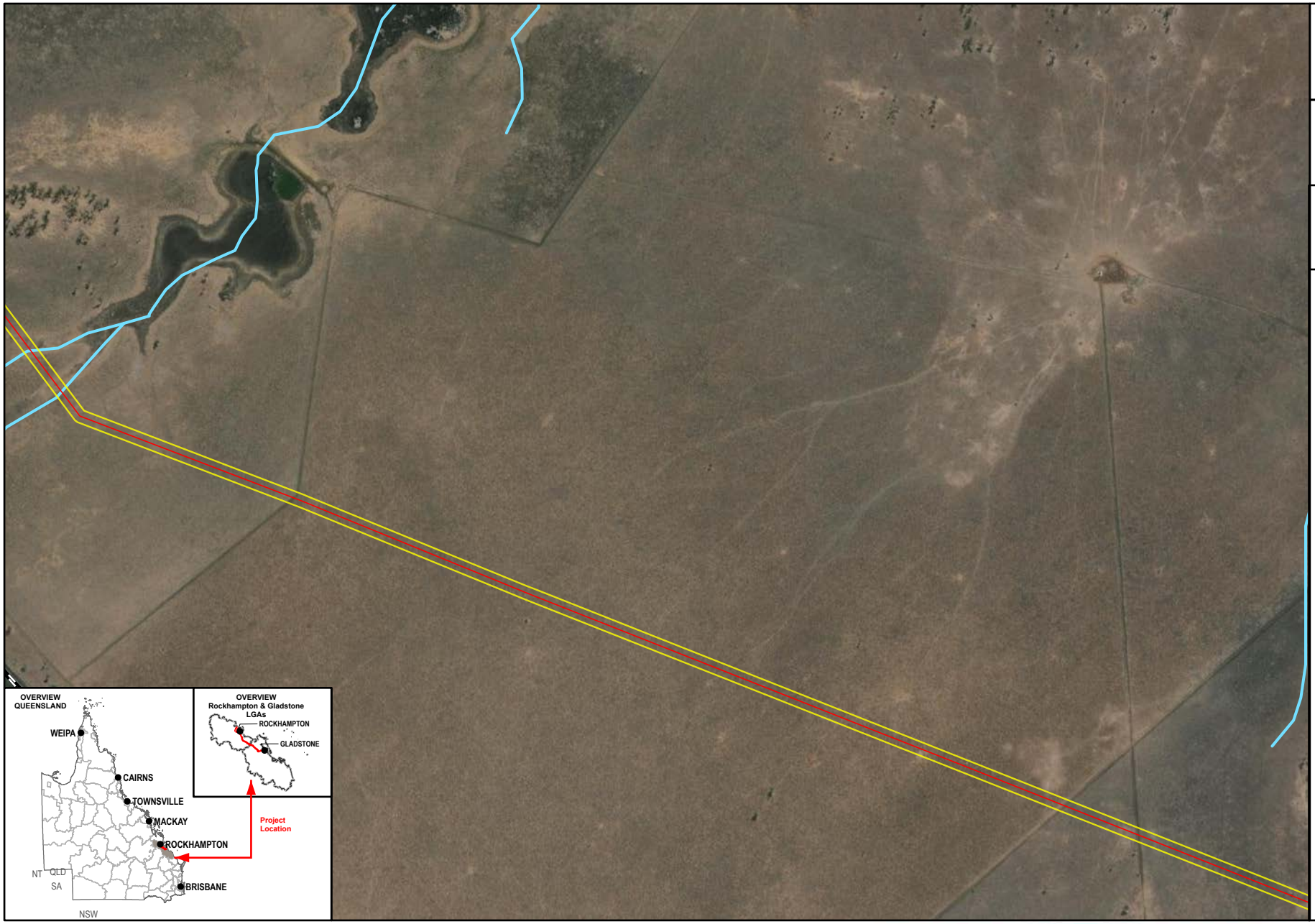

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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-16o
Distribution of Koala Habitat Within the SGIC SDA Study Area
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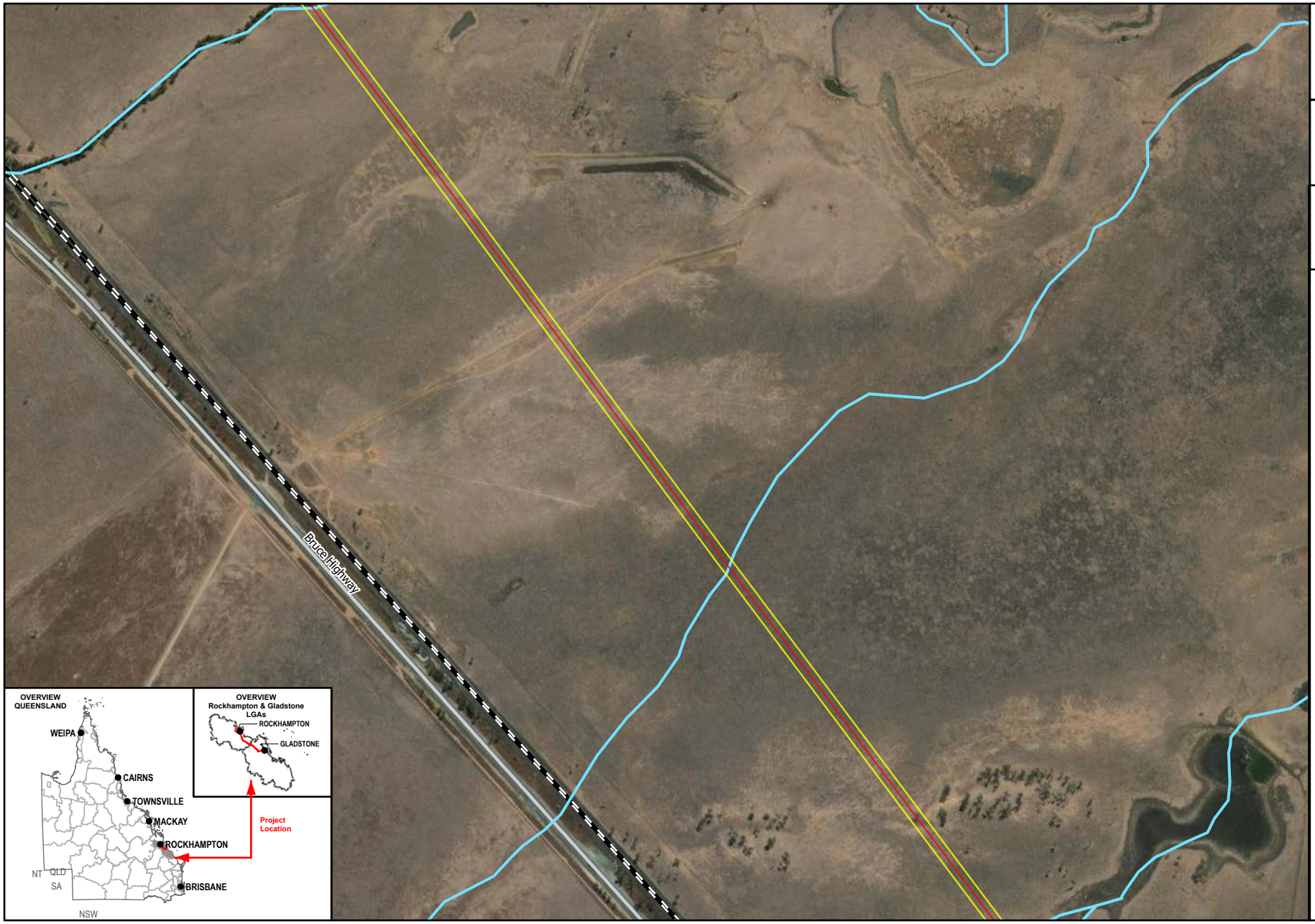

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- Railways

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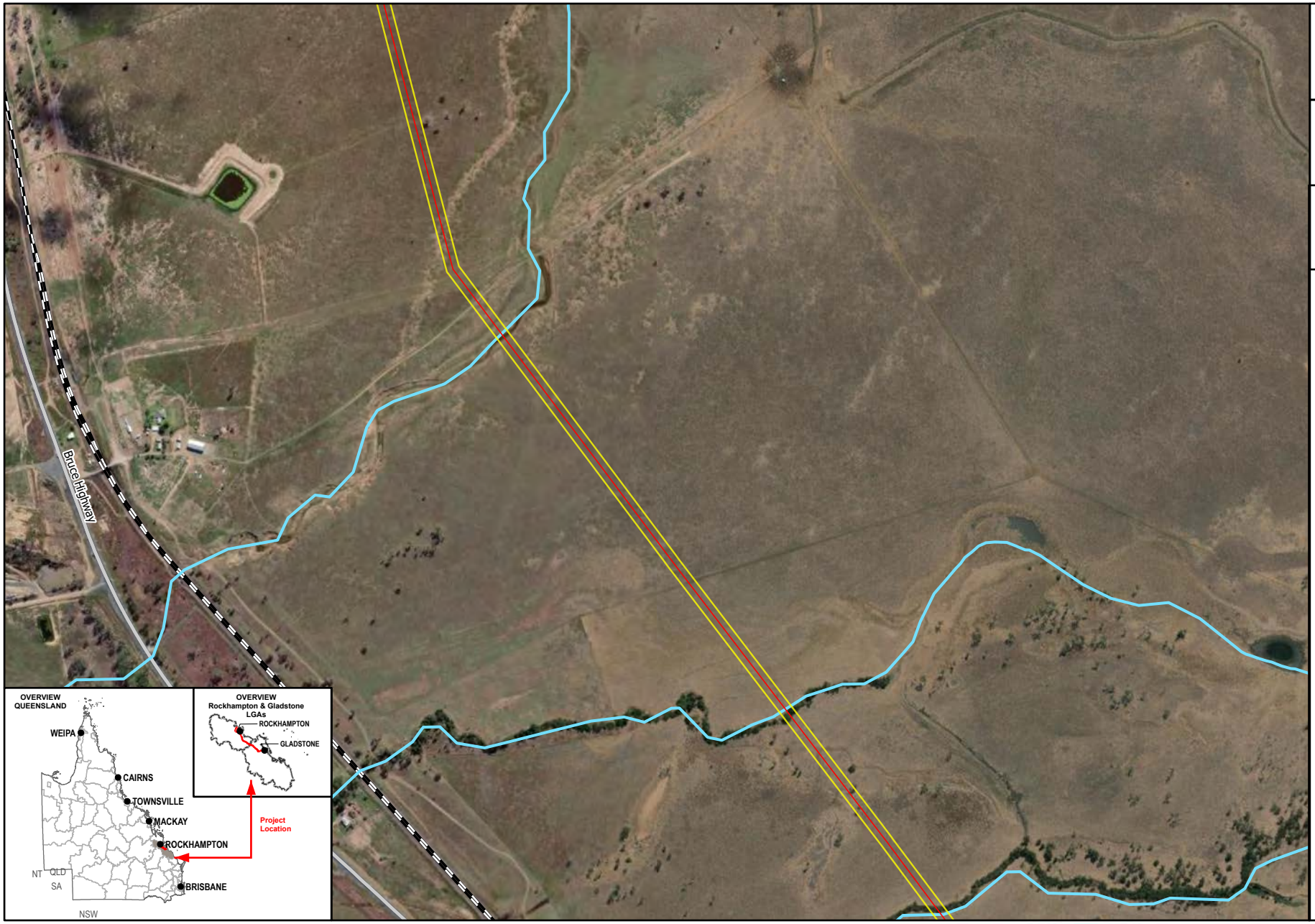

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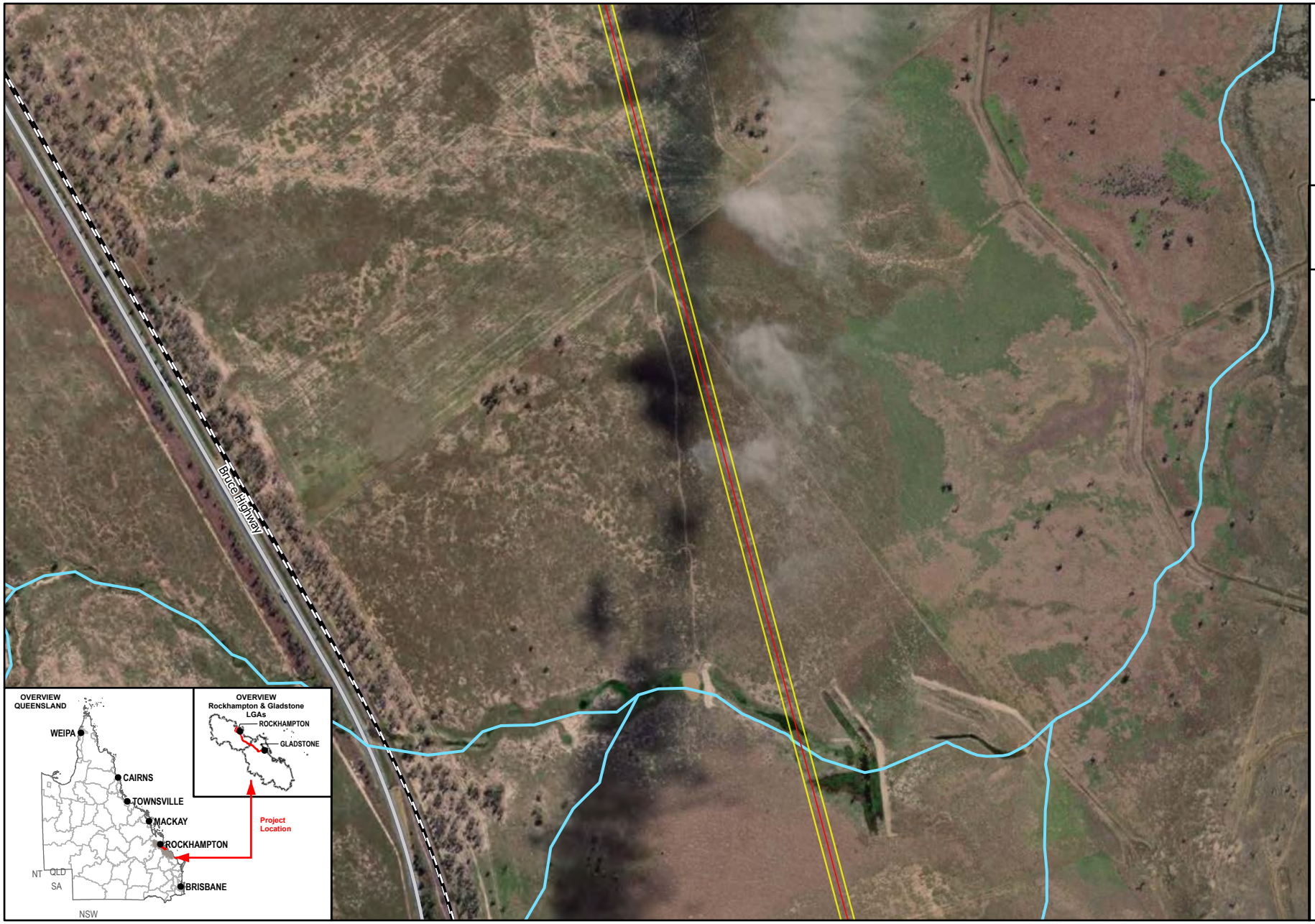

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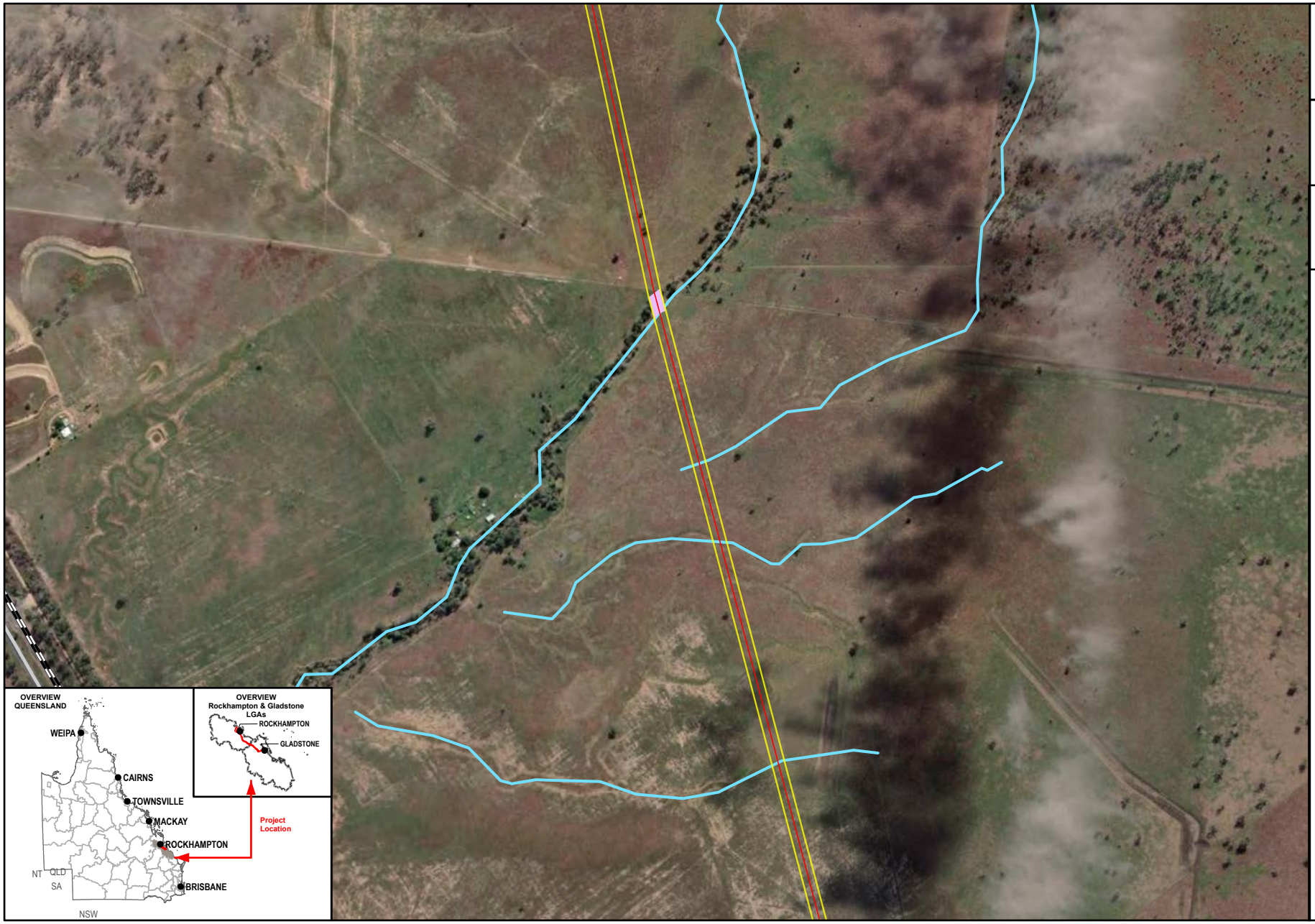

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- SGIC SDA Pipeline Alignment
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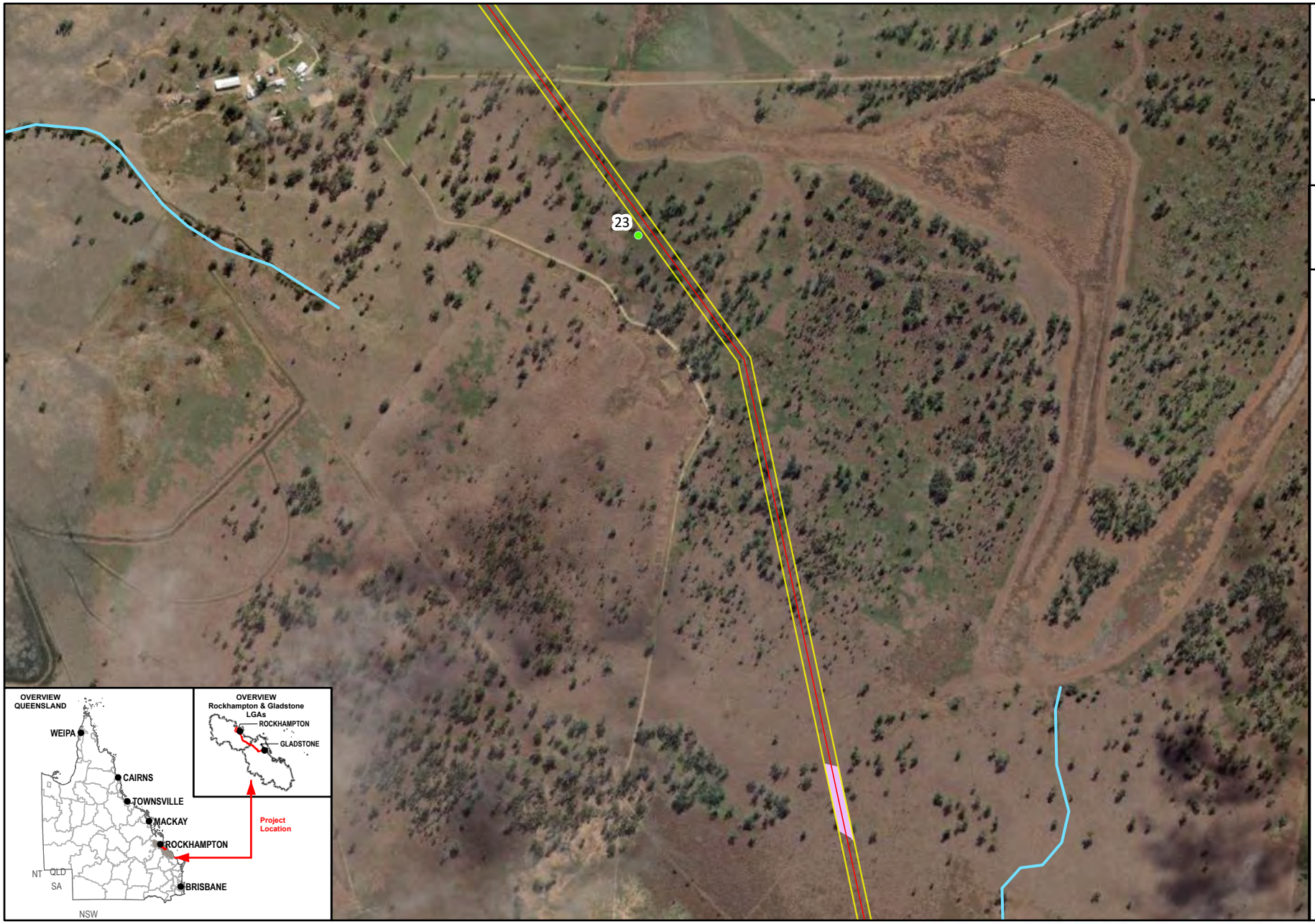

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Distribution of Koala Habitat Within the SGIC SDA Study Area
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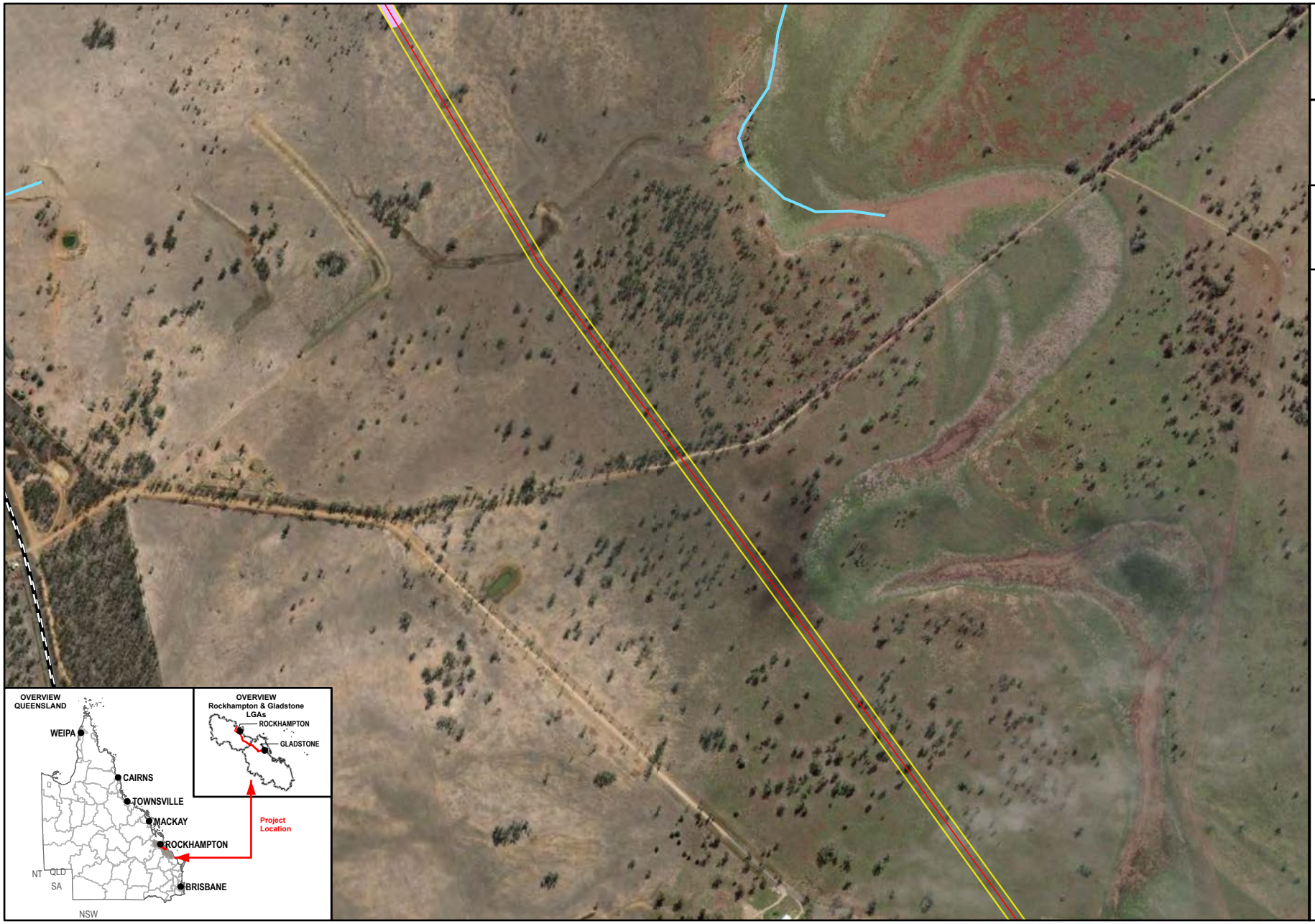

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- SGIC SDA Pipeline Alignment
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Figure 7-16u
Distribution of Koala Habitat Within the SGIC SDA Study Area
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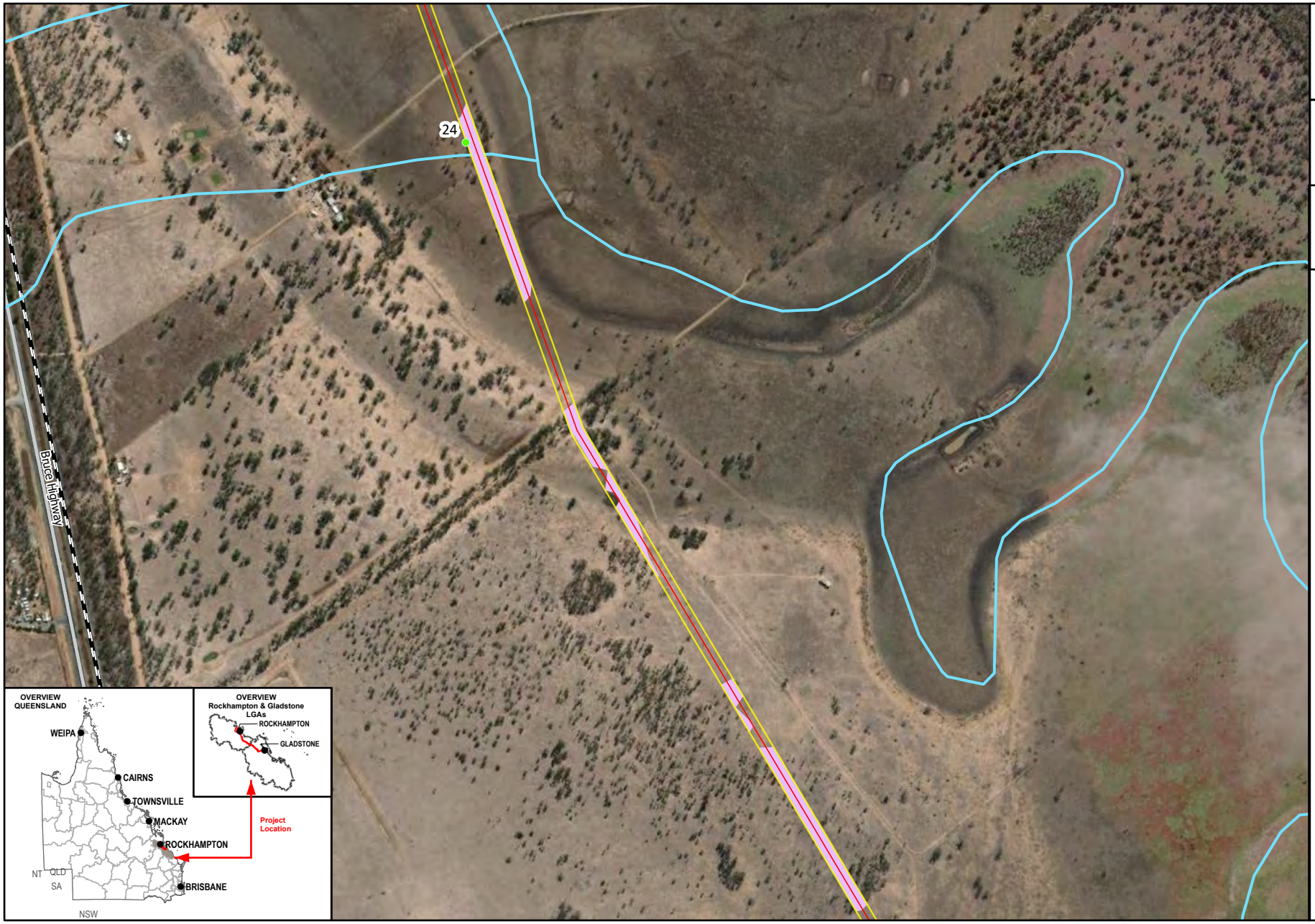

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- SGIC SDA Pipeline Alignment
- Study Area
- Survey Photo Reference Number
- Predicted Koala Habitat
- Waterways
- Main Roads
- Railways

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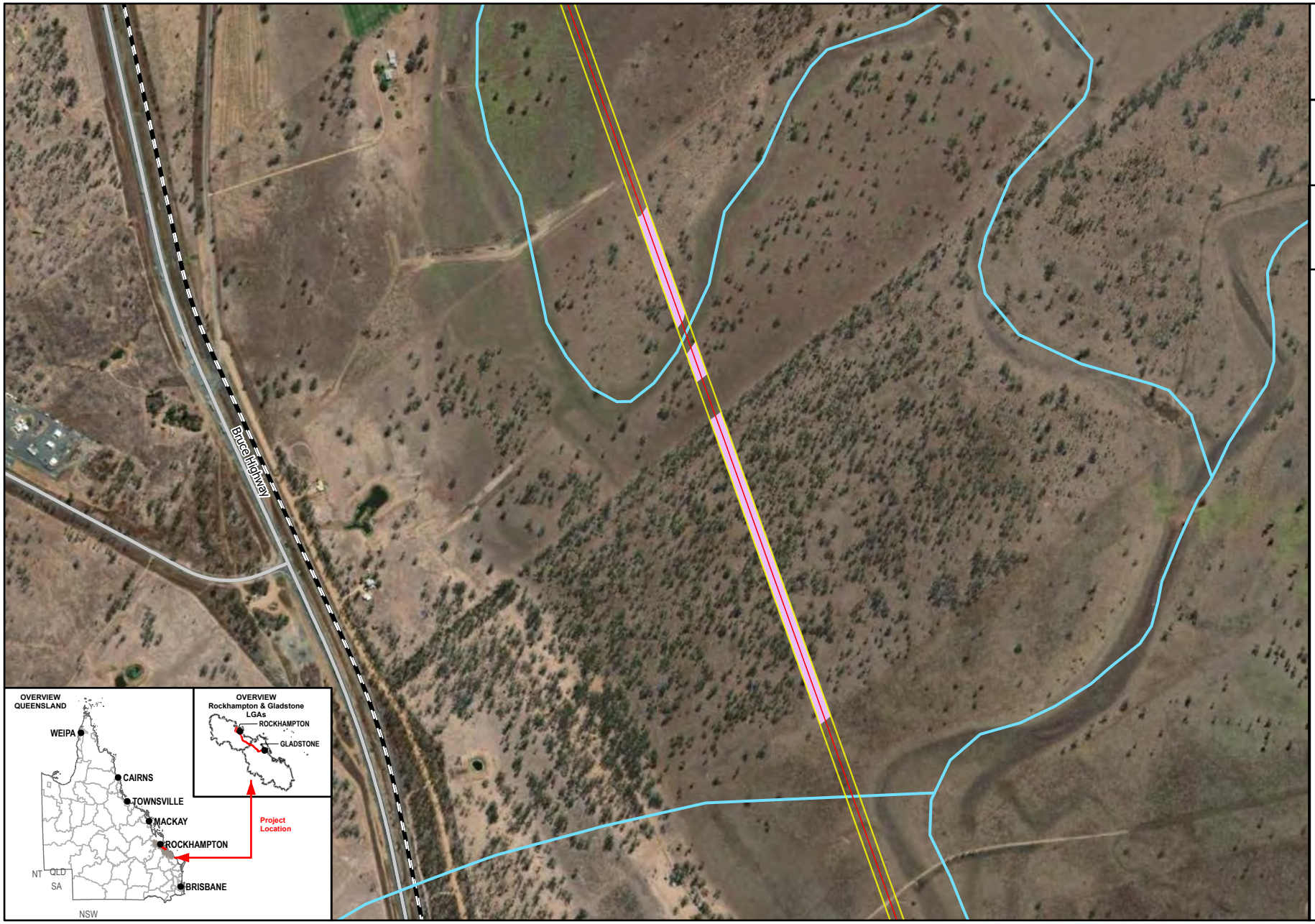
Figure 7-16v
Distribution of Koala Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:3 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
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- Waterways
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Figure 7-16w
Distribution of Koala Habitat Within the SGIC SDA Study Area
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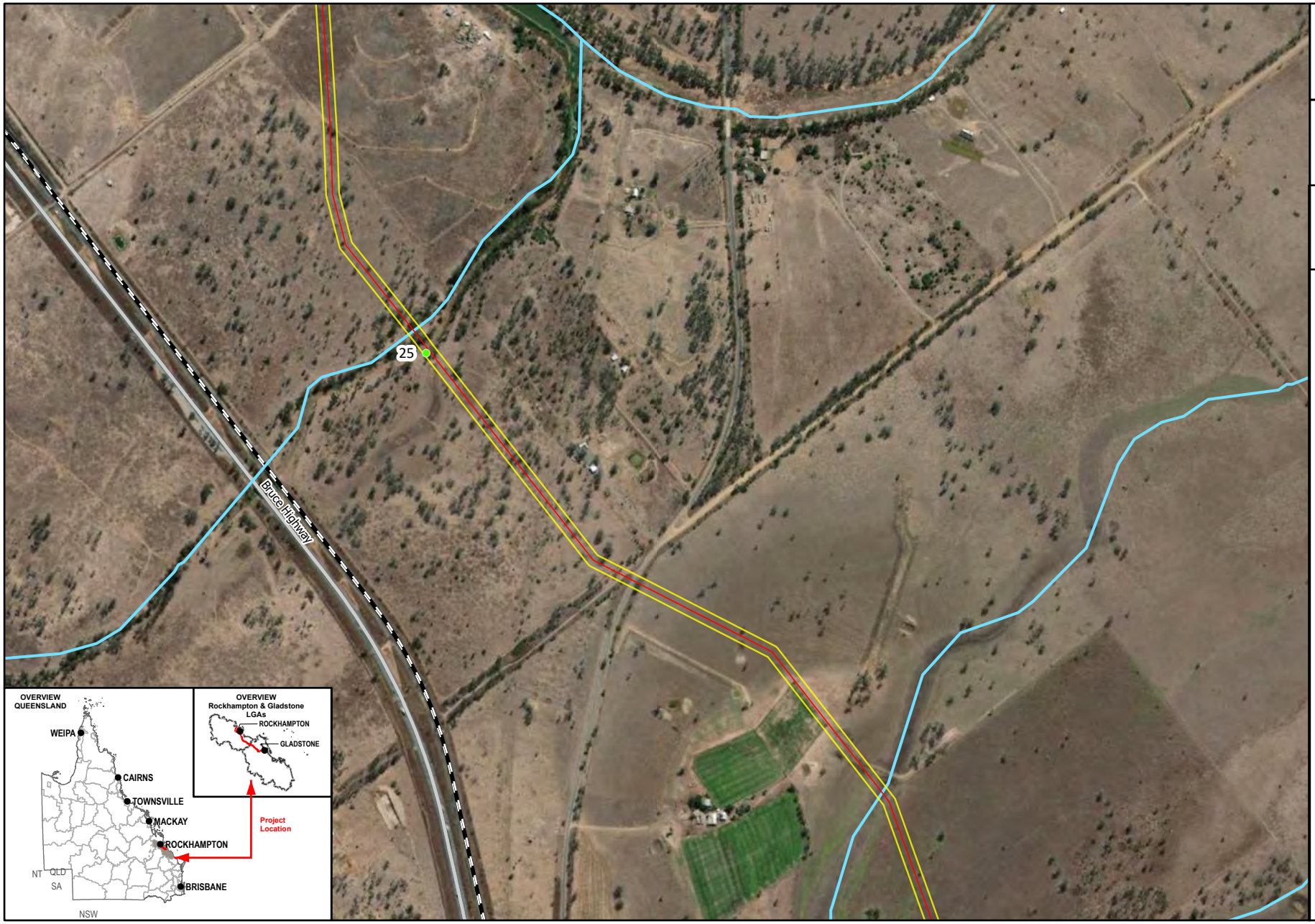

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- Waterways
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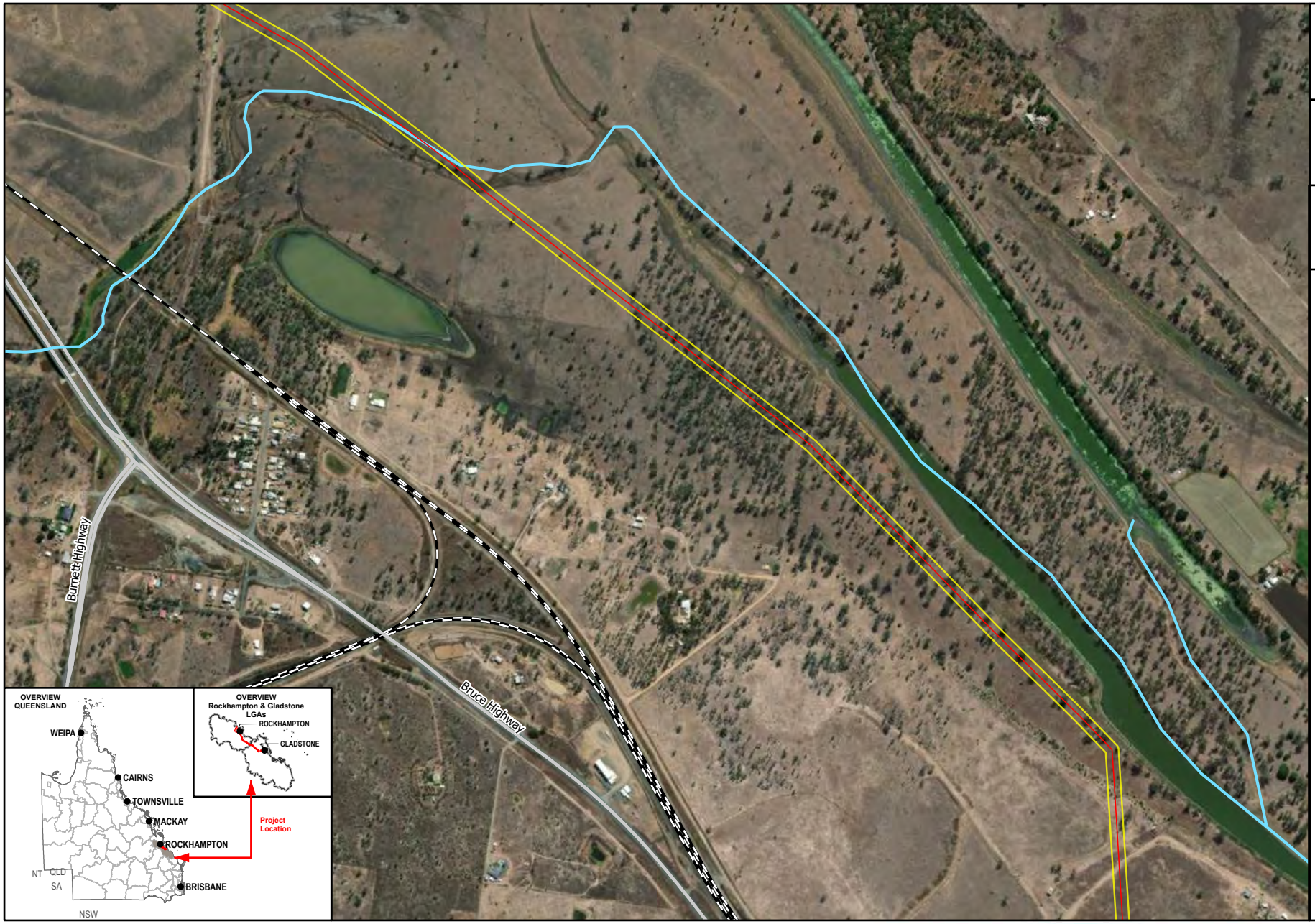

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Figure 7-16y
Distribution of Koala Habitat Within the SGIC SDA Study Area
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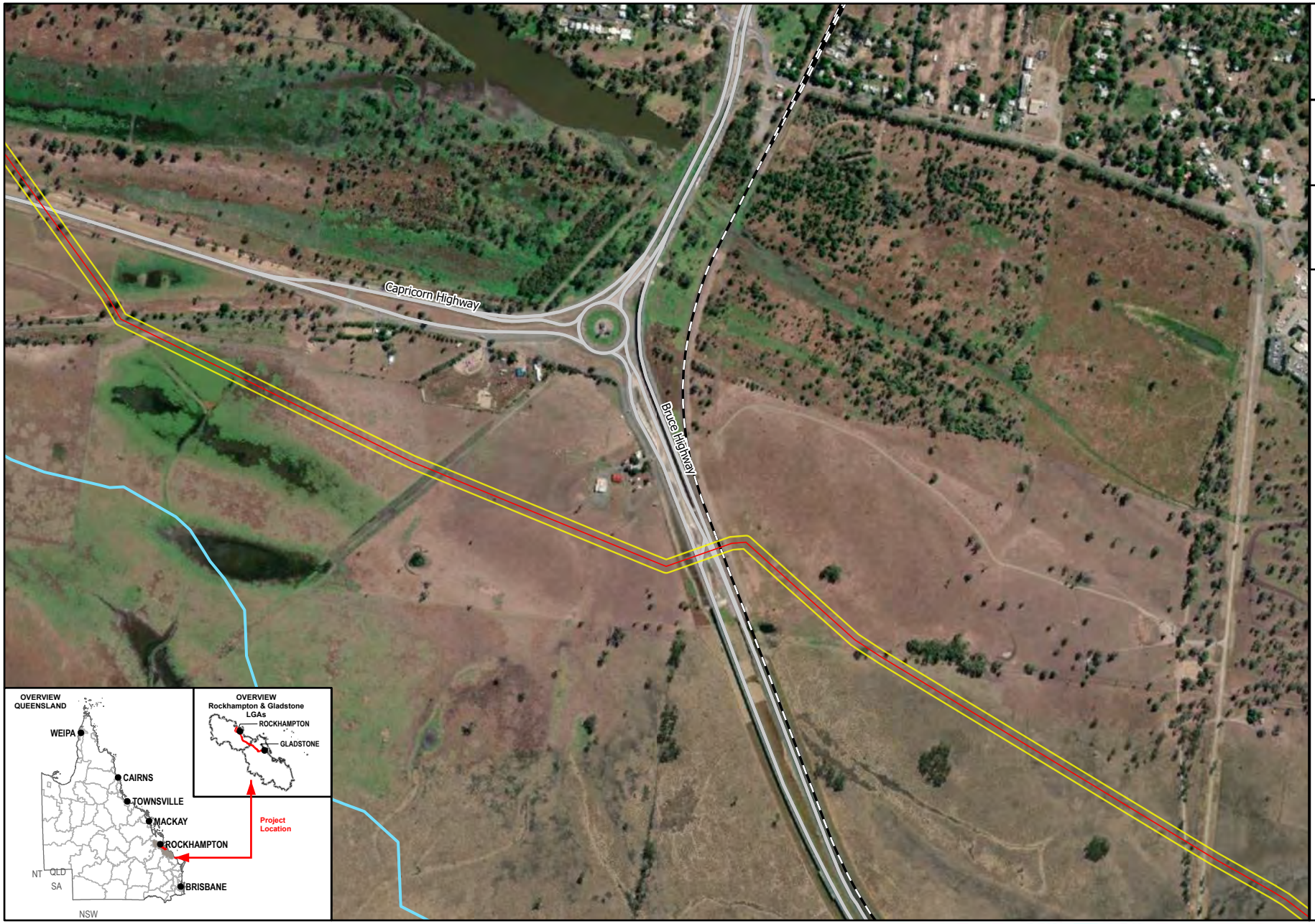

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Distribution of Koala Habitat Within the SGIC SDA Study Area
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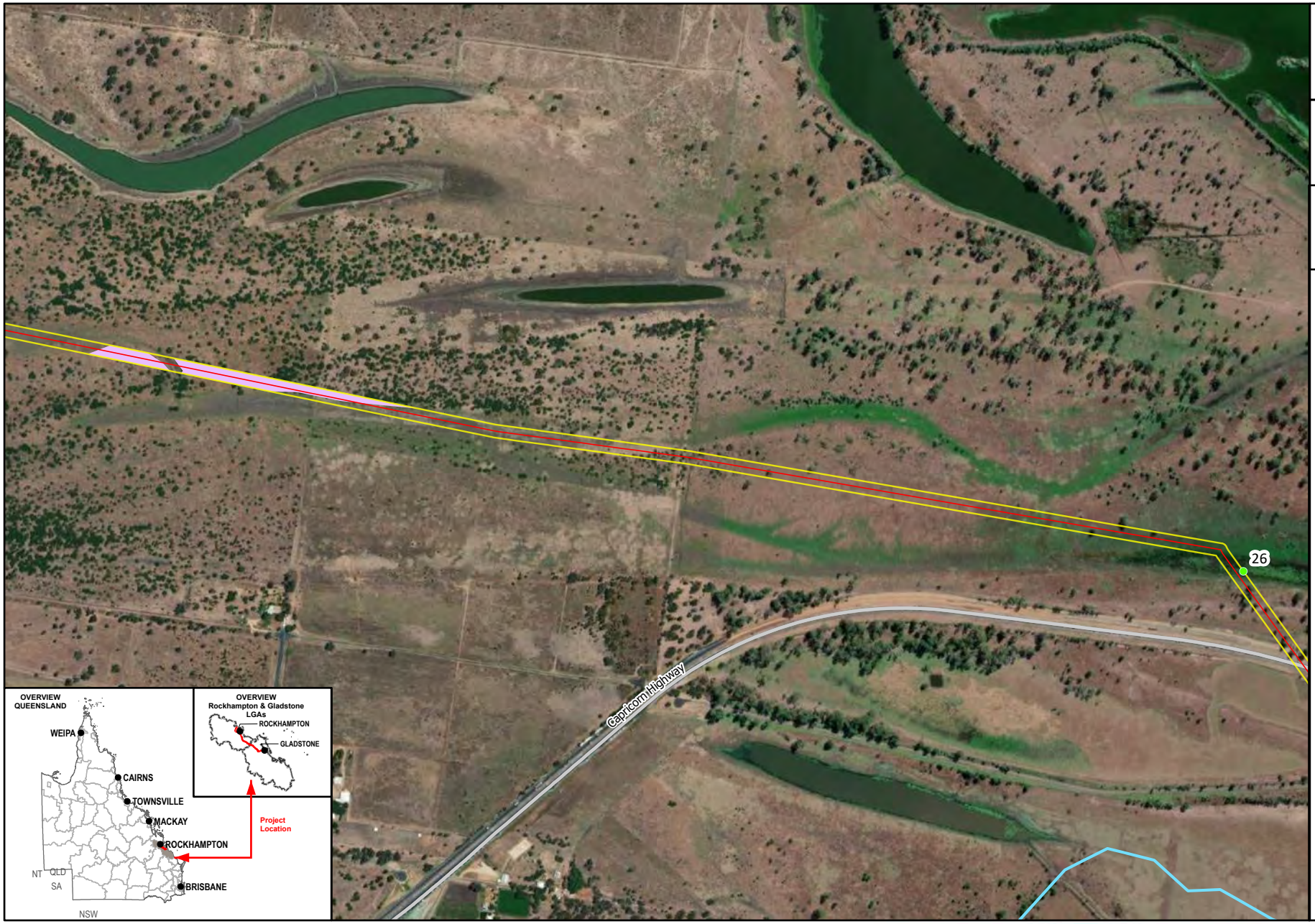

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Distribution of Koala Habitat Within the SGIC SDA Study Area
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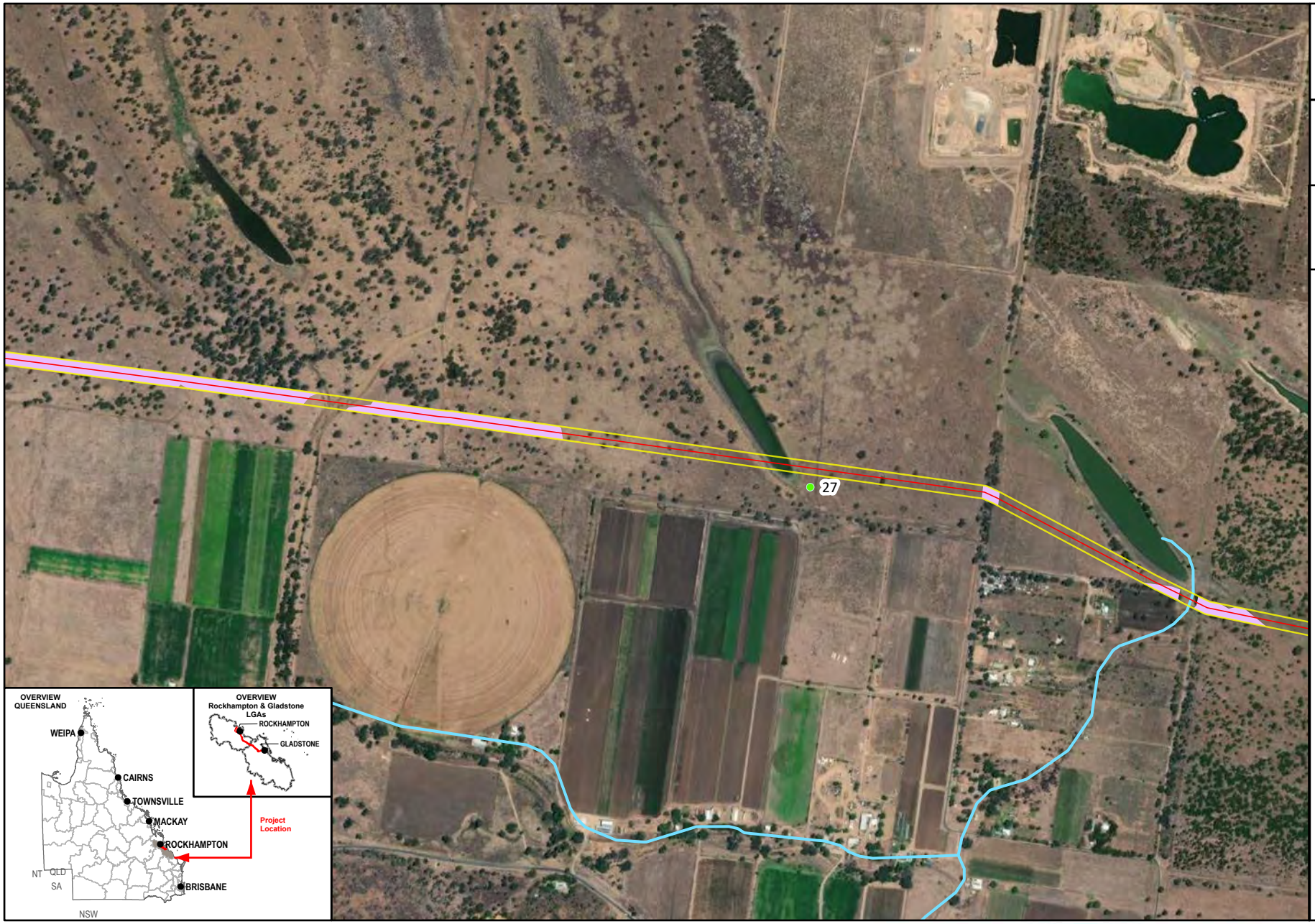

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- Predicted Koala Habitat
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7.2.2.12 Grey-headed flying-fox

Conservation status and species ecology

The grey-headed flying-fox is listed as vulnerable under the EPBC Act and is not listed under the NC Act. The species was listed as an MNES at the time of the approval. The grey-headed flying-fox is one of the largest bats in the world (DAWE 2021) and Australia's only endemic flying-fox and occurs on the east coast of Australia from Ingham in Queensland to Adelainde in South Australia (DCCEEW 2022j). The species selectively forages for food where it is readily available, and hence, only utilises a small proportion of its range at any given time. A small number of local areas can support a continued presence of the species (DAWE 2021). Typically, patterns of occurrence and relative abundance for the species fluctuate between seasons and years in line with food availability (DCCEEW 2022j).

The species maintains one intermixing population throughout Australia. The grey-headed flying-fox requires foraging habitat and roosting sites, with it being a canopy-feeding frugivore and nectarivore, with the species diet supplemented with leaves DCCEEW 2022j; DAWE 2021). The species roosts in camps in areas ranging from continuous forests to patches of vegetation as small as 1 ha. Typically, camps are associated with water sources, in vegetation communities including rainforest, Melaleuca, mangroves and riparian vegetation (DCCEEW 2022j). The grey-headed flying-fox forages in canopy vegetation in a variety of habitats ranging from rainforests, open forest, open and closed woodlands and vegetation dominated by *Melaleuca* and *Banksia* species (DAWE 2021; DCCEEW 2022j). Major foraging sources for the species include blossoms from genus *Eucalyptus, Corymbia, Angophora, Melaleuca, Banksia* and *Syzygium* spp (DAWE 2021). Few of the grey-headed flying-fox foraging species flower in winter, or flower reliably in winter. As such, the species is subject to recurrent food shortages during winter and spring, with foraging resources typically restricted to coastal lowlands of south-east Queensland and northern New South Wales. As a result, the species continually migrates throughout its range to access food resources that are patchily distributed and seasonally available (DAWE 2021; DCCEEW 2022j).

Important winter and spring foraging habitat includes woodlands with *Eucalyptus tereticornis, E. albens, E. crebra, E. fibrosa, E. melliodora, E. paniculata, E. pilularis, E. robusta, E. seeana, E. sideroxylon, E. siderophloia, Banksia integrifolia, Castanospermum australe, Corymbia citriodora, C. eximia, C. maculata* (south from Nowra), *Grevillea robusta* and *Melaleuca quinquenervia or Syncarpia glomulifera* (DAWE 2021).

Grey-headed flying-foxes roost in groups of various sizes on exposed limbs of large trees (DCCEEW 2022j). The species typically utilise the same roosting site for longs periods of time (DCCEEW 2022j). The species commutes daily to foraging sites, which are usually within 15 km of the roosting site but can travel up to 40 km at night-time to different feeding areas as food resources change (DAWE 2021; DCCEEW 2022j).

Grey-headed flying-fox seasonally breed during a single event each year. Mating of grey-headed flying-foxes occurs in early autumn followed by the larger roosting camps tending to disperse in pursuit of available food resources (DAWE 2021; DCCEEW 2022j). Males and females segregate in October, when females give birth. Females give birth to their young following six months of gestation. As most adult grey-headed flying-foxes conceive one young annually, there is a low maximum rate of population growth. Females have a high tendency for aborting or abandoning their young in response to environmental stress such as a lack of food or high temperatures (DAWE 2021; DCCEEW 2022j).

Field survey results and distribution of suitable habitat

The grey-headed flying-fox or any flying-fox camps were not recorded during the field surveys within the SGIC SDA study area. Survey effort for the grey-headed flying-fox included two nights of 2-3 hours of spotlighting within potentially suitable habitat in the SGIC SDA study area. Suitable habitat was recorded within the SGIC SDA study area, and the species has been historically recorded at four locations within the desktop search extent, the most recent record recorded in 2003. The closest record is approximately 3 km east of the southern extent of the SGIC SDA pipeline alignment. Suitable foraging habitat was recorded in eucalypt woodland areas retaining important winter and spring foraging tree species, including *Eucalyptus tereticornis, E. crebra, Corymbia citriodora* and *Melaleuca quinquenervia*. The distribution of predicted grey-headed flying-fox habitat is mapped in Figure 7-17.

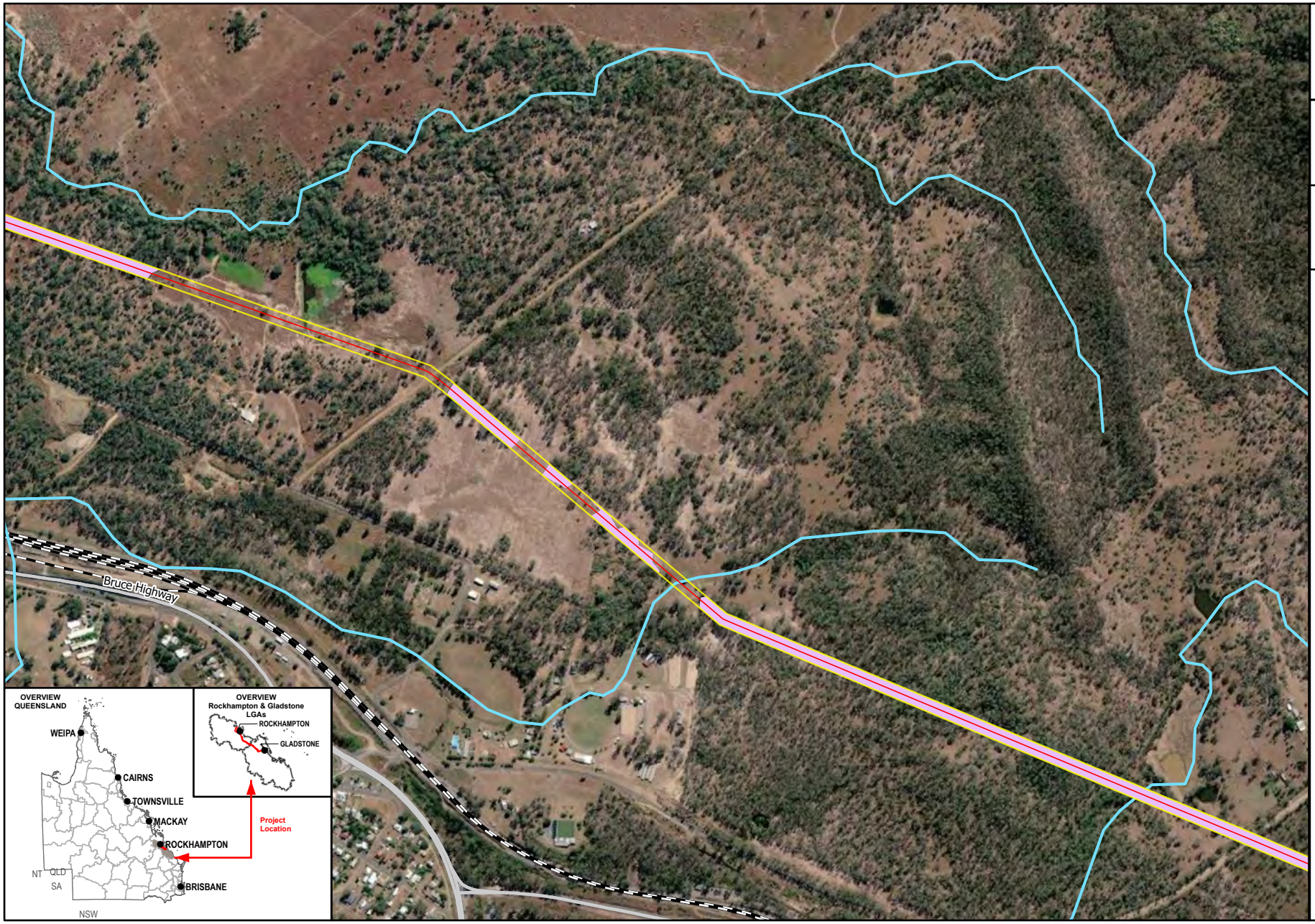
Significance of impact assessment

The project is likely to result in a significant impact on the grey-headed flying-fox. As the species is not listed under the NC Act, a significance of impact assessment on the grey-headed flying-fox (vulnerable under the EPBC Act) was undertaken in accordance with the Commonwealth *Significant Impact Guidelines 1.1* (DoE 2013) and is provided in Table 7-30.

Table 7-30 Significance of impact on the grey-headed flying-fox

Significant impacts criteria	Assessment
Lead to a long-term decrease in the size of an important population of the species	**Unlikely** The grey-headed flying-fox population is a single, interbreeding population and therefore not considered an important population under the definition outlined in the Commonwealth *Significant impact guidelines 1.1* (DoE 2013). The grey-headed flying-fox has been historically recorded at four locations within the desktop search extent (10 km buffer), the most recent record recorded in 2003. The project will result in the loss of 19.21 ha of potential foraging habitat for the species, most of which would constitute habitat critical to the survival of the species due to the local abundance of key food tree species (i.e. *Eucalyptus tereticornis, E. crebra, Corymbia citriodora* and *Melaleuca quinquenervia*). This habitat is not within 20 km of the nearest nationally important flying-fox camp (i.e. the range in which the species typically forages), and therefore the project is unlikely to lead to a long-term population decrease.
Reduce the area of occupancy of an important population	**Unlikely** As detailed above, the local population is unlikely to represent an important population. The project will result in the loss of 19.21 ha of habitat, most of which would constitute habitat critical to the survival of the species. However, the loss of habitat this is not considered likely to reduce the area of occupancy of the species.
Fragment an existing important population into two or more populations	**Unlikely** The grey-headed flying-fox has an extensive range with the capacity to move large distances between camps at a national level. The loss of habitat attributed to the project will have localised impact that is unlikely to pose any barrier to movement. As such, impacts attributed to the project are not considered to fragment the population into two or more populations.
Adversely affect habitat critical to the survival of a species	**Likely** The project will result in the loss of 19.21 ha of foraging habitat, likely to be habitat critical to the survival of the species due to the abundance of important winter and spring foraging tree species (i.e. *Eucalyptus tereticornis, E. crebra, Corymbia citriodora* and *Melaleuca quinquenervia*). Based on the extent of the impact, this is likely to represent a significant adverse impact on habitat critical to the survival of the species.
Disrupt the breeding cycle of an important population	**Unlikely** The project is unlikely to disrupt the breeding cycle of an important population or an important grey-headed flying-fox camp. The project will have no direct impact on roosting habitat. The nearest camp is located approximately 9 km to the west along Middle Creek in Kabra.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The project will result in the loss of 19.21 ha of potential foraging habitat, representing habitat critical to the survival of the species. The nearest nationally important flying-fox camp is located approximately 241 km southeast of the SGIC SDA pipeline alignment. As suitable foraging habitat is not within 20 km of a nationally important flying-fox camp, the habitat is unlikely to represent habitat utilised by the camp on a regular basis. However, it is within the species' foraging range (i.e. within 50 km of a camp) and may be important for supporting individuals at the camp, particularly during the winter and spring resource bottlenecks.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**Unlikely** No invasive species are listed among the threats to the grey-headed flying-fox in the Commonwealth approved conservation advice for the species. The project is unlikely to introduce or encourage the spread of any invasive species that could adversely affect the species.

Significant impacts criteria	Assessment
Introduce disease that may cause the species to decline	**Unlikely** The grey-headed flying-fox is susceptible to Lyssavirus. While this is generally stable in the population, exposure to significant ecological stress can cause an increase in the incidence of Lyssavirus that can cause local declines in the species (DAWE 2021). The project will have no direct impact on camps or roosting impacts, where there would typically be increased capacity for external impacts to cause adverse stress to an extent required to induce an increase in Lyssavirus.
Interfere substantially with the recovery of the species	**Unlikely** The project will result in the loss of 19.21 ha of potential foraging habitat, representing habitat critical to the survival of the species. The nearest nationally important flying-fox camp is located approximately 241 km southeast of the SGIC SDA pipeline alignment. As suitable foraging habitat is not within 20 km of a nationally important flying-fox camp, the habitat is unlikely to represent habitat utilised by the camp on a regular basis. However, it is within the species' foraging range (i.e. within 50 km of a camp) and may be important for supporting individuals at the camp, particularly during the winter and spring resource bottlenecks.
Conclusion	A conservative assessment has identified that the project is likely to result in a significant impact on the grey-headed flying-fox. Although the SGIC SDA pipeline alignment has been largely placed within or adjacent to areas that have been previously cleared, the project will require the clearing of 19.21 ha of suitable foraging habitat, likely to be habitat critical to the survival of the species due to the abundance of important winter and spring foraging tree species (i.e. *Eucalyptus tereticornis, E. crebra, Corymbia citriodora* and *Melaleuca quinquenervia*).



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Grey-headed Flying-fox Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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PROJECTION UTM Zone 56
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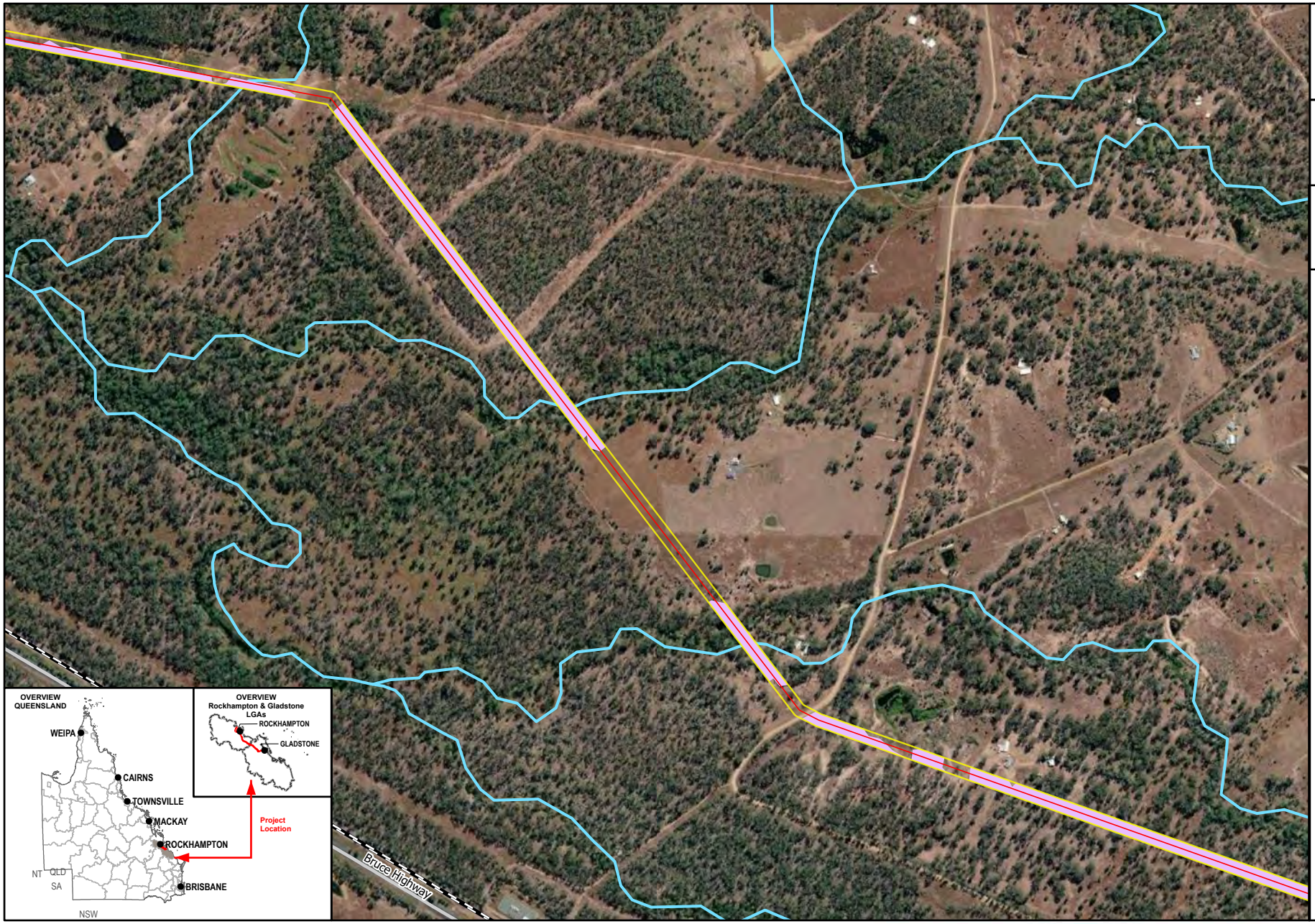
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17a
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Grey-headed Flying-fox Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
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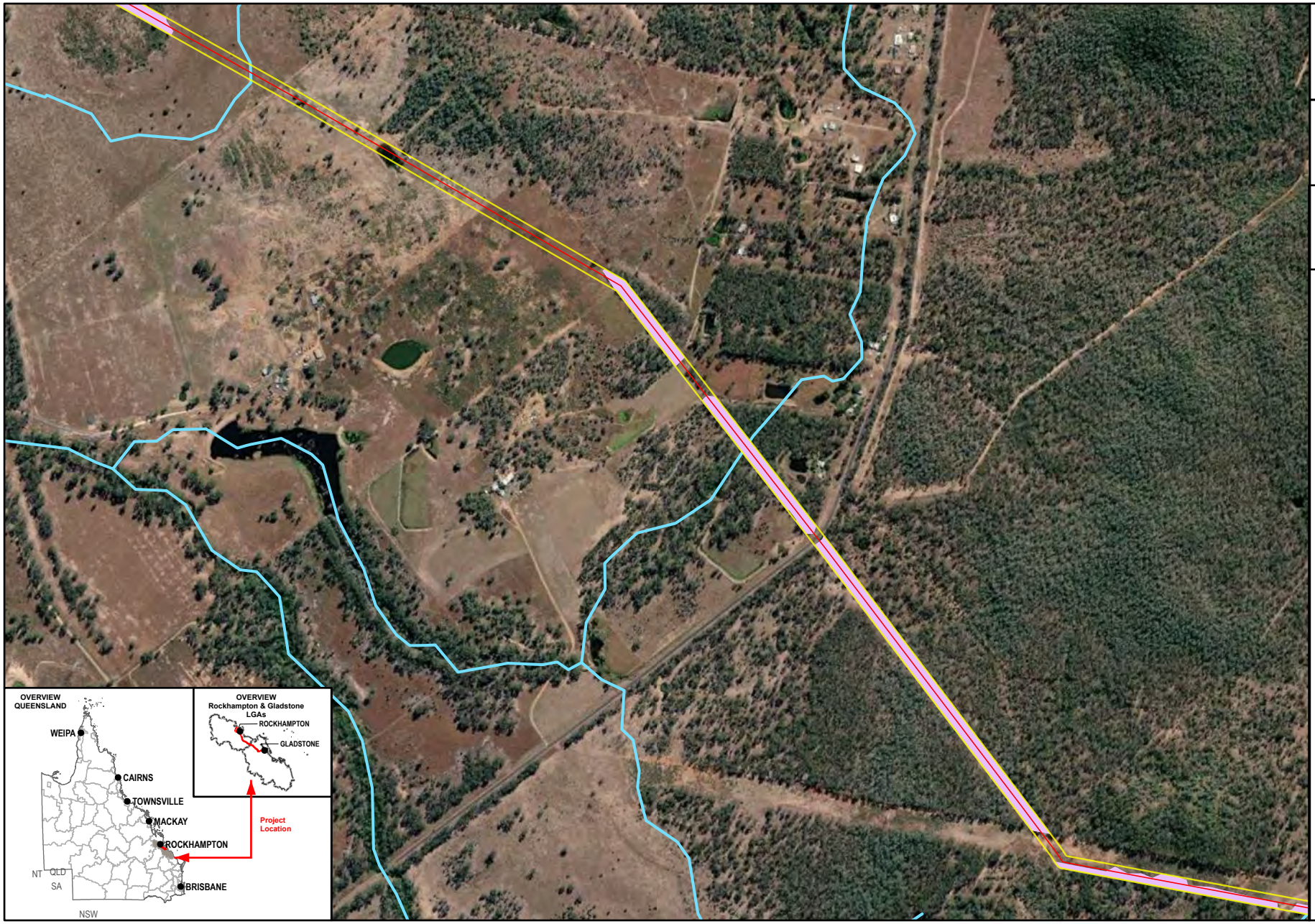
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17b
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Grey-headed Flying-fox Habitat
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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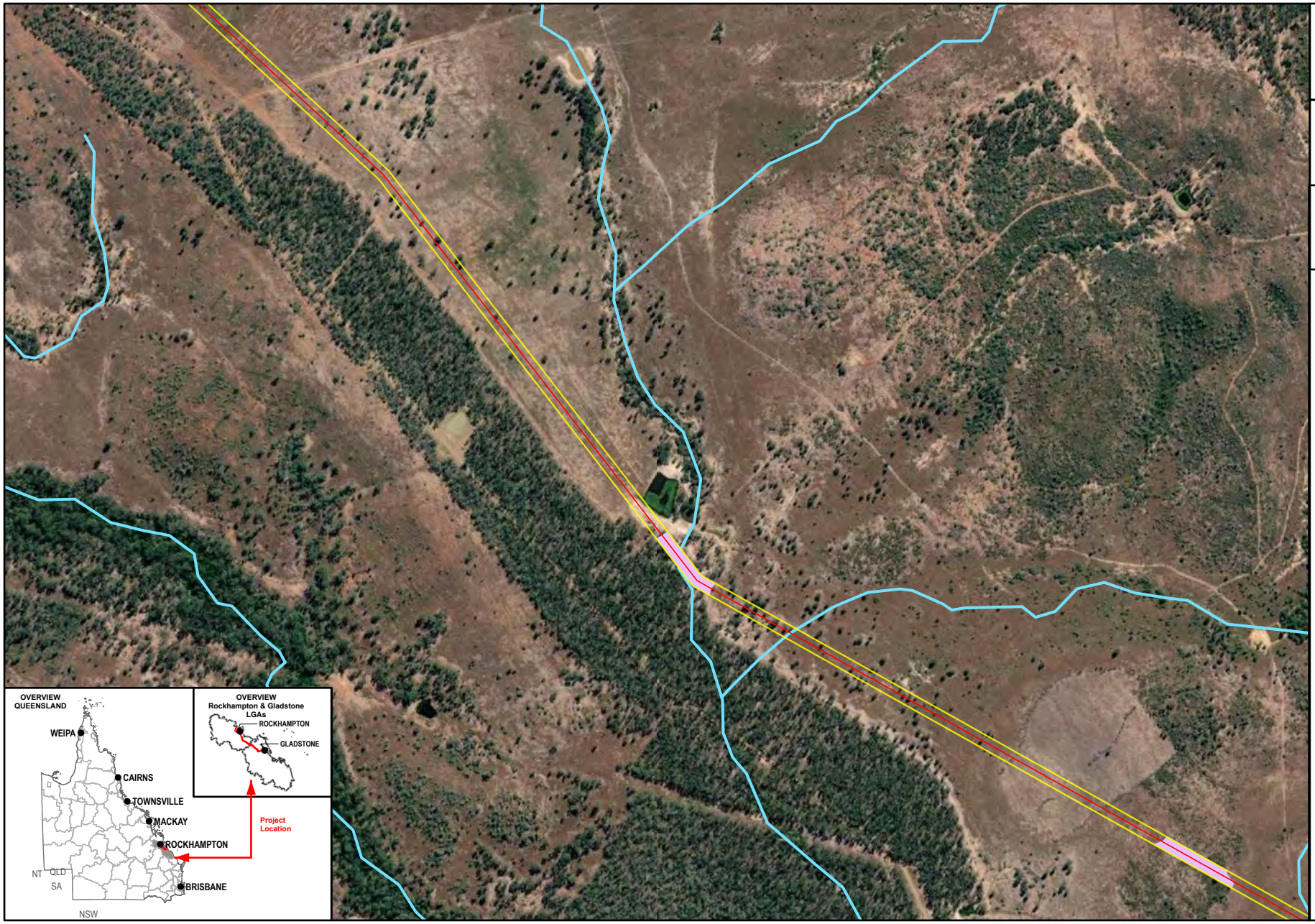
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17c
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Grey-headed Flying-fox Habitat
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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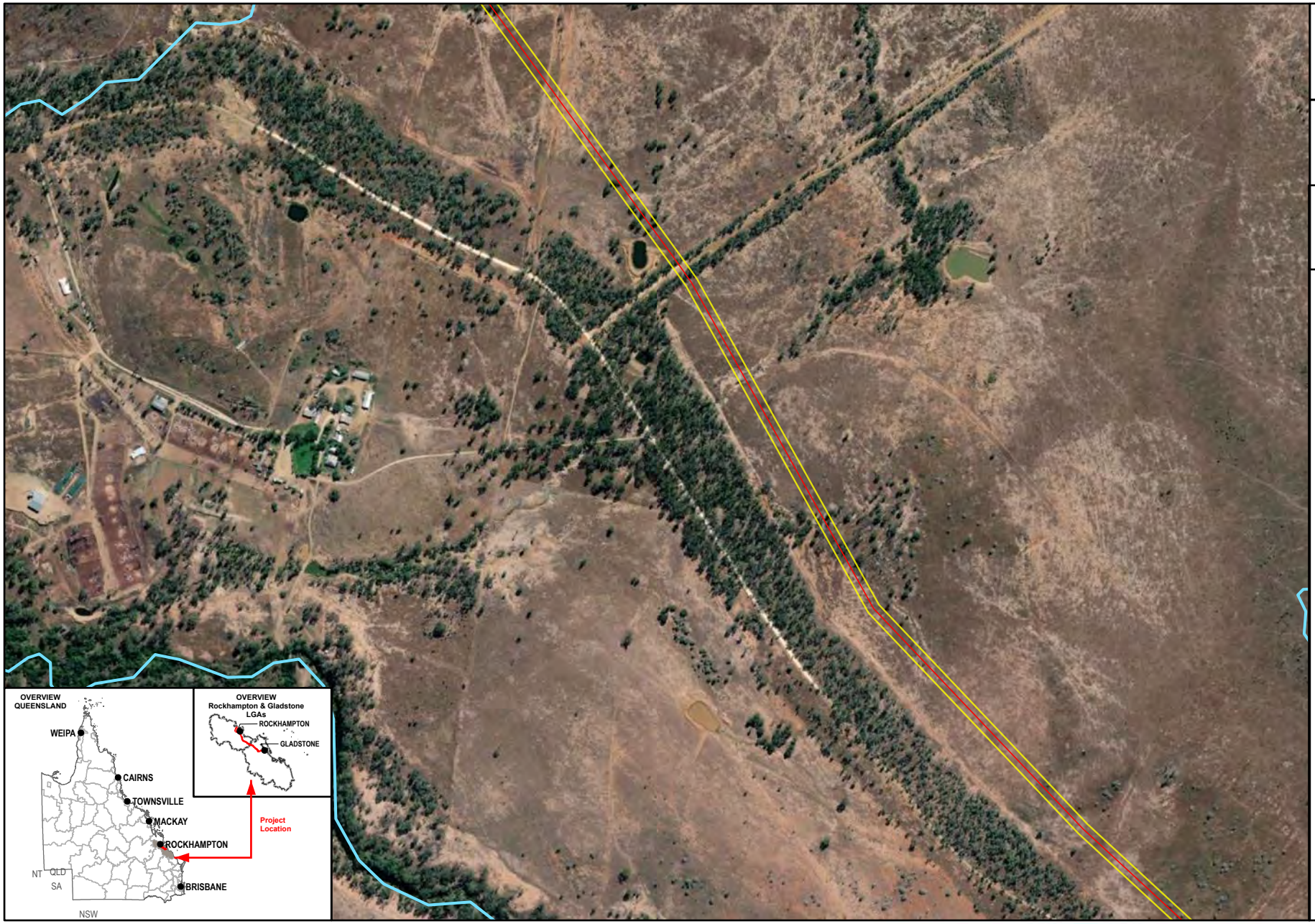
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17d
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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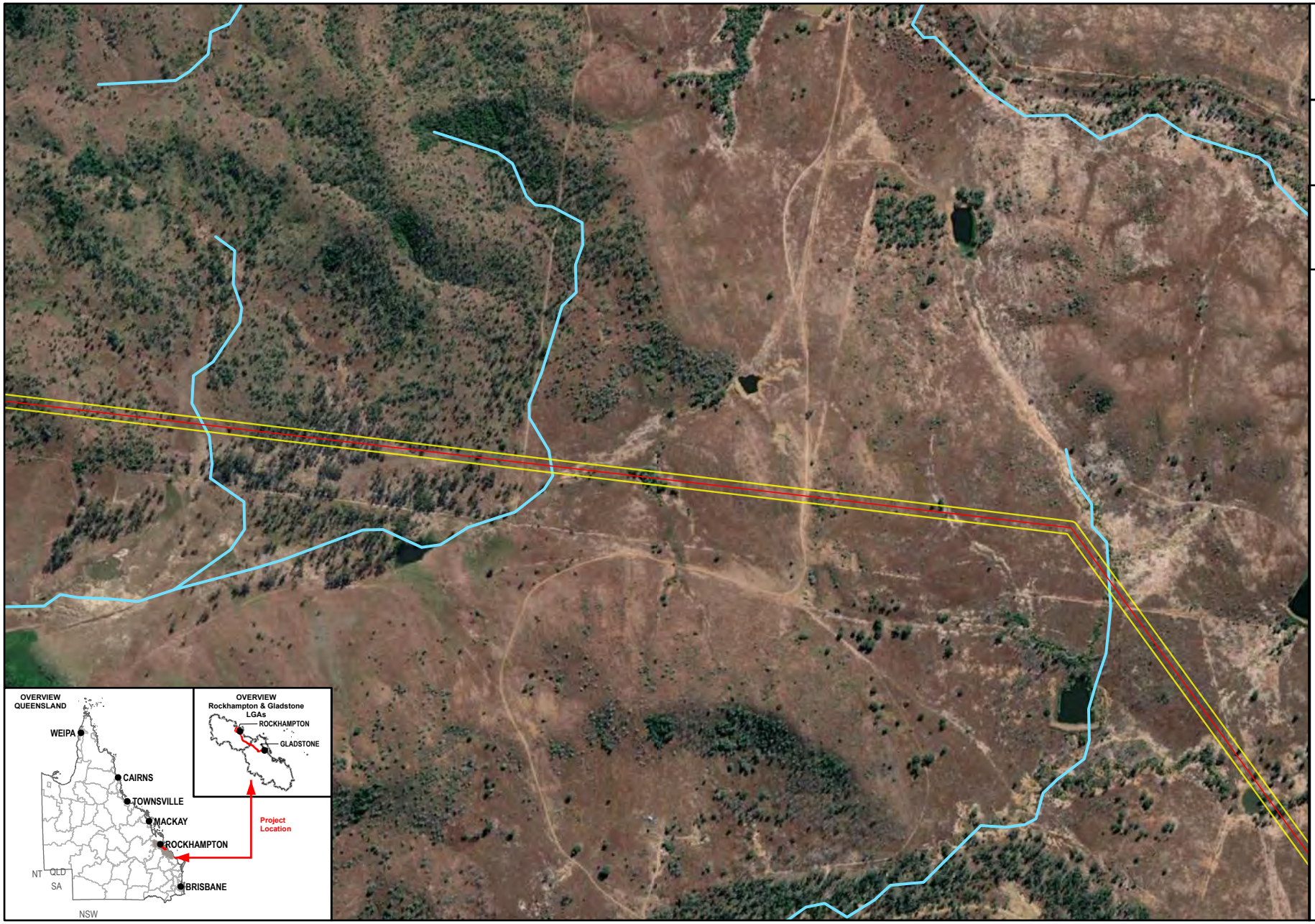
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17e
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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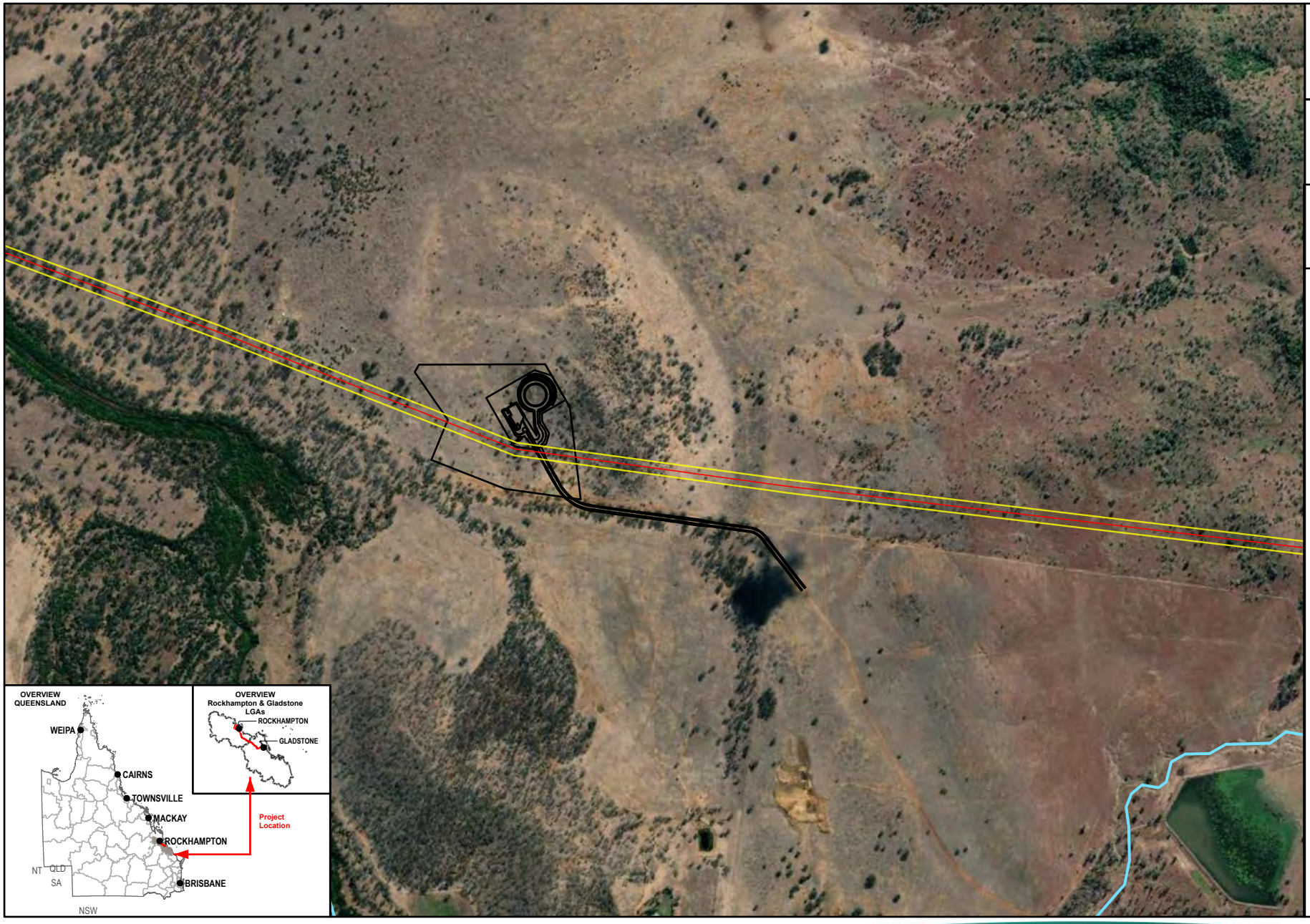
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17f
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Raglan Pump Station and Reservoir Layout
- Waterways

Data Sources:
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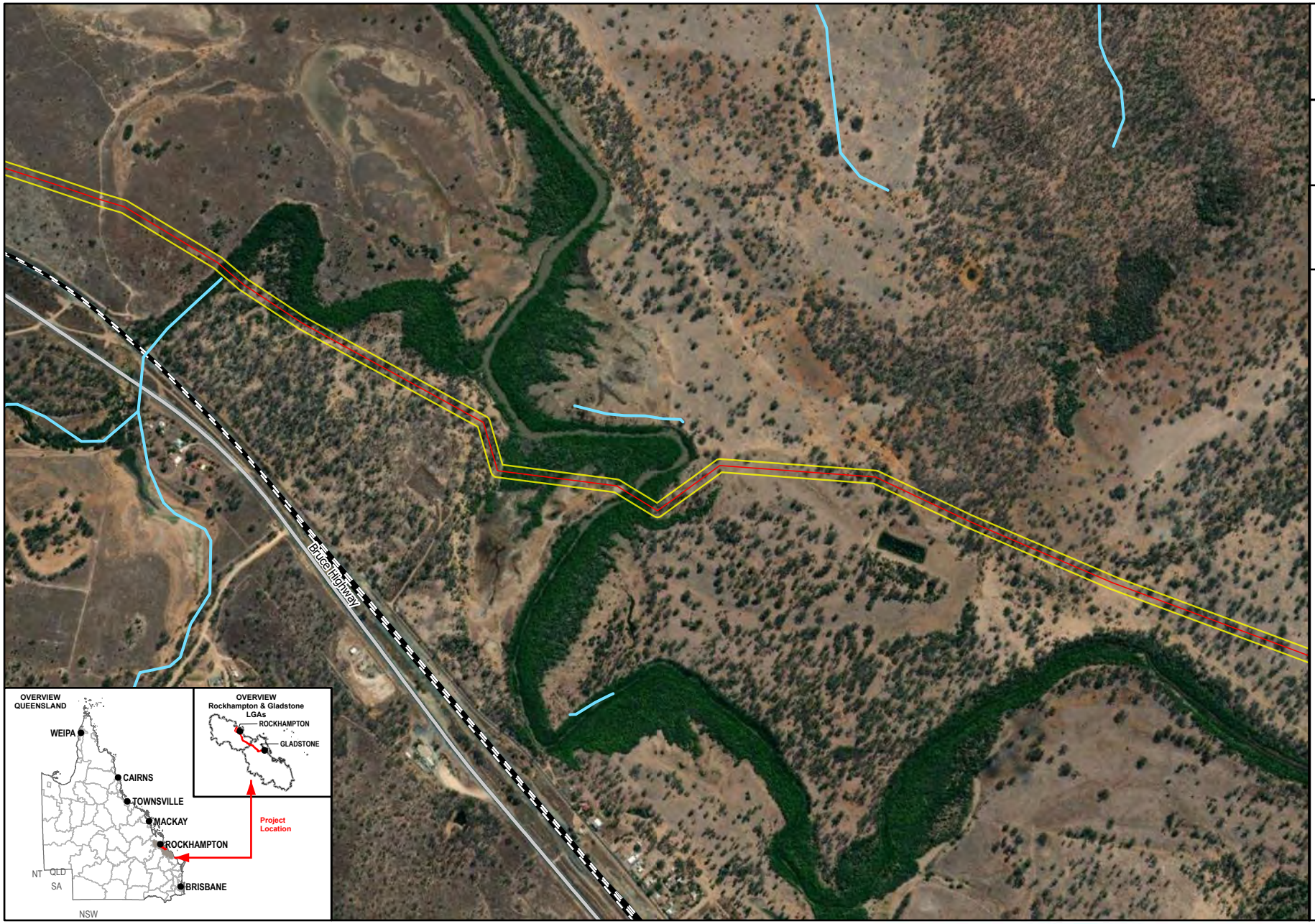
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17g
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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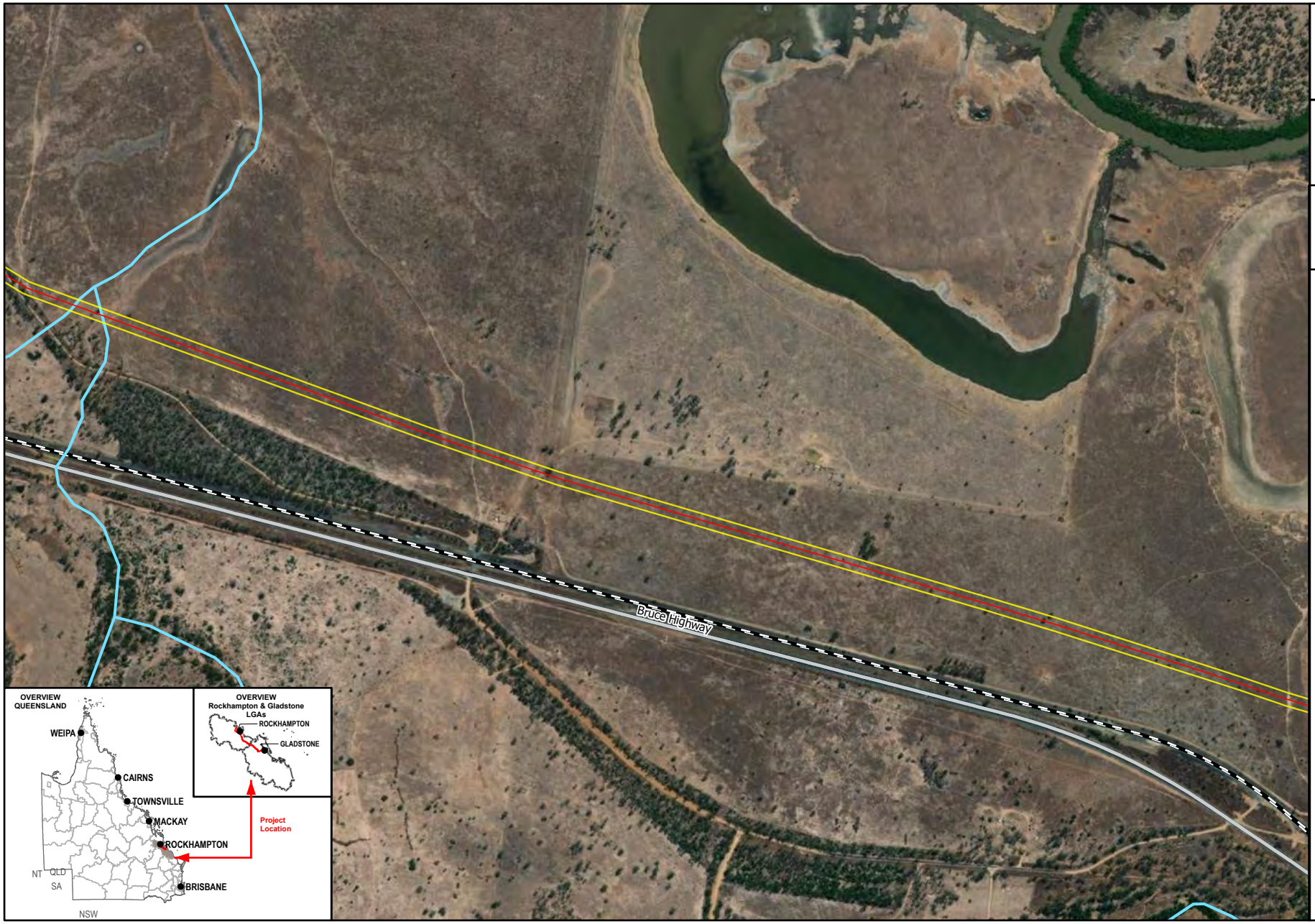
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17h
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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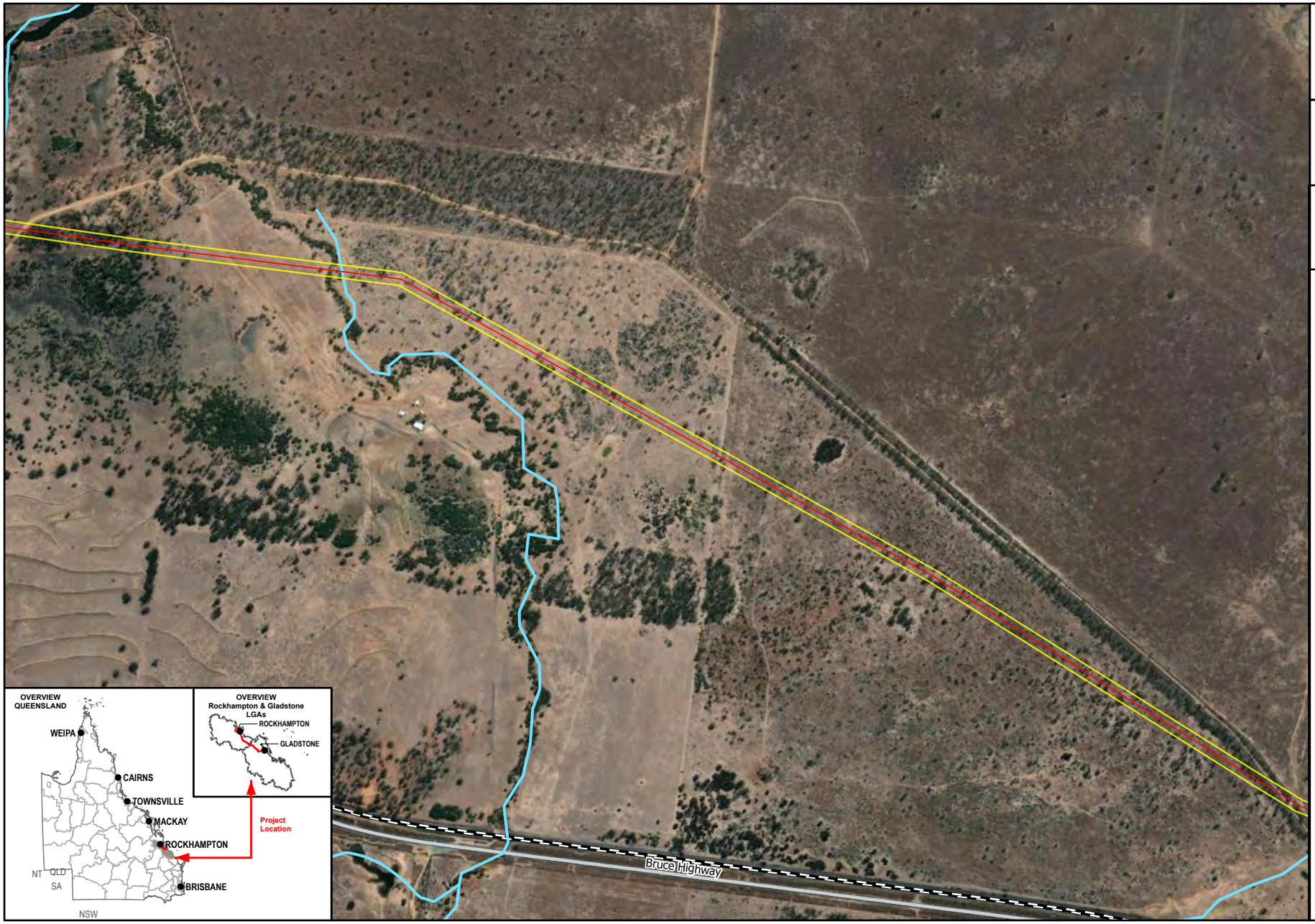
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17i
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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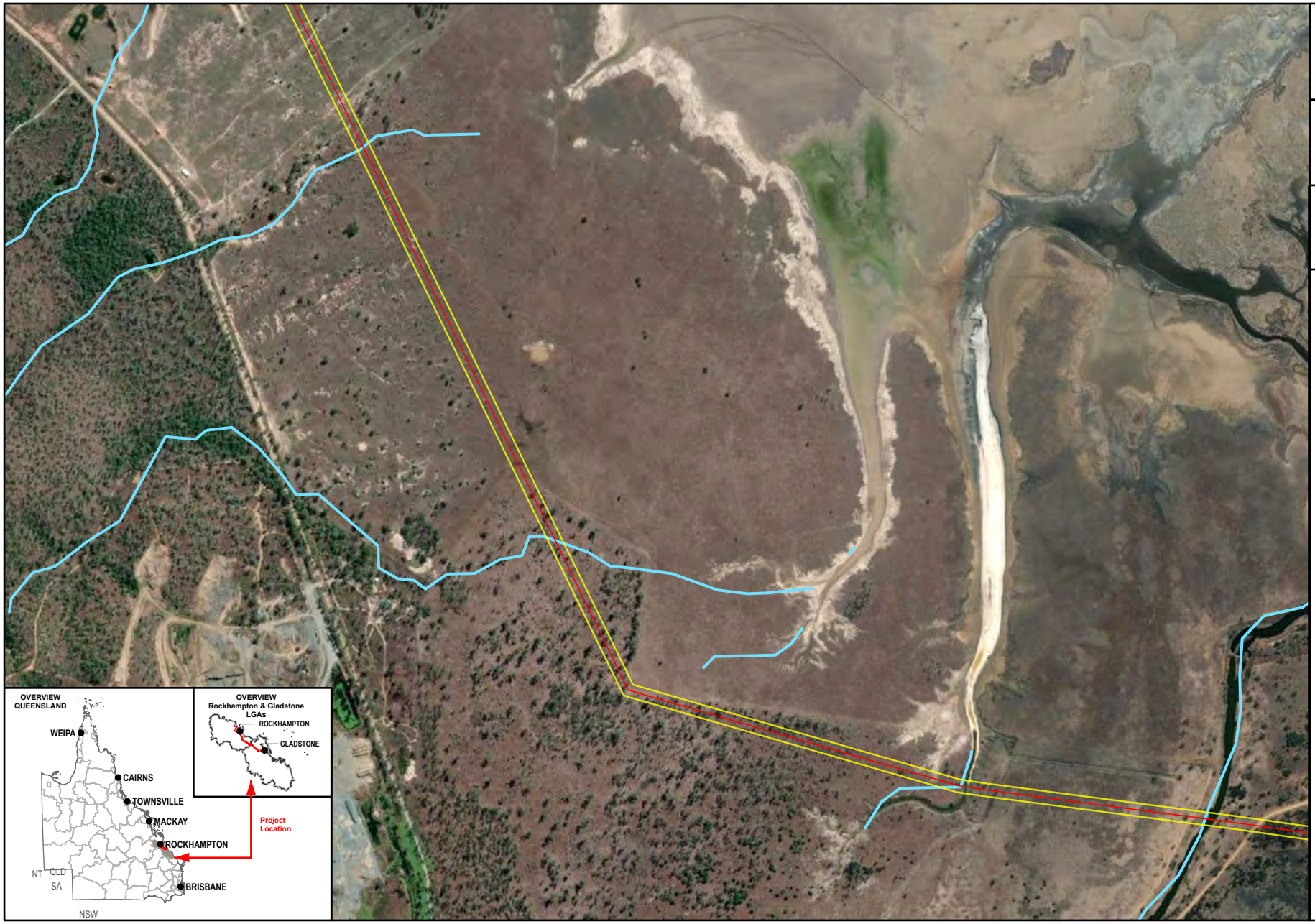
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17j
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
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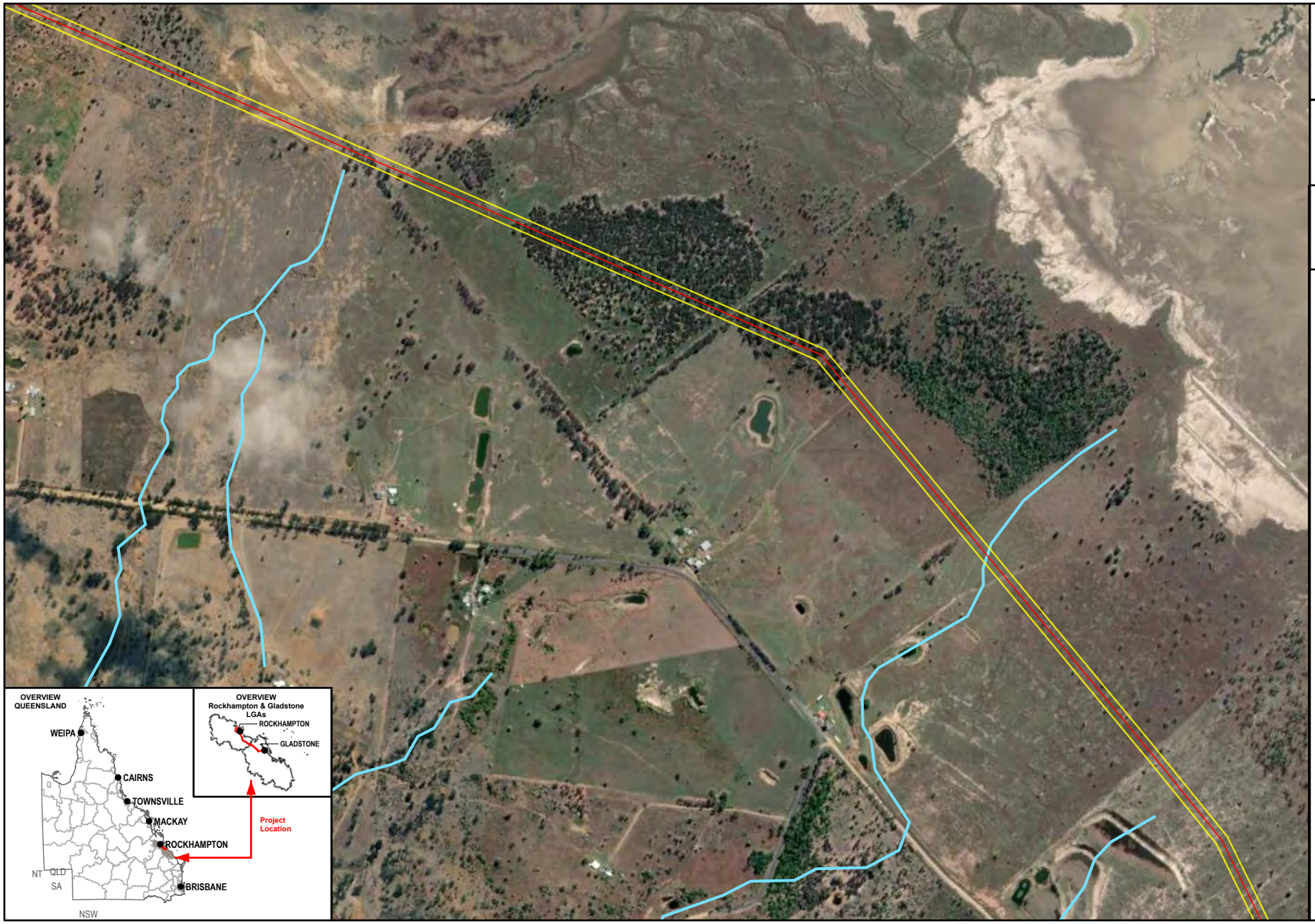
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17k
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

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PROJECTION UTM Zone 56
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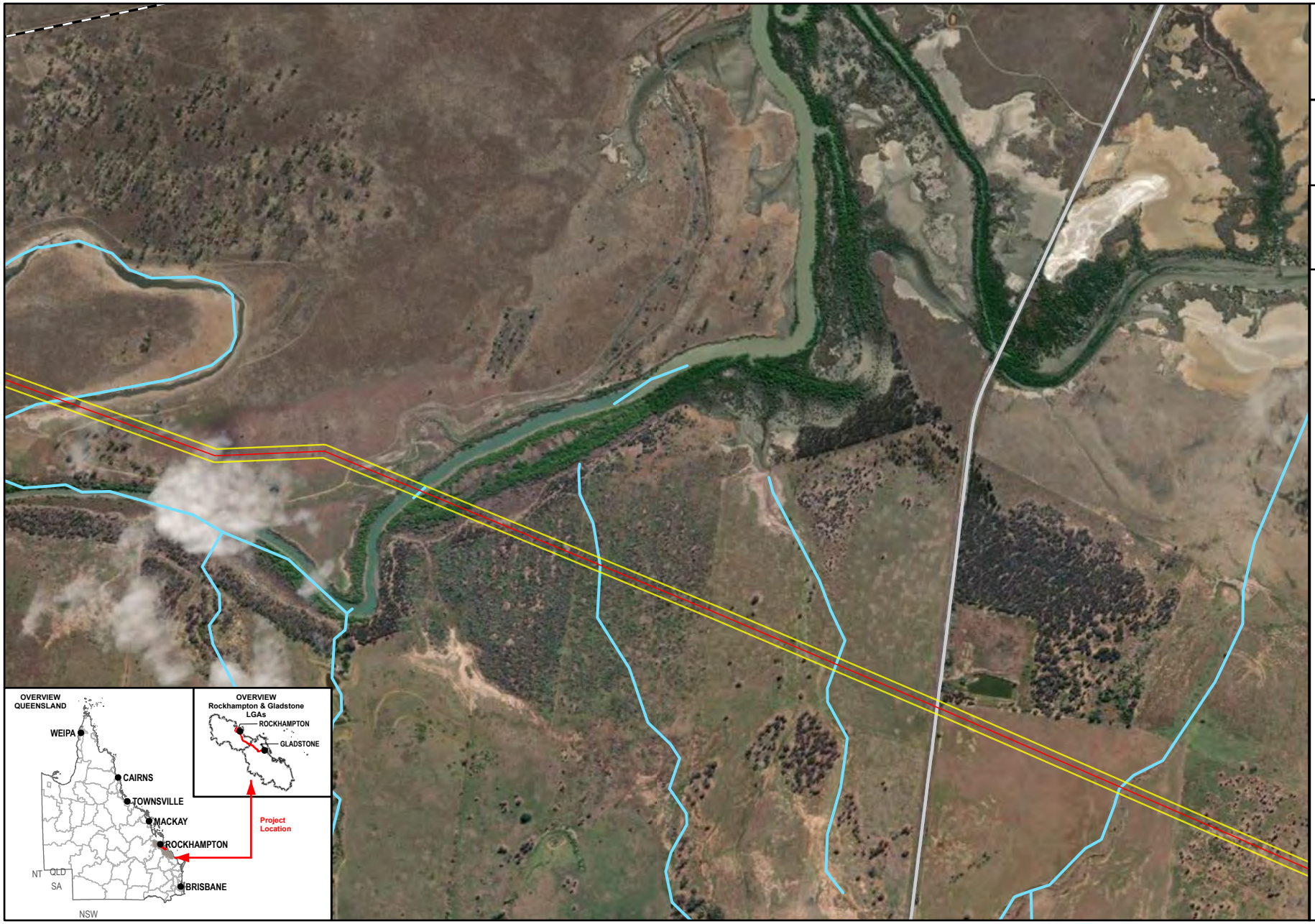
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17l
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17m
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

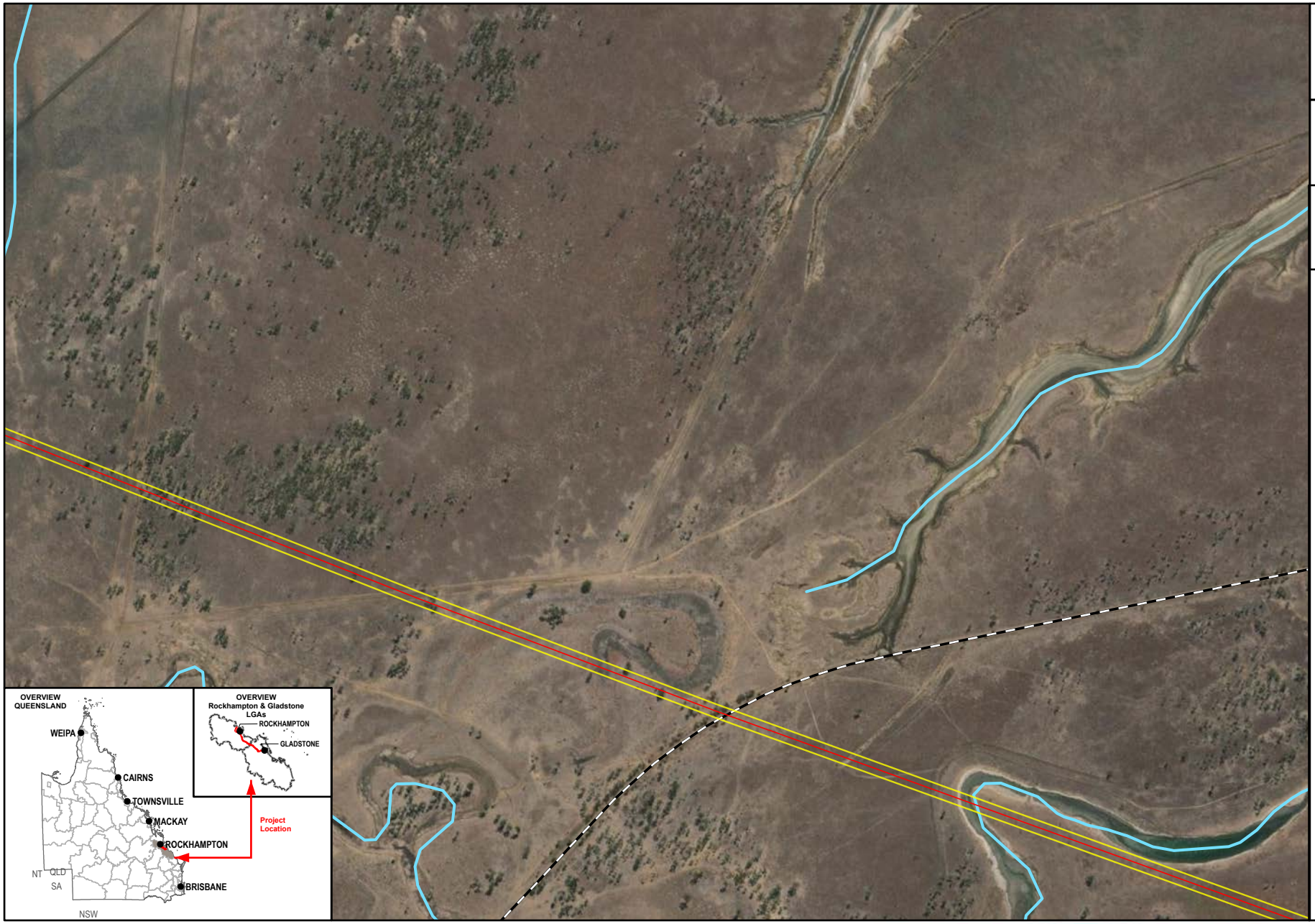

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Figure 7-17n
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000-G-MAP-2438 Version:4 Date:19/09/2022

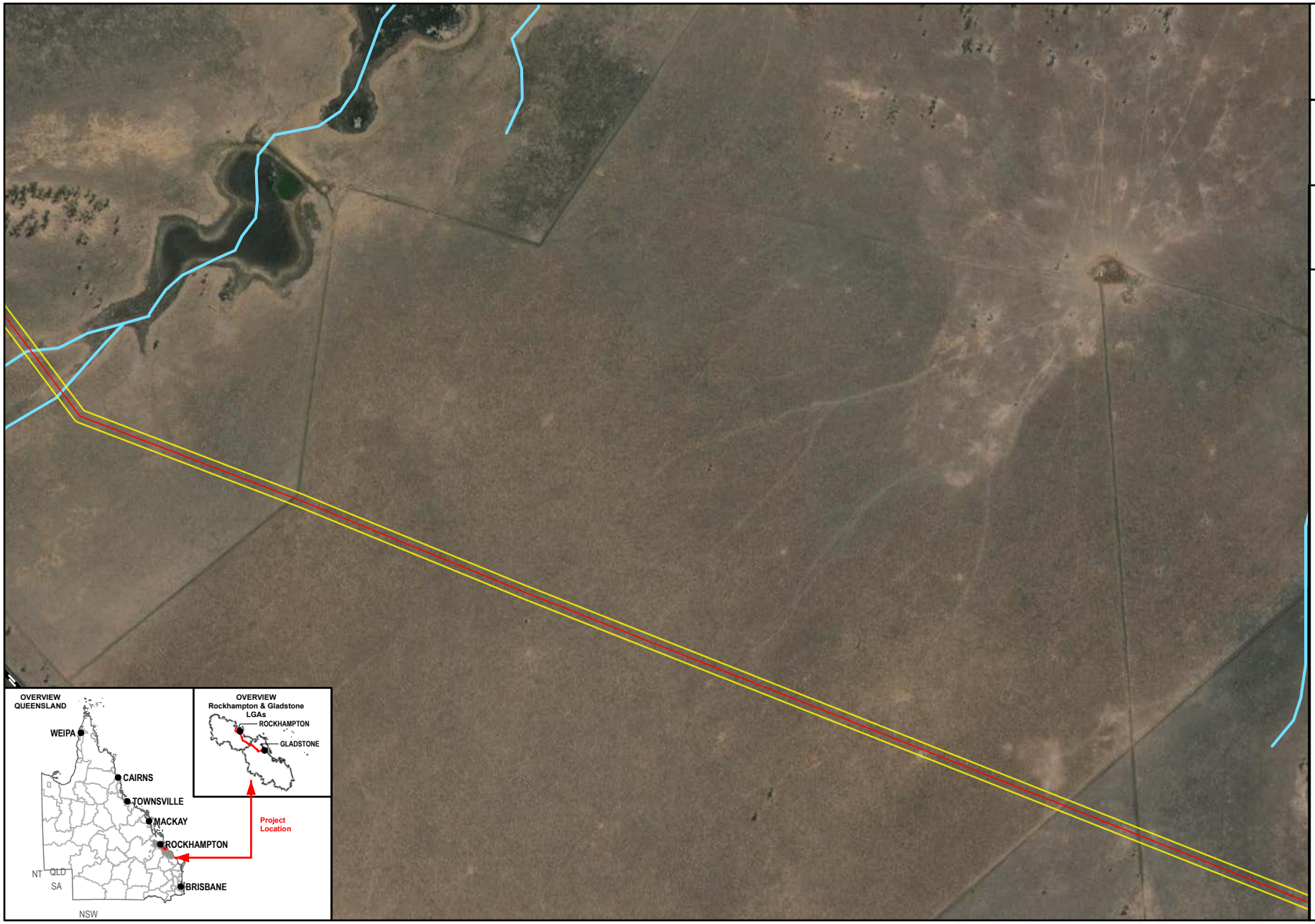

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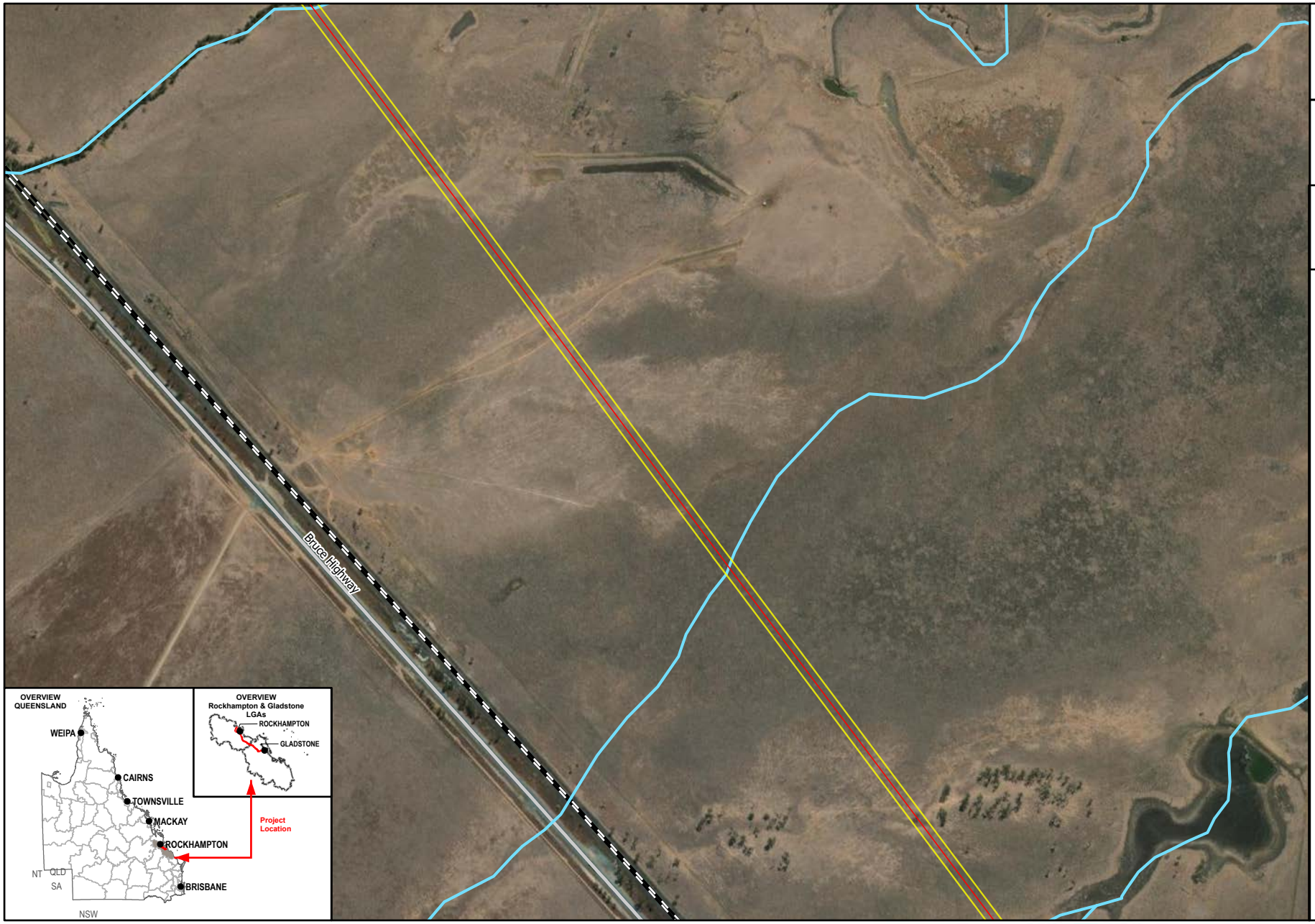
Figure 7-17o
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
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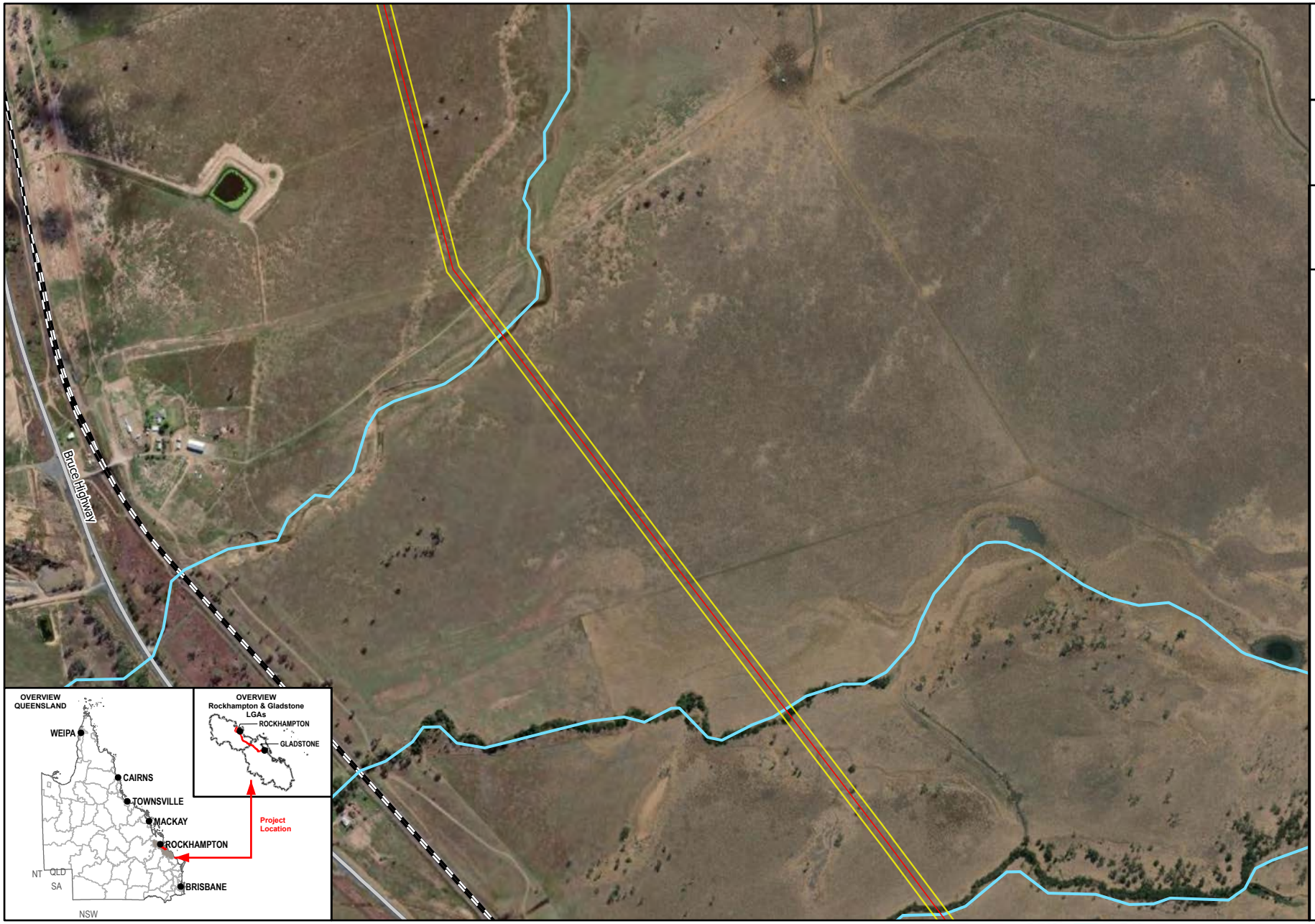
000-G-MAP-2438 Version:4 Date:19/09/2022



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Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17q
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

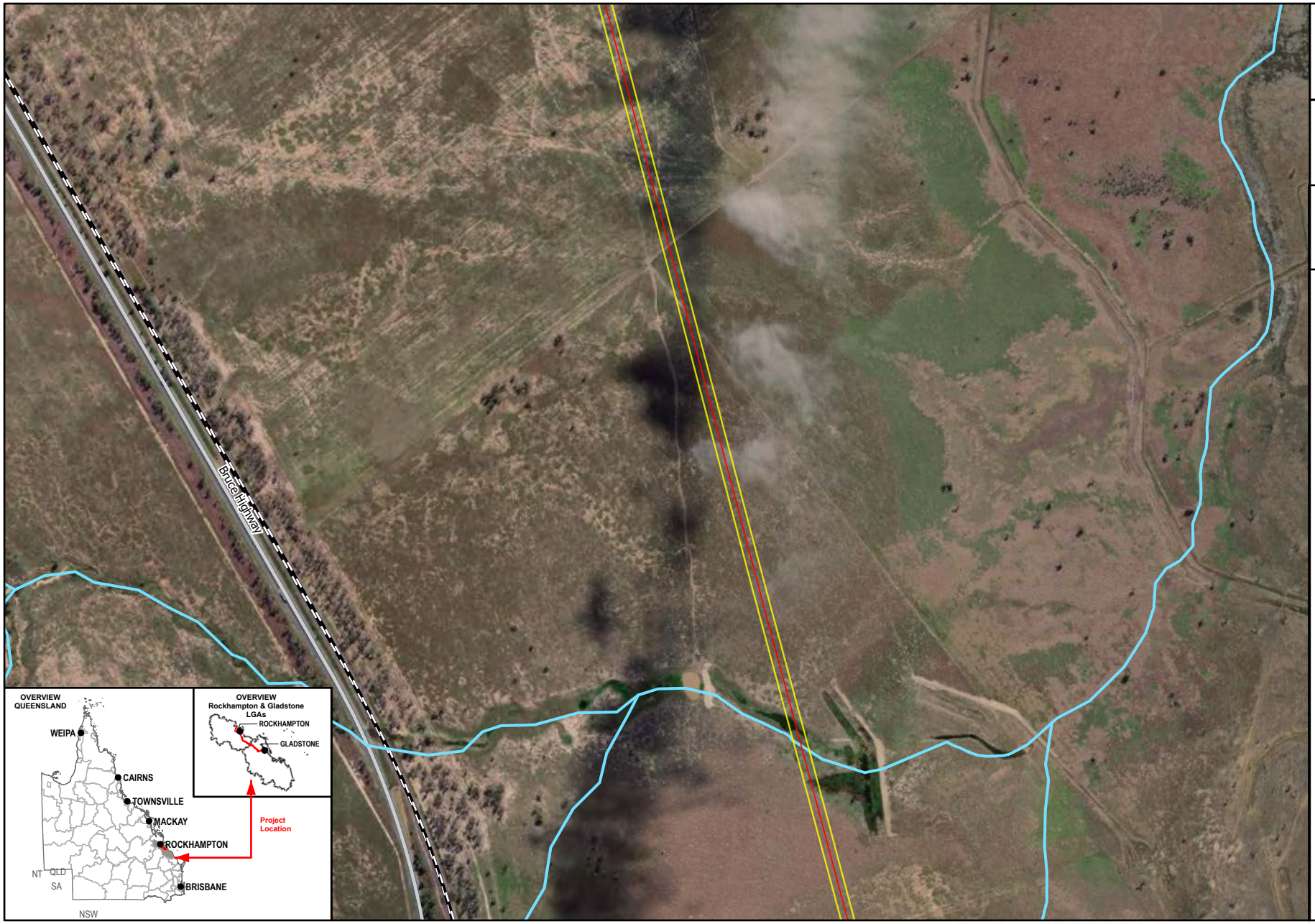

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Figure 7-17r
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

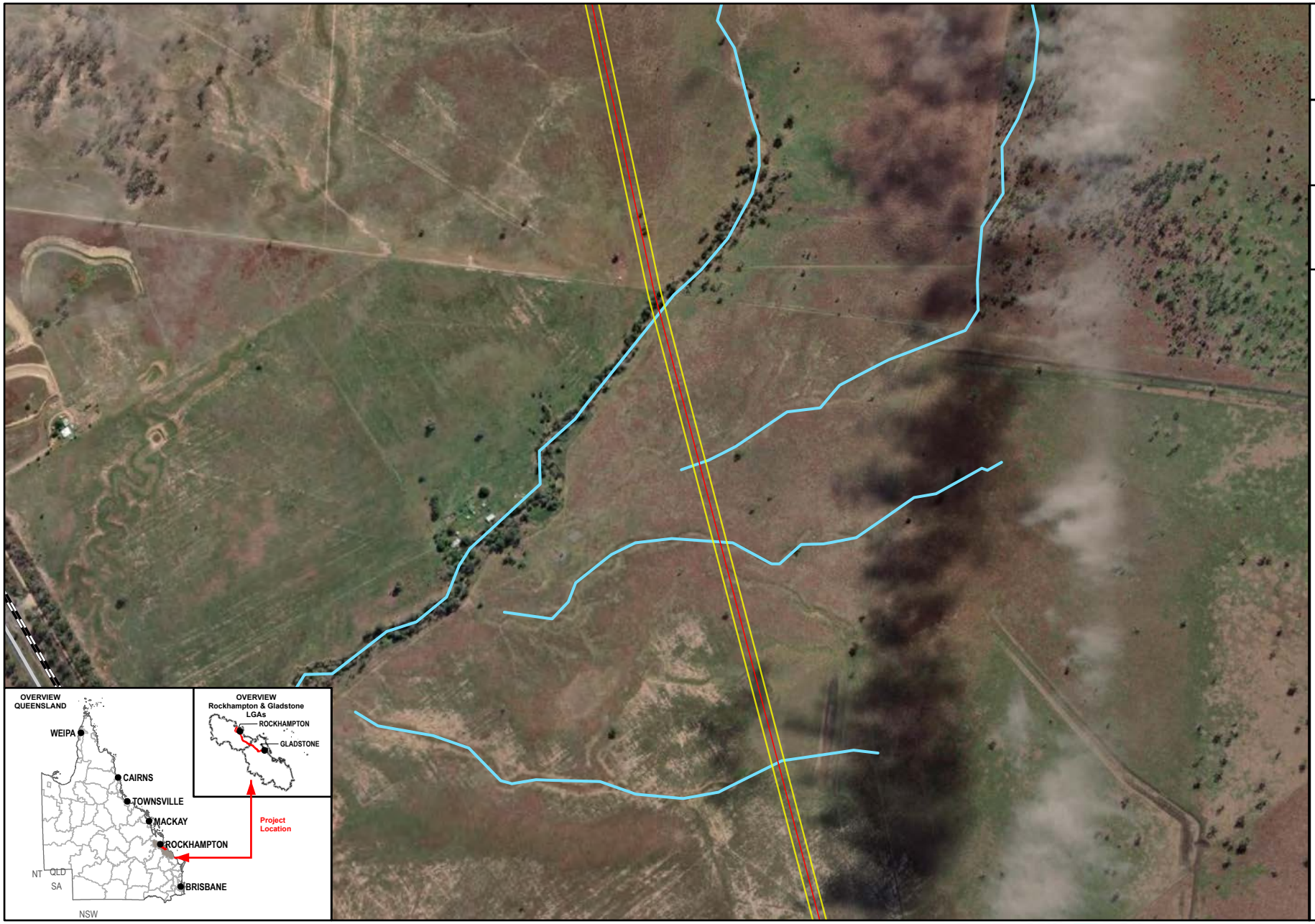

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Figure 7-17s
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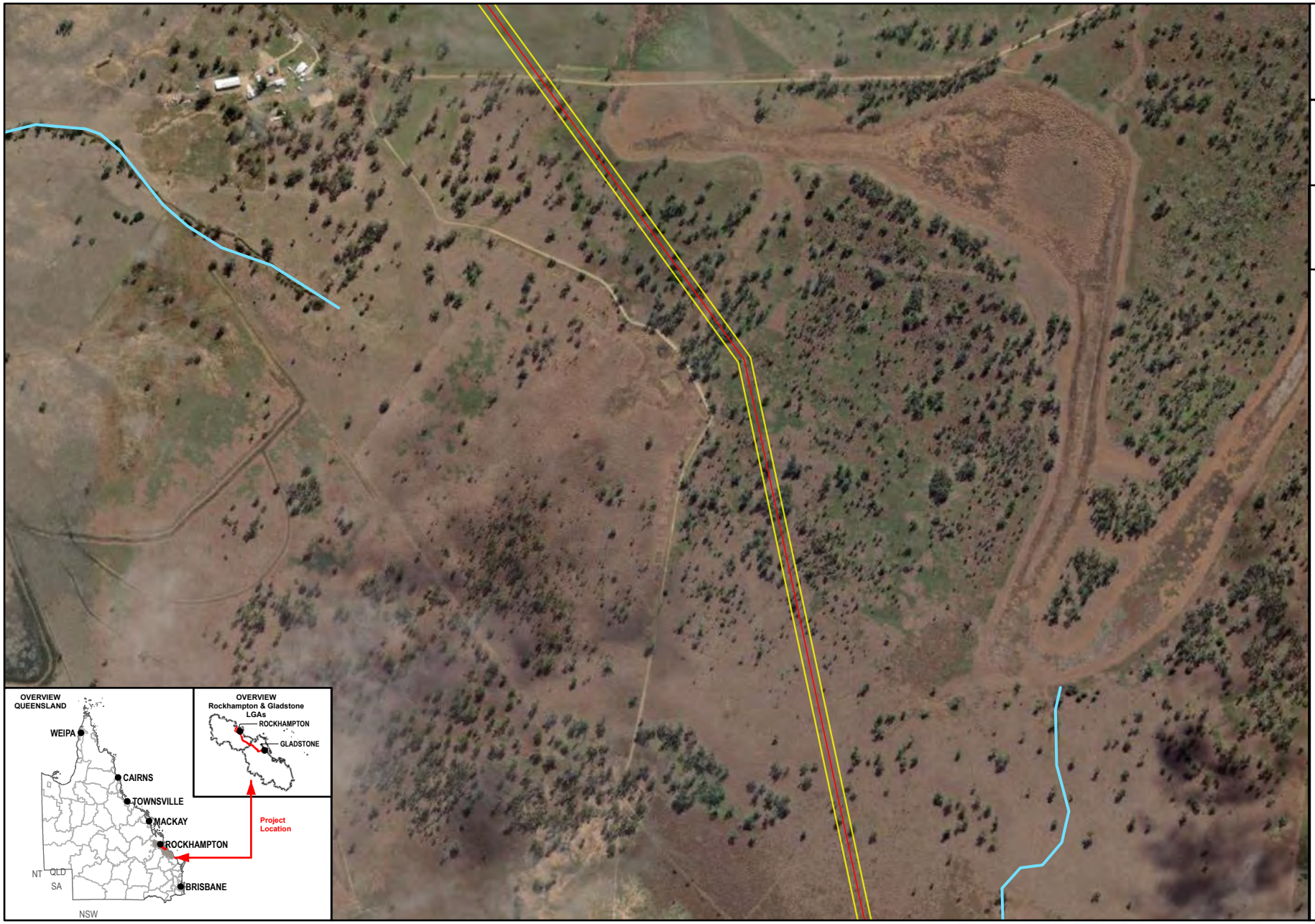

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Figure 7-17t
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

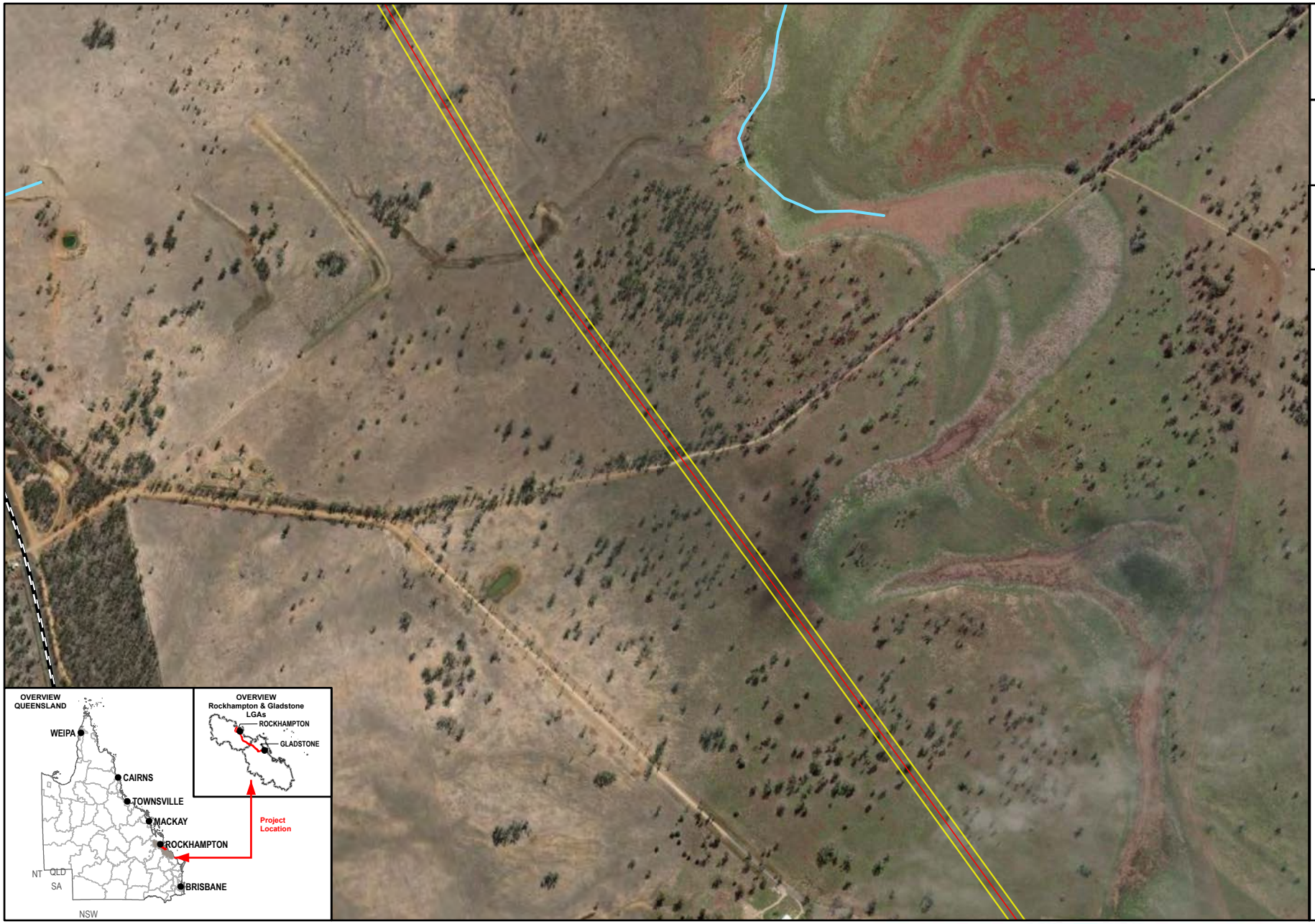

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Figure 7-17u
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
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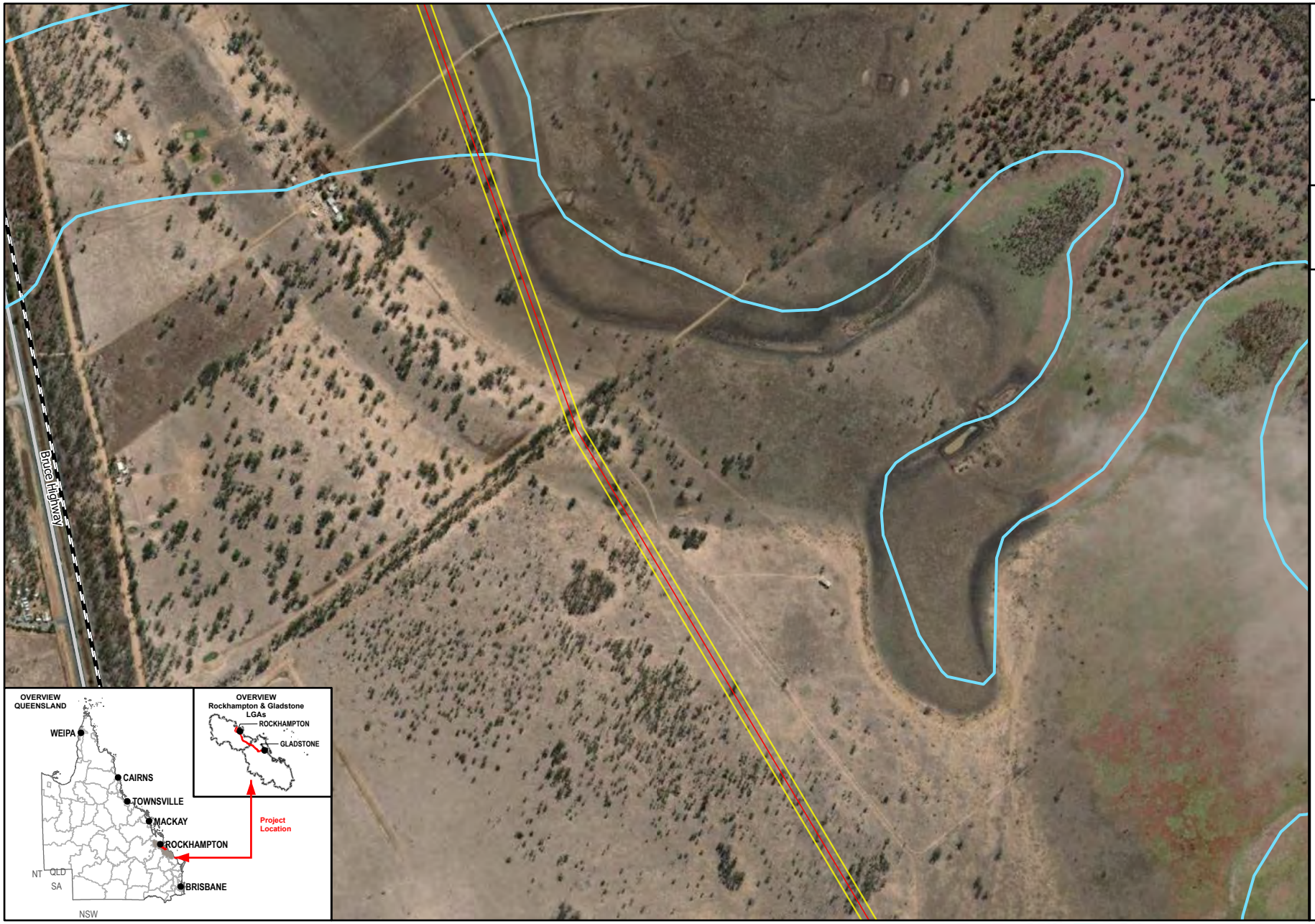

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Figure 7-17v
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

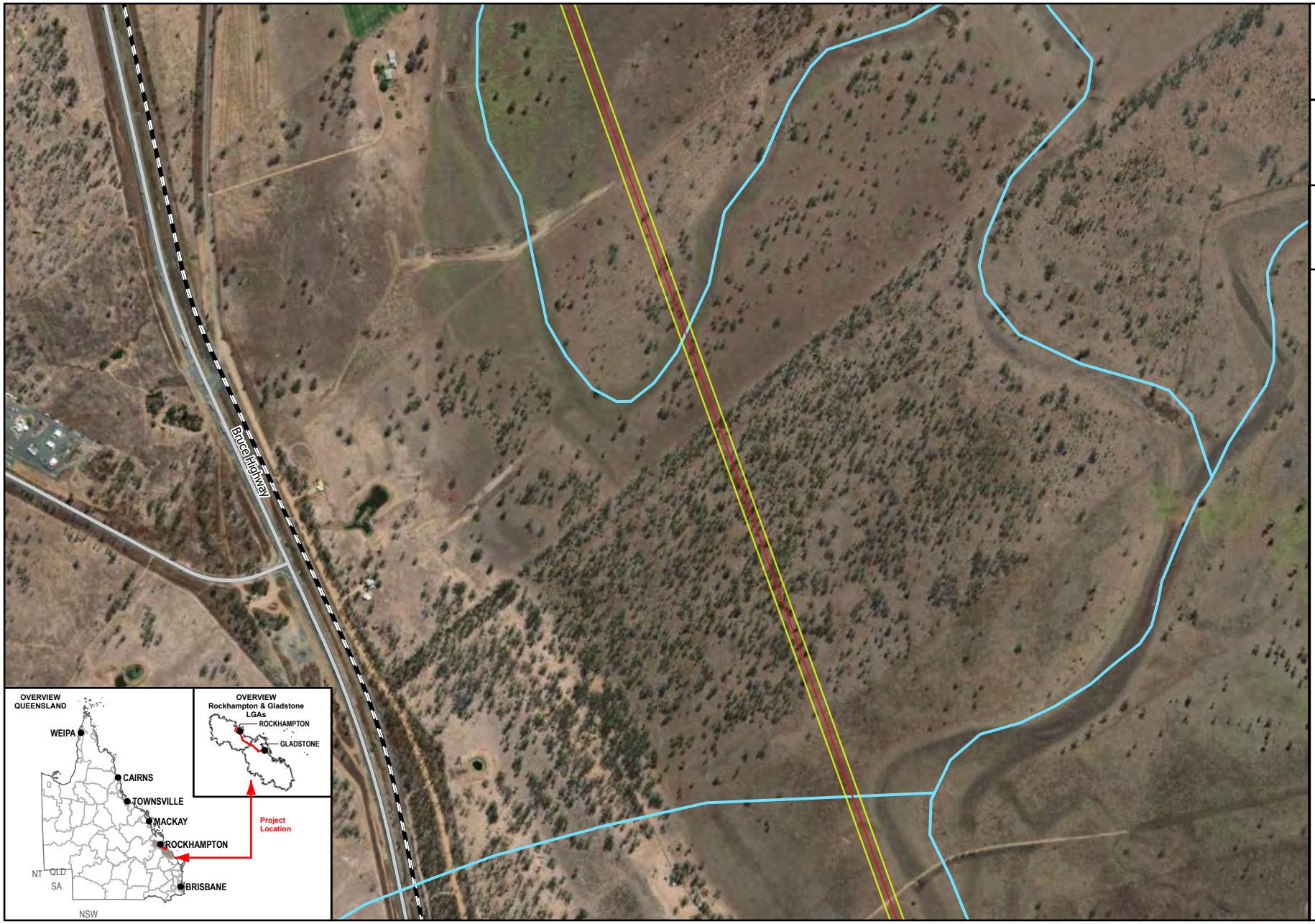

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Figure 7-17w
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

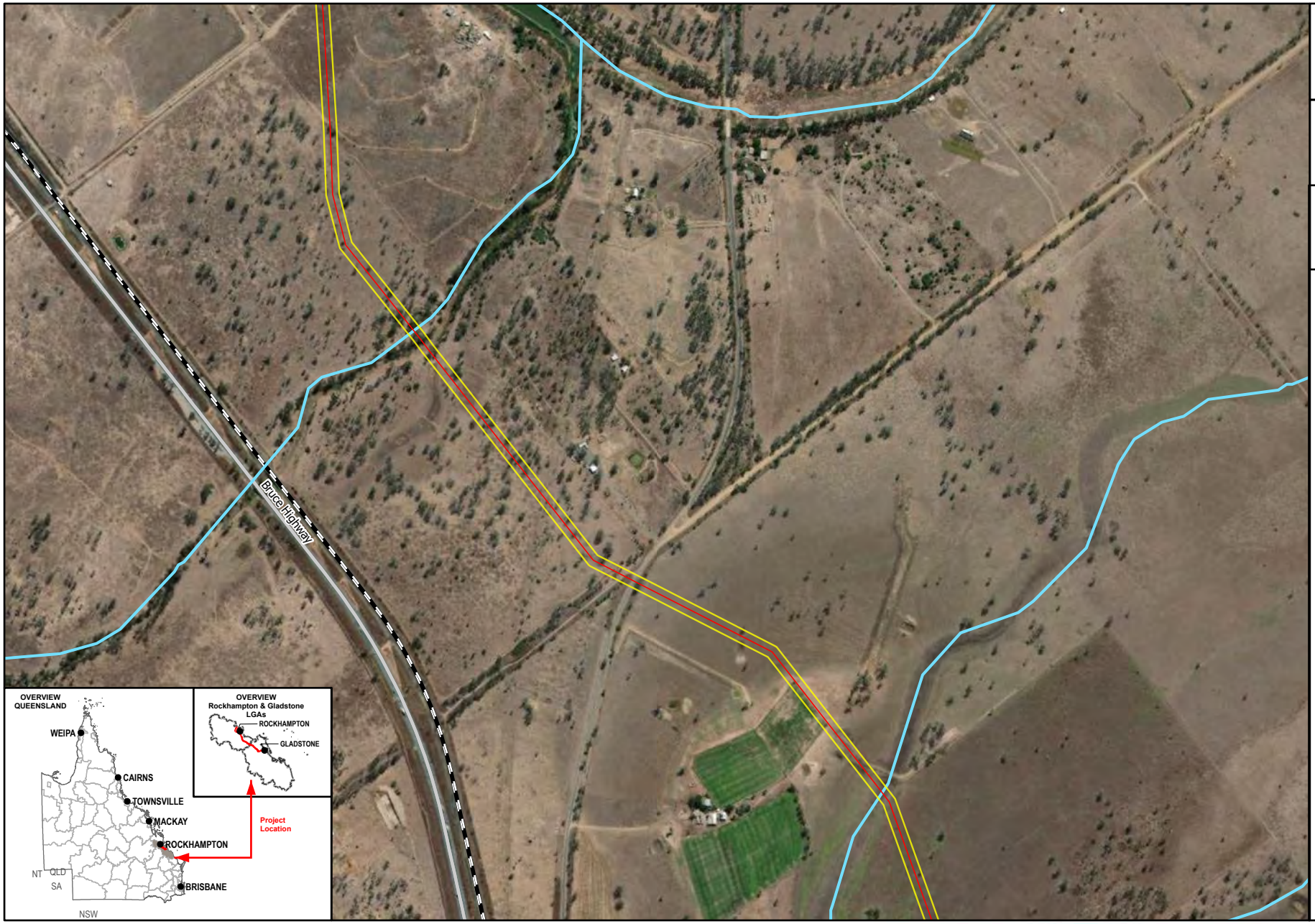

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Figure 7-17x
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

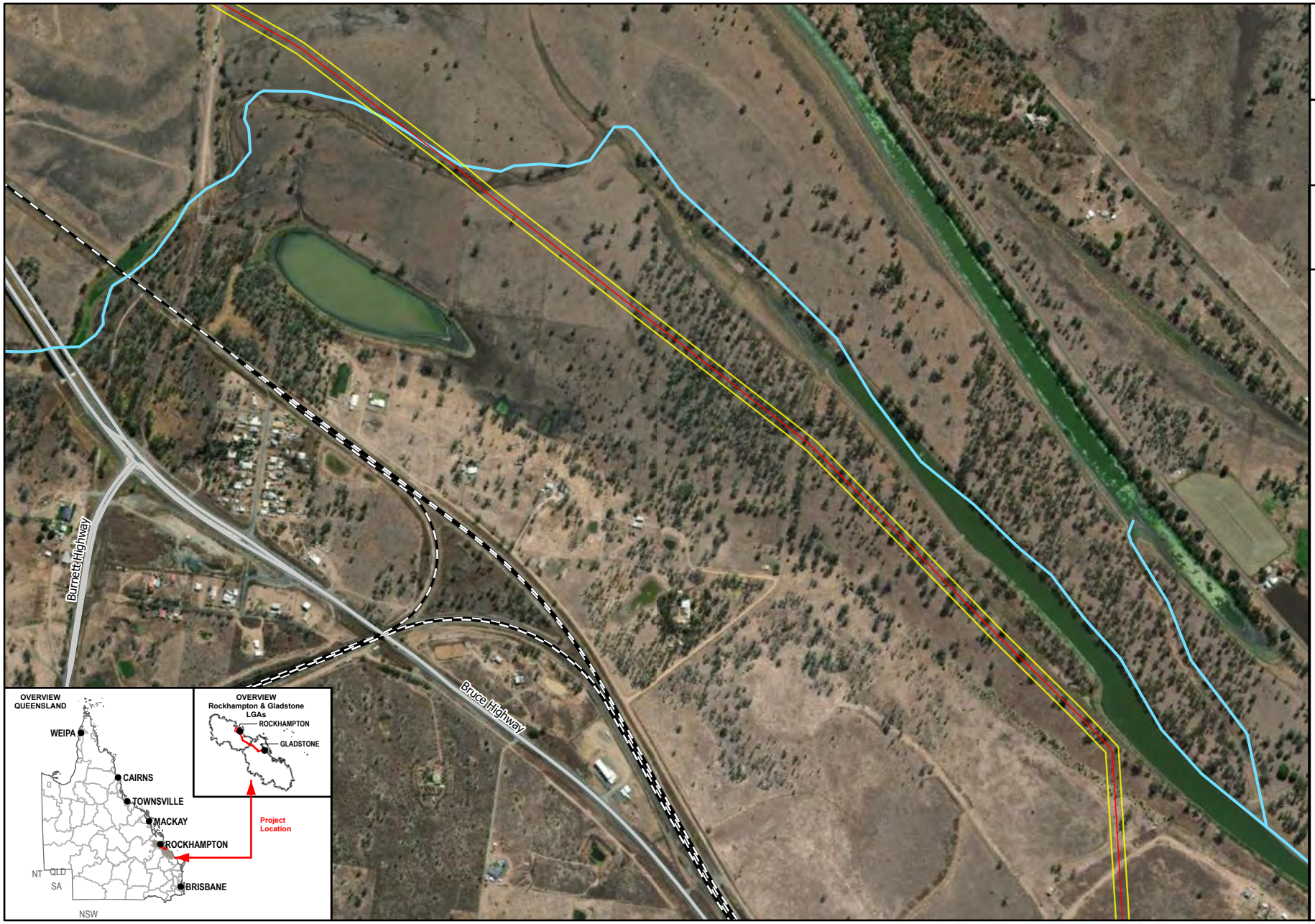

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Figure 7-17y
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

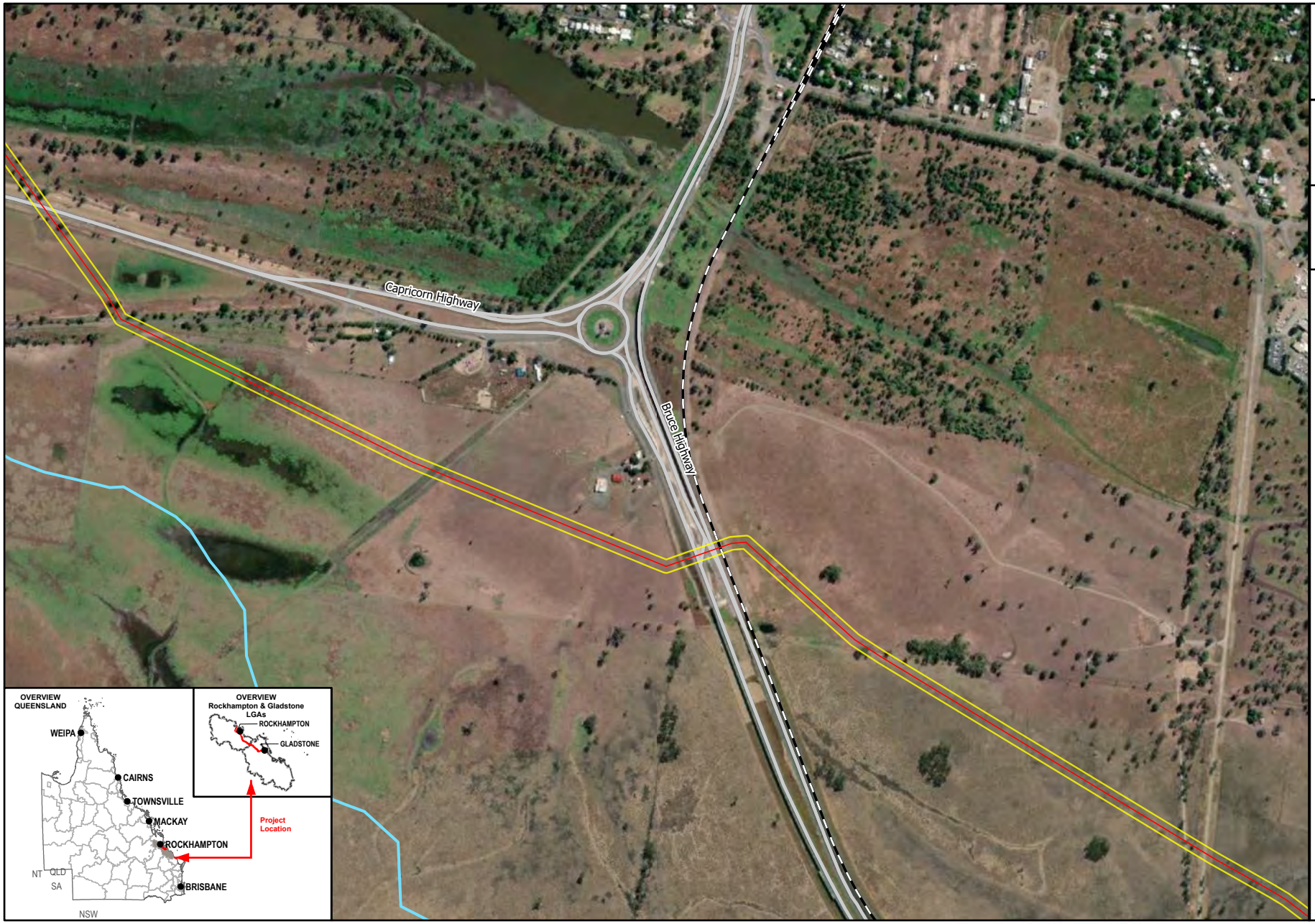

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Figure 7-17z
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
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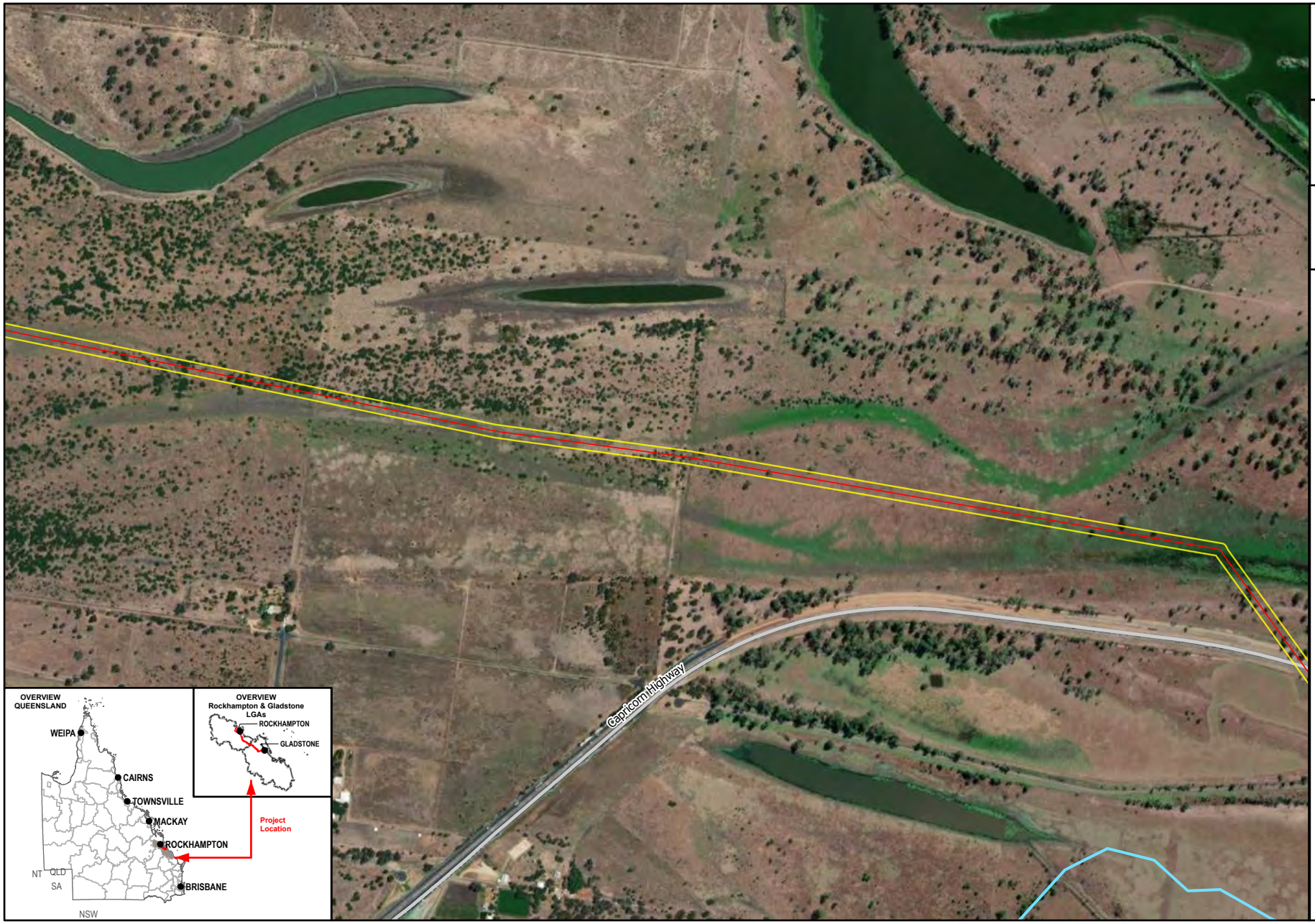

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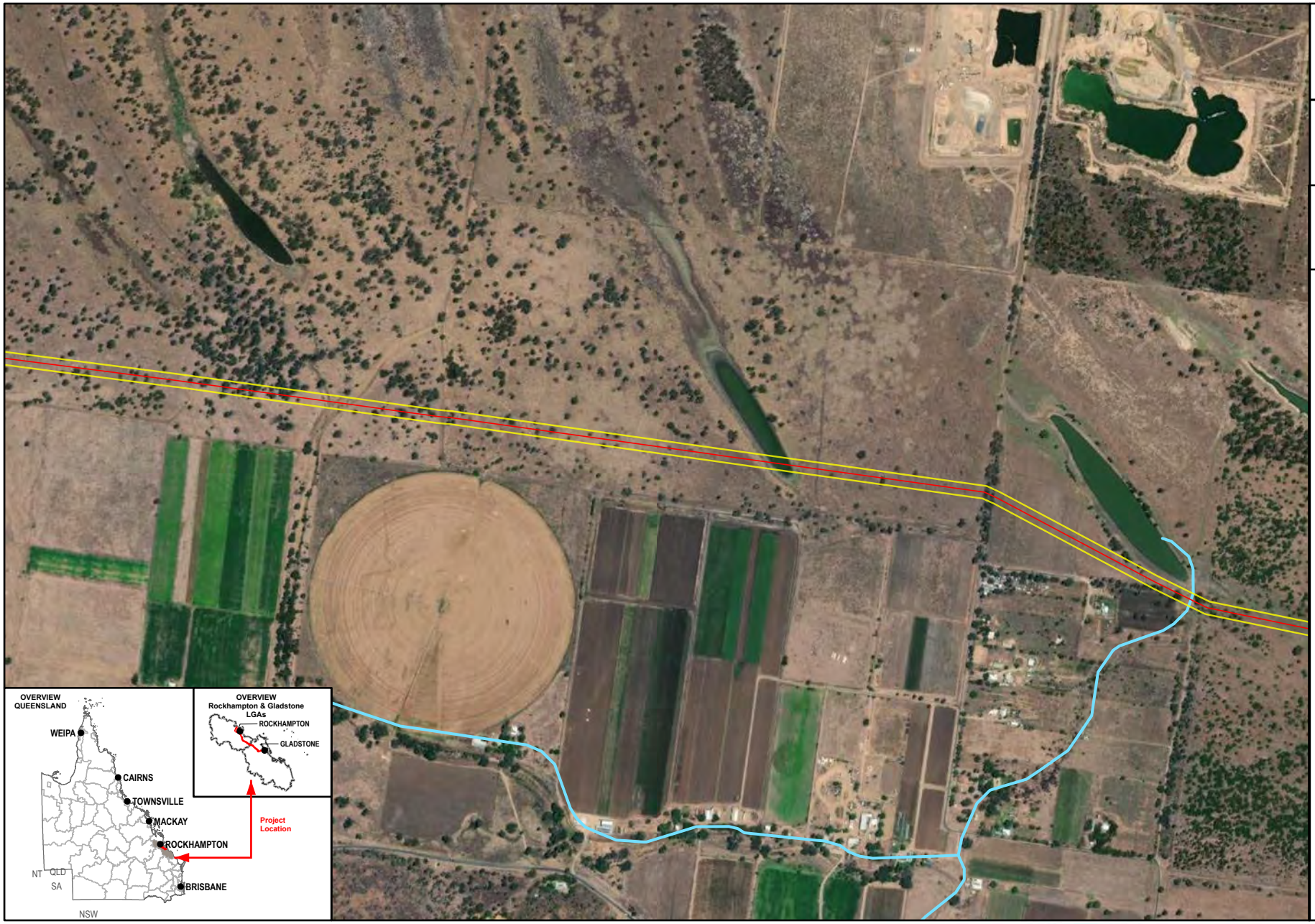
Figure 7-17a1
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-17b1
Distribution of Grey-headed Flying-fox Habitat Within the SGIC SDA Study Area
000-G-MAP-2438 Version:4 Date:19/09/2022

7.2.2.13 Australian painted snipe

Conservation status and species ecology

The Australian painted snipe is listed as endangered under the EPBC Act and NC Act and was listed as an MNES at the time of the approval. The Australian painted snipe is recorded in wetlands in all states of Australia. The most common occurrence is eastern Australia, scattered through much of Queensland, NSW, Victoria, and southeastern South Australia (DoE 2022). They occur in shallow freshwater wetlands, both ephemeral and permanent, including lakes, swamps, inundated or waterlogged grassland/saltmarsh, dams, sewage farms and bore drains (DSEWPC 2013). Nests are often placed in a scrape in the ground and is either a shallow bowl shaped made of dry grass or other material or has scant lining (DoE 2022). These are often located in swamps, cane grass swamps, flooded areas, grazing lands, among cumbungi, sedges, grasses, saltwater couch, saltbush, and grass. The diet of the Australian painted snipe consists of vegetation, seeds, insects, worms and molluscs, crustaceans and other invertebrates (DoE 2022).

Field survey results and distribution of suitable habitat

The Australian painted snipe was not recorded during the field surveys within the SGIC SDA study area. Survey effort for the Australian painted snipe included two bird surveys within suitable wetland habitats in the SGIC SDA study area. The species is considered likely to occur due to the presence of suitable habitat and the species has been historically recorded at six locations within the desktop search extent (10 km buffer). Suitable habitat for the species was recorded at freshwater waterbodies and seasonal wetlands within the SGIC SDA study area. The distribution of predicted Australian painted snipe habitat is mapped in Figure 7-18.

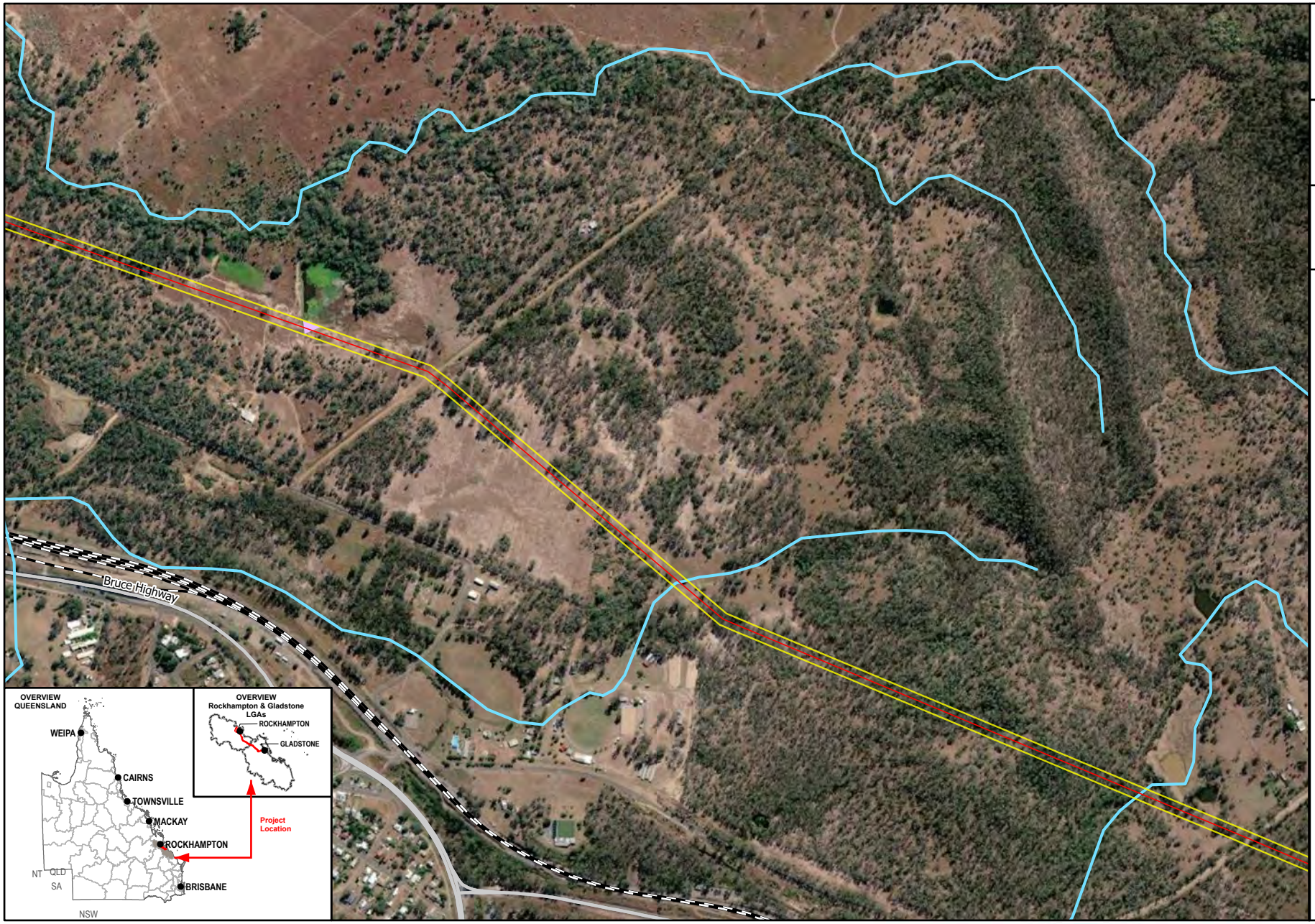
Significance of impact assessment

The project is considered unlikely to result in a significant residual impact on the Australian painted snipe. A significance of impact assessment of the project on the Australian painted snipe (endangered under the EPBC Act and NC Act) is provided in Table 7-31.

Table 7-31 Significance of impact on the Australian painted snipe

Significant residual impact criteria	Potential to occur
A long-term decrease in the size of a local population	**Unlikely** The Australian painted snipe is not considered to have a limited geographic distribution as it occurs within suitable habitat in all states and territories, although the Murray Darling Basin is considered a stronghold. There are no records for the species directly within SGIC SDA pipeline alignment; however, there are records within the greater Gladstone and Rockhampton region. Given the irregularity of records, there does not appear to be a resident local population and individuals sighted are likely transient. As such, the removal of 13.55 ha of potential habitat identified within the disturbance footprint is highly unlikely to lead to a long-term decrease in the size of the species' population.
Reduce the extent of occurrence of the species	**Unlikely** Occurrence of the species within the SGIC SDA pipeline alignment has not been recorded; however, records in the greater area are variable temporally and spatially. The species has irregular movements almost continent wide, and individuals likely access suitable foraging habitat based on availability. As such, the removal of 13.55 ha of potential habitat is unlikely to reduce the extent of occurrence of the species. Although the removal of habitat may marginally reduce availability of resources at a local scale, the habitat impacted by the project is not considered likely to reduce the extent of occurrence of the species within the greater landscape or subregion.
Fragment an existing population	**Unlikely** A maximum width of 30 m will be cleared for construction of the SGIC SDA pipeline alignment, with 20 m to be rehabilitated after the pipeline has been installed and buried. As the SGIC SDA pipeline alignment is narrow and linear and the Australian painted snipe is highly mobile, the project is unlikely to fragment the Australian painted snipe population.

Significant residual impact criteria	Potential to occur
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** The species' capacity to move locally and regionally is unlikely to be limited by any localised land clearing necessary to construct the SGIC SDA pipeline alignment. As a result, the project is not considered to cause any loss of gene transfer that would cause genetically distinct populations to form.
Result in invasive species that are harmful to an endangered species becoming established in the endangered species' habitat	**Unlikely** Numerous invasive weeds and pasture grasses are currently well established within the SGIC SDA pipeline alignment. Implementation of a site-specific Weed and Pest Management Plan will reduce the risk of further weed spread. Therefore, the project is unlikely to result in the establishment of novel invasive species affecting Australian painted snipe habitat.
Introduce disease that may cause the population to decline	**Unlikely** Disease is not listed as a potential threat to the species. The project is unlikely to introduce a disease that may cause the species to decline.
Interfere with the recovery of the species	**Unlikely** Noting the above points relating to very limited if any effects on local populations (e.g. declines), extent of occurrence, fragmentation, invasive species, and disease, the project is not considered likely to interfere with the recovery of the Australian painted snipe.
Result in disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species	**Unlikely** While disturbance to individuals may be experienced during construction, this disturbance will be short-term such that no impact on the lifecycle of this species is anticipated. Furthermore, any disturbance during construction will be highly localised and therefore unlikely to impact ecologically significant locations of a species. This conclusion is based on the small extent of the proposed impact. Similarly, owing to the narrow clearing extent, food resources in the local landscape for the species areunlikely to be substantially reduced and movement patterns are not anticipated to be impacted as there will be no functional disruption in habitat connectivity.
Conclusion	The project is unlikely to result in a significant residual impact on the Australian painted snipe. The project will result in a loss (13.55 ha) of potentially suitable foraging habitat for the Australian painted snipe; however, due to the narrow clearing extent, food resources in the local landscape for the species areunlikely to be substantially reduced and movement patterns are not anticipated to be impacted as there will be no functional disruption in habitat connectivity.



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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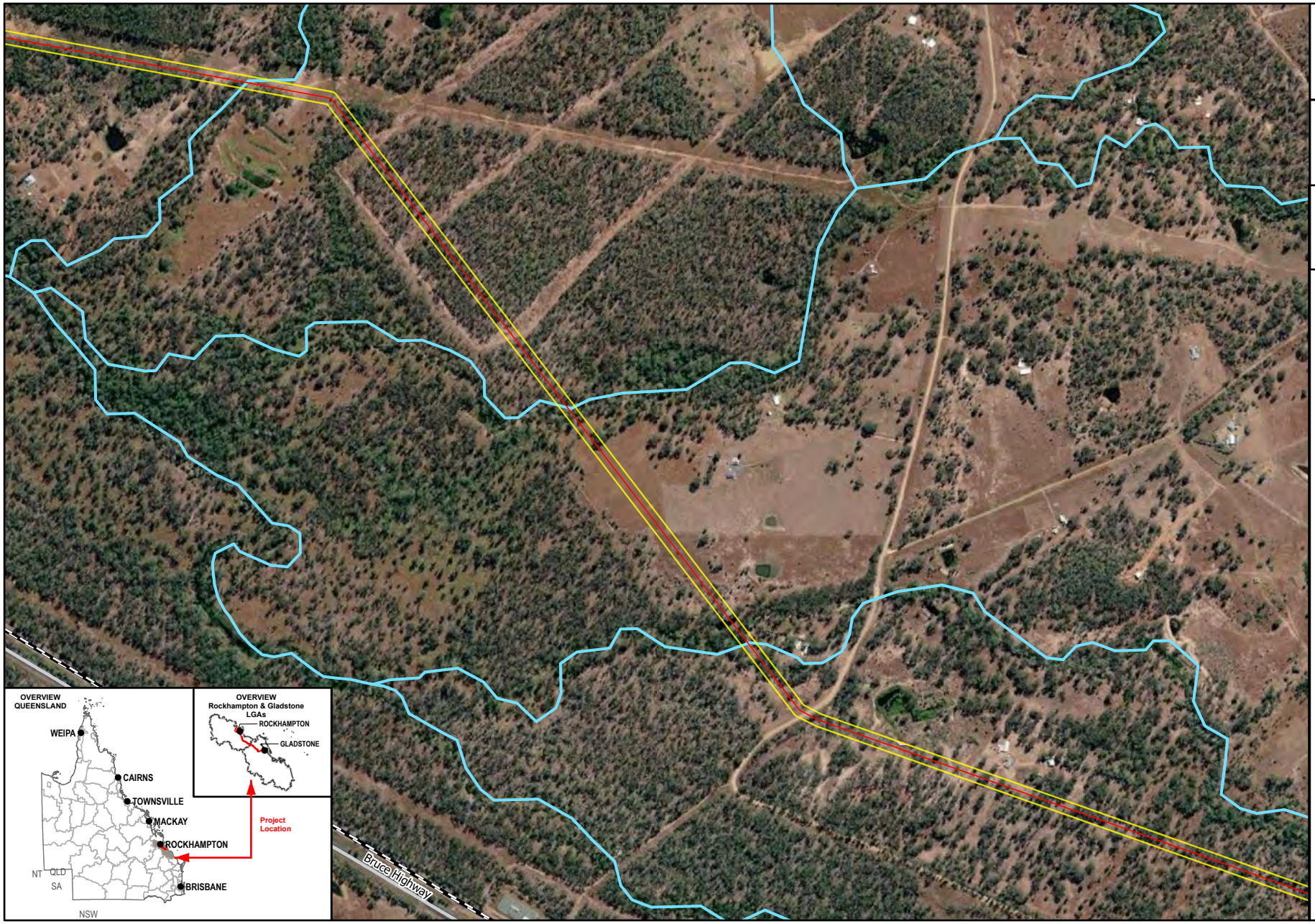
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18a
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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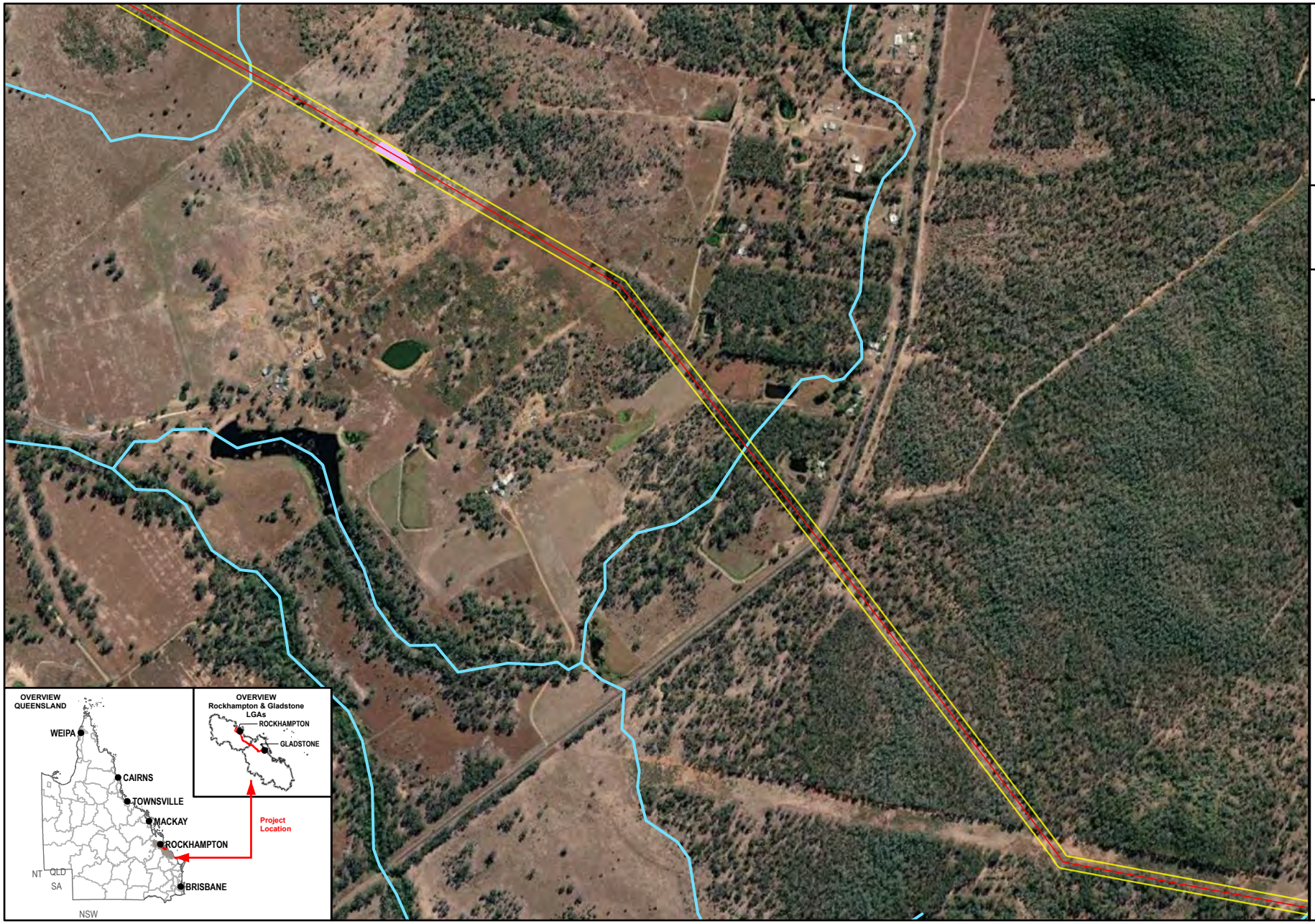
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18b
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways

Data Sources:
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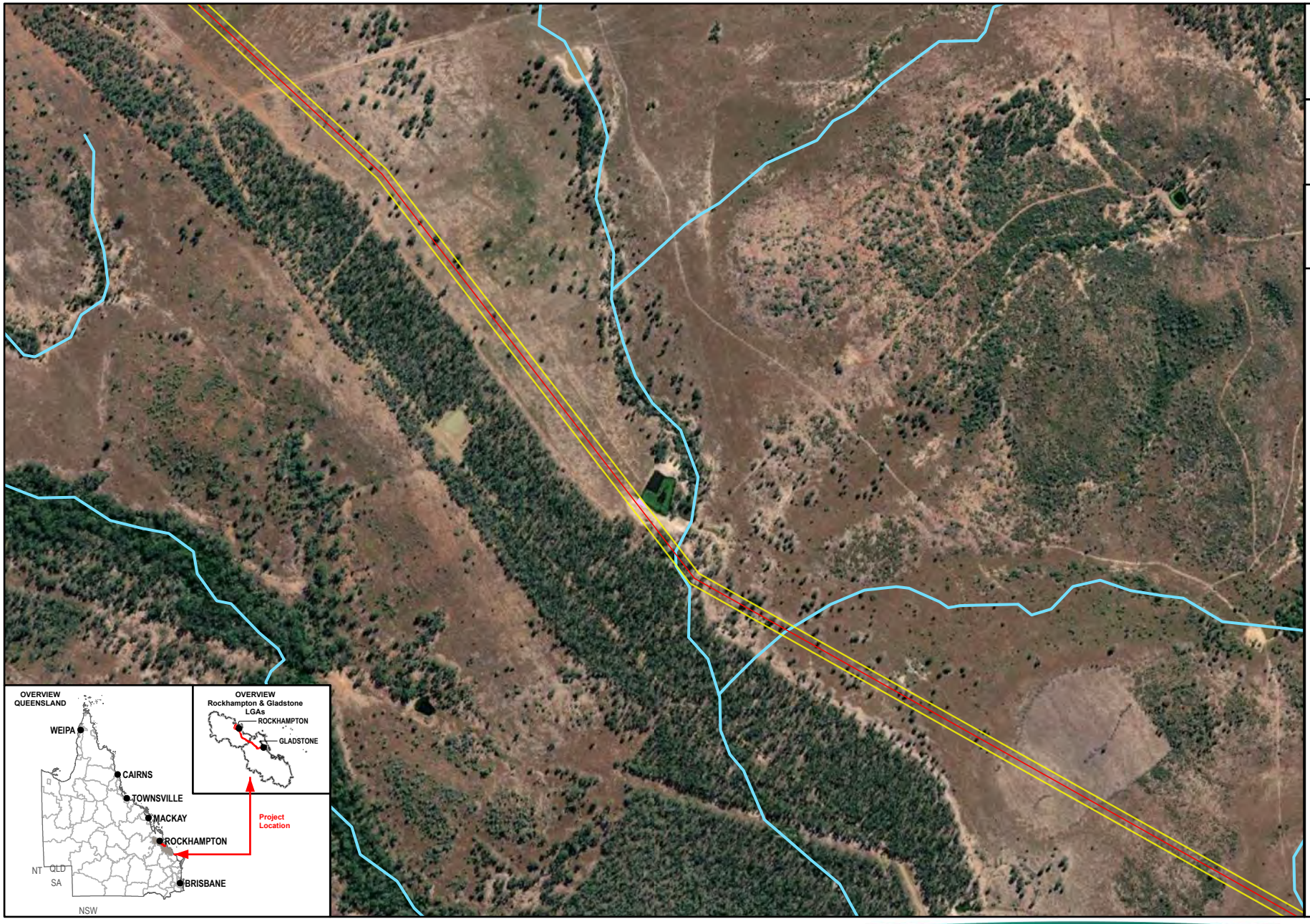
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18c
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways

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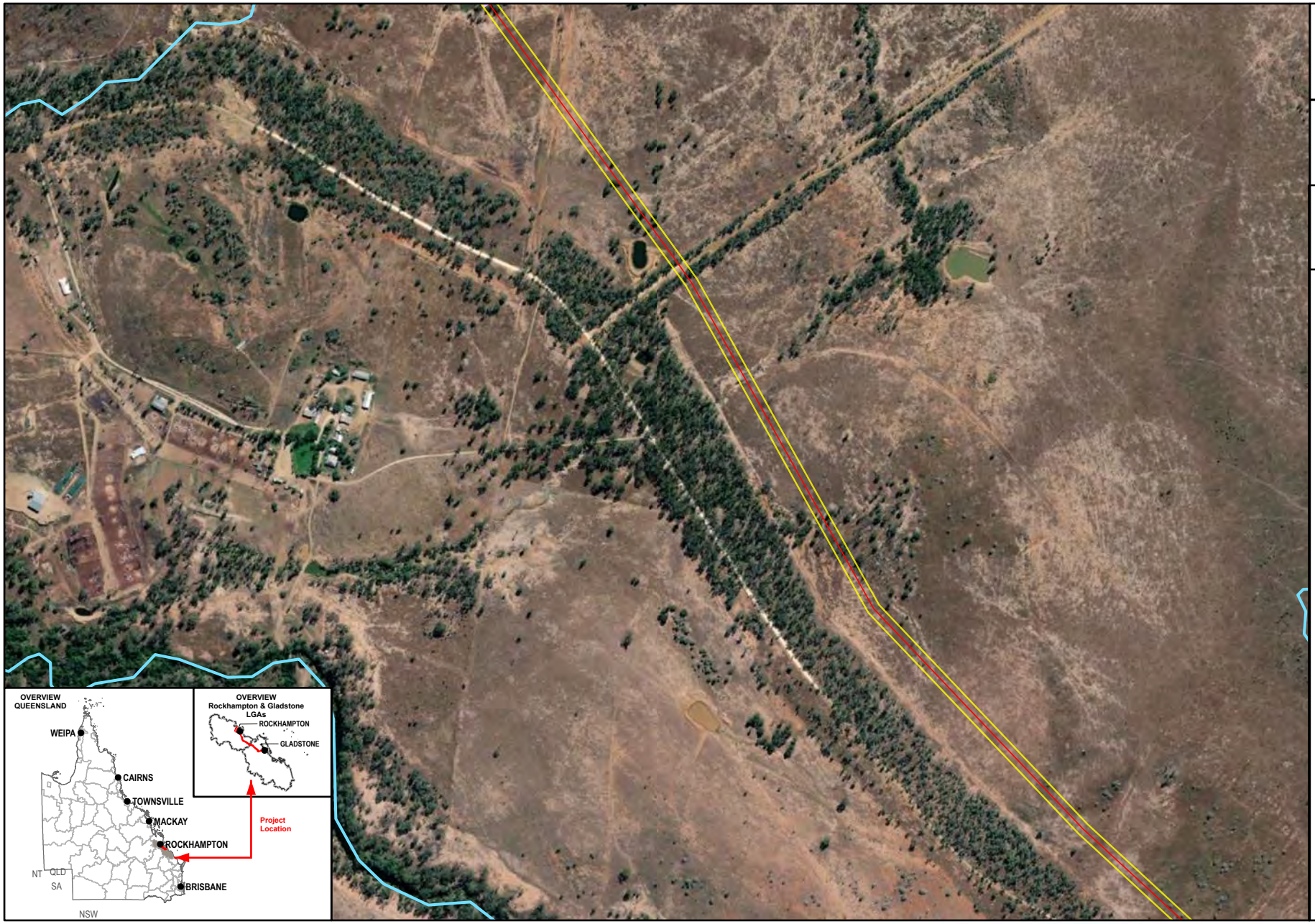
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18d
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways

Data Sources:
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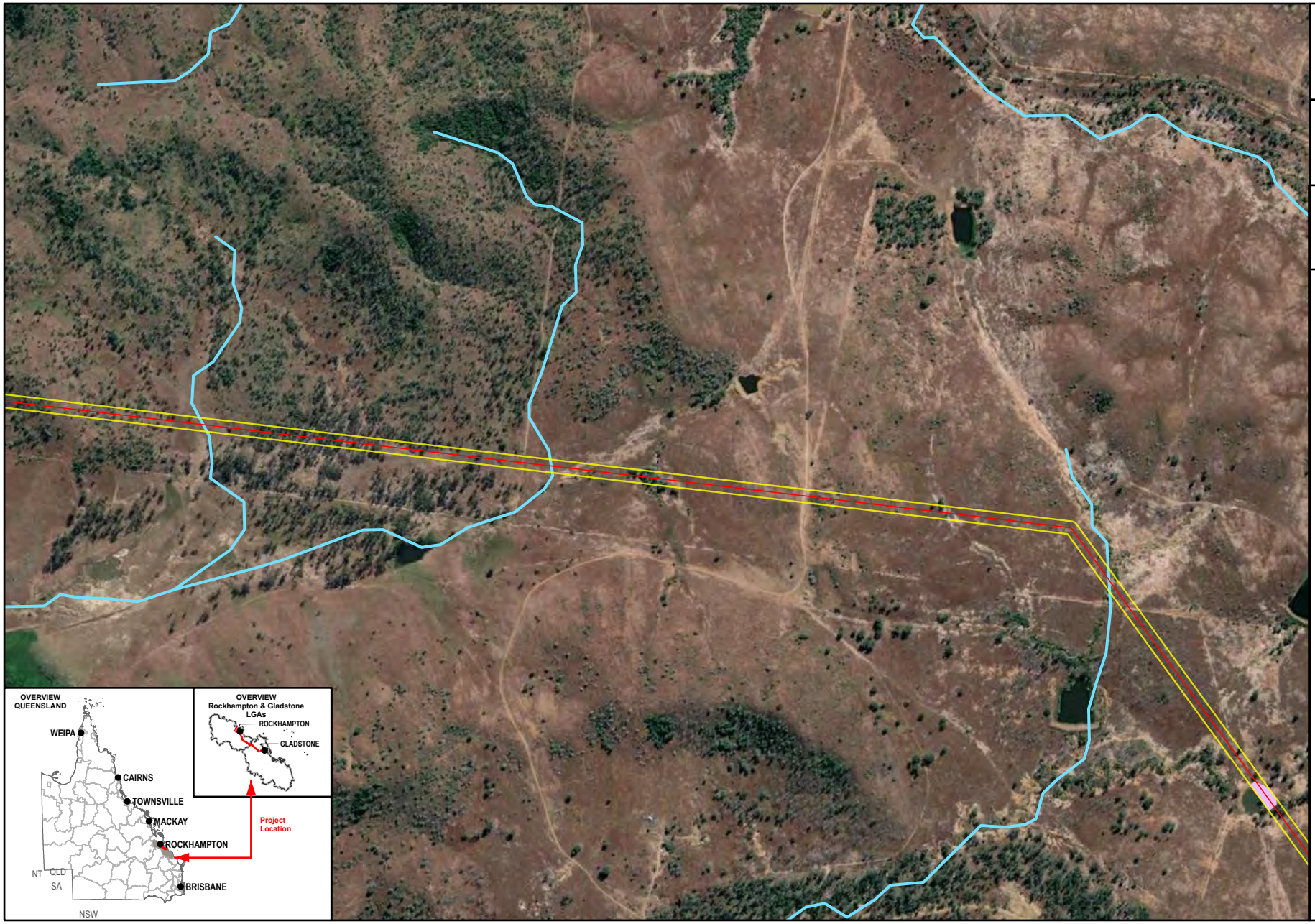
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18e
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways

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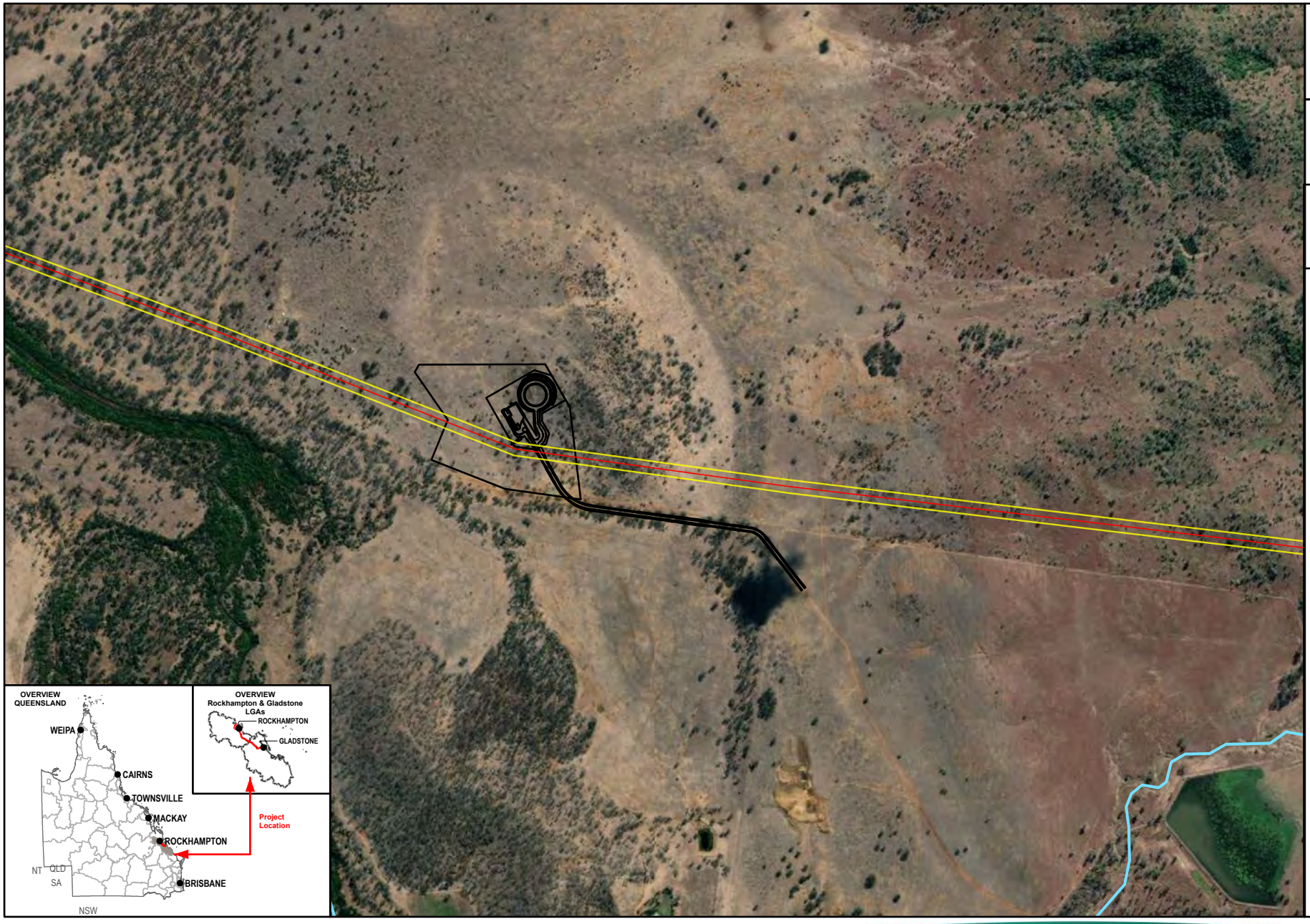
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18f
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Raglan Pump Station and Reservoir Layout
- Waterways

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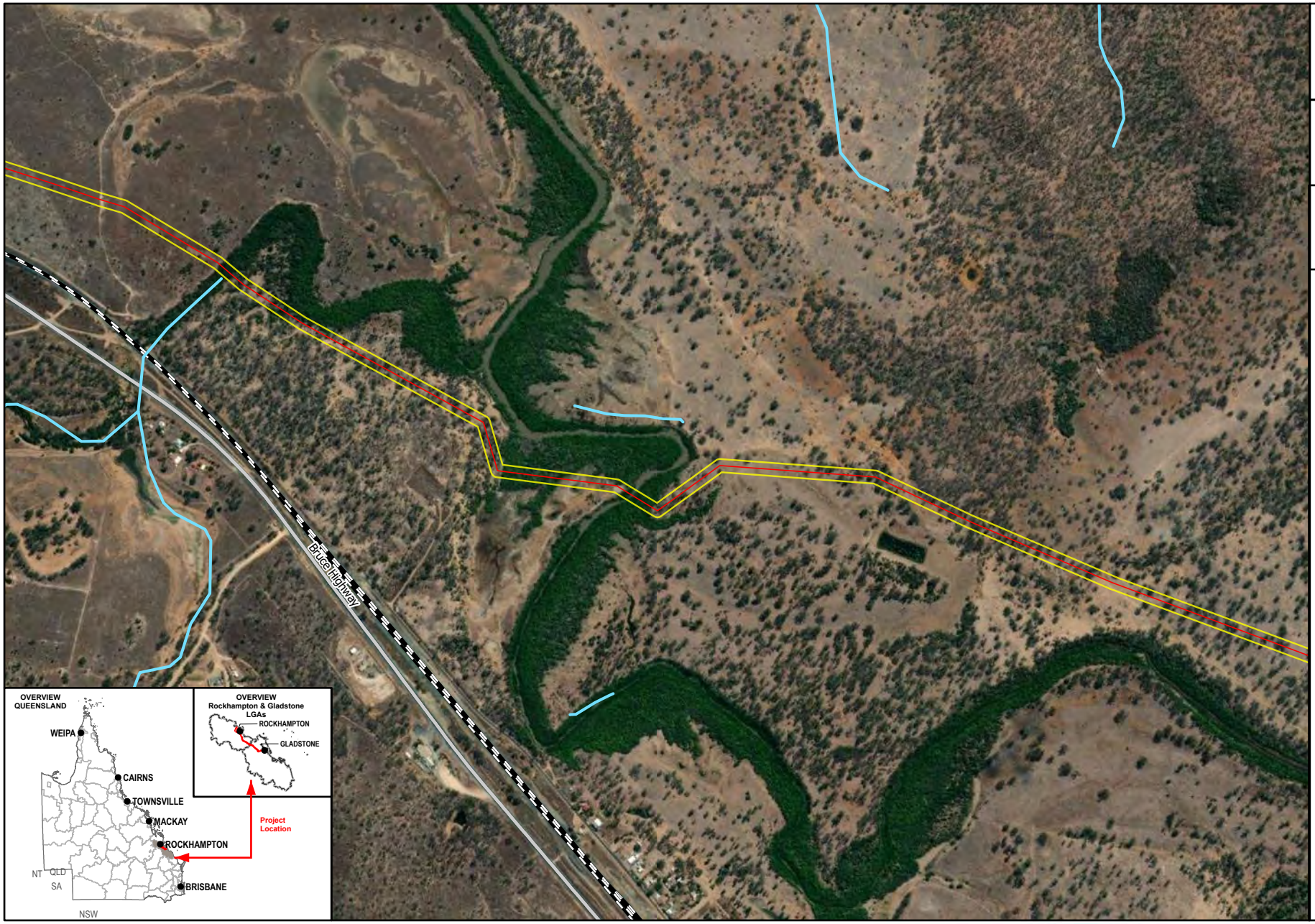
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18g
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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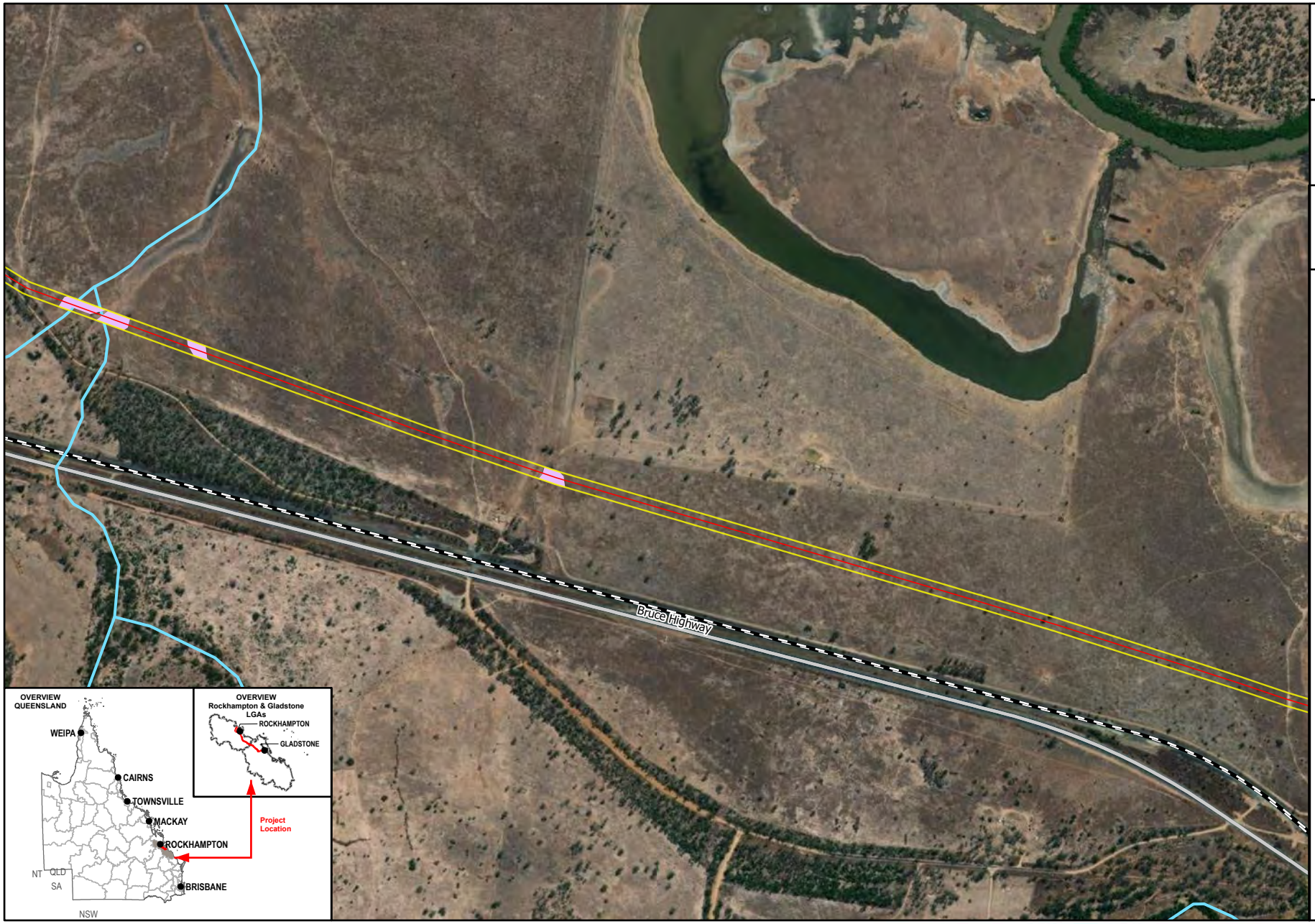
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18h
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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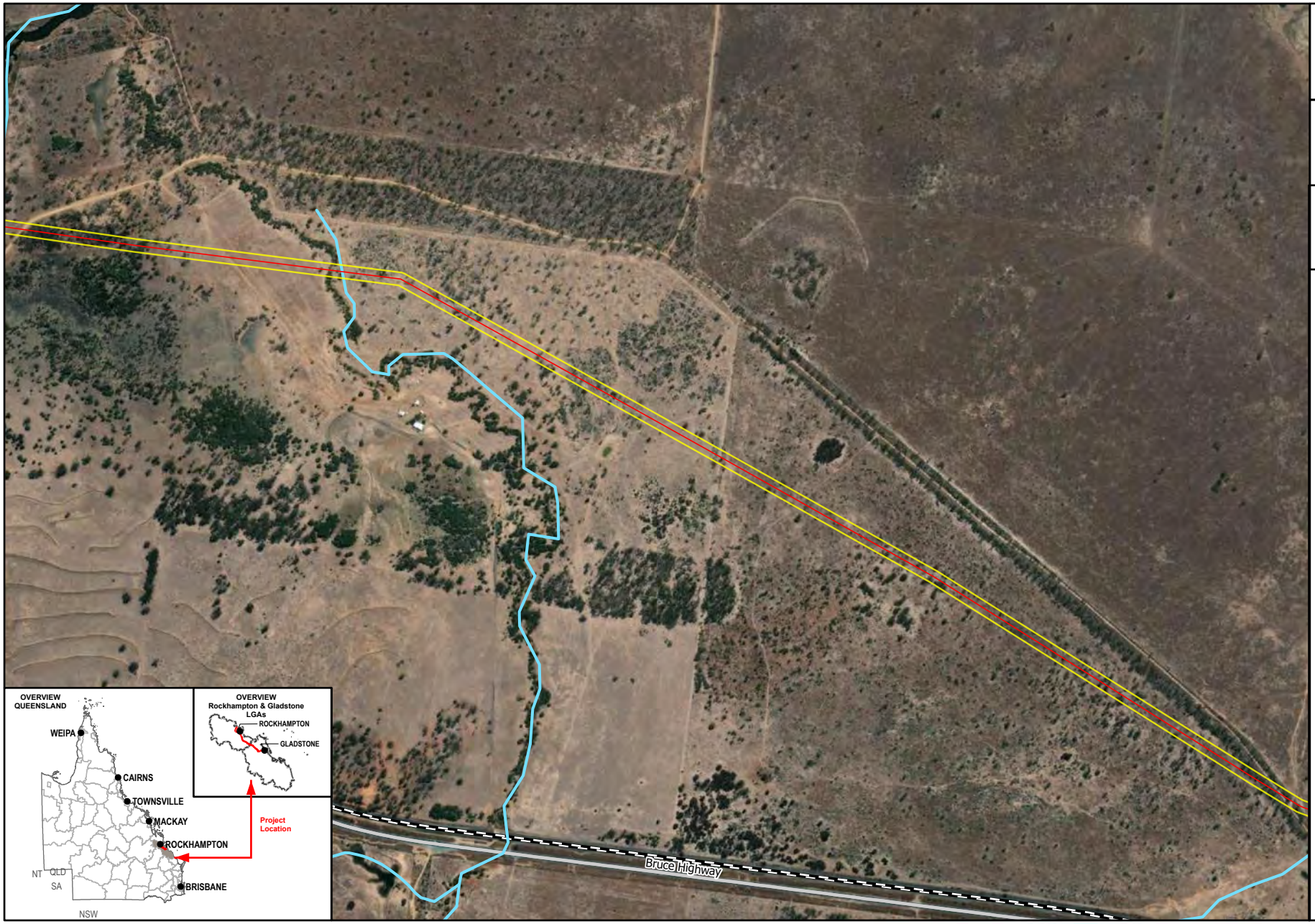
Figure 7-18i
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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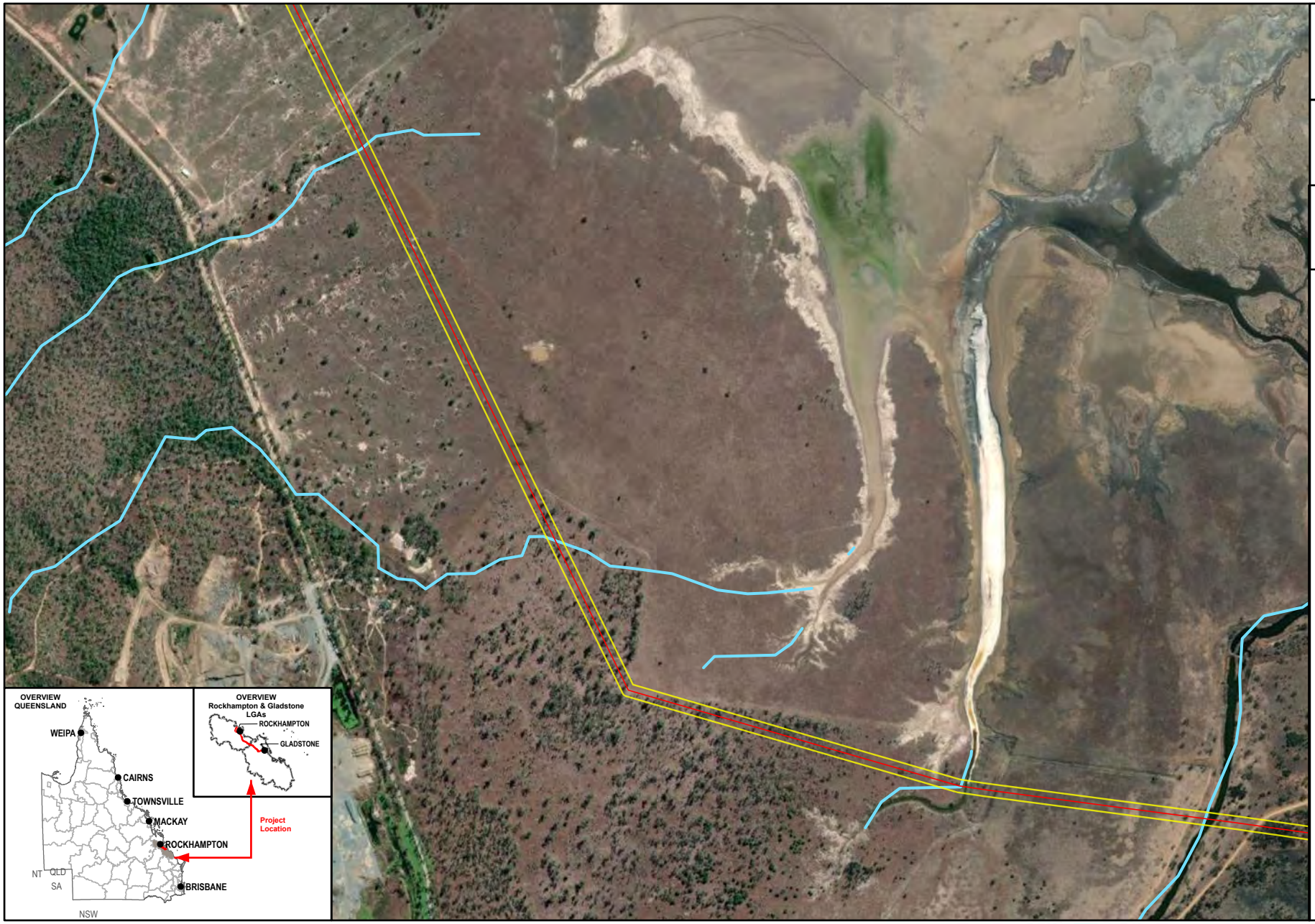
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18j
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Fitzroy to Gladstone Pipeline
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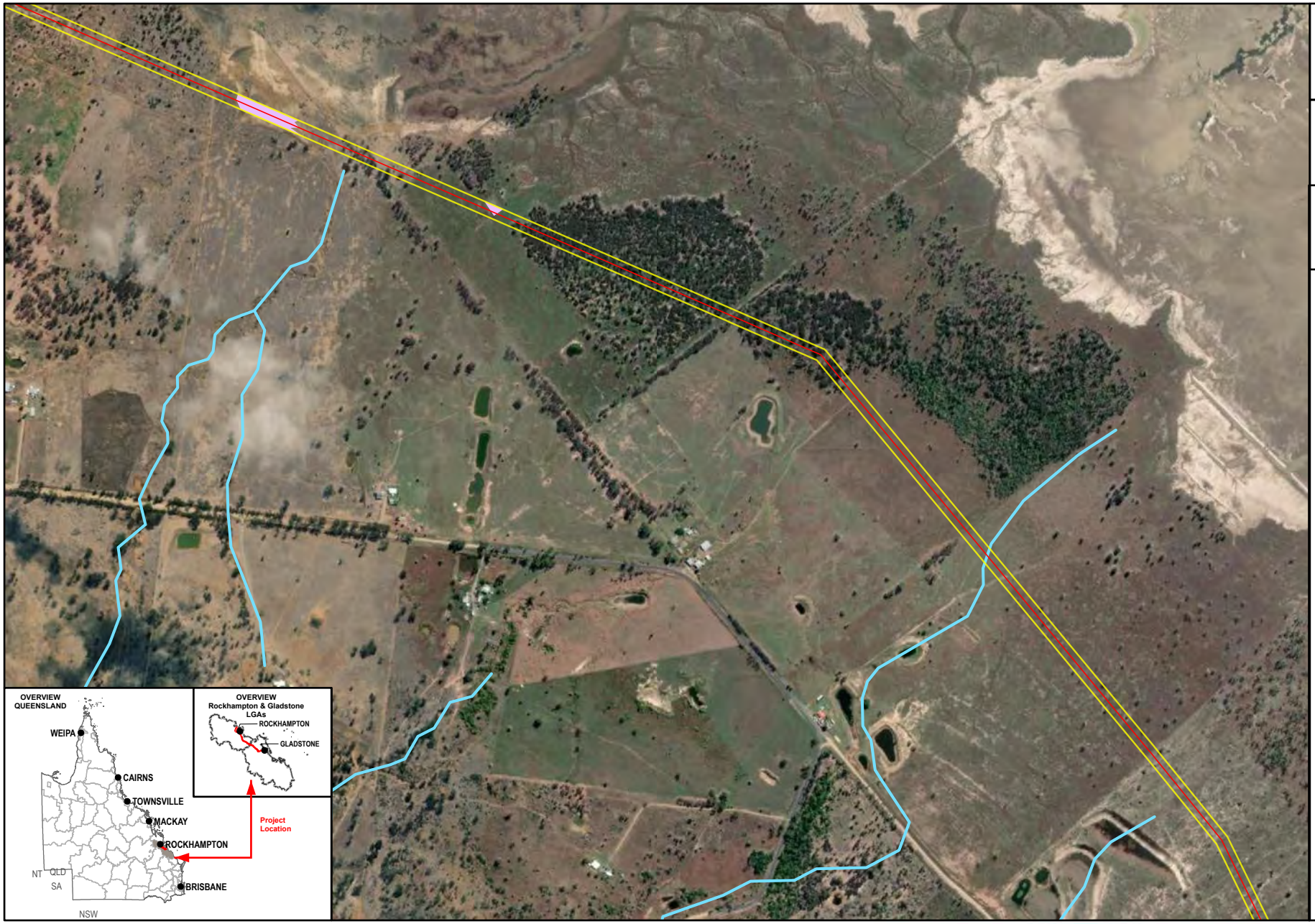
Figure 7-18k
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
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PROJECTION UTM Zone 56
(Datum GDA2020)

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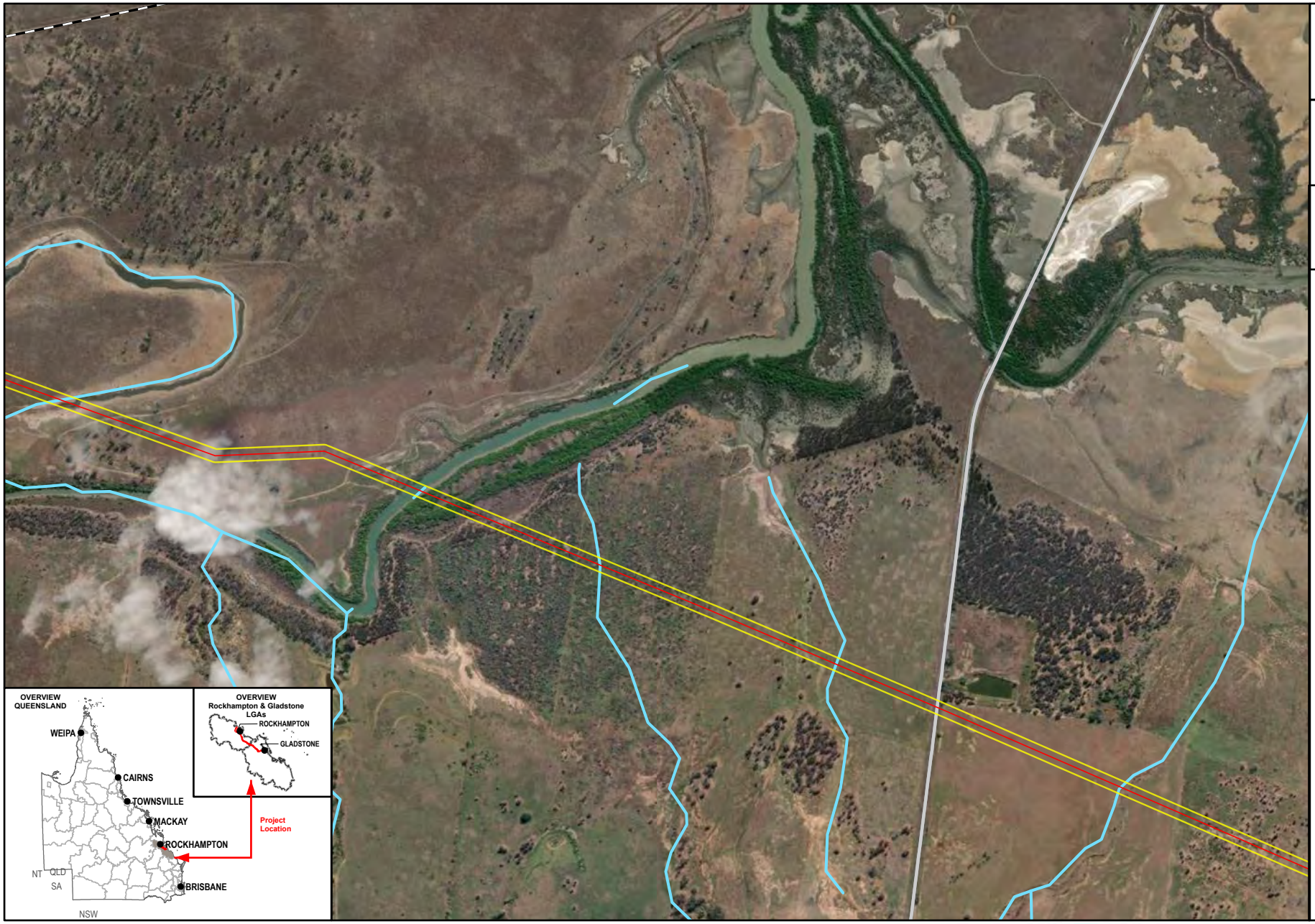
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18l
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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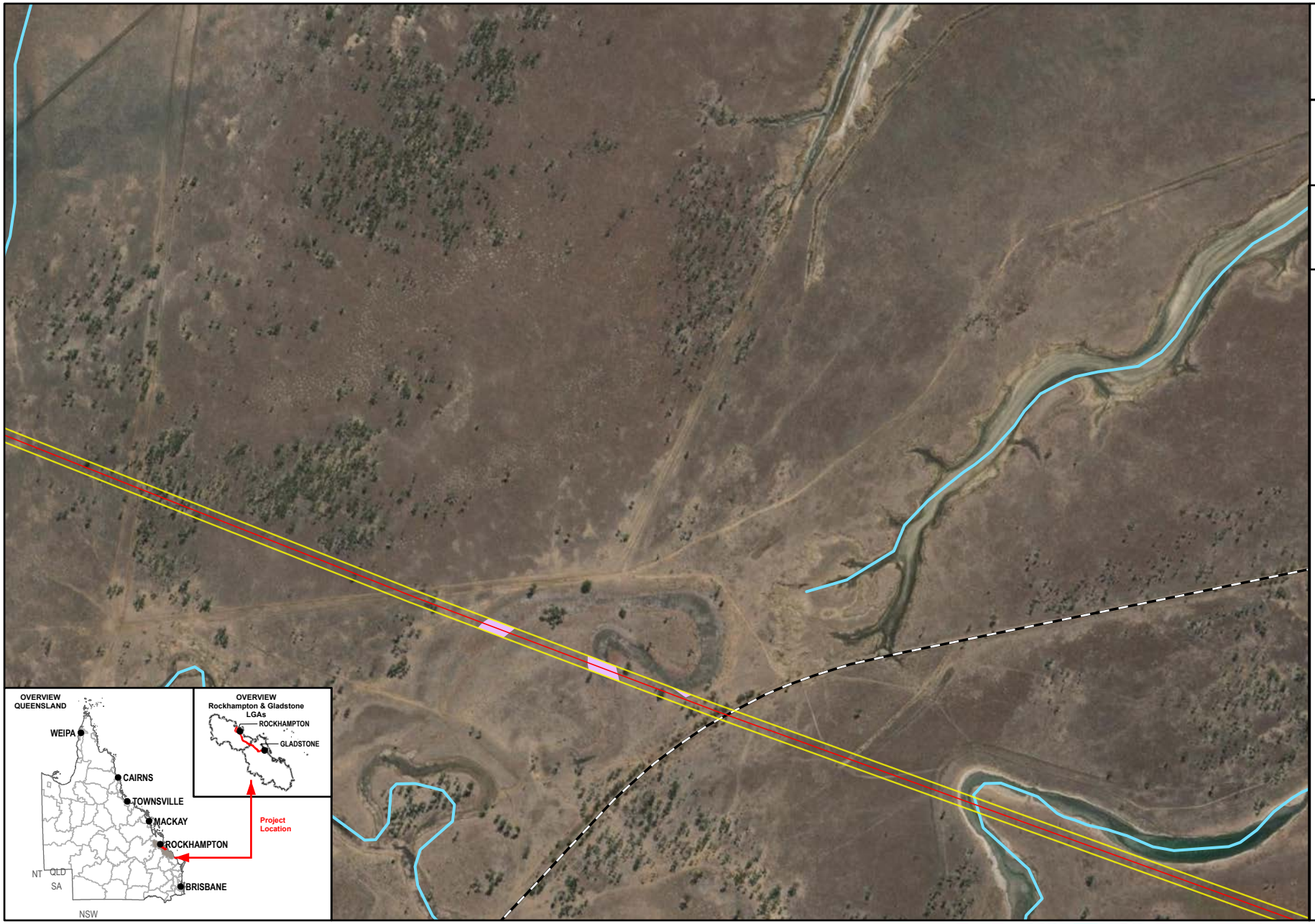
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18m
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Railways

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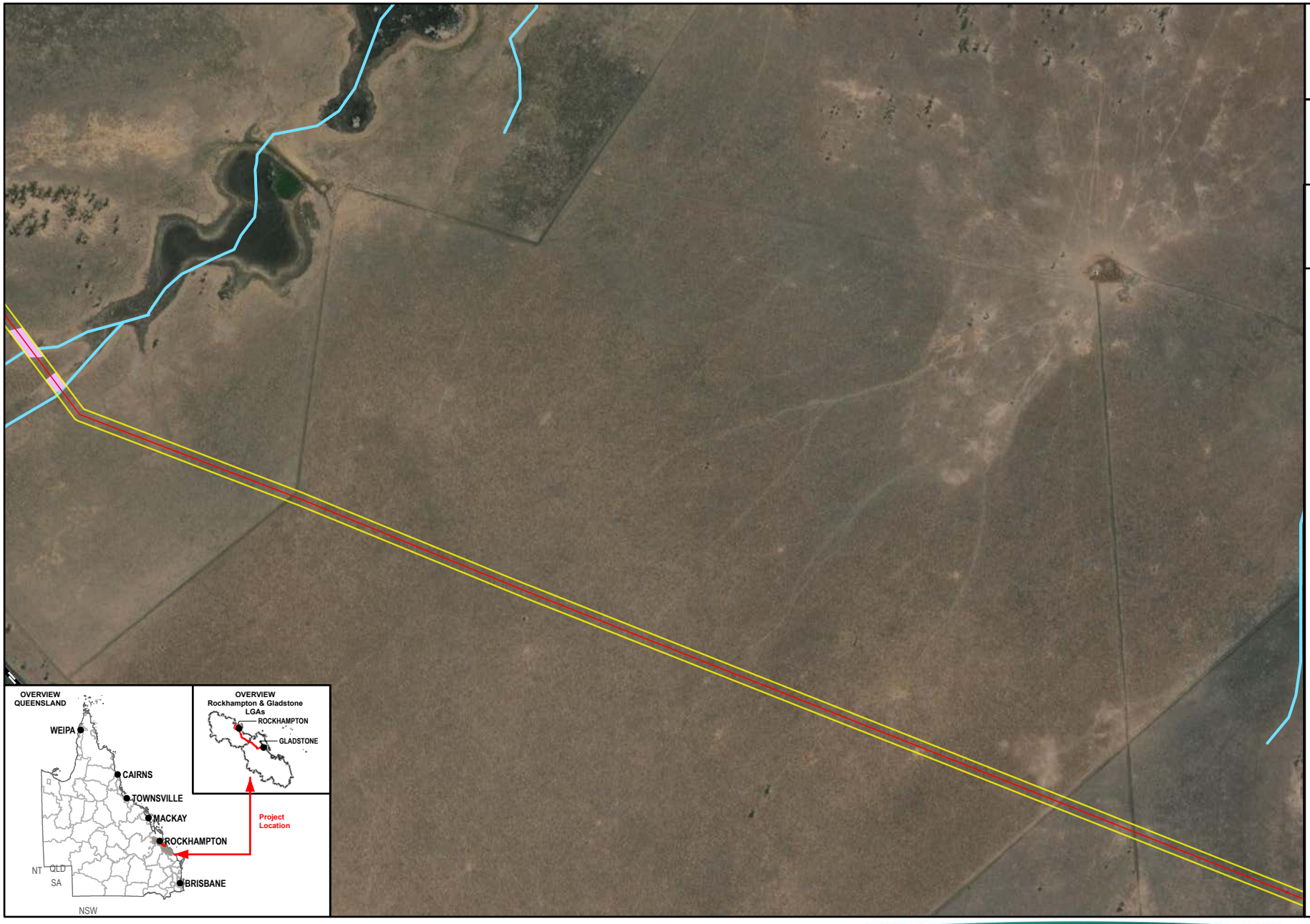
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18n
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
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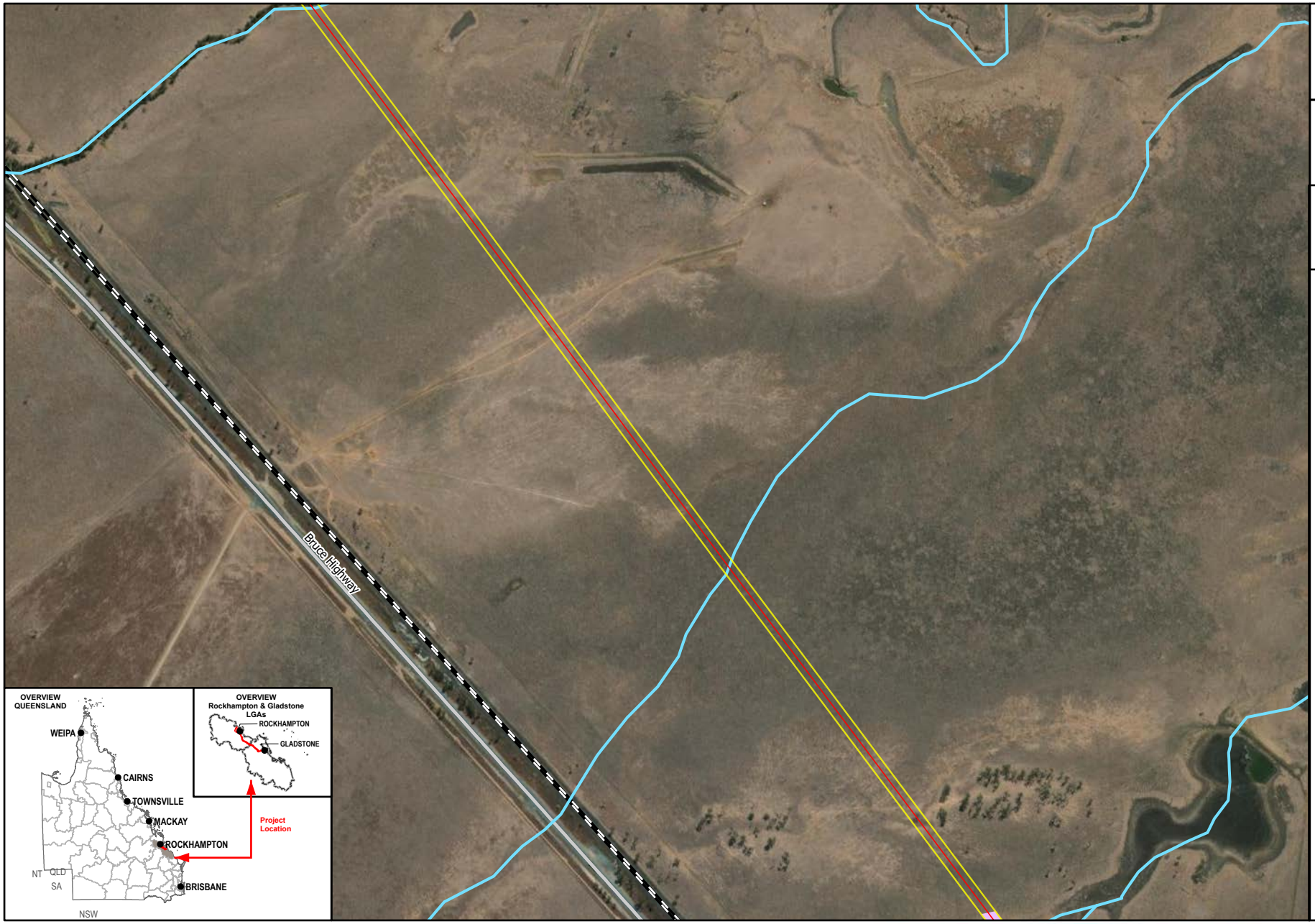
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18o
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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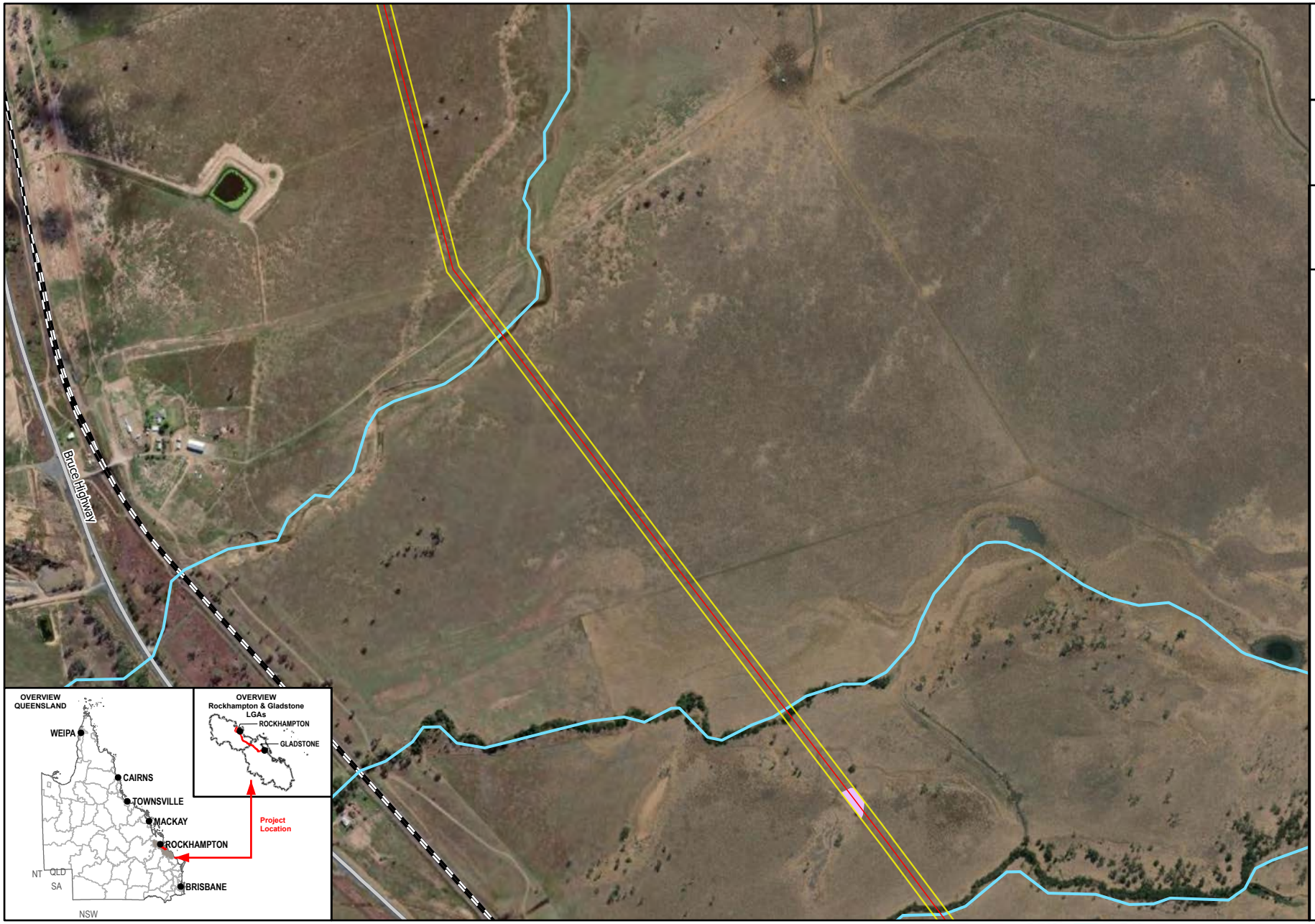
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18p
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
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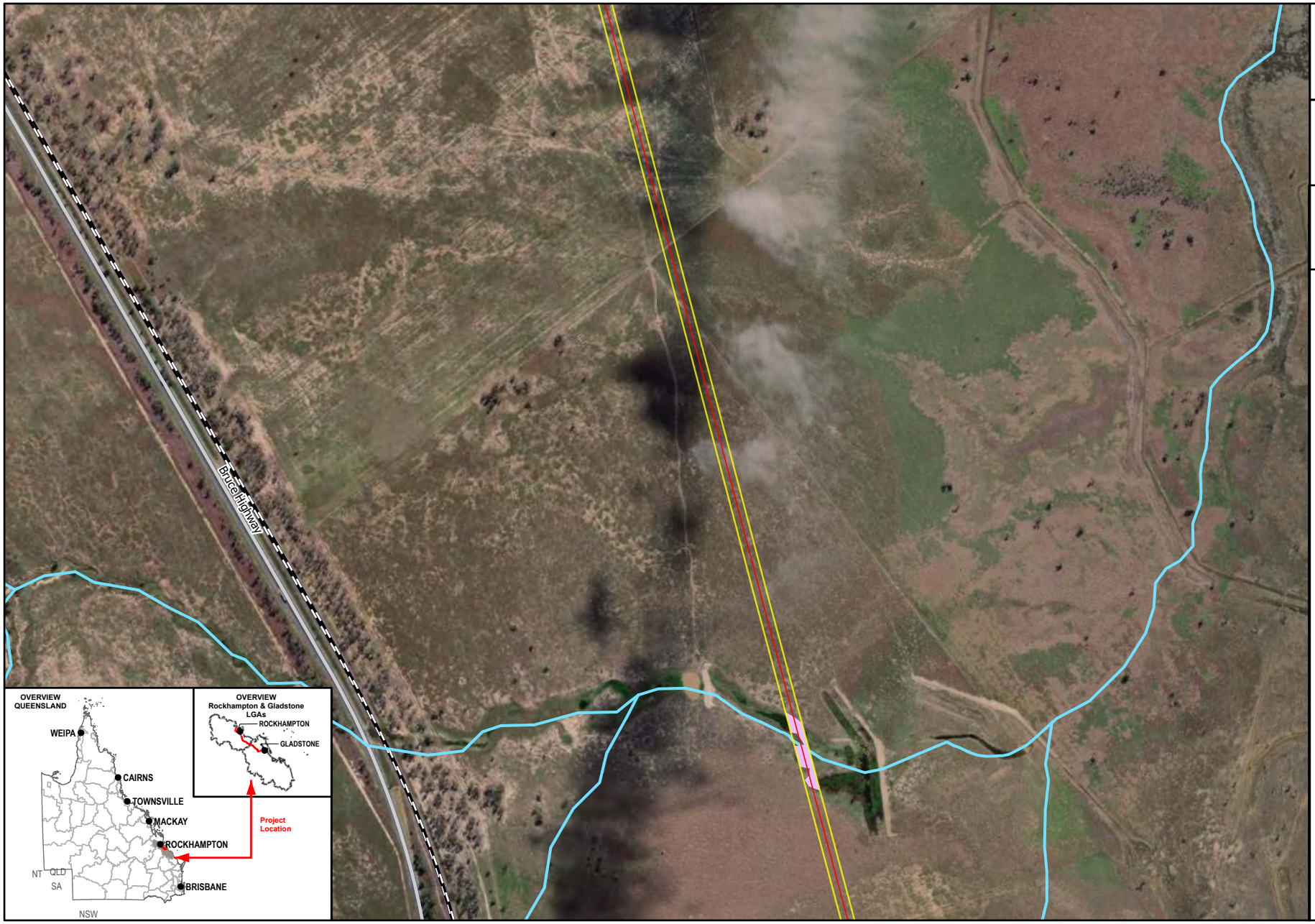
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18q
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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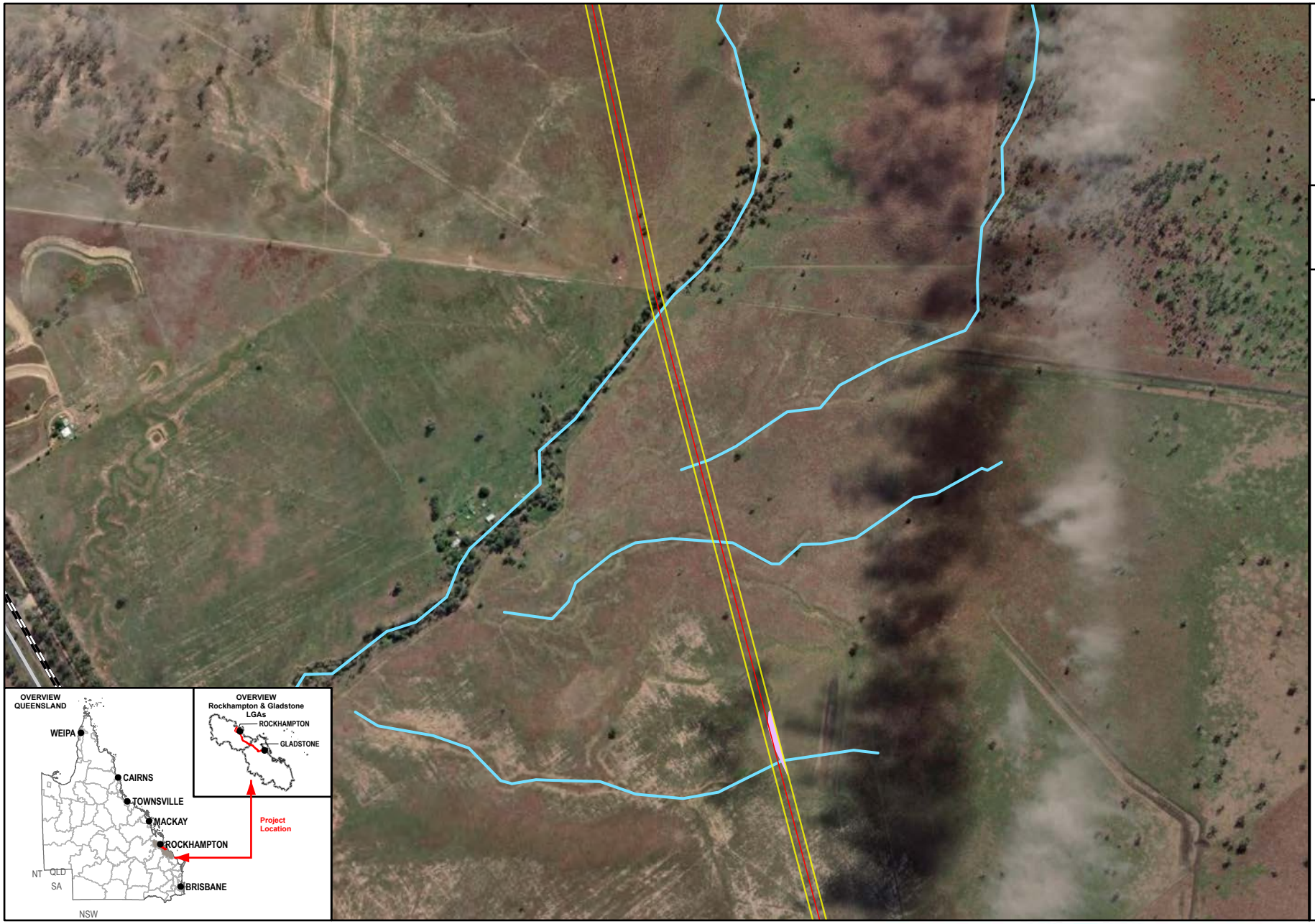
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18r
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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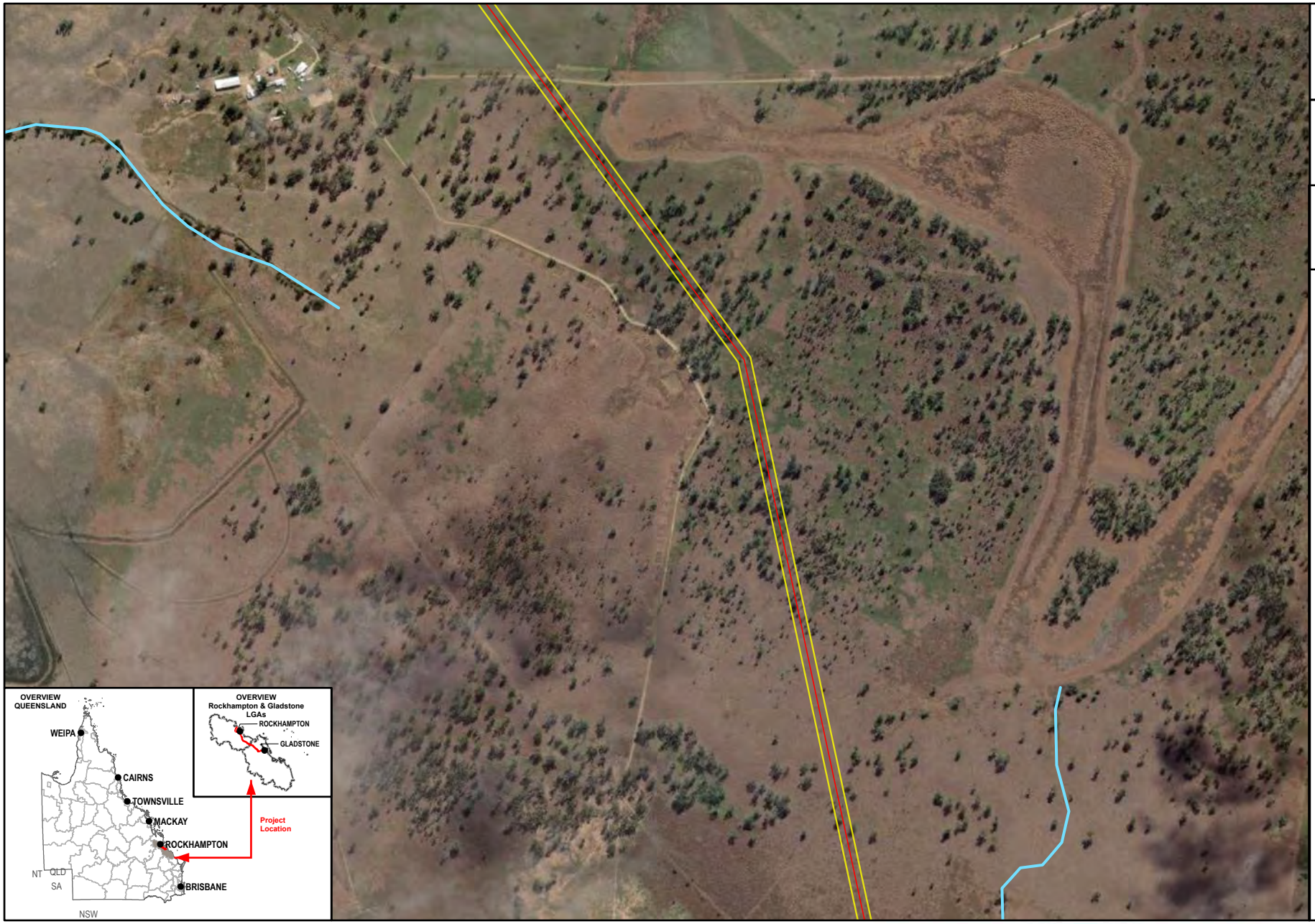
Figure 7-18s
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

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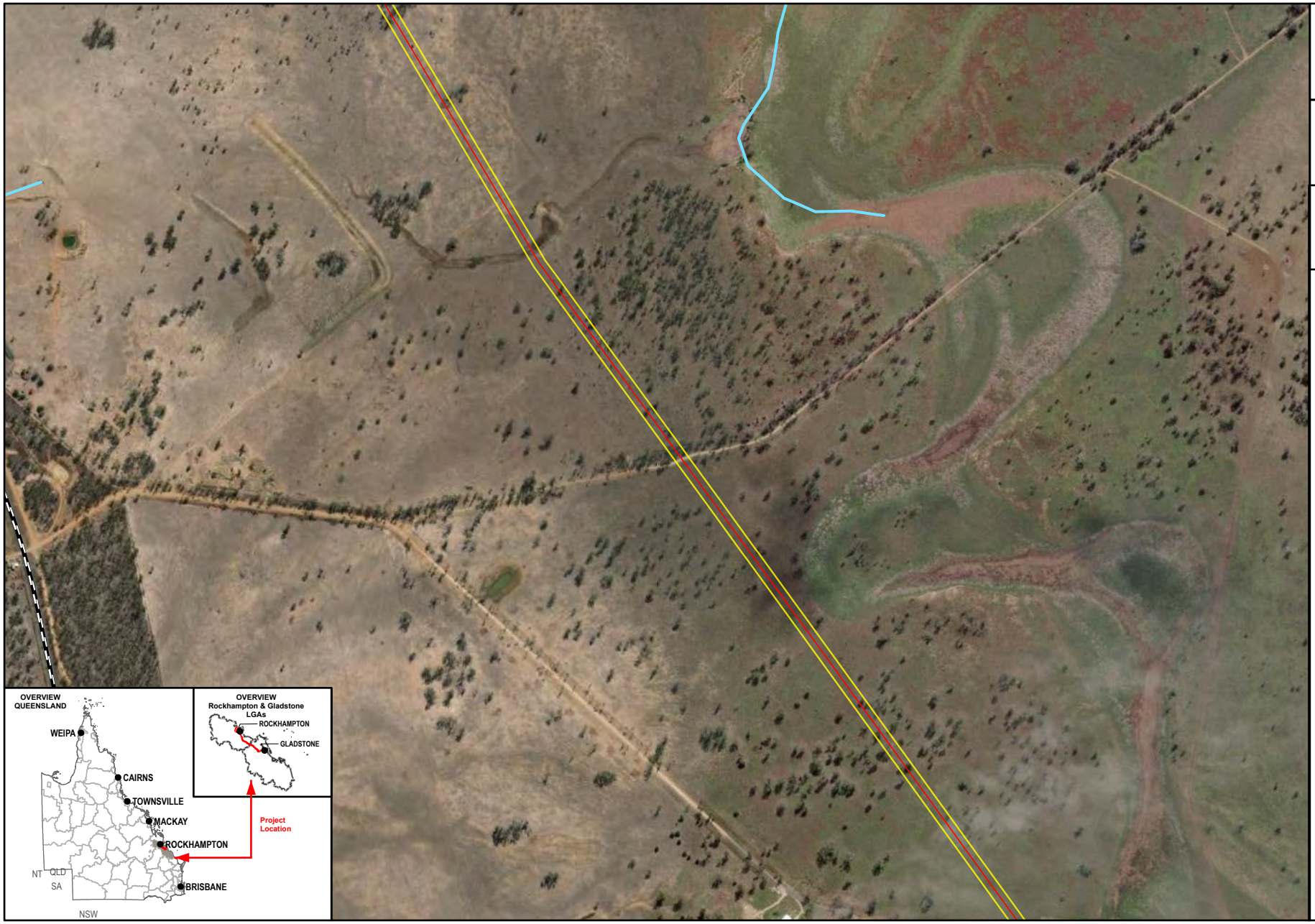
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18t
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
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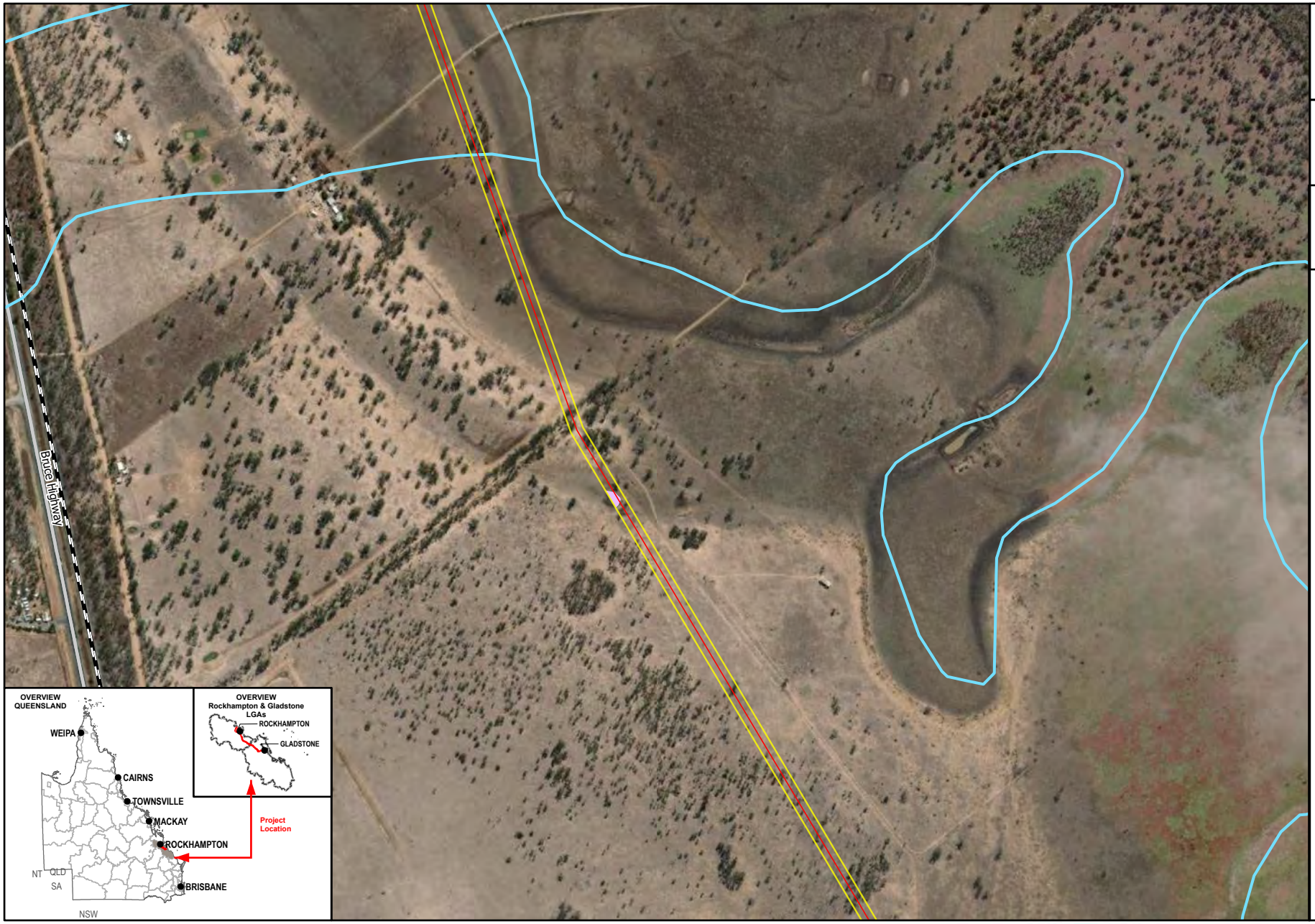
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18u
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
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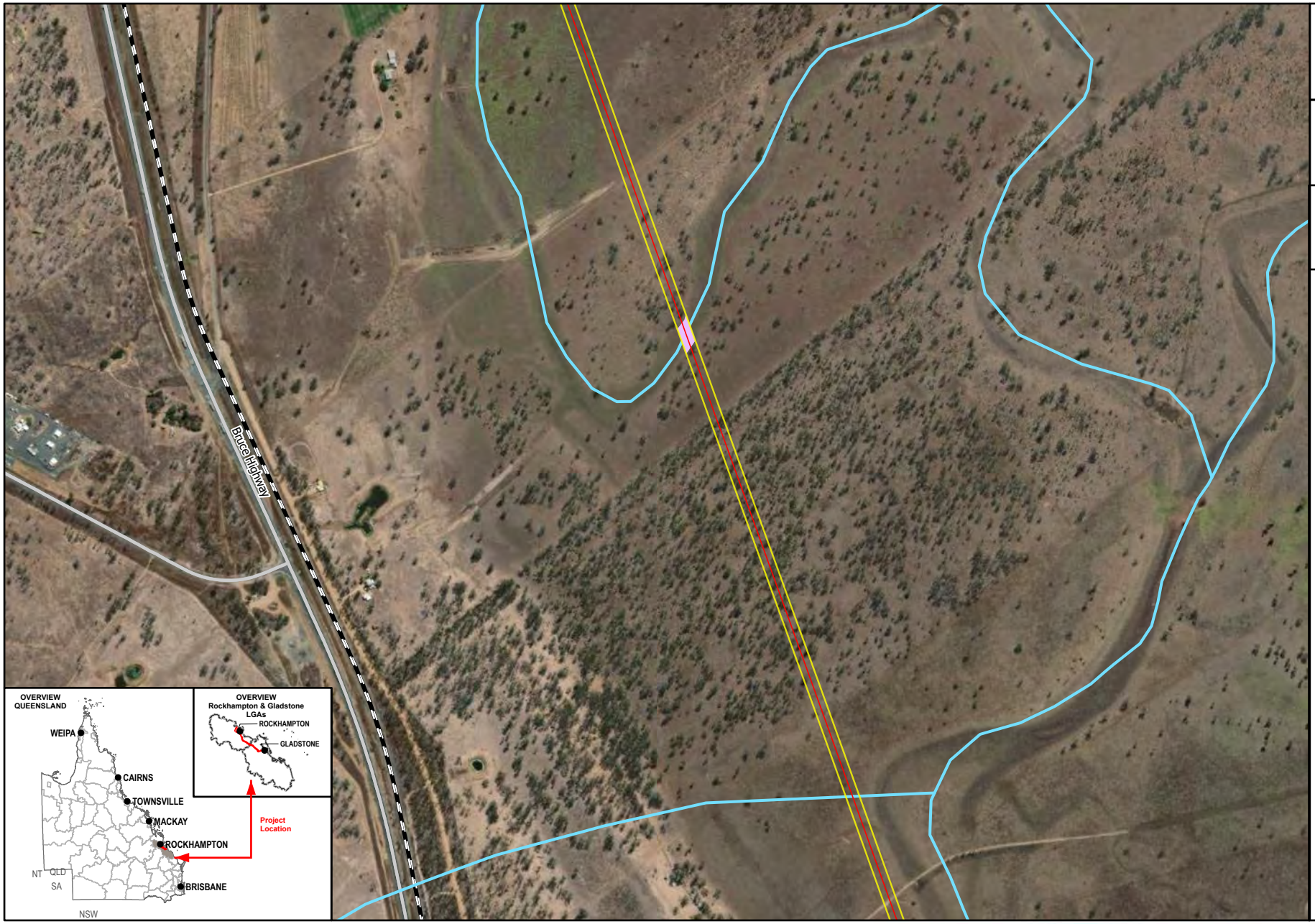
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18v
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
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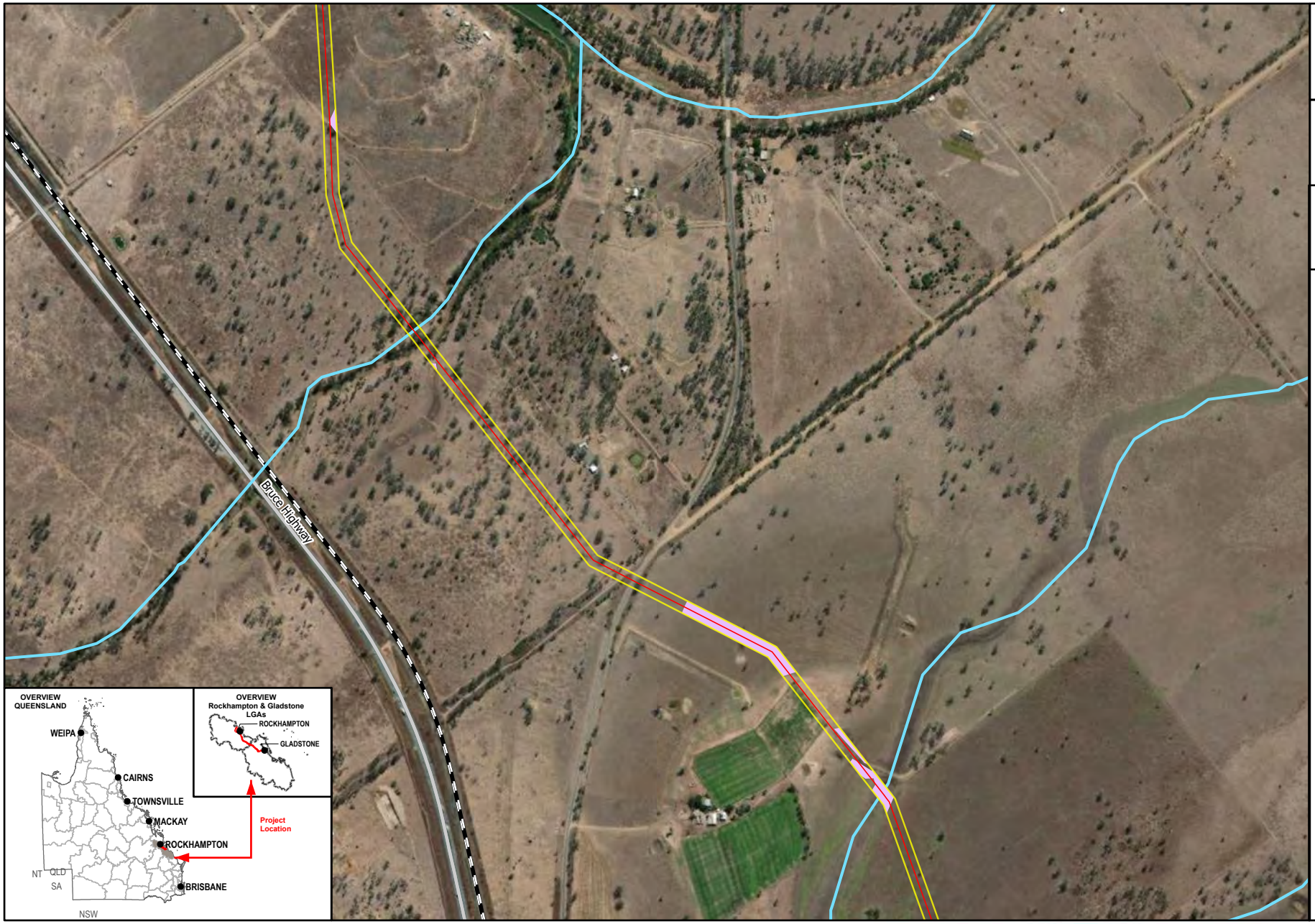
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18w
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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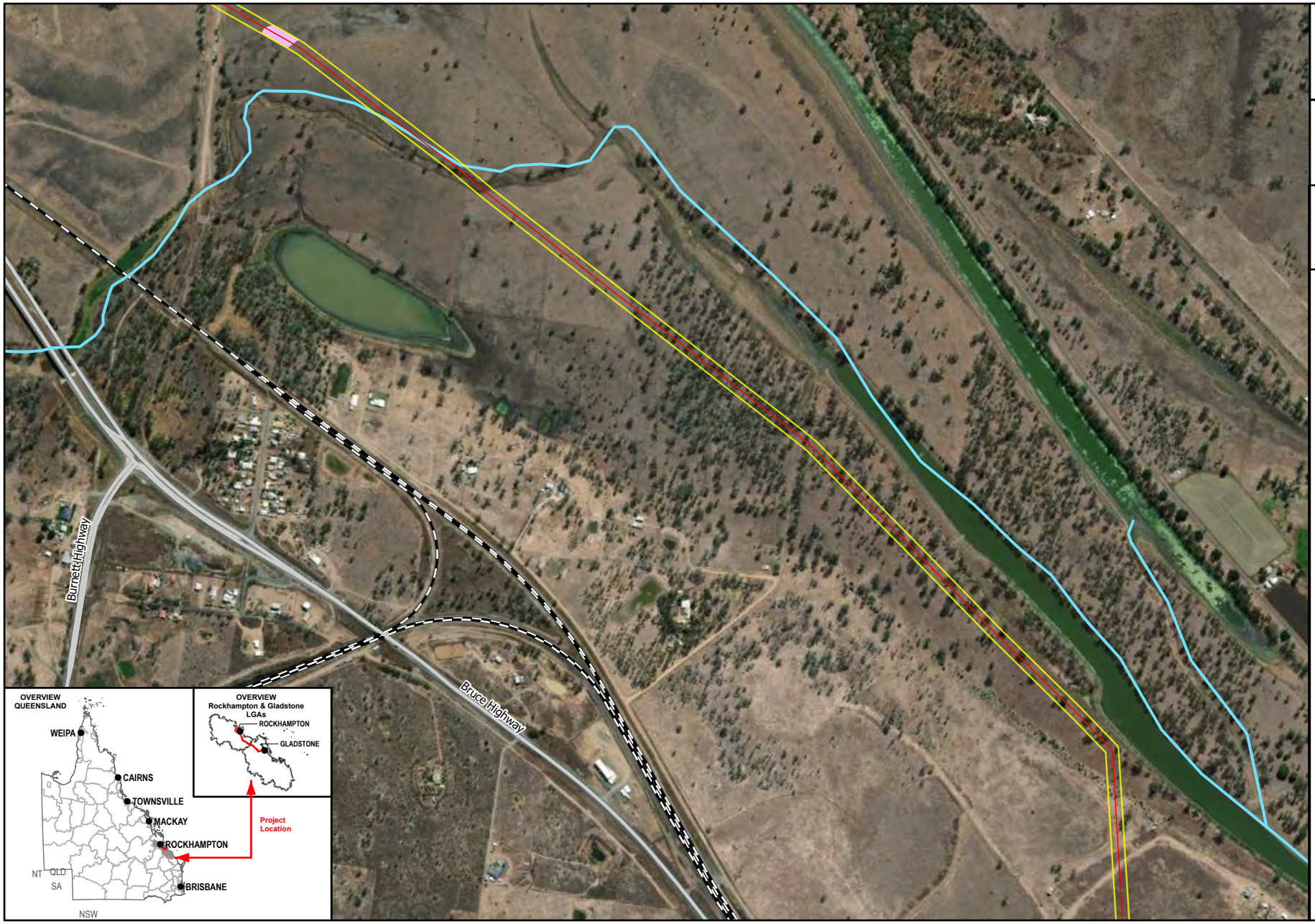
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18x
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
- Railways

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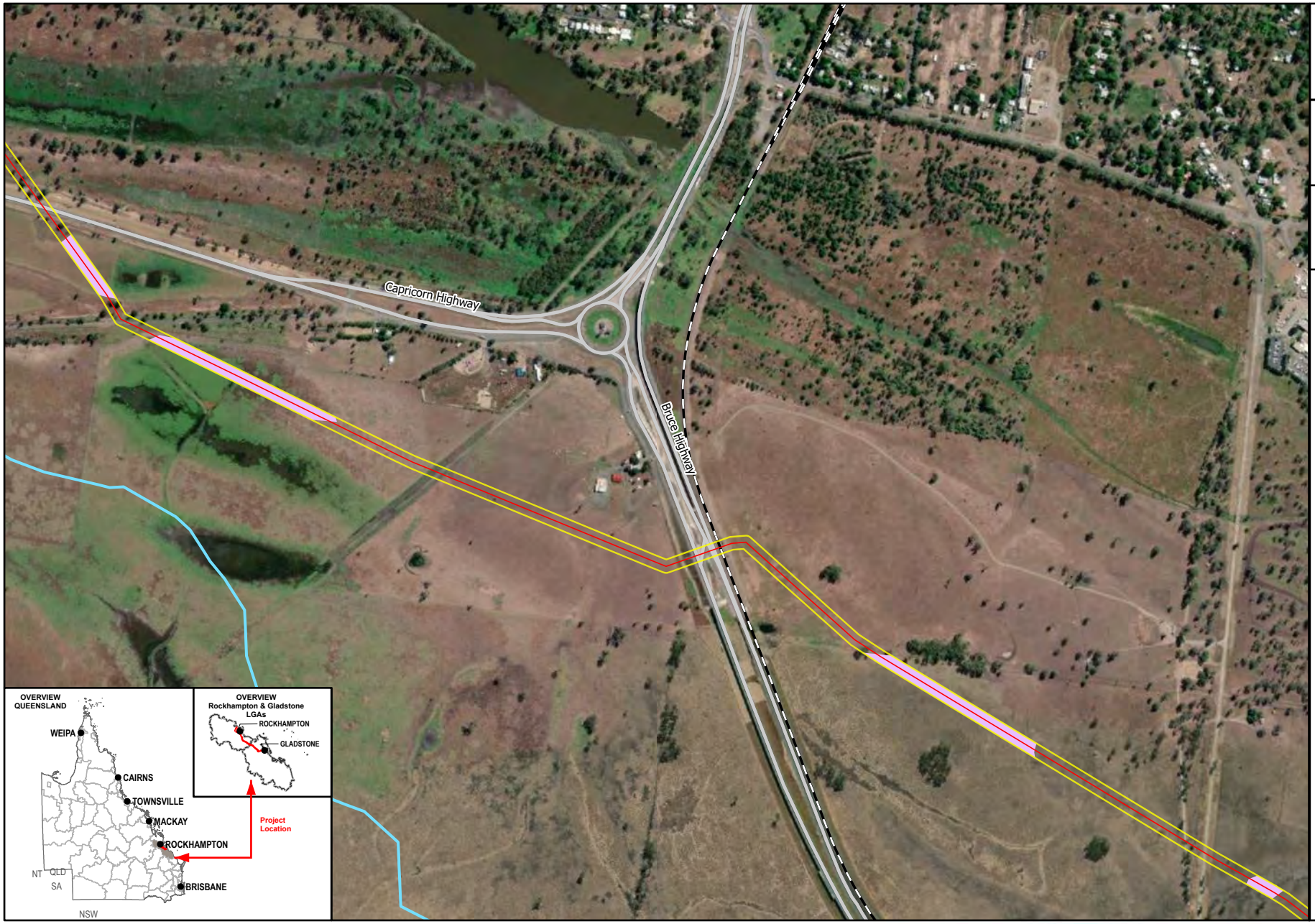
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18y
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways
- Main Roads
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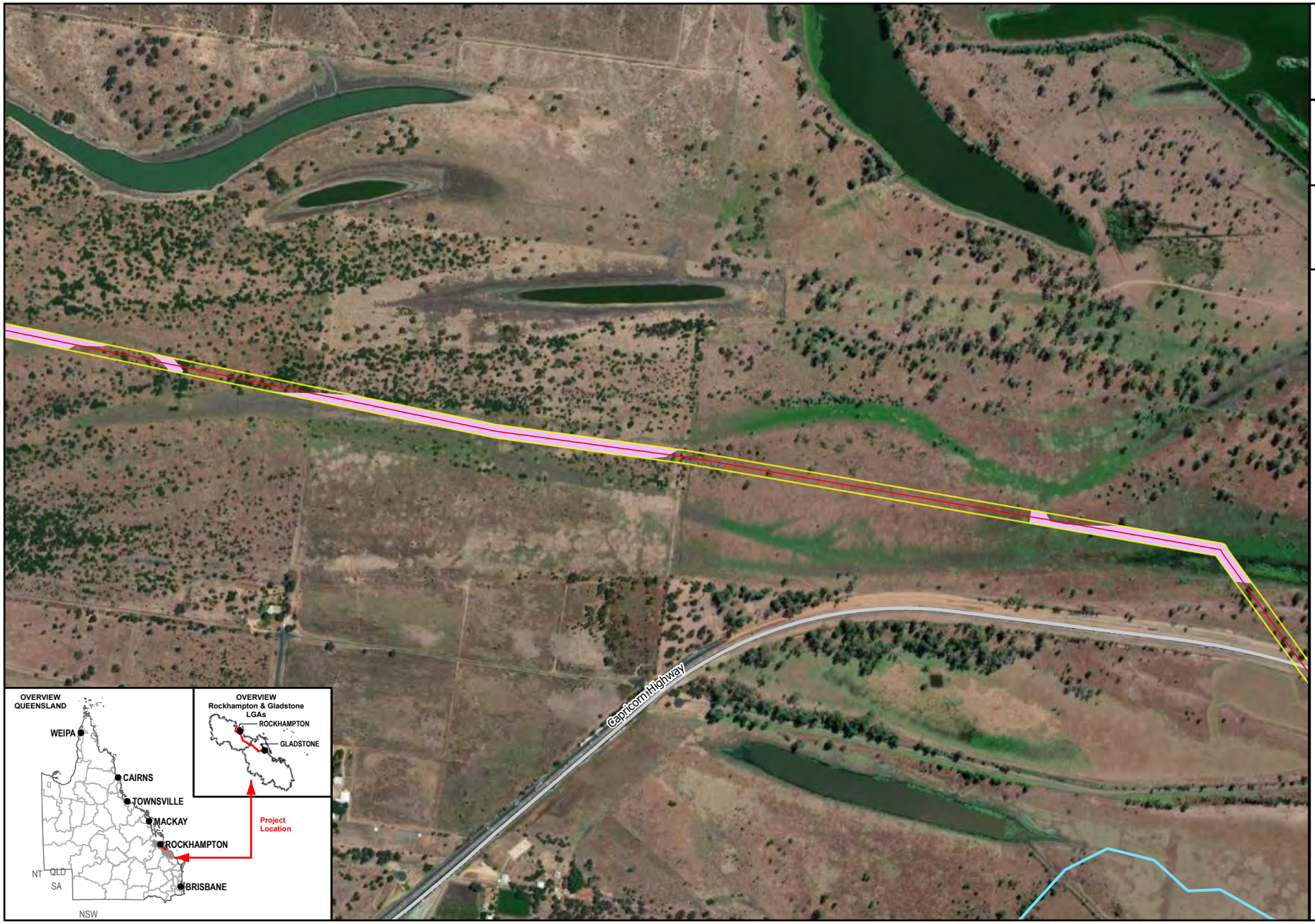
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18z
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
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- Main Roads

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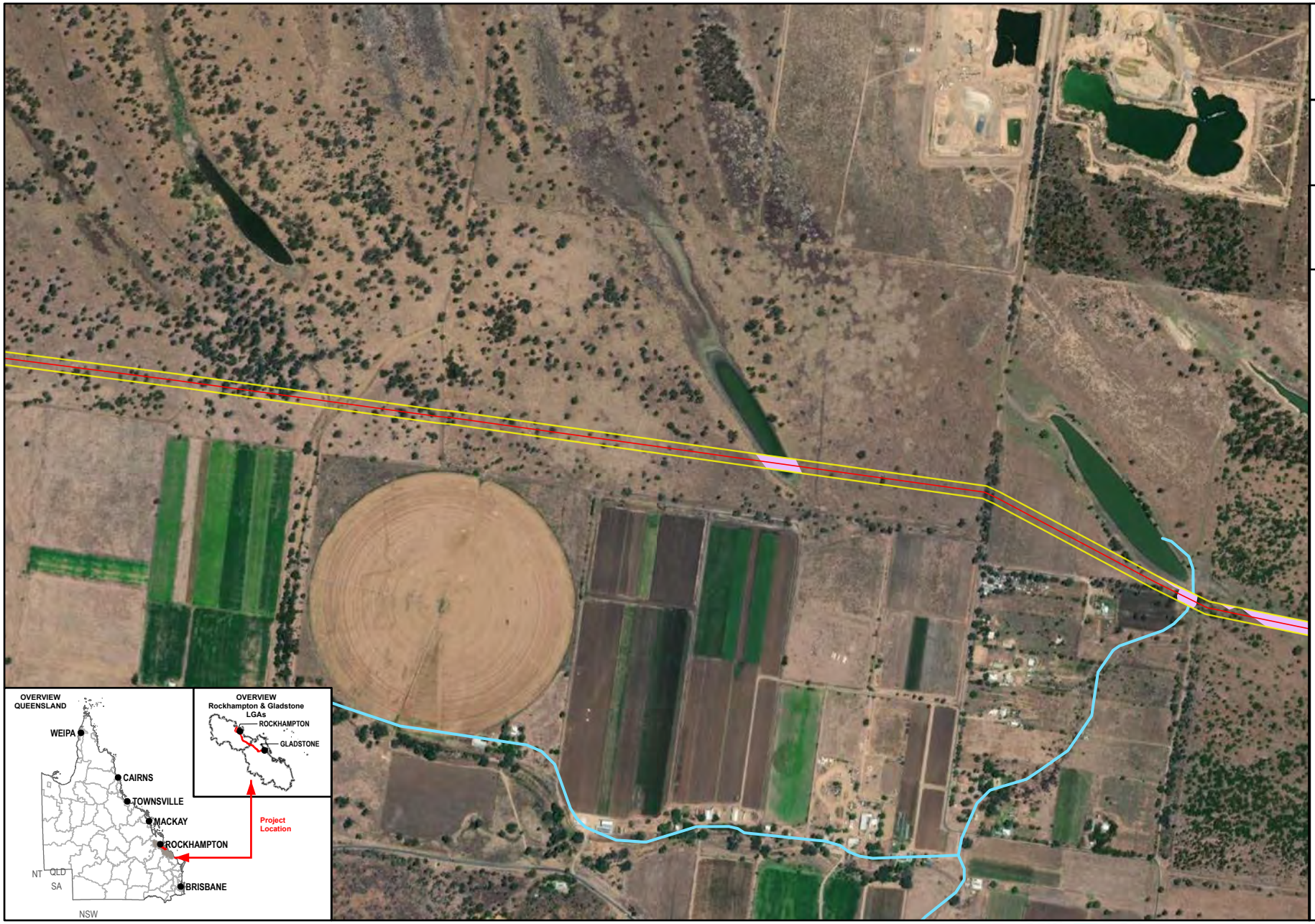
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18a1
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Australian Painted Snipe Habitat
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-18b1
Distribution of Australian Painted Snipe Habitat Within the SGIC SDA Study Area
000-G-MAP-2439 Version:4 Date:19/09/2022

7.2.2.14 Green turtle

Conservation status and species ecology

The green turtle is listed as vulnerable under both the EPBC Act and the NC Act and listed as an MNES at the time of the approval. The species can be found in waters in sub-tropical and temperate regions throughout the world and are capable of migration large distances of over thousands of kilometres between foraging and breeding grounds. The species can inhabit a range habitat types, including open ocean habitat, pelagic feeding grounds, nearshore waters, shallow coastal habitats and into estuarine waters. Green turtles feed mostly on seagrasses and algae, although immature animals are carnivorous. The southern Great Barrier Reef population has major rookeries on the Islands of the Capricorn Bunker Group and minor breeding aggregations on mainland beaches for Bustard Head to Bundaberg (DAWE 2021).

Field survey results and distribution of suitable habitat

The green turtle was recorded present in Inkerman Creek (site 4) and potential habitat for the species was noted to be present in Raglan Creek (site 2) during the 2022 surveys (Figure 7-19). No historical records for the green sea turtle were found within the desktop extent (10 km buffer). All other sites surveyed along the SGIC SDA were outside the known range and did not contain suitable habitat for the green turtle. No breeding habitat for the green turtle occurs within the SGIC SDA.

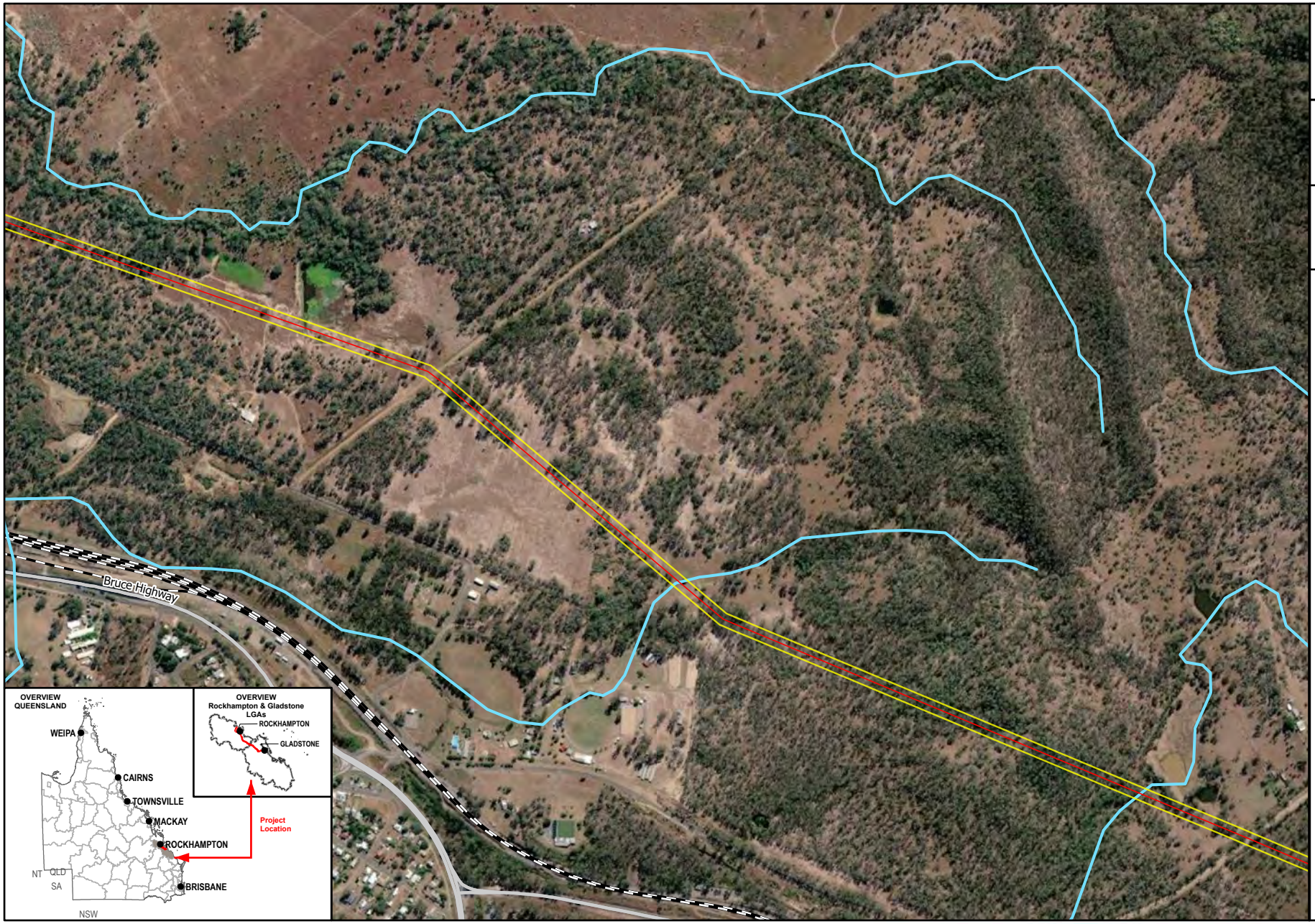
Significant Residual Impact Assessment

The project is unlikely to have a significant residual impact on the green turtle due to the temporary nature of the works and construction techniques that minimise disturbance of the creek bed and bank and avoid creating barriers for the creeks' connectivity. A significance of impact assessment of the project on the green turtle (vulnerable EPBC Act and NC Act) is provided in Table 7-32.

Table 7-32 Significance of impact for the green turtle

Significant residual impact criteria	Potential to occur
A long-term decrease in the size of a local population	**Unlikely** The green turtle is known to occur in Inkerman Creek and likely to occur in Raglan Creek. Individuals of this species are likely to forage and rest within these creeks, particularly during high tide. No suitable breeding habitat for the green turtle is present within the SGIC SDA pipeline alignment. Construction works at site 2 (Raglan Creek) and site 4 (Inkerman Creek) will consist of trenchless methods to minimise disturbance of the creek bed and bank, reducing the potential effects of the local population of the green turtle. Design and implementation of a CEMP will further minimise risk to individuals and achieve protection of habitat, such that no long-term decrease in the size of the population is expected to occur. Following construction, habitat will be restored and operation of the pipeline will have no direct or indirect impacts on the species or their habitat.
Reduce the extent of occurrence of the species	**Unlikely** Construction works at sites that green turtles are known or likely to occur (site 2 and 4) will consist of trenchless methods to minimise impacts to connectivity of Raglan and Inkerman Creeks. The works will be restricted temporally to a small, localised area, with measures in place to ensure no long-term impacts to habitat. Following construction, habitat will be restored, and operation of the pipeline will have no direct or indirect impacts on the species or their habitat. These measures ensure that it is unlikely that a reduction of the extent of occurrence of the species will occur.
Fragment an existing population	**Unlikely** All works will be conducted in accordance with DAF's 'ADR for operational work that is constructing or raising waterway barrier works' (DAF 2018)to facilitate connectivity and flow. Temporary and localised disturbance to the creeks during construction is unlikely to fragment the existing population of the green turtle.

Significant residual impact criteria	Potential to occur
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** The species breeding grounds do not occur within the SGIC SDA pipeline alignment. During the construction and operation phase there will be no permanent barriers to green turtle movement and therefore is unlikely to result in genetically distinct populations forming as a result of habitat isolation. The project is not considered to result in the fragmentation of the species and therefore genetically distinct populations forming due to habitat isolation is unlikely.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	**Unlikely** Introduced fish species in the Fitzroy River Delta are not known to be a key threatening process to the green turtle. The implementation of the CEMP including a Weed Management Plan and Introduced Management Plan will reduce the risk of introducing new invasive species or spreading existing weeds within the river, which could cause degradation of habitat. The management actions proposed for the control of weed and pest species are considered sufficient such that no significant impact to the green turtle and/or the species' habitat is likely to occur.
Introduce disease that may cause the population to decline	**Unlikely** There are no known diseases that this species is susceptible to or threatened by that proposed works have the potential to introduce. Therefore, it is considered unlikely that construction works for the waterway crossings will have the potential to introduce disease to the extent that the green turtle population will decline.
Interfere with the recovery of the species	**Unlikely** The Recovery Plan for Marine Turtles in Australia which the Department of Climate Change, Energy, the Environment and Water (DCCEEW) is responsible for outlines of the recovery strategies for the species (DAWE, 2017). Relevant to the project, the recovery strategy aims at minimising chemical and terrestrial discharge with the implementation of best management of industrial, urban and agriculture runoff. Spill risk and spill response strategies are to be implemented. The species is known to occur in Inkerman Creek and may occur in Raglan Creek. A CEMP will be designed and implemented to avoid and minimise risk of water quality degradation from temporary construction activities. Following construction, habitat will be restored and operation of the pipeline will have no direct or indirect impact on green turtles or their habitat. No impact will occur to the downstream marine environment or any green turtle nesting habitat. These measures will ensure that the project is unlikely to contribute to key threating processes or interfere with recovery actions.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** The duration of works conducted in Inkerman Creek and Raglan Creek will be less than 180 days. During construction, temporary and localised disturbance may occur to a small number of green turtles that may utilise these creeks for foraging and resting. Substantially suitable habitat will remain downstream such that this disturbance is unlikely to impact the availability of foraging resources. A CEMP will be designed and implemented to protect habitat quality within and downstream of the construction areas. All habitats will be restored following construction and the pipeline will have no direct or indirect impacts on green turtles or their habitat during operations. These measures result that the project is unlikely to cause disruption to ecologically significant locations of a species.
Conclusion	No direct loss of habitat or disturbance to bed and banks at Raglan Creek will occur during the construction or operational phases. The project is unlikely to have a significant residual impact on the green turtle.



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19a
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022

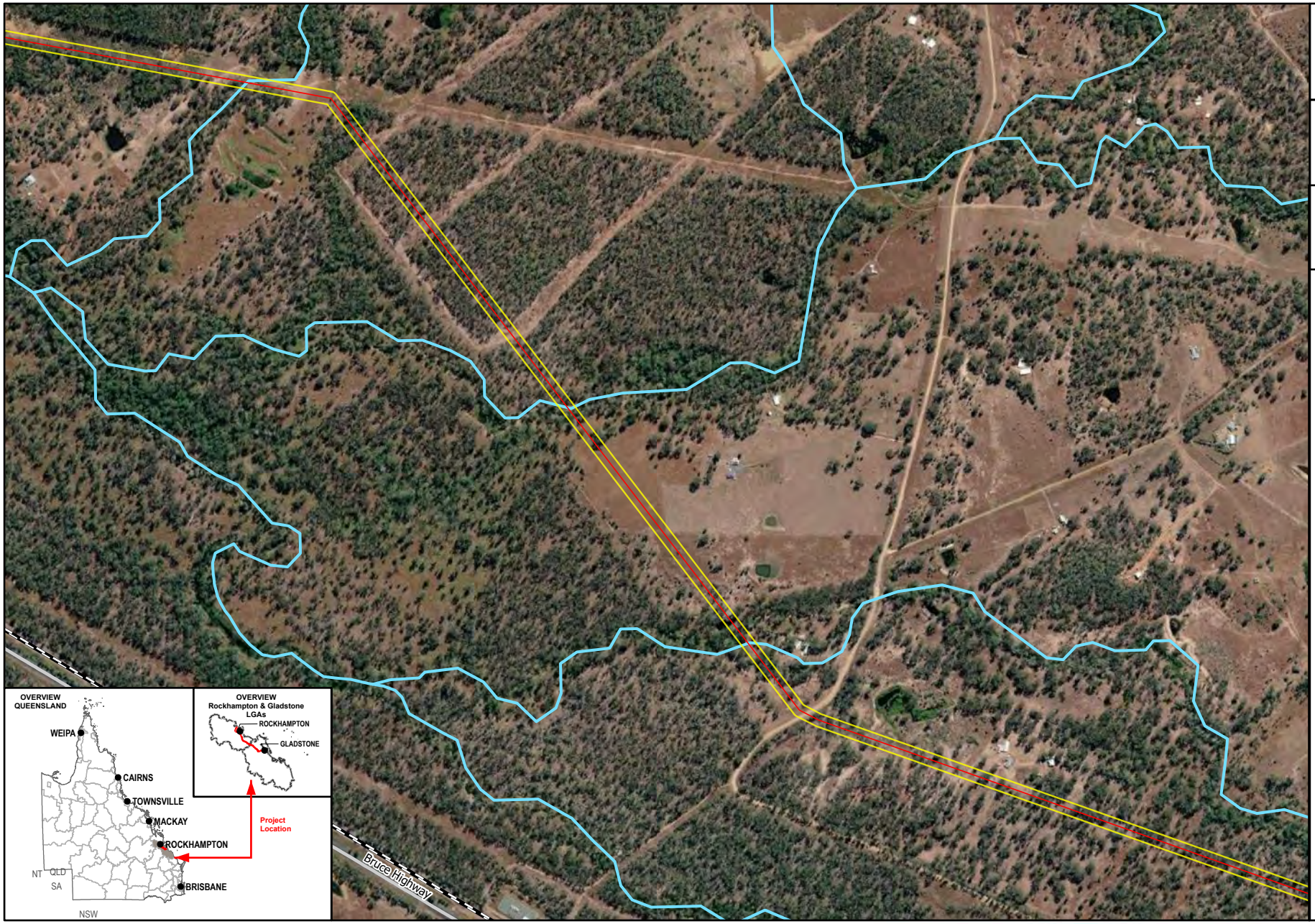

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Figure 7-19b
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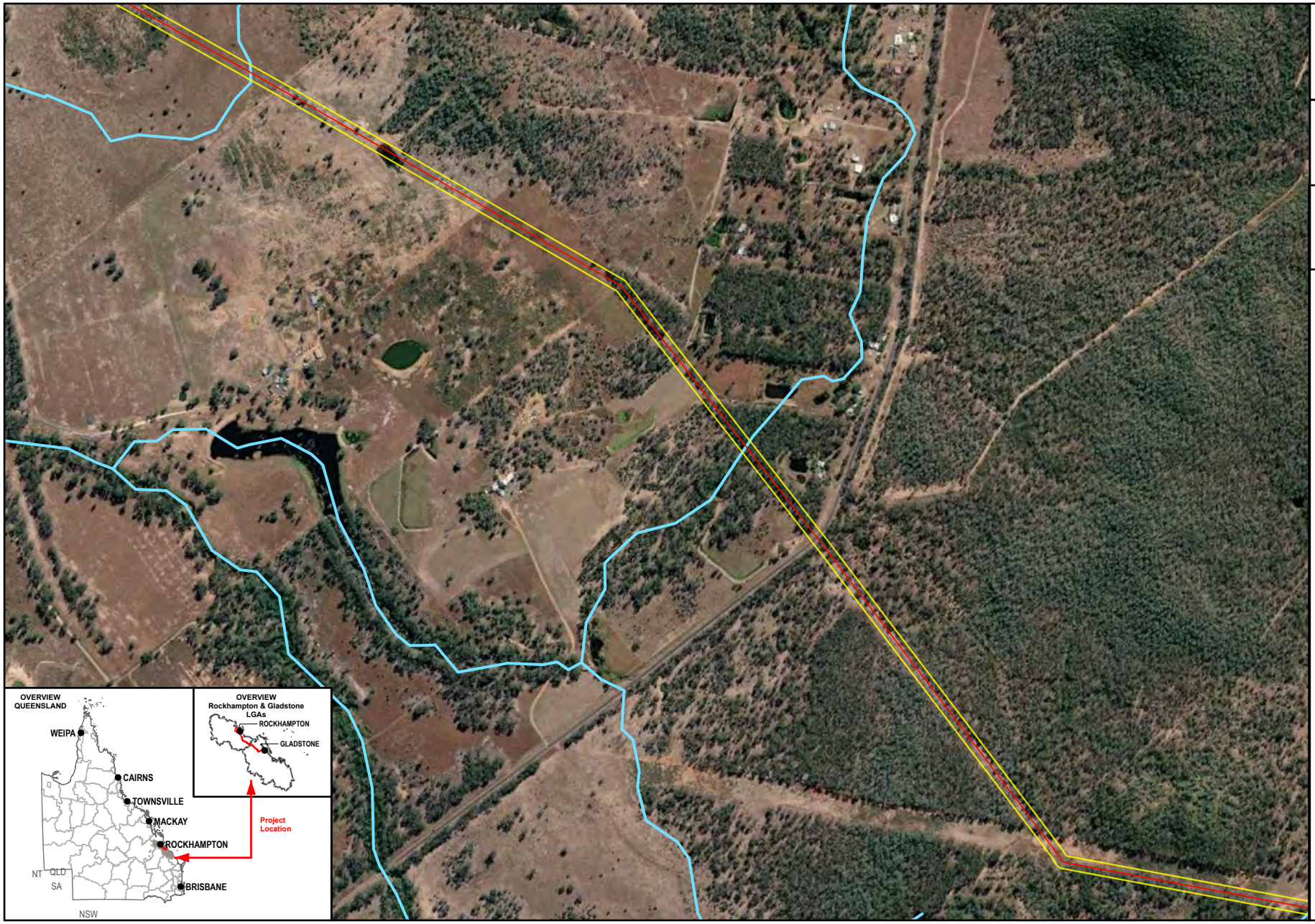
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

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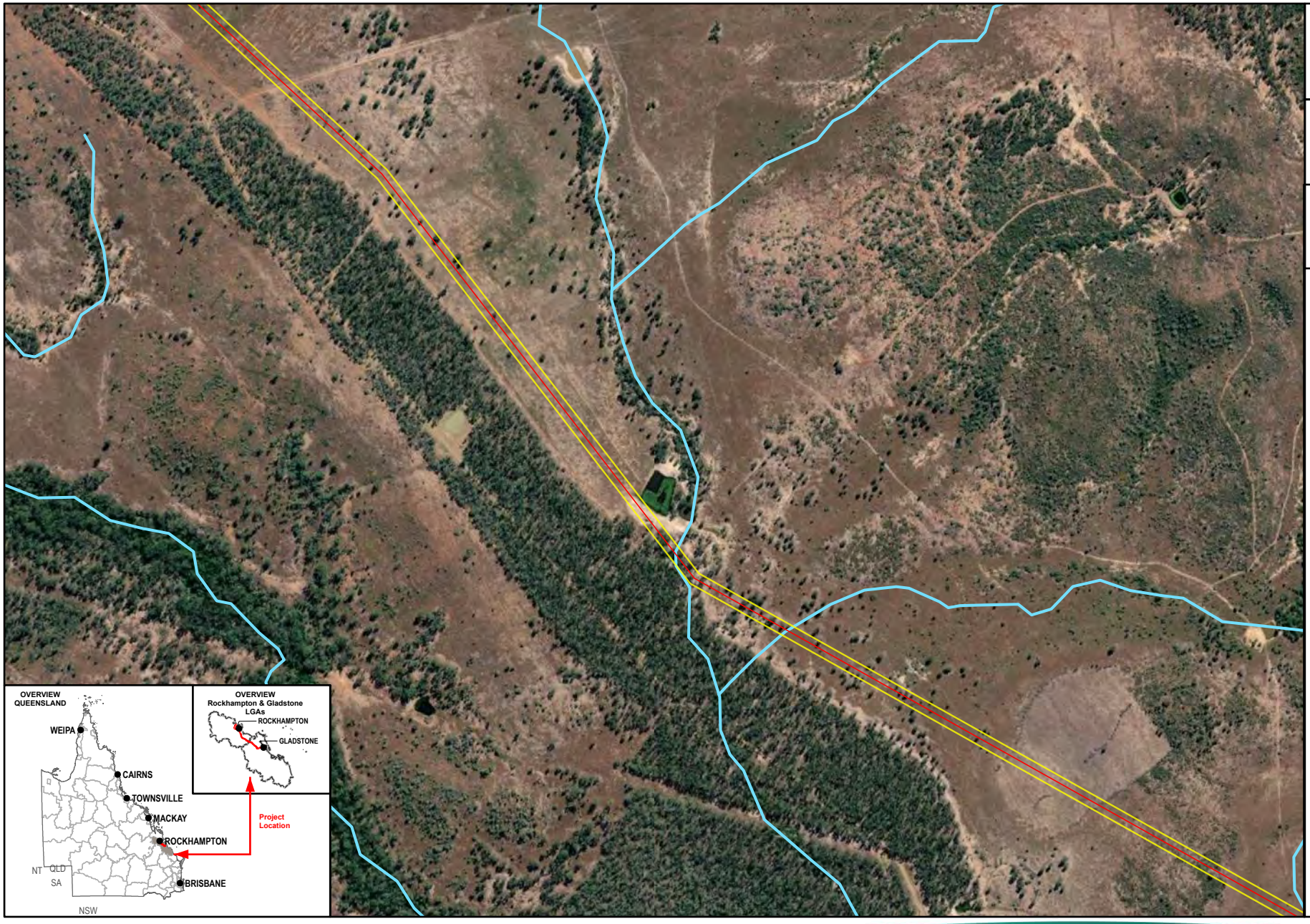
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19c
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

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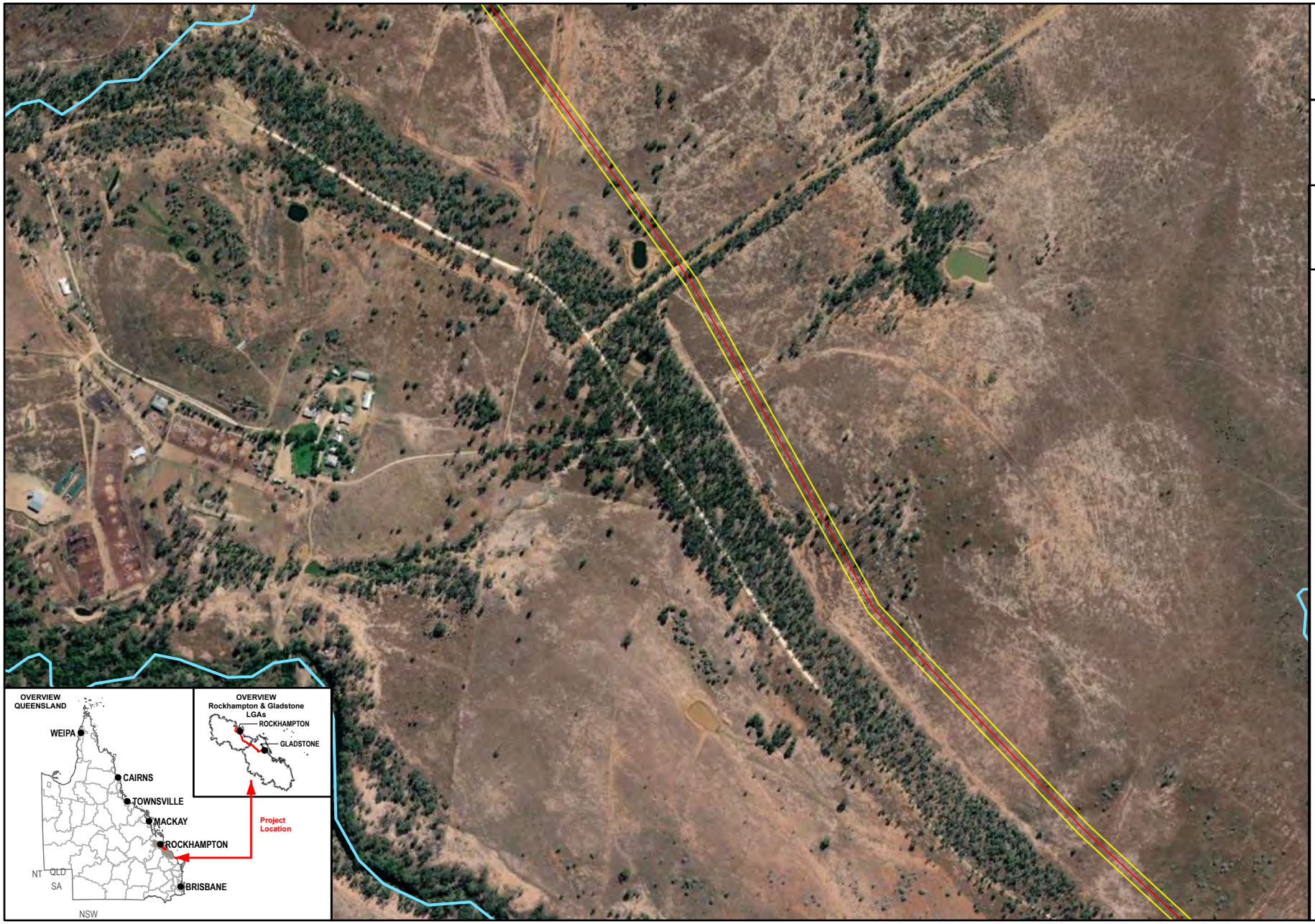
Figure 7-19d
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

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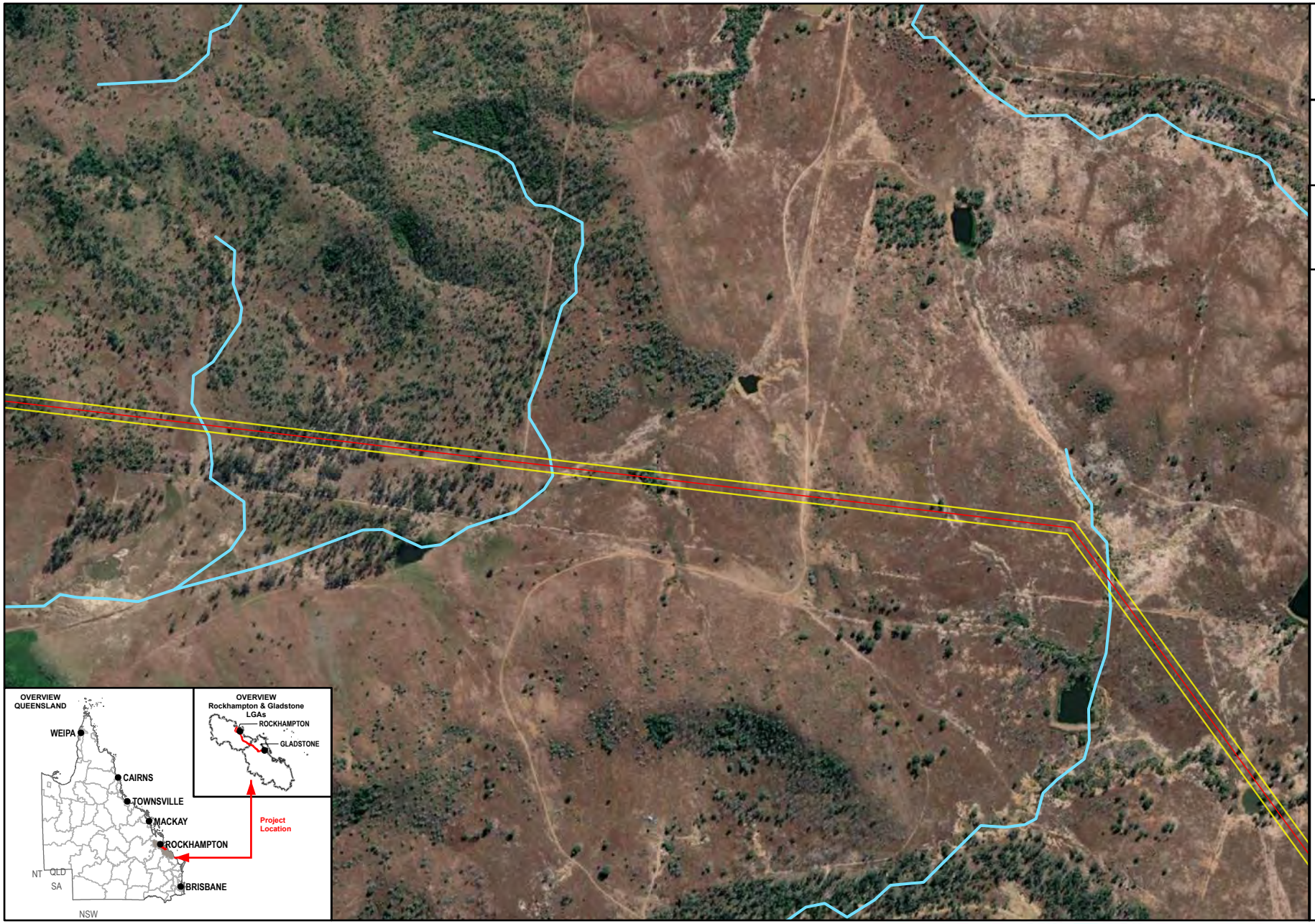
Figure 7-19e
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- Study Area
- Waterways

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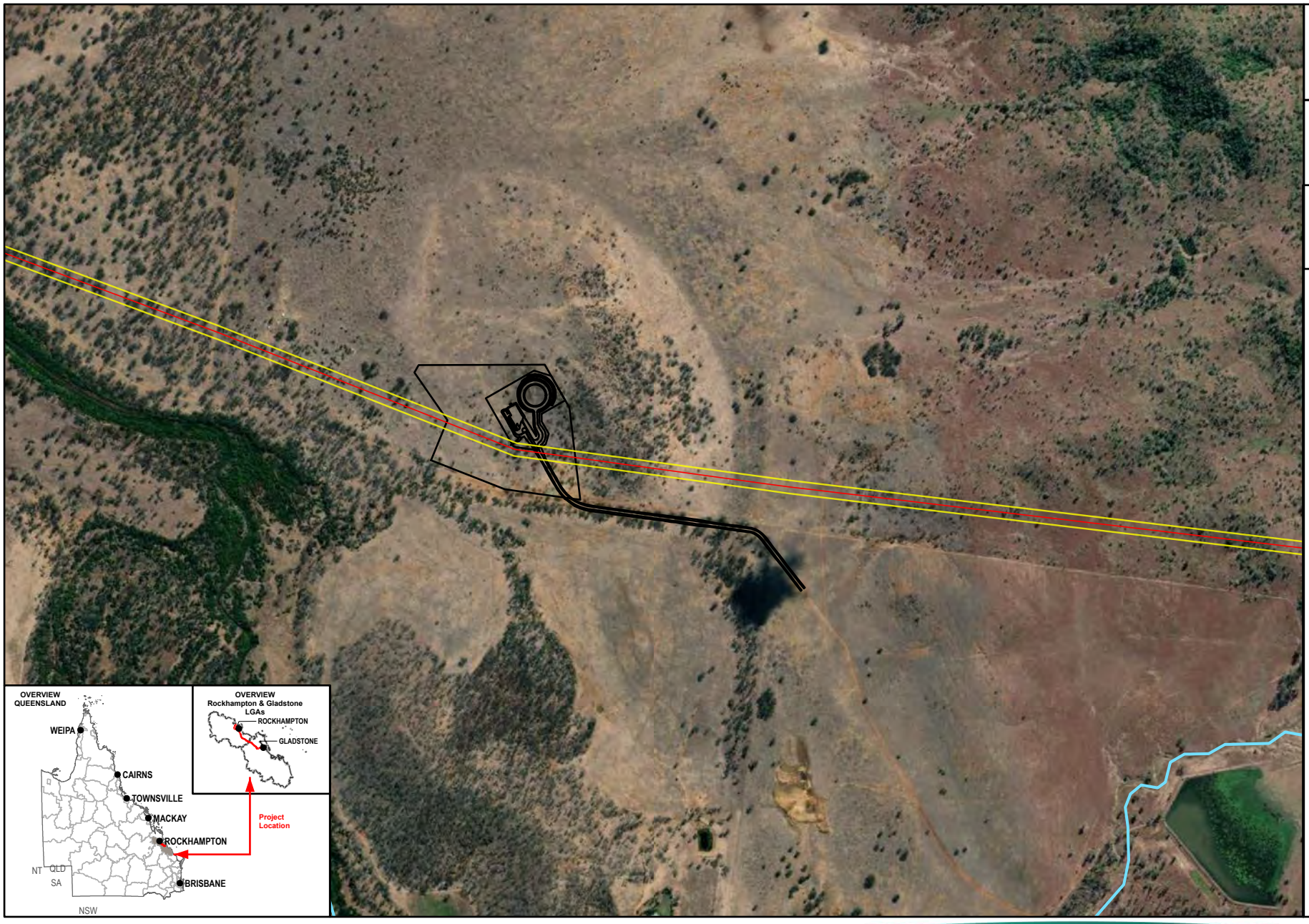
Figure 7-19f
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Raglan Pump Station and Reservoir Layout
- Waterways

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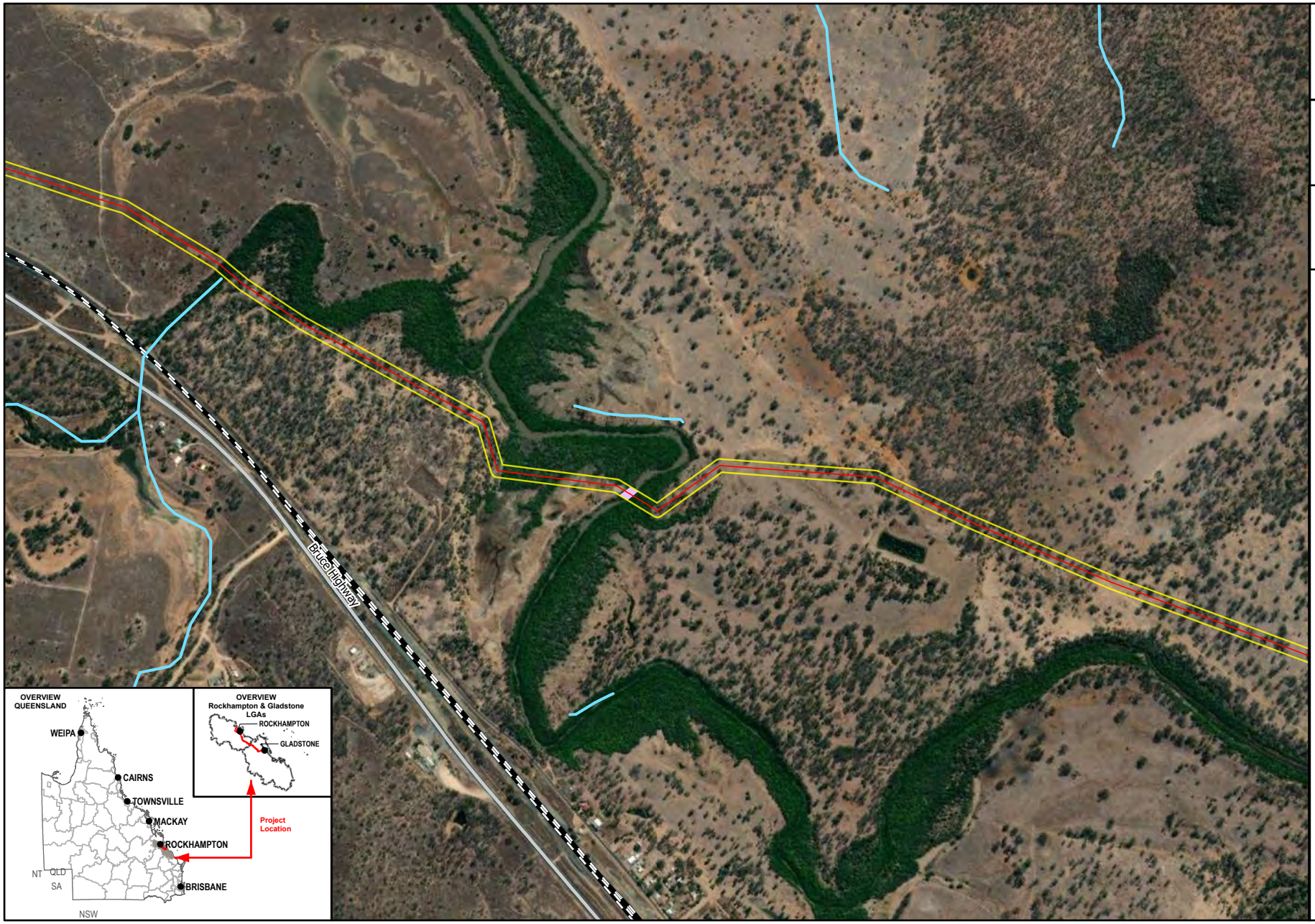
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19g
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Green Turtle Habitat
- Waterways
- Main Roads
- Railways

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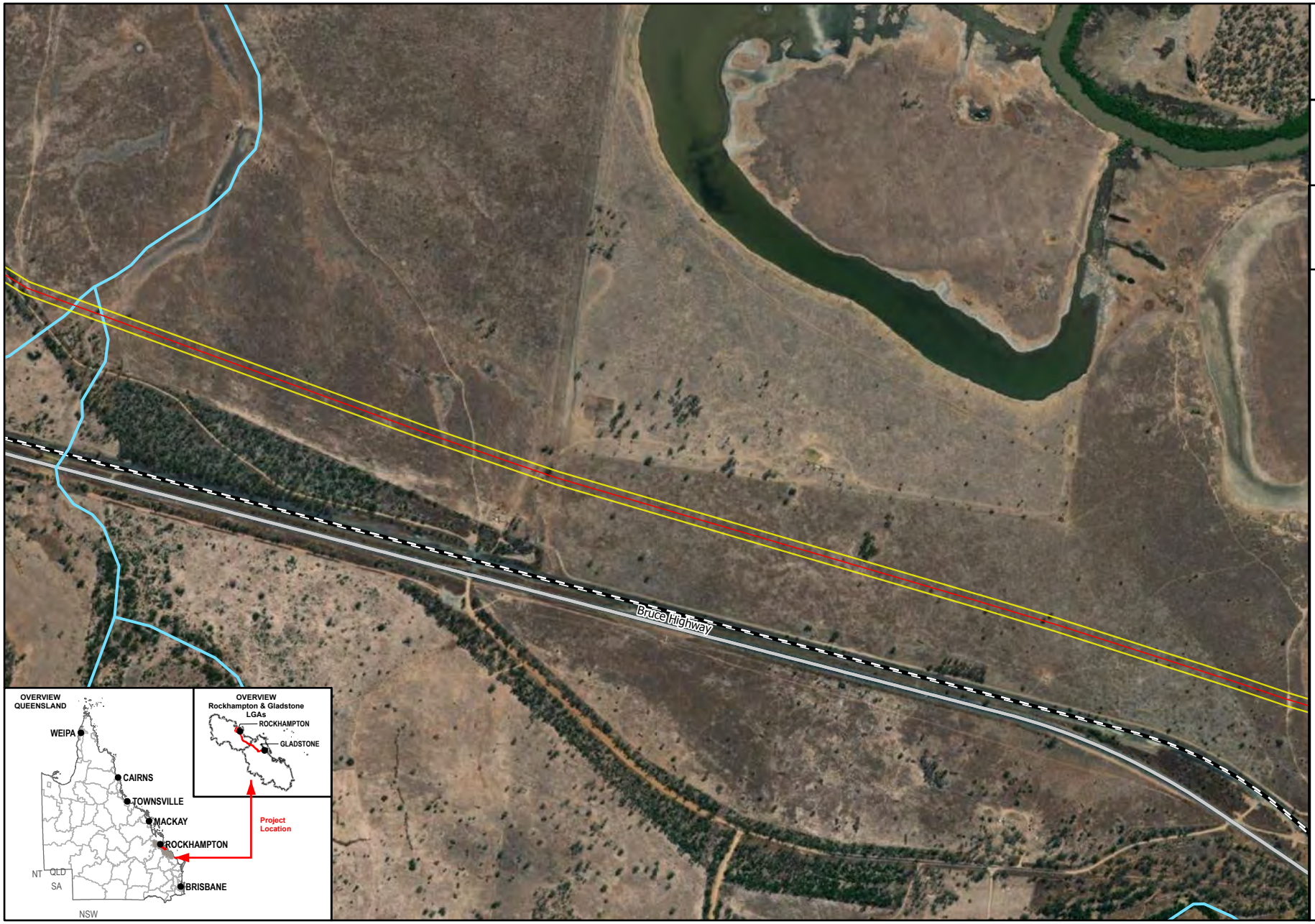

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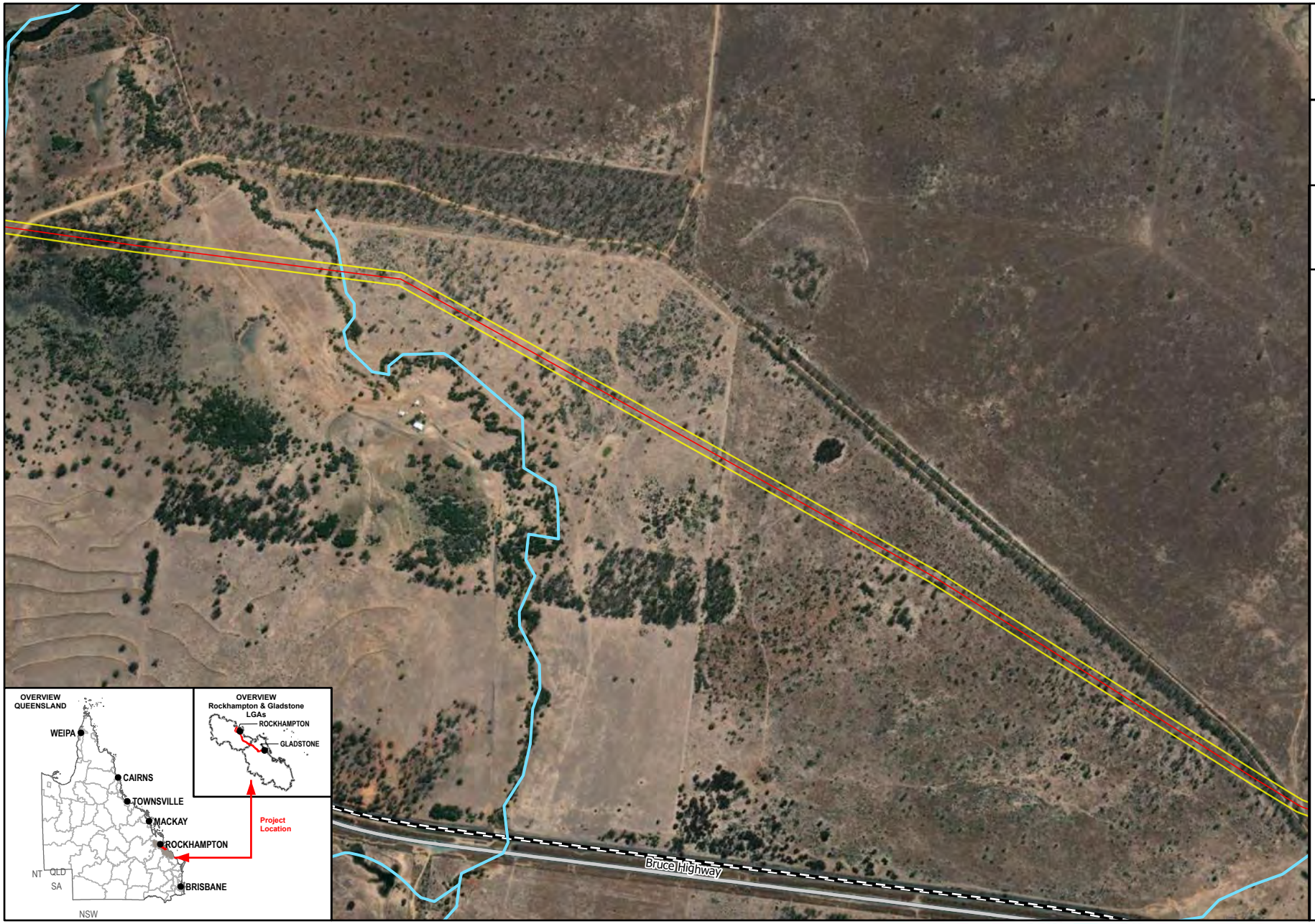

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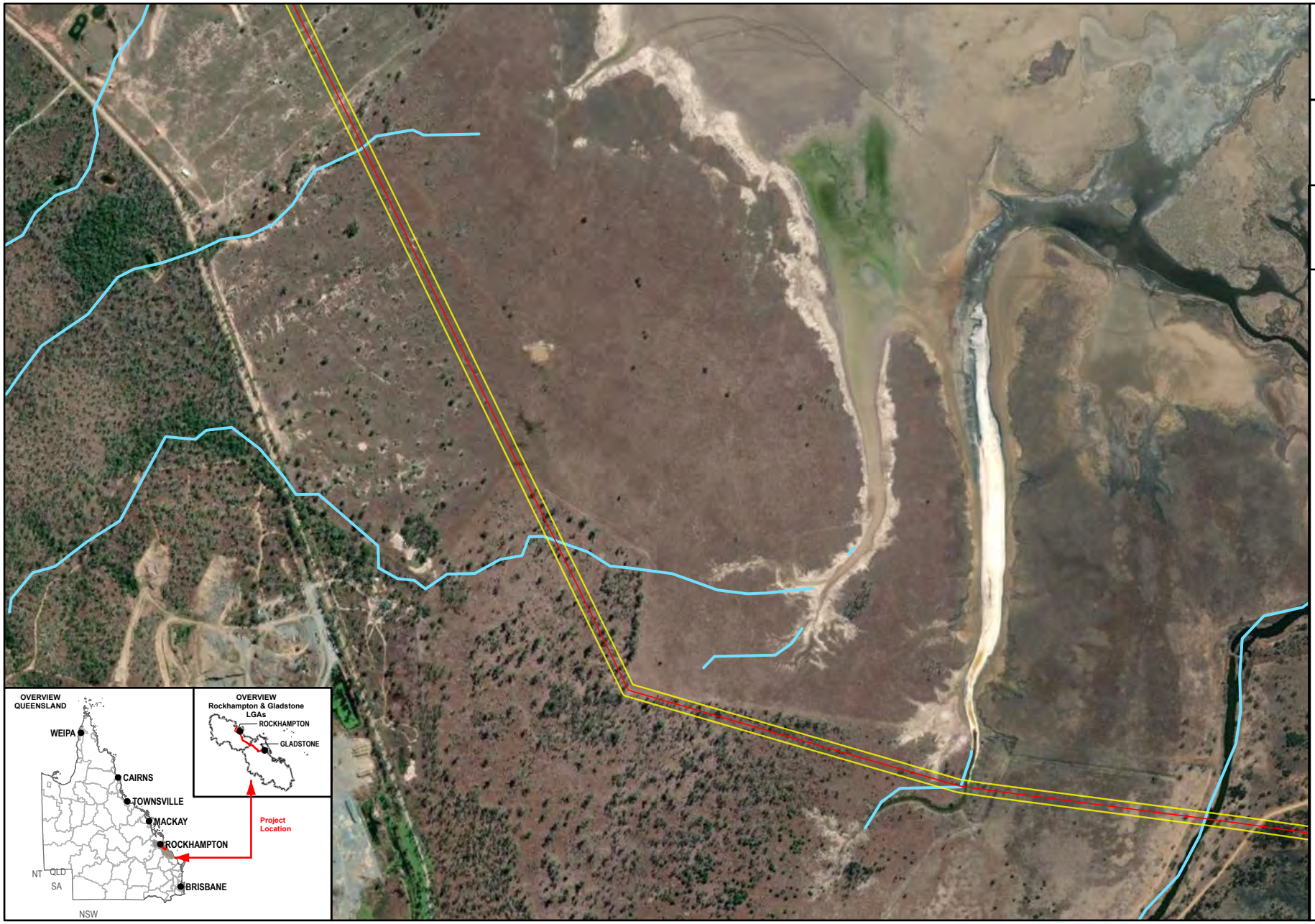

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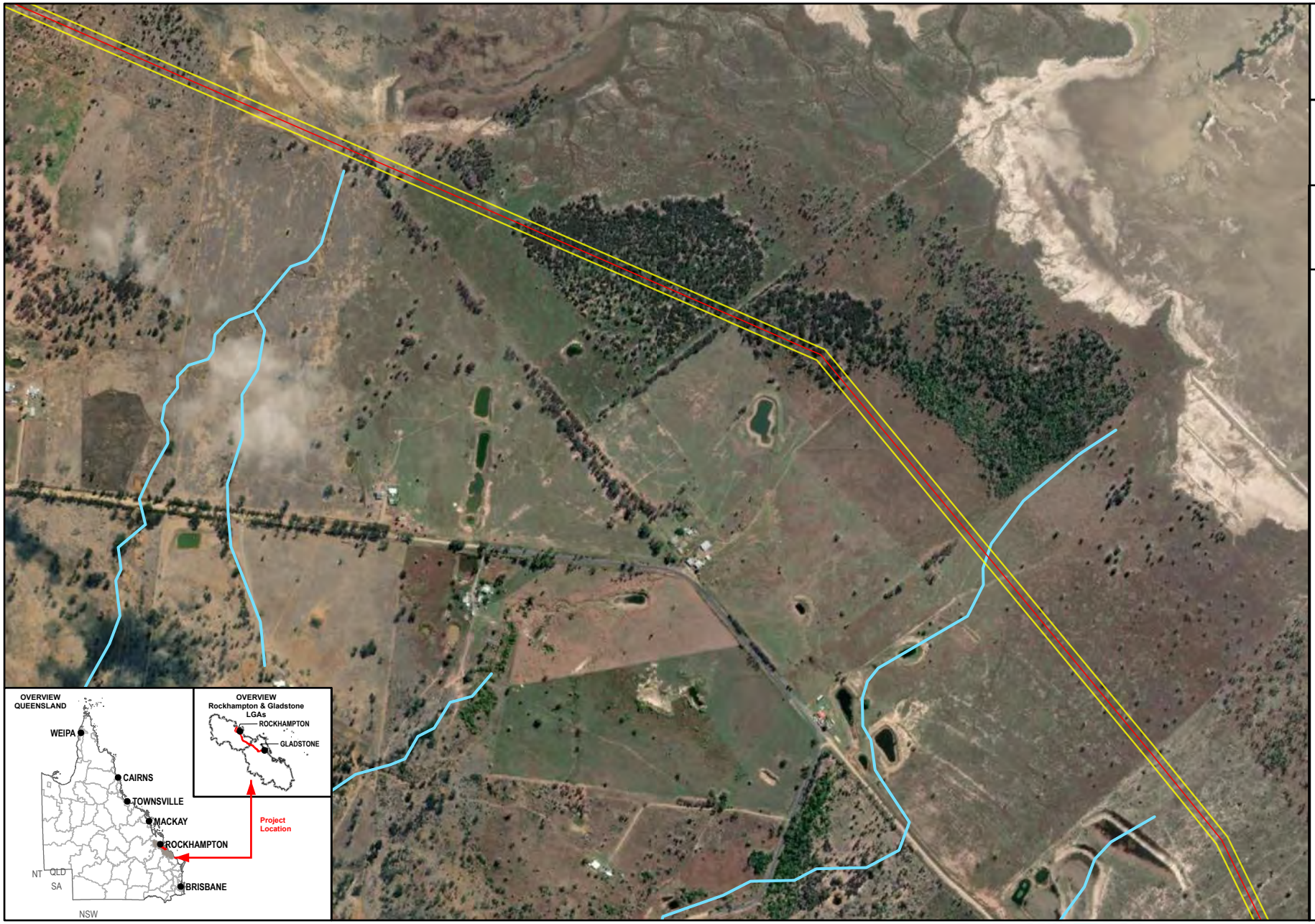

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- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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PROJECTION UTM Zone 56
(Datum GDA2020)

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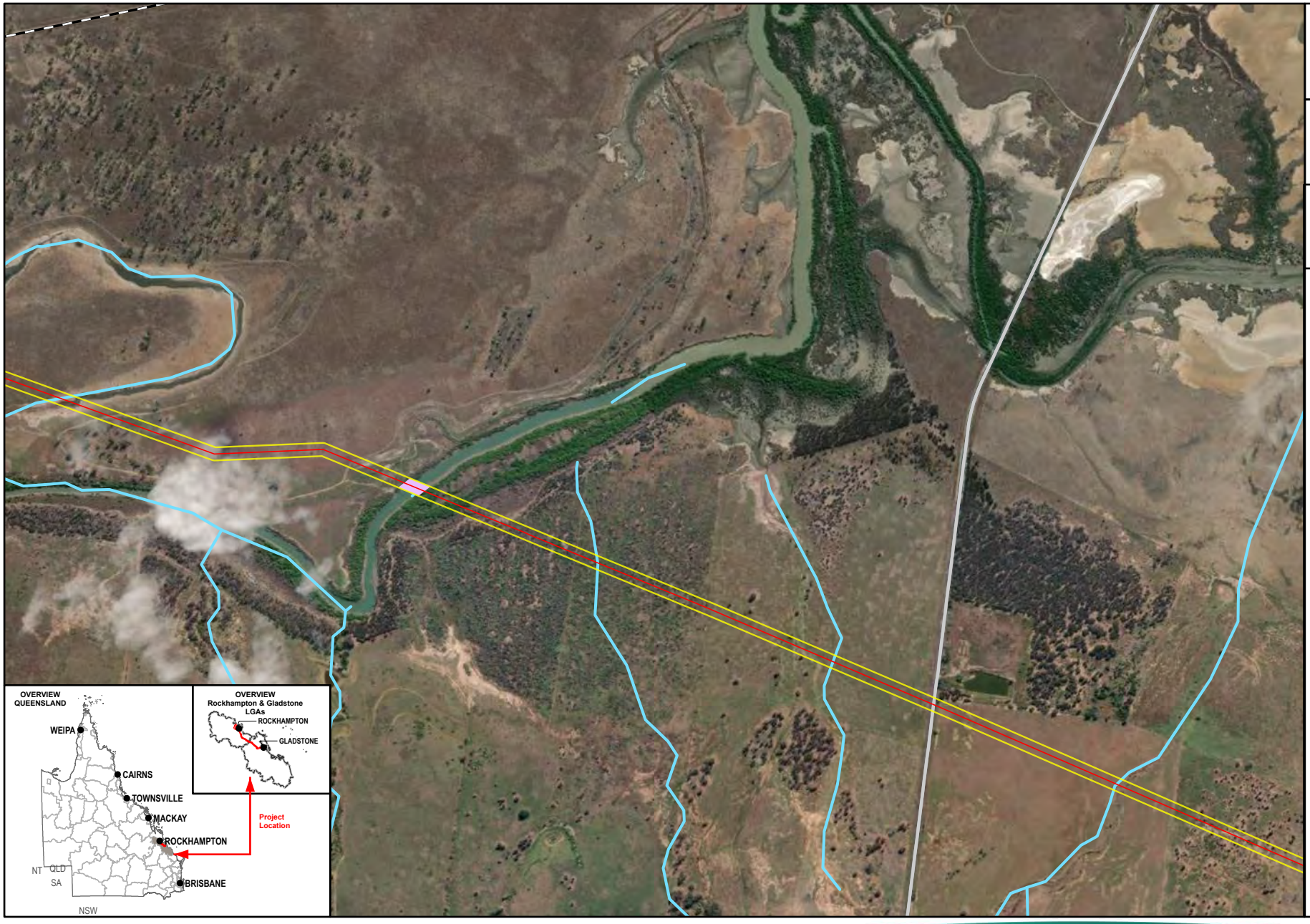
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19l
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Green Turtle Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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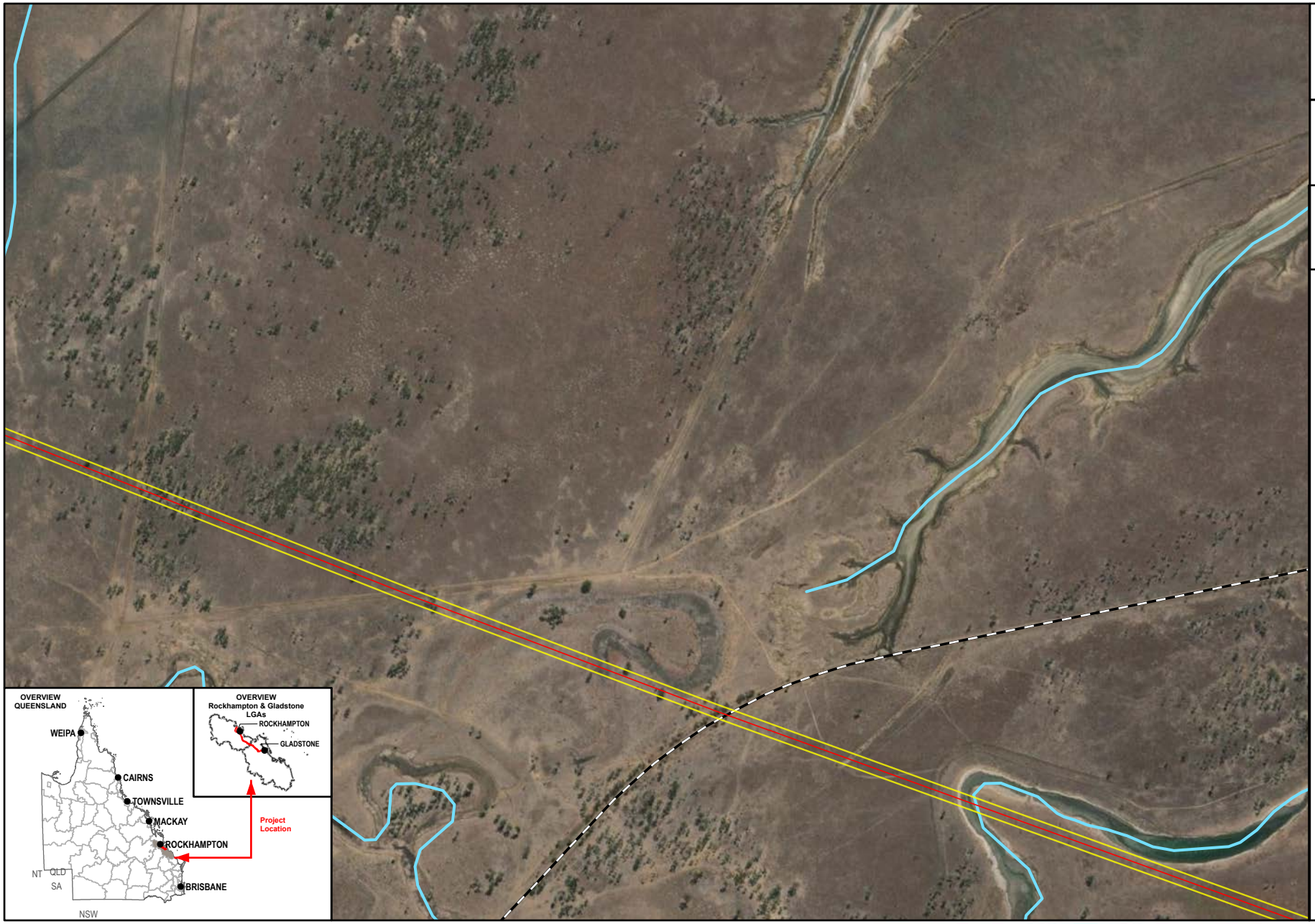
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19m
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

Data Sources:
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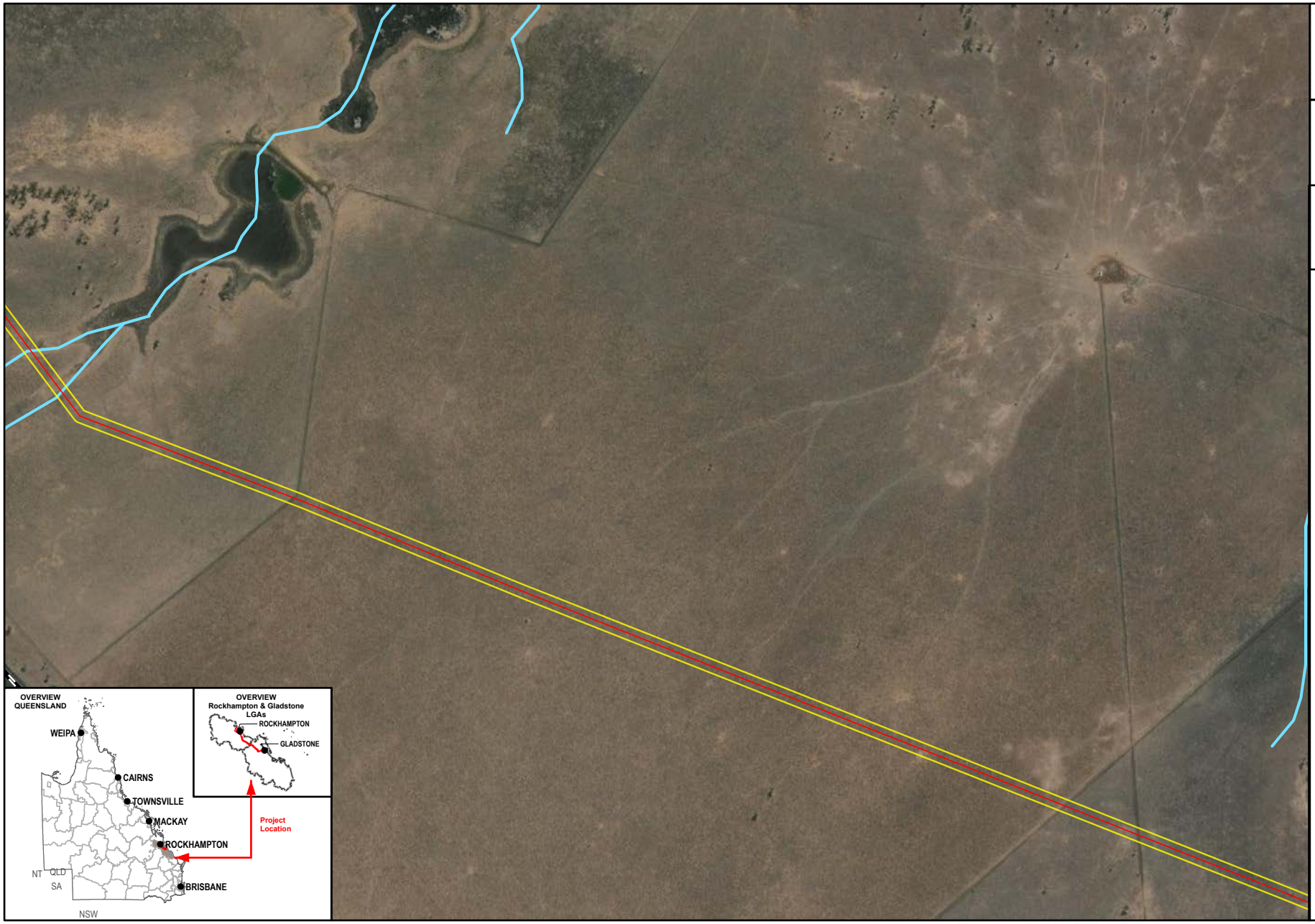
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19n
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

Data Sources:
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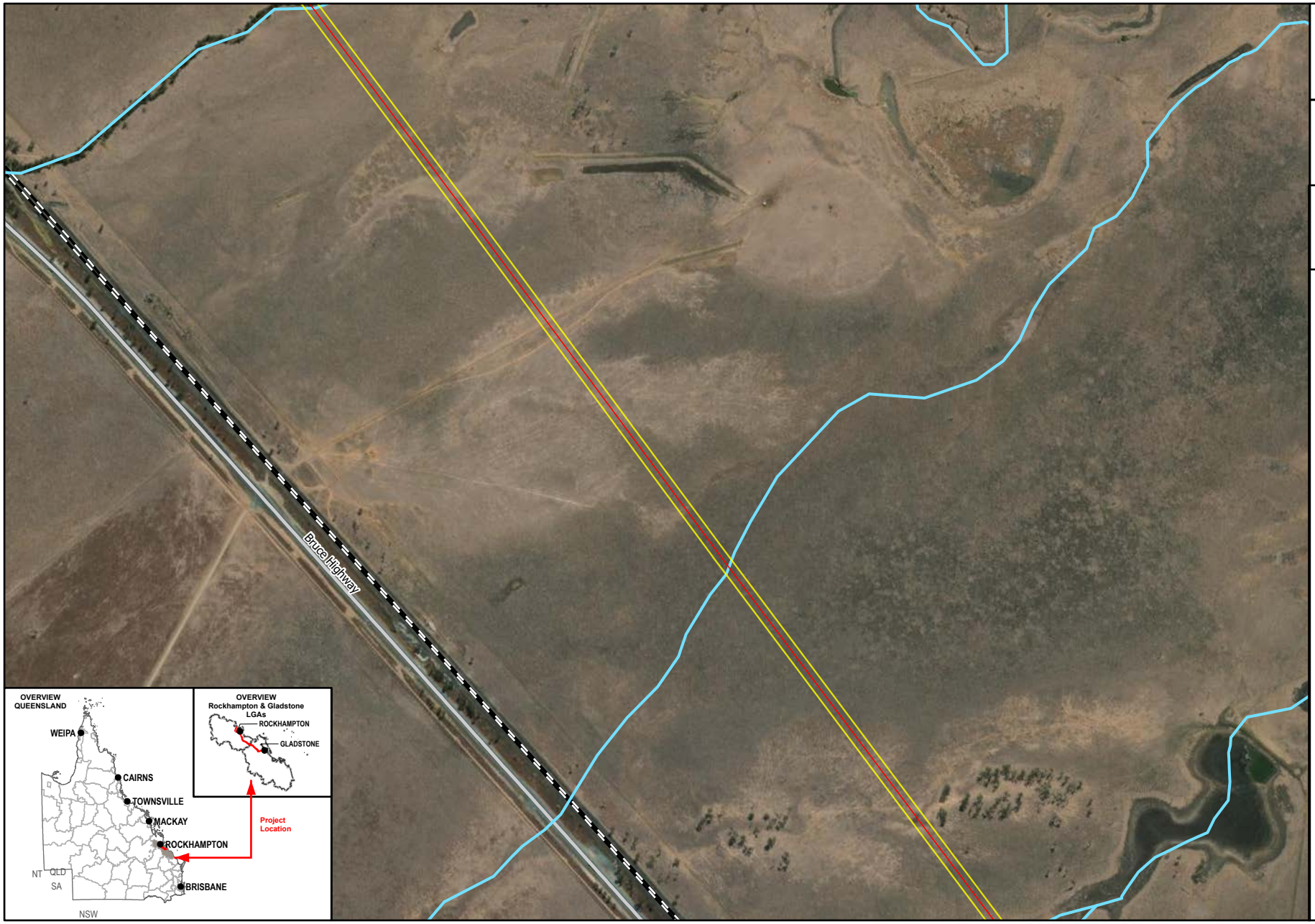
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19o
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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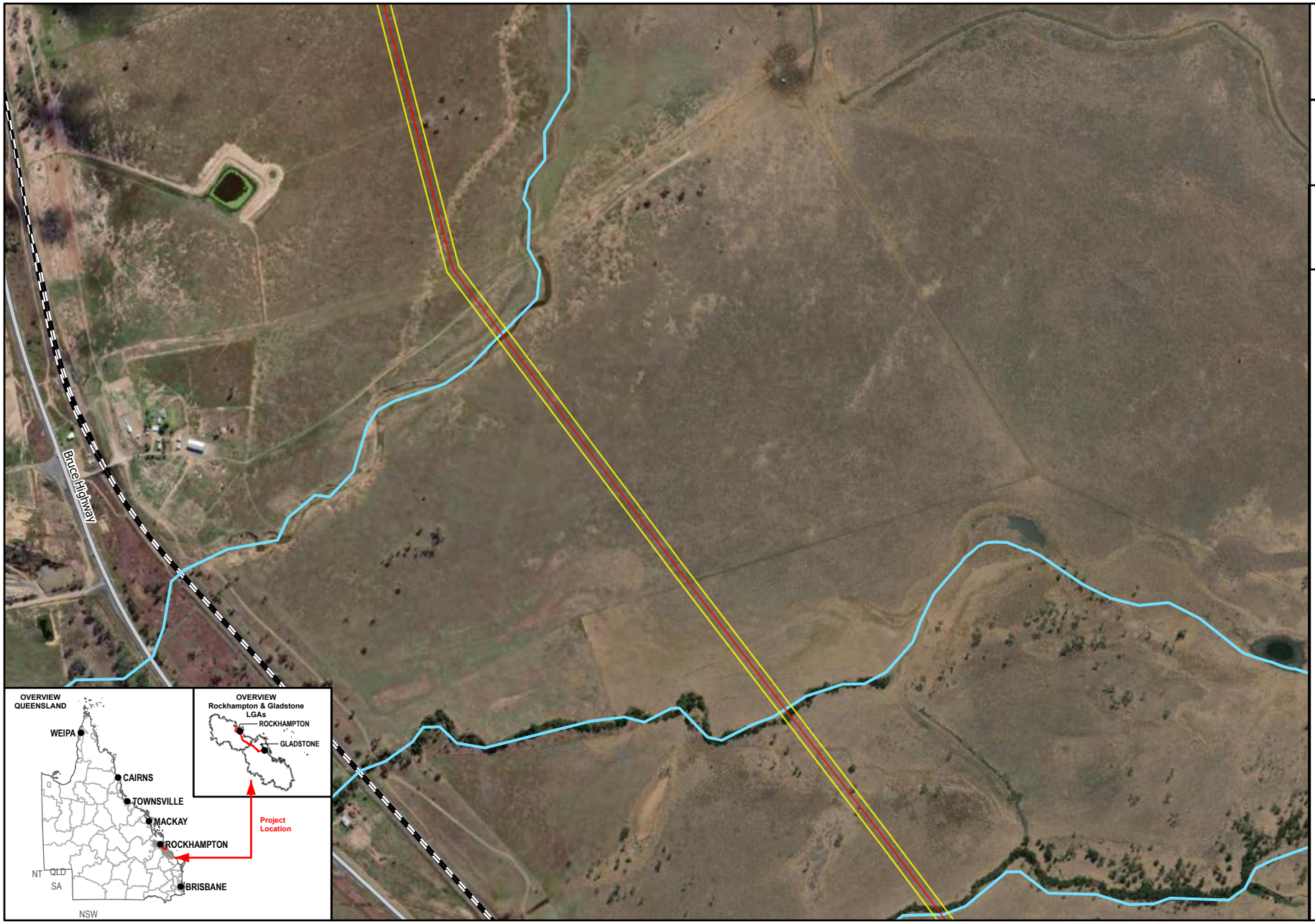
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19p
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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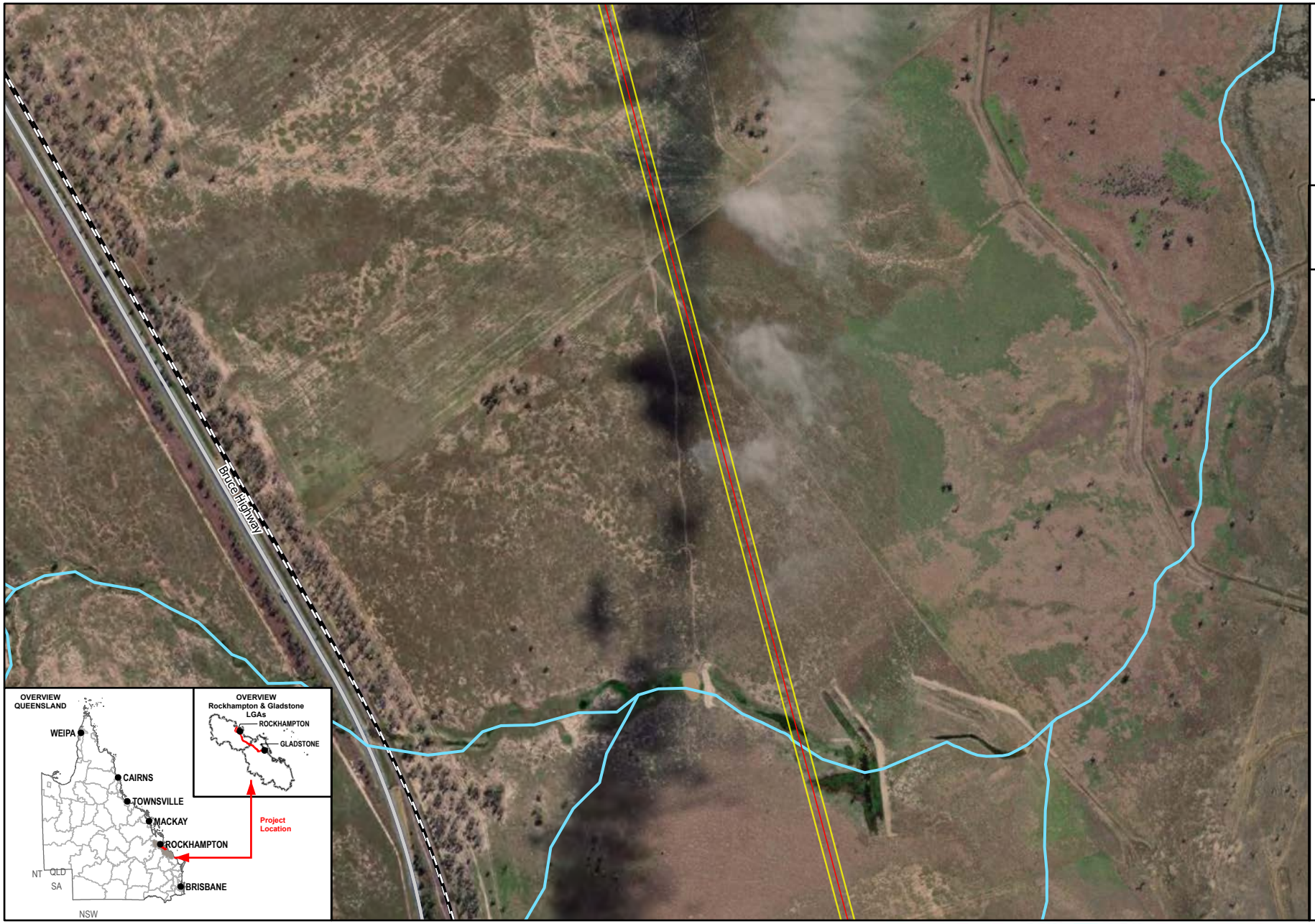
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19q
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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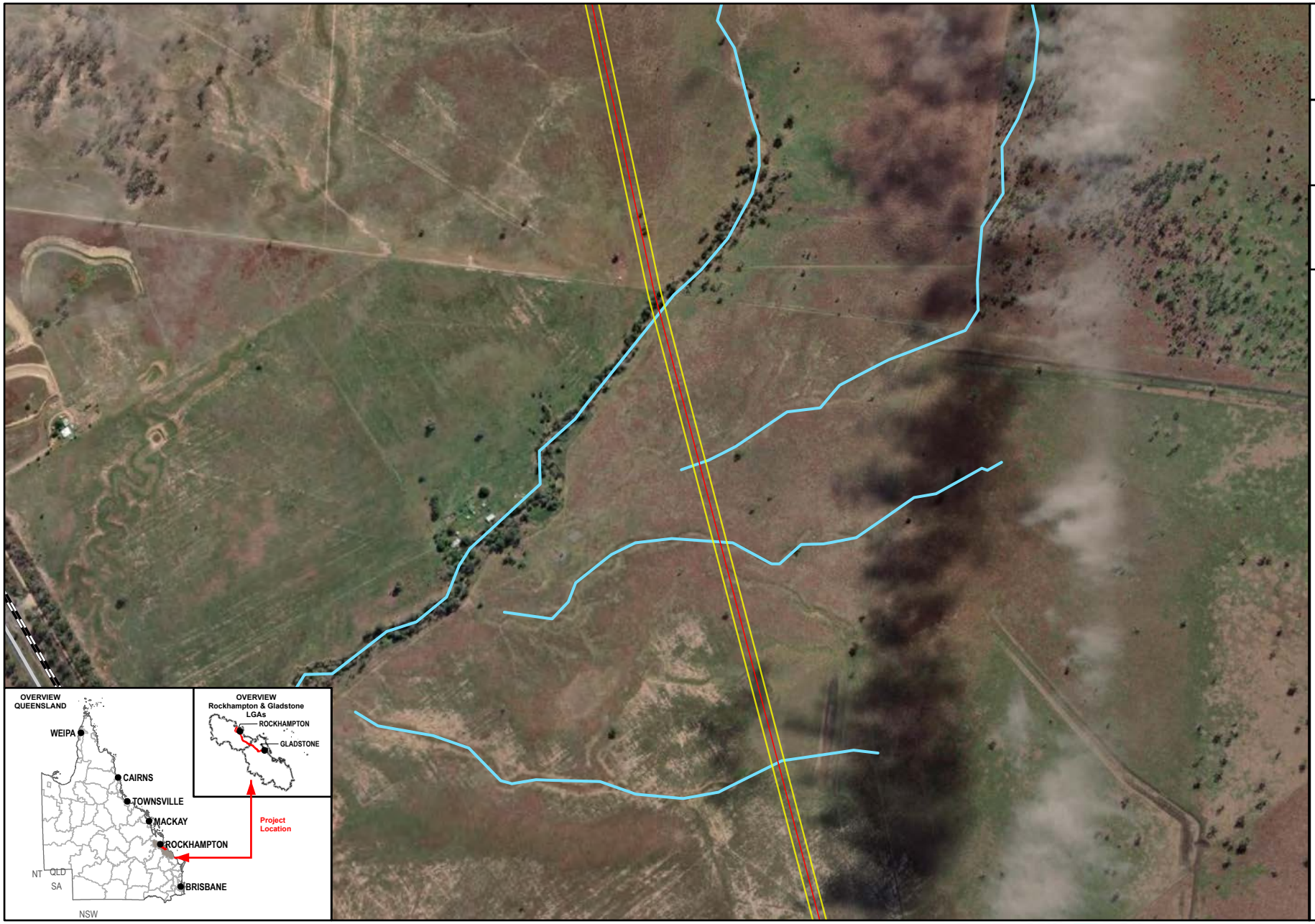
Figure 7-19r
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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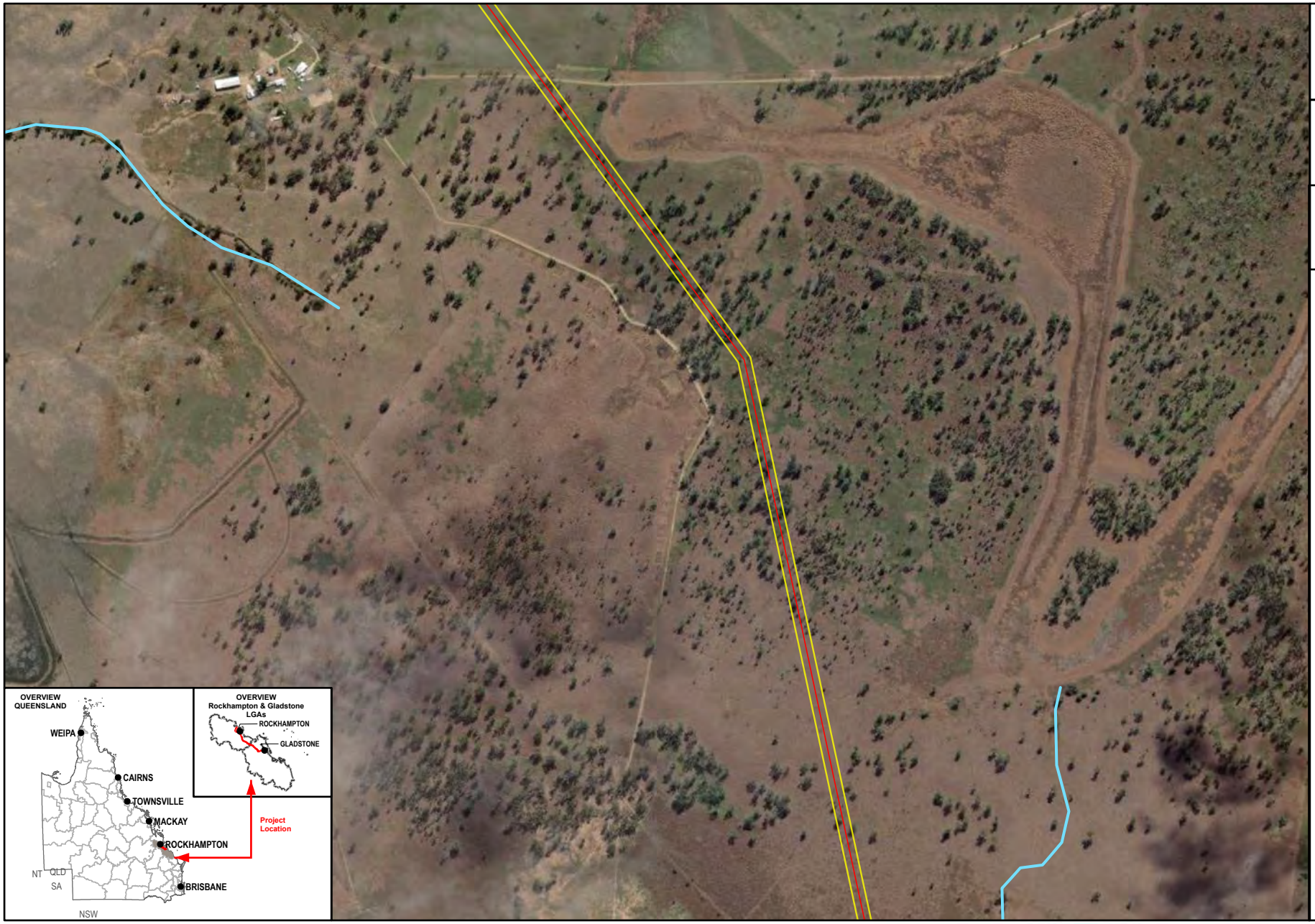
Figure 7-19s
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
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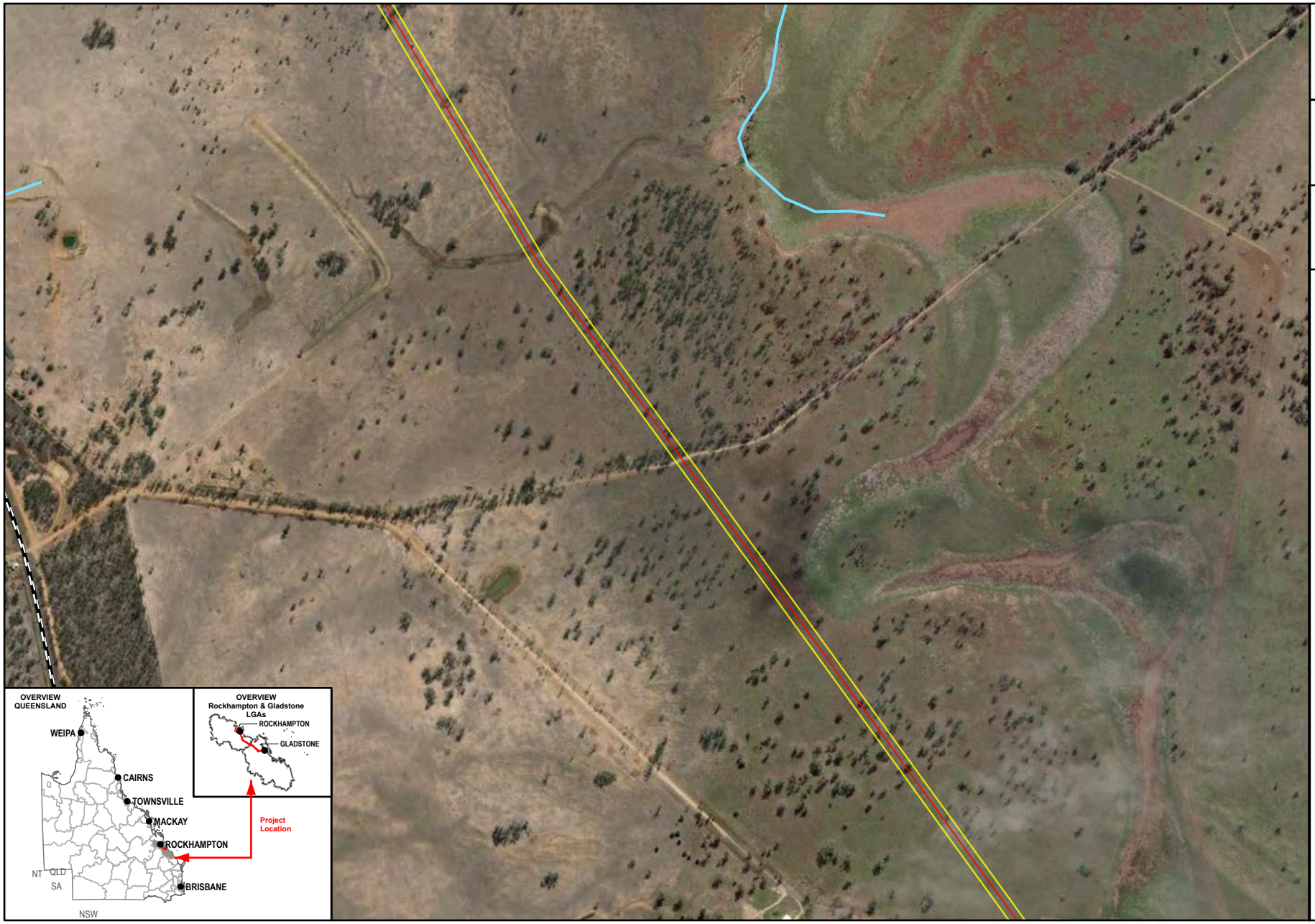
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19t
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

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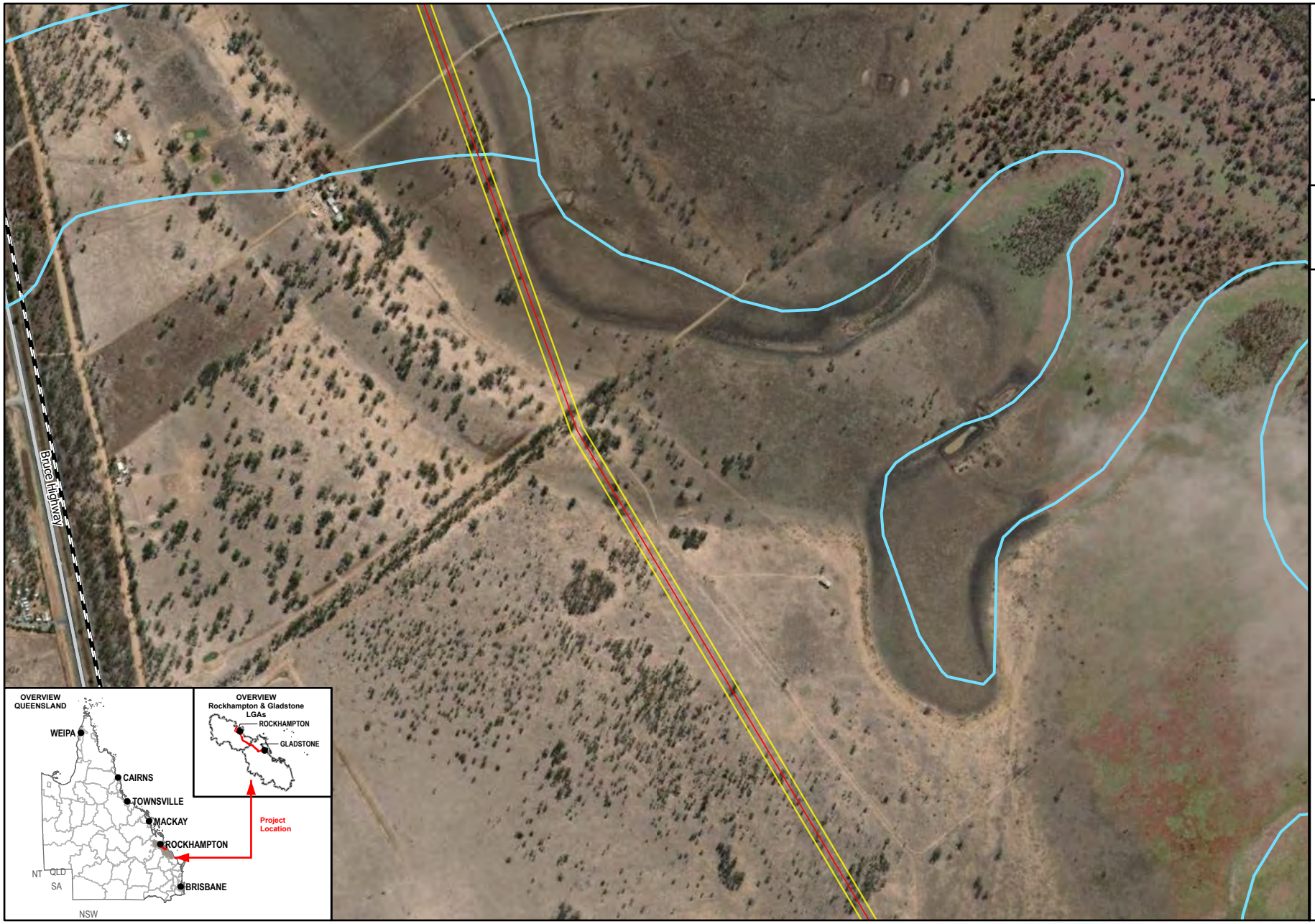
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19u
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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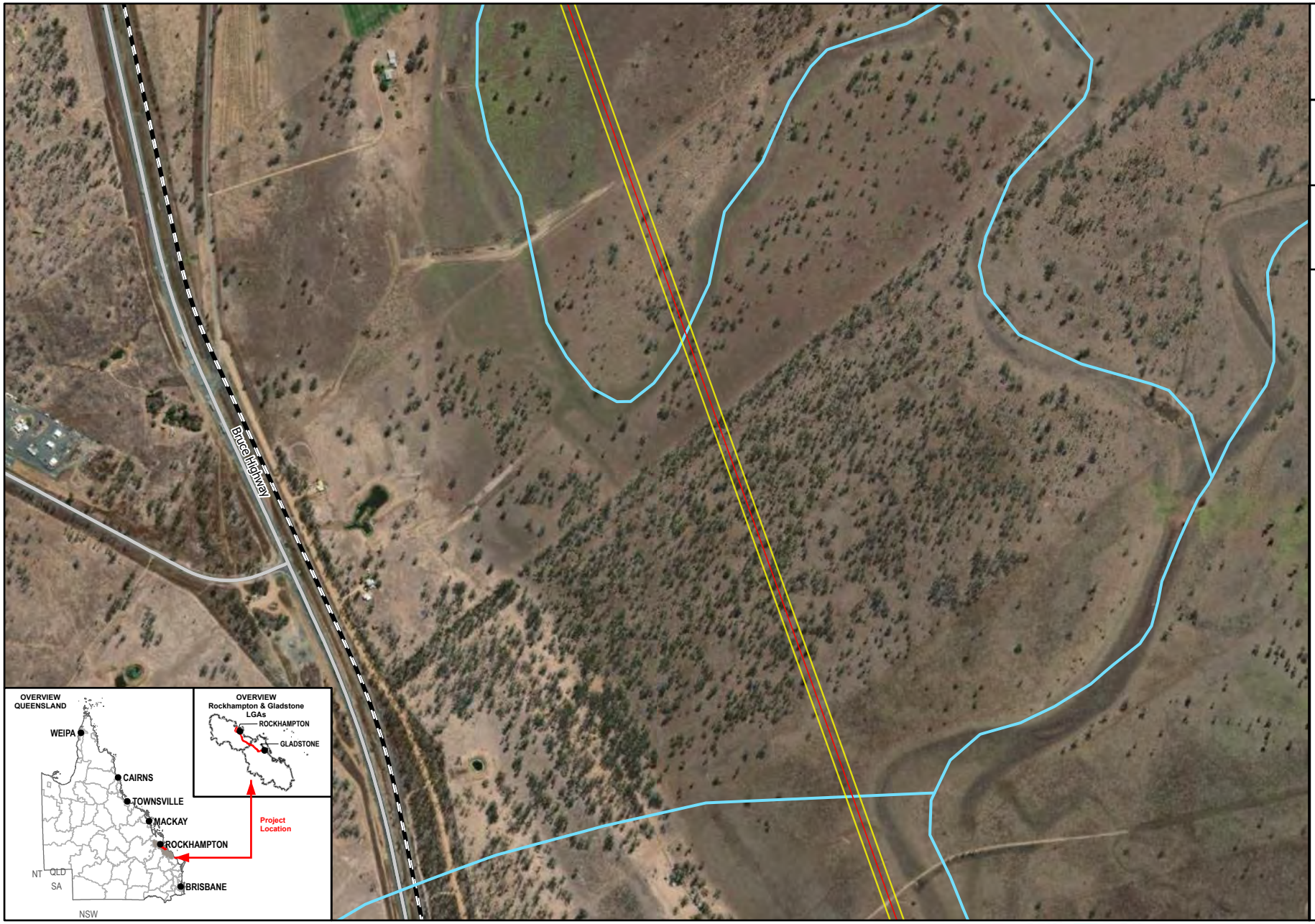
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19v
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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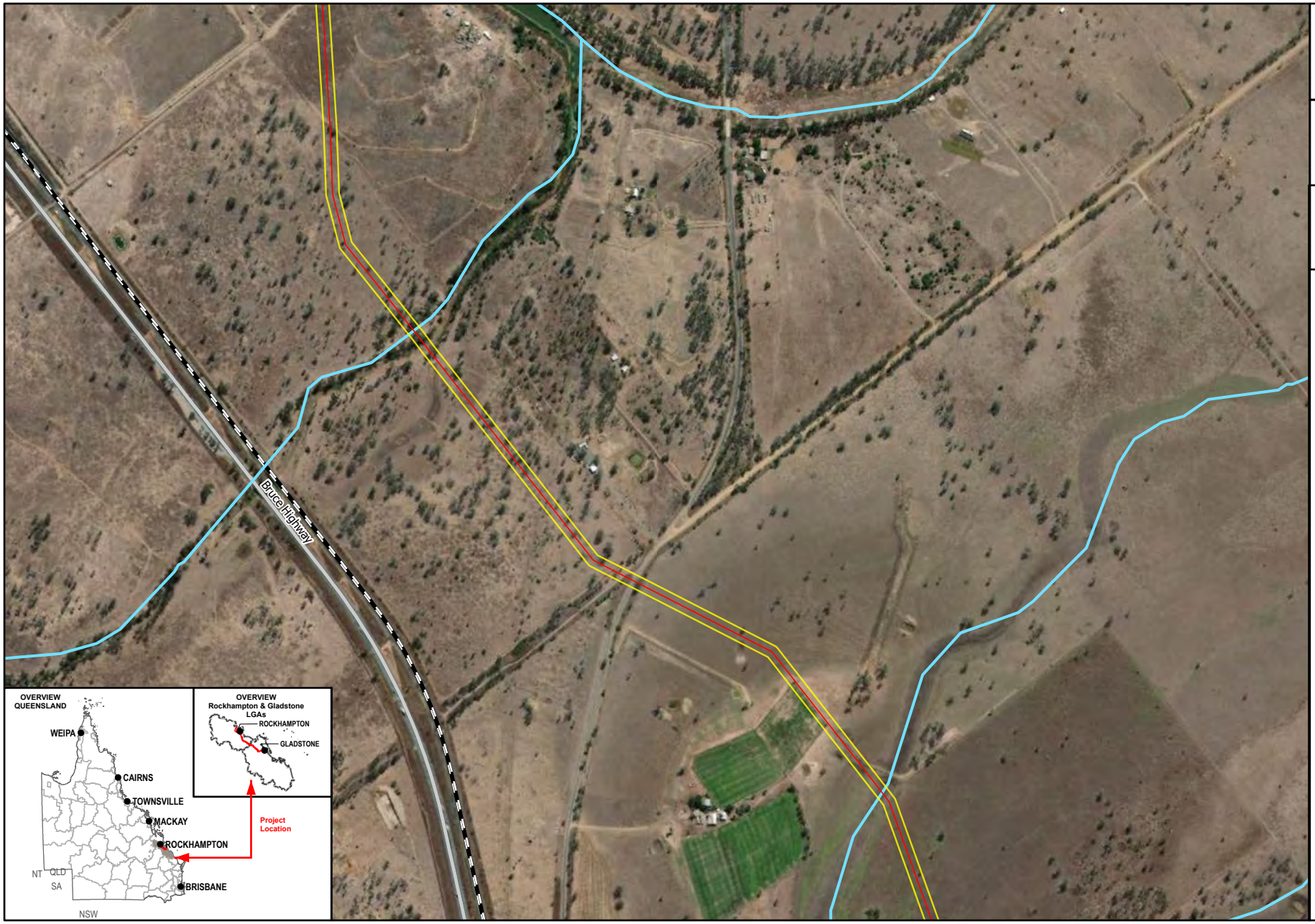
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19w
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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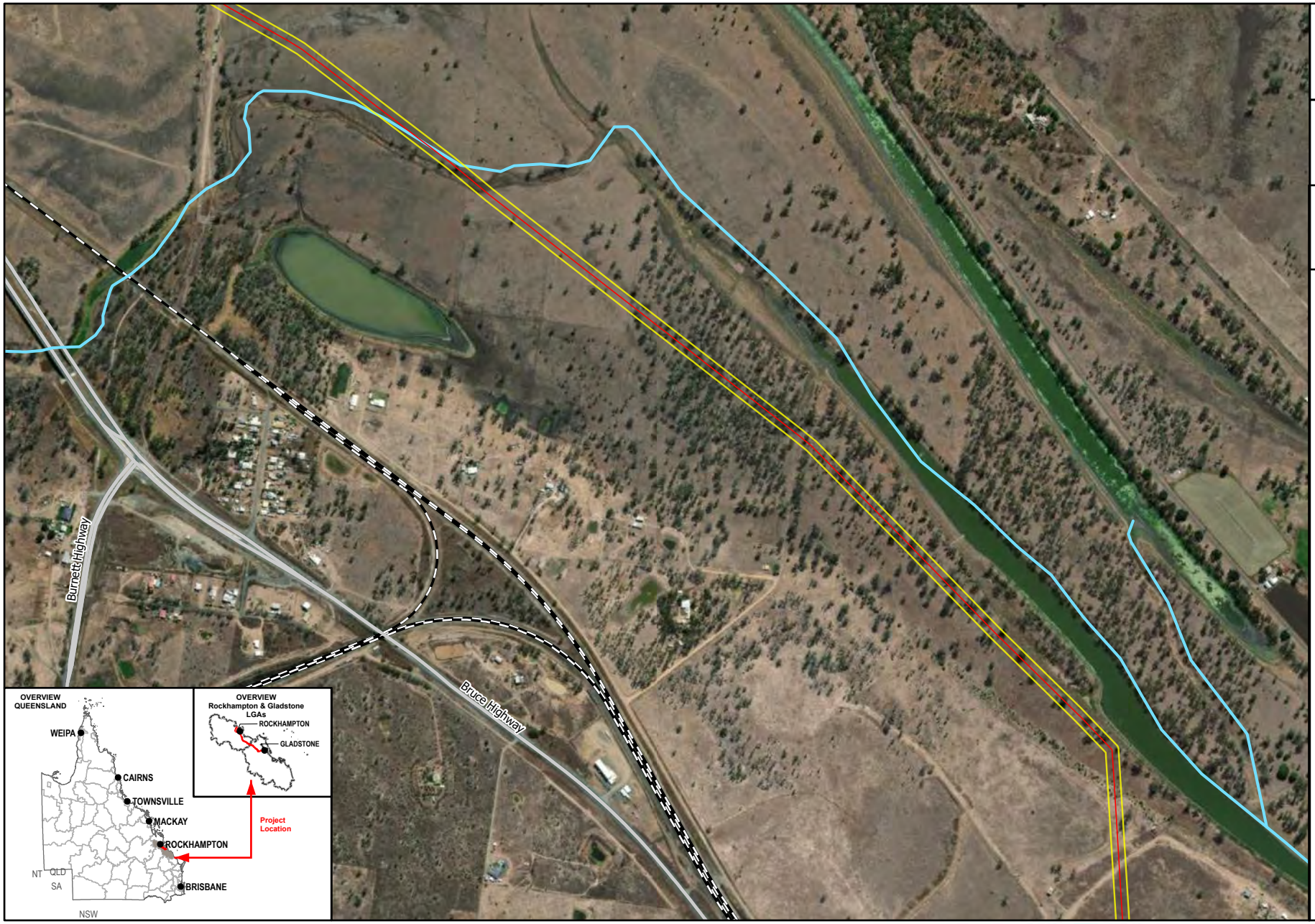
Figure 7-19x
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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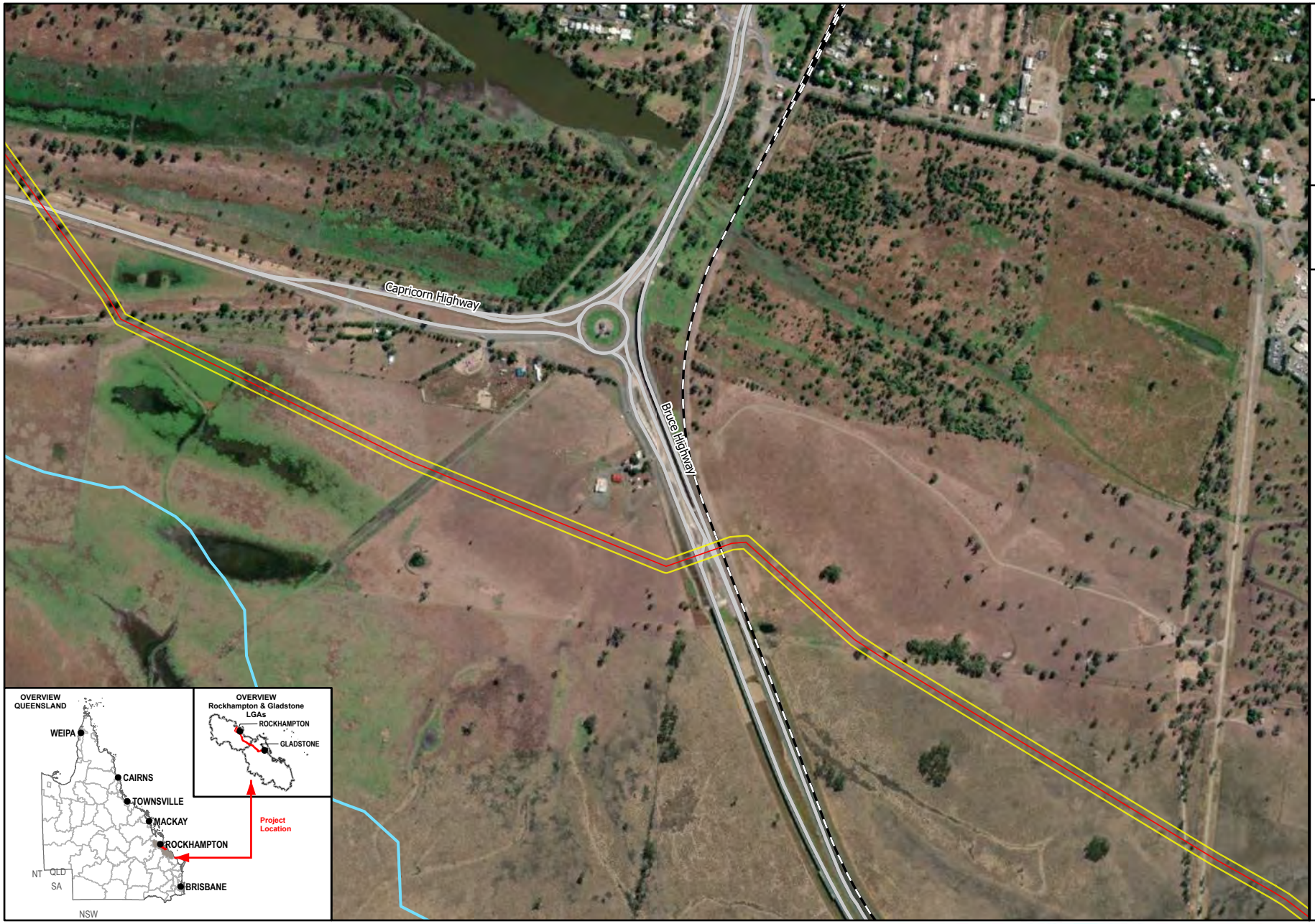
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19y
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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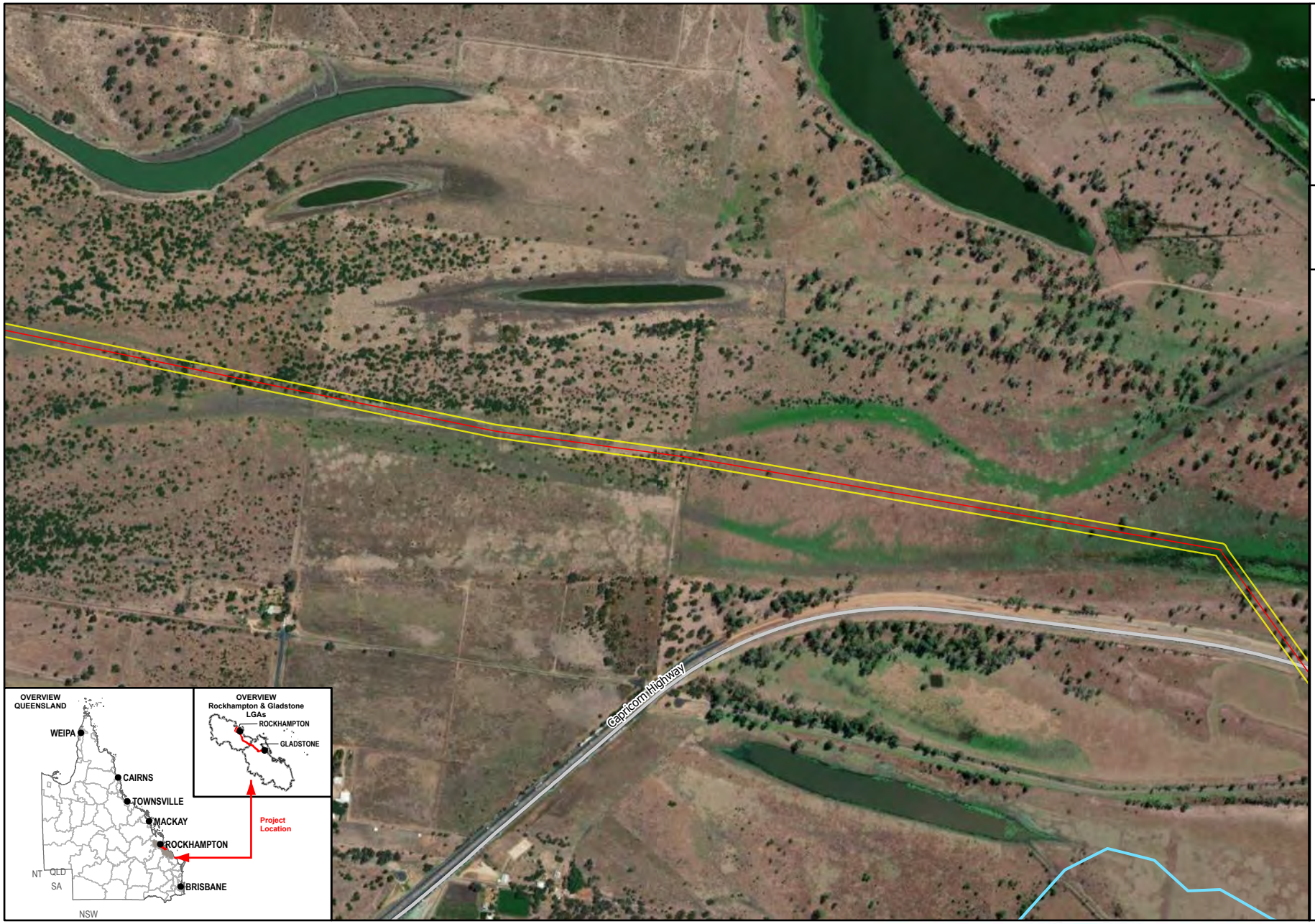
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19z
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads

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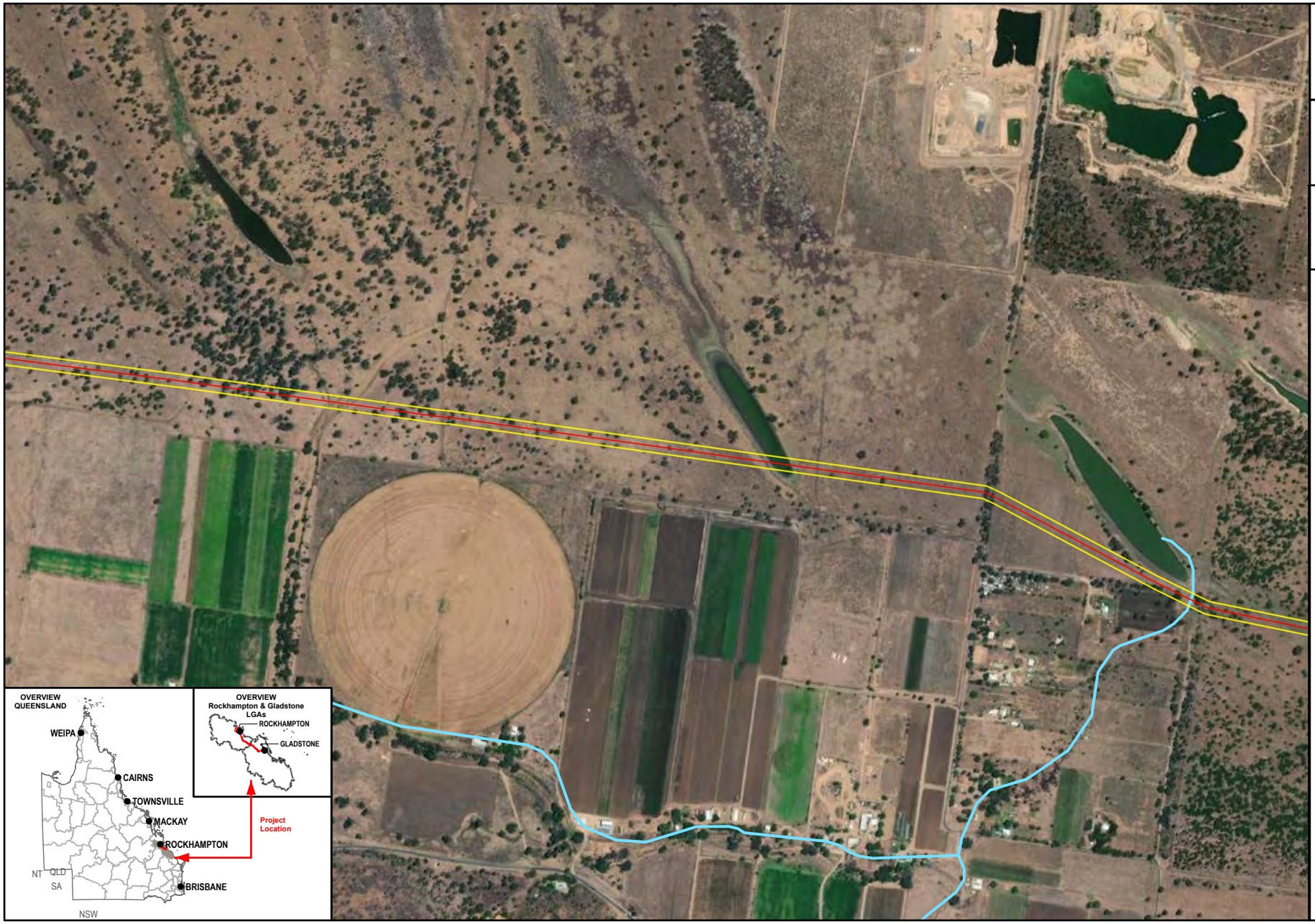
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19a1
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
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2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-19b1
Distribution of Green Turtle Habitat Within the SGIC SDA Study Area
000-G-MAP-2440 Version:3 Date:20/09/2022

7.2.2.15 Estuarine crocodile

Conservation status and species ecology

The estuarine crocodile is listed as marine and migratory under the EPBC Act and vulnerable under the NC Act. The species is found in a wide range of habitats including rivers, estuaries, creeks, swamps, lagoons and billabongs. Within Queensland, the distribution of the estuarine crocodiles generally extends from Gladstone in the south through to the Cape York Peninsula in the north and across to the border with the Northern Territory in the west. Individual estuarine crocodiles have historically been observed as far south as the New South Wales border, with occasional contemporary records in the Mary River catchment. This species is limited in their upstream movement primarily by physical barriers such as escarpments and instream water infrastructure such as dams and weirs (Cogger 2000).

Field survey results and distribution of suitable habitat

The estuarine crocodile was not recorded during field surveys but is considered likely to occur with two historic records occurring in the Fitzroy River within the desktop search extent (10km buffer). Optimal habitat also occurs within Raglan Creek (site 2) and Inkerman Creek (site 4) (Figure 7-20). Both sites are estuarine tidal creeks that connect to the Fitzroy River Delta and are considered suitable foraging and nesting habitat. Twelve Mile Creek (site 3) and Gavial Creek (site 6) contain sub-optimal habitat for the species and therefore the estuarine crocodile may occur within these waterways. Site 30 is an isolated floodplain billabong near the Fitzroy River, movement from estuarine crocodiles in and out of this billabong is able to occur during floods. The billabong contains sub-optimal habitat for the species but would be able to support a small crocodile throughout the year, not just during flood times and therefore the species may still occur at this location. All other sites surveyed along the SGIC SDA were outside the known range and did not contain suitable habitat for the estuarine crocodile.

Significant Residual Impact Assessment

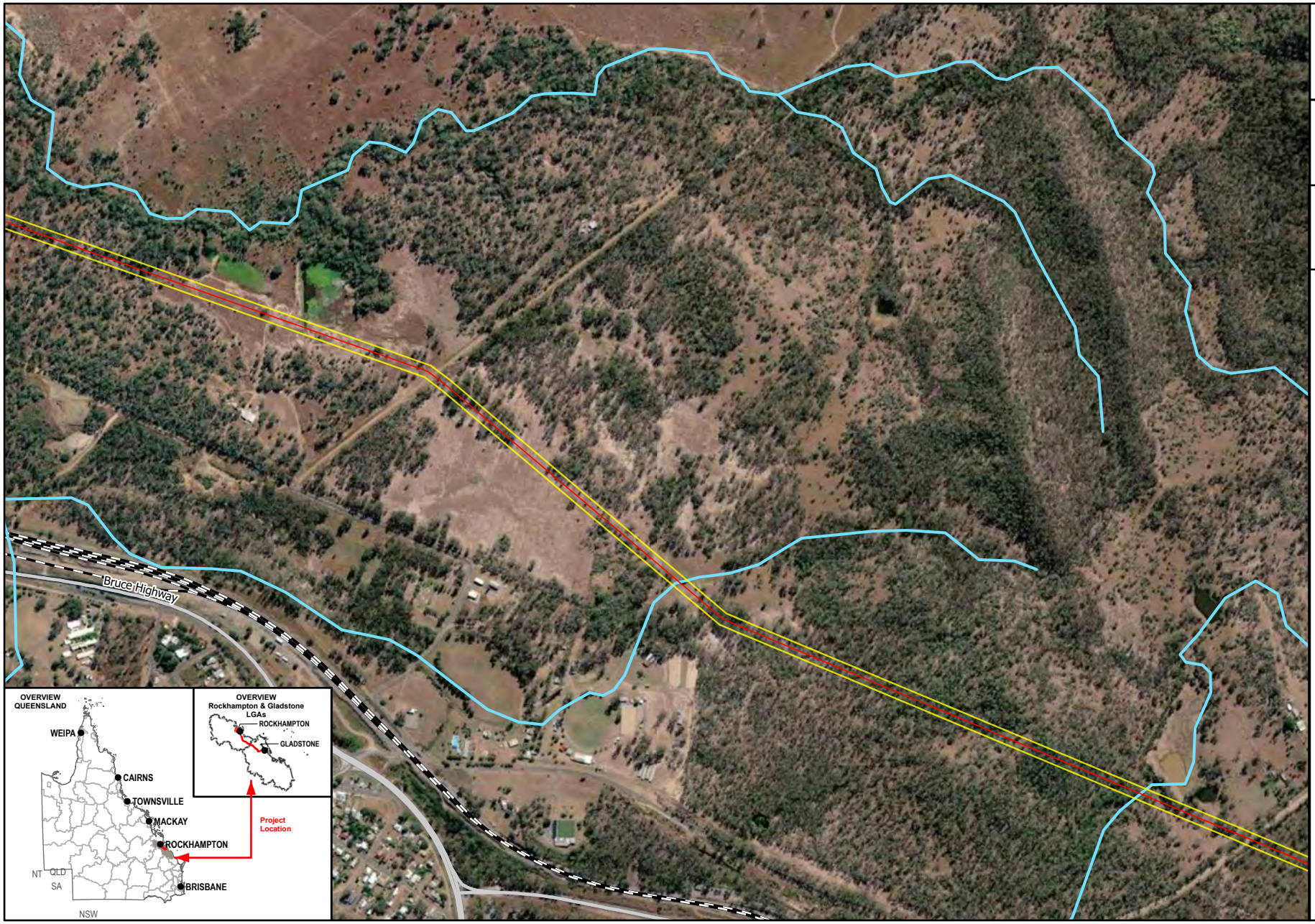
The project is unlikely to have a significant residual impact on the estuarine crocodile due to the temporary nature of the works and construction techniques that minimise disturbance of the creek bed and bank and avoid creating barriers for the creeks' connectivity. Restoration of habitat, including potential nesting banks, will also occur following construction. A significance of impact assessment of the project on the estuarine crocodile (migratory EPBC Act, vulnerable NC Act) is provided in Table 7-33.

Table 7-33 Significance of impact for estuarine crocodile

Significant residual impact criteria	Potential to occur
A long-term decrease in the size of a local population	**Unlikely** The estuarine crocodile is found in a wide range of habitats including rivers, estuaries, creeks, swamps, lagoons and billabongs. Within Queensland, the distribution of the estuarine crocodiles generally extends from Gladstone in the south through to the Cape York Peninsula in the north and across to the border with the Northern Territory in the west. This species is limited in their upstream movement primarily by physical barriers such as escarpments and instream water infrastructure such as dams and weirs (Cogger 2000). The estuarine crocodile was predicted to occur within the study area due to the presence of nearby historical records and areas of suitable habitat along the SGIC SDA pipeline alignment. Sites 2 and 4 both provide optimal foraging habitat with potential nesting habitat areas. Sites 3, 6 and 30 contain sub-optimal foraging habitat and marginal breeding habitat and therefore the species may occur at these locations. Proposed works for pipeline crossing creeks include trench and trenchless methods (trenchless methods are the preferred methods for any wetted creek crossings). Any trenched works conducted within creeks will be designed for minimal vegetation removal and minimal disturbance of the creek bed and bank as far as reasonably practicable. A maximum 30 m corridor for the SGIC SDA pipeline alignment will be cleared for the trench. The impact area for all sites will be rehabilitated with bed and banks restored to pre-works profile. Loss of habitat and restricted movement will be temporary and is therefore unlikely to lead to a long-term decrease in the size of the local population.

Significant residual impact criteria	Potential to occur
Reduce the extent of occurrence of the species	**Unlikely** The estuarine crocodile was predicted to occur within the study area due to the presence of nearby historical records and areas of suitable habitat along the SGIC SDA pipeline alignment. Sites 2 and 4 both provide optimal foraging habitat with potential nesting habitat areas. Sites 3, 6 and 30 contain sub-optimal foraging habitat and marginal breeding habitat and therefore the species may occur at these locations. All works at these sites will be conducted in accordance with DAF's 'ADR for operational work that is constructing or raising waterway barrier works' (DAF 2018). The works will be restricted temporally to a small, localised area, with measures in place to avoid long-term impacts to habitat. Following construction, habitat will be restored, and operation of the pipeline will have no direct or indirect impacts on the species or their habitat. With these measures in place, it is unlikely that a reduction of the extent of occurrence of the species will occur.
Fragment an existing population	The works will be restricted temporally to a small, localised area, with measures in place to ensure fragmentation of the species does not occur. Specifically, any restriction on flow or crocodile movement will be temporary with works undertaken within a maximum of 180 days (DAF's 'ADR for operational work that is constructing or raising waterway barrier works' (DAF 2018)). Following construction, habitat will be restored, and operation of the pipeline will have no direct or indirect impacts on the species or their habitat. These measures will ensure that no fragmentation of the population will occur.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** The potential for habitat isolation during the construction phase of the project will occur outside of the estuarine crocodile active breeding season and will be limited to a maximum of 180 days (DAF's 'ADR for operational work that is constructing or raising waterway barrier works' (DAF 2018)). Once construction is complete, there will be no permanent barriers to crocodile movement and therefore the project is unlikely to result in genetically distinct populations forming as a result of habitat isolation.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	**Unlikely** Introduced fish species in the Fitzroy River and surrounding waterways are not known to be a key threatening process to the estuarine crocodile. The implementation of the CEMP and a Weed and Pest Management Plan will reduce the risk of introducing new invasive species or spreading existing weeds within the waterways, which could cause habitat degradation. As such, the project is not expected to result in the establishment of invasive species in crocodile habitat.
Introduce disease that may cause the population to decline	**Unlikely** There are no known diseases that this species is susceptible to or threatened by that proposed works have the potential to introduce. Therefore, it is considered unlikely that construction and operation of the pipeline will have the potential to introduce disease to the extent that the estuarine crocodile population will decline.
Interfere with the recovery of the species	**Unlikely** Relevant to the project, habitat destruction is a major threat to the species (DAWE, 2022d). Threat abatement and recovery of the estuarine crocodile is focused on the management of marine waters (DAWE, 2022d). A maximum 30 m corridor for the SGIC SDA pipeline alignment will be cleared for the trench. The impact area for all sites will be rehabilitated with bed and banks restored to pre-works profile. Loss of habitat and restricted movement will be temporary. Crocodile habitat won't be permanently destroyed, ensuring the project is unlikely to contribute to key threating processes or interfere with recovery actions.

Significant residual impact criteria	Potential to occur
Result in disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species	**Unlikely** The works will be restricted to a small, localised area around the site. The duration of works will be less than 180 days (DAF's 'ADR for operational work that is constructing or raising waterway barrier works' (DAF 2018)) and will be restricted to avoid construction during the active breeding season (wet season) of the species. Pre-clearance surveys will be undertaken prior to the construction to identify risks to individuals and breeding habitat, and a high-risk SMP prepared if required. Works to be conducted at creek sites 2, 4, 3, 6 and 30 will ensure that crocodiles cannot enter the construction zone whilst installation of the pipeline structure occurs. Following construction, habitat will be restored, and operation of the pipeline will have no direct or indirect impacts on the species or their habitat. These measures result that the project is unlikely to cause disruption to ecologically significant locations of a species.
Conclusion	Restricted movement and loss of estuarine crocodile habitat is considered minimal and temporary; therefore, the project is not considered to have a significant residual impact on the species.



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20a
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

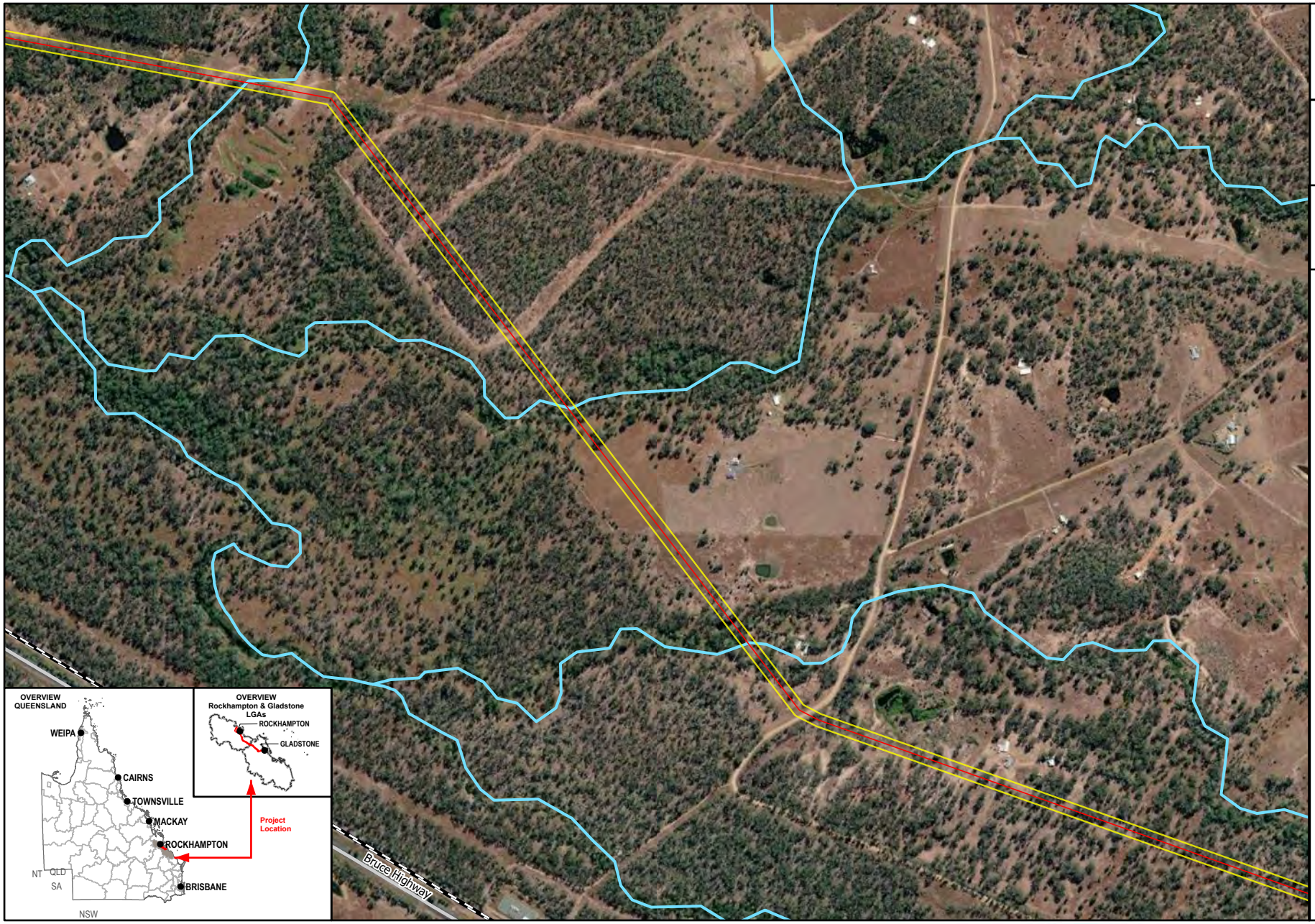

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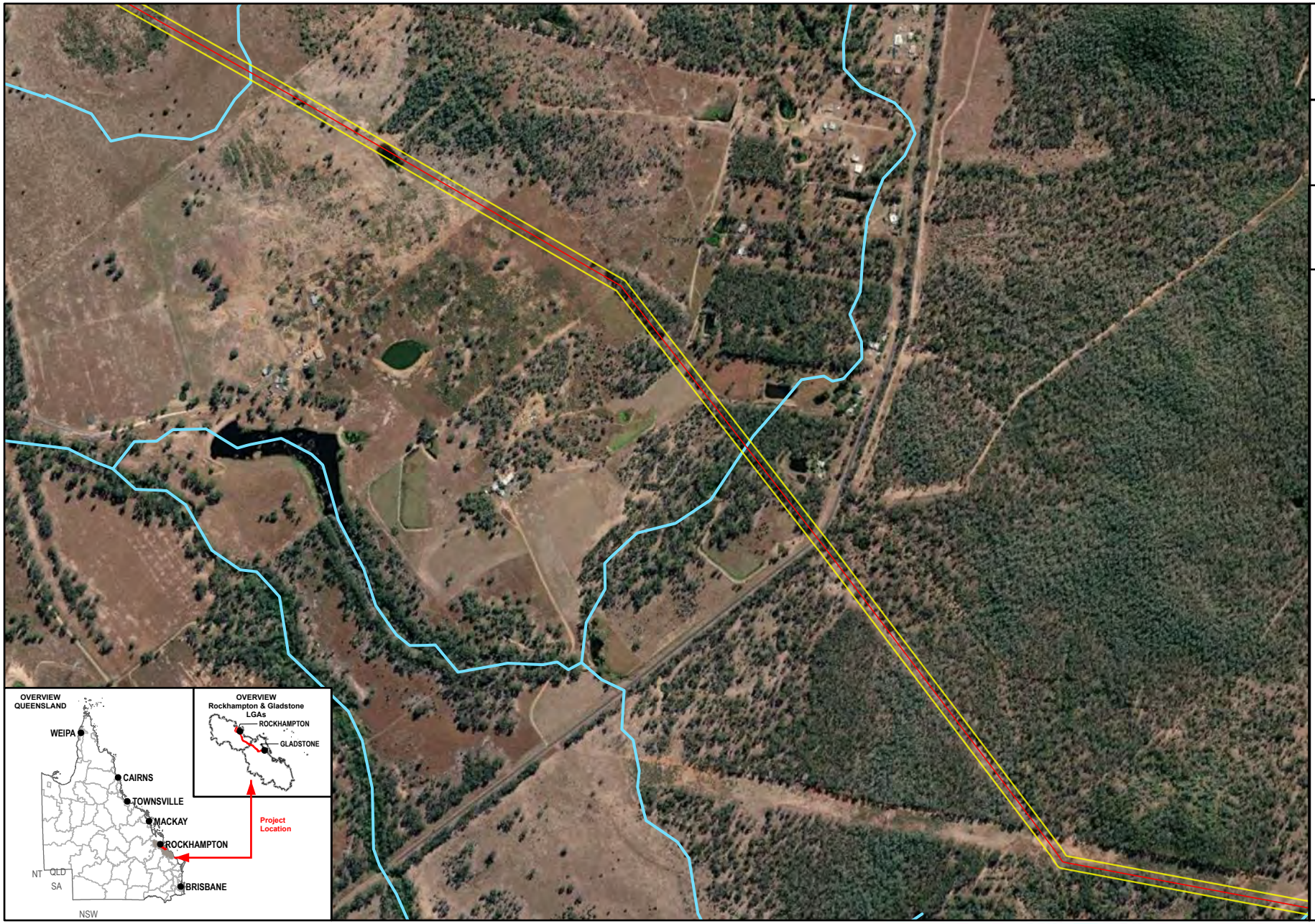
Figure 7-20b
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- Waterways

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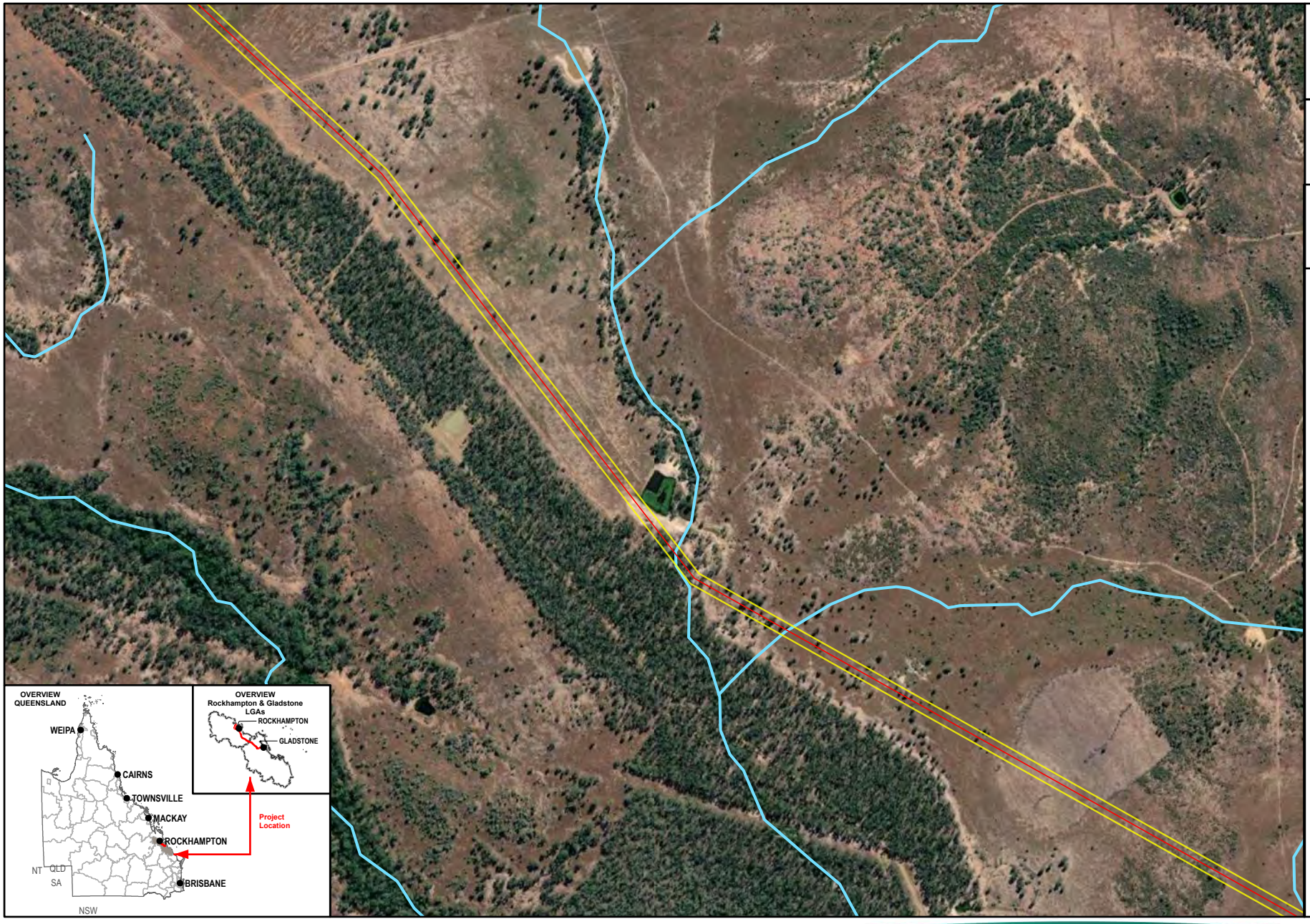
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20c
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- Waterways

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Figure 7-20d
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
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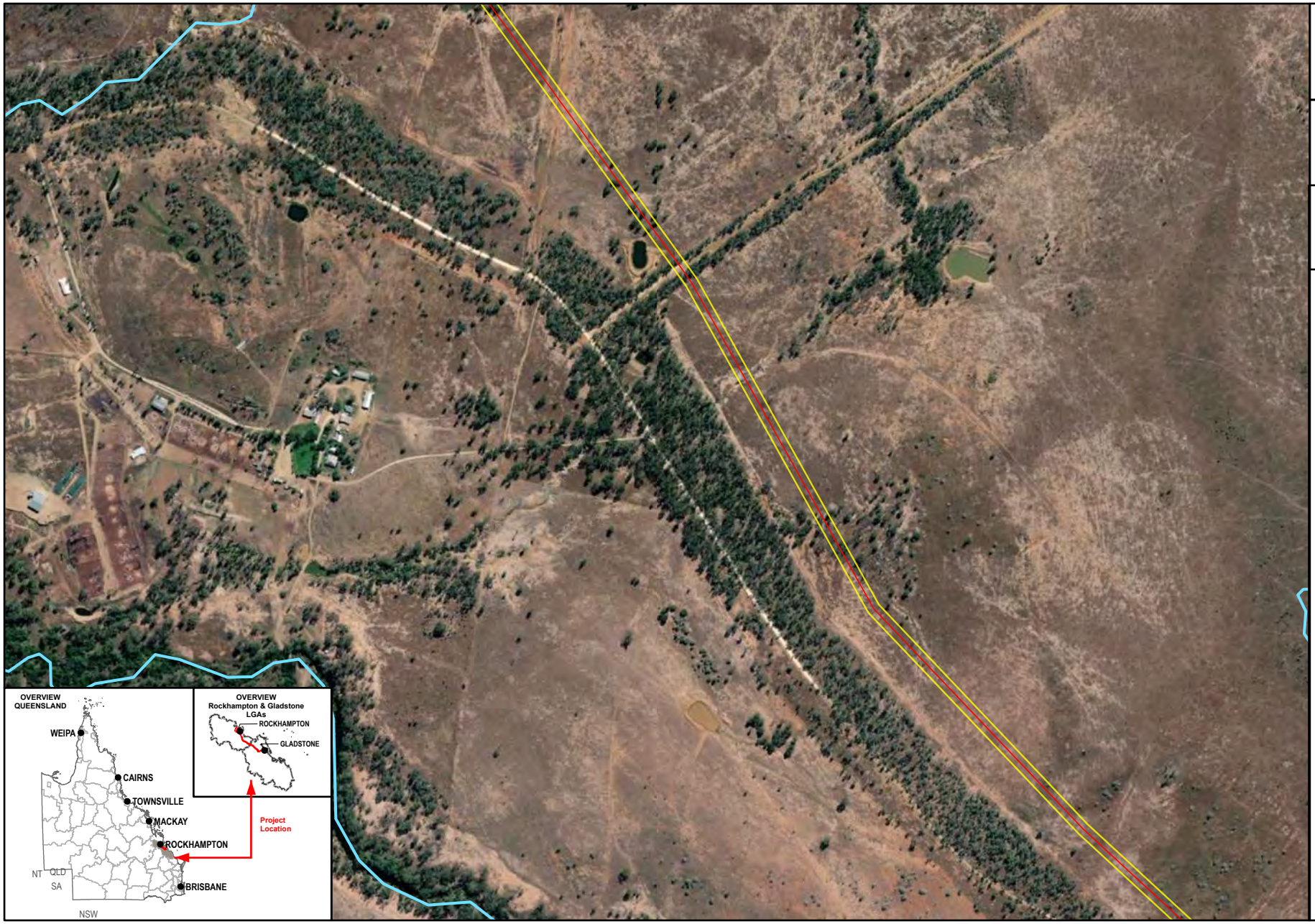

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- Study Area
- Waterways

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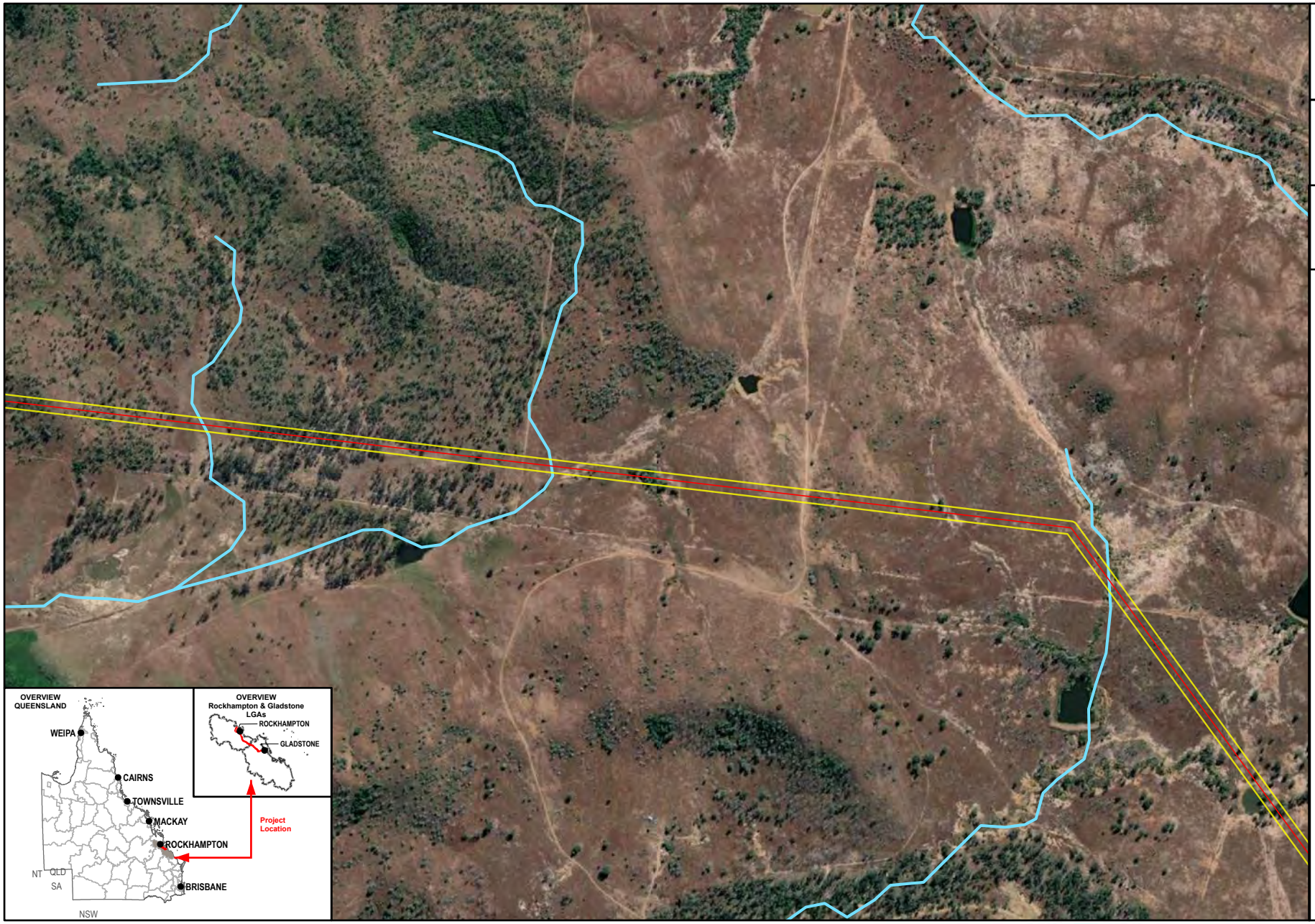
Figure 7-20e
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- Waterways

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Figure 7-20f
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
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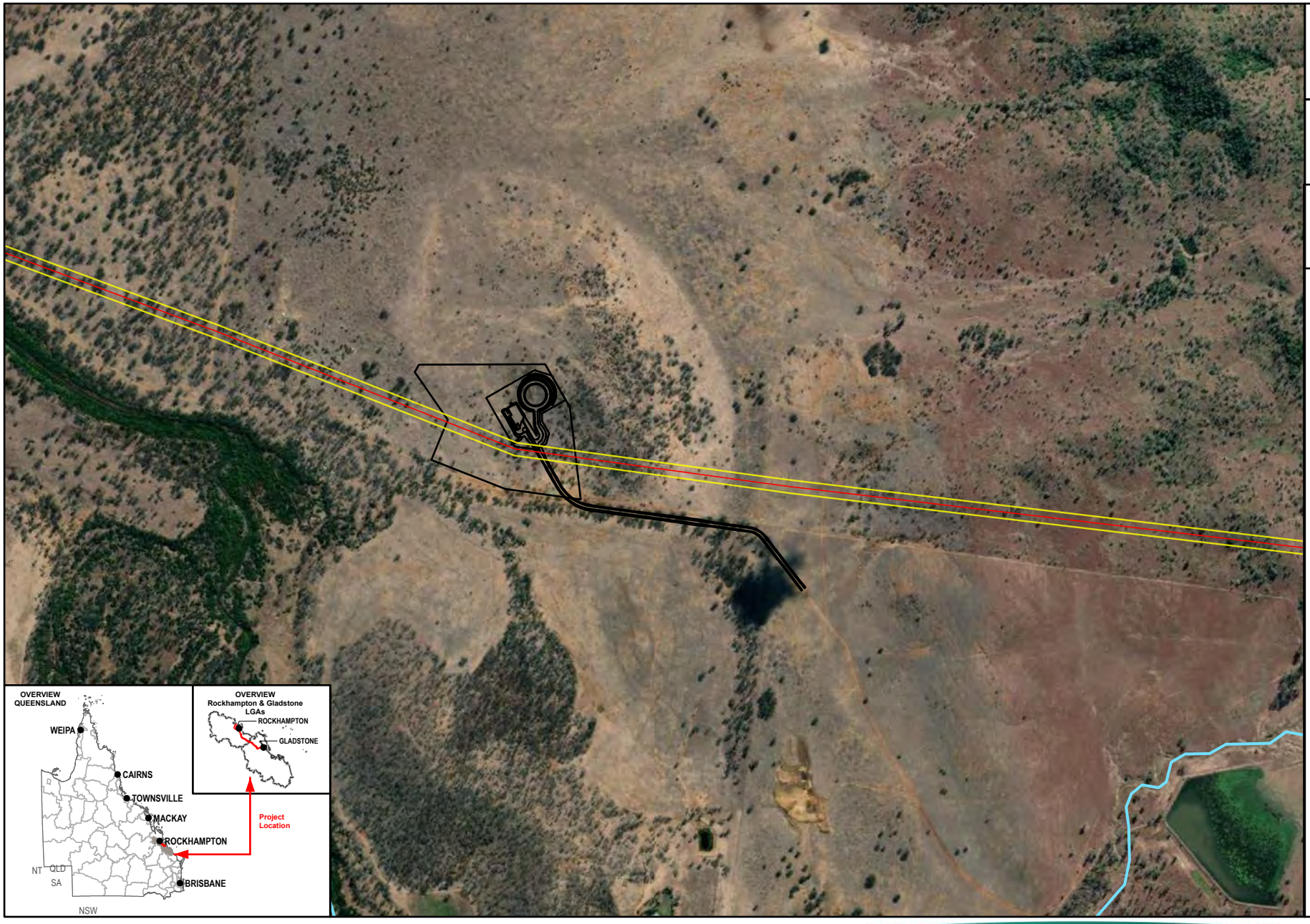

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- SGIC SDA Pipeline Alignment
- Study Area
- Raglan Pump Station and Reservoir Layout
- Waterways

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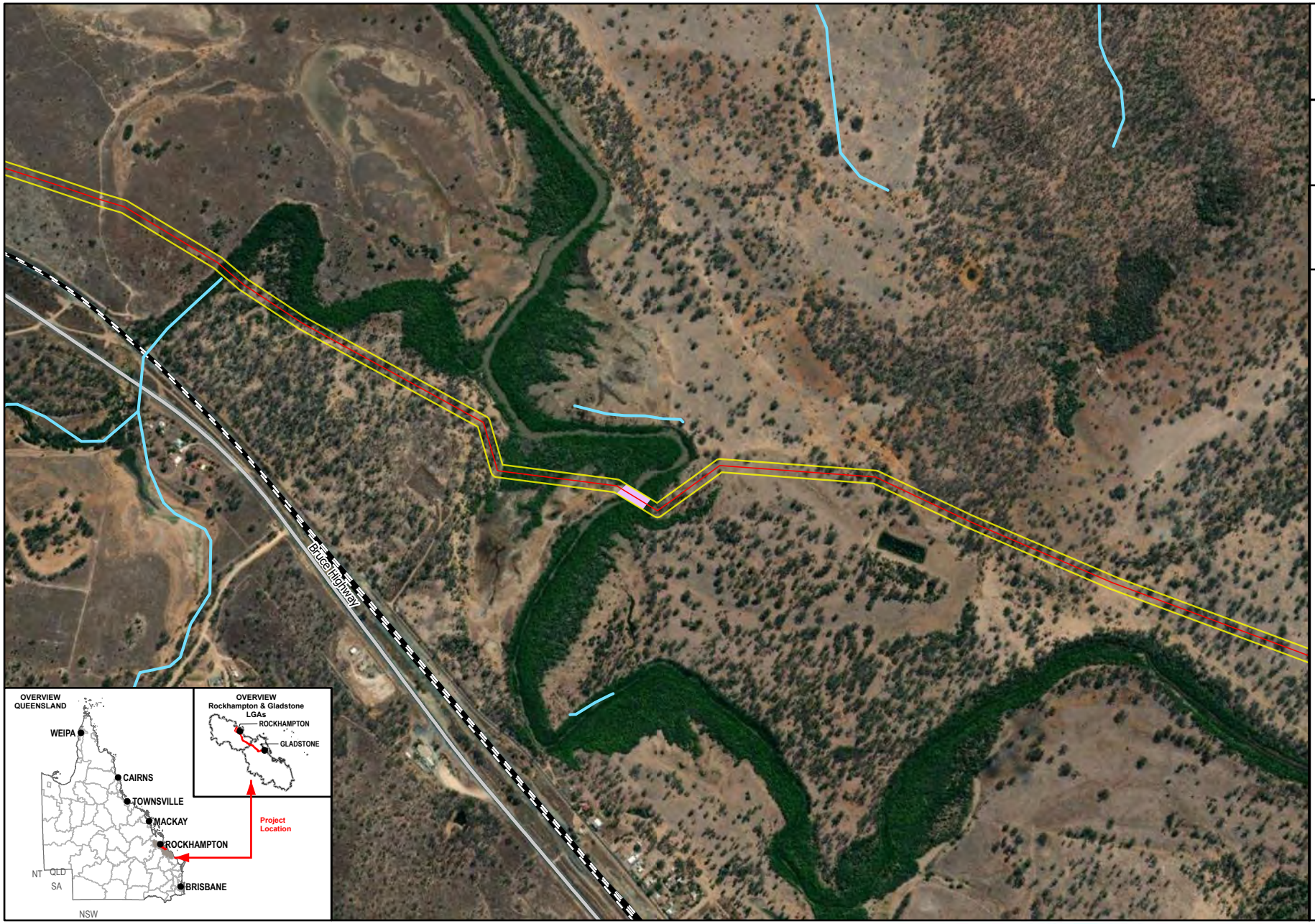
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20g
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Estuarine Crocodile Habitat
- Waterways
- Main Roads
- Railways

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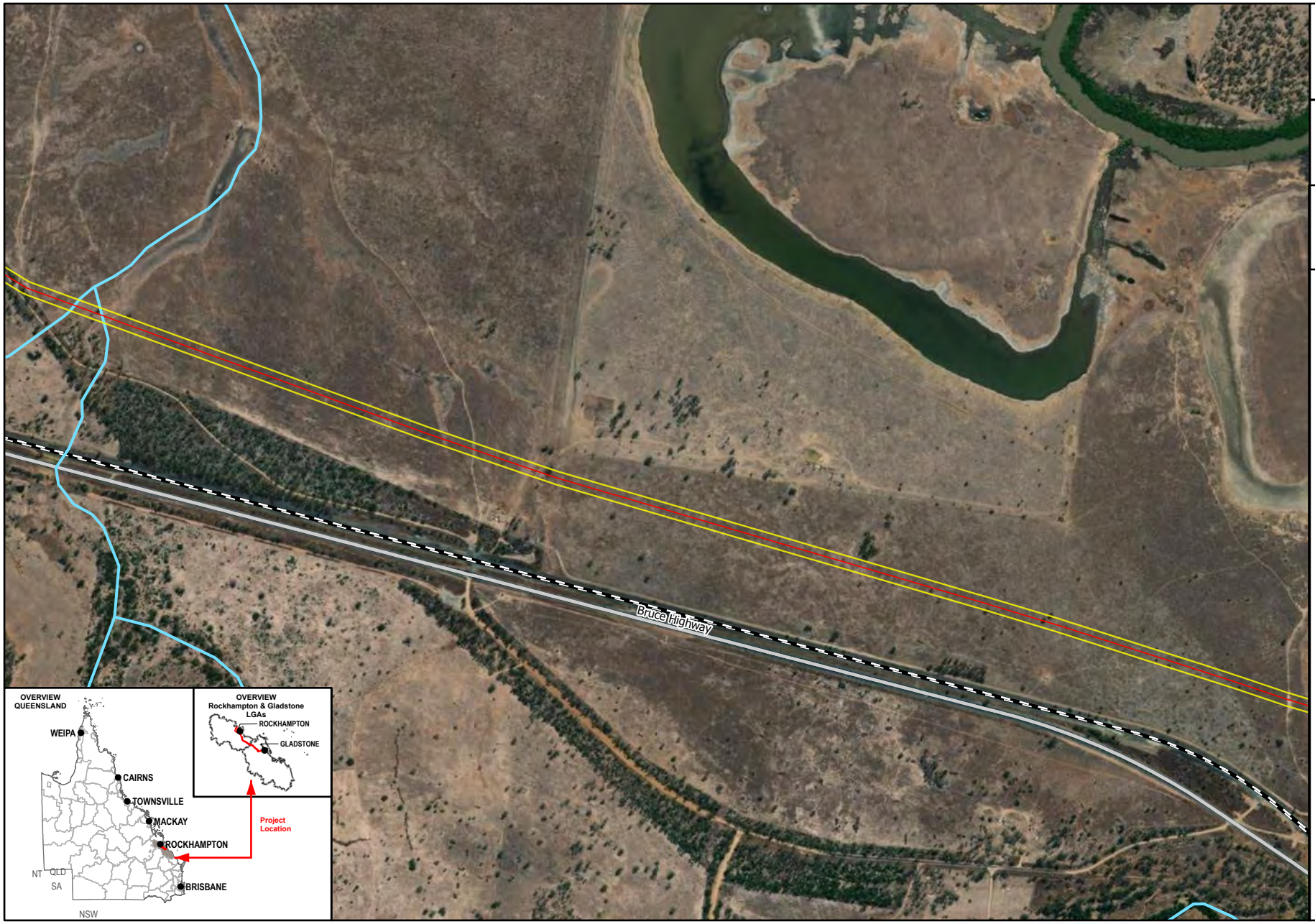

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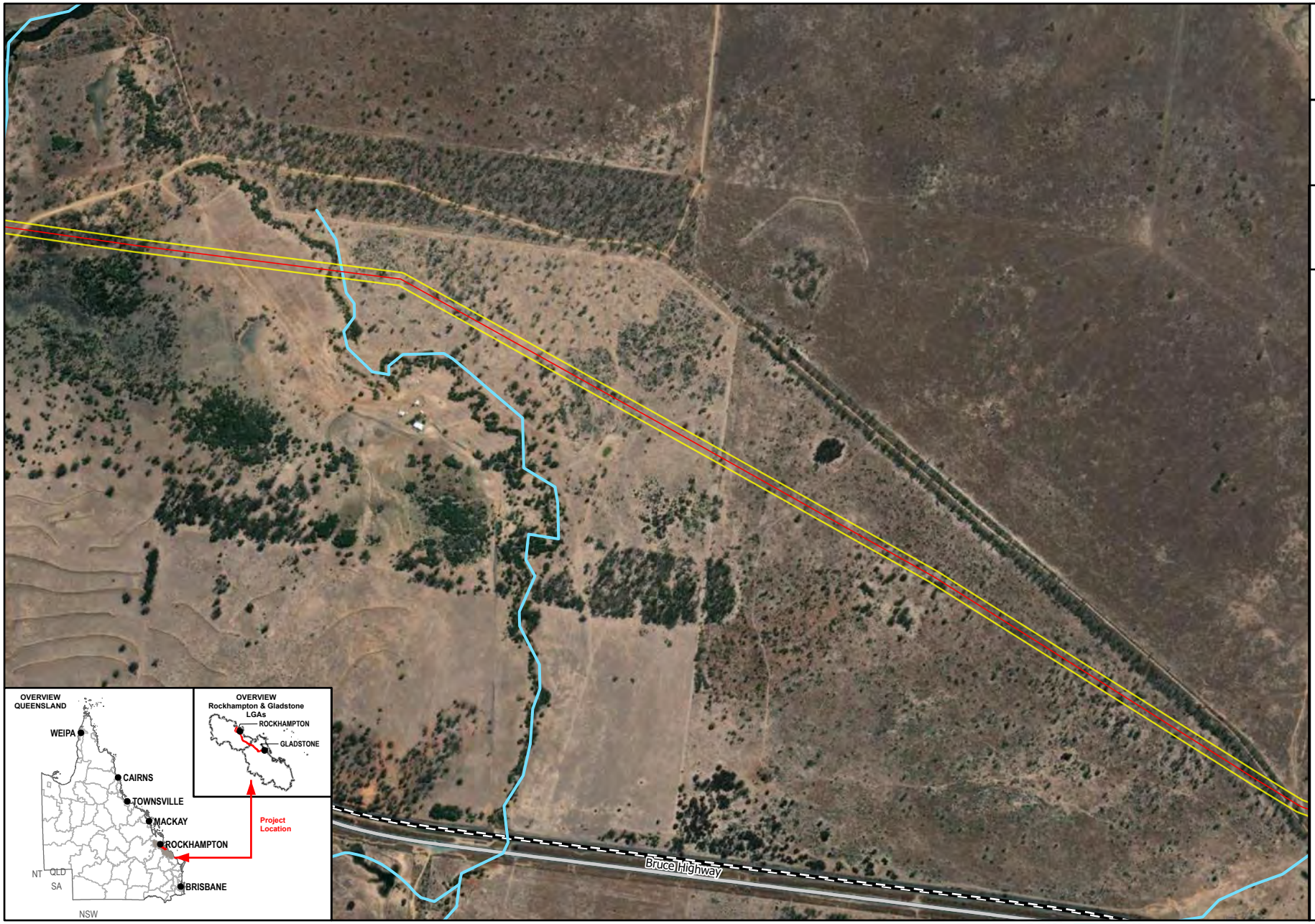

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Figure 7-20j
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
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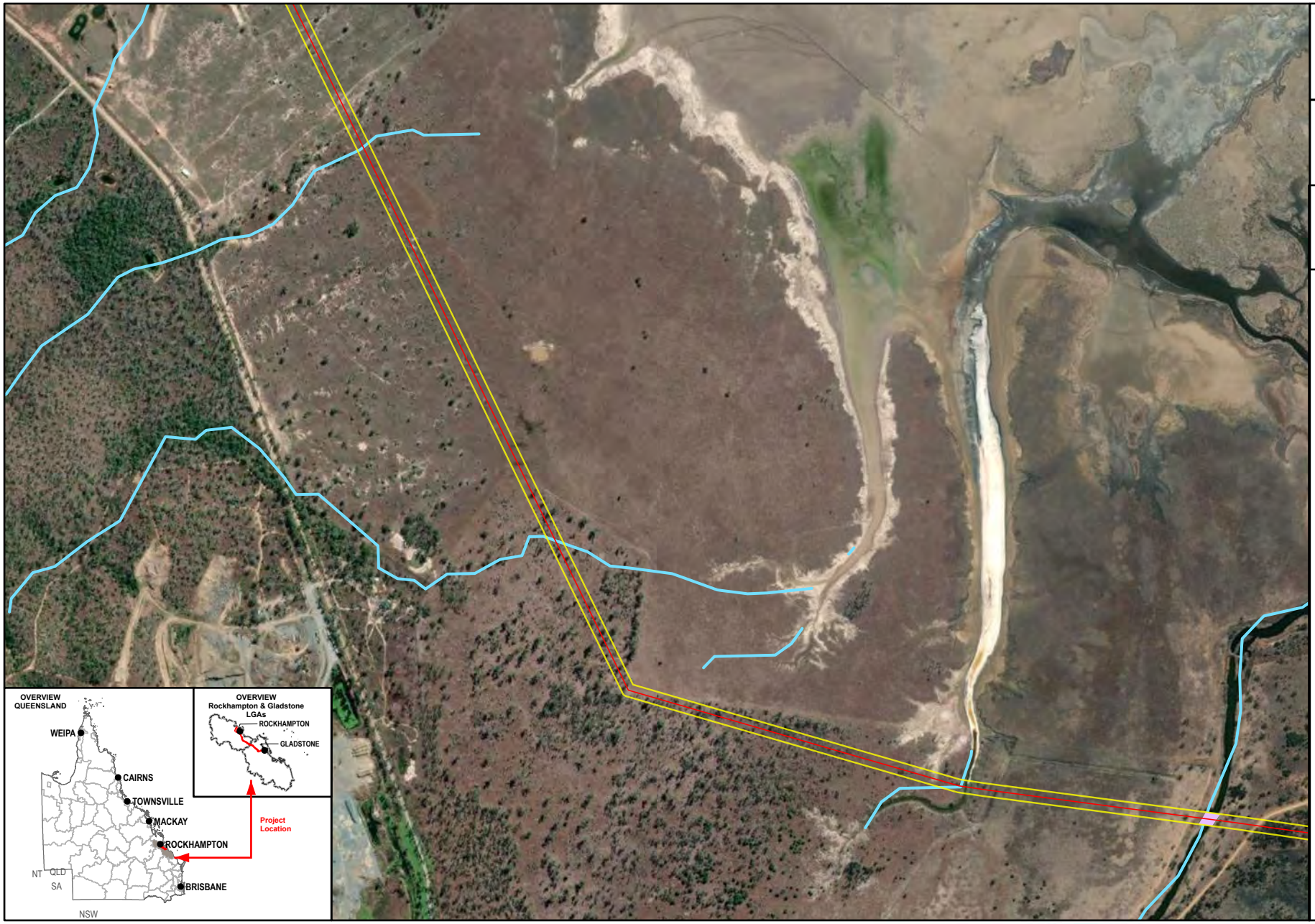

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PROJECTION UTM Zone 56
(Datum GDA2020)

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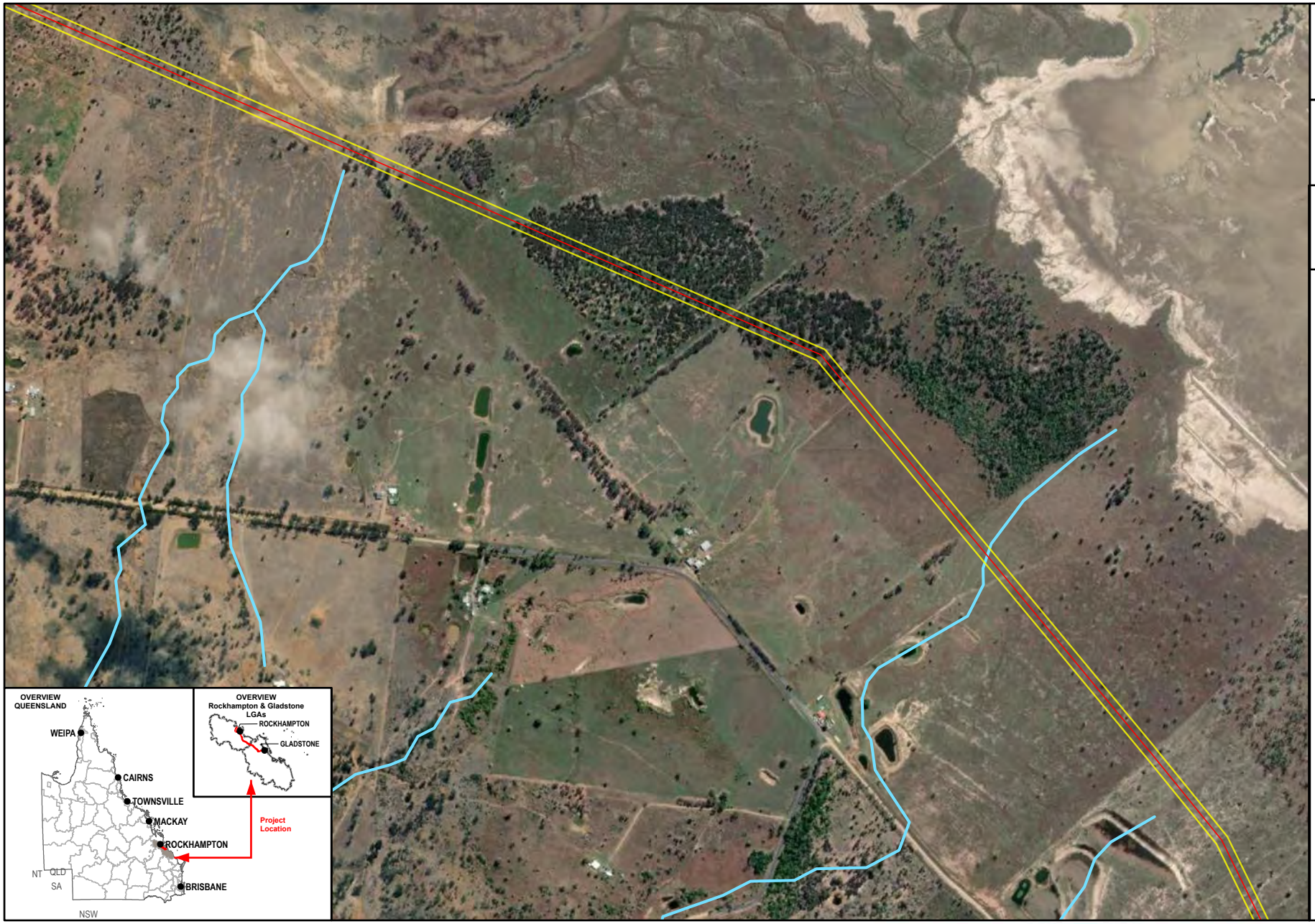
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20k
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
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Fitzroy to Gladstone Pipeline
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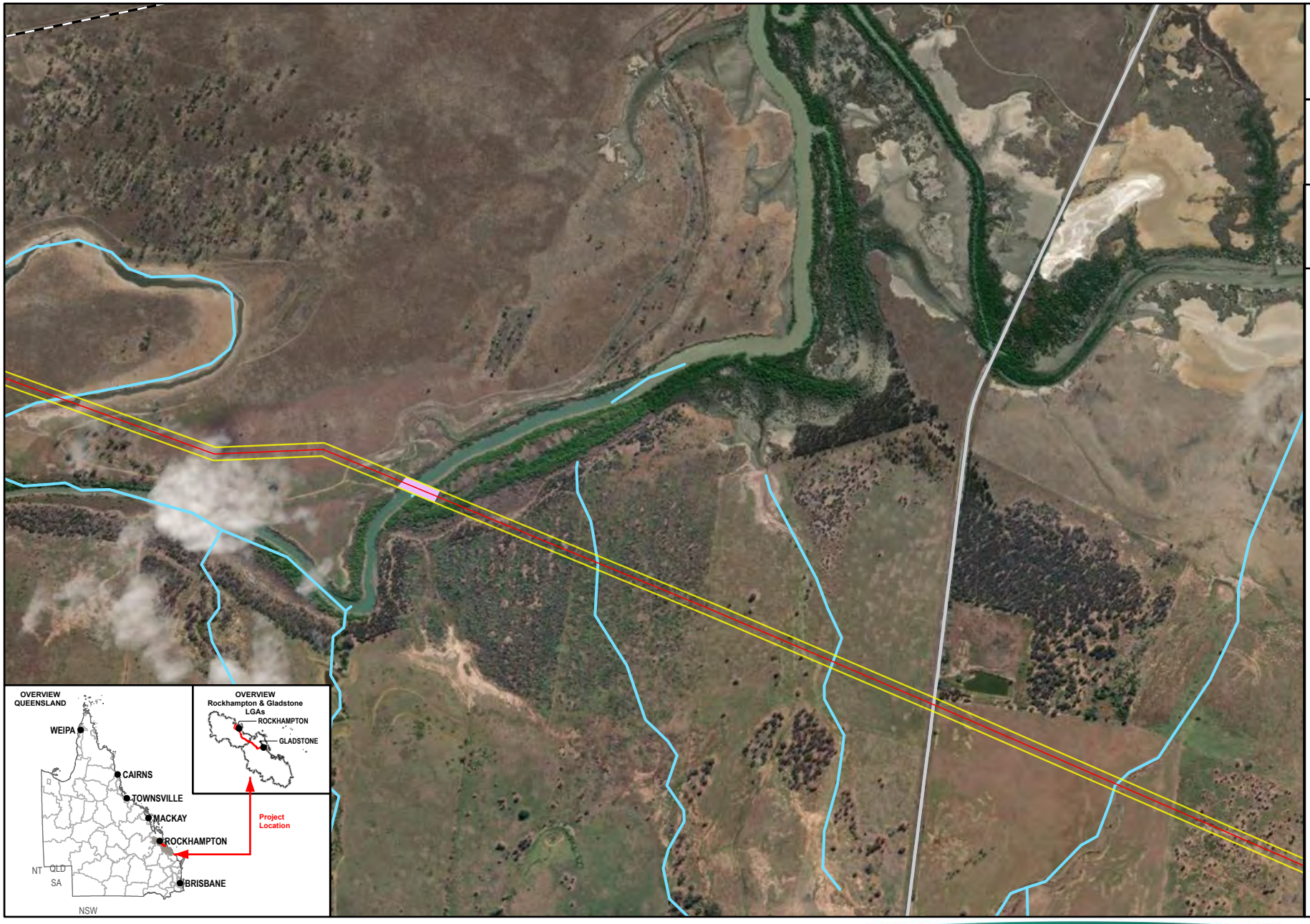
Figure 7-20l
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Estuarine Crocodile Habitat
- Waterways
- Main Roads
- Railways

Data Sources:
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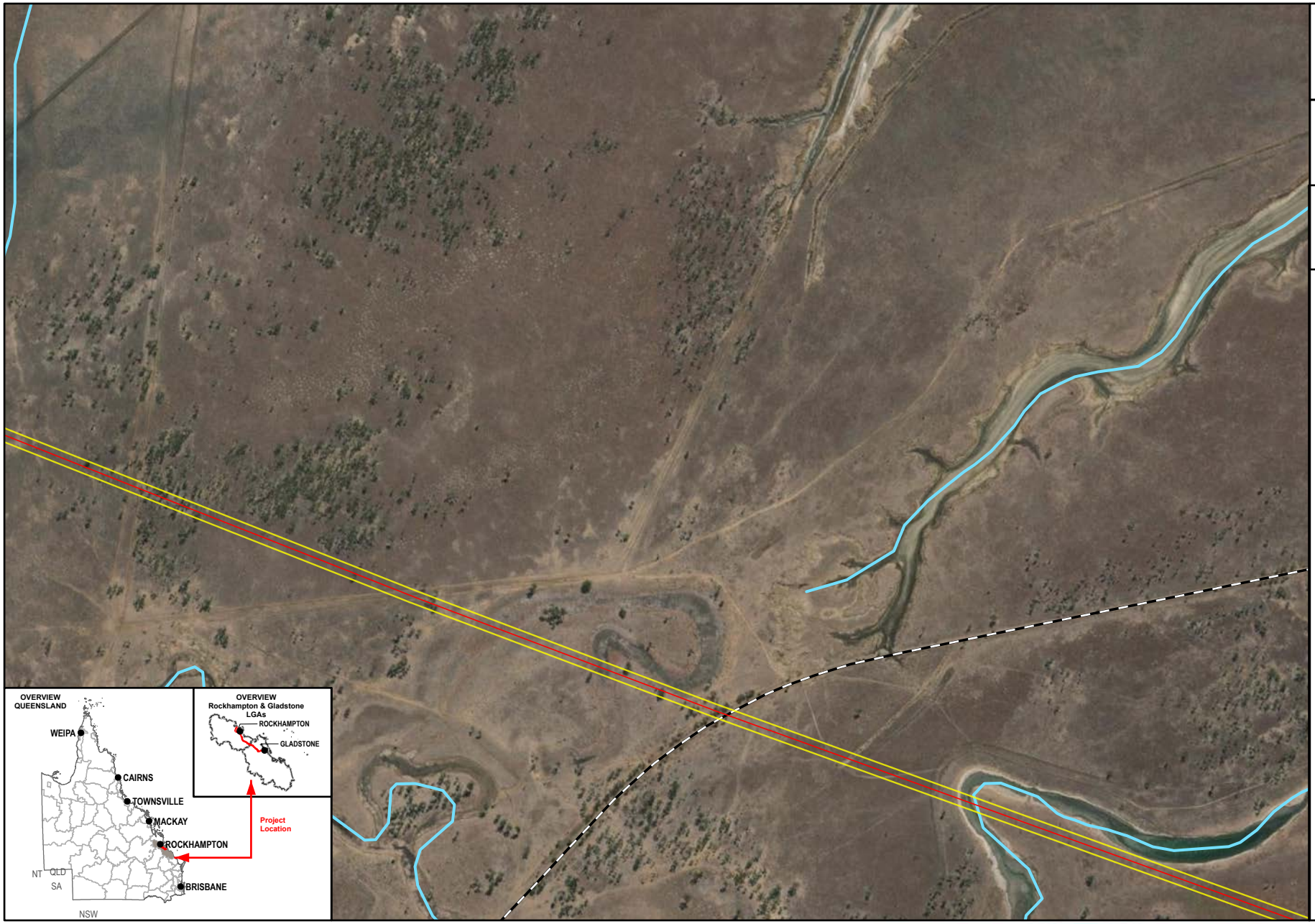
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20m
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

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Figure 7-20n
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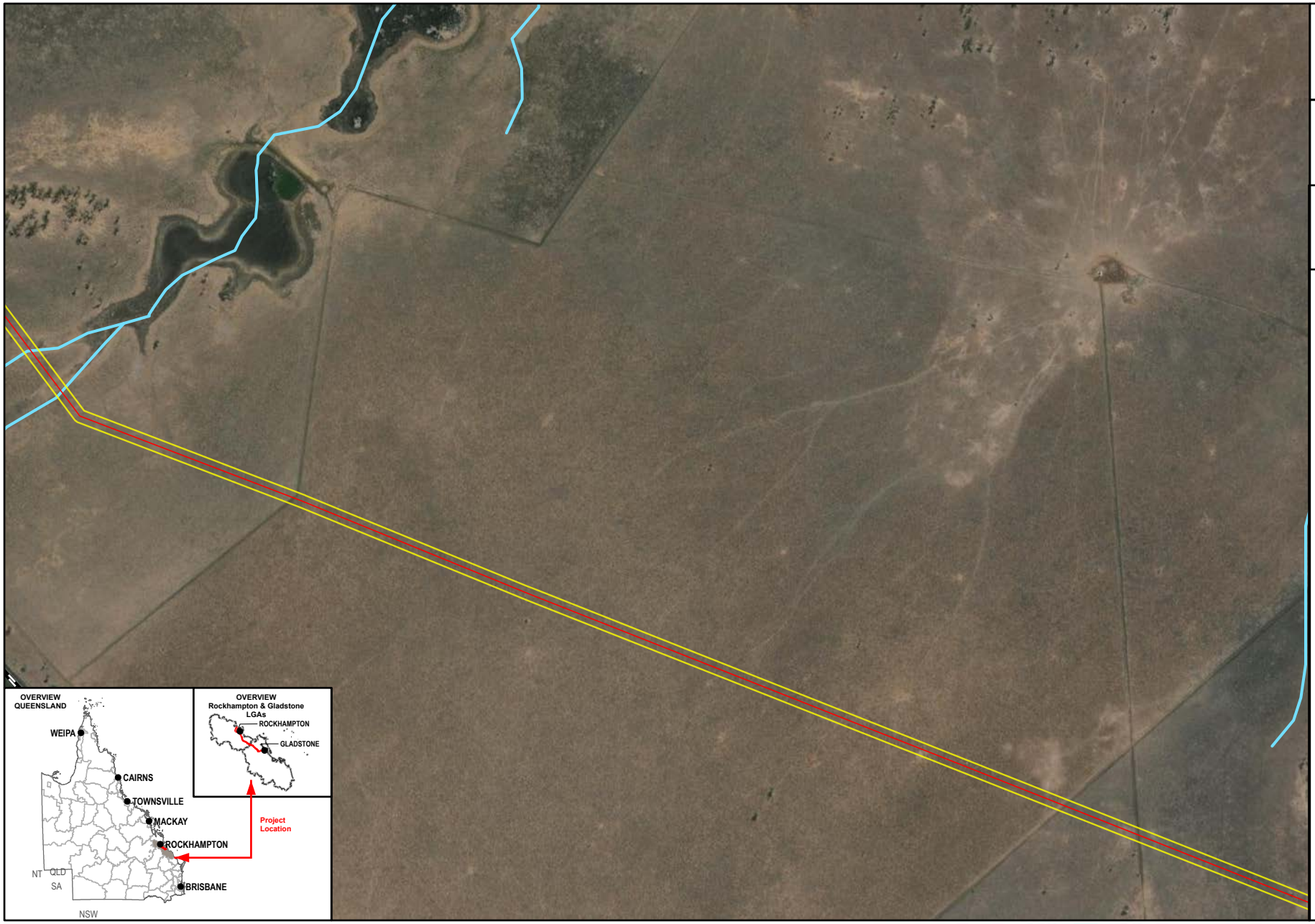
000-G-MAP-2441 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
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- Railways

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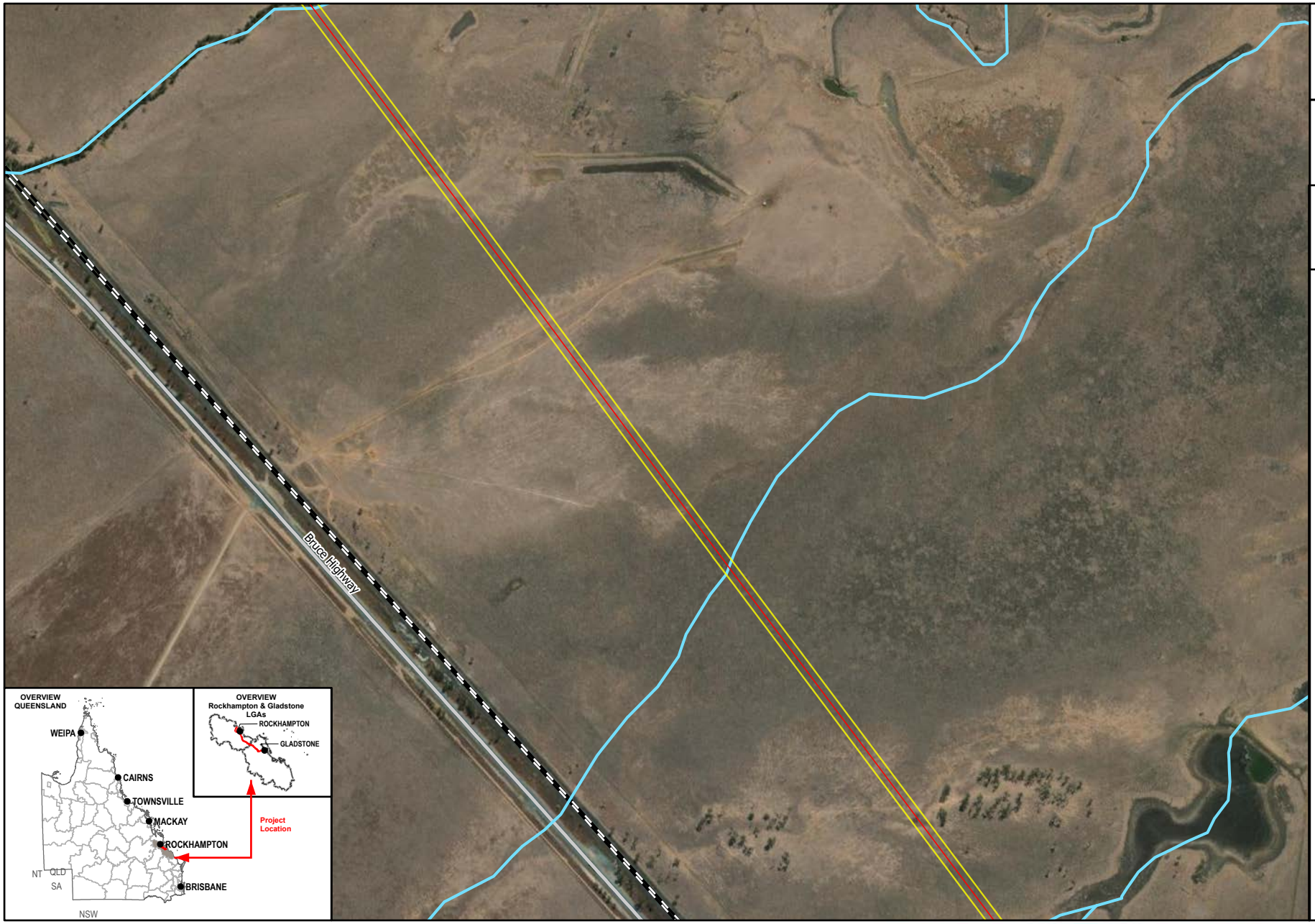
Figure 7-20o
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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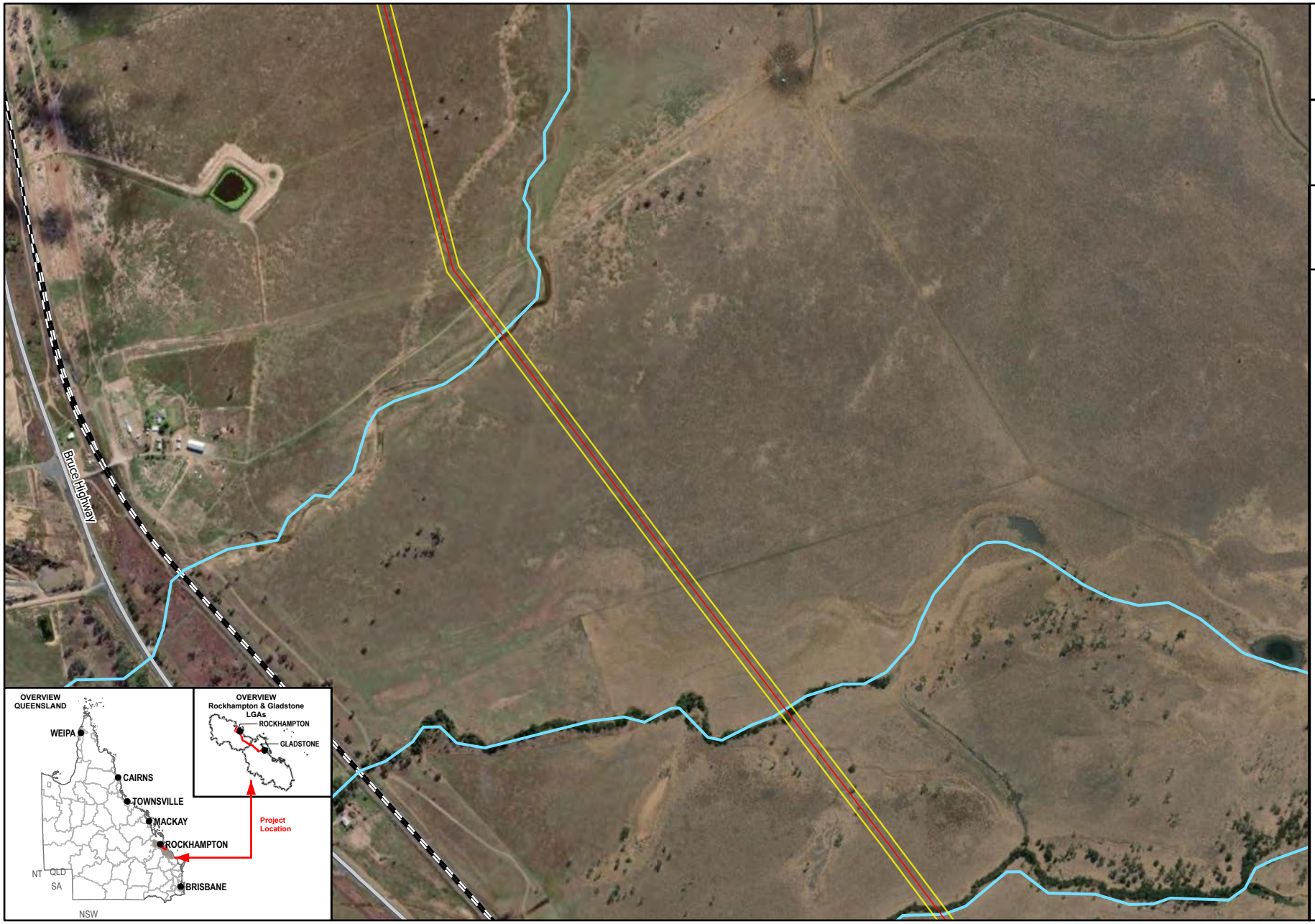
Figure 7-20p
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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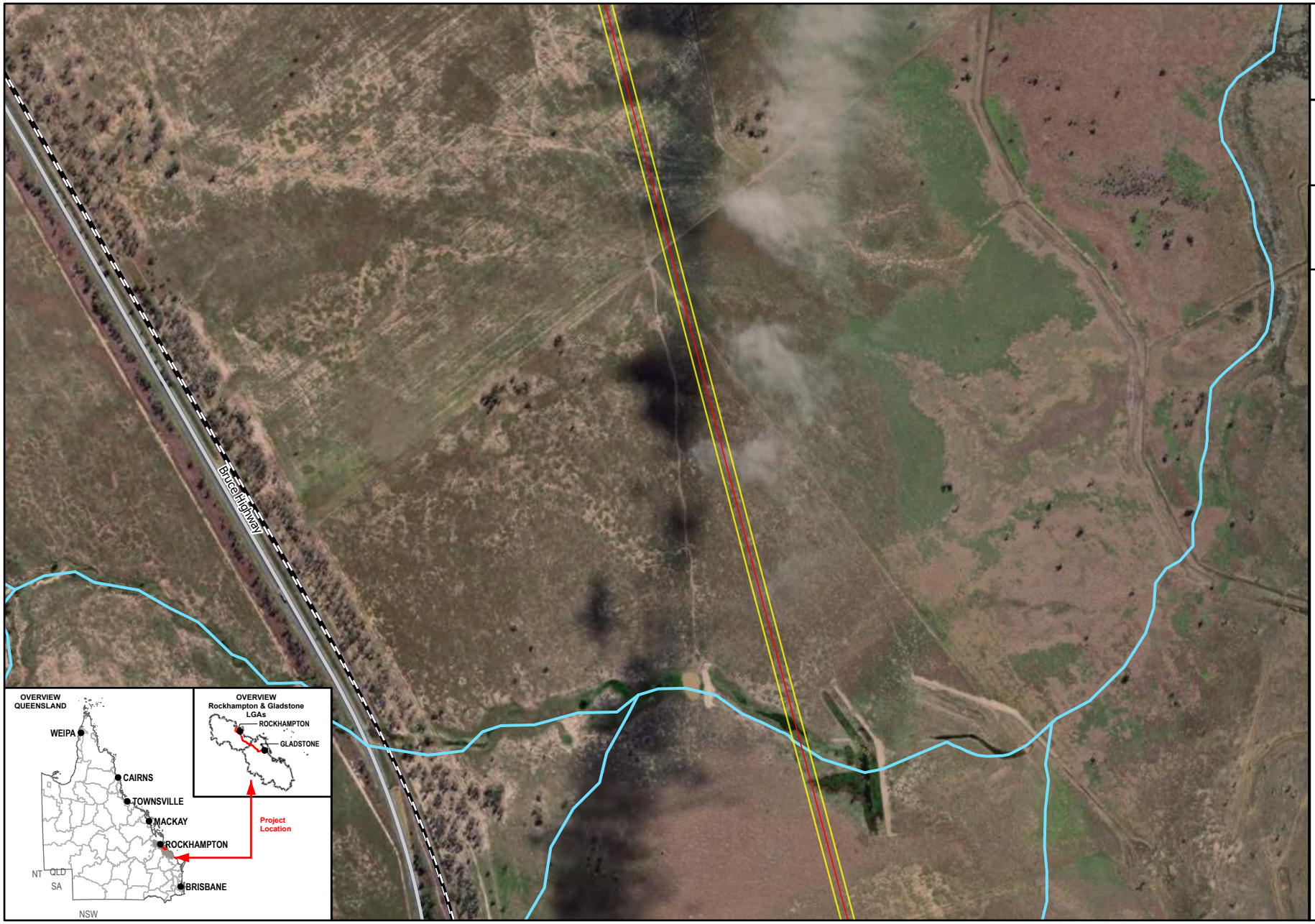
Figure 7-20q
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
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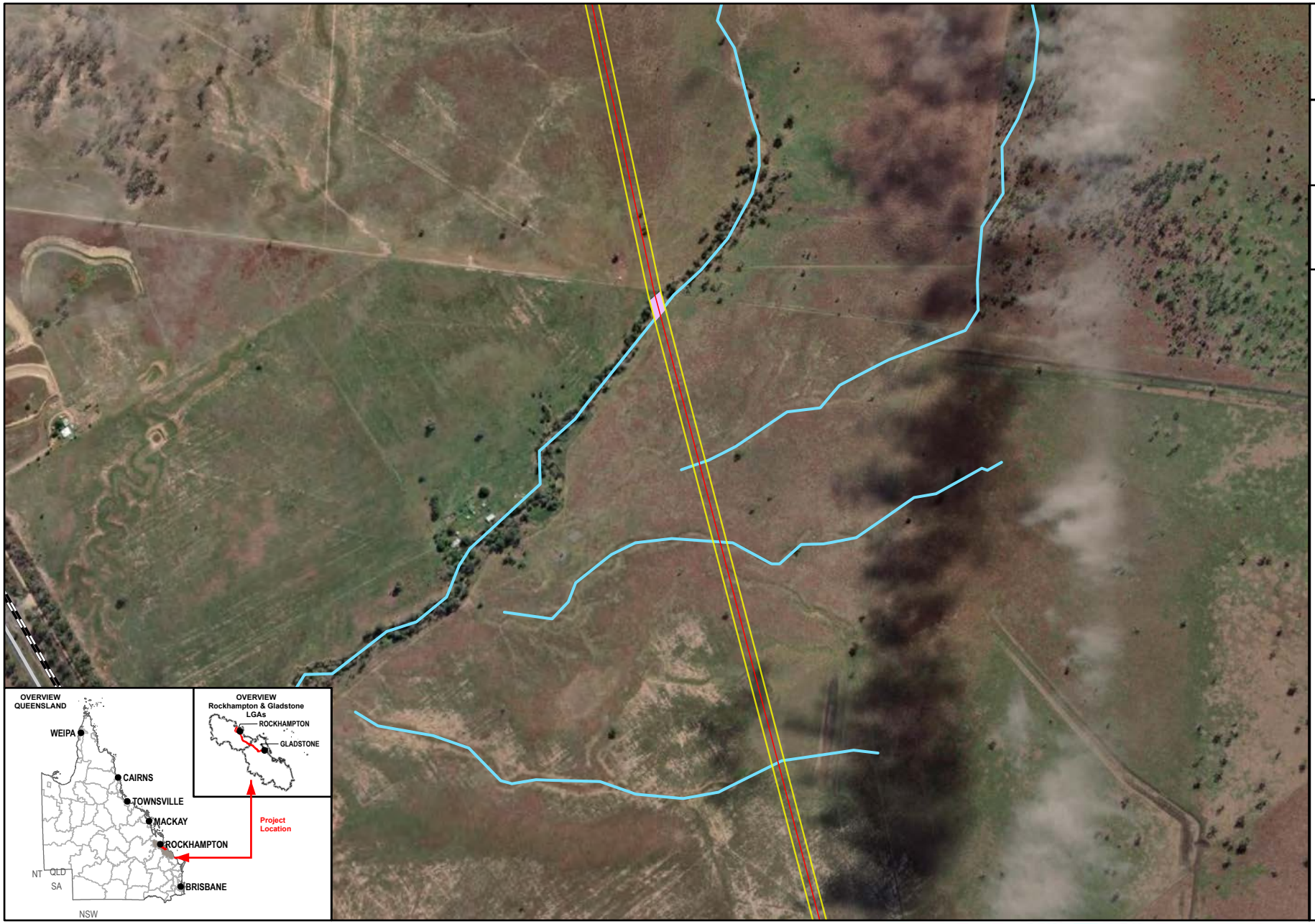
Figure 7-20r
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Estuarine Crocodile Habitat
- Waterways
- Main Roads
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Figure 7-20s
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

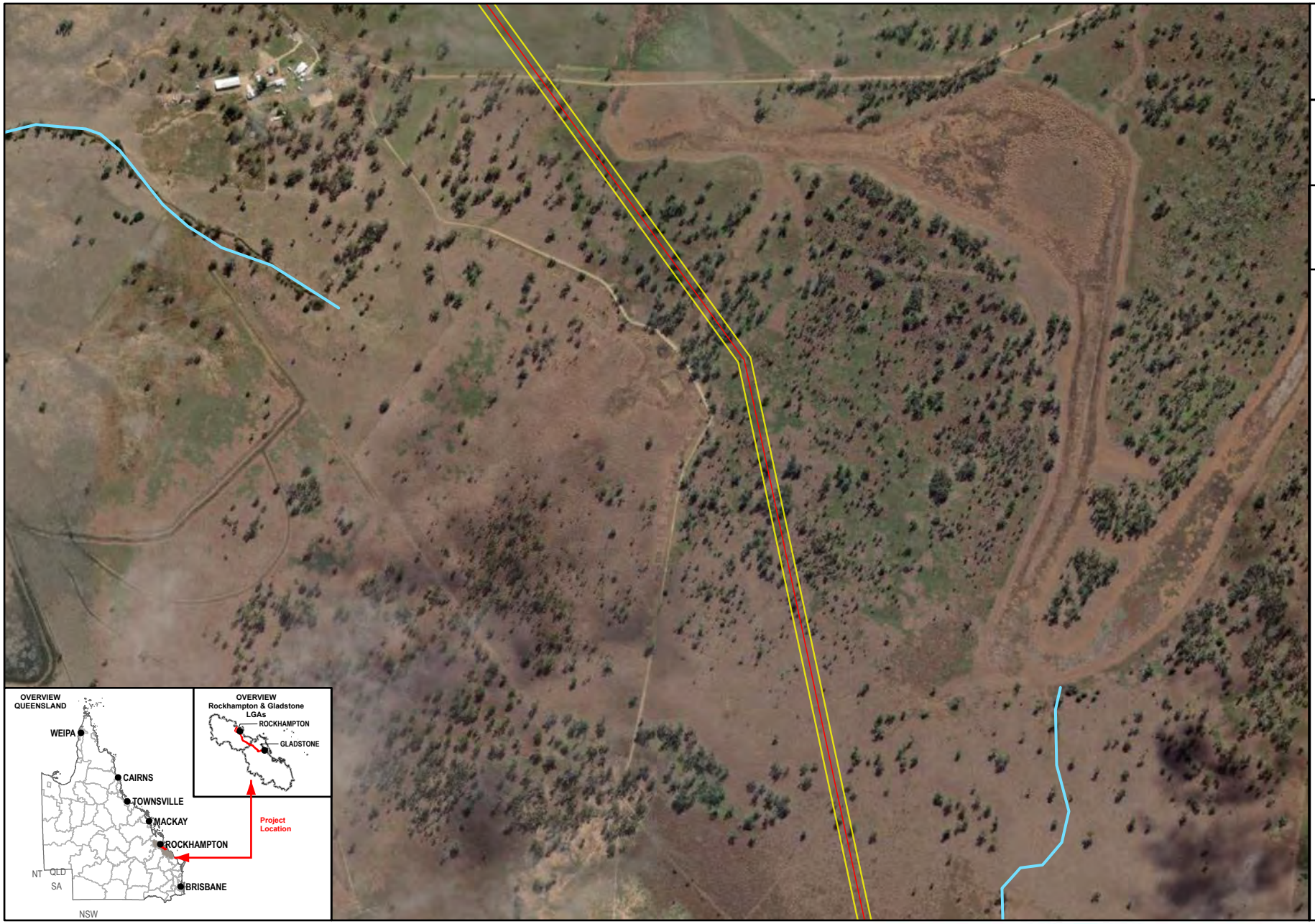

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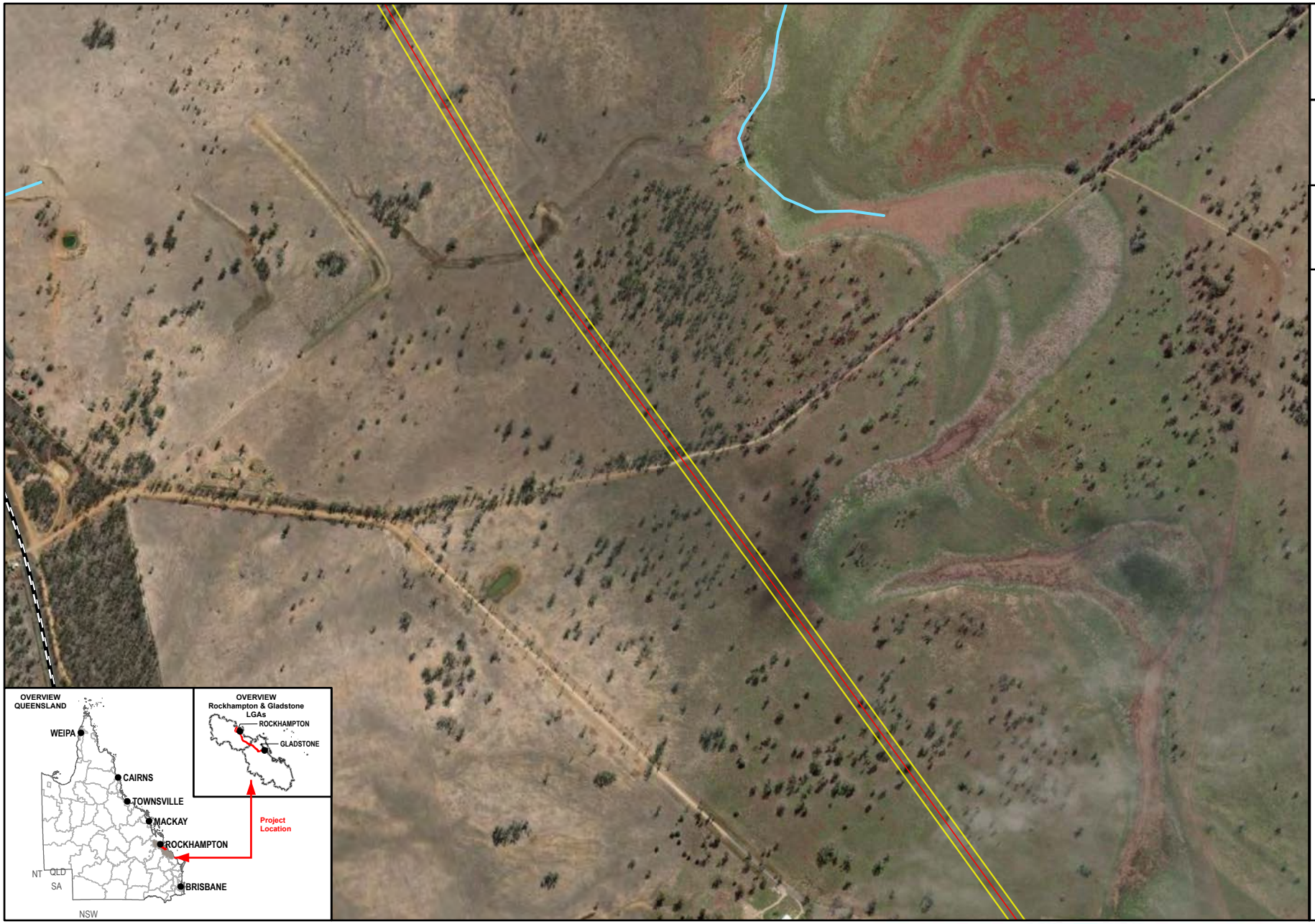
Figure 7-20t
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
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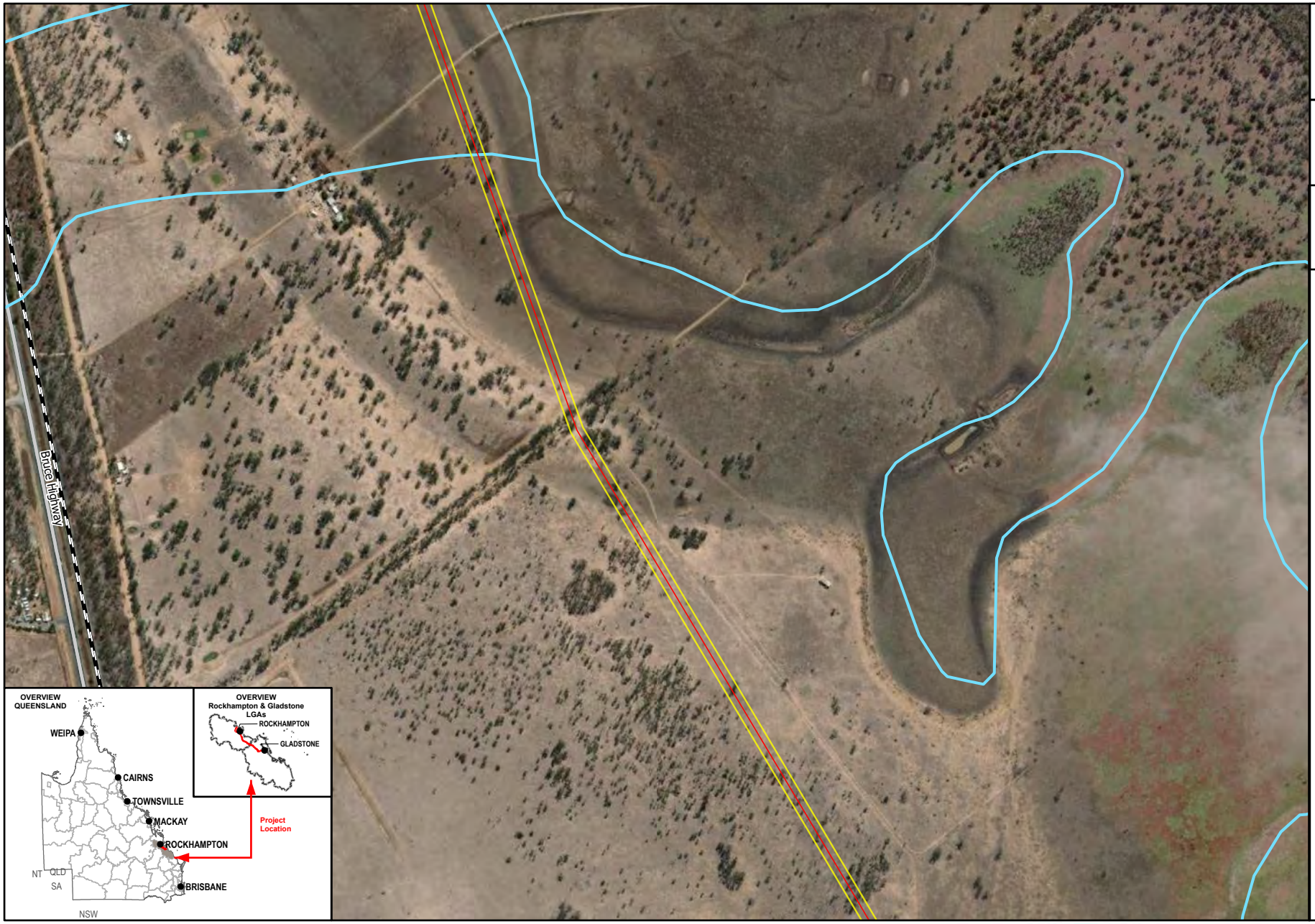
Figure 7-20u
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- Railways

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Figure 7-20v
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

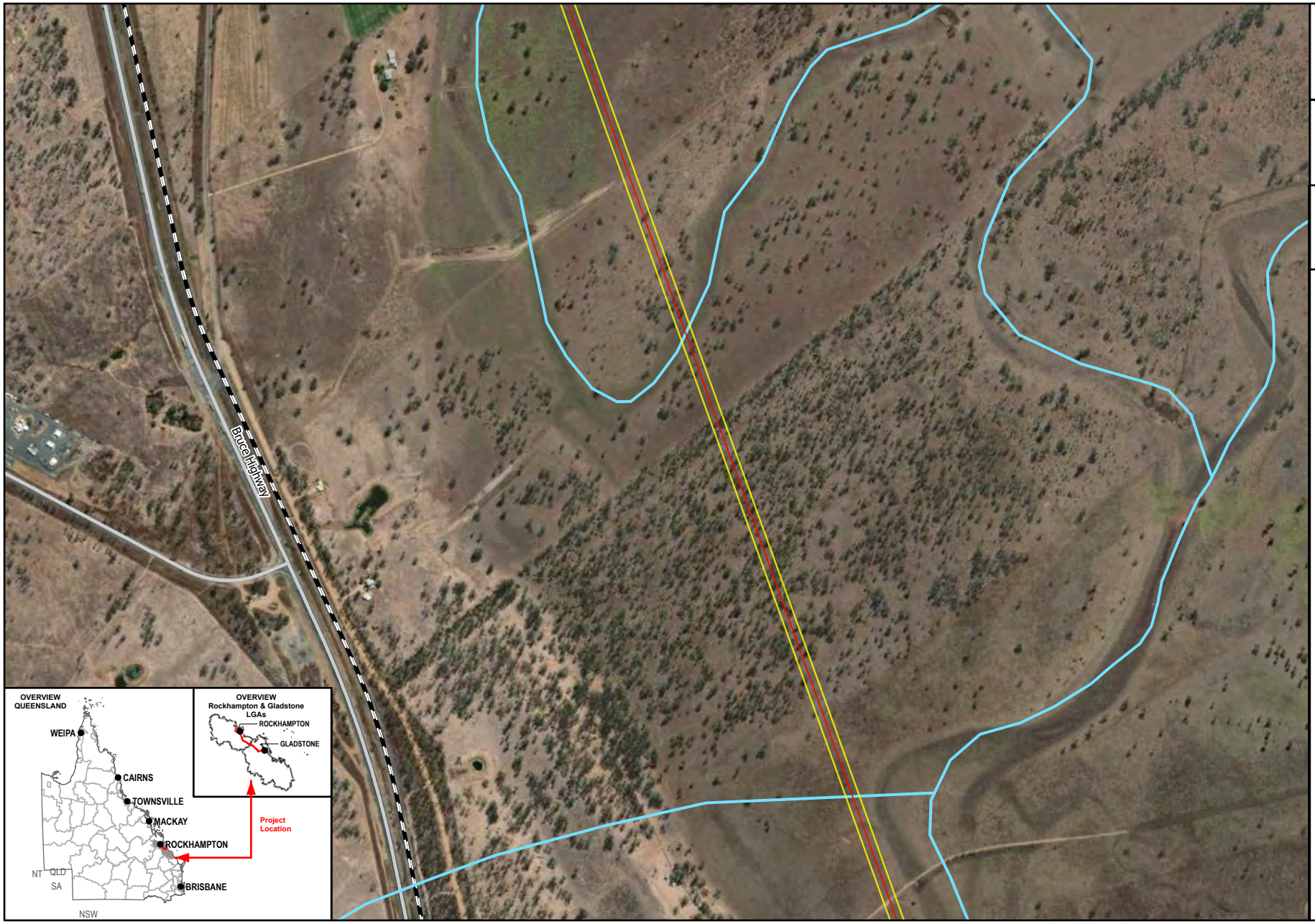

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Figure 7-20w
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

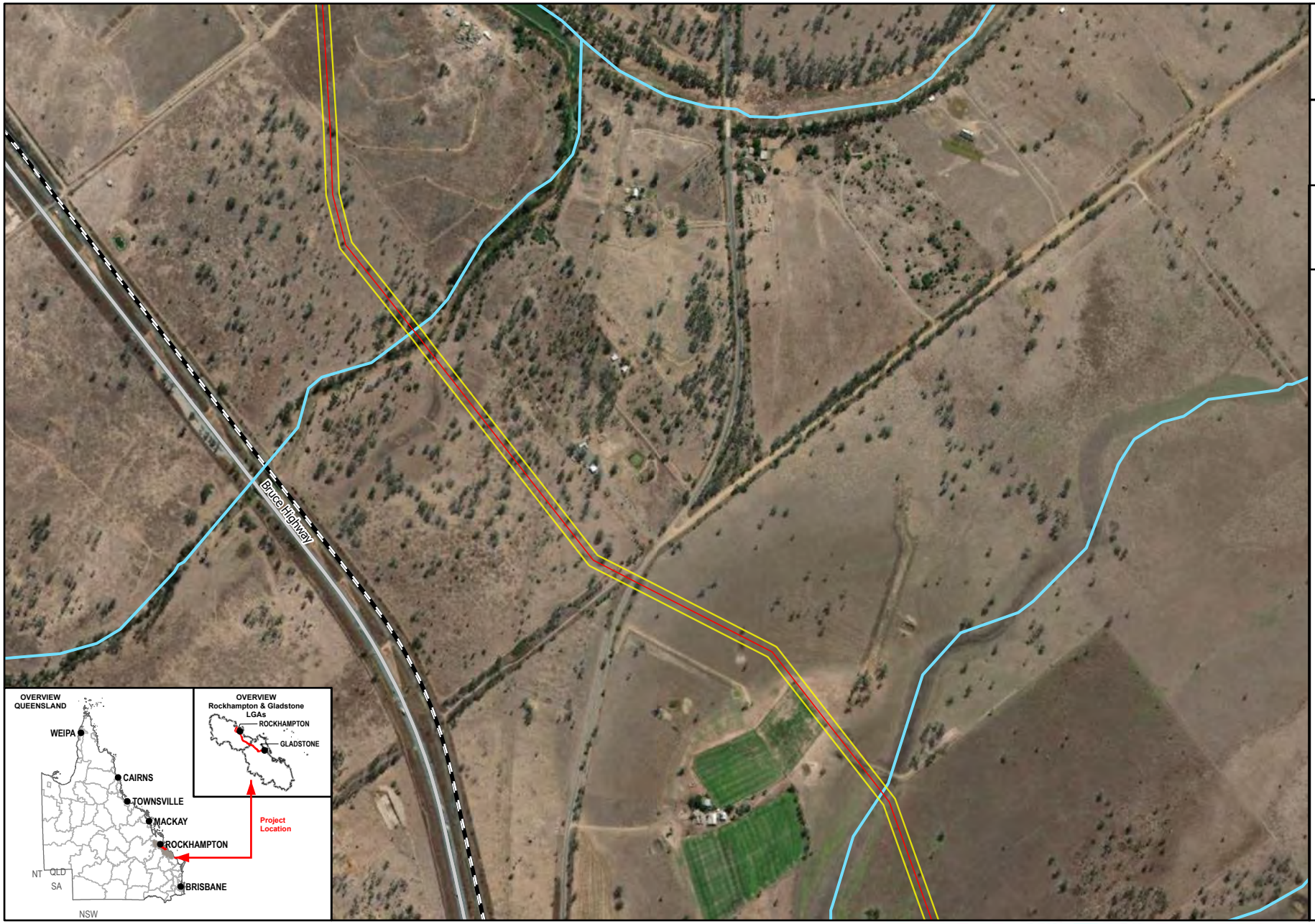

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Figure 7-20x
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

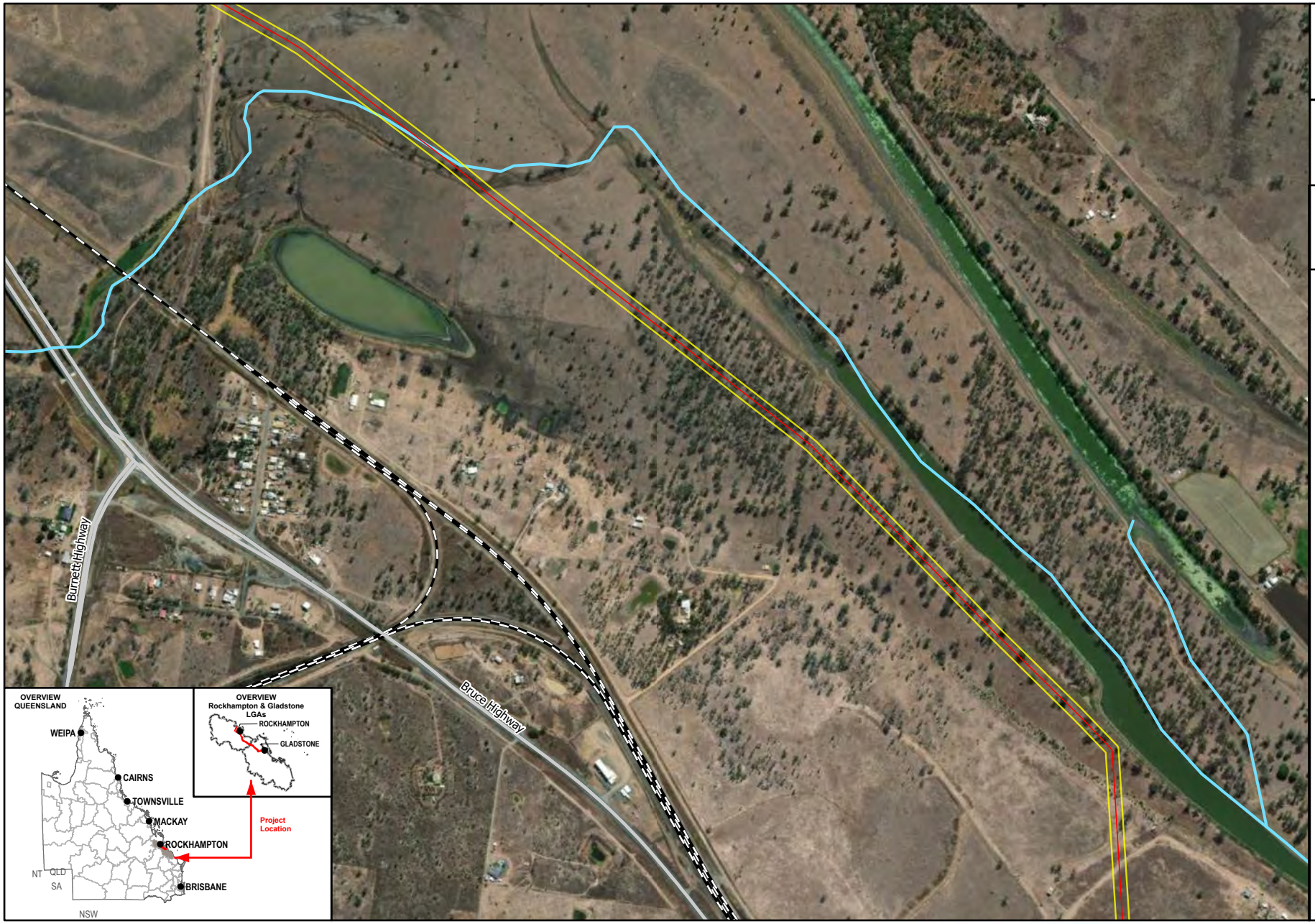

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Figure 7-20y
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

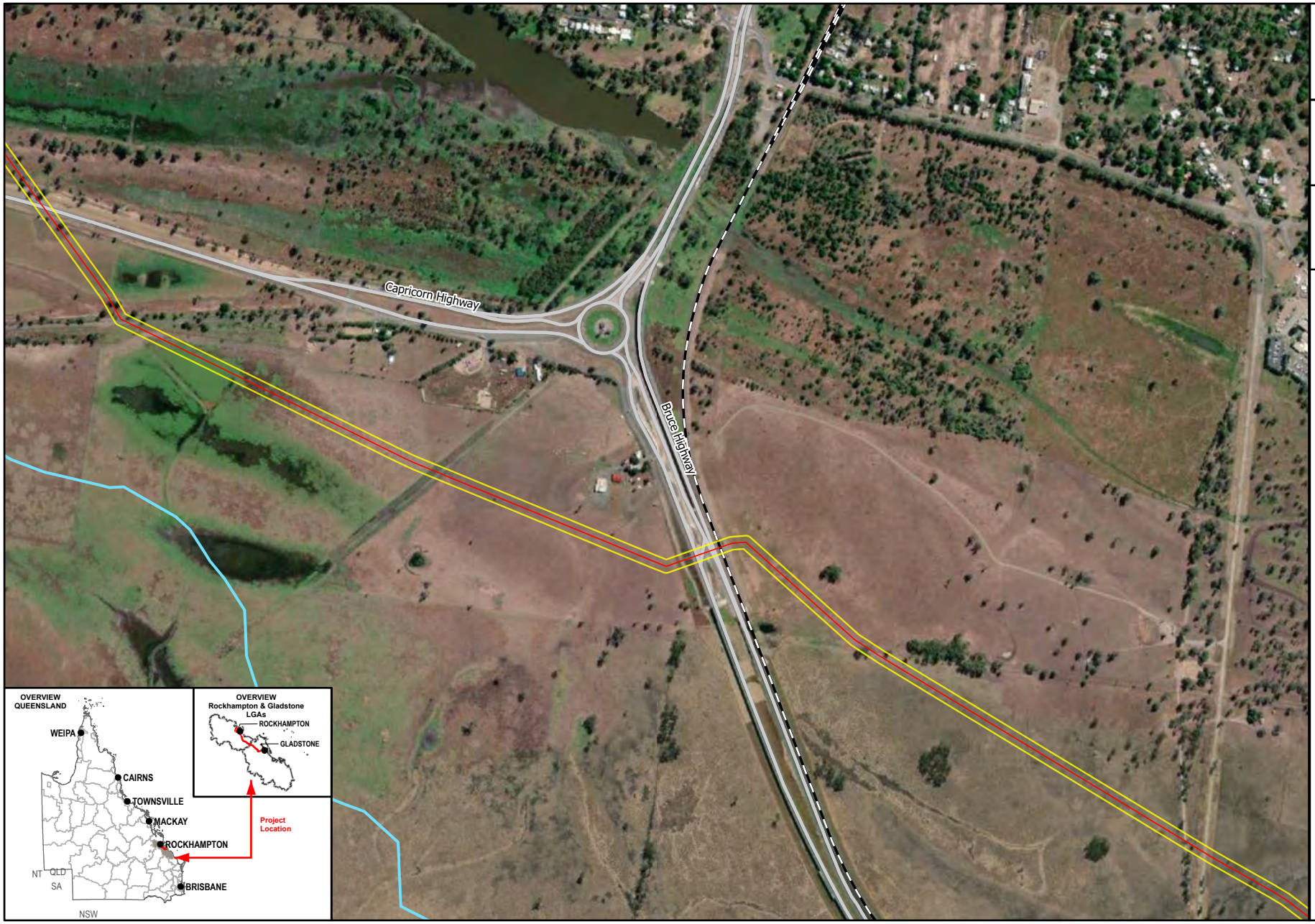

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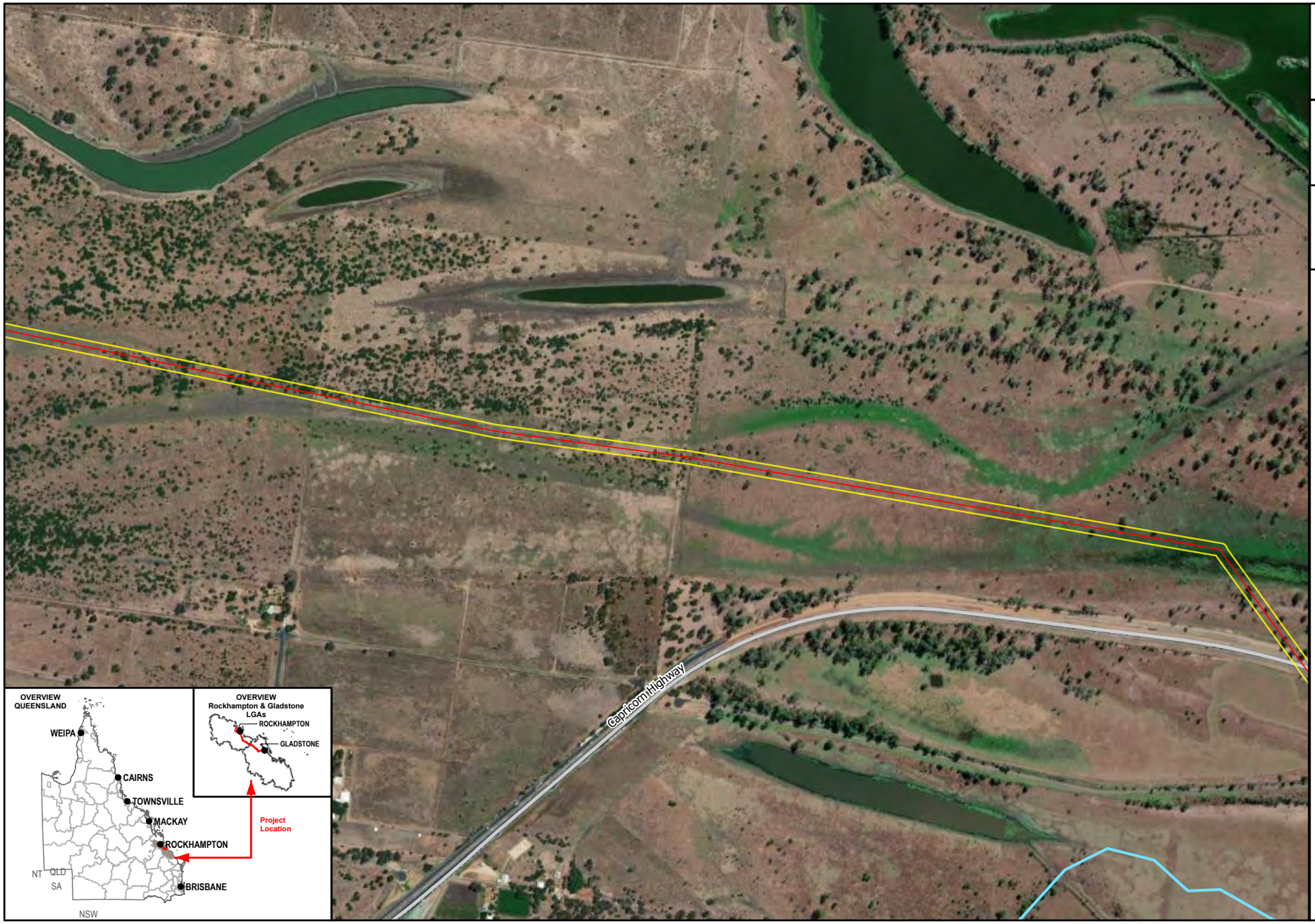
Figure 7-20z
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads

Data Sources:
1. Base Layers (Roads, waterway, locality, LGA etc) @ QSpatial, 2021
2.Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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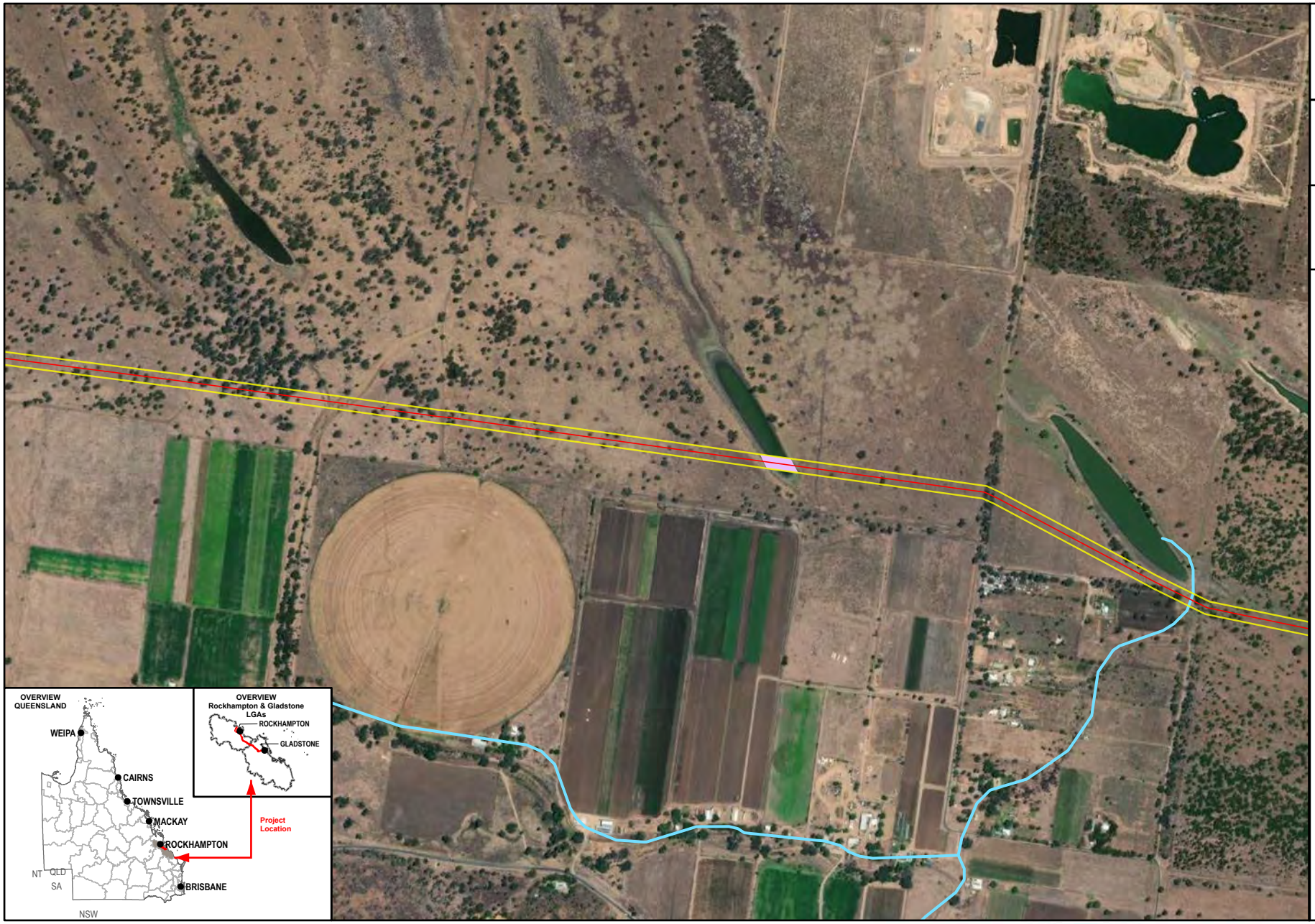
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20a1
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Estuarine Crocodile Habitat
- Waterways

Data Sources:
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Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-20b1
Distribution of Estuarine Crocodile Habitat Within the SGIC SDA Study Area
000-G-MAP-2441 Version:3 Date:20/09/2022

7.2.2.16 Platypus

Conservation status and species ecology

Platypi are found in eastern Australia from far north Queensland to Tasmania. In Queensland, the species inhabits rivers east of the Great Dividing Range, and some western-flowing streams (DES 2021a). Platypus habitat includes freshwater creeks, slow-moving rivers, lakes joined by rivers, and built water storages such as farm dams. Preferred habitat for the species is defined as areas that have steep, well vegetated banks (Grant and Temple-Smith 1998). Platypi occupy a wide range of aquatic habitats, are somewhat tolerant of degraded systems, and show notable adaptability (Grant and Temple-Smith 1998). Burrows are built in riverbanks, just above water level and often among a tangle of tree roots (DES 2021a).

Platypi mostly live alone but can share a water body with several other platypi. Platypi show fidelity to home ranges with daily foraging movements of several kilometres. Platypi eat small aquatic invertebrates such as insect larvae, freshwater shrimps, and crayfish. The species detects electrical currents in the water with its bill and this is used to find prey. Dawn and dusk are periods of increased activity (DES 2021a).

Field survey results and distribution of suitable habitat

The platypus is known to occur throughout upper, mid, and lower reaches of the Fitzroy River and throughout the basin. Large permanent freshwater pools, steep banks with overhanging vegetation, large woody debris and the presence of macrophytes provides suitable habitat and burrowing opportunities for platypi and is therefore likely to occur at Twelve Mile Creek (site 3), Bobs Creek (site 5) and Gavial Creek (site 6) (Figure 7-21). All other sites, the species is unlikely to occur due to a lack of available surface water and suitable habitat. During the survey at all locations, no individuals were observed, and no platypus burrows were detected.

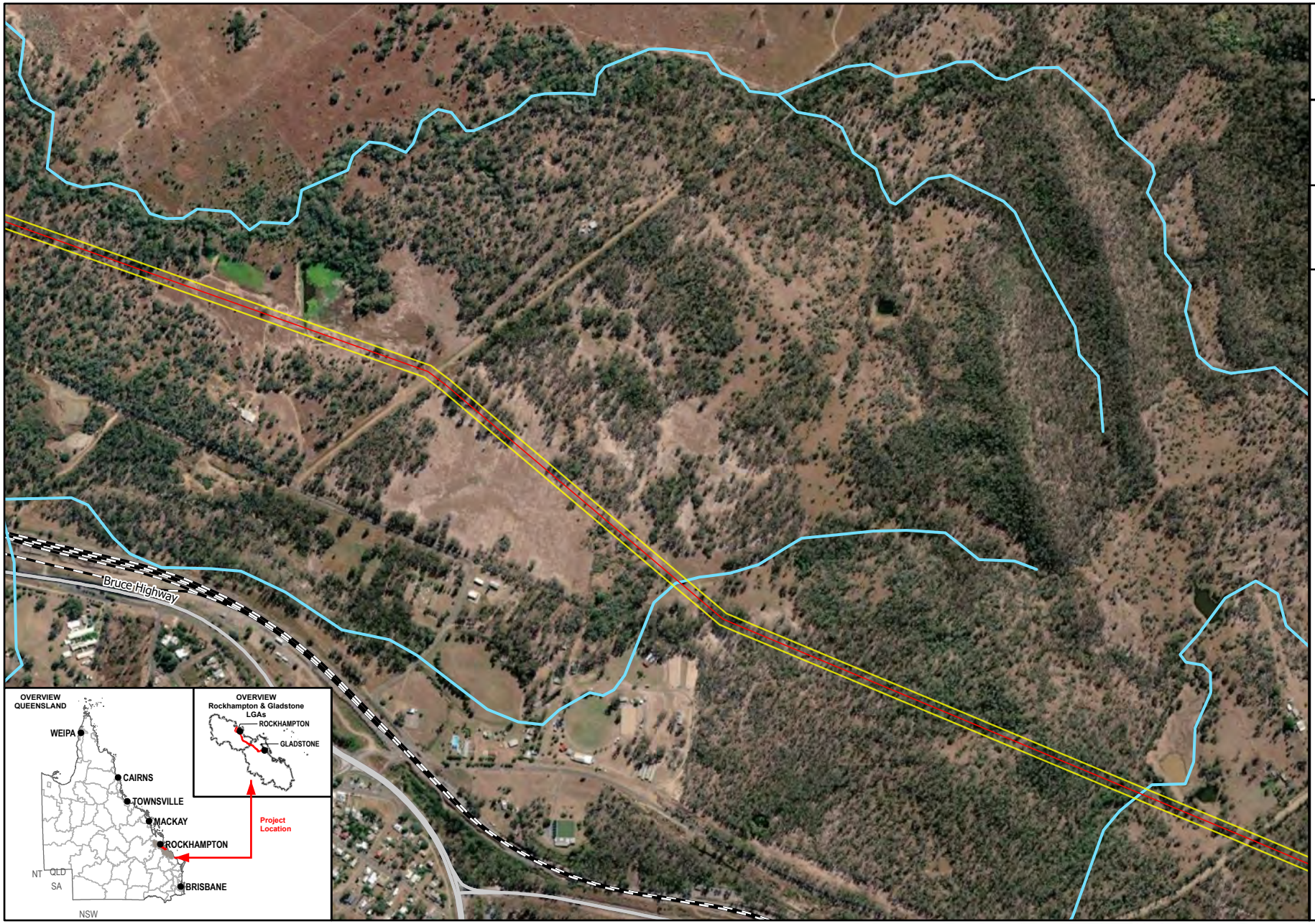
Significant Residual Impact Assessment

The project is unlikely to have a significant residual impact on the platypus due to the temporary nature of the works and implementation of avoidance measures for any identified breeding places. A significance of impact assessment on the platypus (special least concern NC Act) for the SGIC SDA section of the project is provided in Table 7-34 in accordance with the Queensland Government's significant residual impact guidelines (DEHP 2014b).

Table 7-34 Significance of Impact on the platypus

Significant residual impact criteria	Assessment
Lead to a long-term decrease in the size of a local population	**Unlikely** The platypus is known to occur throughout the Fitzroy River Catchment (ALA 2022), Sites 3, 5 and 6 provide foraging and potential burrowing habitat and are considered likely to occur at these locations. Works at sites 3, 5 and 6 will include trench and trenchless methods (trenchless methods are the preferred methods). Where trench methods are used, a maximum 30m corridor for the SGIC SDA pipeline alignment will be cleared for the trench. Construction works are to be limited to 180 days (DAF's 'ADR for operational work that is constructing or raising waterway barrier works' (DAF 2018)) with the impact area for all sites rehabilitated with bed and banks restored to pre-works profile. Temporary restricted platypus movement is expected during this construction phase. Design and implementation of a CEMP will further minimise risk to platypus and achieve protection of habitat. The impact area for all sites will be rehabilitated to minimise effects to localised disturbance of habitat degradation, no direct impacts to individuals upon a known population of platypus within the Fitzroy River catchment will occur. It is therefore unlikely to lead to a long-term decrease in the size of a local population.

Significant residual impact criteria	Assessment
Reduce the extent of occurrence of the species	**Unlikely** The platypus is known to occur throughout the Fitzroy River Catchment (ALA 2022), Sites 3, 5 and 6 provide foraging and potential burrowing habitat and are considered likely to occur at these locations. Works at sites 3, 5 and 6 include trench and trenchless methods (trenchless methods are the preferred methods). Where trenching is necessary, a coffer dam or similar structure is proposed to be installed around the pipeline alignment of the creek crossing alignment works to create a dry works area. Fauna salvage will be undertaken within the construction area in accordance with DAF Aquatic Fauna Salvage Guidelines to capture and relocate any trapped fauna from within the construction footprints. Pre-clearance surveys will be undertaken prior to the construction to identify risks to individuals and breeding habitat, and a high-risk SMP prepared if required. Design and implementation of a CEMP will further minimise risk to platypus and achieve protection of habitat, such that no long-term decrease in the size of the population is expected to occur. These measures ensure that it is unlikely that a reduction of the extent of occurrence of the species will occur.
Fragmentation an existing population	**Unlikely** The works will be restricted temporally to a small, localised area, with measures in place to ensure fragmentation of the species population does not occur.
Result in genetically distinct populations forming as a result of habitat isolation	**Unlikely** The project is unlikely to fragment the species population and therefore is not considered to result in genetically distinct populations forming as a result of habitat isolation.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species habitat	**Unlikely** The introduced feral cat and European fox are identified as threats to the platypus. Considering these species are already locally established, the project is unlikely to introduce additional invasive fauna or facilitate the spread of these species. The risk of invasive fauna species will be controlled through implementation of a Feral Animal Control Program during construction and operations.
Introduce disease that may cause the population to decline	**Unlikely** There are few significant diseases known from wild platypus populations. A small number of platypi suffer from a murcomosis a fungal disease found in Tasmania however there have been no individuals recorded with the disease on mainland Australia. There are no known diseases that this species is susceptible to or threatened by that proposed works have the potential to introduce. Therefore, it is considered unlikely that the project will have the potential to introduce disease to the extent that the platypus population will decline.
Interfere with the recovery of the species	**Unlikely** Degradation of habitat will be localised and temporary. Cleared suitable habitat during the construction phase is expected to re-establish along the SGIC SDA pipeline alignment. No direct impact to the recovery of the species will occur as a result of the project.
Cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species	**Unlikely** Loss of instream vegetation, cobbles and woody debris for foraging and nesting banks within the 30 m corridor will occur for any trench methods used for sites 3, 5 and 6. Suitable habitat is expected to re-establish along the SGIC SDA pipeline alignment. The operation phase of the project is not expected to have any further impacts to breeding, feeding, nesting or migration of the platypus.
Conclusion	The operation phase of the project is not expected to have any significant residual impact for the species. Due to the temporary nature of the construction works and implementation of avoidance measures for any identified breeding or nesting places, the project is unlikely to have a significant impact on the platypus.



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21a
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022

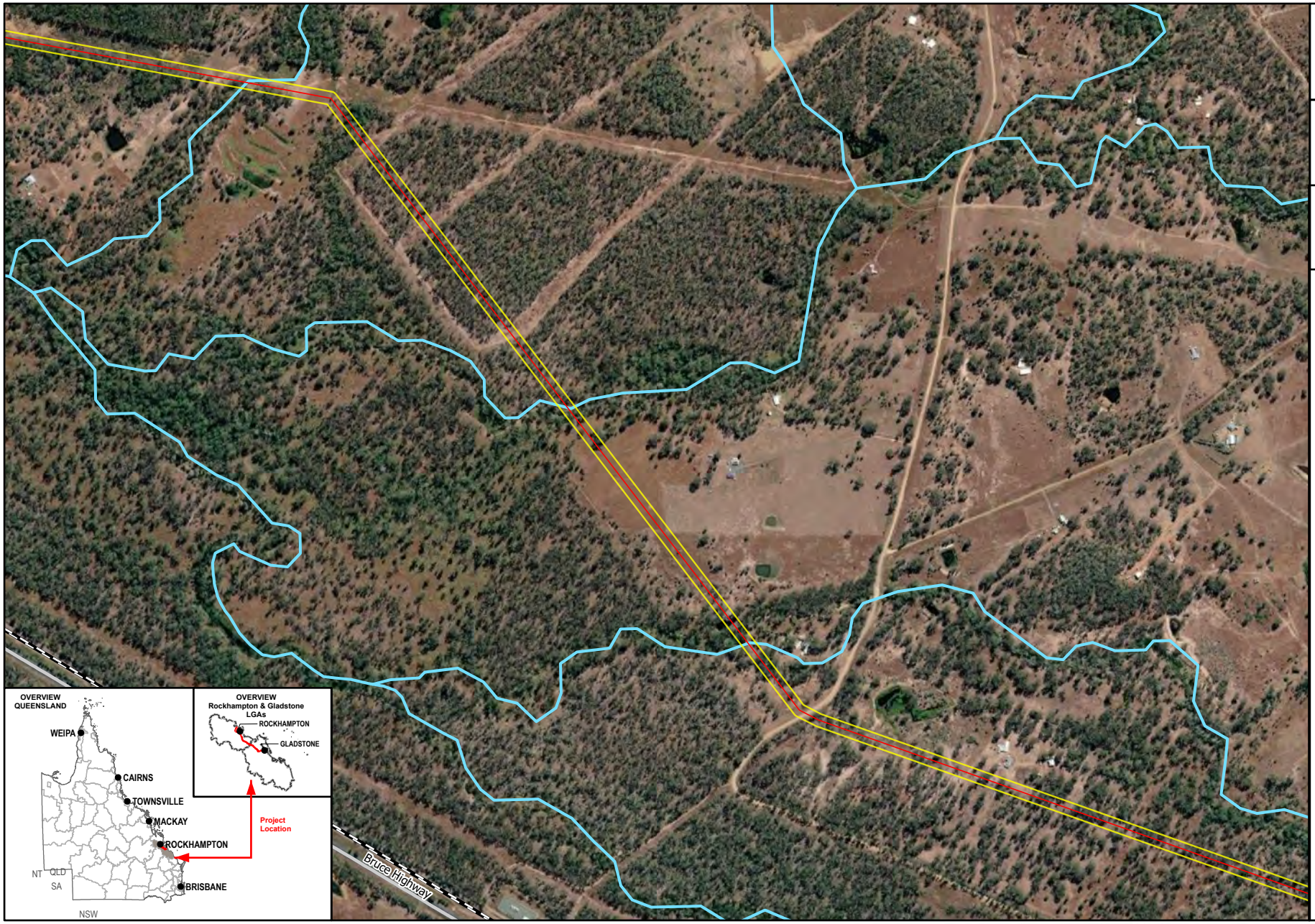

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Figure 7-21b
Distribution of Platypus Habitat Within the SGIC SDA Study Area
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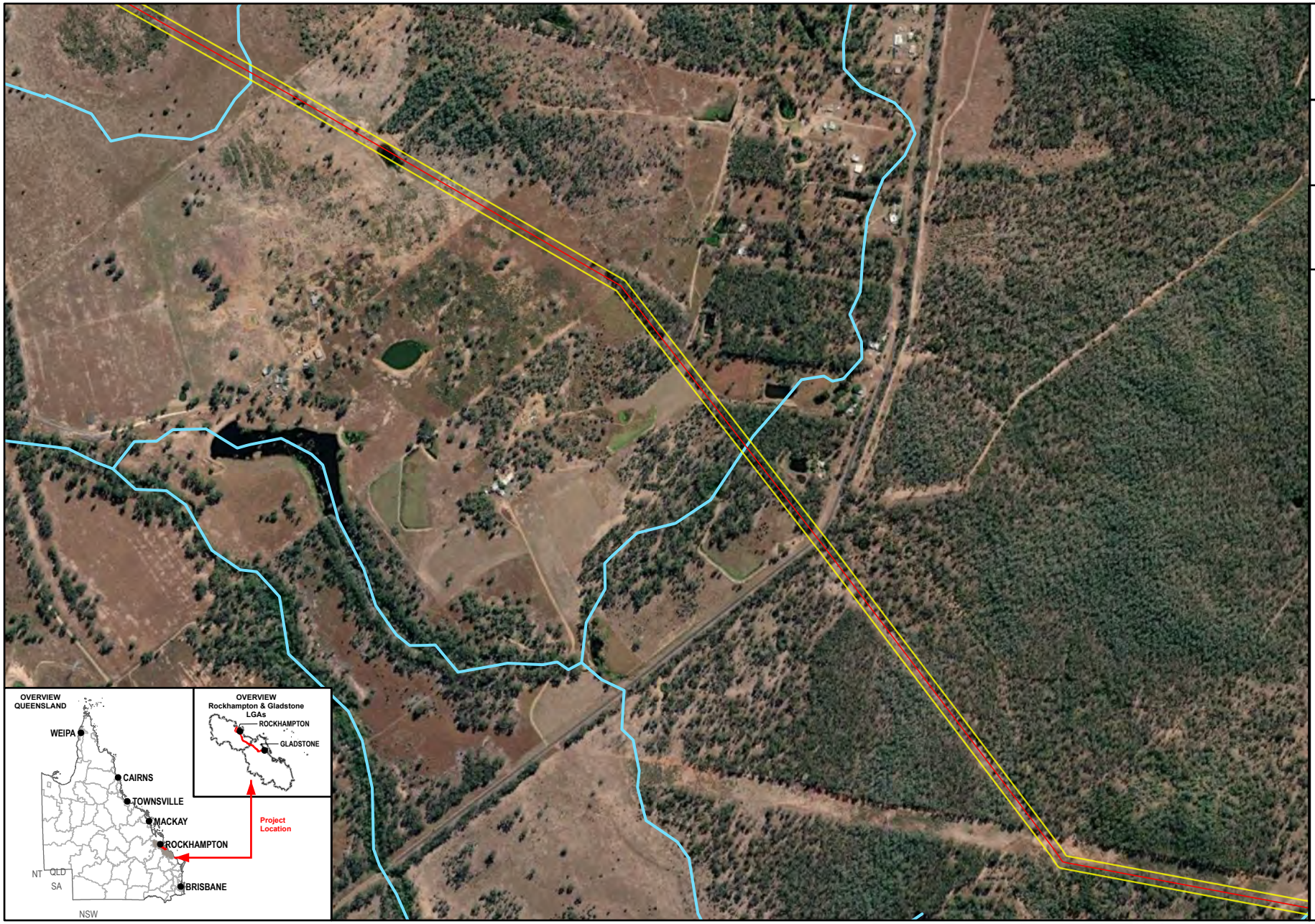

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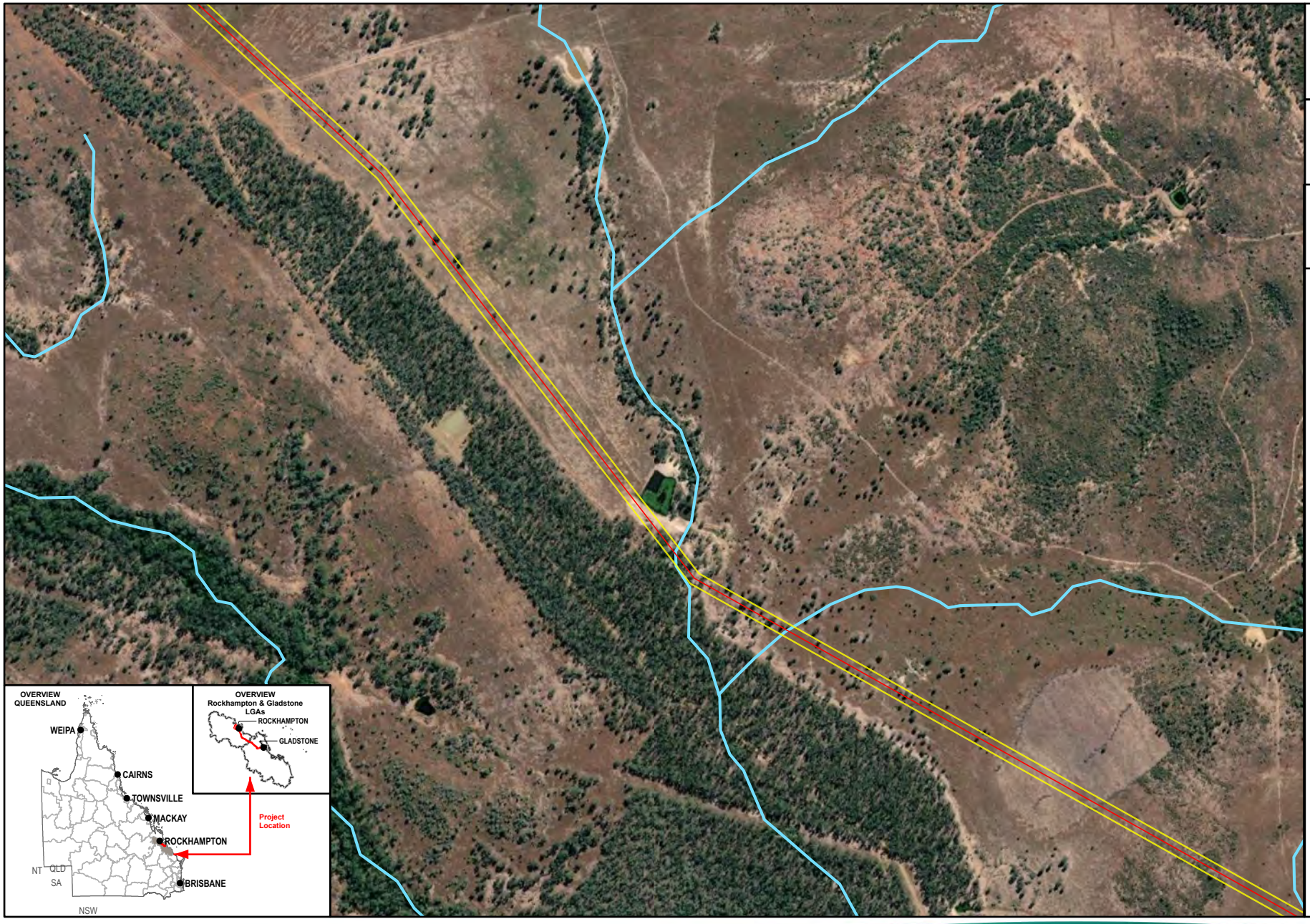
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21c
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- Study Area
- Waterways

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Figure 7-21d
Distribution of Platypus Habitat Within the SGIC SDA Study Area
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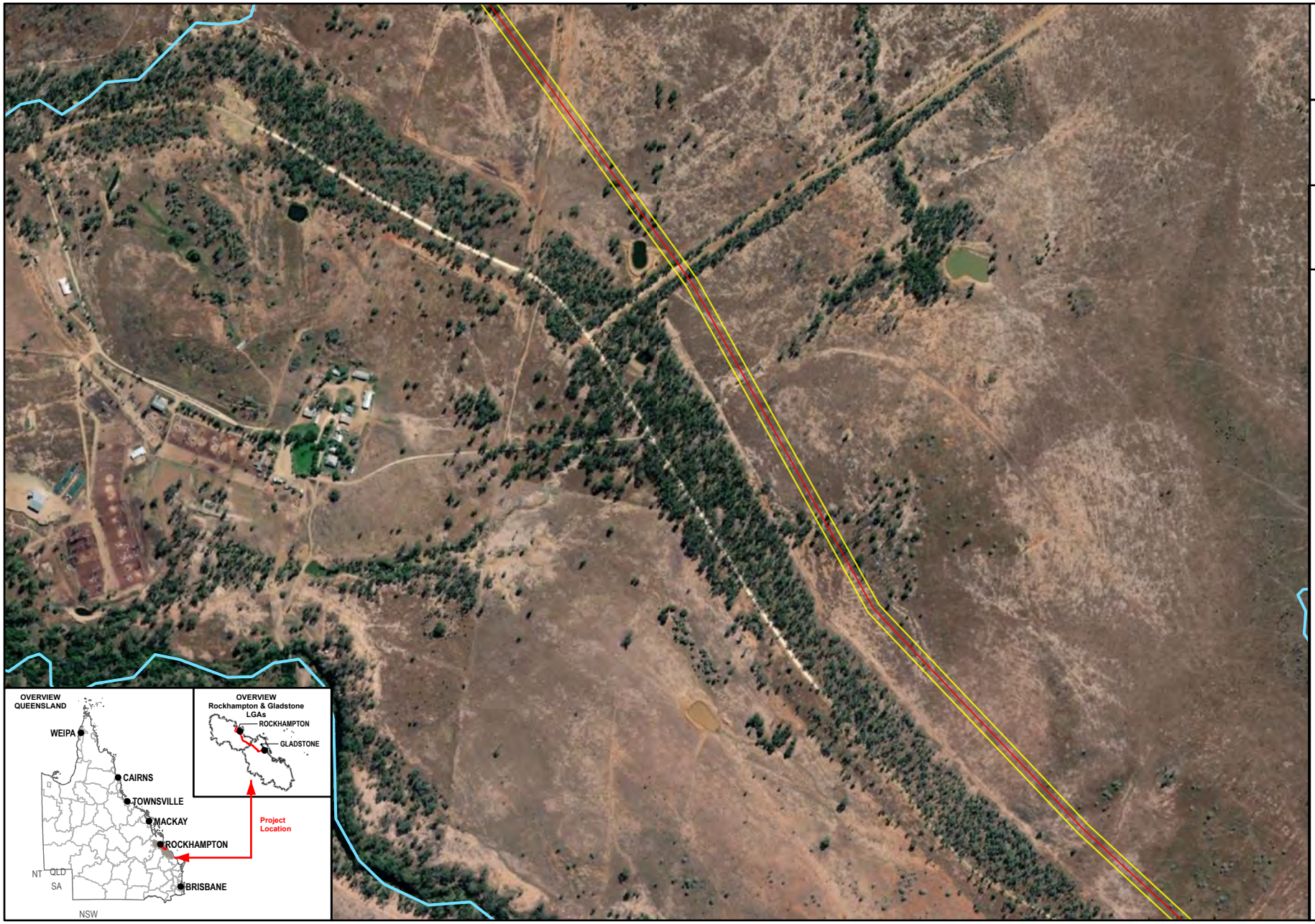

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- Study Area
- Waterways

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Figure 7-21e
Distribution of Platypus Habitat Within the SGIC SDA Study Area
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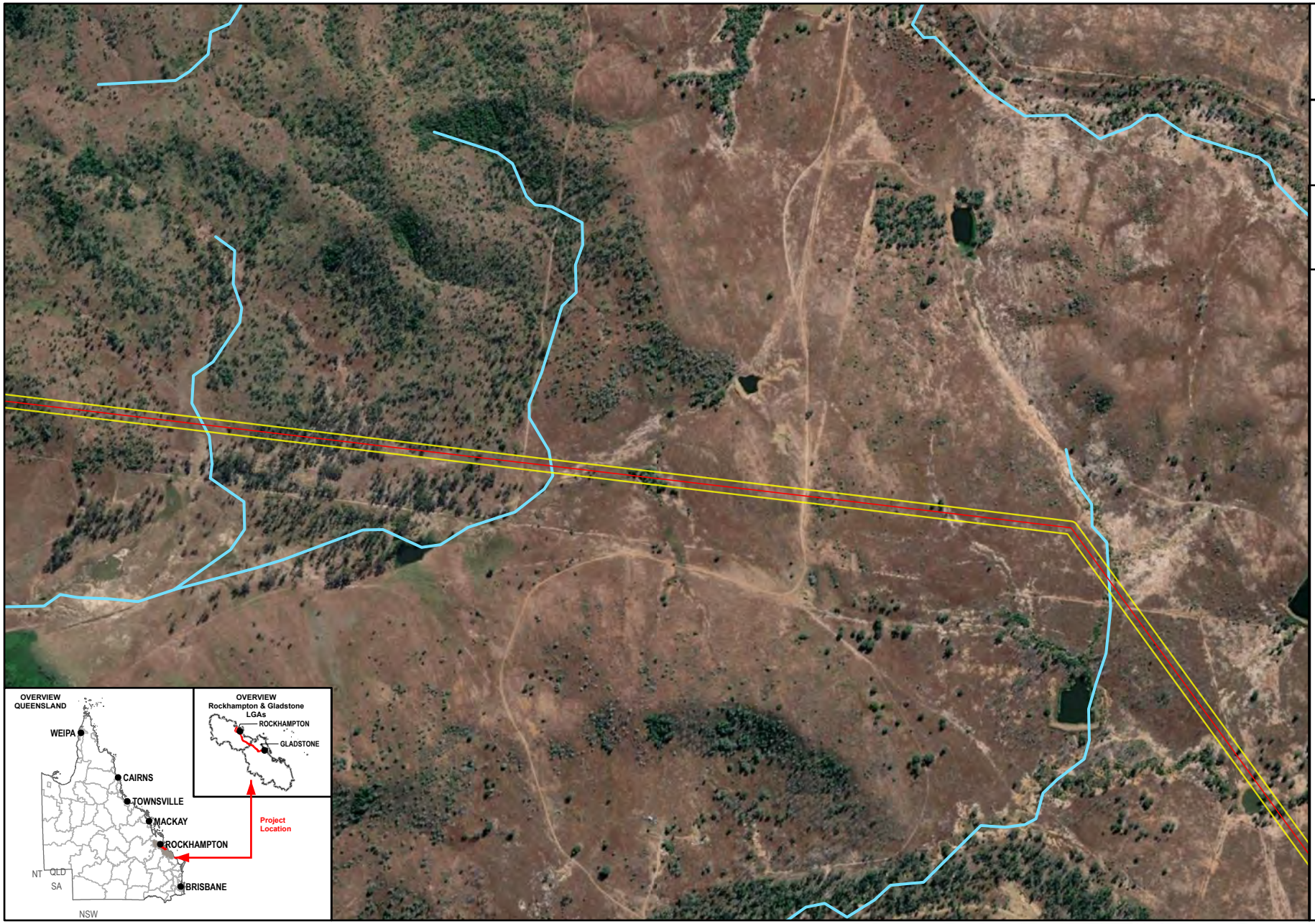

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- Waterways

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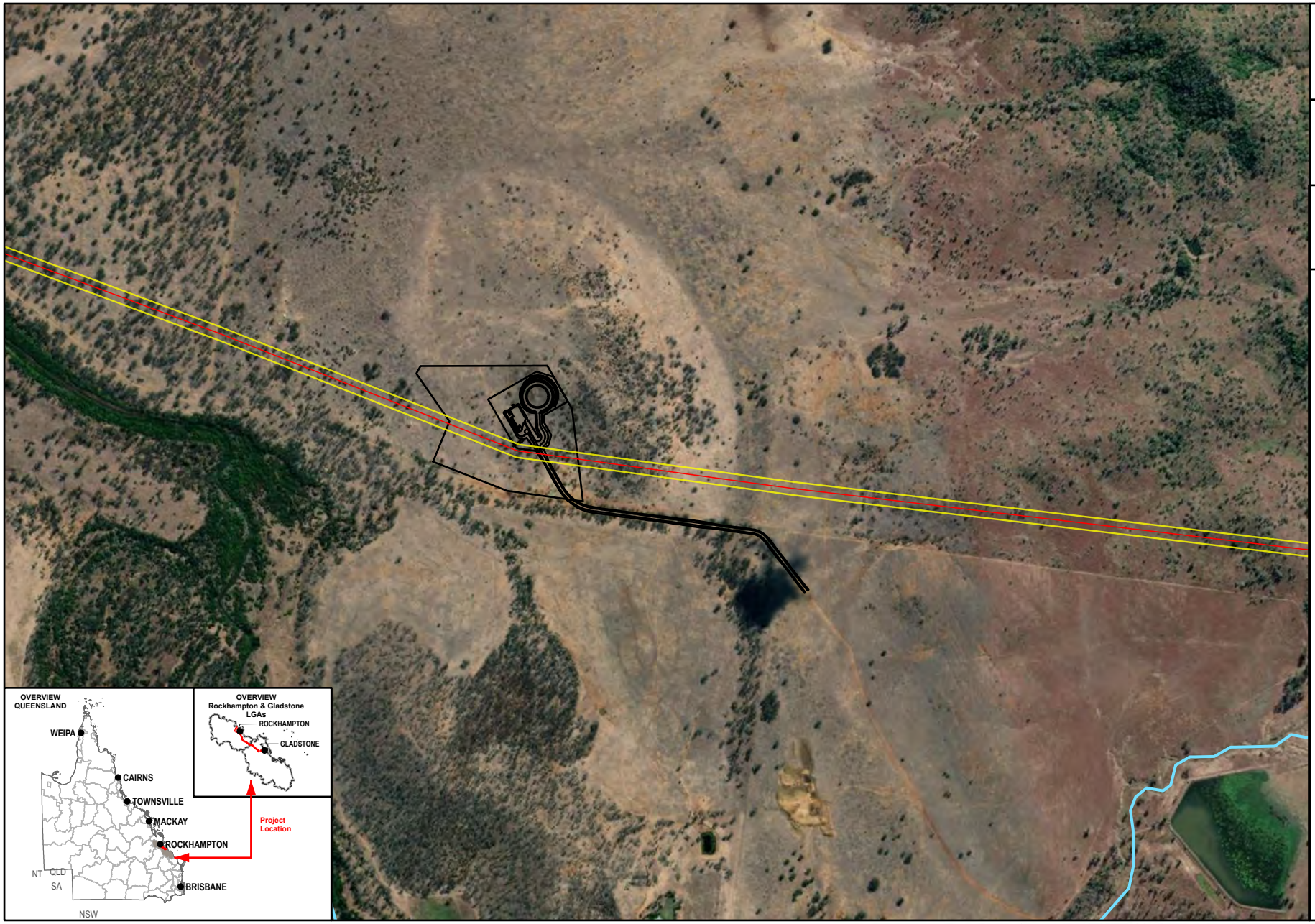
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21f
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Raglan Pump Station and Reservoir Layout
- Waterways

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Figure 7-21g
Distribution of Platypus Habitat Within the SGIC SDA Study Area
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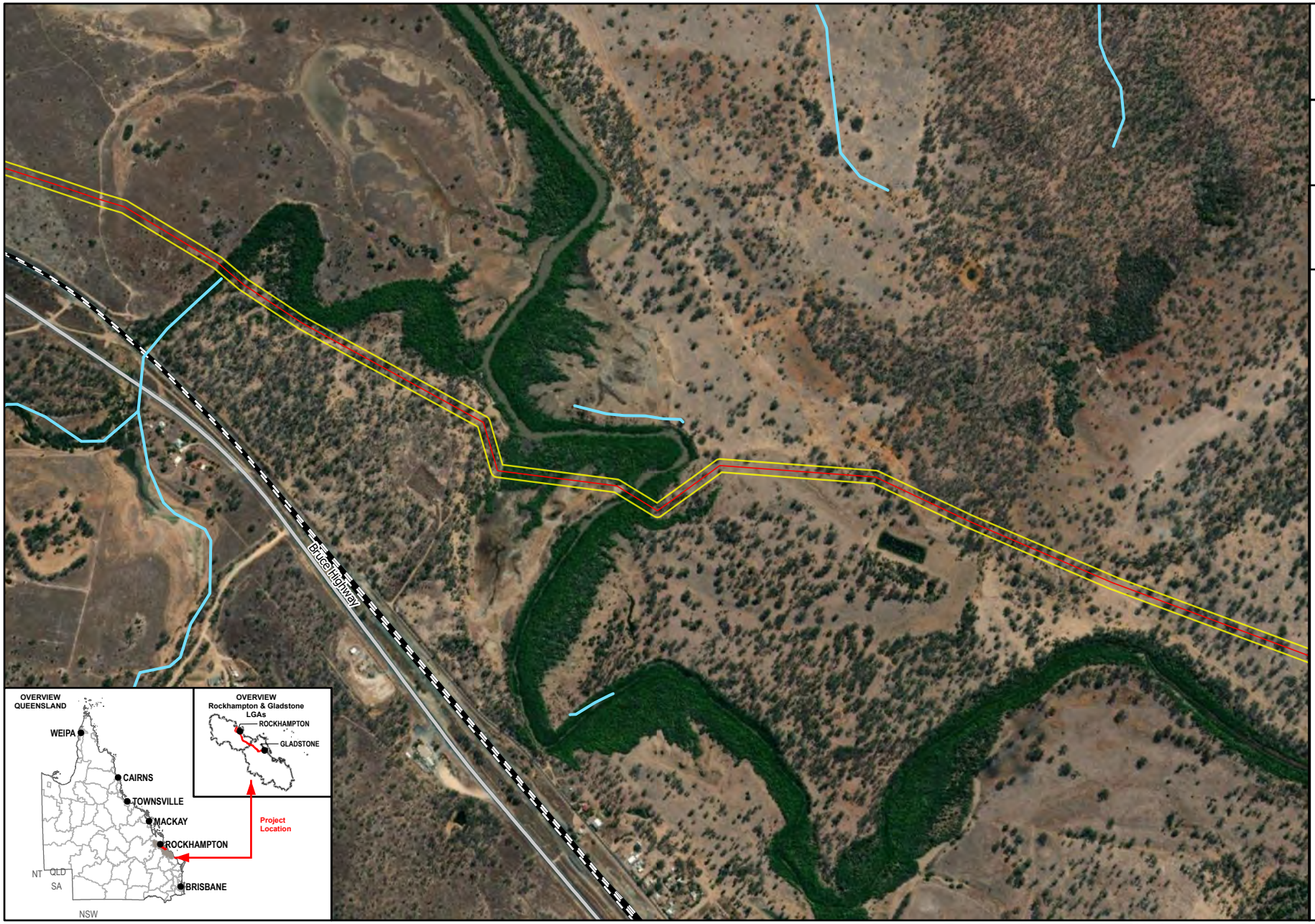

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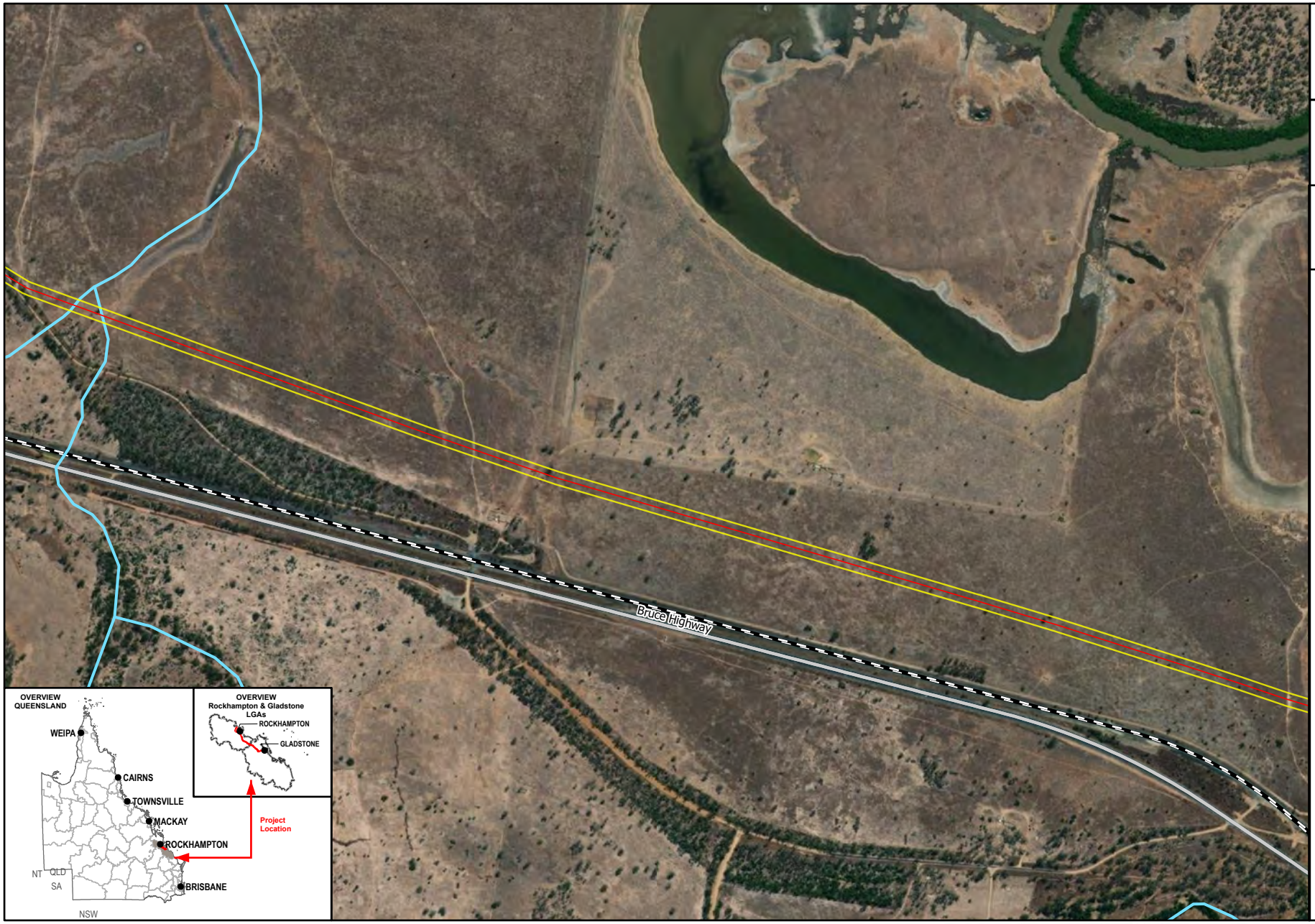

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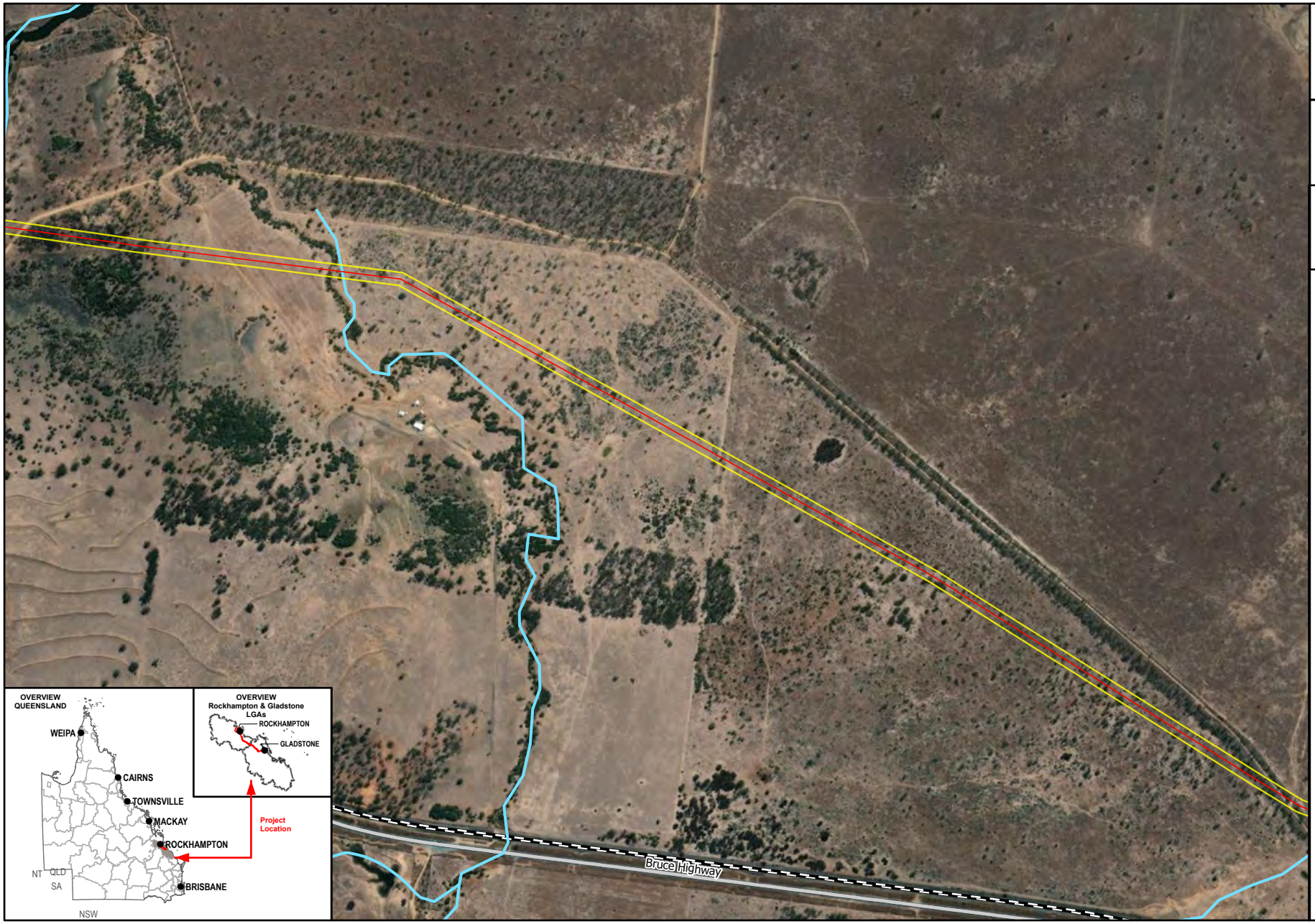

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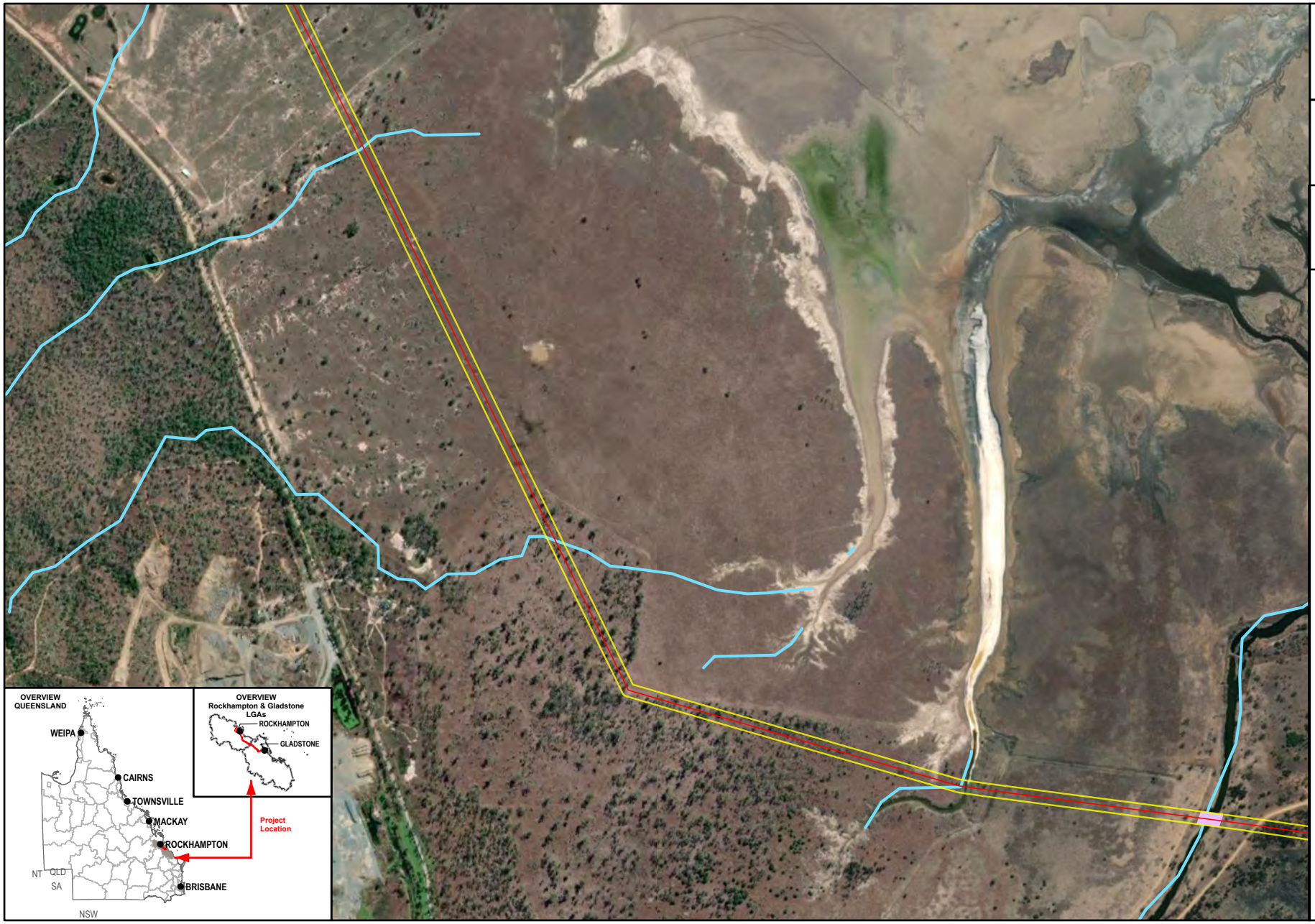

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PROJECTION UTM Zone 56
(Datum GDA2020)

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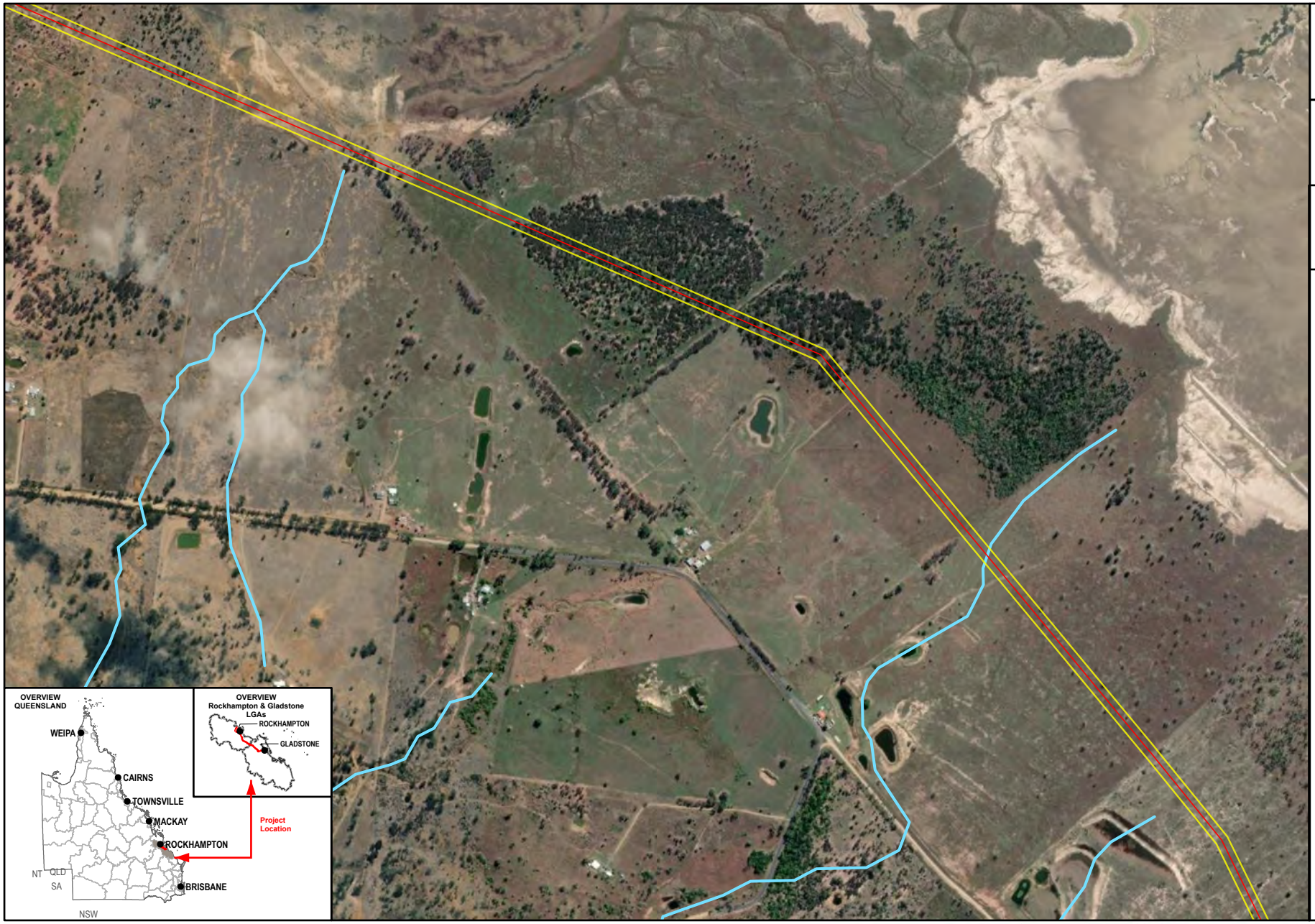
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21k
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways

Data Sources:
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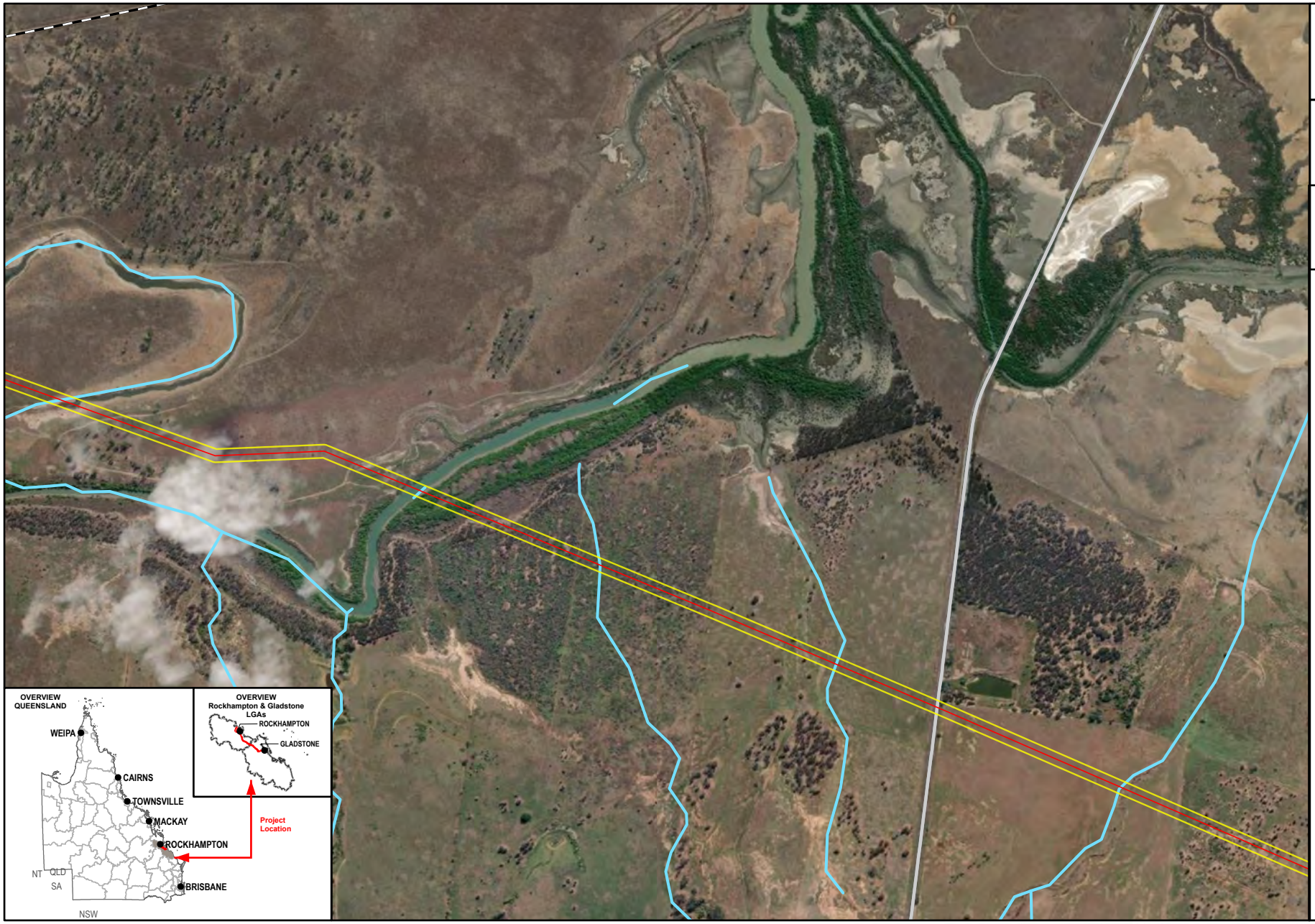
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21l
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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Legend

- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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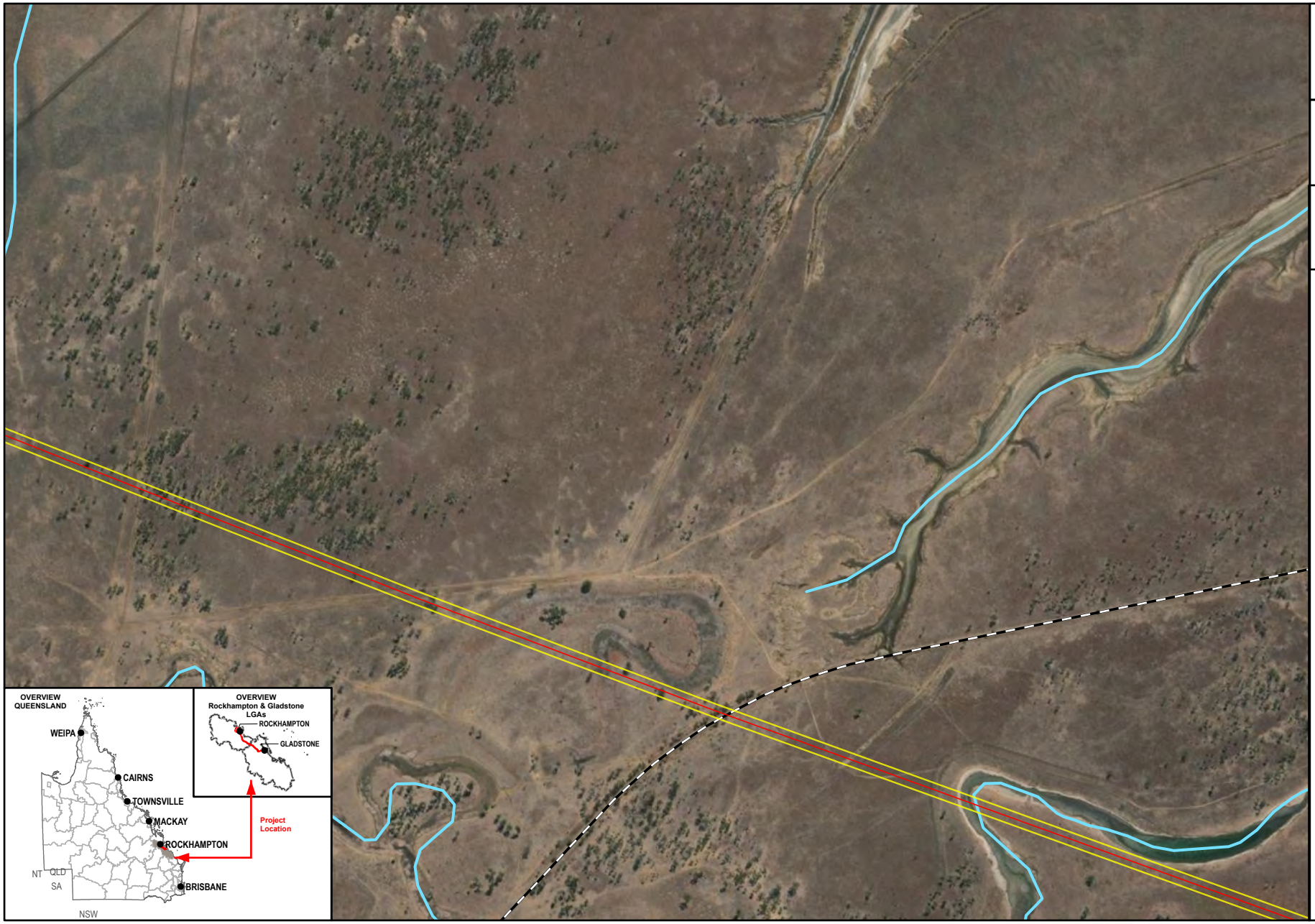
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21m
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

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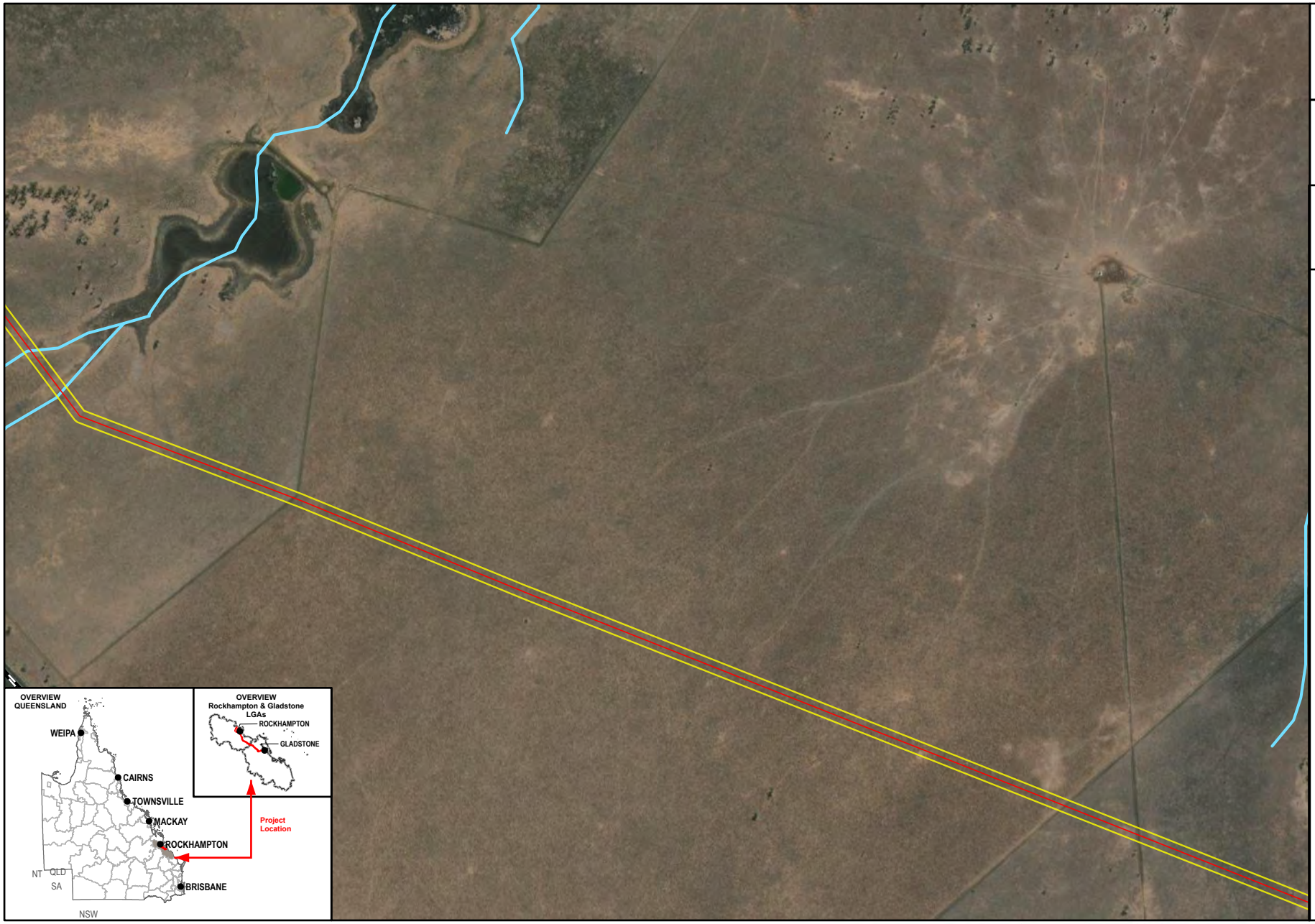
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Railways

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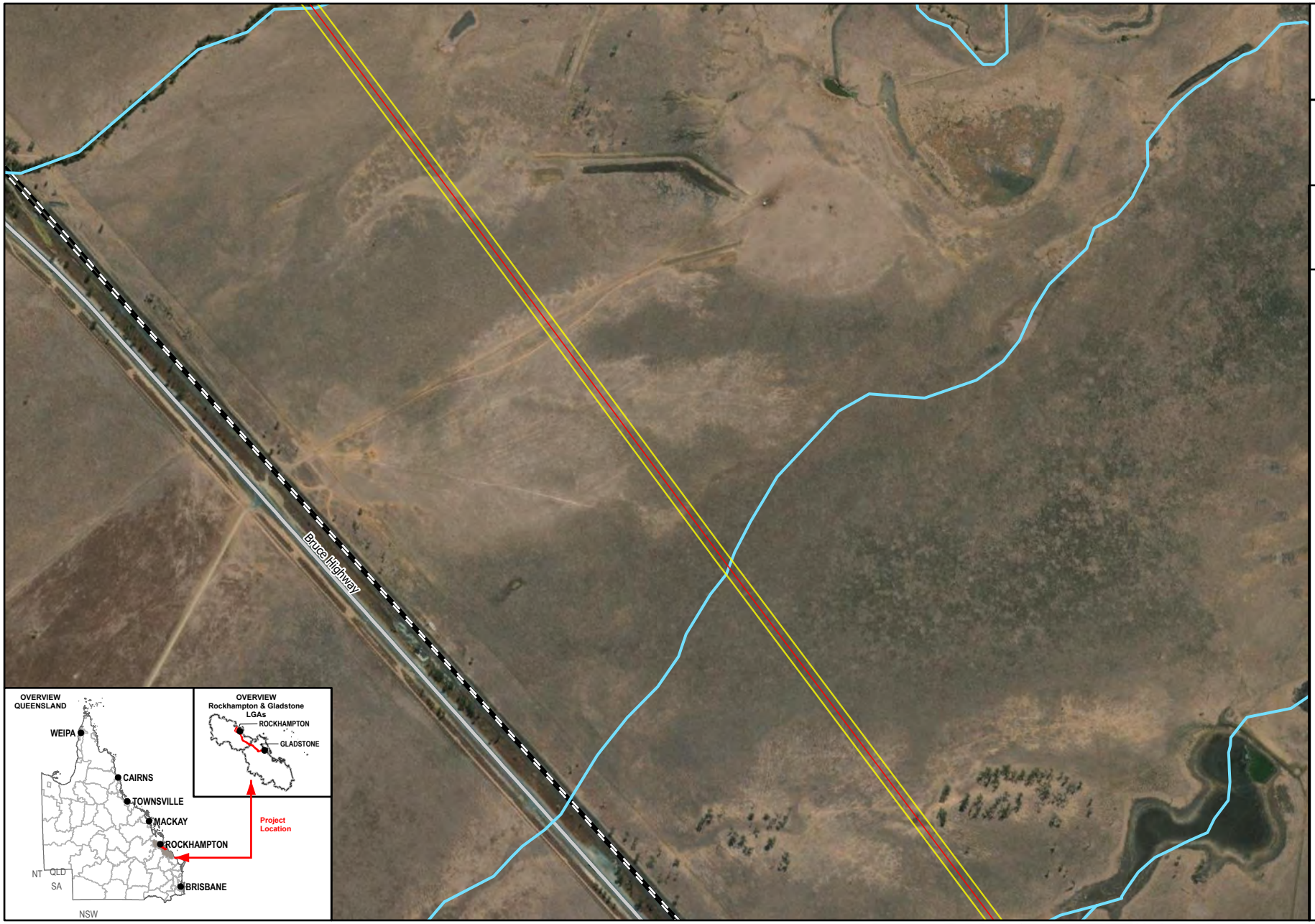
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21o
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

Data Sources:
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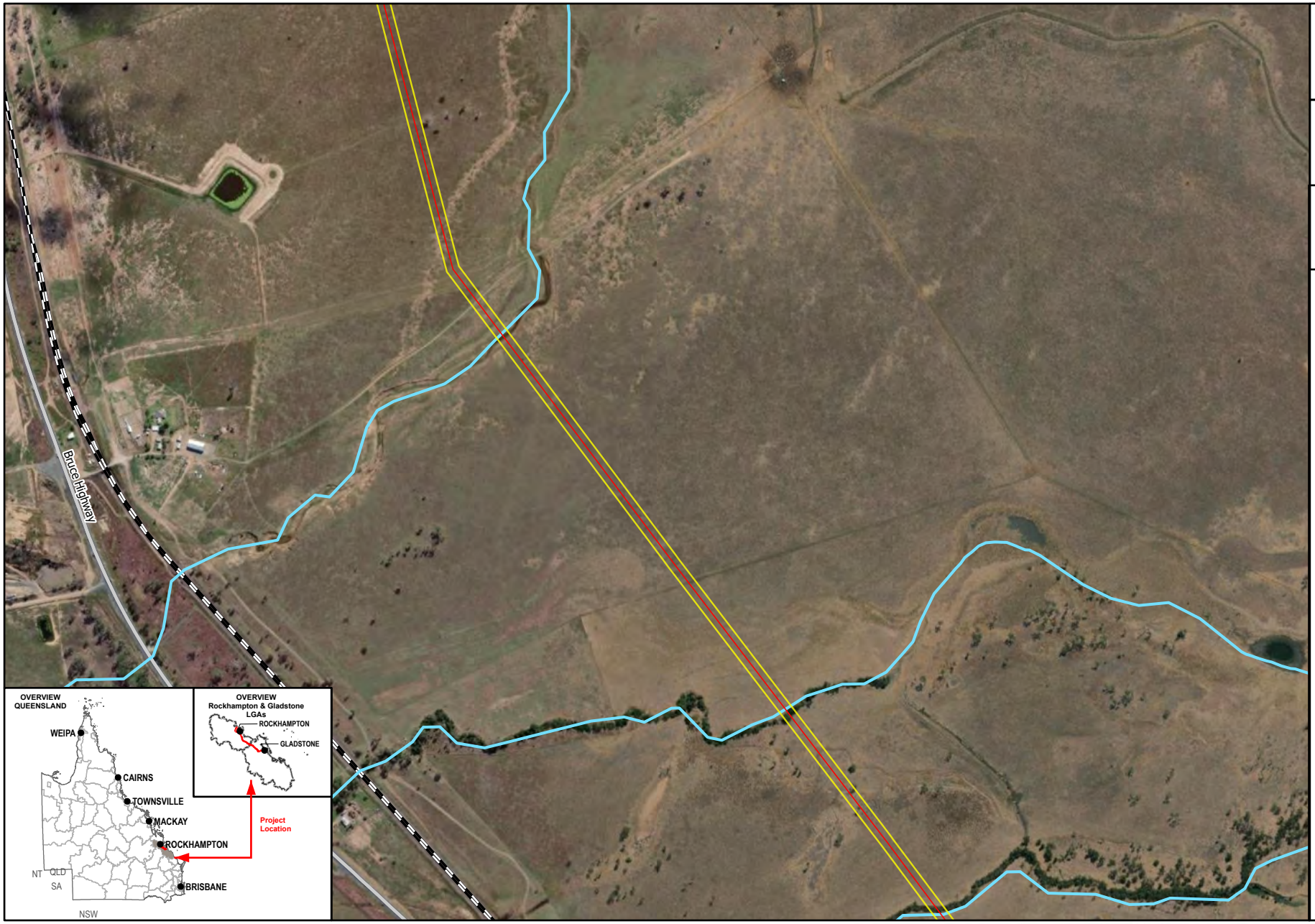
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21p
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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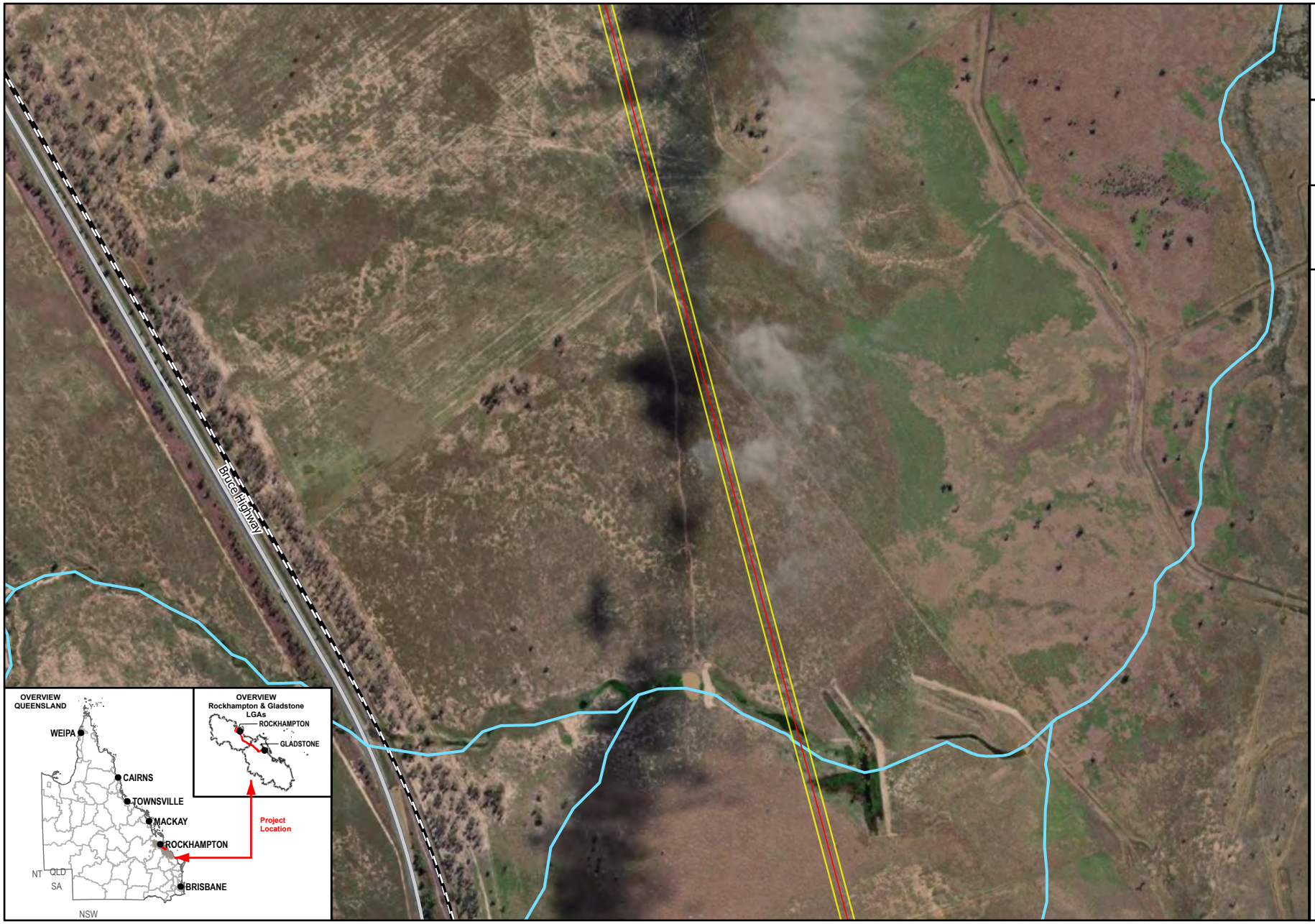
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21q
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
- Main Roads
- Railways

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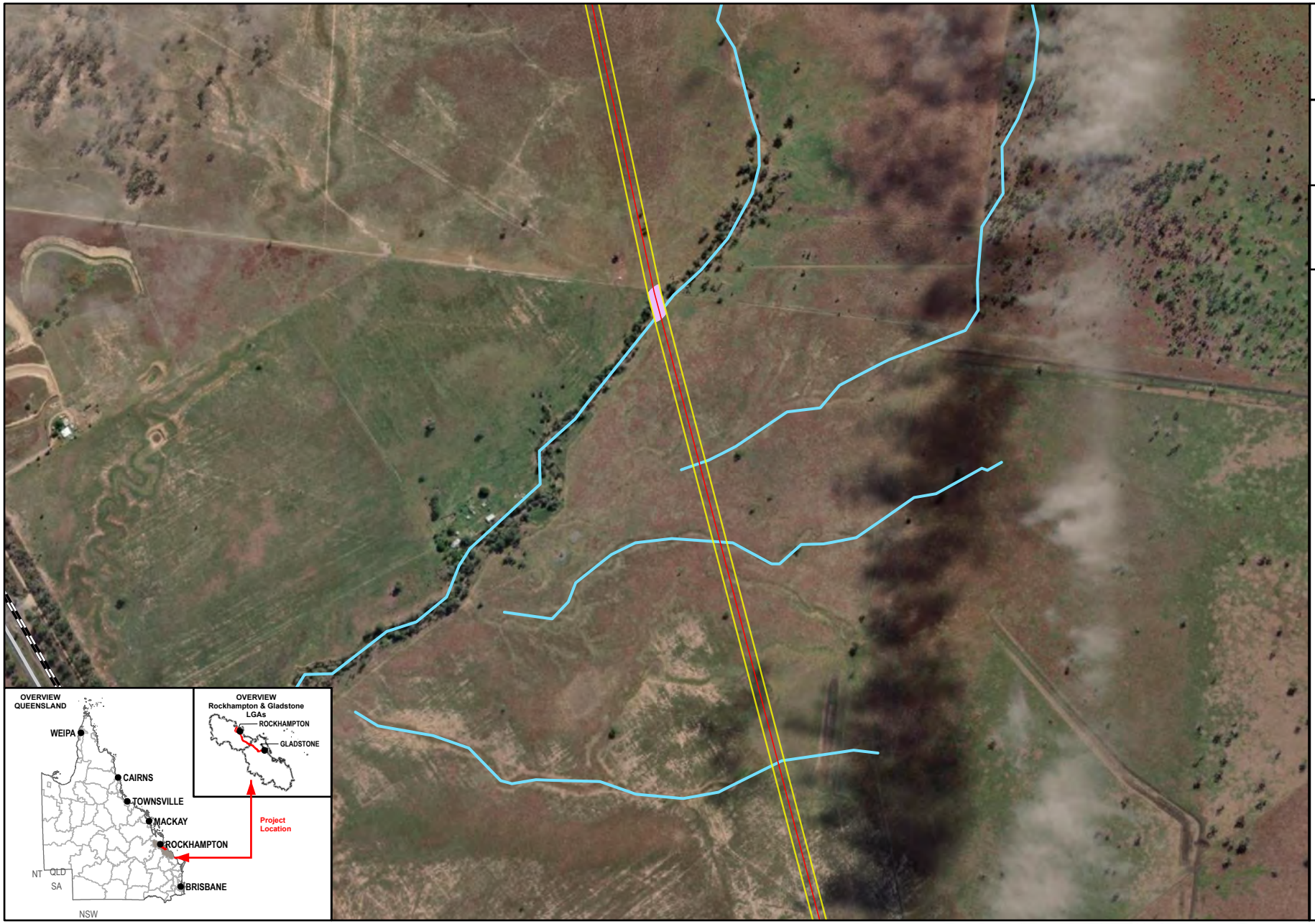
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21r
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Predicted Platypus Habitat
- Waterways
- Main Roads
- Railways

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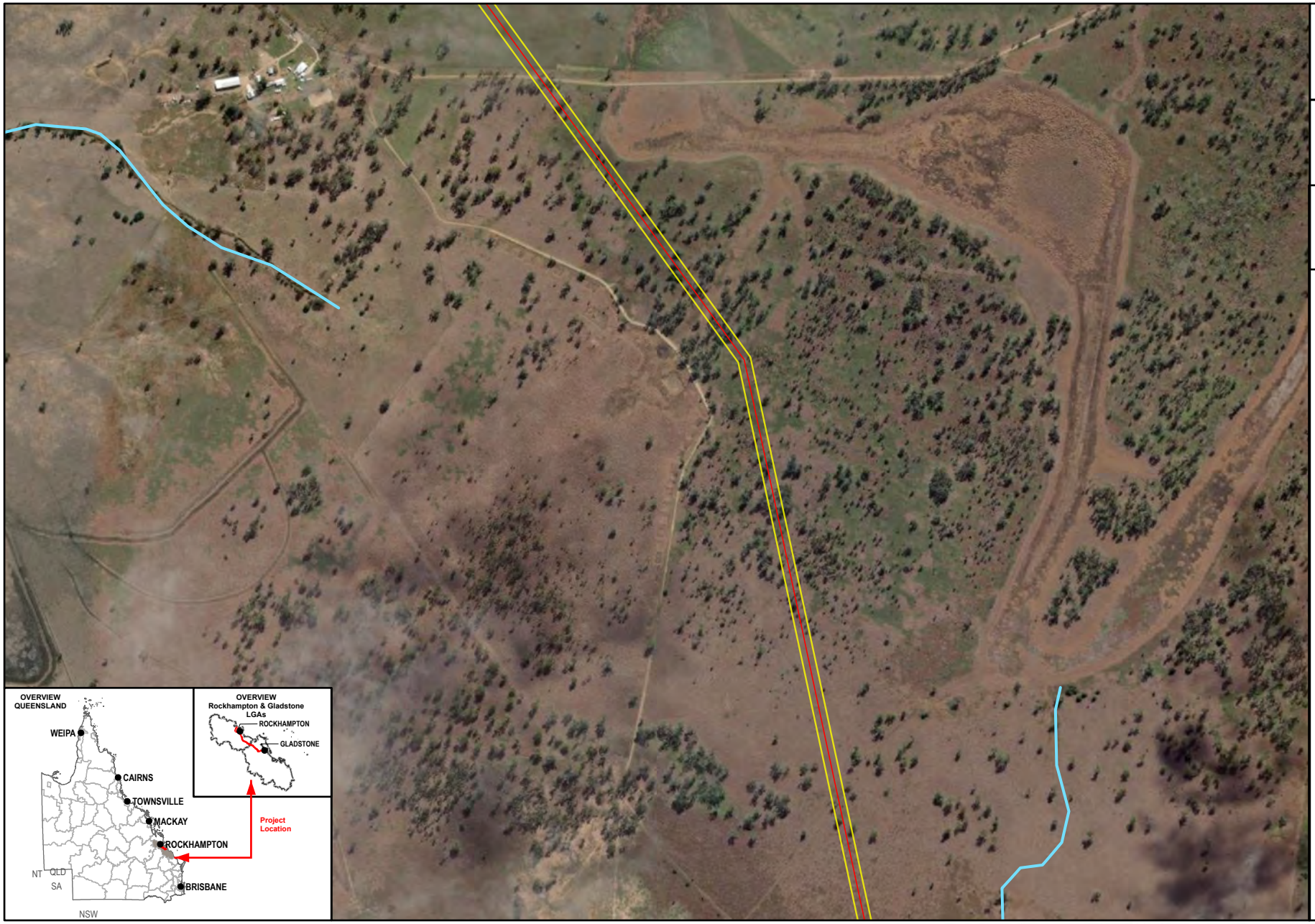

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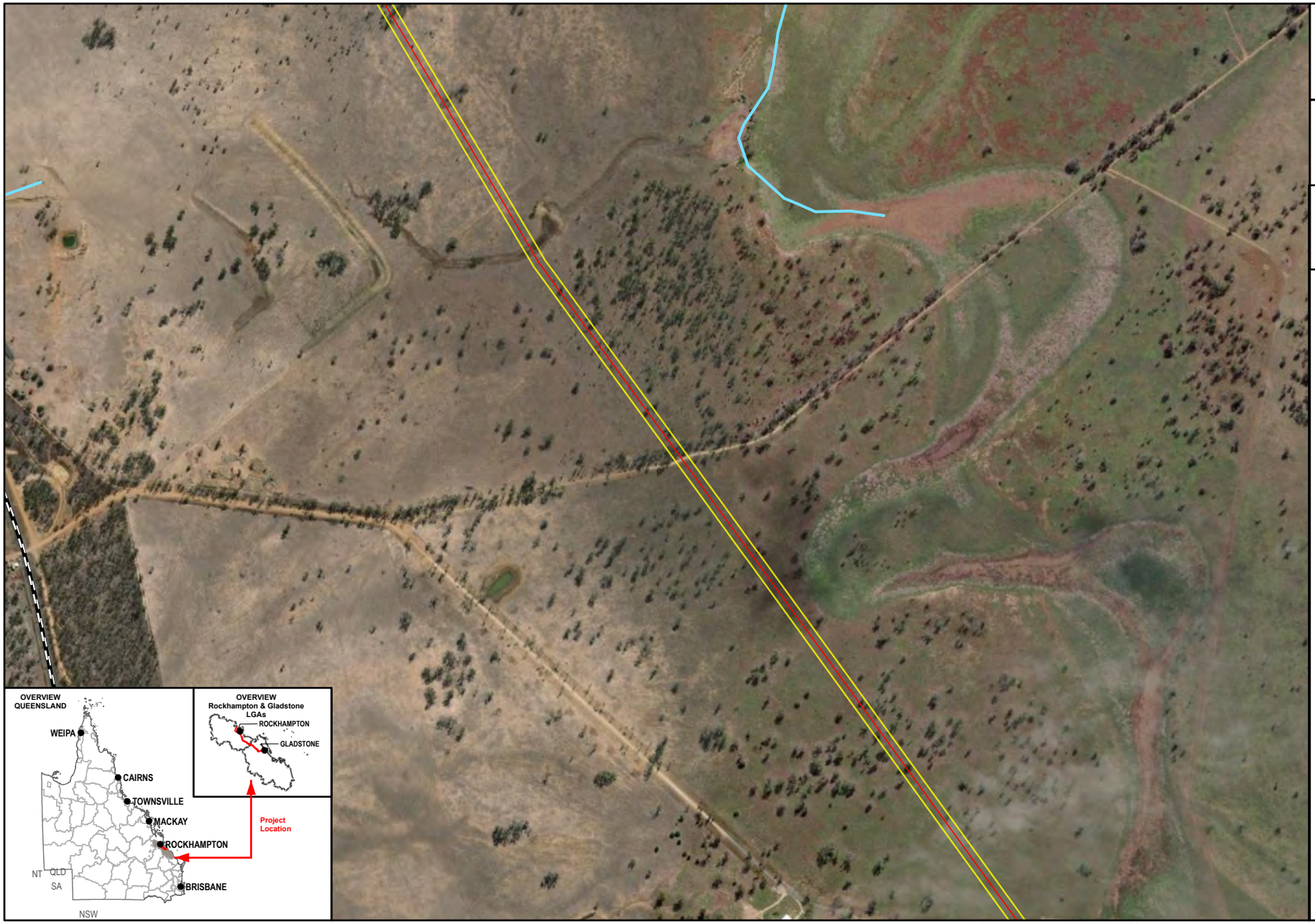
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21t
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
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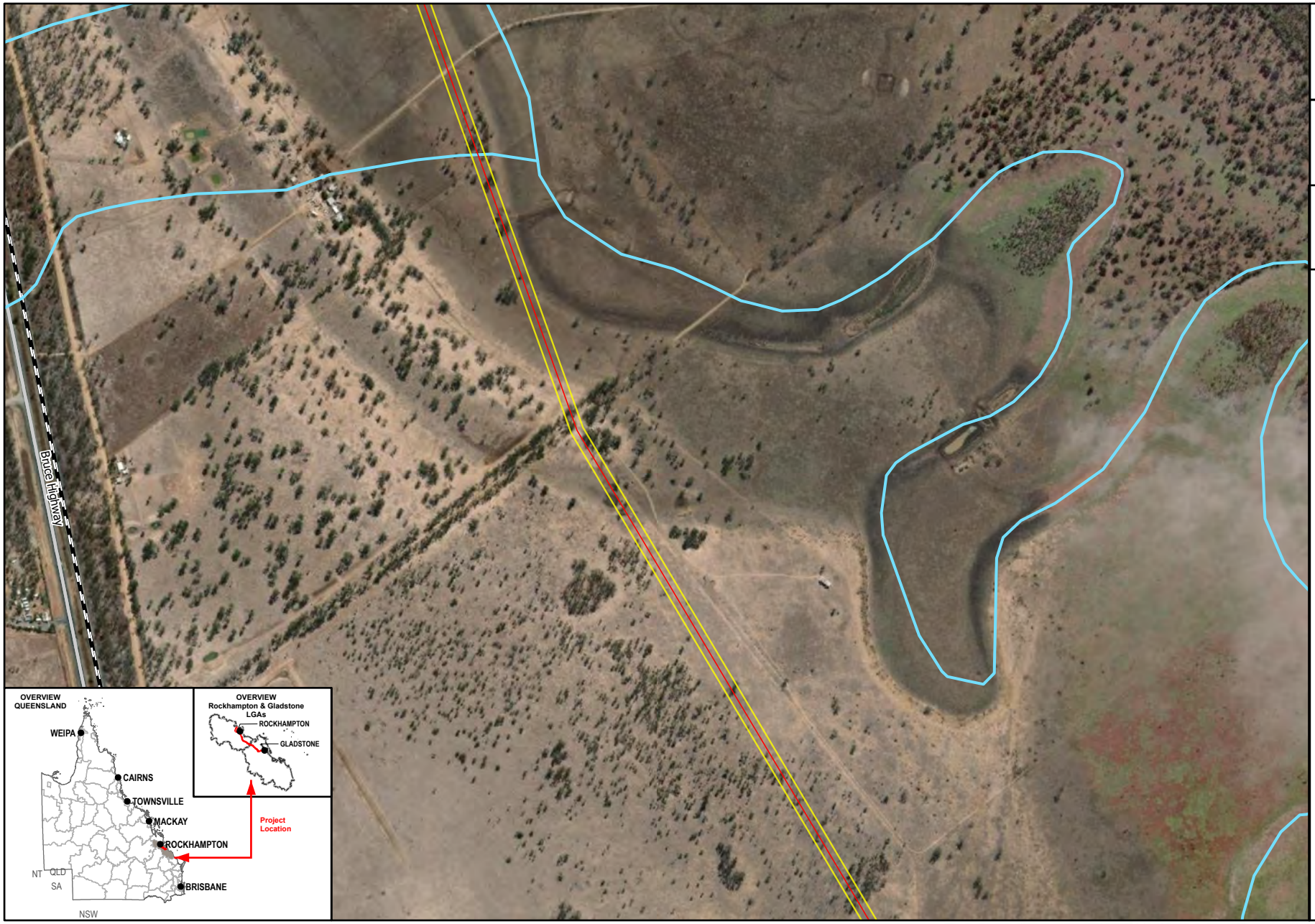
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21u
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
- Study Area
- Waterways
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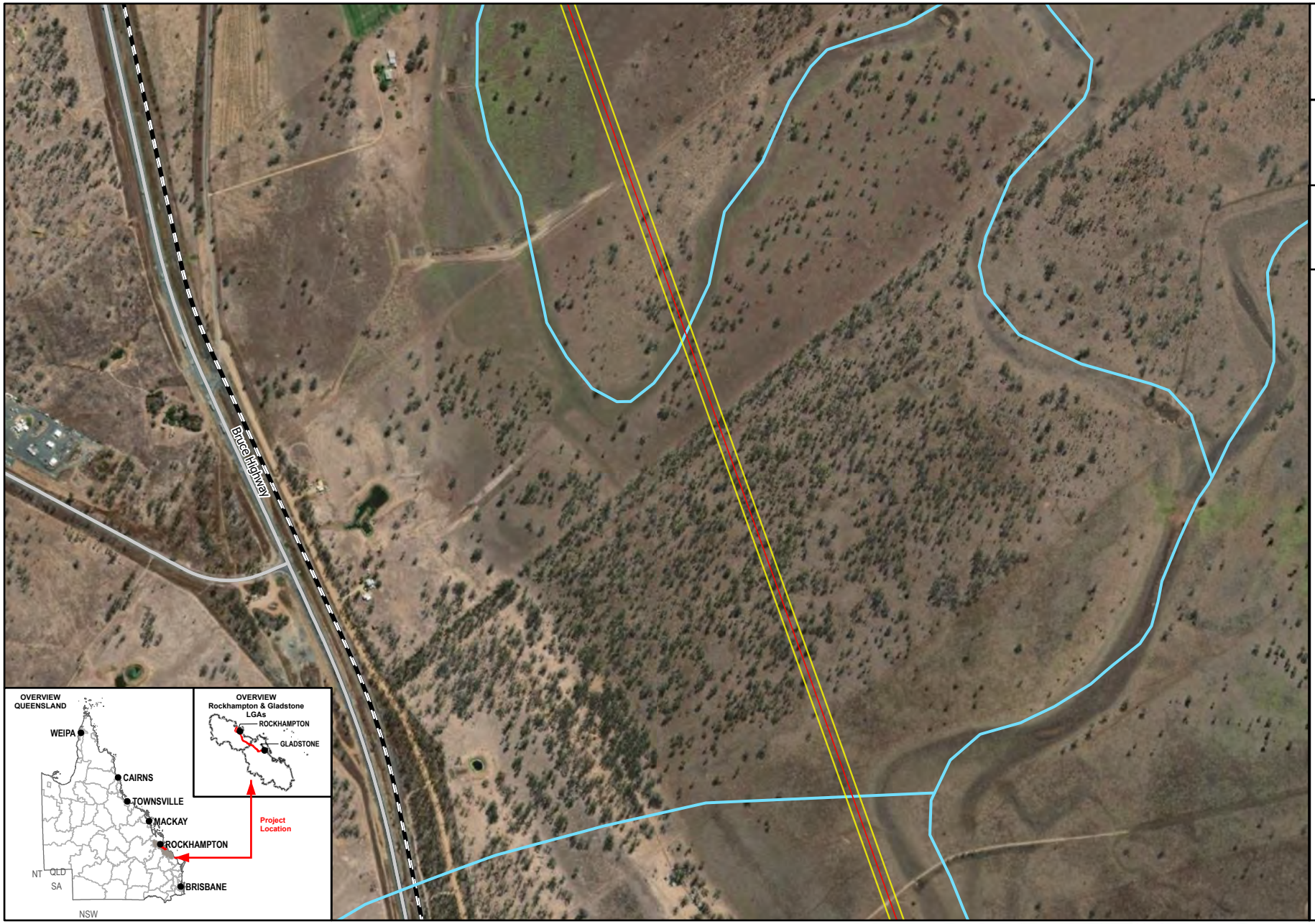
Fitzroy to Gladstone Pipeline
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21v
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
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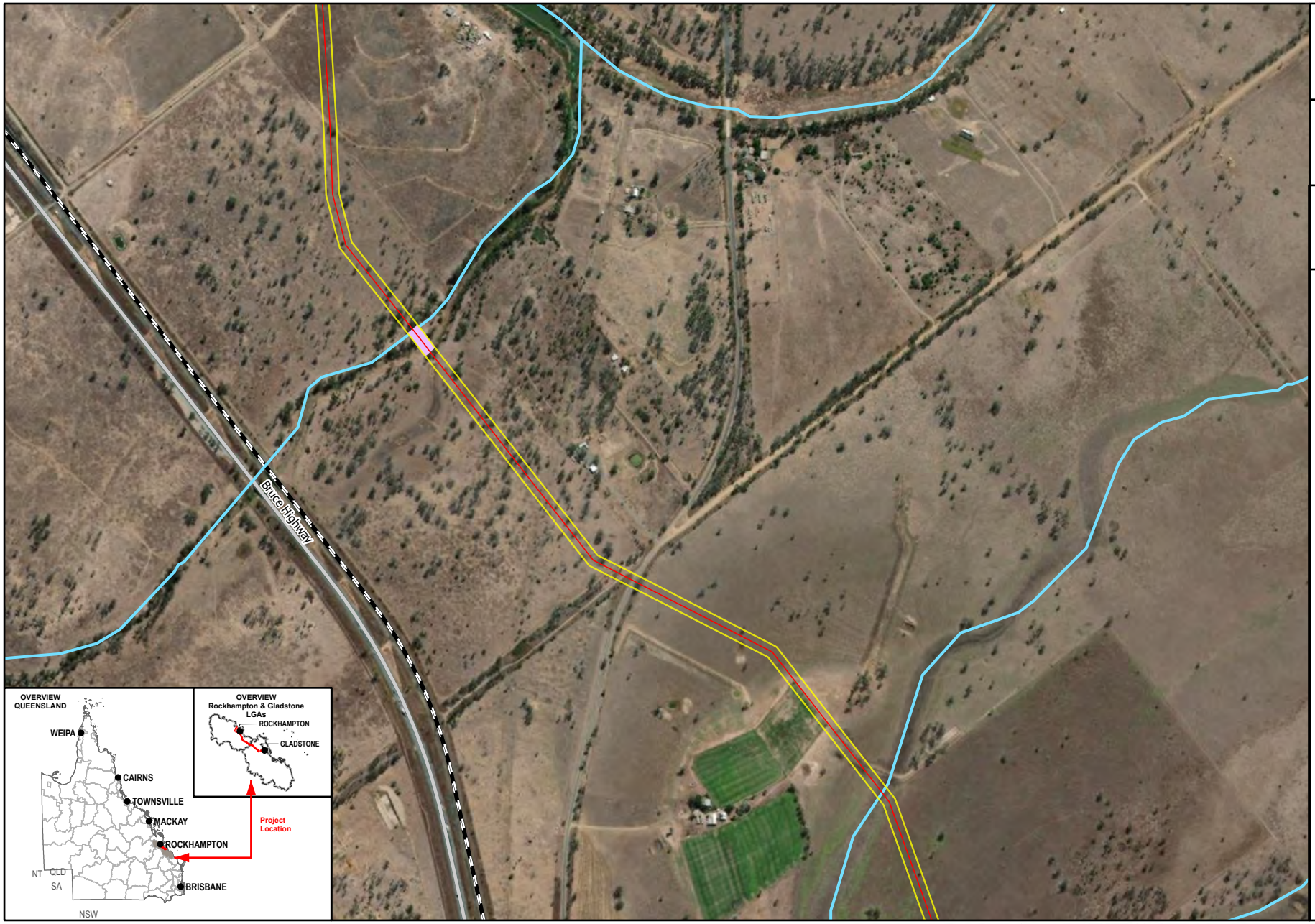
Baseline Terrestrial and Aquatic Ecology Technical Report
Figure 7-21w
Distribution of Platypus Habitat Within the SGIC SDA Study Area
000-G-MAP-2442 Version:3 Date:20/09/2022



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- SGIC SDA Pipeline Alignment
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Distribution of Platypus Habitat Within the SGIC SDA Study Area
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