moderate**.
Operation	
Magnitude of change assessment—permanent Infrastructure	▸ The nearest section of the alignment is approximately 1.5 km northwest of this viewpoint. The skyline is already affected by the presence of powerlines. ▸ The magnitude of change on this receptor is anticipated to be dominant due to the following factors: ▸ Widespread change in the view due to the introduction of new rail infrastructure into the rural landscape, with embankments reaching heights up to around 14.9 m above the existing surface level, and the deepest cut being approximately -20.6 m below existing surveyed level ▸ Vegetation clearing for the construction of the proposed alignment will reduce the density of screening vegetation and open views to areas of extensive cut and embankment from surrounding elevated rural residential properties and the Gore Highway. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, the proposed alignment will be highly evident and will change the fundamental visual character of the landscape, as it will be introducing new rail infrastructure into what is a relatively intact natural/rural residential setting. It is noted that close views to the alignment, major cut and embankments will be possible from nearby rural residential properties. This represents a **high** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident from the Gore Highway due to the elevated design level of the railway track. Close views to the alignment will be possible for nearby rural residents and for elevated residents on the northern outskirts of Southbrook. While experienced by close residential properties and a large number of motorists travelling on the Gore Highway, these views are of a transient nature and will be only occasional. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP18 during operation is considered to be **high**.

9.6.4.19 Viewpoint 19

TABLE 9.37 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 19

VP19: View from Athol

Visual baseline assessment	
 **Existing view from Viewpoint 19**	
Location and description	▸ GPS Location: 27°37'8.808" S 151°45'34.991" E ▸ Elevation: 520 m ▸ Westerly view towards rural residential properties of Athol ▸ Proposed alignment is approximately 200 m to the west of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Athol School Road ▸ Westerly views from this point provide open views of LCT D: Dry Croplands and Pastures (D9: Biddeston), and distant views towards LCT I: Settled Hills (I1: Pittsworth Hills).
Key visual sensitivities	▸ Moderate sensitivity of receptors, particularly rural residential properties of Athol, which are located in very close proximity to the alignment ▸ This viewpoint is not located on any local tourist drives ▸ The presence of existing infrastructure (power poles, powerlines) reduces the overall sensitivity of this view ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view and the proximity of this viewpoint to the alignment.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment, associated earthworks and realignment of Athol School Road will introduce considerable construction works into the view ▸ The proposed location of a major laydown area (including site offices and fuel storage) immediately northwest of this viewpoint would cause a temporary reduction in visual amenity from this viewpoint ▸ The lack of existing vegetation provides open views from nearby residential properties to the proposed alignment ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The presence of plant constructing the alignment, cuts, embankments and realigned Athol School Road will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction work and plant will be clearly evident from this vantage point, the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.
Potential effect (construction)	The effect of the Project on VP19 during construction is considered to be **moderate**.

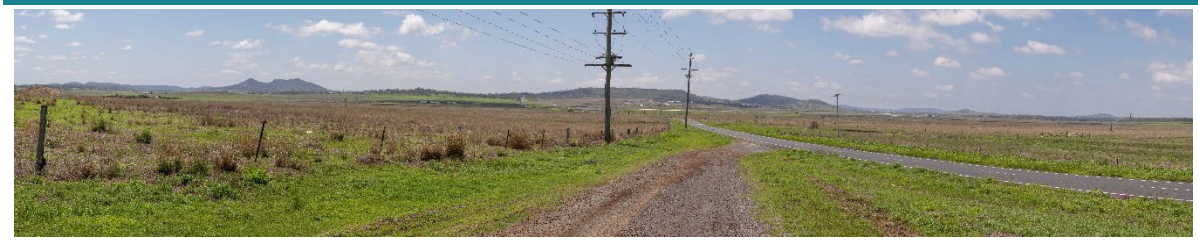
VP19: View from Athol

Operation	
Magnitude of change assessment—permanent infrastructure	▸ This viewpoint is on the edge of the Project footprint, approximately 200 m to the west of the proposed alignment and approximately 400 m west of the realignment of Athol School Road. The skyline is already affected by the presence of powerlines. ▸ The magnitude of change on this receptor is anticipated to be dominant due to the following factors: ▸ Widespread change in the view due to the introduction of new road and rail infrastructure into the rural landscape ▸ Proposed embankments will be up to around 6.8 m above the existing surface level ▸ Realignment of Athol School Road to connect with Purcell Road on the western side of the proposed alignment. No crossing will be provided on the existing Athol School Road. ▸ Due to the sparse nature of existing vegetation within the rail corridor, the effect of vegetation clearing for the construction of the proposed alignment is considered to be **negligible.** ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, the proposed alignment and realignment of Athol School Road will be highly evident and will change the fundamental visual character of the landscape, as it will be introducing new road and rail infrastructure into what is a relatively intact rural residential setting. It is noted that close views to the alignment, cuts and embankments will be possible from nearby rural residential properties. This represents a **high** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident due to the open views of the railway track from this viewpoint. Close views to the alignment will be possible for nearby rural residents of Athol. While experienced by close residential properties and a small number of motorists travelling along Athol School Road, these views are of a transient nature. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP19 during operation is considered to be **high**.

9.6.4.20 Viewpoint 20

TABLE 9.38 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 20

VP20: Toowoomba–Cecil Plains Road, near private property 'Burton'

Visual baseline assessment	
	 **Existing view from Viewpoint 20**
Location and description	▸ GPS Location: 27°32'51.809" S 151°46'12.761" E ▸ Elevation: 430 m ▸ Easterly view towards Toowoomba Wellcamp Airport, Gowrie Mountain and the undulating foothills of the outskirts of Toowoomba ▸ Proposed alignment is approximately 200 m to the northeast of this viewpoint ▸ Represents typical and accessible views of nearby isolated rural residents and of visitors, workers and tourists travelling along Toowoomba–Cecil Plains Road ▸ Easterly views from this point provide open views from LCT D: dry croplands and pastures (D9: Biddeston), towards LCT B: Vegetated Watercourses - Creeks and Channels (B3: Westbrook Creek), LCT C: Irrigated croplands (C14: Brimblecombe Road and C15: Wellcamp Airport), LCT L: Transitional Landscapes (L1: Wellcamp Airport and L2: Boral Quarry), and distant views towards LCT H: forested uplands (H5: Mount Kingsthorpe, H6: Gowrie Mountain, H7: Wellcamp and H8: Bunkers Hill).
Key visual sensitivities	▸ Relatively low number of isolated rural residential properties and a moderate number of receptors travelling along Toowoomba–Cecil Plains Road (AADT around 1,944 per day, of which up to 17.35 per cent are heavy vehicles) are likely to experience changes to this view; however, it is noted that these viewers are passing at speed and would only experience transient views. ▸ This viewpoint is not located on any local tourist drives ▸ The presence of existing infrastructure (power poles, powerlines and Wellcamp Airport) reduces the overall sensitivity of this view ▸ This viewpoint it is considered to have a **low** sensitivity overall to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view and the moderate number of travellers passing at some speed along Toowoomba–Cecil Plains Road with a transient view and lack of specific interest in the views.
Visual evaluation	
Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.	
Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view ▸ The proposed location of a laydown area approximately 150 m to the southeast of this viewpoint would cause a temporary reduction in visual amenity from this viewpoint ▸ The lack of existing vegetation provides open views from nearby residential properties to the proposed alignment ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The presence of plant constructing the alignment, Toowoomba–Cecil Plains Road Rail Bridge and embankments will temporarily change the character of the landscape, creating a considerable change in the landscape character of this viewpoint ▸ While construction work and plant will be clearly evident from this vantage point, the impact of these is temporary, which represents a considerable and therefore **moderate** magnitude of change.

VP20: Toowoomba–Cecil Plains Road, near private property 'Burton'	
Potential effect (construction)	The effect of the Project on VP20 during construction is considered to be **low**.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 200 m to the northeast of this viewpoint. The skyline is already affected by the presence of powerlines. ▸ The magnitude of change on this receptor is anticipated to be dominant due to the following factors: ▸ Widespread change in the view due to the introduction of new rail infrastructure into the rural landscape, including the Toowoomba–Cecil Plains Road Rail Bridge (rail-over-road) and embankments up to around 17.8 m above the existing surface level ▸ Due to the sparse nature of existing vegetation within the rail corridor, the effect of vegetation clearing for the construction of the proposed alignment is considered to be negligible. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed and will be in keeping with the existing rural character. ▸ At this distance, the proposed alignment and Toowoomba–Cecil Plains Road rail bridge will be highly evident and will change the fundamental visual character of the landscape, as it will be introducing new rail infrastructure into what is a relatively intact natural/rural residential setting. It is noted that close views to the alignment and embankments will be possible from nearby rural residential properties. This represents a **high** magnitude of change.
Magnitude of change assessment—train	Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be highly evident due to the open views of the railway track, embankments and Toowoomba–Cecil Plains Road Rail Bridge from this viewpoint. Close views to the alignment will be possible for nearby rural residents of Athol. While experienced by close residential properties and a medium number of motorists travelling along Toowoomba–Cecil Plains Road, these views are of a transient nature. Therefore, the magnitude of change is considered to be **moderate**.
Potential effect (operation)	The effect of the Project on VP20 during operation is considered to be **moderate**.

9.6.4.21 Viewpoint 21

TABLE 9.39 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 21

VP21: Linora Drive, Gowrie Mountain

Visual baseline assessment	
 **Existing view from Viewpoint 21**	
Location and description	▸ GPS Location: 27°30'45.299" S 151°49'26.555" E ▸ Elevation: 550 m ▸ North-westerly view towards properties of Gowrie Mountain and the Warrego Highway ▸ Proposed alignment is approximately 1 km to the northwest of this viewpoint ▸ Represents typical and accessible views of nearby elevated residential properties of Gowrie Mountain ▸ North-westerly views from this point provide elevated views from LCT F: Rural Settlement (F10: Calvert) across LCT D: Dry Croplands and Pastures towards the existing rail line and proposed alignment, and distant views to LCT H: Forested Uplands (H10: Little Liverpool Range).
Key visual sensitivities	▸ Moderate sensitivity of receptors, particularly relatively low number of residents of Gowrie Mountain who have elevated views over the alignment ▸ The presence of existing infrastructure (Warrego Highway) reduces the overall sensitivity of this view ▸ This viewpoint is located close to the national Warrego Way tourist drive ▸ This viewpoint it is considered to have a **moderate** sensitivity overall to the change proposed, due to the relatively low number of nearby residential viewers with a specific interest in this view and expansive, elevated views obtained from residential properties of Gowrie Mountain.
Visual evaluation	
 **Photomontage view from Viewpoint 21: Linora Drive, Gowrie Mountain (75° field of view).**	

VP21: Linora Drive, Gowrie Mountain

Construction	
Magnitude of change assessment	▸ The proposed alignment and associated earthworks will introduce considerable construction works into the view. This change will be exacerbated by the proximity of elevated residences of Gowrie Mountain to the works in this location. ▸ The proposed location of a laydown area near the Warrego Highway for the construction of the Warrego Highway Rail Bridge would cause a reduction in visual amenity from this viewpoint; however, this would be temporary ▸ Earthworks associated with the proposed alignment will require large volumes of material to be removed and brought in ▸ The key impacts will relate to the presence of construction plant and disturbance due to the construction of the alignment, rail bridge, cuts and embankments ▸ Due to the distance of this viewpoint from the alignment, construction works will be noticeable, while the impact of these is temporary which represents a noticeable and therefore **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP21 during construction is considered to be **low**.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the alignment is approximately 1 km to the northwest of this viewpoint. The view is already affected by the presence of powerlines, power poles and the Warrego Highway. ▸ The magnitude of change on this receptor is anticipated to be considerable, therefore **moderate**, due to the following factors: ▸ Considerable change due to the introduction of new rail infrastructure into the rural landscape, including the Warrego Highway Rail Bridge (rail-over-road) ▸ The rail line will be in largely in cut and on embankment, with heights varying from approximately -11.5 m below to +10.5 m above the existing surface level ▸ Due to the sparse nature of existing vegetation within the rail corridor, the effect of vegetation clearing for the construction of the proposed alignment is considered to be negligible. ▸ While the alignment will be fenced with standard rural chain wire fencing, it is unlikely to be clearly discernible at this distance ▸ At this distance, the alignment will be visible and considerably change the visual character of the landscape, as it will be introducing new rail infrastructure into what is currently a relatively intact rural setting. This represents a **moderate** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will be clearly evident due to the open and elevated views of the railway track from this viewpoint. Elevated views to the alignment will be possible for nearby residents of Gowrie Mountain and isolated rural properties situated on Gowrie Mountain School Road. While experienced by a medium number of nearby residential properties these views are of transient nature. Therefore, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP14 during operation is considered to be **moderate**.

9.6.4.22 Viewpoint 22

TABLE 9.40 LIKELY VISUAL EFFECT OF THE PROJECT ON VIEWPOINT 22

VP22: Mount Kingsthorpe Summit Scenic Lookout

Visual baseline assessment

Existing view from Viewpoint 22A.

Existing view from Viewpoint 22B.

Location and description	▸ GPS Location: 27°28'47.495" S 151°49'53.129" E ▸ Elevation: 600 m ▸ Southerly view from the summit of Mount Kingsthorpe towards Gowrie Creek, the existing rail line and distant views towards properties of Gowrie Mountain ▸ Proposed alignment is approximately 1.4 km south of this viewpoint ▸ Represents typical and accessible views of those visiting Mount Kingsthorpe Bushland Park and walking on the Mount Kingsthorpe Walk, a walking track to the summit, which provides expansive elevated views ▸ Also representative of typical and accessible views of nearby elevated residential areas of Kingsthorpe (1.2 km to 3 km to the north of the alignment) ▸ Westerly views from this point provide open views from LCT H: Forested Uplands (H5: Mount Kingsthorpe) across LCT C: Irrigated Croplands (C2: Yalungur and C8: Kingsthorpe) towards the existing rail line and proposed alignment, and distant views to LCTH: Forested Uplands (H6: Gowrie Mountain), LCT D: Dry Croplands and Pastures (D8: Charlton) and LCT G: Rural Living (G10: Gowrie Mountain).
Key visual sensitivities	▸ Moderate number of visitors to Mount Kingsthorpe Bushland Park undertaking the Mount Kingsthorpe Walk, due to its classification as a Class 4—rough trail; however, these visitors have a very high level of interest in this environment and views obtained from the summit and trail ▸ This viewpoint is not located on any tourist drives ▸ Although this view comprises a strong forested and rural character, the presence of the existing rural infrastructure (i.e. power poles, powerlines and existing rail infrastructure) and views of residential properties detract from the rural and natural qualities and sense of remoteness ▸ This viewpoint it is considered to have a **high** sensitivity overall to the change proposed, due to the low number, but very high sensitivity of viewers (e.g. hikers) who are walking specifically to obtain panoramic views from the summit of Mount Kingsthorpe (identified as an area with high scenic amenity value in the Toowoomba Regional Council Scenic Amenity Study).

Visual evaluation

Note that no visualisation has been provided for this viewpoint, as discussed in Section 9.4.3.2: Visual assessment.

VP22: Mount Kingsthorpe Summit Scenic Lookout

Construction	
Magnitude of change assessment	▸ The construction of the proposed alignment and associated earthworks will introduce new rail infrastructure into the existing rural landscape, creating a noticeable change in the landscape character of this viewpoint ▸ The lack of existing vegetation provides open views from the summit of Mount Kingsthorpe and from nearby residential properties to the proposed alignment ▸ Earthworks associated with the proposed alignment will require the movement of large volumes of material ▸ The presence of construction plant constructing the alignment will temporarily change the character of the landscape, creating a noticeable change in the landscape character of this viewpoint ▸ This represents a **low** magnitude of change.
Potential effect (construction)	The effect of the Project on VP22 during construction is considered to be **moderate**.
Operation	
Magnitude of change assessment—permanent infrastructure	▸ The nearest section of the proposed alignment is approximately 1.4 km south of this viewpoint. The skyline is already affected by the presence of powerlines, power poles and the existing rail line. ▸ The magnitude of change on this receptor is anticipated to be considerable, therefore **moderate**, due to the following factors: ▸ Considerable change due to the provision of a new single-track dual-gauge railway on embankment to the south of the existing rail line with associated localised culverts. The rail line will be largely on embankment, with heights up to 16.3 m above the existing surface level. A new rail-over-road bridge will be constructed on Chamberlain Road. ▸ Distant views will be possible to the proposed Warrego Highway Rail Bridge (rail-over-road) ▸ Due to the sparse nature of existing vegetation within the rail corridor, the effect of vegetation clearing for the construction of the proposed alignment is considered to be negligible. ▸ Fencing is to be provided for the extent of the rail corridor, typically located on the corridor boundary. Fencing is to extend between the corridor and private land adjoining the railway. Standard rural chain wire fencing is proposed that will be in keeping with the existing rural character; however, it is likely that this will only just be discernible at this distance. ▸ At this distance, the alignment will be visible and will represent a considerable change the visual character of the landscape as it will be introducing new rail and road infrastructure into the existing rural setting. This represents a **moderate** magnitude of change.
Magnitude of change assessment—train	▸ Movement of double-stacked freight trains up to 1.8 km long with a height of 6.5 m will only be experienced occasionally from the summit of Mount Kingsthorpe. Views to the alignment will be possible for nearby elevated residents of Kingsthorpe. While experienced by a relatively large number of residential properties these views are of transient nature. It is noted that the existing rail line currently facilitates passenger, coal and freight train movements, albeit single stacked. Therefore, the magnitude of change is considered to be **low**.
Potential effect (operation)	The effect of the Project on VP22 during operation is considered to be **high**.

9.6.5 Lighting impacts

9.6.5.1 Viewpoint 1

TABLE 9.41 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 1

VP1: Rainbow Reserve near Kildonan Road, Kurumbul

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Moderate** as described for daytime assessment. There will be very few receptors in this location at night—limited to those camping at Rainbow Reserve.
Magnitude of change assessment (construction)	▸ This viewpoint is situated near a large bridge construction laydown area; however, views towards the laydown area are filtered due to remnant riparian vegetation ▸ During construction it is anticipated that minimal works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'intrinsically dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would be up to 'predominantly dark', representing a noticeable and therefore **low** magnitude of change.
Potential effect (construction)	▸ **Low.**
Magnitude of change assessment (operation)	▸ No permanent lighting is located near this viewpoint and it is not anticipated that transient train lighting would be visible.
Potential effect (operation)	▸ **No impact.**

9.6.5.2 Viewpoint 2

TABLE 9.42 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 2

VP2: Yelarbon Rest Area

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Moderate** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including nearby residents of Yelarbon and travellers passing along the Cunningham Highway at night, whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ This location is adjacent to two major laydown areas and a non-resident workforce accommodation facility ▸ During construction it is anticipated that minimal works will be undertaken at night; however, the non-resident workforce accommodation and laydown areas proposed would be lit with security lighting ▸ The Cunningham Highway as it passes through Yelarbon is lit with permanent street lighting, while existing traffic on the highway introduces transient light ▸ Therefore, the current light levels are assumed to be 'predominantly lit'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain up to 'predominantly lit' representing a **negligible** magnitude of change.
Potential effect (construction)	▸ **Low.**

VP2: Yelarbon Rest Area	
Magnitude of change assessment (operation)	▸ The Cunningham Highway between Yelarbon and Goondiwindi is not currently lit with permanent street lighting ▸ Within Yelarbon, streetlights are currently provided along Taloom Street and one isolated streetlight is provided at the current active level crossing where the Cunningham Highway crosses the existing rail line ▸ Existing traffic on the highway introduces some transient light due to vehicle headlights ▸ Permanent standard road lighting will be required for the Cunningham Highway Road Bridge ▸ The current light levels are assumed to be 'predominately dark' and it is assumed that the levels would be up to 'predominately lit' representing a **low** magnitude of change.
Potential effect (operation)	▸ **Low.**

9.6.5.3 Viewpoint 3

TABLE 9.43 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 3

VP3: Cunningham Highway Near Whetstone Rest Area	
Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. Travellers passing along the Cunningham Highway at night whose interest in the transient views obtained at night is expected to be very low, even compared to daytime interest.
Magnitude of change assessment (construction)	▸ Potential location for a flash-butt welding facility ▸ While minimal works will be undertaken at night, if the flash-butt welding facility is used during construction, it is anticipated that there would be site security lighting ▸ The current light levels are assumed to be 'intrinsically dark' and it is assumed that the levels would be up to 'predominately dark', representing a noticeable **low** magnitude of change.
Potential effect (construction)	▸ **Negligible.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **Low.**

9.6.5.4 Viewpoint 4

TABLE 9.44 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 4

VP4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road Rail Bridge #1 level crossing	
Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. Travellers passing along the Millmerran–Inglewood Road at night, whose interest in the transient views obtained at night is expected to be very low, even compared to daytime interest.
Magnitude of change assessment (construction)	▸ Unlikely that any night works will be undertaken in this location ▸ The current light levels are assumed to be 'intrinsically dark' and it is assumed that the levels would remain 'intrinsically dark'.

VP4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road Rail Bridge #1 level crossing	
Potential effect (construction)	▸ **No impact.**
Magnitude of change assessment (operation)	▸ The active crossing proposed would be controlled by automatic warning systems, including flashing lights, and would be visible to people travelling along Millmerran–Inglewood Road ▸ This would, at worst, change an 'intrinsically dark' landscape into a 'predominantly dark' landscape representing a noticeable change considered to have a **low** magnitude of change.
Potential effect (operation)	▸ **Negligible.**

9.6.5.5 Viewpoint 5

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.6 Viewpoint 6

TABLE 9.45 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 6

VP6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road Rail Bridge #2	
Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including isolated rural residents and travellers passing along Millmerran–Inglewood Road at night, whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ This location is near a major laydown area, including main site offices and fuel storage ▸ During construction it is anticipated that minimal works will be undertaken at night; however, the laydown area proposed would be lit with security lighting ▸ The current light levels are assumed to be 'predominately dark' and it is assumed that the levels would be up to 'predominately lit' representing a noticeable **low** magnitude of change.
Potential effect (construction)	▸ **Negligible.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.6.5.7 Viewpoint 7

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.8 Viewpoint 8

TABLE 9.46 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 8

VP8: Blackwell Road looking towards Millmerran–Inglewood Road

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. There will be local residents and travellers on Blackwell Road in this location at night whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ No temporary construction lighting near this viewpoint.
Potential effect (construction)	▸ **No impact.**
Magnitude of change assessment (operation)	▸ The new active crossing proposed would be controlled by automatic warning systems, including flashing lights, and would be visible to people travelling along Blackwell Road and isolated local rural residents in this area (more than 1 km away) ▸ This viewpoint is also in proximity (approximately 800 m) to the Commodore Mine—a source of temporary lighting, associated with plant, machinery and site lighting ▸ The current light levels are assumed to be 'predominately dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain 'predominately dark' representing a **negligible** magnitude of change.
Potential effect (operation)	▸ **Negligible.**

9.6.5.9 Viewpoint 9

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.10 Viewpoint 10

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.11 Viewpoint 11

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.12 Viewpoint 12

TABLE 9.47 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 12

VP12: Gore Highway towards Condamine River crossing and floodplain

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including isolated rural residents and travellers passing along the Gore Highway at night whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.

VP12: Gore Highway towards Condamine River crossing and floodplain	
Magnitude of change assessment (construction)	▸ Distant views towards a construction laydown area ▸ During construction it is anticipated that minimal works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'predominantly dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain up to 'predominantly dark', representing a **negligible** magnitude of change.
Potential effect (construction)	▸ **Negligible.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.6.5.13 Viewpoint 13

TABLE 9.48 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 13

VP13: Gore Highway near service station, Pampas	
Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Moderate** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including nearby residents of Pampas and travellers passing along the Gore Highway at night whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ No temporary construction lighting near this viewpoint.
Potential effect (construction)	▸ **No impact.**
Magnitude of change assessment (operation)	▸ The Gore Highway as it passes through Pampas is not lit with permanent street lighting, with the exception of one isolated streetlight at the intersection of the Gore Highway and Fysh Road, while existing traffic on the highway introduces some transient light due to vehicle headlights ▸ The new active crossing proposed would be controlled by automatic warning systems including flashing lights and would be visible to local residents of Pampas in very close proximity to the crossing, as well as to people travelling along the Gore Highway, Harris Road and Elsden Road ▸ The current light levels are assumed to be 'predominately dark' and it is assumed that the levels would be up to 'predominately lit' representing a **low** magnitude of change.
Potential effect (operation)	▸ **Low.**

9.6.5.14 Viewpoint 14

TABLE 9.49 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 14

VP14: Gore Highway towards Condamine River (north branch) crossing

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. There will be few receptors in this location at night, including nearby isolated rural residents and travellers passing along the Gore Highway at night whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ During construction it is not anticipated that works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'intrinsically dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would be at greatest 'predominantly dark' representing a noticeable **low** magnitude of change.
Potential effect (construction)	▸ **Negligible.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.6.5.15 Viewpoint 15

TABLE 9.50 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 15

VP15: Near Brookstead State School

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Moderate** as described for daytime assessment. There will be few receptors in this specific location at night as the school will not be in use; however, there are several residential properties whose residents are likely to be concerned about night-time lighting.
Magnitude of change assessment (construction)	▸ The Gore Highway, as it passes through Brookstead, is not lit with permanent street lighting, while existing traffic on the highway introduces transient light from vehicle headlights ▸ During construction it is not anticipated that works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'predominately dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain up to 'predominantly dark' representing a **negligible** magnitude of change.
Potential effect (construction)	▸ **Low.**

VP15: Near Brookstead State School	
Magnitude of change assessment (operation)	▸ There is currently no permanent street lighting associated with the Gore Highway as it passes through Brookstead or Ware Street ▸ Existing traffic on the highway introduces some transient light due to vehicle headlights ▸ Permanent standard road lighting will be required for the Gore Highway Road Bridge ▸ The current light levels are assumed to be 'predominately dark' and it is assumed that, the levels would be up to 'predominately lit' representing a **low** magnitude of change.
Potential effect (operation)	▸ **No impact.**

9.6.5.16 Viewpoint 16

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.17 Viewpoint 17

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.18 Viewpoint 18

This viewpoint is not anticipated to be affected by lighting from the Project, so has not been assessed in detail.

9.6.5.19 Viewpoint 19

TABLE 9.51 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 19

VP19: View from Athol	
Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Moderate** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including nearby residents of Athol and travellers passing along Athol School Road at night whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ This location is near a major laydown area, including main site offices and fuel storage ▸ Several rural residential properties are within proximity to the proposed laydown area ▸ During construction it is anticipated that minimal works will be undertaken at night; however, the laydown area proposed would be lit with security lighting ▸ The current light levels are assumed to be 'intrinsically dark' and it is assumed that the levels would be up to 'predominately lit' representing a **moderate** magnitude of change.
Potential effect (construction)	▸ **Moderate.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.6.5.20 Viewpoint 20

TABLE 9.52 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 20

VP20: Toowoomba–Cecil Plains Road, near private property 'Burton'

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Low** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including nearby isolated rural residents and travellers passing along Toowoomba–Cecil Plains Road at night whose interest in the transient views obtained at night is expected to be low even compared to daytime interest.
Magnitude of change assessment (construction)	▸ During construction it is not anticipated that works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'predominately dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain up to 'predominantly dark' representing a **negligible** magnitude of change.
Potential effect (construction)	▸ **Negligible.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.6.5.21 Viewpoint 21

TABLE 9.53 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 21

VP21: Linora Drive, Gowrie Mountain

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Moderate** as described for daytime assessment. There will still be receptors in this location at night who will be interested in the view and presence of lighting, including nearby elevated residents of Gowrie Mountain.
Magnitude of change assessment (construction)	▸ Distant views to the existing Warrego Highway and a proposed laydown area (approximately 1 km) ▸ The Warrego Highway is not lit with permanent street lighting, while existing traffic on the highway introduces transient light. ▸ During construction it is not anticipated that works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'predominately dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain up to 'predominantly dark' representing a **negligible** magnitude of change.
Potential effect (construction)	▸ **Low.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.6.5.22 Viewpoint 22

TABLE 9.54 LIKELY VISUAL EFFECT OF THE PROJECT LIGHTING ON VIEWPOINT 22

VP22: Mount Kingsthorpe Summit Scenic Lookout

Lighting assessment	
Visual evaluation	
Sensitivity assessment	▸ **Negligible** due to the distance of Mount Kingsthorpe from the alignment and potential light sources, as well the fact that is unlikely that people will be accessing Mount Kingsthorpe Reserve at night.
Magnitude of change assessment (construction)	▸ Distant views to the existing Warrego Highway and a proposed laydown area (approximately 3 km) ▸ The Warrego Highway is not lit with permanent street lighting, while existing traffic on the highway introduces transient light. ▸ During construction it is not anticipated that works will be undertaken at night; however, the laydown area proposed within this view would be lit with security lighting due to the presence of the bridge laydown area ▸ The current light levels are assumed to be 'predominately dark'. With the implementation of light spill controls (e.g. downward angling of luminaries, shielding of light spill) it is anticipated that levels would remain up to 'predominantly dark' representing a **negligible** magnitude of change.
Potential effect (construction)	▸ **Negligible.**
Magnitude of change assessment (operation)	▸ No permanent lighting near this viewpoint.
Potential effect (operation)	▸ **No impact.**

9.7 Mitigation measures

This section provides discussion of mitigation measures and controls that have been incorporated into the reference design development process, as appropriate and where possible (refer Section 9.7.1), as well as those measures that are proposed to be adopted for future phases of Project delivery (refer Section 9.7.2).

9.7.1 Mitigation through the reference design phase

Development of the reference design for the Project has progressed in parallel with the impact assessment process. As a result, design solutions for avoiding, minimising or mitigating impacts have been incorporated into the reference design as appropriate and where possible.

Mitigation measures and controls that have been factored into the design, or otherwise implemented during the reference design phase for the Project, are as follows:

- The Project has, where possible, avoided impacts on nationally or regionally protected landscape areas, such as the Wondul Range National Park, and has minimised impacts on State forests, such as Whetstone State Forest, by following the edge of the protected area to the greatest extent possible
- The Project has been intentionally aligned along the eastern boundary of the Rainbow Reserve so as to minimise the extent of encroachment into this reserve, while also avoiding severance impacts to agricultural properties to the east of Rainbow Reserve
- The Project has avoided, where possible, direct impacts on areas noted as being of regional landscape significance, defined using the regional scenic amenity methodology (ShapingSEQ)
- The Project has been aligned to be co-located with existing rail and road infrastructure, where possible, minimising the need to develop land that has not previously been subject to disturbance for transport infrastructure purposes
- The alignment has been positioned to reduce the number of crossings and extent of impact on watercourses
- The Project footprint defined in the reference design has aimed to minimise vegetation clearing extents that are required to safely and efficiently construct, operate and maintain the works
- The alignment has avoided significant settlements to the greatest extent possible to assist in minimising visual impacts (e.g. Inglewood, Millmerran, Pittsworth) except where the alignment is within or adjacent to existing rail corridor (i.e. through Yelarbon, Pampas and Brookstead).

9.7.2 Proposed mitigation measures

In order to manage and mitigate potential impacts associated with the Project, several mitigation measures have been proposed for implementation in future phases of Project delivery. These proposed mitigation measures have been identified to address Project-specific issues and opportunities.

Table 9.55 identifies the relevant Project phase, the aspect to be managed and the proposed mitigation measure. The mitigation measures presented in Table 9.55 have then been factored into the assessment of residual impact significance, as documented in Table 9.63.

Chapter 22: Outline Environmental Management Plan provides further context and the framework for implementation of these proposed mitigation and management measures.

TABLE 9.55 PROPOSED MITIGATION MEASURES RELEVANT TO LANDSCAPE AND VISUAL AMENITY

Delivery phase	Aspect	Proposed mitigation measures
Detail design	Landscape and visual impacts due to vegetation removal	▸ Clearing extents of visually significant vegetation are further limited, where feasible, to that required to safely construct, operate and maintain the Project. Locations include: ▸ East of Rainbow Reserve (Viewpoint 1) (approximately Ch 32 km to Ch. 34.6 km) ▸ Yelarbon–Kurumbul Road (approximately Ch 0.00 km to 8.00 km) ▸ Whetstone State Forest and adjoining forested areas (approximately Ch 37.8 km to Ch. 50.0 km) ▸ Bringalily State Forest and adjoining forested areas (approximately Ch 55.2.7 km to Ch. 94.4 km) ▸ Through Brookstead, particularly regarding the alignment of the proposed rail corridor adjacent to Ware Street and the impact on the removal of existing vegetation that provides a key visual buffer for nearby residents (approximately Ch 151.6 km to Ch. 153 km) ▸ Those associated with river and creek crossings (see below). ▸ A Rehabilitation and Landscaping Management Sub-plan will be developed for the Project, as a component of the CEMP. This sub-plan will be based on the Inland Rail Landscape and Rehabilitation Strategy, in addition to location- and property-specific reinstatement commitments. The Plan will include and clearly identify: ▸ Location-specific objectives for rehabilitation, reinstatement and/or stabilisation. Outside of the rail corridor, property-specific and township-specific (e.g. Yelarbon, Pampas, Brookstead, Pittsworth) rehabilitation and landscaping requirements may apply. Within the rail corridor, maintaining operational safety and rail formation stability will be the driving factors. ▸ Objectives and timeframes for rehabilitation and/or reinstatement/stabilisation works (including biodiversity, vegetation establishment and erosion and sediment control outcomes to be achieved) ▸ Where appropriate, how the objectives align with relevant recovery plans, threat abatement plans, conservation advices or policy guidance for target species in areas identified for rehabilitation ▸ Details of the actions and responsibilities to progressively rehabilitate, regenerate, and/or revegetate areas, while minimising the duration of exposure in disturbed areas ▸ Include rehabilitation requirements such as: – Milling and removal of bitumen pavement – Removal of any decommissioned culverts – Tyning and ripping of base and sub-base material – Application of soil ameliorants – Topsoiling and/or compost blanket – Stabilisation and rehabilitation (e.g. planting and or seeding). ▸ Native flora species endemic to the Darling Downs and Toowoomba regions or other suitable species appropriate to the landscape context and nursery/seed stock sources ▸ Consideration for maintenance or performance issues of rehabilitation, e.g. use of groundcover that does not grow and obscure signals or impact the longevity of rail infrastructure ▸ Procedures, timeframes, measurable performance objectives and responsibilities for monitoring the success of rehabilitation and/or reinstatement/stabilisation areas ▸ Corrective actions if the outcomes of rehabilitation and/or reinstatement/stabilisation are not achieved. ▸ Where temporary construction facilities/borrow pits are required, land will be returned to a stable condition that complies with the conditions of applicable landowner agreements and regulatory approvals (e.g. development approval and/or EA).

Delivery phase	Aspect	Proposed mitigation measures
Detail design (continued)	Landscape and visual impacts on watercourses	▸ Develop the detail design to minimise impacts to waterways, riparian vegetation and in-stream flora and habitats. Particular locations include Macintyre River, Macintyre Brook, Pariagara Creek, Cattle Creek, Native Dog Creek, Bringalily Creek, Nicol Creek, Back Creek, Grasstree Creek, Condamine River and Dry Creek, and their tributaries. ▸ Continue to adhere to a crossing structure hierarchy, with bridges preferred to culverts ▸ Aim to avoid, then minimise, the extent of waterway diversions or realignments.
	Visual impact of rail infrastructure	▸ Infrastructure (such as structures, embankments/cuttings and bridges) will be designed with regard to landscape character and views as identified in the LVIA, seeking to: ▸ **Legacy**: Implement consistent treatments along the Project alignment to enhance the overall recognition and legacy of the Project and Inland Rail ▸ **Bridges**: Ensure that bridges are considerate of the local setting, connectivity requirements, crime prevention through environmental design and graffiti issues. In particular, assess urban design input to the following bridges (which have potential to be viewed by the greatest number of viewers) to enhance their visual amenity and potential to create a positive legacy: - Cunningham Highway road-over-rail bridge (near Yelarbon) (approximately Ch 25.6 km to Ch. 26.0 km) - Gore Highway road-over-rail bridge (near Brookstead) (approximately Ch 153.2 km) - Millmerran–Inglewood Road rail-over-road bridge (approximately Ch 73.0 km) - Millmerran–Inglewood Road rail-over-road bridge (approximately Ch 115.5 km) - Oakey–Pittsworth Road rail-over-road bridge (approximately Ch 171.0 km) - Linthorpe Road road-over-rail bridge (near Southbrook) (approximately Ch 175.8 km) - Toowoomba–Cecil Plains Road rail-over-road bridge (approximately Ch 196.2km) - Warrego Highway rail-over-road bridge (near Gowrie Mountain) (approximately Ch 203.0 km). ▸ **Embankments**: At locations where embankments are near roads and/or adjoin bridge structures, minimise the extent to which embankments restrict views or affect views from nearby residences, including through selection of sensitive stabilisation techniques, revegetation or, where appropriate, screen planting. Particularly consider treatment opportunities for the new embankment along the northern edge of Pittsworth, between Ch. 170.0 km and 173.0 km. ▸ **Cuttings**: Assess opportunities to blend cut batters into their landscape setting (e.g. considering potential for revegetation, rock pitching, etc.), particularly with consideration to the cut near Athol (approximately Ch 189.0 km to Ch 190.0 km) ▸ **Noise barriers***:* Where noise barriers are confirmed as necessary through detail design for effective noise attenuation, ensure they are designed with regard to landscape character and consider materials, finishes, colour selection, crime prevention through environmental design and graffiti issues. Where appropriate, consider the inclusion of community artwork into the design.

Delivery phase	Aspect	Proposed mitigation measures
Detail design (continued)	Landscape design treatments	Investigate opportunities for landscape enhancements with reference to the key landscape characteristics and elements identified in the draft EIS including: ▸ **Rural and natural landscapes***:* The landscape design will respect and enhance the rural landscapes. This includes: ▸ Providing earthworks and planting to screen the Project, wherever practicable and appropriate, to maintain local character and desirable views. This includes further opportunity for design of targeted planting adjacent to major earthworks within the rail corridor to the extent consistent with railway safety requirements and ARTC *Engineering (Track & Civil) Code of Practice Section 17 Right of Way Requirements* (ARTC, 2013). For example, planting strips could be introduced adjacent to significant embankments to reduce visual impact and assist in integrating the landform into the existing landscape setting, and in the following locations: – Selective planting adjacent to the Warrego Highway Bridge to screen the alignment and bridge abutments as viewed from Gowrie Mountain (approximately Ch 203.0 km) – Adjacent to the alignment and adjacent to the bridge near Brookstead (approximately Ch 153.2 km) to assist to integrate the Project into its landscape context. ▸ **Ecologically sensitive areas***:* The landscape design will provide opportunities for ecological gain to benefit biodiversity. This includes: ▸ Development and use of planting and seed mixes to maximise and connect native habitat types for ecological gain ▸ Enhancement of landscape corridors and ecological links by, where possible, joining or re-joining fragmented areas of habitat (where identified in Appendix M: Preliminary Fauna Movement Provision and Fencing Strategy). ▸ **Townships***:* The landscape design will enhance or complement the local context. For example, the appearance and integration of new structures, fencing and noise barriers will be assessed for all Project components located in an urban area.
	Impacts on the setting of heritage landscapes	▸ Refine the Project footprint and develop the construction methodology to avoid impacts, where possible, to items of Aboriginal, historic or natural heritage significance, such as the old Brookstead railway station, Yelarbon Silos and the Yelarbon and District Soldiers Memorial Hall ▸ Assess the feasibility of implementing an interpretation strategy and wayfinding to assist in the interpretation of visual elements of heritage significance, such as old rail lines, bridges, buildings or other items of visual value.
	Visual impacts of lighting	▸ Detail design to incorporate lighting to the minimal level required to meet operational road and rail safety requirements for the Project ▸ Attenuation measures to minimise light spillage will be assessed and incorporated into the detail design, such as selection of appropriate light fittings/shields and/or at-receptor treatments ▸ Limit the potential for vertical illuminance, by selecting luminaries that direct light downwards below the horizontal to avoid lateral glare.
Pre-construction	Impacts to landscape and visual values	▸ Implement the Rehabilitation and Landscaping Management Sub-plan to minimise disturbance to landscape and visual amenity values during the site establishment phase ▸ Construction areas including stockpile areas, fuel storage areas and staff parking areas to be located outside the tree protection zone as defined in *AS4970-2009: Protection of trees on development sites* (Standards Australia, 2009)

Delivery phase	Aspect	Proposed mitigation measures
Construction	Landscape and visual impacts due to vegetation removal	▸ Establish vegetation protection zones and project clearing extents prior to commencement of works to avoid impacts on adjoining vegetation and habitats as far as practicable.
	Impacts to landscape and visual values	▸ Minimise height of all stockpiles to the greatest extent possible to reduce their visual impact ▸ Temporary treatments (such as hoardings and screens) to site compounds and non-resident workforce accommodation will be considered to assist in reducing visual impacts of temporary infrastructure and sun glare within close proximity of sensitive receptors (particularly townships including Yelarbon, Brookstead, Pampas and Pittsworth, and road networks). These include opportunities to use features on temporary fencing/hoarding. This will include art-based treatments to assist with screening the works from the public and using information boards (or similar) to educate the public about the construction works.
	Visual impacts of lighting	▸ Avoid night works close to residences, to the greatest extent possible ▸ Where night works are unavoidable, consider light attenuation measures in discussion with potentially affected landowners ▸ Minimise light spill from the proposed non-resident workforce accommodation at Yelarbon, Inglewood and Turallin by orientating and/or shielding light sources so as not to impact on neighbouring sensitive receptors.
	Reinstatement and rehabilitation	▸ Implement the Rehabilitation and Landscaping Management Sub-plan following the completion of works within each area of the Project footprint, until performance criteria are satisfactorily achieved.
Operation	Visual impacts of lighting	▸ In response to legitimate complaints, consider additional control measures, such as screening of sensitive receptors.

9.8 Impact assessment summary

This section presents an assessment of the significance of landscape, visual and lighting impacts as a result of the Project. In each instance, the assessment establishes a) the initial significance of impact with the application of mitigation measures (specified in Section 9.7.1); and b) the residual significance of impact, with the application of mitigation measures nominated for implementation through future Project phases (specified in Section 9.7.2).

The significance assessment methodology that has been adopted is introduced in Chapter 4: Assessment Methodology and is discussed, in the context of this assessment, in Section 9.4.3.

9.8.1 Summary of landscape impacts

Twelve LCTs with associated LCAs were identified through the landscape assessment process. A summary of the overall likely landscape impact anticipated during both the construction and operation of the Project for each LCT is presented in Table 9.56, based on the methodology described in Section 9.4.

TABLE 9.56 SUMMARY LANDSCAPE ASSESSMENT (CONSTRUCTION AND OPERATION)

		Initial significance[1]		Residual significance[2]	
Landscape character type	**Landscape sensitivity**	**Magnitude of change**	**Significance**	**Magnitude of change**	**Significance**
LCT A: Vegetated Watercourses—Rivers	Moderate	Moderate	Moderate	Low	Low
LCT B: Vegetated Watercourses—Creeks and Channels	Low	Moderate	Low	Moderate	Low
LCT C: Irrigated croplands	Low	Low	Negligible	Low	Negligible
LCT D: Dry Croplands and Pastures	Low	High	Moderate	High	Moderate
LCT E: Vegetated Grazing	No Impact	No Impact	No Impact	No Impact	No Impact
LCT F: Rural Settlement	Moderate	High	High	Moderate	Moderate
LCT G: Rural Living	Moderate	Moderate	Moderate	Moderate	Moderate
LCT H: Forested Uplands	High	No Impact	No impact	No Impact	No impact
LCT I: Settled Hills	Moderate	High	High	High	High
LCT J: Forested Hills and Plains	Moderate	Low	Low	Low	Low
LCT K: Salinity Scald	Low	Low	Negligible	Low	Negligible
LCT L: Transitional Landscapes	No Impact	No Impact	No Impact	No Impact	No Impact

Table notes:
Application of mitigation measures specified in Section 9.7.1
Application of mitigation measures specified in Section 9.7.2

This shows that the Project is considered likely to result in impacts of up to **high** on landscape character and amenity of two LCTs during construction or operation prior to the application of mitigation: LCT I: Settled Hills and LCT F: Rural Settlement. Impacts on LCT I principally relate to the impacts associated with clearance of vegetation and the construction of extensive cuts and embankments through landscapes of high local scenic value. Impacts on LCT F relate to the introduction of large embankments and bridges within the vicinity of the settled areas (i.e. Yelarbon, Brookstead and Pittsworth).

9.8.2 Summary of visual impacts

Based on digital mapping (Visibility Analysis Mapping) and the field survey, 22 representative viewpoints were selected for detailed assessment. A summary of the baseline analysis and overall likely visual impact anticipated during the construction of the Project is summarised for each viewpoint in Table 9.57 based on the methodology described in Section 9.4.

The assessment concluded that the Project is considered likely to result in impacts of up to **moderate** during construction, on eight representative viewpoints, relating to impacts on Viewpoint 2: Yelarbon Rest Area; Viewpoint 9: Commodore Peak Picnic Area looking towards Millmerran Power Station; Viewpoint 13: Gore Highway near service station (Pampas); Viewpoint 15: Near Brookstead State School; Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn; Viewpoint 18: Gore Highway near Southbrook; Viewpoint 19: View from Athol; and Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout.

TABLE 9.57 SUMMARY ASSESSMENT (CONSTRUCTION)

		Initial significance[1]		Residual significance[2]	
Viewpoint name	**Viewpoint sensitivity**	**Magnitude of change**	**Significance**	**Magnitude of change**	**Significance**
Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Moderate	Low	Low	Low	Low
Viewpoint 2: Yelarbon rest area	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 3: Cunningham Highway near Whetstone Rest Area	Low	Negligible	Negligible	Negligible	Negligible
Viewpoint 4: Millmerran-Inglewood Road towards Millmerran–Inglewood Road level crossing	Low	Low	Negligible	Low	Negligible
Viewpoint 5: Millmerran–Inglewood Road near Nicol Creek Road	Low	Low	Negligible	Low	Negligible
Viewpoint 6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2	Low	Moderate	Low	Moderate	Low
Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	Moderate	Low	Low	Low	Low
Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Low	Moderate	Low	Moderate	Low
Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 10: Millmerran–Inglewood Road towards Millmerran-Inglewood Road rail bridge #3	Low	Moderate	Low	Moderate	Low
Viewpoint 11: Nardoo Street edge of Millmerran	Moderate	Negligible	Low	Negligible	Low
Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Low	Low	Negligible	Low	Negligible
Viewpoint 13: Gore Highway near service station, Pampas	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Low	Moderate	Low	Moderate	Low
Viewpoint 15: Near Brookstead State School	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	Low	Moderate	Low	Moderate	Low
Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 18: Gore Highway near Southbrook	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 19: View from Athol	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 20: Toowoomba–Cecil Plains Road near private property 'Burton'	Low	Moderate	Low	Moderate	Low
Viewpoint 21: Linora Drive, Gowrie Mountain	Moderate	Low	Low	Low	Low

Viewpoint name	Viewpoint sensitivity	Initial significance[1]		Residual significance[2]	
		Magnitude of change	Significance	Magnitude of change	Significance
Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout	High	Low	Moderate	Low	Moderate

Table notes:
Application of mitigation measures specified in Section 9.7.1
Application of mitigation measures specified in Section 9.7.2

A summary of the overall likely visual impact on the same representative viewpoints during the operation of the Project is provided in Table 9.58. The assessment shows that the Project is considered likely to result in high impacts on six representative views, relating to impacts on Viewpoint 2: Yelarbon Rest Area; Viewpoint 15: Near Brookstead State School; Viewpoint 17: Pittsworth–Felton Road; Viewpoint 18: Gore Highway near Southbrook; Viewpoint 19: View from Athol; and Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout. These will be managed in accordance with the mitigation measures outlined in Section 9.7.

TABLE 9.58 SUMMARY ASSESSMENT (OPERATION)

Viewpoint name	Viewpoint sensitivity	Initial significance[1]		Residual significance[2]	
		Magnitude of change	Significance	Magnitude of change	Significance
Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 2: Yelarbon Rest Area	Moderate	High	High	Moderate	Moderate
Viewpoint 3: Cunningham Highway Near Whetstone Rest Area	Low	Low	Negligible	Low	Negligible
Viewpoint 4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road level crossing	Low	High	Moderate	High	Moderate
Viewpoint 5: Millmerran–Inglewood Road near Nicol Creek Road	Low	Moderate	Low	Moderate	Low
Viewpoint 6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2	Low	High	Moderate	High	Moderate
Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	Moderate	Low	Low	Low	Low
Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Low	Moderate	Low	Moderate	Low
Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	Moderate	Low	Low	Low	Low
Viewpoint 10: Millmerran–Inglewood Road near property	Low	High	Moderate	High	Moderate
Viewpoint 11: Nardoo Street edge of Millmerran	Moderate	Negligible	Low	Negligible	Low
Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Low	Moderate	Low	Moderate	Low
Viewpoint 13: Gore Highway near service station, Pampas	Moderate	Moderate	Moderate	Moderate	Moderate

Viewpoint name	Viewpoint sensitivity	Initial significance[1]		Residual significance[2]	
		Magnitude of change	Significance	Magnitude of change	Significance
Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Low	Moderate	Low	Moderate	Low
Viewpoint 15: Near Brookstead State School	Moderate	High	High	Moderate	Moderate
Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	Low	Moderate	Low	Moderate	Low
Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	Moderate	High	High	High	High
Viewpoint 18: Gore Highway near Southbrook	Moderate	High	High	Moderate	Moderate
Viewpoint 19: View from Athol	Moderate	High	High	High	High
Viewpoint 20: Toowoomba–Cecil Plains Road near private property 'Burton'	Low	High	Moderate	High	Moderate
Viewpoint 21: Linora Drive, Gowrie Mountain	Moderate	Moderate	Moderate	Moderate	Moderate
Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout	High	Moderate	High	Moderate	High

Table notes:
Application of mitigation measures specified in Section 9.7.1
Application of mitigation measures specified in Section 9.7.2

9.8.3 Summary of lighting impacts

The qualitative desktop assessment concludes that the proposed alignment and associated infrastructure are unlikely to create any important impacts associated with obtrusive lighting into the external environment as a result of the likely construction activities or permanent Project lighting. As there is limited Project lighting proposed, many of the viewpoints are not anticipated to be affected by night lighting. Table 9.59 presents a summary of the baseline analysis and overall likely visual impact anticipated during the operation phase of the Project for each viewpoint. The most significant effect during construction is up to **moderate** (Viewpoint 19: View from Athol) and the most significant effect for operation is **negligible** (Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road and Viewpoint 4: Millmerran Inglewood Road towards level crossing).

TABLE 9.59 SUMMARY OF LIGHTING ASSESSMENT (CONSTRUCTION AND OPERATION)

Viewpoint name	Viewpoint sensitivity	Initial significance[1]		Residual significance[2]	
		Magnitude of change	Potential visual effect	Magnitude of change	Potential visual effect
Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Moderate	Low	Low (construction only)	Low	Low (construction only)
Viewpoint 2: Yelarbon Rest Area	Moderate	Negligible	Low (construction and operation)	Negligible	Low (construction and operation)
Viewpoint 3: Cunningham Highway Near Whetstone Rest Area	Low	Low	Negligible (construction only)	Low	Negligible (construction only)
Viewpoint 4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road level crossing	No impact	No impact	Negligible (operation only)	No impact	Negligible (operation only)
Viewpoint 5: Millmerran–Inglewood Road near Nicol Creek Road	No impact	No impact	No impact	No impact	No impact

Viewpoint name	Viewpoint sensitivity	Initial significance[1]		Residual significance[2]	
		Magnitude of change	Potential visual effect	Magnitude of change	Potential visual effect
Viewpoint 6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2	Low	Low	Negligible (construction only)	Low	Negligible (construction only)
Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	No impact	No impact	No impact	No impact	No impact
Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Low	Negligible	Negligible (operation only)	Negligible	Negligible (operation only)
Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	No impact	No impact	No impact	No impact	No impact
Viewpoint 10: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #3	No impact	No impact	No impact	No impact	No impact
Viewpoint 11: Nardoo Street edge of Millmerran	No impact	No impact	No impact	No impact	No impact
Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Low	Negligible	Negligible (construction only)	Negligible	Negligible (construction only)
Viewpoint 13: Gore Highway near service station, Pampas	Moderate	Low	Low (operation only)	Low	Low (operation only)
Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Low	Low	Negligible (construction only)	Low	Negligible (construction only)
Viewpoint 15: Near Brookstead State School	Moderate	Negligible	Low (construction only)	Negligible	Low (construction only)
Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	No impact	No impact	No impact	No impact	No impact
Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	No impact	No impact	No impact	No impact	No impact
Viewpoint 18: Gore Highway near Southbrook	No impact	No impact	No impact	No impact	No impact
Viewpoint 19: View from Athol	Moderate	Moderate	Moderate (construction only)	Moderate	Moderate (construction only)
Viewpoint 20: Toowoomba–Cecil Plains Road near private property 'Burton'	Low	Negligible	Negligible (construction only)	Negligible	Negligible (construction only)
Viewpoint 21: Linora Drive, Gowrie Mountain	Moderate	Negligible	Low (construction only)	Negligible	Low (construction only)
Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout	Negligible	Negligible	Negligible (construction only)	Negligible	Negligible (construction only)

Table notes:
Application of mitigation measures specified in Section 9.7.1
Application of mitigation measures specified in Section 9.7.2

9.8.4 Residual impact assessment

Potential impacts to landscape and visual values associated with the construction and operation of the Project are outlined in Section 9.8.1, Section 9.8.2 and Section 9.8.3. These potential impacts have been subjected to an impact assessment as per the methodology introduced in Chapter 4: Assessment Methodology and described in Section 9.4.

The initial impact assessment is undertaken on the assumption that the design considerations (or initial mitigation measures) factored into the reference design phase (refer Section 9.7.1) have been implemented.

Additional mitigation and management measures (refer Table 9.55) were then applied to future phases of the Project to further reduce the level of potential impact and derive a residual significance of impact.

The initial and residual significance of potential impacts are presented in Table 9.60 to demonstrate the effectiveness of mitigation measures.

TABLE 9.60 INITIAL AND RESIDUAL IMPACT SIGNIFICANCE ASSESSMENT

				Initial significance[1]		Residual significance[2]	
Aspect	**Phase**	**Landscape character type/viewpoint**	**Sensitivity**	**Magnitude**	**Significance**	**Magnitude**	**Significance**
Landscape impacts	Construction and operation	LCT A: Vegetated Watercourses—Rivers	Moderate	Moderate	Moderate	Low	Low
		LCT B: Vegetated Watercourses—Creeks and Channels	Low	Moderate	Low	Moderate	Low
		LCT C: Irrigated Croplands	Low	Low	Negligible	Low	Negligible
		LCT D: Dry Croplands and Pastures	Low	High	Moderate	High	Moderate
		LCT E: Vegetated Grazing	No Impact	No Impact	No Impact	No Impact	No Impact
		LCT F: Rural Settlement	Moderate	High	High	Moderate	Moderate
		LCT G: Rural Living	Moderate	Moderate	Moderate	Moderate	Moderate
		LCT H: Forested Uplands	High	No Impact	No impact	No Impact	No impact
		LCT I: Settled Hills	Moderate	High	High	High	High
		LCT J: Suburban Living	Moderate	Low	Low	Low	Low
		LCT K: Salinity Scald	Low	Low	Negligible	Low	Negligible
		LCT L: Transitional Landscapes	No Impact	No Impact	No impact	No Impact	No impact
Visual impacts	Construction	Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Moderate	Low	Low	Low	Low
		Viewpoint 2: Yelarbon Rest Area	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 3: Cunningham Highway Near Whetstone Rest Area	Low	Negligible	Negligible	Negligible	Negligible
		Viewpoint 4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road level crossing	Low	Low	Negligible	Low	Negligible
		Viewpoint 5: Millmerran–Inglewood Road near Nicol Creek Road	Low	Low	Negligible	Low	Negligible
		Viewpoint 6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2	Low	Moderate	Low	Moderate	Low
		Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	Moderate	Low	Low	Low	Low

				Initial significance[1]		Residual significance[2]	
Aspect	**Phase**	**Landscape character type/viewpoint**	**Sensitivity**	**Magnitude**	**Significance**	**Magnitude**	**Significance**
Visual impacts (continued)	Construction (continued)	Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Low	Moderate	Low	Moderate	Low
		Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 10: Millmerran-Inglewood Road towards Millmerran–Inglewood Road rail bridge #3	Low	Moderate	Low	Moderate	Low
		Viewpoint 11: Nardoo Street edge of Millmerran	Moderate	Negligible	Low	Negligible	Low
		Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Low	Low	Negligible	Low	Negligible
		Viewpoint 13: Gore Highway near service station, Pampas	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Low	Moderate	Low	Moderate	Low
		Viewpoint 15: Near Brookstead State School	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	Low	Moderate	Low	Moderate	Low
		Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 18: Gore Highway near Southbrook	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 19: View from Athol	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 20: Toowoomba–Cecil Plains Road near private property 'Burton'	Low	Moderate	Low	Moderate	Low
		Viewpoint 21: Linora Drive, Gowrie Mountain	Moderate	Low	Low	Low	Low
		Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout	High	Low	Moderate	Low	Moderate
	Operation	Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 2: Yelarbon Rest Area	Moderate	High	High	Moderate	Moderate
		Viewpoint 3: Cunningham Highway Near Whetstone Rest Area	Low	Low	Negligible	Low	Negligible

				Initial significance[1]		Residual significance[2]	
Aspect	**Phase**	**Landscape character type/viewpoint**	**Sensitivity**	**Magnitude**	**Significance**	**Magnitude**	**Significance**
Visual impacts (continued)	Operation (operation)	Viewpoint 4: Millmerran–Inglewood Road towards Millmerran-Inglewood Road level crossing	Low	High	Moderate	High	Moderate
		Viewpoint 5: Millmerran-Inglewood Road near Nicol Creek Road	Low	Moderate	Low	Moderate	Low
		Viewpoint 6: Millmerran-Inglewood Road towards Millmerran-Inglewood Road rail bridge #2	Low	High	Moderate	High	Moderate
		Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	Moderate	Low	Low	Low	Low
		Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Low	Moderate	Low	Moderate	Low
		Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	Moderate	Low	Low	Low	Low
		Viewpoint 10: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #3	Low	High	Moderate	High	Moderate
		Viewpoint 11: Nardoo Street edge of Millmerran	Moderate	Negligible	Low	Negligible	Low
		Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Low	Moderate	Low	Moderate	Low
		Viewpoint 13: Gore Highway near service station, Pampas	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Low	Moderate	Low	Moderate	Low
		Viewpoint 15: Near Brookstead State School	Moderate	High	High	Moderate	Moderate
		Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	Low	Moderate	Low	Moderate	Low
		Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	Moderate	High	High	High	High
		Viewpoint 18: Gore Highway near Southbrook	Moderate	High	High	Moderate	Moderate
		Viewpoint 19: View from Athol	Moderate	High	High	High	High

				Initial significance[1]		Residual significance[2]	
Aspect	**Phase**	**Landscape character type/viewpoint**	**Sensitivity**	**Magnitude**	**Significance**	**Magnitude**	**Significance**
Visual impacts (continued)	Operation (operation)	Viewpoint 20: Toowoomba–Cecil Plains Road near private property 'Burton'	Low	High	Moderate	High	Moderate
		Viewpoint 21: Linora Drive, Gowrie Mountain	Moderate	Moderate	Moderate	Moderate	Moderate
		Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout	High	Moderate	High	Moderate	High
Lighting impacts	Construction/ Operation	Viewpoint 1: Rainbow Reserve near Kildonan Road, Kurumbul	Moderate	Low	Low (construction only)	Low	Low (construction only)
		Viewpoint 2: Yelarbon rest area	Moderate	Negligible	Low (construction and operation)	Negligible	Low (construction and operation)
		Viewpoint 3: Cunningham Highway Near Whetstone Rest Area	Low	Low	Negligible (construction only)	Low	Negligible (construction only)
		Viewpoint 4: Millmerran–Inglewood Road towards Millmerran–Inglewood Road level crossing	No impact	No impact	Negligible (operation only)	No impact	Negligible (operation only)
		Viewpoint 5: Millmerran–Inglewood Road near Nicol Creek Road	No impact	No impact	No impact	No impact	No impact
		Viewpoint 6: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #2	Low	Low	Negligible (construction only)	Low	Negligible (construction only)
		Viewpoint 7: Mount Basalt Reserve, looking towards Millmerran	No impact	No impact	No impact	No impact	No impact
		Viewpoint 8: Blackwell Road looking towards Millmerran–Inglewood Road	Low	Negligible	Negligible (operation only)	Negligible	Negligible (operation only)
		Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station	No impact	No impact	No impact	No impact	No impact
		Viewpoint 10: Millmerran–Inglewood Road towards Millmerran–Inglewood Road rail bridge #3	No impact	No impact	No impact	No impact	No impact
		Viewpoint 11: Nardoo Street edge of Millmerran	No impact	No impact	No impact	No impact	No impact

				Initial significance[1]		Residual significance[2]	
Aspect	**Phase**	**Landscape character type/viewpoint**	**Sensitivity**	**Magnitude**	**Significance**	**Magnitude**	**Significance**
Lighting impacts (continued)	Construction/ Operation (continued)	Viewpoint 12: Gore Highway towards Condamine River crossing and floodplain	Low	Negligible	Negligible (construction only)	Negligible	Negligible (construction only)
		Viewpoint 13: Gore Highway near service station, Pampas	Moderate	Low	Low (operation only)	Low	Low (operation only)
		Viewpoint 14: Gore Highway towards Condamine River (north branch) crossing	Low	Low	Negligible (construction only)	Low	Negligible (construction only)
		Viewpoint 15: Near Brookstead State School	Moderate	Negligible	Low (construction only)	Negligible	Low (construction only)
		Viewpoint 16: Glen Devon Road looking south from elevated private residential properties	No impact	No impact	No impact	No impact	No impact
		Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn	No impact	No impact	No impact	No impact	No impact
		Viewpoint 18: Gore Highway near Southbrook	No impact	No impact	No impact	No impact	No impact
		Viewpoint 19: View from Athol	Moderate	Moderate	Moderate (construction only)	Moderate	Moderate (construction only)
		Viewpoint 20: Toowoomba-Cecil Plains Road, near private property 'Burton'	Low	Negligible	Negligible (construction only)	Negligible	Negligible (construction only)
		Viewpoint 21: Linora Drive, Gowrie Mountain	Moderate	Negligible	Low (construction only)	Negligible	Low (construction only)
		Viewpoint 22: Mount Kingsthorpe Summit Scenic Lookout	Negligible	Negligible	Negligible (construction only)	Negligible	Negligible (construction only)

Table notes:
1 Initial mitigation only
2 Assessment including additional mitigation measures

9.9 Cumulative impacts

It is a requirement of the ToR for this Project that the potential for cumulative impacts be considered. This section provides a discussion on the potential for cumulative impacts in relation to landscape and visual amenity. Further details on the potential for cumulative impacts to arise as a result of the Project, in combination with others, is presented in Chapter 21: Cumulative Impacts. Details on the assessment methodology for cumulative impacts is presented in Chapter 4: Assessment Methodology.

Projects with spatial and/or temporal overlap can result in cumulative impacts. Cumulative impacts may:

- Differ from those of an individual project when considered in isolation
- Be positive or negative
- Differ in severity and duration depending on the spatial and temporal overlap of projects occurring in an area.

Cumulative impacts to the landscape and visual amenity of the Project will be largely the product of:

- Temporal construction impacts—presence of construction traffic, workforce and machinery operating on adjoining projects at the same time
- Spatial operational impacts—the residual impact of the visibility of infrastructure of identified projects to sensitive receptors, including increases in the visibility of infrastructure as a result of the introduction of additional visual receptors (including residential receptors) into an area and with potential to view the Project.

The Project area of influence that was considered for the cumulative impact assessment was determined to be wider than the impact assessment area, extending 50 km (approximately 30 minutes' drive or more). Beyond this distance, it is considered that there would be no reasonable expectation of cumulative landscape or visual impact being registered by a receptor.

Twenty-three projects were initially identified as having potential to contribute to cumulative impacts in combination with the Project. These projects are either currently operational, expected to undergo future expansion, or are currently going through an approval process. A full list of the 23 projects, with a description of each, is presented in Chapter 21: Cumulative Impacts.

For the purposes of landscape and visual amenity, projects that are within the area of influence and will have temporal overlap in construction or expansion activities are considered to have potential to result in cumulative impacts. Only 9 of the initial 23 projects identified meet these criteria. These projects are listed in Table 9.61.

TABLE 9.61 PROJECTS CONSIDERED FOR THE CUMULATIVE IMPACT ASSESSMENT

Projects	Location	Description	Construction dates
InterLinkSQ	13 km west of Toowoomba The northern limit of the Project is situated adjacent to the InterLinkSQ site	A 200-ha transport, logistics and business hub. Located on the narrow-gauge regional rail and interstate network. Located at the junction of the Gore, Warrego and New England Highways.	2018 to TBC
Commodore Mine and Millmerran Power Station	Domville, Queensland The Project is aligned adjacent to potential future coal reserves for the mine	The Commodore Mine is an open-cut coal mine, which provides coal for the 850-megawatt (MW) Millmerran Power Station (Mininglink, n.d.). The Millmerran Power Station is a coal-fired power station that supplies enough electricity to power approximately 1.1 million homes (Power Technology, 2018)	Operational, but subject to possible future expansion of footprint
North Star to NSW/QLD Border (Inland Rail)	Rail alignment from North Star, NSW to the NSW/QLD border Adjoins the Project at its southern limit	New 37-km rail corridor to connect North Star (NSW) to the QR South West Rail Line just over the NSW/QLD border.	2021 to 2024
Gowrie to Helidon (Inland Rail)	Rail alignment from Gowrie to Helidon, Queensland Adjoins the Project at its northern limit	New 26-km dual-gauge track between Gowrie (north-west of Toowoomba) and Helidon (east of Toowoomba), extending through the Local Government Areas of Toowoomba and Lockyer Valley. The Project includes a 6.38-km tunnel to create an efficient route through the steep terrain of the Toowoomba Range.	2021 to 2025

Projects	Location	Description	Construction dates
Helidon to Calvert (Inland Rail)	Rail alignment from Helidon to Calvert, Queensland 26 km to east of the Project footprint	New 47-km dual-gauge rail line connecting Helidon (east of Toowoomba) with Calvert (near Ipswich), via Placid Hills, Gatton, Forest Hill, Laidley and Grandchester, extending through the Local Government Areas of Lockyer Valley and Ipswich City. The Project includes a 1.1-km tunnel to create an efficient route through the steep terrain of the Little Liverpool Range.	2021 to 2025
Goondiwindi Abattoir	Goondiwindi, Queensland 13 km north of the Project footprint	A new beef abattoir located on the outskirts of Goondiwindi with beef processing of up to 72,000 tonnes per year.	TBC
New Acland Coal Mine Stage 3	35 km northwest of Toowoomba 18 km north of the Project footprint	Expansion of the existing New Acland open-cut coal mine to up to 7.5 million tonnes per annum.	2019 to TBC
Australia Pacific LNG Project	Walloons gas fields (approximately 20 km west of Millmerran) 13 km west of the Project footprint	Integrated liquefied natural gas project. The Walloons gas fields, located to the west of the Project, supplies coal seam gas to support the liquefied natural gas facility on Curtis Island.	Construction began 2011
Asterion Medicinal Cannabis Facility	Wellcamp, Queensland Facility building will be approximately 1 km east of the Project alignment	The Asterion Medicinal Cannabis Facility is a high-tech medicinal cannabis cultivation, research and manufacturing facility. The project covers 51 hectares and involves construction of a 40-ha glasshouse. It is located immediately to the east of Project rail alignment and west of the Wellcamp Business Park.	2020 to 2021

In terms of temporal (construction) impact, it is likely that the other sections of Inland Rail (i.e. North Star to NSW/Queensland Border, Gowrie to Helidon and Helidon to Calvert) the Goondiwindi abattoir and InterLinkSQ may have some overlap in construction periods. In addition, ongoing growth and expansion of Commodore Mine and Millmerran Power Station, Australia Pacific LNG, New Acland Coal Mine and the Asterion Medicinal Cannabis Facility may result in some temporal overlap. Collectively, these projects have the potential to result in the perception of relatively high amounts of construction activity and views of the movement of heavy vehicles and plant within the area of influence.

The areas within the area of influence likely to be most affected by this cumulative activity are the Cunningham Highway, Millmerran–Inglewood Road, Gore Highway, Toowoomba Bypass and Warrego Highway, with the greatest activity in the north-eastern part of the alignment, located west of Toowoomba. As large vehicles on the highway and main road would not be unexpected from a visual perspective and the construction impacts are temporary, the significance of this cumulative impact during construction in the area of influence is considered to be **low**.

In terms of the spatial (operational) impacts of other linear transport infrastructure projects, the North Star to NSW/Queensland Border and the Gowrie to Helidon sections of Inland Rail immediately adjoin the Project. Some receptors will experience views of both the Project and the North Star to NSW/Queensland Border Section of Inland Rail or both the Project and the Gowrie to Helidon Section of Inland Rail; however, these developments will be viewed as part of the same integrated Inland Rail Program. This is considered to be an impact of **medium** cumulative impact significance.

With regards to InterLinkSQ, there would be potential for the perception of development intensification in the northern part of the corridor with potential impacts of up to **medium** cumulative impact significance. Similar effects of **medium** significance are likely associated with views from the Toowoomba–Cecil Plains Road for the Asterion Medicinal Cannabis Facility as this is the first facility as part of the broader Charlton Wellcamp Enterprise Area that is to be developed on the western side of the Toowoomba Wellcamp Airport. Combined or successive impacts with Australia Pacific LNG and New Acland Mine are less likely due to the separation distances from the Project and is considered to be of **low** cumulative impact significance.

The Goondiwindi abattoir is unlikely to result in meaningful operational cumulative impact on landscape or visual values. This is because it is a discrete rural development project that is in keeping with the rural and agricultural character of the landscape. Therefore, although combined, successive and/or sequential views may be obtained, it is not considered that the Project will intensify this and therefore would have a **low** significance. Similarly, Commodore Mine and Millmerran Power Station are existing facilities. In the context of the expansion of this development, the cumulative landscape and visual impact of the Project is considered to be generally very modest and of **low** cumulative impact significance.

The significance of the contribution of Helidon to Calvert Section of Inland Rail to cumulative impact is considered to be **low** for both landscape and visual values due to the separation distance from the Project.

An assessment of cumulative impacts that may arise from these projects in combination with the Project is presented in Table 9.62. Mitigation measures to address these identified cumulative impacts will generally be as described for the standalone Project (refer Table 9.55).

Due to the low level of lighting proposed for the Project, there are not anticipated to be any important cumulative lighting impacts.

Overall, the cumulative landscape and visual impact assessment in the region is likely to be up to **medium**.

TABLE 9.62 ASSESSMENT OF LANDSCAPE AND VISUAL AMENITY CUMULATIVE IMPACTS

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
InterLinkSQ	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Medium (2)	7	Medium	Activities associated with the Project and InterLinkSQ have the potential to combine to result in cumulative visual impacts for residents of Kingsthorpe and Gowrie Junction. Such impacts will be managed through: ▸ Development and implementation of a Rehabilitation and Landscaping Management Sub-plan, as a component of the CEMP for the Project, that is compatible with InterLinkSQ's adjoining activities and addresses cumulative landscape and visual impacts ▸ Consultation with InterLinkSQ regarding scheduling of construction activities to avoid, where possible, the undertaking of concurrent activities that are to the detriment of local landscape and visual values, including night works.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Medium (2)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Medium (2)	9	Medium	Activities associated with the Project and InterLinkSQ have potential to combine to result in cumulative visual impacts for residents of Kingsthorpe and Gowrie Junction. Such impacts will be managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC in proximity to InterLinkSQ.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Medium (2)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
Asterion Medicinal Cannabis Facility	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Low (1)	5	Low	Potential cumulative impacts will be managed through: ▸ Development and implementation of a Rehabilitation and Landscaping Management Sub-plan, as a component of the CEMP for the Project that is compatible with Asterion's adjoining activities and addresses cumulative landscape and visual impacts ▸ Consultation with Asterion regarding scheduling of construction activities to avoid, where possible, the undertaking of concurrent activities that are to the detriment of local landscape and visual values, including night works.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Medium (2)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Medium (2)	8	Medium	The Asterion Medicinal Cannabis Facility is the first facility as part of the broader Charlton Wellcamp Enterprise Area that is to be developed on the western side of the Toowoomba Wellcamp Airport, adjacent to the Project footprint. In combination with the Project, the Asterion Medicinal Cannabis Facility may result in cumulative impacts to views from the Toowoomba–Cecil Plains Road. Potential impacts will be managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC in proximity to the Asterion Medicinal Cannabis Facility.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Medium (2)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
Commodore Mine and Millmerran Power Station	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Low (1)	5	Low	Potential cumulative impacts will be managed through: ▸ Development and implementation of a Rehabilitation and Landscaping Management Sub-plan, as a component of the CEMP for the Project that is compatible with Intergen's adjoining activities and addresses cumulative landscape and visual impacts ▸ Consultation with Intergen regarding scheduling of construction activities to avoid, where possible, the undertaking of concurrent activities that are to the detriment of local landscape and visual values, including night works.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Medium (2)		Low	
		Sensitivity of the receiving environment	Low (1)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Medium (2)	6	Medium	Potential cumulative impacts will be managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC in proximity to Commodore Mine and Millmerran Power Station.
		Duration of the impact	Medium (2)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Low (1)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
North Star to NSW/QLD Border (Inland Rail)	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	High (3)	7	Medium	The Project interfaces with the North Star to NSW/QLD Border project at the NSW/QLD border on the Macintyre River. Potential cumulative impacts will be managed through: ▸ ARTC to ensure that Rehabilitation and Landscaping Management Sub-plans (or equivalent) are prepared for both adjoining Inland Rail projects, and that these Sub-plans are complementary and are consistent with the Inland Rail Landscaping and Rehabilitation Strategy ▸ ARTC to ensure that construction contract documentation for adjoining projects have consistent clauses regarding landscape design and planting. This will extend to the development and implementation of sub-plans, and the monitoring and defect correction for revegetated and rehabilitated areas.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Low (1)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Medium (2)	9	Medium	Potential cumulative impacts will be managed through the maintenance of landscaping and rehabilitation treatments, that are the responsibility of ARTC, across adjoining project of the Inland Rail Program.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Medium (2)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
Gowrie to Helidon (Inland Rail)	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	High (3)	8	Medium	The Project interfaces with the Gowrie to Helidon project adjacent to the InterLinkSQ site, before Inland Rail connects into the QR West Moreton System. Potential cumulative impacts will be managed through: ▸ ARTC to ensure that Rehabilitation and Landscaping Management Sub-plans (or equivalent) are prepared for both adjoining Inland Rail projects, and that these sub-plans are complementary and are consistent with the Inland Rail Landscaping and Rehabilitation Strategy ▸ ARTC to ensure that construction contract documentation for adjoining projects have consistent clauses regarding landscape design and planting. This will extend to the development and implementation of sub-plans, and the monitoring and defect correction for revegetated and rehabilitated areas.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Medium (2)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Medium (2)	9	Medium	Potential cumulative impacts will be managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC across adjoining projects of the Inland Rail Program.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Medium (2)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
Helidon to Calvert (Inland Rail)	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 26 km to the east of the Project footprint). The potential for cumulative impacts will be appropriately managed through the development and implementation of Rehabilitation and Landscaping Management Sub-plans (or equivalent) for both Inland Rail projects that are consistent with the Inland Rail Landscaping and Rehabilitation Strategy.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Medium (2)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 26 km to the east of the Project footprint). The potential for cumulative impacts will be appropriately managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC across the Inland Rail Program.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Medium (2)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			
Goondiwindi Abattoir	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Medium (2)	5	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 13 km north of the Project footprint). The potential for cumulative impacts will be appropriately managed through the development and implementation of a Rehabilitation and Landscaping Management Sub-plan for the Project, as a component of the CEMP. By doing so, ARTC will have managed landscape and visual impacts within its control.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
Goondiwindi Abattoir (continued)	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 13 km north of the Project footprint). The potential for cumulative impacts will be appropriately managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC. By doing so, ARTC will have managed landscape and visual impacts within its control.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			
New Acland Coal Mine Stage 3	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 18 km north of the Project footprint). The potential for cumulative impacts will be appropriately managed through the development and implementation of a Rehabilitation and Landscaping Management Sub-plan for the Project, as a component of the CEMP. By doing so, ARTC will have managed landscape and visual impacts within its control.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 18 km north of the Project footprint). The
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
		Sensitivity of the receiving environment	Low (1)			potential for cumulative impacts will be appropriately managed through the maintenance of landscaping and rehabilitation treatments that are the responsibility of ARTC. By doing so, ARTC will have managed landscape and visual impacts within its control.
New Acland Coal Mine Stage 3 (continued)	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			
		Sensitivity of the receiving environment	Nil			
Australia Pacific LNG Project	Construction impacts associated with views of increases in: ▸ Construction traffic ▸ Construction areas.	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be **low** due to the separation distance between the projects (located 13 km west of the Project footprint). The potential for cumulative impacts will be appropriately managed through the development and implementation of a Rehabilitation and Landscaping Management Sub-plan for the Project, as a component of the CEMP. By doing so, ARTC will have managed landscape and visual impacts within its control.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Operation impacts associated with combined, successive and sequential views of adjoining projects	Probability of the impact	Low (1)	4	Low	The potential for cumulative impacts is considered to be low due to the separation distance between the projects (located 13 km west of the Project footprint). The potential for cumulative impacts will be appropriately managed through the maintenance of landscaping and rehabilitation treatments, that are the responsibility of ARTC. By doing so, ARTC will have managed landscape and visual impacts within its control.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Impacts of night lighting	Probability of the impact	Nil	Nil	Nil	Nil
		Duration of the impact	Nil			
		Magnitude/intensity of the impact	Nil			

Project	Impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments and management measures
		Sensitivity of the receiving environment	Nil			

Table notes:
Relevance factors between 1 and 3 were determined using professional judgement to select most appropriate relevance factor for each aspect and summing the relevance factors.
Sum of relevant factors definition:

- Low (1–6): Negative impacts need to be managed by standard environmental management practices. Monitoring to be part of general Project monitoring program.
- Medium (7–9): Mitigation measure likely to be necessary and specific management practices to be applied. Targeted monitoring program required, where appropriate.
- High (10–12): Alternative actions should be considered and/or mitigation measures applied to demonstrate improvement. Targeted monitoring program necessary, where appropriate.

9.10 Conclusions

The landscape between Kurumbul near the NSW border and Gowrie Junction is typically a sparsely settled rural landscape characterised by generally flat irrigated and non-irrigated croplands and undulating pastures, interspersed by a network of vegetated watercourses associated with the Dumaresq, Macintyre and Condamine Rivers and set against a backdrop of forested low hills and isolated volcanic peaks. It is, for the most part, a highly modified landscape as a result of historical clearing practices for agriculture and grazing, the establishment of linear infrastructure (railways, highways and powerlines) and other development activity (e.g. Commodore Mine, Toowoomba Wellcamp Airport and surrounds). The northern extent of the Project is located within the Western Gateway regional economic cluster (REC), as identified in ShapingSEQ as supporting significant agricultural and resource activities, and priority sectors of manufacturing, transport and logistics, and health and knowledge (refer Chapter 7: Land Use and Tenure). The REC is located to include the Toowoomba Wellcamp Airport, Toowoomba Bypass, Warrego, Gore and New England highways, InterLinkSQ and the city of Toowoomba.

Historically, freight rail has existed within the impact assessment area, and there is a legacy of modern and heritage rail infrastructure throughout the area.

The Project would introduce 216.2 km of freight rail into the landscape, two thirds of which would be greenfield development (145 km).

The key landscape and visual impacts of the Project relate to the introduction of rail infrastructure into relatively intact rural and natural settings, the removal of vegetation, along with the provision of new infrastructure elements, including embankments, deep cuts, viaducts and new road and rail bridges.

Twelve LCTs have been identified within the impact assessment area that are assessed to have up to high sensitivity. Impacts on these LCTs of up to a **high** level of effect have been identified for two character areas prior to the application of mitigation:

- Landscape Type I: Settled Hills—which comprises landscapes of high local scenic value as identified in the Toowoomba Regional Council Scenic Amenity study
- LCT F: Rural Settlement—which includes the landscapes around the settlements of Yelarbon, Brookstead and Pittsworth.

No significant impacts have been identified on landscapes of high scenic amenity identified using the regional scenic amenity methodology or in the *Toowoomba Regional Council Scenic Amenity Study* (TRC, 2009).

The number of visual receptors varies greatly across the impact assessment area. Key areas with high numbers of receptors include the various population centres close to the alignment, such as Kingsthorpe, Gowrie Mountain, Southbrook, Pittsworth, Brookstead, Pampas and Yelarbon, as well as numerous rural living areas where residents are present. Additionally, views can be obtained by travellers on roads throughout the area, including the Cunningham Highway, Gore Highway, Warrego Highway and tourist drives (including parts of the Warrego Way and Adventure Way, Open Plains Country Drive and Border Rivers Tourist Drive routes).

Visual impacts are often contained by the presence of vegetation and landform; however, there are localised elevated areas affording views over a wider area, including three scenic lookouts at varying distances to the alignment, which are located at Mount Basalt Reserve, Commodore Peak Picnic Area and Mount Kingsthorpe summit.

Twenty-two representative viewpoints have been assessed to represent impacts on these views. Of these, six visual impacts of up to a **high** level of effect were identified for the operation phase of the Project. These comprise:

- The impact of the Cunningham Highway road bridge on Viewpoint 2: Yelarbon Rest Area
- Viewpoint 15: The impact of the bridge and embankments north of Brookstead
- The impacts of bridges and embankments on the northern edge of Pittsworth at Viewpoint 17
- The impact of the large cuts and embankments close to rural residential properties at Viewpoint 18: Gore Highway near Southbrook
- The impact of embankments and a proposed passive level crossing in proximity to existing rural residential properties south of Viewpoint 19: View from Athol
- The impact on views obtained from the summit of Mount Kingsthorpe at Viewpoint 22: Mount Kingsthorpe summit scenic lookout.

Lighting impacts of up to a **moderate** level of effect were identified for the construction or operation phase. Concern has been raised through stakeholder engagement regarding the potential for lighting from the construction and operation of the Project to impact on the operations of the University of Southern Queensland's

Mt Kent Observatory. The observatory is located approximately 21 km southeast of the Project (closest Project point is Southbrook), beyond the extent of the impact assessment area. The Project will not result in lighting impacts at the Mt Kent Observatory for the following reasons:

- The substantial distance between the Project and the observatory
- The limited lighting associated with the construction (flashing beacons and temporary spotlights in support of short-duration night works, if required) and operation (head lamp on rollingstock and safety lighting at road–rail interfaces) of the Project
- The presence of several more substantial light sources, which are located closer, or equally distant to the observatory.

Lighting provision for realignment of existing roads will generally be in accordance with current arrangements, unless additional lighting requirements are identified in consultation with asset owners.

Cumulative impacts, particularly the effects in combination with the adjoining North Star to NSW/QLD Border and Gowrie to Helidon sections of Inland Rail, the Toowoomba Bypass (previously Toowoomba Second Range Crossing) and a range of other industrial and rural developments proposed in the Area of Influence of the Project (such as InterLinkSQ, Yarranlea Solar Farm and Yarranbrook Feedlot) have been considered, but it is considered that the significance of these cumulative impacts is **low** during construction and up to **medium** during operation.

In conclusion, the Project is assessed to have the following impacts shown in Table 9.63, on landscape and visual values.

TABLE 9.63 IMPACT ASSESSMENT SUMMARY

Impact	Significance
Landscape impacts during construction and operation	For landscape impacts during construction and operation, the greatest impact identified of up to **high** is on LCT I: Settled Hills.
Visual impacts during construction	For visual impacts during construction, the greatest impact identified is up to **moderate** for nine viewpoints (Viewpoint 2: Yelarbon rest area; Viewpoint 4: Millmerran–Inglewood Road towards level crossing; Viewpoint 9: Commodore Peak picnic area looking towards Millmerran Power Station; Viewpoint 13: Gore Highway near service station; Pampas, Viewpoint 15: Near Brookstead State School; Viewpoint 17: Pittsworth–Felton Road near Pittsworth Motor Inn; Viewpoint 18: Gore Highway near Southbrook; Viewpoint 19: View from Athol; and Viewpoint 22: Mount Kingsthorpe summit scenic lookout).
Visual impacts during operation	For visual impacts during operation, the greatest impact identified is up to **high** for six viewpoints (Viewpoint 2: Yelarbon rest area; Viewpoint 15: near Brookstead State School; Viewpoint 17: Pittsworth–Felton Road; Viewpoint 18: Gore Highway near Southbrook; Viewpoint 19: View from Athol; and Viewpoint 22: Mount Kingsthorpe summit scenic lookout).
Lighting impacts	For lighting impacts the greatest impact identified of up to **moderate** relates to one viewpoint during construction (Viewpoint 19: View from Athol).
Cumulative impacts during construction	Cumulative impacts during construction are considered to be **low** (refer Section 9.9 for further details on cumulative impacts).
Cumulative impacts during operation	Cumulative impacts during operation are considered to be of up to **medium** primarily associated with construction traffic on the Warrego Highway due to the simultaneous construction of the North Star to NSW/Queensland Border and Gowrie to Helidon projects (refer Section 9.9 for further details on cumulative impacts).
Cumulative impacts of night lighting	There are no identified cumulative impacts associated with night lighting (refer Section 9.9 for further details on cumulative impacts).

Table note:
Impact significance in the summary table above is given for the most significant impact identified for each attribute prior to any mitigation.

The reference design has incorporated some mitigation measures that are considered as initial mitigation measures and which have been considered in the impact assessment. The LVIA has also identified a range of additional mitigation measures, including protection of existing vegetation, rehabilitation of disturbed vegetation and opportunities for urban design of key structures. These opportunities, outside the operating rail corridor, have the potential to enhance the legacy of the Project and would reduce the residual impact of the Project on some landscapes and views, particularly including landscapes and views around several rural settlements, including Yelarbon, Brookstead and Pittsworth.