

3.5.2 Hydrology and Coastal

3.5.2.1 Waterways

The majority of the FGP SGIC SDA alignment is located within the Fitzroy drainage basin where water is managed in accordance with the *Water Plan (Fitzroy Basin) 2011* (as amended). The southern 672 m of the FGP SGIC SDA alignment is within the Calliope River basin where water is managed in accordance with the *Water Plan (Calliope River Basin) Plan 2006* (as amended).

The FGP SGIC SDA alignment intersects a number of waterways. Waterways are identified based on:

- Topographical mapping.
- Watercourse identification map identifying water features managed under the *Water Act 2000*.
- Waterways for the purpose of waterway barrier works as defined by the *Fisheries Act 1992* and managed for the purpose of fish passage and fish habitat.
- Waterways under the DoR regulated vegetation mapping (including MSES waterways).

A list of the waterways traversed by the pipeline is provided in Table 3.6 and depicted in Figure 3-5a to Figure 3-5j. In summary, the FGP SGIC SDA alignment intersects:

- Three mapped watercourses as defined under the *Water Act 2000*:
 - Scrubby Creek.
 - Gavial Creek.
 - Twelve Mile Creek.
- 40 unmapped water features where an assessment has not been undertaken to confirm if the water feature meets the definition of a drainage pathway, watercourse or neither. Where these features are clearly watercourses (e.g. due to defined banks) these have been identified in Table 3.6.
- Waterways mapped for the purpose of waterway barrier works:
 - 16 green or low risk of impact waterways.
 - 15 amber or moderate risk of impact waterways.
 - 4 red or high risk of impact waterways.
 - 11 purple or major risk of impact waterways (including tidal).
- 50 waterways that are MSES for regulated vegetation intersecting a watercourse.

The majority of the waterway features identified have been subject to past disturbance, such as land clearing for agriculture, however, the amber, purple and red waterways have intact riparian margins to varying degrees (refer to Table 3.6). The three mapped watercourse as identified above and catchments traversed by the FGP SGIC SDA alignment flow in an easterly direction towards the Fitzroy River in Rockhampton and Port Alma (where the Fitzroy River discharges to).

There is potential for temporary impacts to waterway features including changes in water flow regimes, during construction of the pipeline (e.g. where trenched crossings are required), or where temporary access tracks cross waterways and disturb waterway features. The impacts as a result of construction are anticipated to be temporary in nature as waterway restoration and rehabilitation following construction will mitigate impacts. For sensitive waterways, namely, Gavial Creek, trenchless methods are proposed for pipeline construction to minimise impact upon these waterways. No permanent waterway feature impacts are anticipated.

Table 3.6 Waterways Traversed by the FGP SGIC SDA Alignment

Name of Watercourse	Stream Order	Water Act Classification ¹	Waterways for Waterway Barrier Works ²	MSES ³	Chainage	Lot Type Parcel	Coordinates	Description / Water Act Classification Discussion
Unnamed	1	Unmapped	Amber	Intersecting	18200	24 RP603312	150.4533, -23.4037	Drainage pathway features present
Scrubby Creek	5	Watercourse	Purple	N/A	25500	-	150.5145, -23.428	Drainage pathway features present
Gavial Creek	5	Watercourse	Purple	Intersecting	28700	-	150.5326, -23.4509	Watercourse features and riparian margins present
Unnamed	1	Unmapped	Green	Intersecting	30200	76 LN184	150.5429 -23.4608	Drainage pathway features present
Unnamed	1	Unmapped	Green	Intersecting	31300	4 SP103554	150.5463, -23.4697	Drainage pathway features present
Unnamed	1	Drainage Feature	Green	N/A	32500	31 SP181941	150.5498, -23.4793	Very minor drainage pathway features present at the intersection site
Unnamed	1	Drainage Feature	Green	Intersecting	32800	31 SP181941	150.5512, -23.4833	Very minor drainage pathway features present at the intersection site
Bobs Creek	4	Unmapped	Purple	N/A	40200	-	150.5819, -23.5427	Watercourse features and riparian margins present
Unnamed	1	Unmapped	Green	Intersecting	40600	5 RP604251	150.5827, -23.5458	Very minor drainage pathway features present at the intersection site
Unnamed	3	Unmapped	Amber	Intersecting	40700	5 RP604251	150.5831, -23.5473	Minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Amber	Intersecting	41300	5 RP604251	150.5844, -23.552	Drainage pathway features present
Unnamed	2	Unmapped	Amber	N/A	43300	3 RP600950	150.5891, -23.5697	Drainage pathway features present
Unnamed	3	Unmapped	Red	Intersecting	44700	3 RP600950	150.5932, -23.5821	Drainage pathway features present
Station Creek	4	Unmapped	Purple	Intersecting	45700	4 RP600951	150.5994, -23.59	Watercourse features and riparian margins present
Oaky Creek	4	Unmapped	Purple	Intersecting	46500	4 RP600951	150.6027, -23.5943	Watercourse features and riparian margins present
Unnamed	3	Unmapped	Amber	Intersecting	48100	1 RL8197	150.612, -23.6061	Very minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Green	Intersecting	49000	3 LIV40208	150.6179, -23.6137	Drainage pathway features present
Unnamed	1	Unmapped	Amber	Intersecting	49100	3 LIV40208	150.6187, -23.6147	Drainage pathway features present
Unnamed	4	Unmapped	Purple	Intersecting	54600	3 RP601795	150.6682, -23.6337	Drainage pathway features present
Unnamed	4	Unmapped	Purple	Intersecting	55500	3 RP601795	150.6757, -23.6365	Drainage pathway features present

Name of Watercourse	Stream Order	Water Act Classification ¹	Waterways for Waterway Barrier Works ²	MSES ³	Chainage	Lot Type Parcel	Coordinates	Description / Water Act Classification Discussion
Inkerman Creek	5	Unmapped	Purple	Intersecting	56500	-	150.6842, -23.6385	Watercourse features and riparian margins present
Unnamed	1	Unmapped	Amber	Intersecting	56900	68 DS141	150.6884, -23.64	Very minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Amber	Intersecting	57500	69 DS141	150.6937, -23.6422	Very minor drainage pathway features present at the intersection site
Unnamed	2	Unmapped	Amber	Intersecting	58300	93 DS611	150.7, -23.6448	Drainage pathway features present
Unnamed	1	Unmapped	Green	Intersecting	61100	100 DS185	150.7238, -23.6574	Minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Green	Intersecting	62400	102 DS185	150.7308, -23.667	Very minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Amber	Intersecting	63400	84 DS185	150.7349, -23.6752	Very minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Amber	Intersecting	64500	84 DS185	150.744, -23.6804	Drainage pathway features present
Twelve Mile Creek	4	Watercourse	Purple	Intersecting	65200	85 DS185	150.7495, -23.6812	Watercourse features and riparian margins present
Marble Creek	3	Unmapped	Red	Intersecting	66000	28 DS37	150.7579, -23.6824	Watercourse features and riparian margins present
Pelican Creek	3	Drainage Feature	Green	Intersecting	68600	1543 DS588	150.7803, -23.6942	Very minor drainage pathway features present at the intersection site
Pelican Creek		Drainage Feature	Red	Intersecting	68700	1543 DS588	150.781, -23.6945	Drainage pathway features present
Horrigan Creek	4	Unmapped	Purple	Intersecting	71900	-	150.8103, -23.7042	Watercourse features and riparian margins present
Raglan Creek	4	Unmapped	Tidal	Intersecting	73000	1 PER4653	150.8196, -23.7090	Watercourse features and riparian margins present
Unnamed	1	NIL	Green	Intersecting	77700	124 SP257851	150.8641, -23.7185	Drainage pathway features present
Unnamed	1	NIL	Green	Intersecting	78600	39 DS688	150.8719, -23.7195	Drainage pathway features present
Larcom Gully	1	Unmapped	Green	Intersecting	80000	39 DS688	150.8844, -23.722	Drainage pathway features present
Unnamed	2	Unmapped	Amber	Intersecting	85000	41 DS21	150.9138, -23.7574	Drainage pathway features present
Unnamed	1	Unmapped	Green	Intersecting	85200	41 DS21	150.9163, -23.7591	Very minor drainage pathway features present at the intersection site

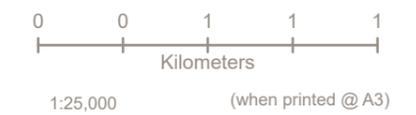
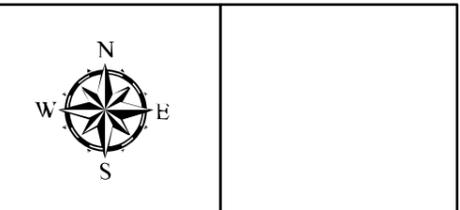
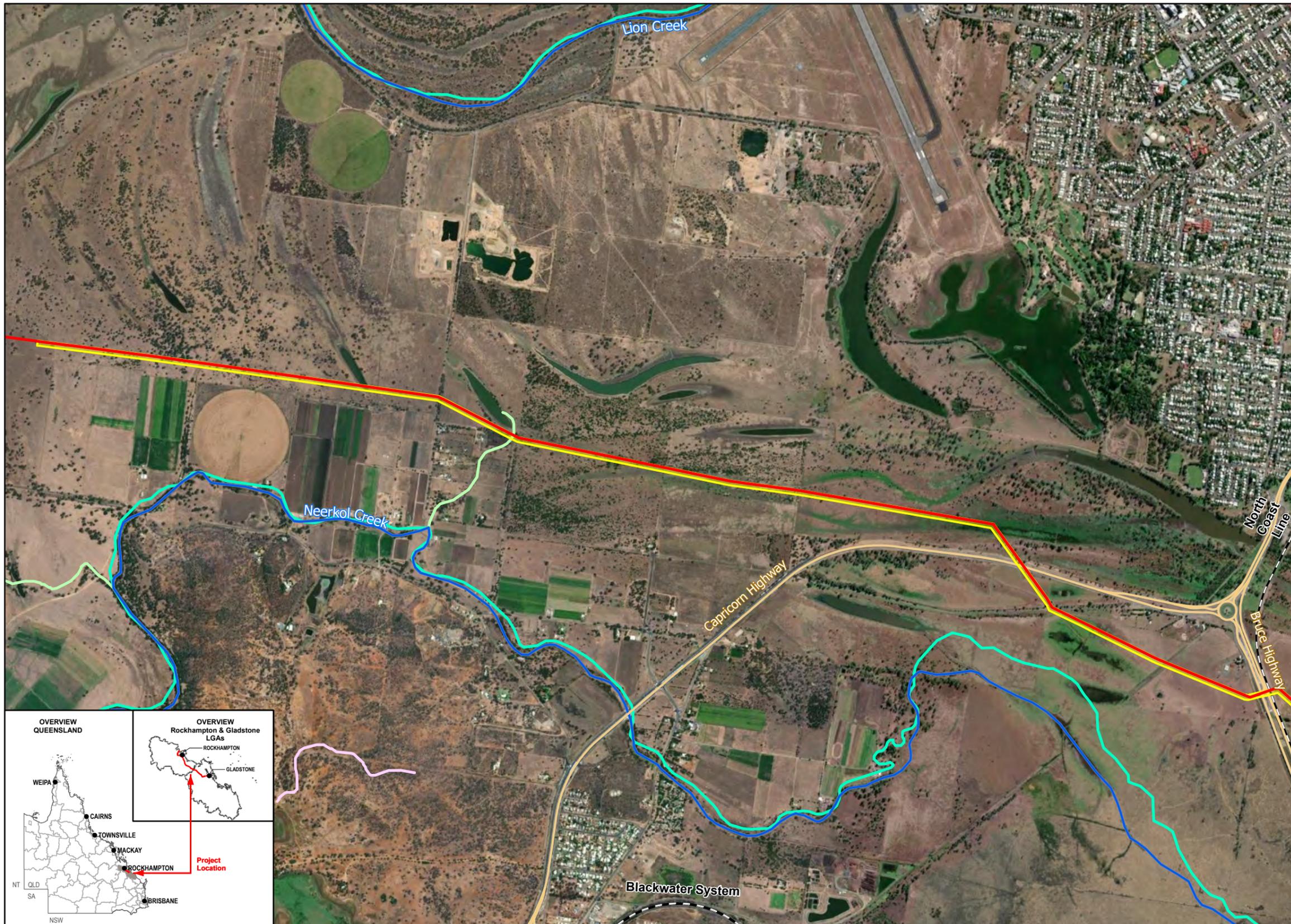
Name of Watercourse	Stream Order	Water Act Classification ¹	Waterways for Waterway Barrier Works ²	MSES ³	Chainage	Lot Type Parcel	Coordinates	Description / Water Act Classification Discussion
Unnamed	1	Unmapped	Green	Intersecting	86600	41 DS21	150.928, -23.7654	Very minor drainage pathway features present at the intersection site
Unnamed	2	Unmapped	Amber	Intersecting	88000	4 RP614012	150.939, -23.7733	Minor drainage pathway features present at the intersection site
Unnamed	2	Unmapped	Amber	Intersecting	89900	13 DS10	150.9516, -23.783	Minor drainage pathway features present at the intersection site
Unnamed	3	Unmapped	Red	Intersecting	91000	2 RP614228	150.9588, -23.7898	Drainage pathway features present
Unnamed	2	Unmapped	Amber	Intersecting	91600	1 RP614228	150.9628, -23.7948	Minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Green	Intersecting	94500	20 DT40124	150.9875, -23.8068	Minor drainage pathway features present at the intersection site
Unnamed	1	Unmapped	Green	Intersecting	95600	20 DT40124	150.998, -23.8113	Minor drainage pathway features present at the intersection site

Table Notes:

Water Act Classification: Unmapped identifies features that have not yet been characterised by Department of Regional Development, Manufacturing and Water (DRDMW).

Waterway barrier works classification: green is a low risk waterway, amber is a moderate risk waterway, red is a high risk waterway, purple is a major risk waterway.

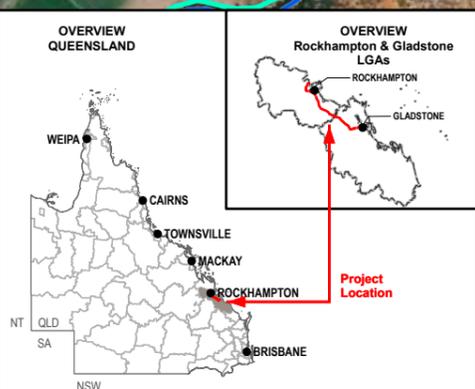
MSES waterway values, intersecting means regulated vegetation (intersecting a watercourse).



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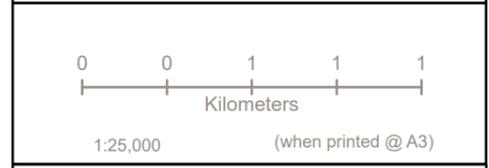
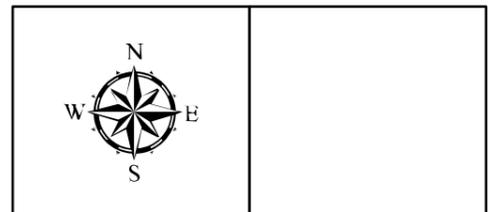
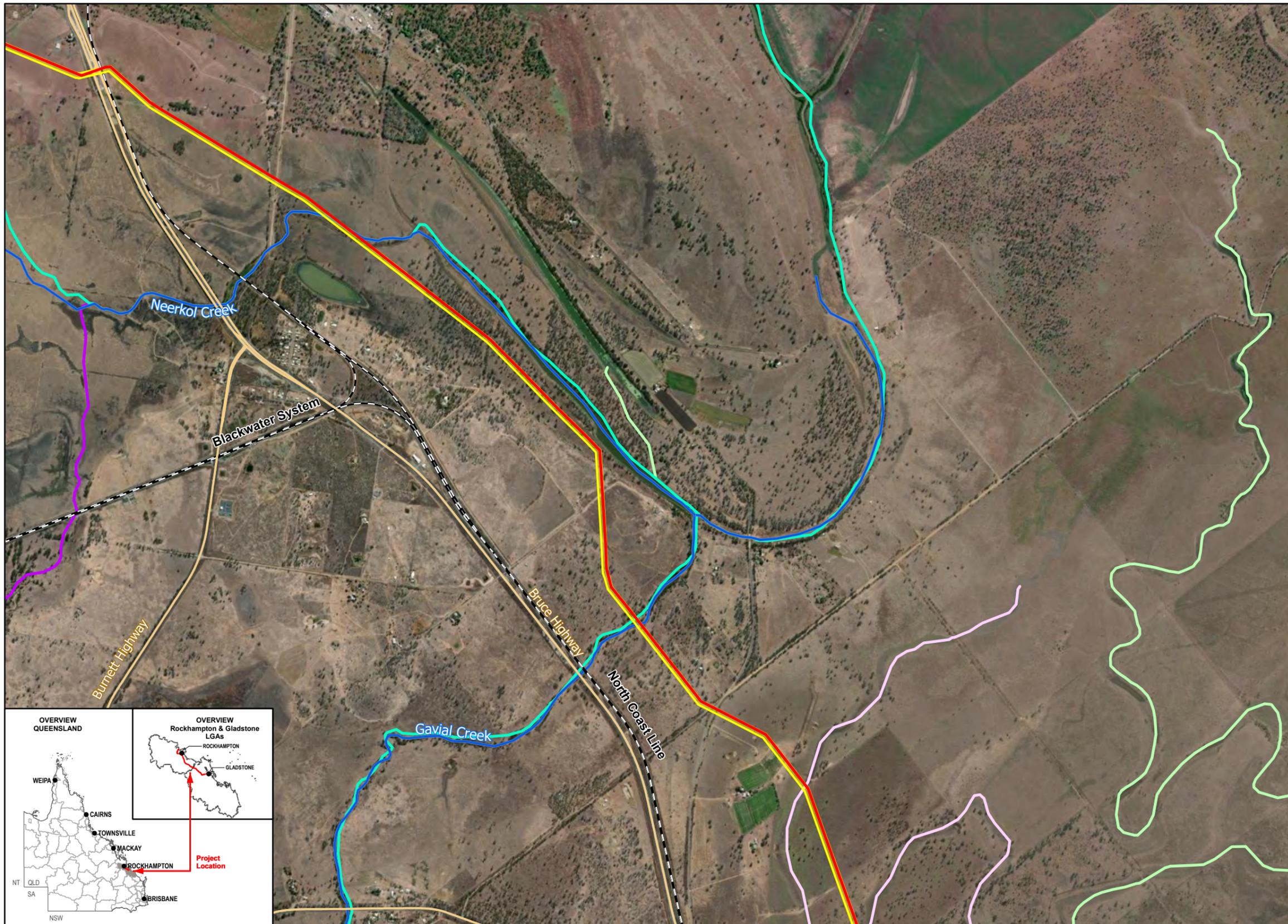
Queensland Waterways for Waterway Barrier Works

- 1 - Low
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Data Sources:
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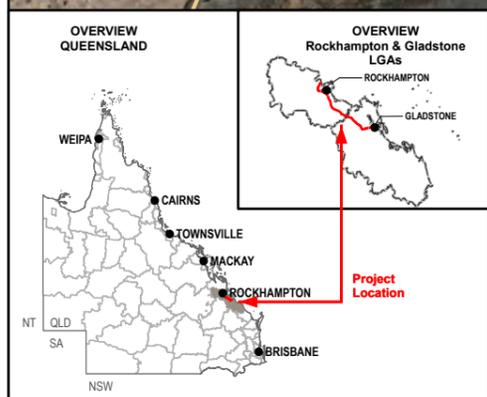


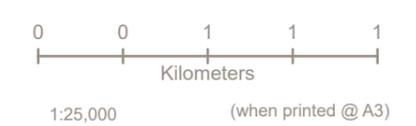
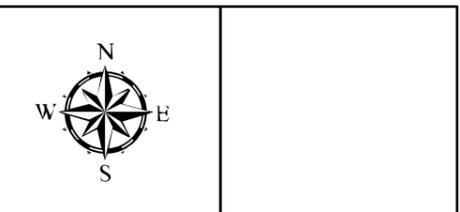
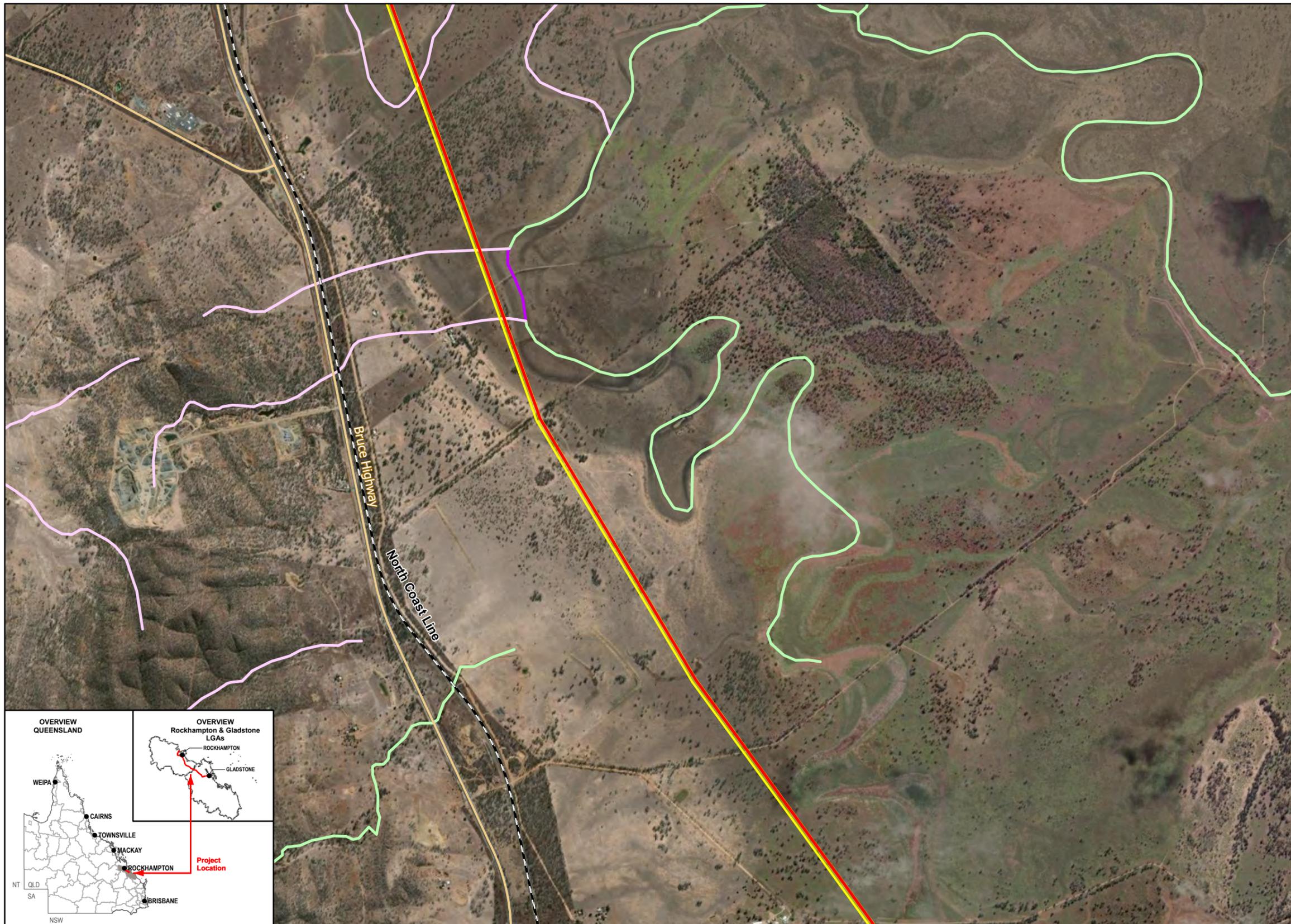
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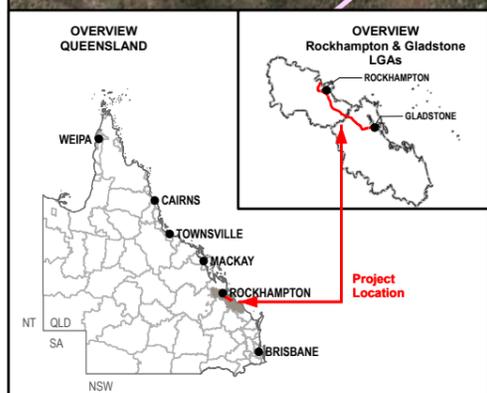
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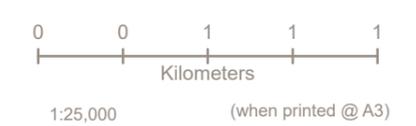
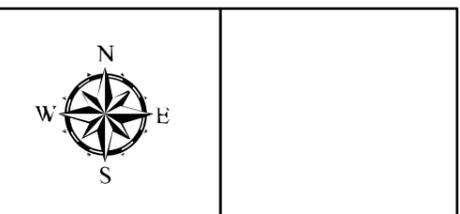
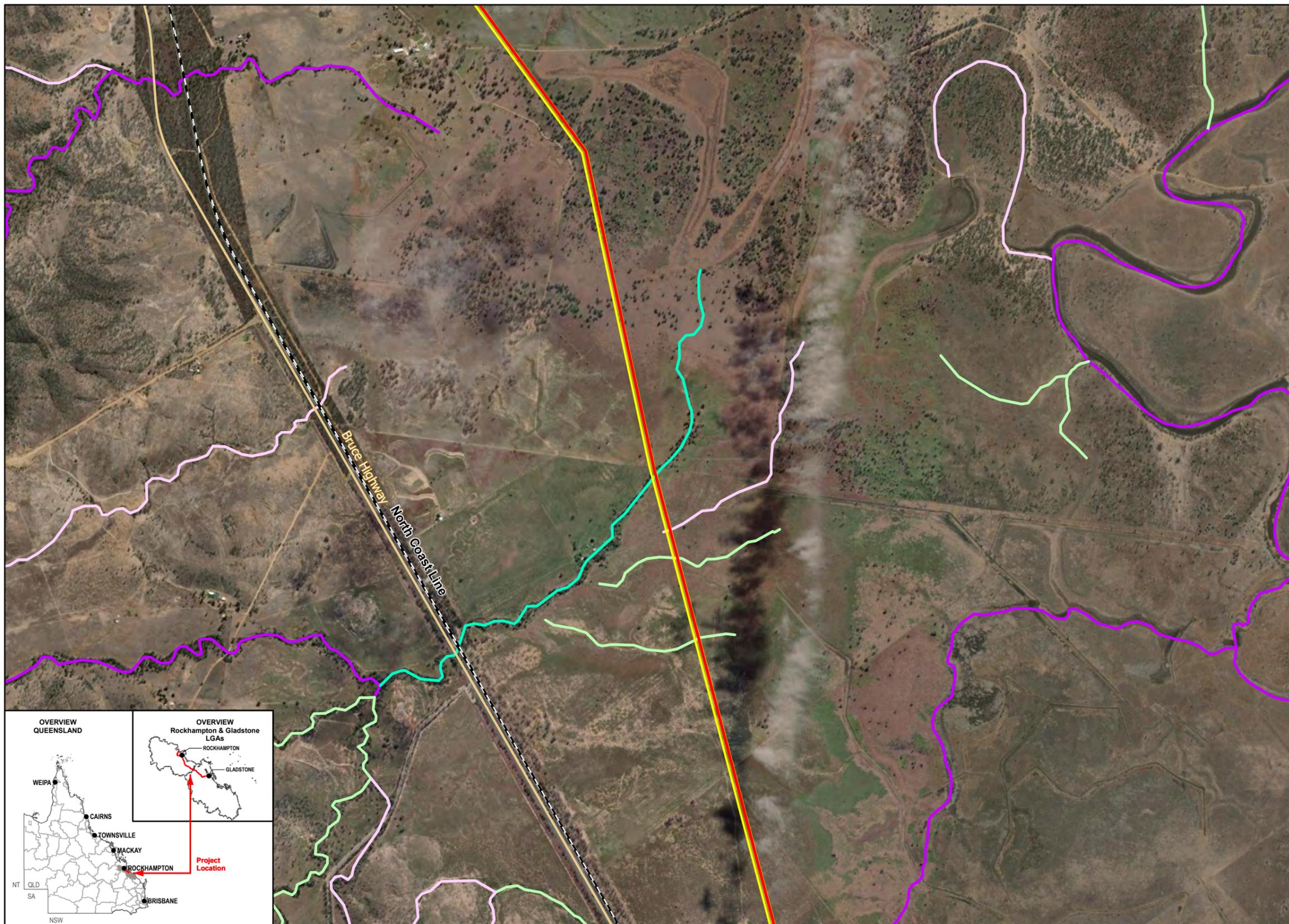
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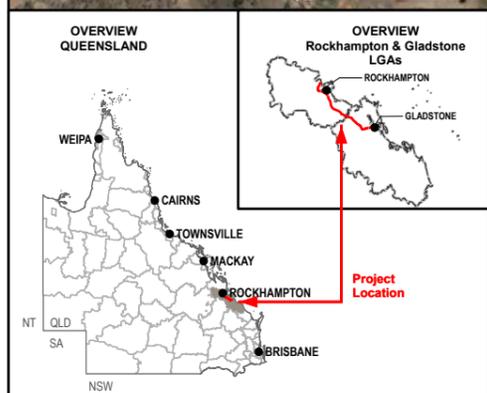
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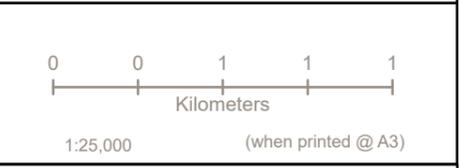
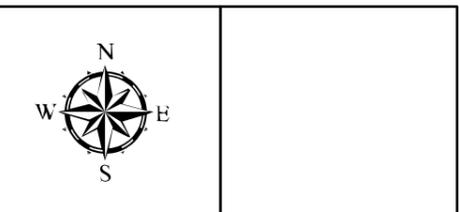
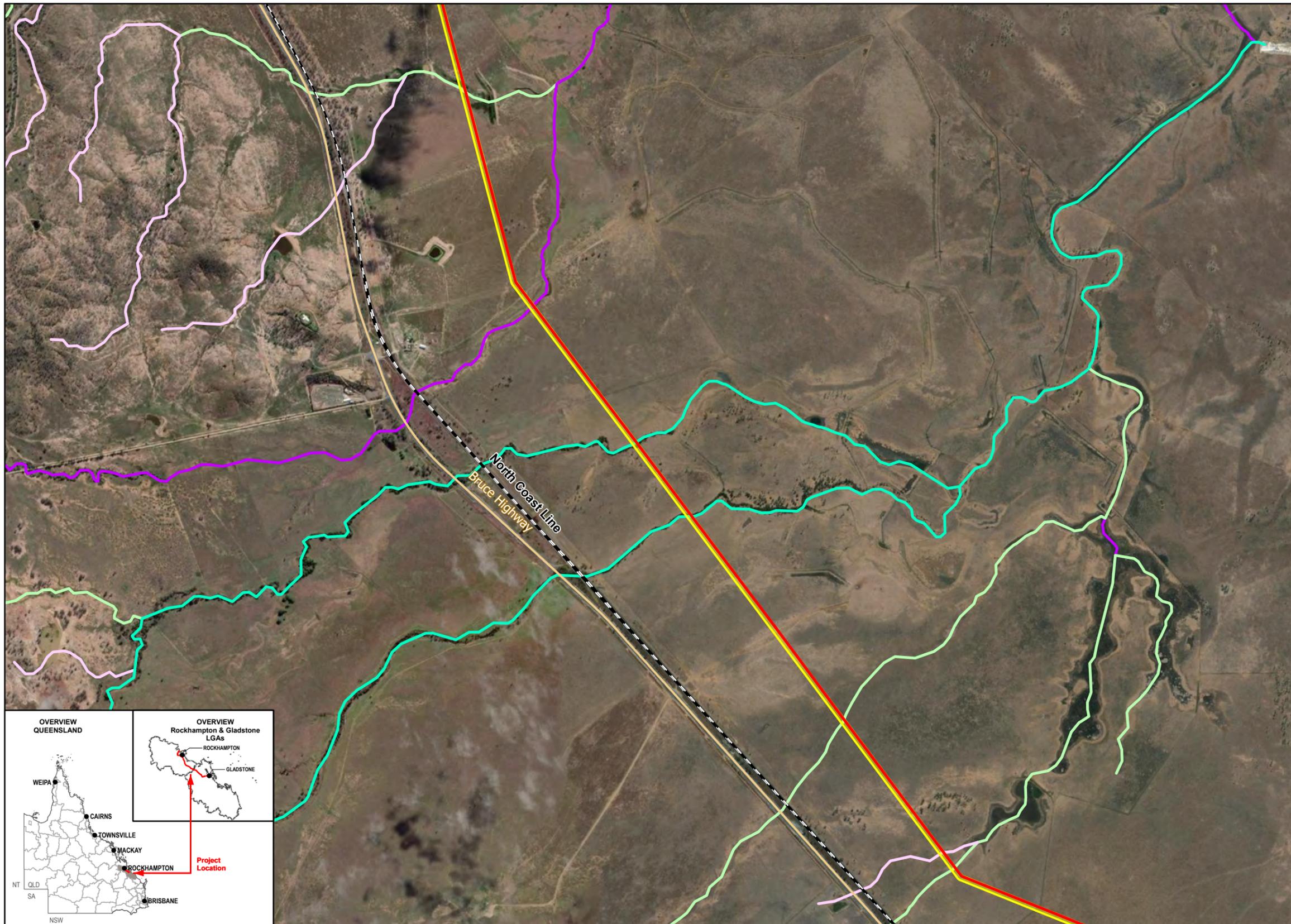
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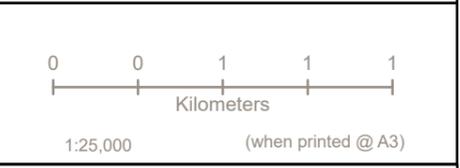
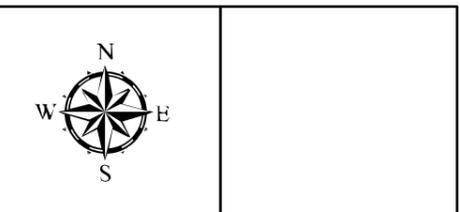
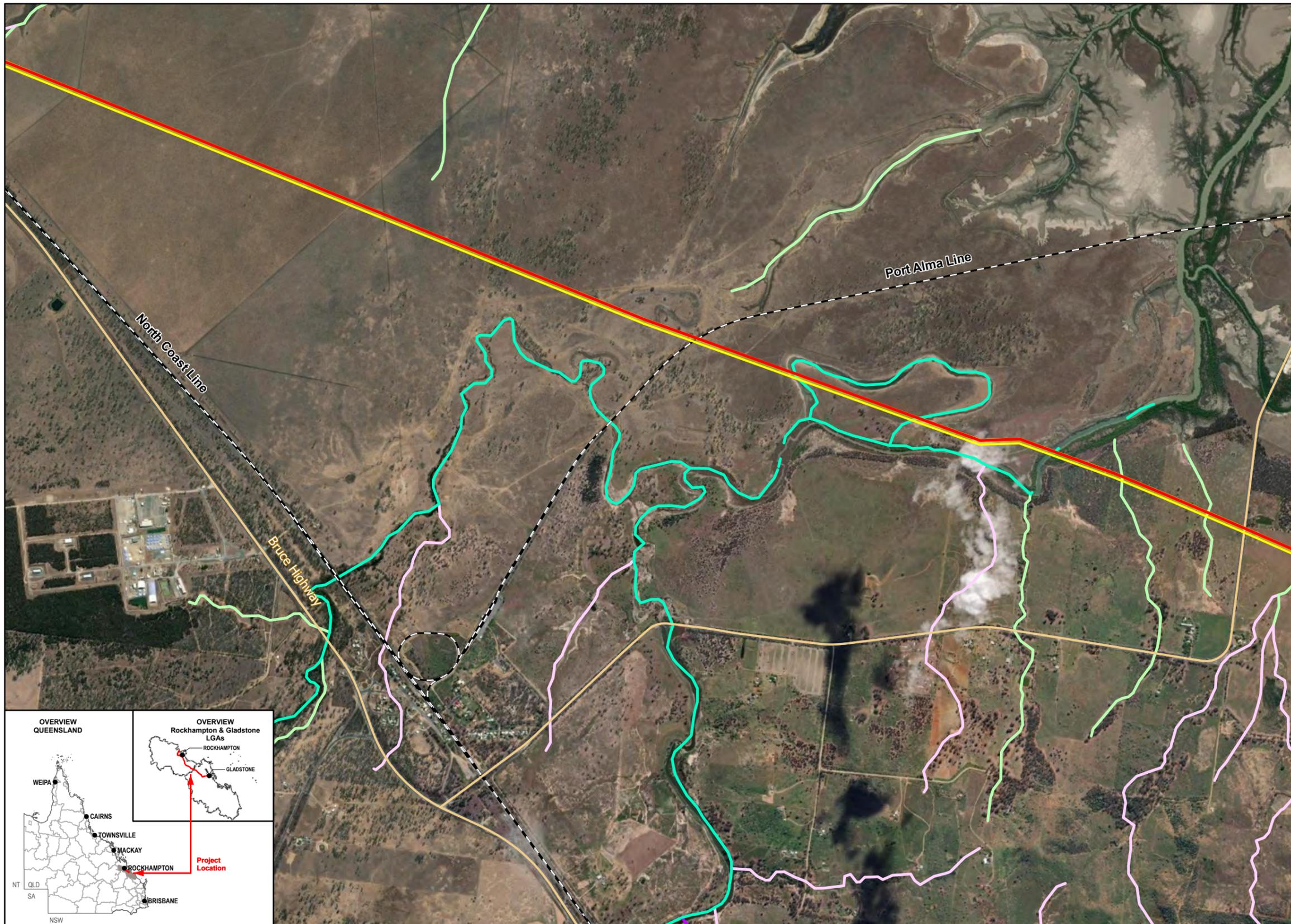


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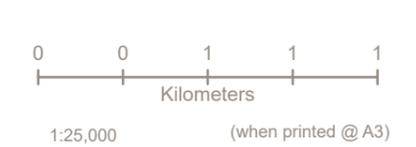
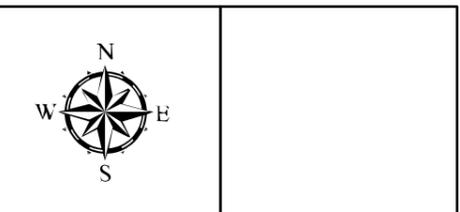
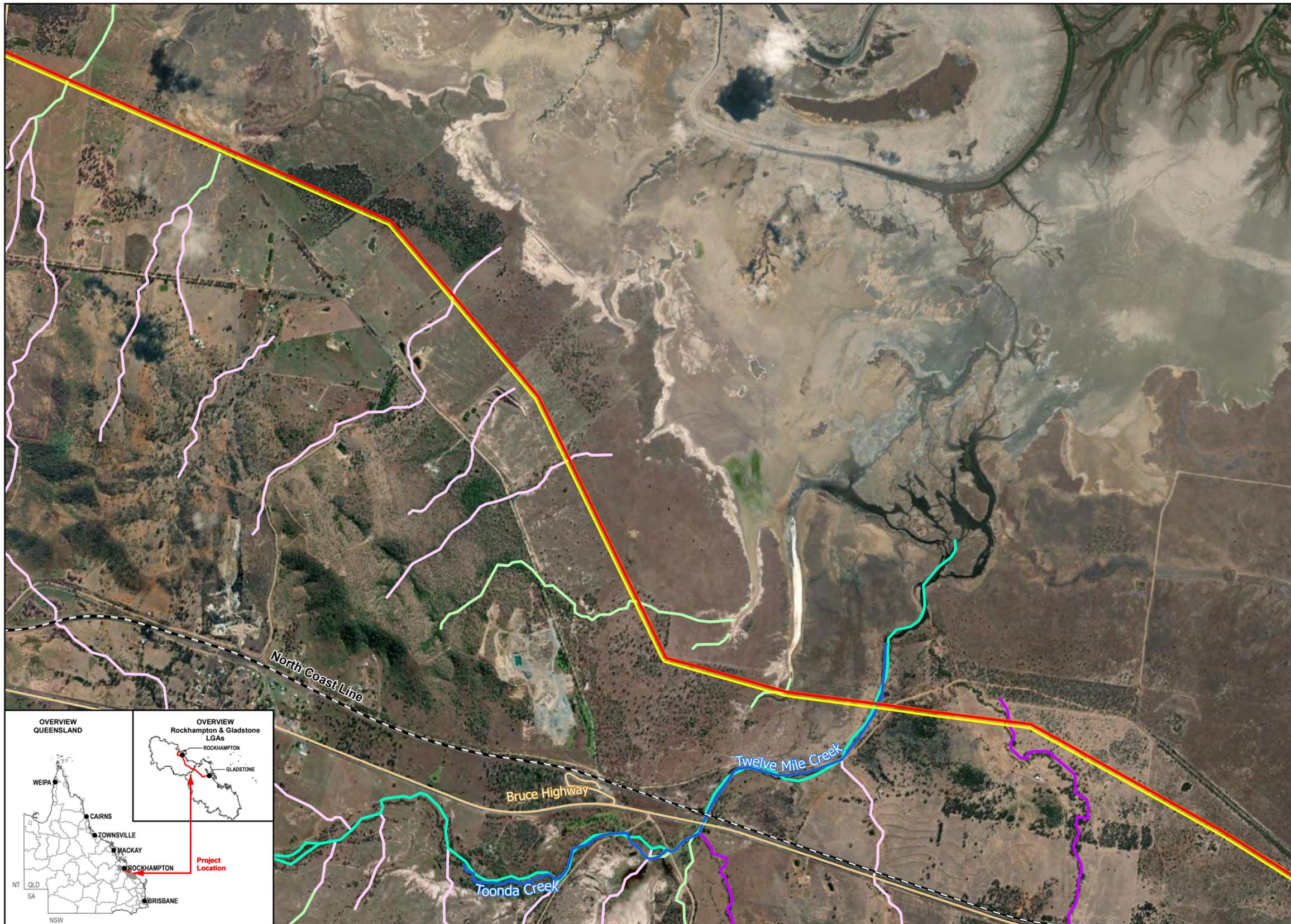
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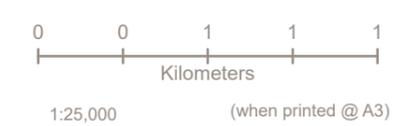
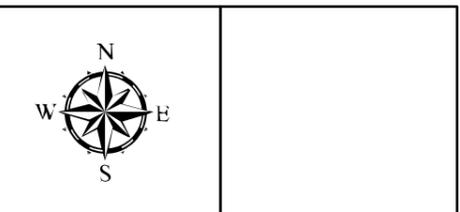
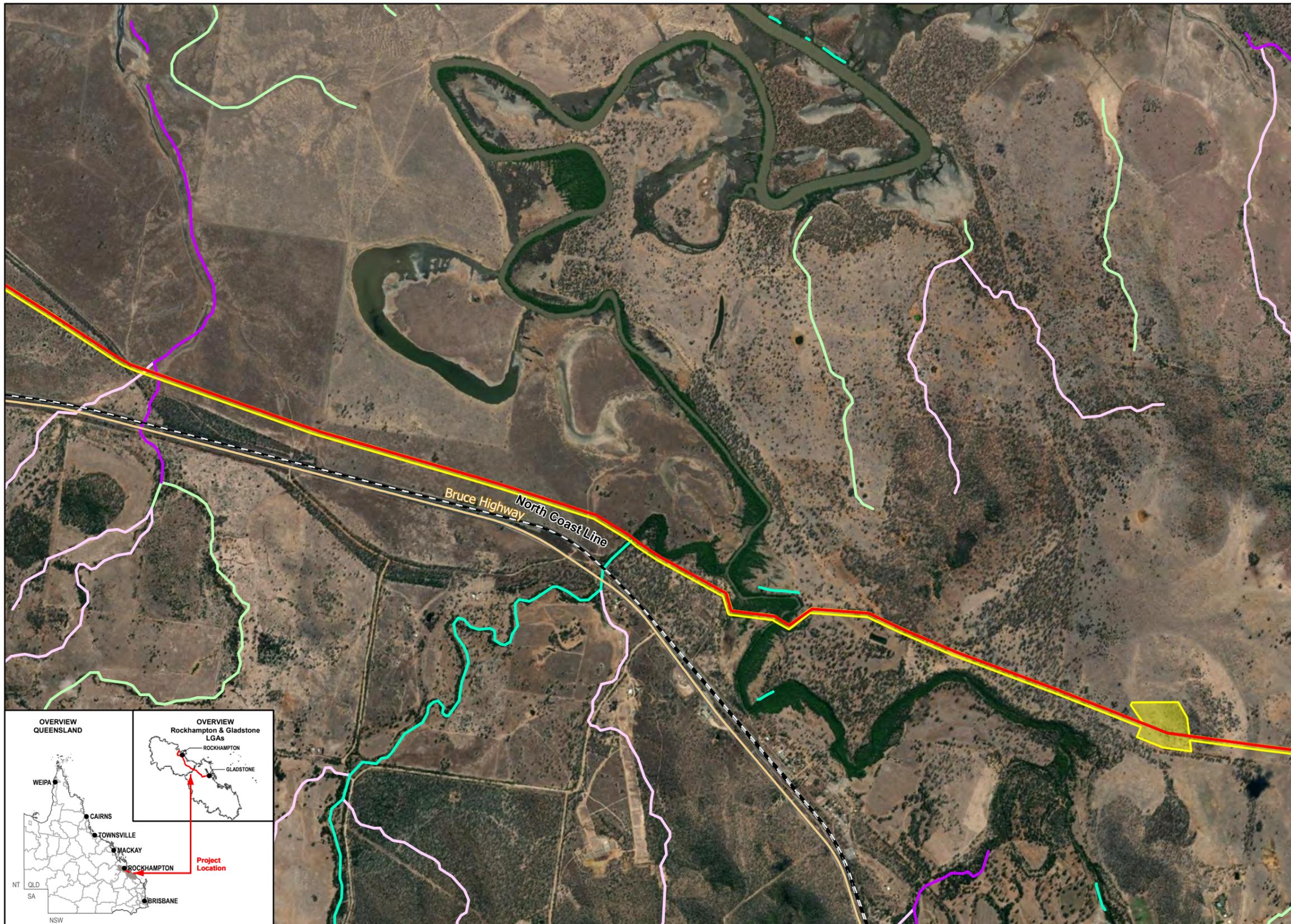
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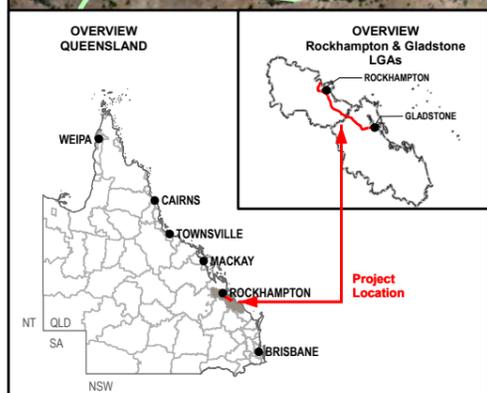
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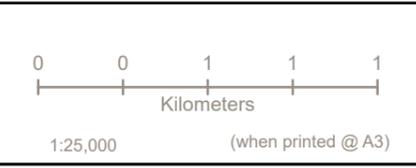
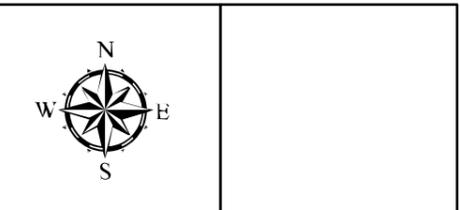
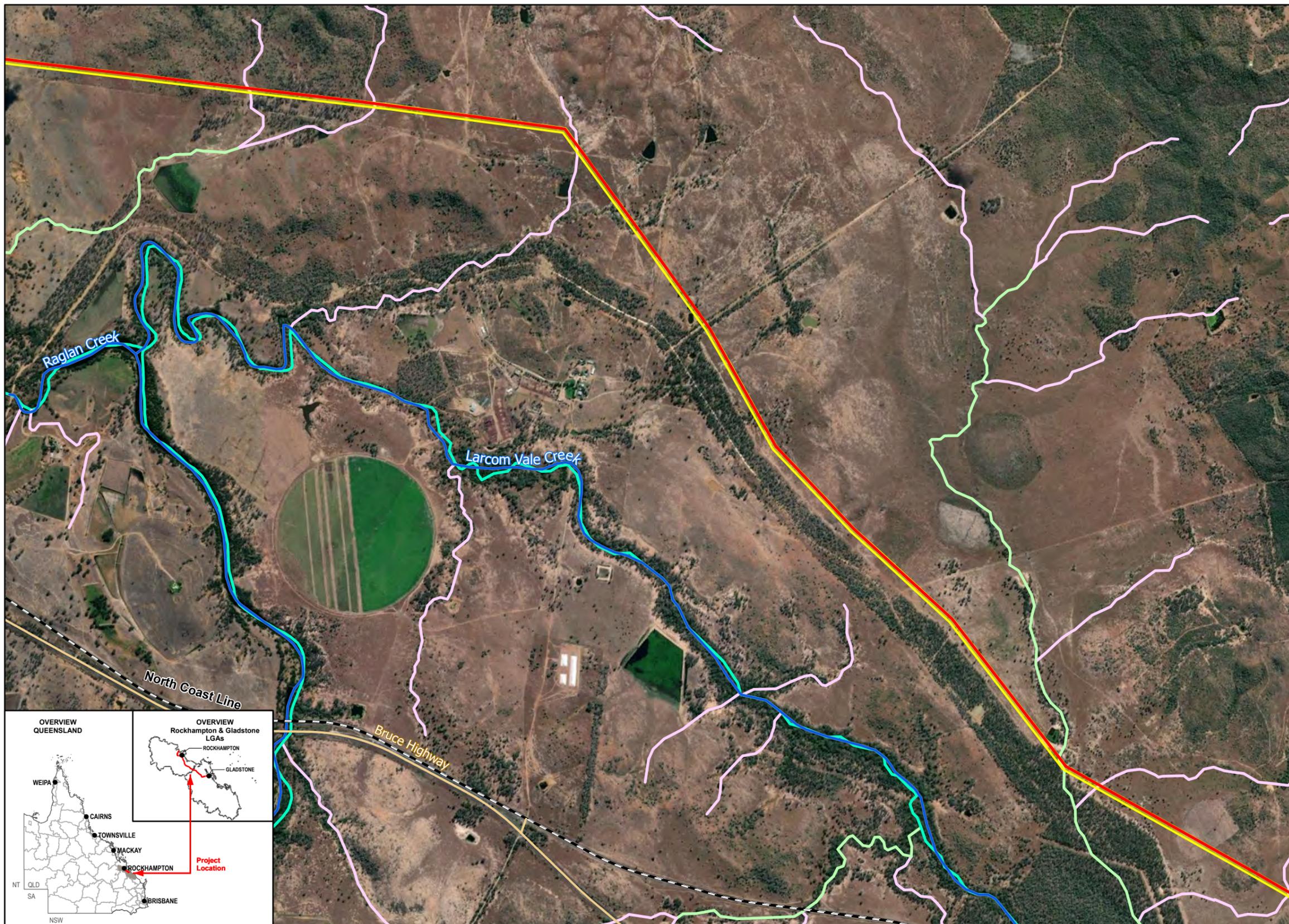
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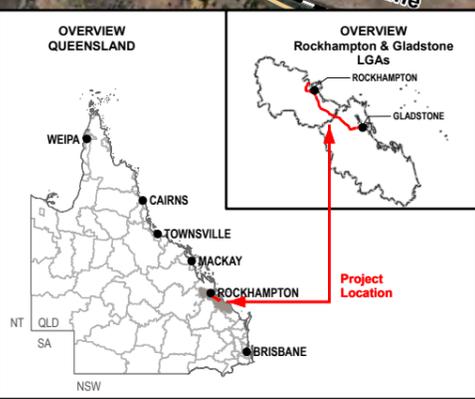


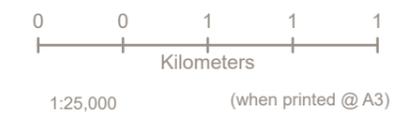
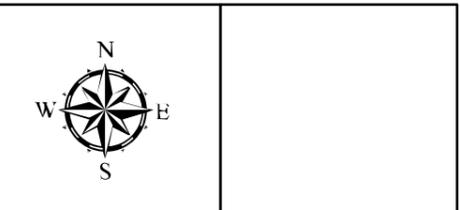
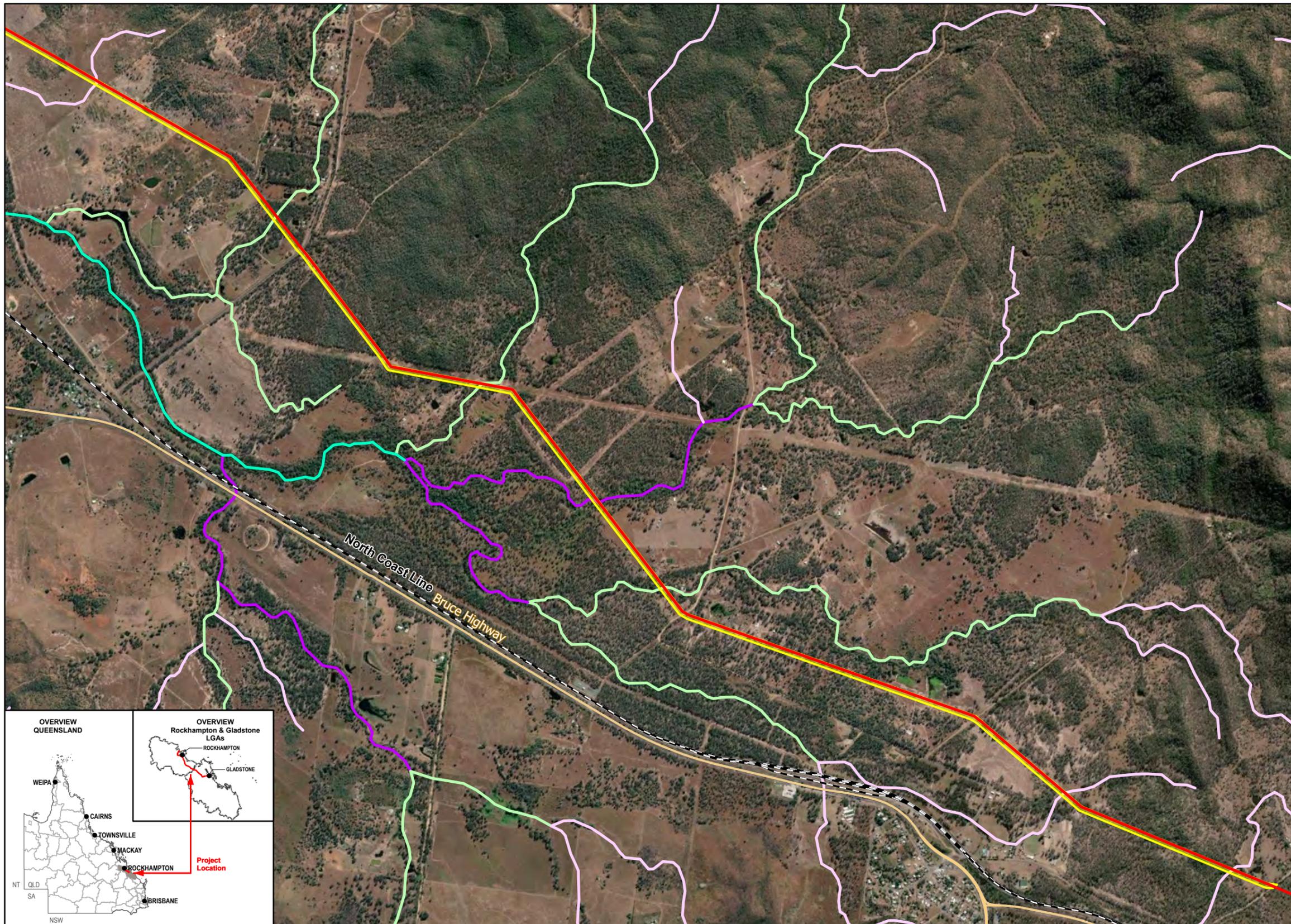
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- Queensland Waterways for Waterway Barrier Works
- 1 - Low
 - 2 - Moderate
 - 4 - Major
 - FGP Alignment
 - Main Roads
 - Rail Network
 - Watercourse
 - Indicative Right of Way – SGIC

Data Sources:

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2. Cadastral data - Queensland series @ QSpatial, 2022
3. State Development Area precincts - Gladstone SDA @ QSpatial, 2022
4. Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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LEGEND

Queensland Waterways for Waterway Barrier Works

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major
- FGP Alignment
- Main Roads
- Rail Network
- Indicative Right of Way – SGIC



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In-situ water quality sampling was undertaken during the ecology assessment of the FGP SGIC SDA alignment between 3 and 10 May 2022 and results are provided in Table 3.7. The results show that pH and turbidity were the only parameters within the guidelines for the region at all sites. The conductivity was higher than the baseline guidelines for Twelve Mile Creek and Marble Creek, while the dissolved oxygen was within the guidelines for all sites except for Gavial Creek, which was lower than the guidelines.

Table 3.7 Water Quality Data at sites within the FGP SGIC SDA Alignment

Parameter	Water quality objective*	Twelve Mile Creek	Bobs Creek	Gavial Creek	Marble Creek
Date	-	08/05/2022	05/05/2022	04/05/2022	08/05/2022
Time	-	9:25 am	1:25 pm	3:45 pm	10:50 am
Depth of location (m)	-	0.3	0.3	0.3	0.2
Temperature (°C)	-	23.8	22.8	25.7	22.2
pH	6.5-8.5	-	6.79	6.76	7.74
Electrical conductivity (µS/cm)	< 445 (baseflow) < 250 (high flow)	1131	265.2	219.4	2179
Dissolved oxygen (mg/L)	-	7.57	7.52	4.07	7.90
Dissolved oxygen (% saturation)	85-110	89.0	87.4	49.9	91.1
Turbidity (NTU)	<50	13.9	16.3	22.2	18.4
Key to table: (*) – As per the moderately disturbed aquatic ecosystem objectives in the Fitzroy River sub-basin fresh waters (DEHP 2013)					

During construction there is also the potential for water quality to be impacted by:

- Sediments entering drainage lines and waterways causing a reduction in downstream water quality.
- Accidental release of hazardous substances (e.g. fuel, chemicals).
- Construction activities loosening topsoil (e.g. removing vegetation) and adding higher sediment to watercourses via runoff or wind.
- Flooding of construction sites during construction.

The water quality in the area is subject to existing impacts from existing land uses (agriculture, industrial and infrastructure), and the FGP SGIC SDA alignment is not anticipated to introduce a new significant source of risk for water quality.

Section 7 provides a discussion of the potential impacts (and associated mitigations) the proposed works may have on waterways which are intersected by the FGP SGIC SDA alignment.

3.5.2.2 Groundwater

A number of DRDMW and private registered groundwater bores are located within 5 km of the site. The proposed development is not anticipated to impact on any existing groundwater bores; however, some registered bores, active or abandoned may be within the ROW. The Construction Contractor will be required to confirm if groundwater bores are present in the ROW, and if disturbance is required, appropriate mitigation will be implemented such as decommissioning and relocation of bores as required.

The Bureau of Meteorology (BOM, 2022) identifies groundwater characterises to include:

- High density clusters of registered bores located at Gracemere, Bajool and Mt Larcom.
- Bores constructed in the Fitzroy River Alluvium are in the order of 20 m depth.
- Groundwater is very saline and would require significant treatment to reach a potable standard.
- Depth to water in the aquifers the Bajool to Gladstone region is generally in the order of 10 m to 20 m.
- The aquifers are underlain by basalt and granitic formations.
- Water bores in the area are used for monitoring, agricultural usages and secondary residential usages.

The hydrogeology in the Fitzroy to Bajool area consists of medium to high plasticity clays extended to a depth of between 8 m to 10 m depth below ground level. Water-bearing alluvial sand aquifers are found beyond the clay horizon. The aquifers are underlain by basalt and granitic formations.

The FGP SGIC SDA alignment does not intersect any mapped Groundwater Dependent Ecosystems (GDE). However, a network of GDEs exist to the west of the FGP SGIC SDA alignment footprint from Mount Morgan, Dululu and Wowan ranges. The Project is not anticipated to impact the GDE.

Potential impacts to groundwater during the construction and operation include:

- Construction trenching activities interacting with aquifers.
- Disturbance of ASS resulting in soil acidification with leaching to groundwater and subsequent groundwater acidification.
- Spill or leaching of contaminants resulting from servicing of equipment, spills of fuel or liquid chemicals.
- Pipeline rupture or degradation (e.g. corrosion) affecting groundwater level and quality.
- Vegetation clearance resulting in increased groundwater recharge.

Section 7 provides a discussion of the potential impacts (and associated mitigations) the proposed works may have on groundwater.

3.5.2.3 Tidal Waterways

Coastal or tidal waters are defined as either / both:

- Tidal waters: Pursuant to the *Coastal Protection and Management Act 1995*, tidal waters are defined as waters below the mean high water springs (MHWS).
- Tidal waterways: as mapped in accordance with the *Fisheries Act 1994* where grey or tidal waters are mapped as waterways for the purpose of waterway barrier works (and fish habitat).

Table 3.8 identifies the properties where the FGP SGIC SDA alignment intersects tidal waters or tidal waterways. Note, currently MHWS has been identified based on available elevation data, if survey becomes available for these areas, the MHWS tidal plane will be revised.

Potential impacts to tidal waterways are similar to freshwater waterways. For tidal waterways including, Scrubby Creek, Gavial Creek, Inkerman Creek, Horrigan Creek and Raglan Creek, trenchless methods are proposed for pipeline construction to minimise impact.

Section 7 provides a discussion of the potential impacts (and associated mitigations) the proposed works may have on waterways which are intersected by the FGP SGIC SDA alignment.

Table 3.8 Tidal Waters Traversed by the FGP SGIC SDA Alignment

GAWB Property ID #	Lot on Plan / Property Details	Tidal Waters	Tidal Waterway
101	Gavial Creek	Yes – Gavial Creek includes waters that are tidal	-
140	3 RP601795	Yes – part of this property is likely below MHWS	-
141	1 AP2418	Yes – part of this property is likely below MHWS	-
142	Inkerman Creek	Yes – Inkerman Creek includes waters that are tidal	Identified as a grey or tidal waterway
158	84 DS185	No – Not currently identified as being below MWHS	A grey or tidal waterway likely intersects the alignment
159	Road reserve	Yes – part of this property is likely below MHWS	A grey or tidal waterway likely intersects the alignment
160	85 DS185	Yes – part of this property is likely below MHWS (Twelve Mile Creek)	A grey or tidal waterway likely intersects the alignment (Twelve Mile Creek)

GAWB Property ID #	Lot on Plan / Property Details	Tidal Waters	Tidal Waterway
176	Horrigan Creek	No – MHWS is unlikely to reach the alignment	Identified as a grey or tidal waterway
177	167 CP859402	No – MHWS is unlikely to intersect the alignment	Grey or tidal waterways may intersect the alignment is this property
178	Raglan Creek	Yes – Raglan Creek includes waters that are tidal	Identified as a grey or tidal waterway
179	1 PER4653	No – MHWS is unlikely to intersect the alignment	A grey or tidal waterway likely intersects the alignment

3.5.2.4 Coastal Management

Coastal Management District

A CMD is situated generally in the central portion of the FGP SGIC alignment, and the alignment only intersects approximately 13 km of the CMD. The following properties within the FGP SGIC SDA alignment intersect the CMD:

- 3 RP603158
- 3 RP601795
- 1 AP2418
- 142 DS634
- Inkerman Creek
- Toonda Port Alma Road
- 98 DS186
- 99 DS186
- 100 DS185
- 101 DS185
- 102 DS185
- 84 DS185
- 2 RP618935
- 2 RP618913
- 5 RP618913
- Horrigan Creek
- 167 CP859402
- Raglan Creek
- 1 PER4653
- 2 RP618918
- 36 DT40169
- 37 DT40169
- 97 DS186

Coastal Hazards

The *Planning Act 2016* and the *Coastal Protection and Management Act 1995* provide the legislative framework to guide planning and development assessment decisions for works within the Queensland coastal area. Erosion prone areas are intersected by the FGP SGIC SDA alignment. Erosion prone areas are calculated in consideration of a 40 m buffer from the HAT and sea level rise as per the *Coastal Protection and Management Act 1995*.

The erosion prone areas may present challenges for future operation of the FGP SGIC SDA alignment (such as erosion of portions of the alignment impacting access, subsidence or erosion for the pipeline and valves). Regular inspections will be undertaken during the operation and maintenance phase of the FGP SGIC SDA alignment, and repairs will be undertaken as soon as practical. Access to the FGP easement area will be limited in accordance with the easement agreement, and only accessed as required. The OEMP will include inspection and maintenance for erosion concerns.

Storm tide inundation occurs when water levels are elevated above normal astronomical tide levels during a severe storm event. A high hazard area is identified as land within a coastal hazard area, subject to inundation during a storm-tide event of a meter or more, whereas a medium hazard event would be for inundation of one meter or less. The FGP SGIC SDA alignment intercepts multiple medium and high storm tide inundation areas.

Infrastructure within the coastal hazard areas is the pipeline and associated valves only, no major infrastructure (such as pump stations) is proposed within the coastal hazard areas.

3.5.3 Aquatic Ecology Values

3.5.3.1 Wetlands

The EPBC Act Protected Matters Search Tool (PMST), identified one Nationally Important Wetland (Fitzroy River Floodplain) which is listed under the Australian Directory of Important Wetlands, intersects the FGP SGIC SDA alignment (Ecology Assessment Report (GHD, 2022); Appendix D). Two additional National Important Wetlands (Fitzroy River Delta, Great Barrier Reef Marine Park) are located downstream of the FGP SGIC SDA alignment as outlined in Table 3.9. No Ramsar wetlands occur within or adjacent to the study area¹. The nearest Ramsar site is located at Shoalwater and Corio Bays approximately 48 km north-east of the study area.

Figure 3-6a to Figure 3-6u depicts wetlands associated with the FGP SGIC SDA alignment. The Project intersects the boundaries of a number of wetlands that are both Wetland Protection Areas and HES wetlands in the northern portion of the FGP SGIC SDA alignment.

Table 3.9 Nationally Important Wetlands relevant to the FGP SGIC SDA Alignment

Wetland ID	Wetland name	Location
QLD013	Fitzroy River Floodplain	SGIC SDA alignment
QLD012	Fitzroy River Delta	Downstream
QLD100	Great Barrier Reef Marine Park	Downstream

Wetlands are further identified by the State. Under the *Environment Protection Regulation 2019*, wetlands can be designated as Wetland Protection Areas, including buffer areas, which are identified to protect high ecological significance (HES) wetlands in Great Barrier Reef Catchments. Other HES wetlands as well as general ecological significance (GES) wetlands are also identified under the *Environment Protection Regulation 2019*. Both Wetland Protection Areas and HES wetlands are identified as MSES.

The wetlands are located between CH 16500 and 34000. The location of the wetlands means that the FGP SGIC SDA alignment also intersects wetland protection buffer areas. GHD undertook an ecology assessment of the FGP SGIC SDA alignment between 3rd and 10th May 2022 which included an assessment of aquatic ecology matters. The Ecology Assessment Report (GHD, 2022; Appendix D) included a detailed assessment of five wetlands. Features of the wetlands are described in the report which found that the wetlands were dry at the time of the survey, and as such present seasonal aquatic ecology values. The wetlands are reported to be outside the known range of threatened aquatic species.

¹ The study area is defined as the area subject to ecological field surveys and includes the pipeline alignment and supporting infrastructure locations.

The proposed FGP SGIC SDA alignment will be buried pipeline and potential impacts to wetlands during the construction phase are outlined below:

- Sediments entering wetlands causing a reduction in downstream water quality.
- Accidental release of hazardous substances (e.g. fuel, chemicals).
- Construction activities loosening topsoil (e.g. removing vegetation) and adding higher sediment to wetlands via runoff or wind.
- Flooding of construction site during construction.

Section 7 provides a discussion of the potential impacts the proposed works may have on identified wetland values during the construction and operational phases.

3.5.3.2 Aquatic Habitat (Waterways)

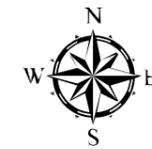
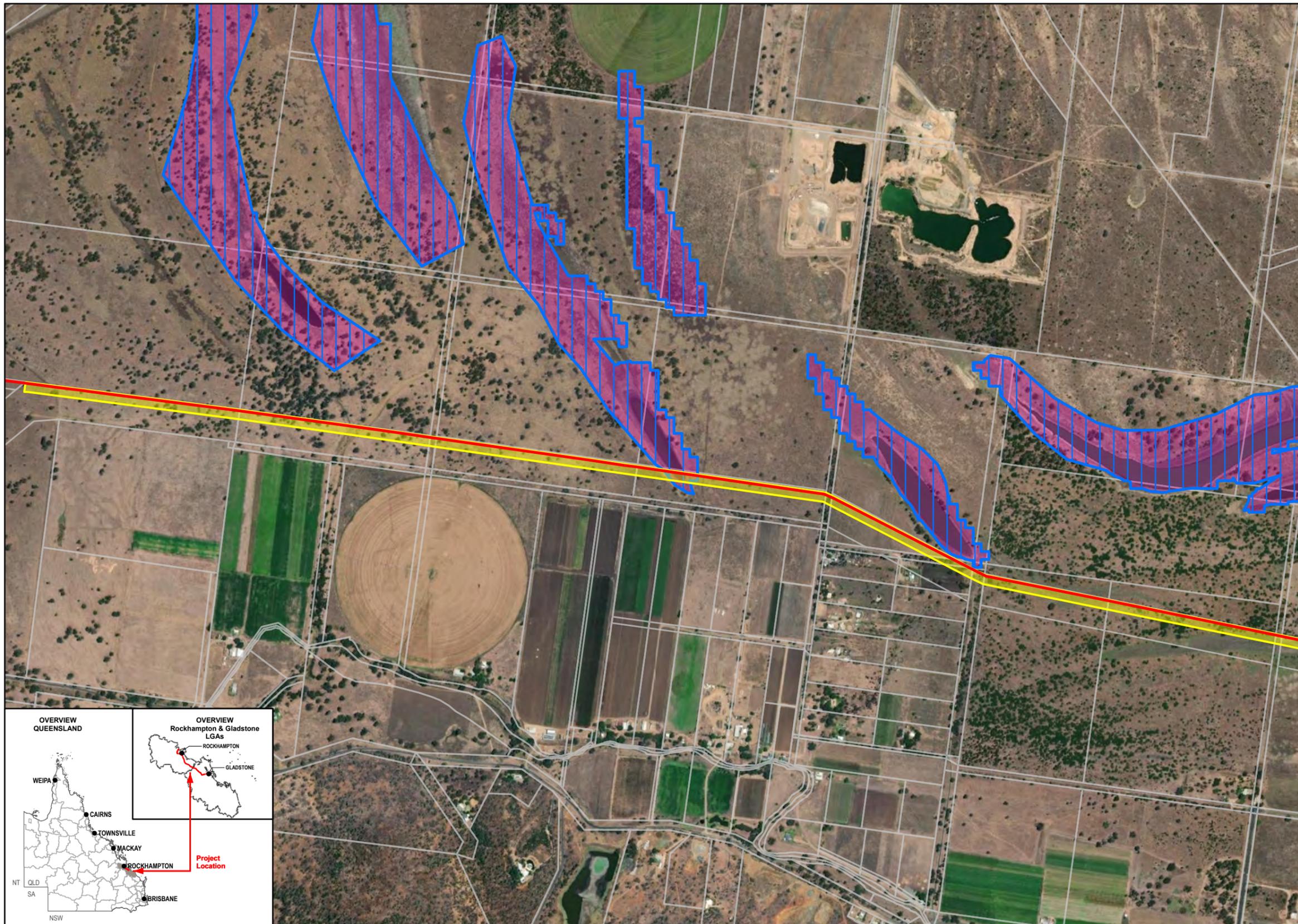
As mentioned in Sections 3.5.2.1 and 3.5.2.3 waterways for the purpose of waterway barrier works (fish passage and fish habitat) that are traversed by the FGP SGIC SDA alignment include:

- 16 green or low risk of impact waterways.
- 15 amber or moderate risk of impact waterways.
- 4 red or high risk of impact waterways.
- 11 purple or major risk of impact waterways (including tidal).
- 8 grey or tidal waterways or tidal waterway areas.

GHD undertook an ecology assessment of the FGP SGIC SDA alignment between 3rd and 10th May 2022 which included an assessment of aquatic ecology matters. The Ecology Assessment Report (GHD, 2022; Appendix D) included a detailed assessment of a number of important aquatic, ecological and habitat features. The key ecological values identified that:

- Of the nine waterways surveyed that where major risk (purple) waterways, only one site was assessed as in good condition, six sites were assessed as in fair condition and the remaining two sites were in poor condition.
- Of the four waterways listed as high risk (red) waterways, resulted in one site as being assessed as in good condition, one site was assessed as in fair condition, while the remaining two sites were in poor condition.
- Of five waterways listed as low and moderate risks (green and amber) waterways, resulted in one site as being assessed as in good condition, one site was assessed as in fair condition, while the remaining three sites were in poor condition.
- All sites whilst scoring well in bank vegetation and stability category, scored poorly in most categories, indicating that these sites have limited habitat complexity due to some erosion, channel alteration and substrates dominated by silt/clay.

Section 7 provides a discussion of the potential impacts (and associated mitigations) the proposed works may have on aquatic habitat.



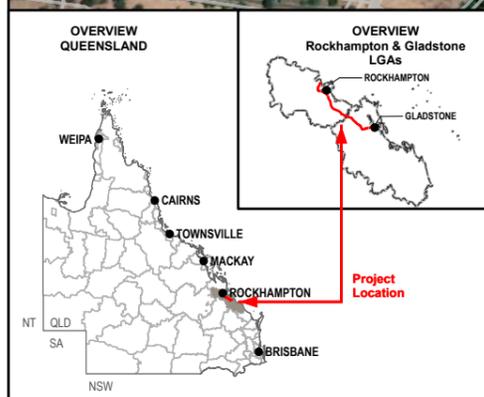
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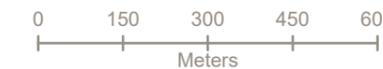
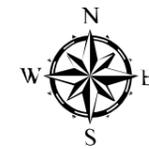
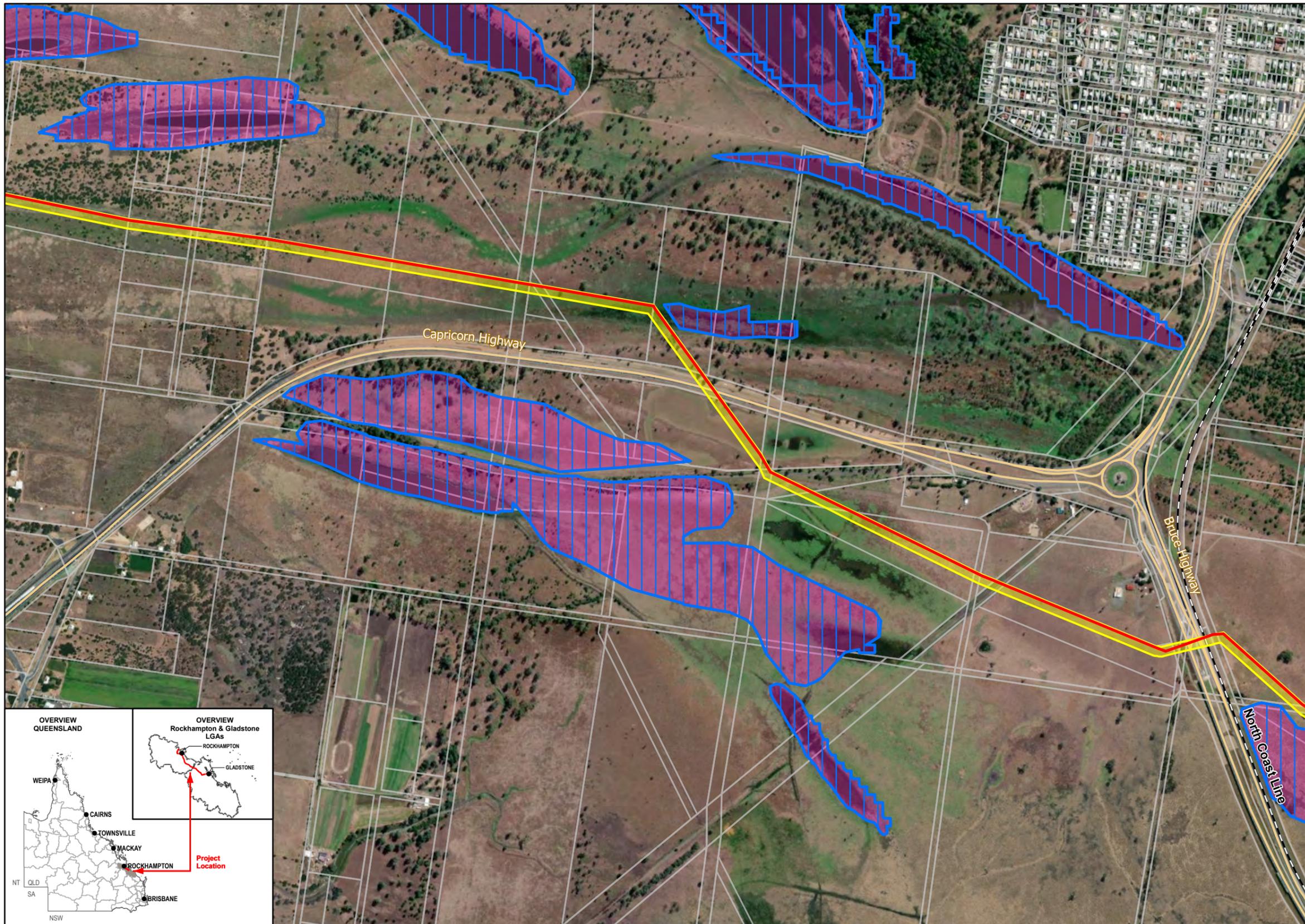
LEGEND

- FGP Alignment
- Indicative Right of Way – SGIC
- MSES High Ecological Significance Wetlands
- Wetland Protection Area
- Property Boundaries

Data Sources:
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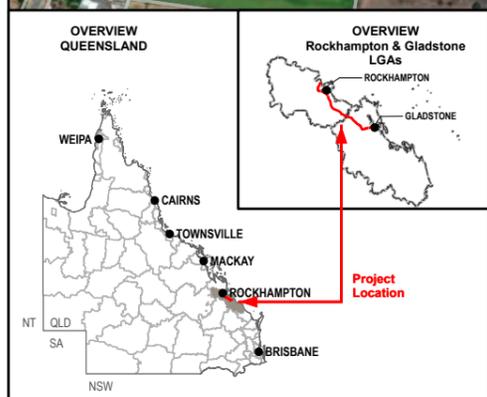




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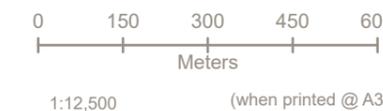
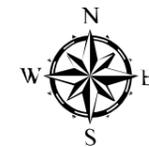
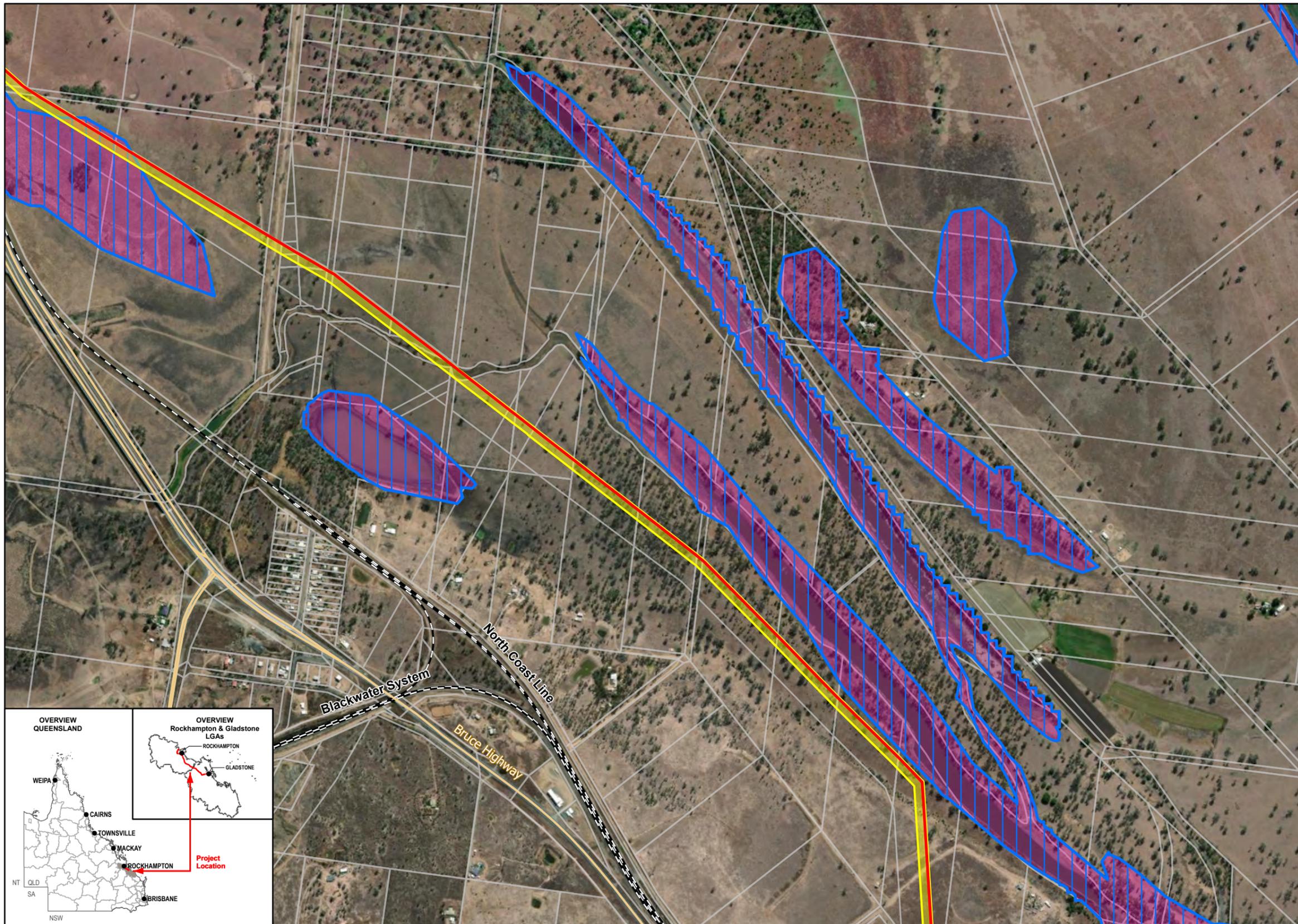
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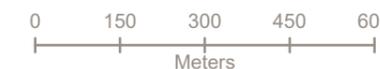
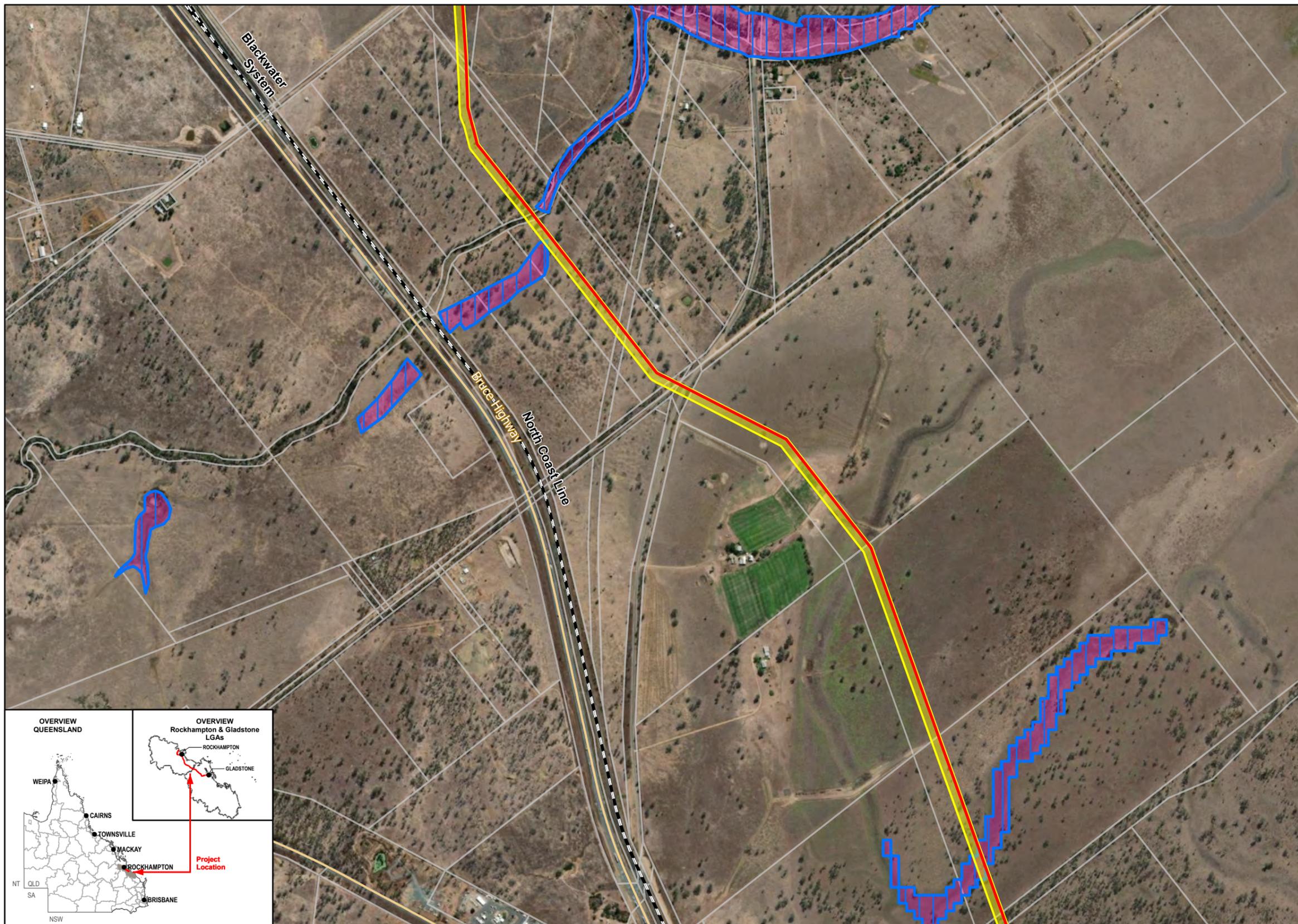


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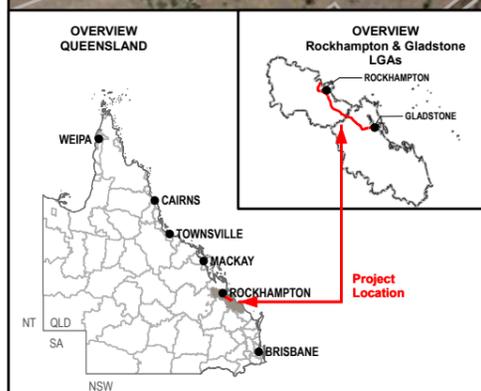
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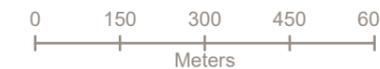
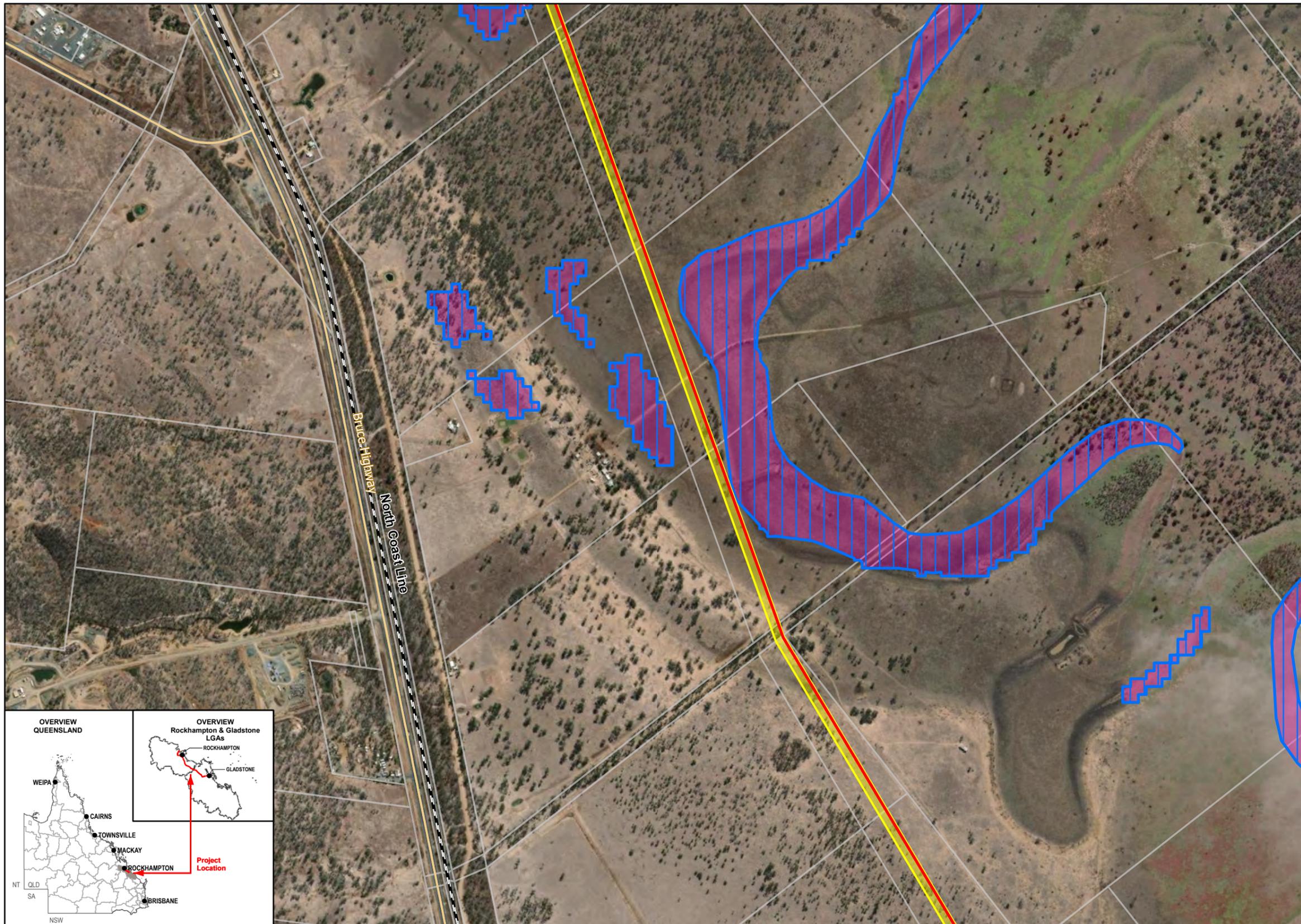
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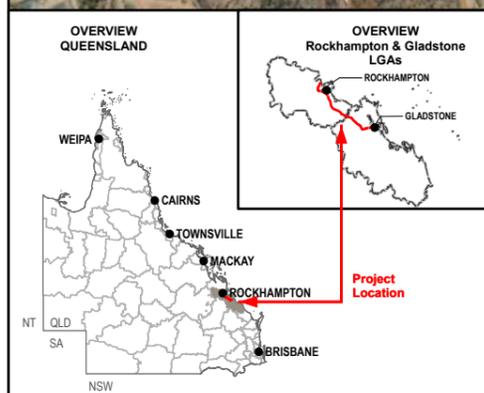
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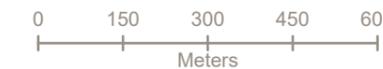
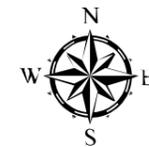
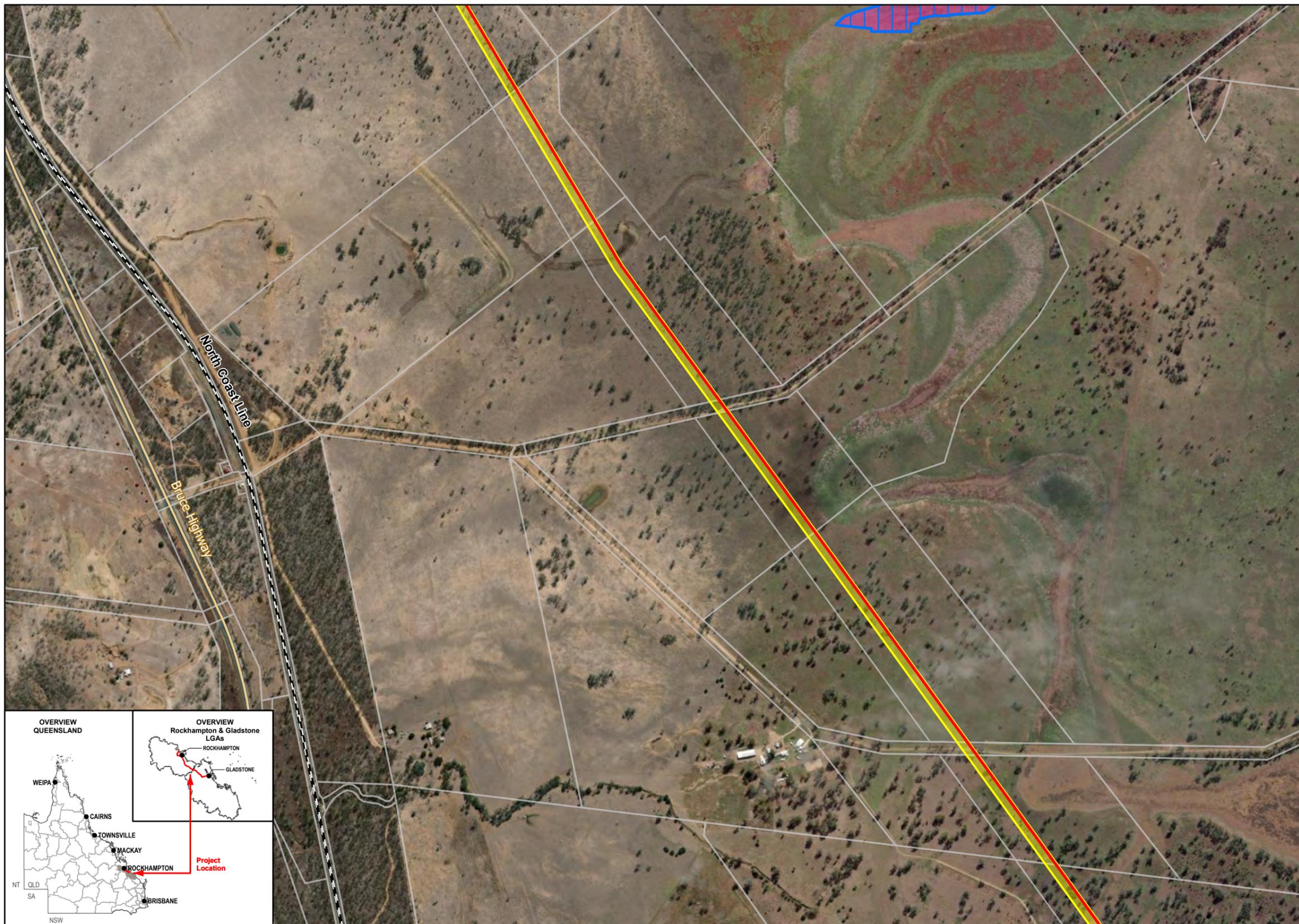
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PROJECTION UTM Zone 56
(Datum GDA2020)



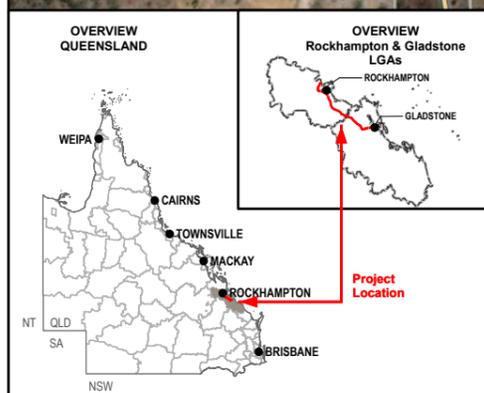
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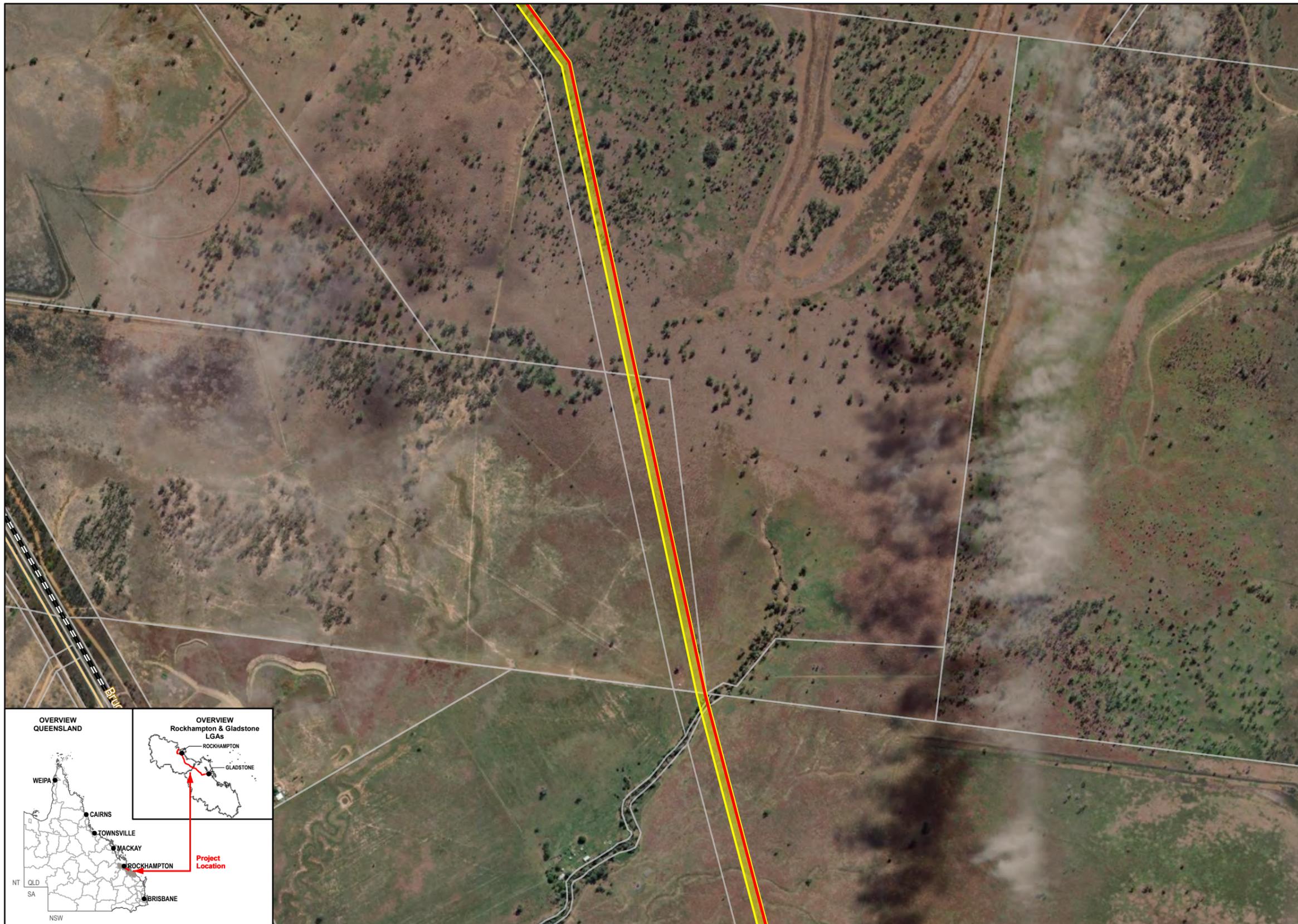
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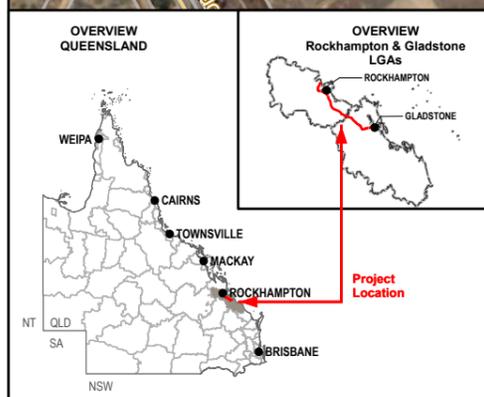
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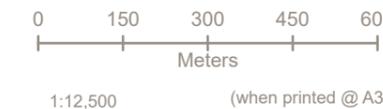
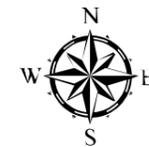
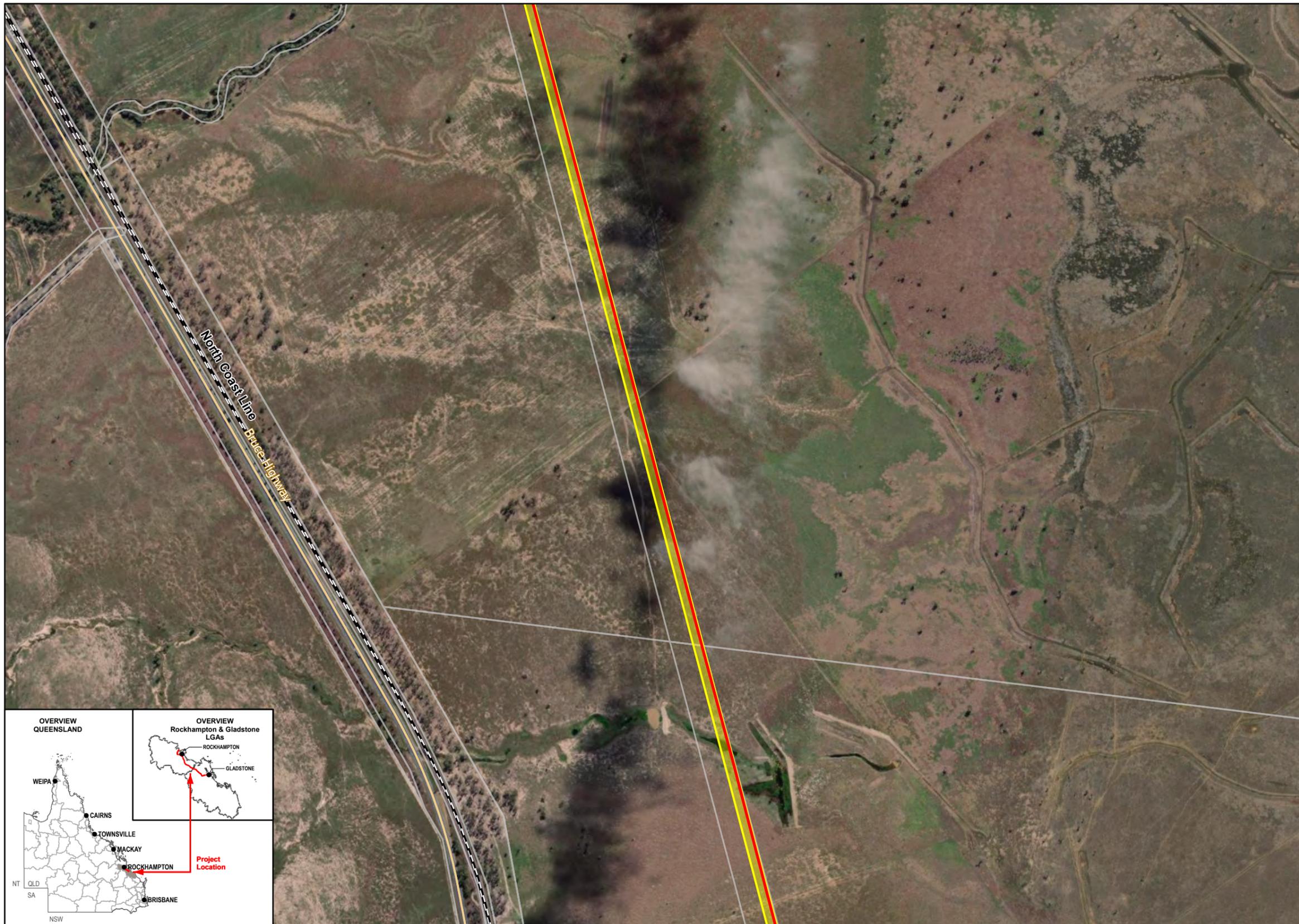
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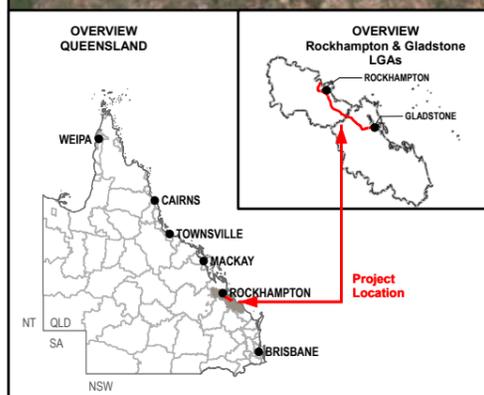


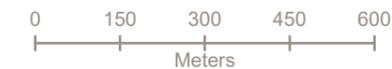
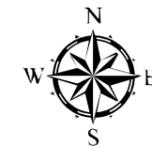
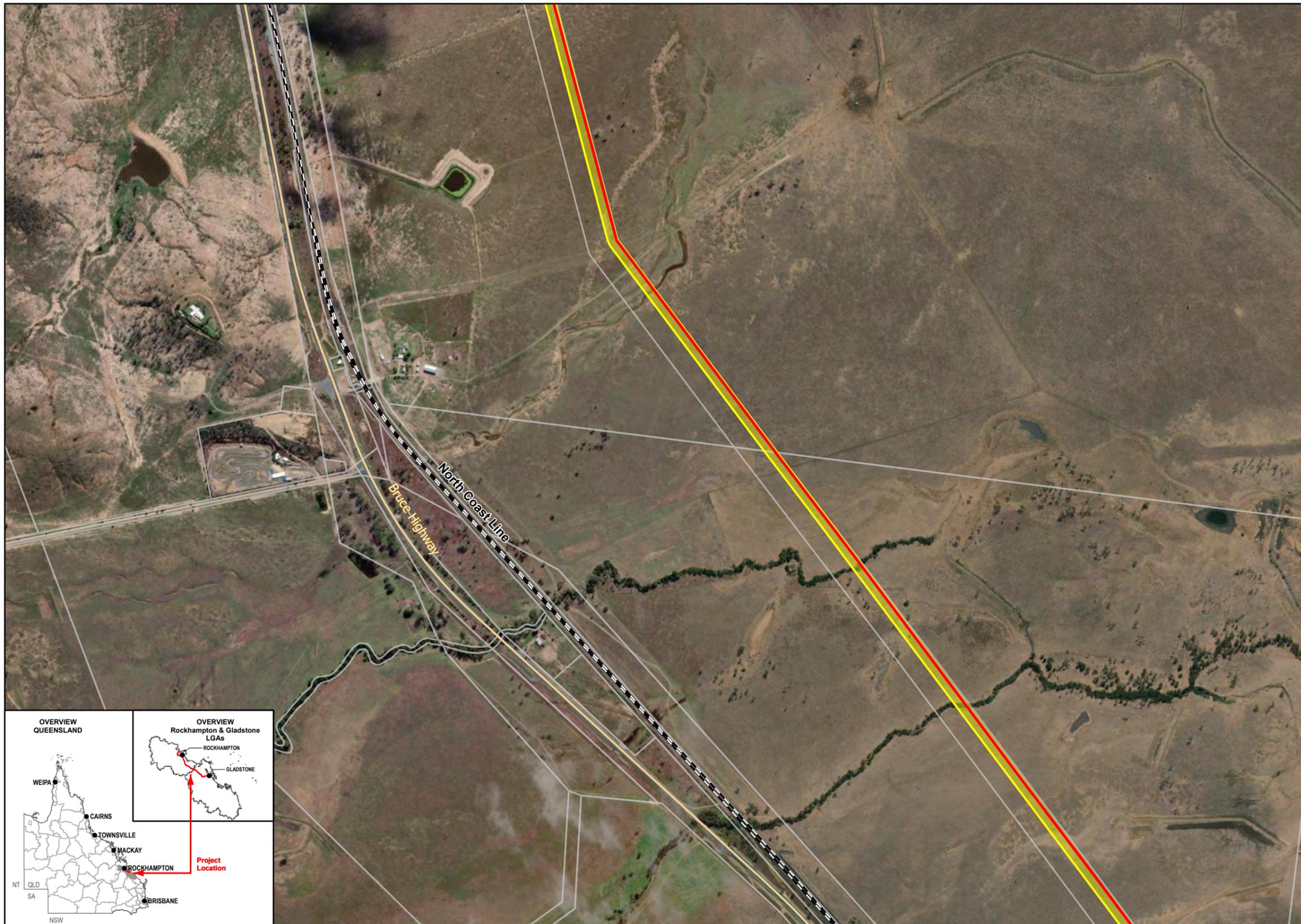
LEGEND

- FGP Alignment
- Main Roads
- Rail Network
- Indicative Right of Way – SGIC
- Property Boundaries

Data Sources:
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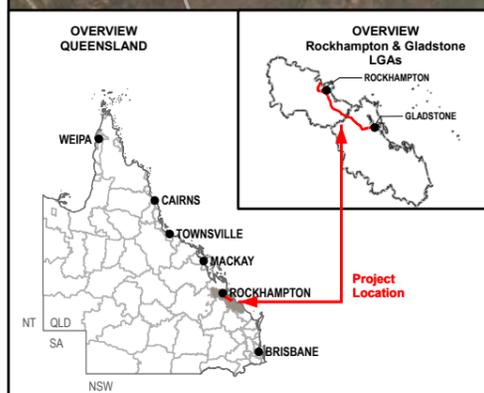
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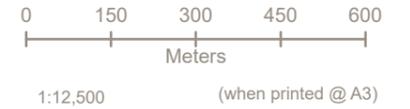
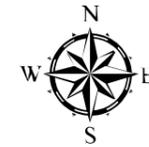
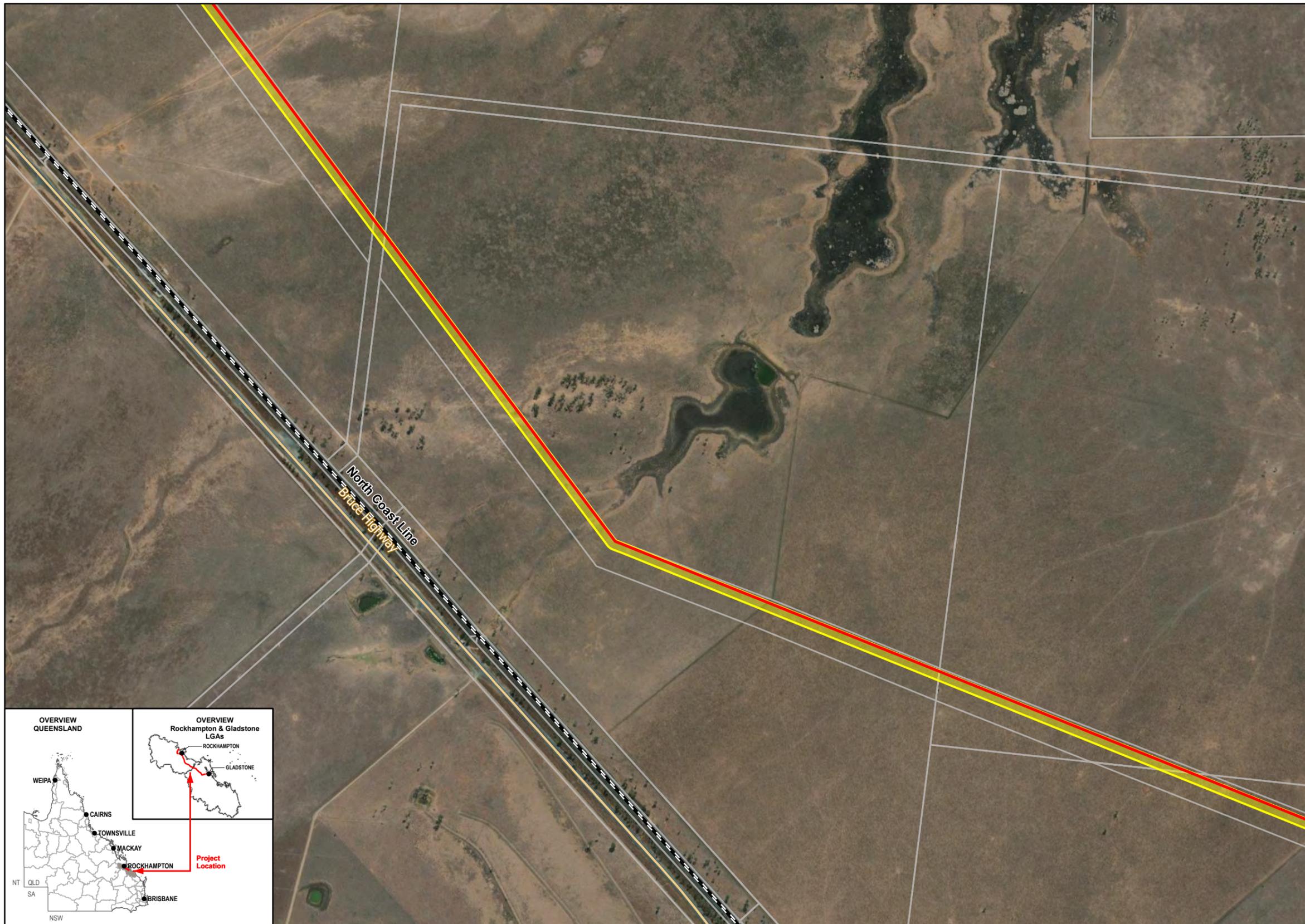
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PROJECTION UTM Zone 56
(Datum GDA2020)

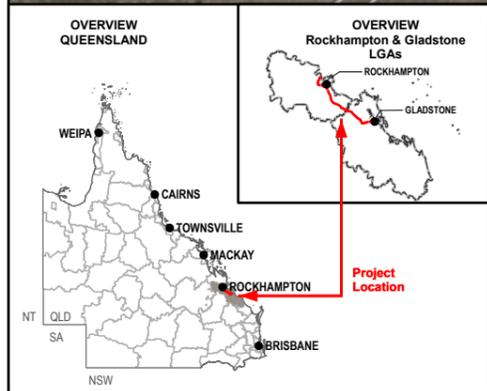


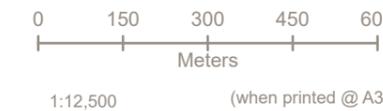
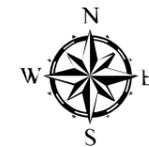
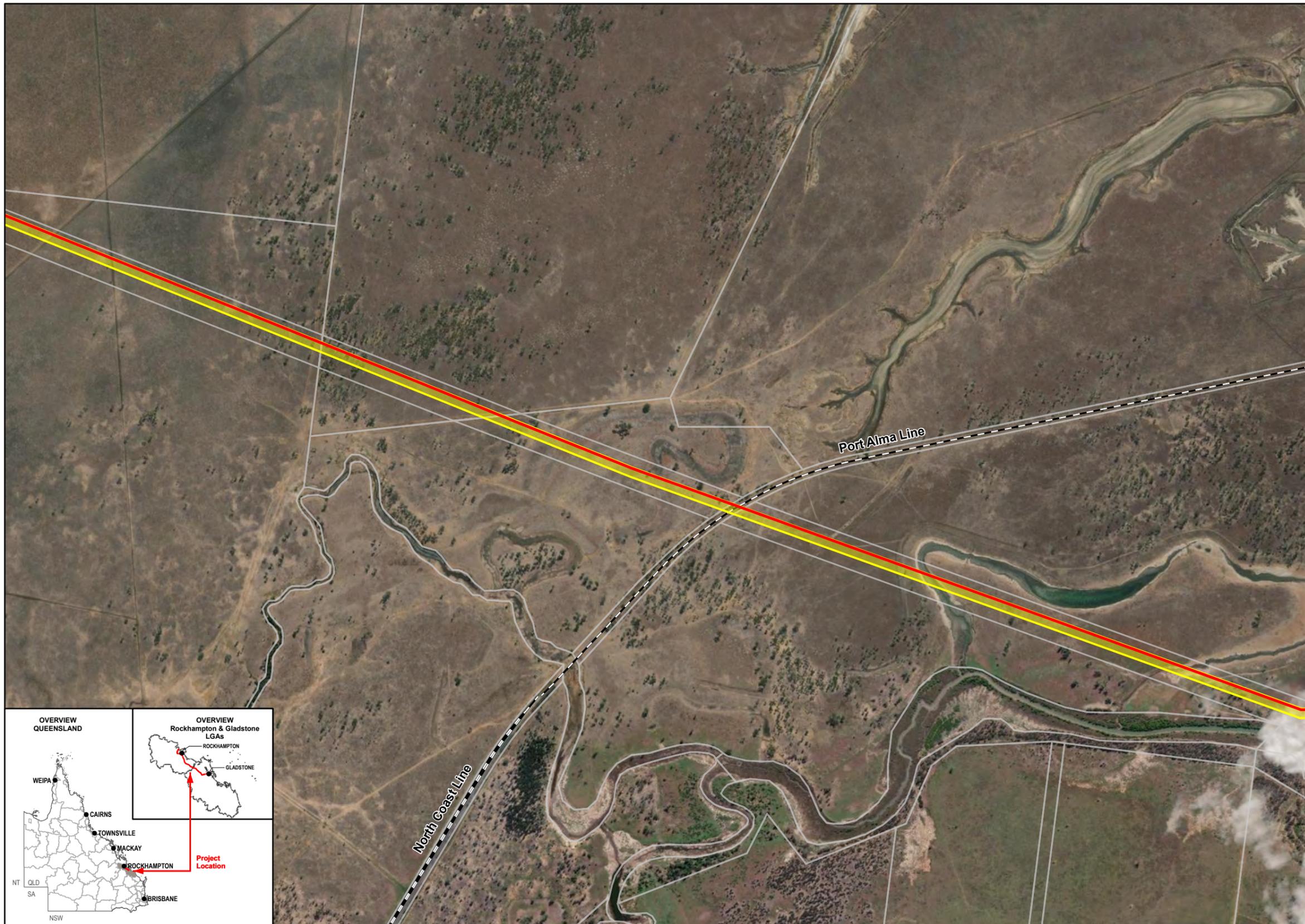
LEGEND

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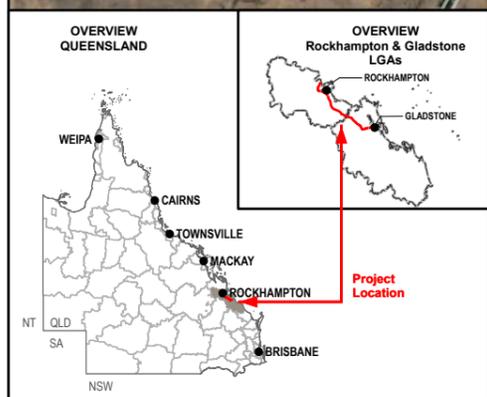
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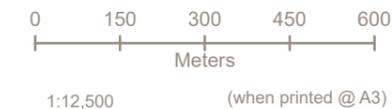
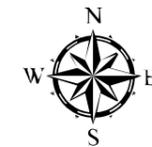
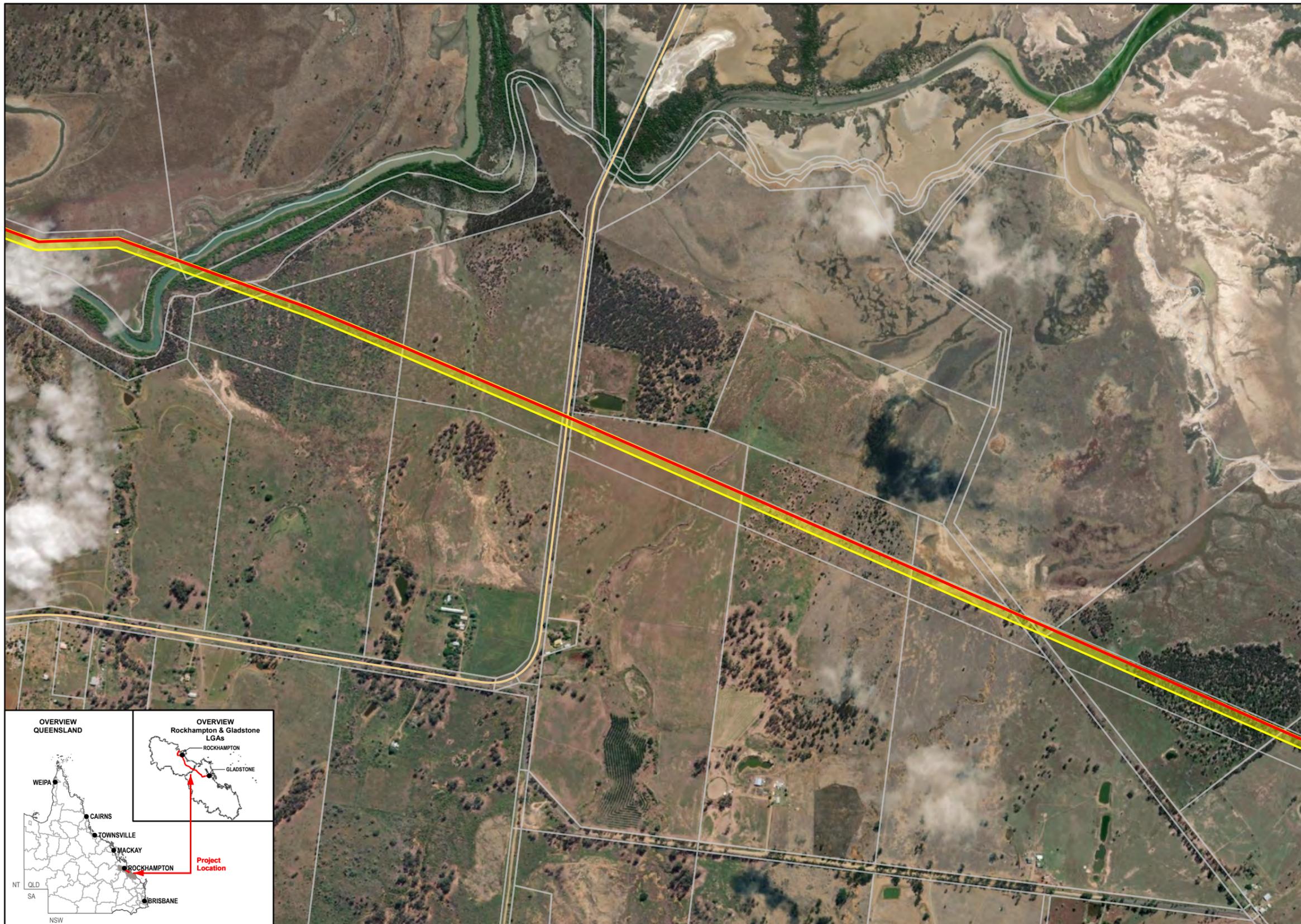
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- FGP Alignment
- Rail Network
- Indicative Right of Way – SGIC
- Property Boundaries



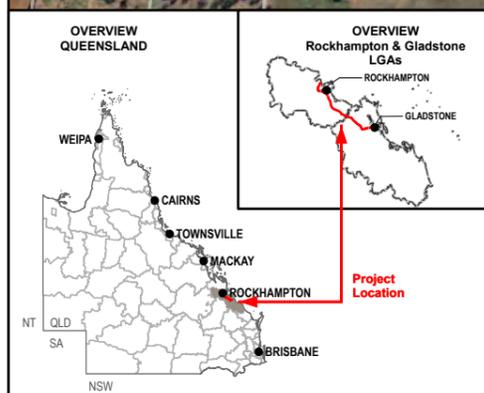
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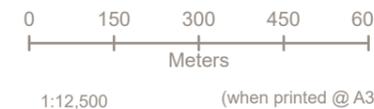
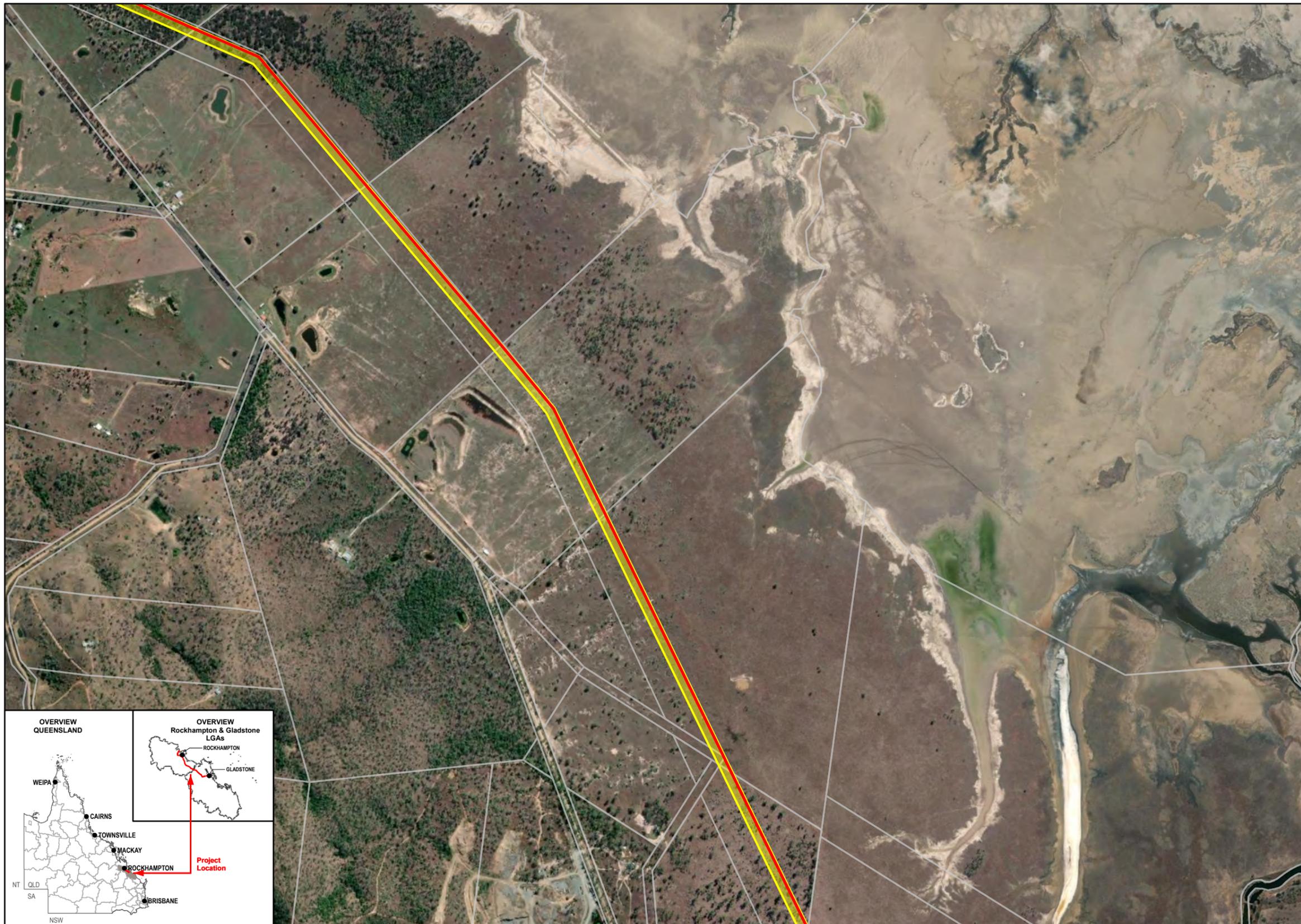
LEGEND

- FGP Alignment
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- Property Boundaries



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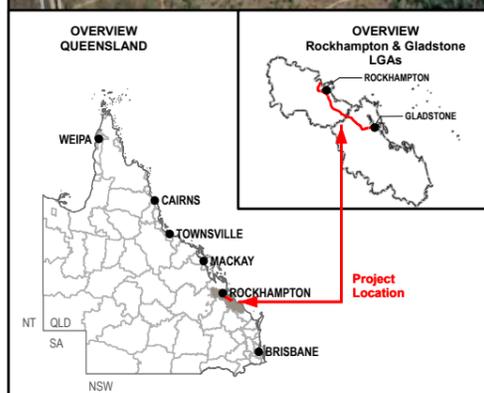


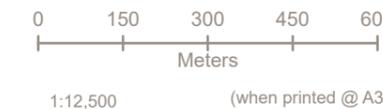
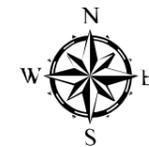
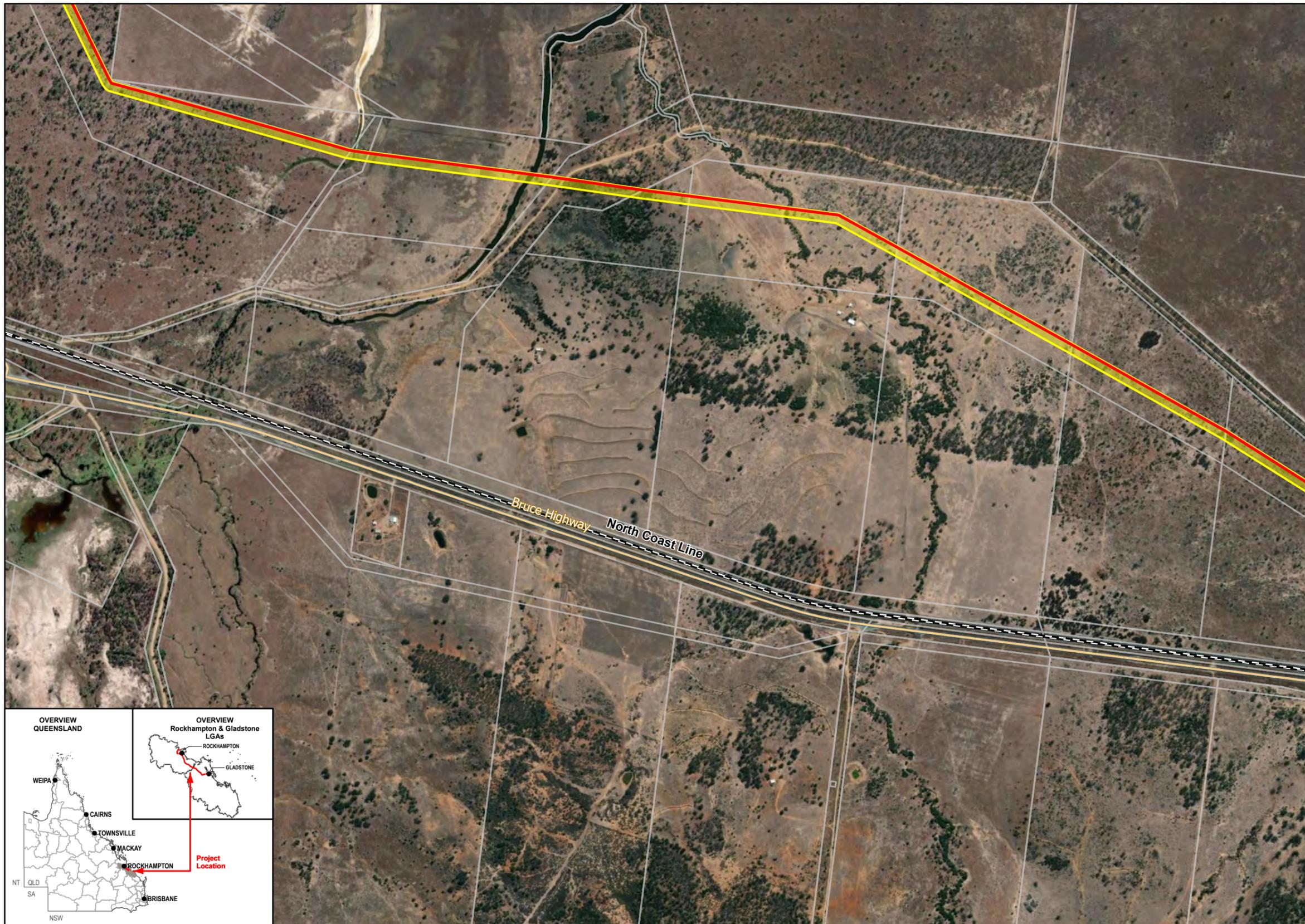
LEGEND

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- Property Boundaries

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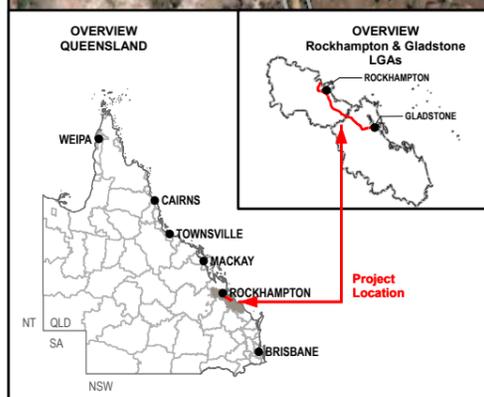


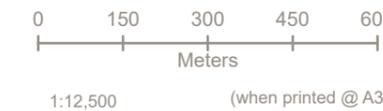
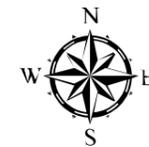
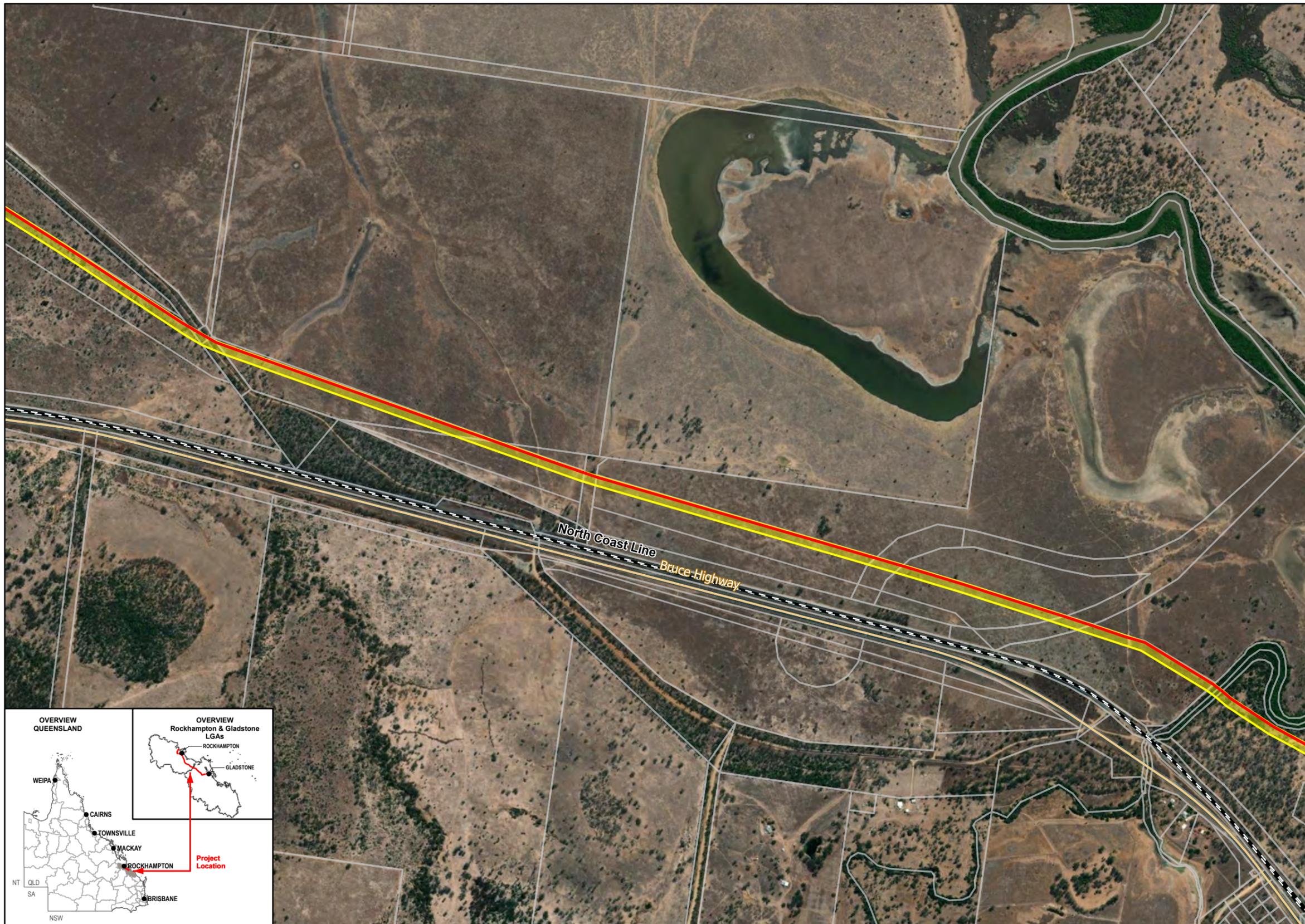
LEGEND

- FGP Alignment
- Main Roads
- Rail Network
- Indicative Right of Way – SGIC
- Property Boundaries

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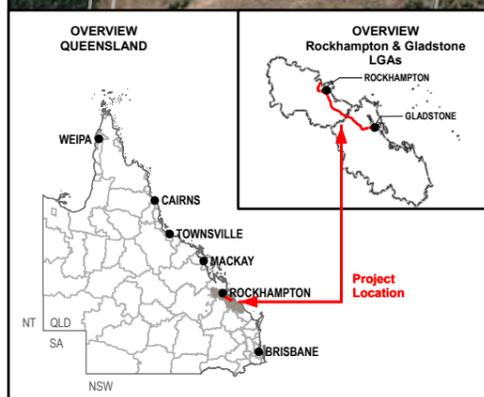


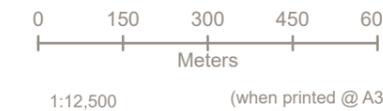
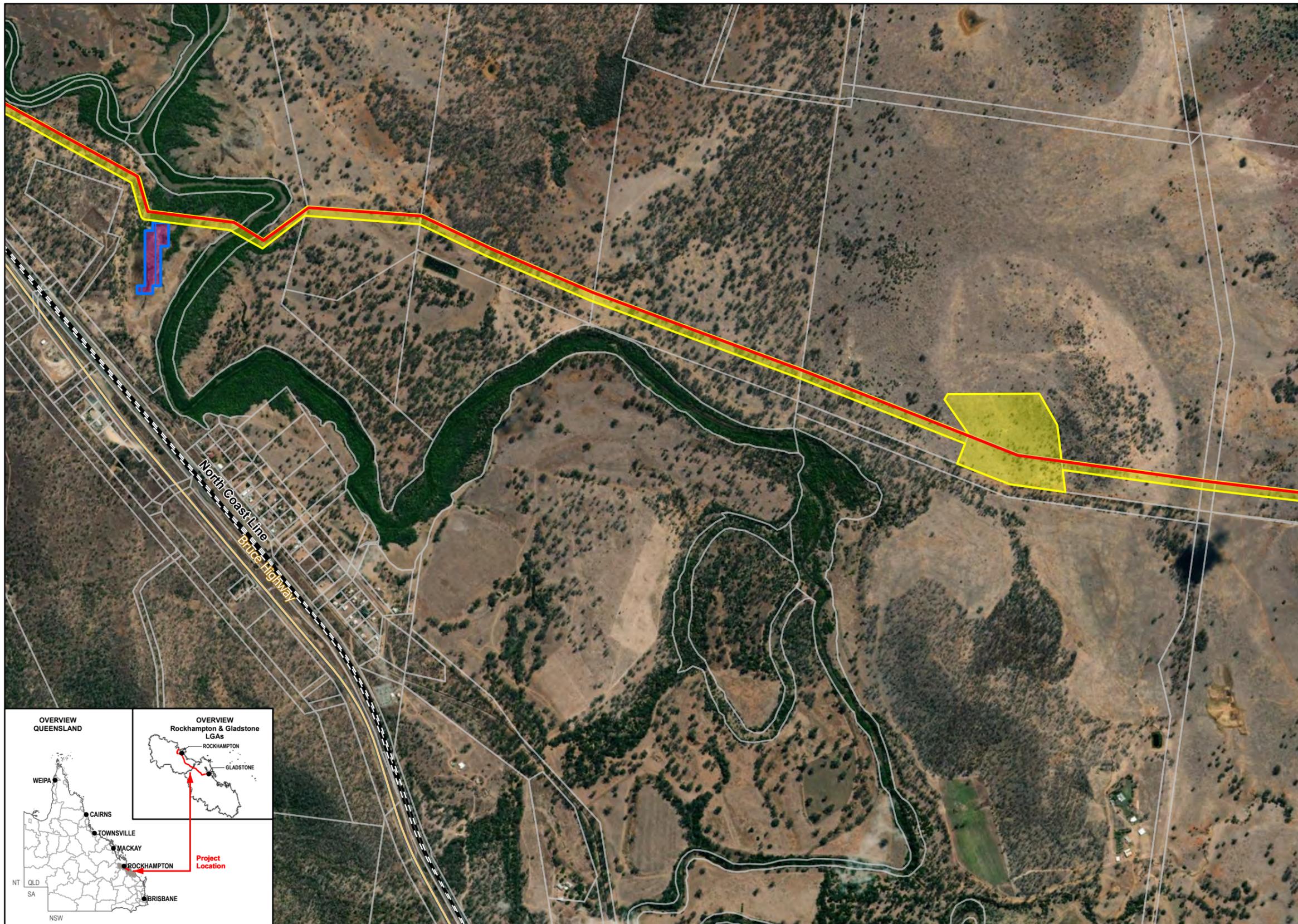
LEGEND

- FGP Alignment
- Main Roads
- Rail Network
- Indicative Right of Way – SGIC
- Property Boundaries

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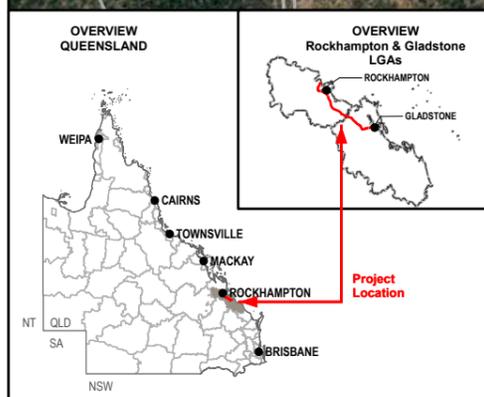


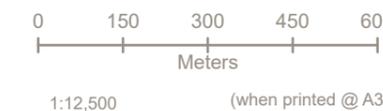
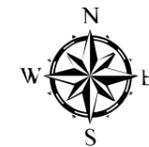
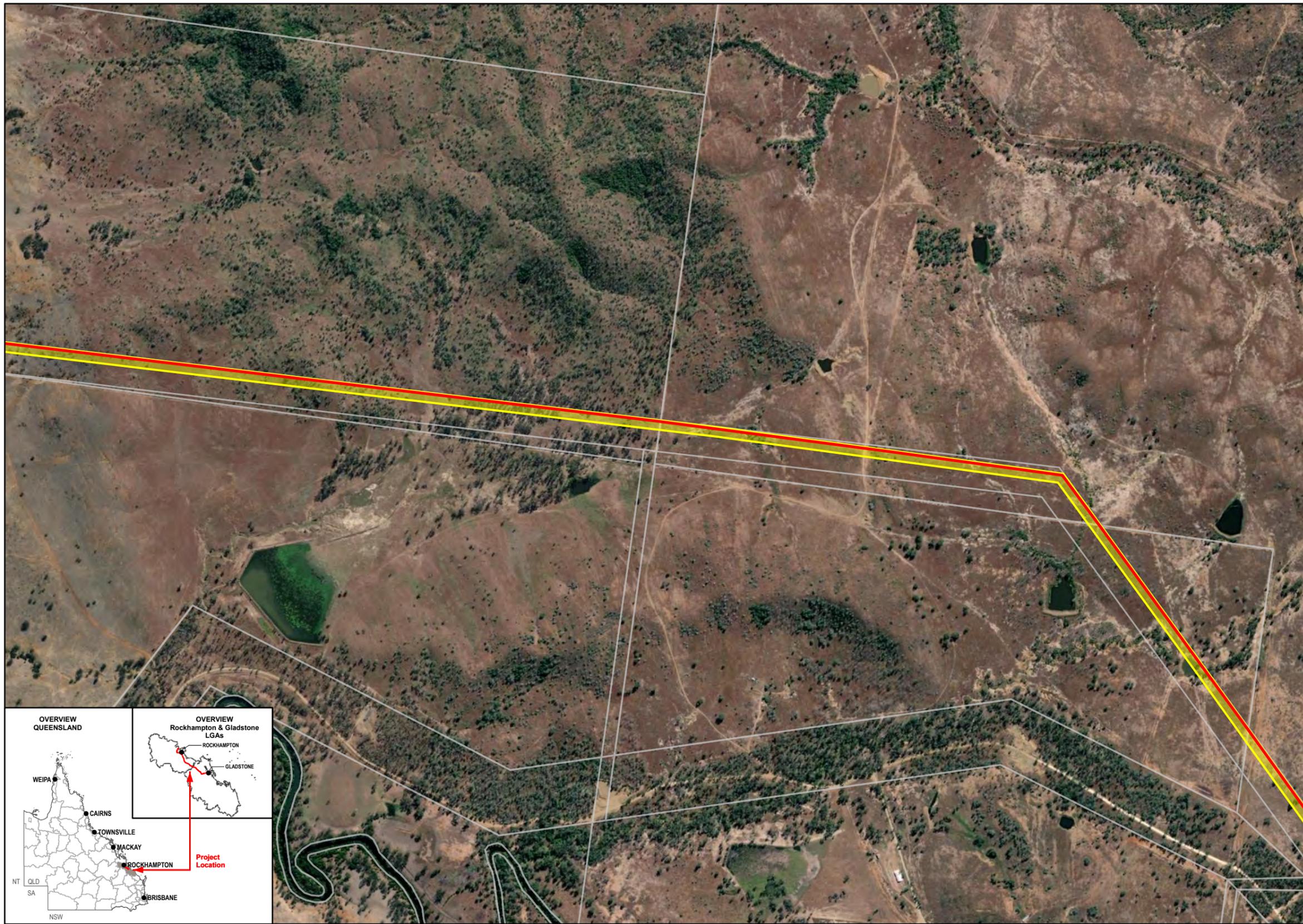
LEGEND

- FGP Alignment
- Main Roads
- Rail Network
- Indicative Right of Way – SGIC
- MSES High Ecological Significance Wetlands
- Wetland Protection Area
- Property Boundaries

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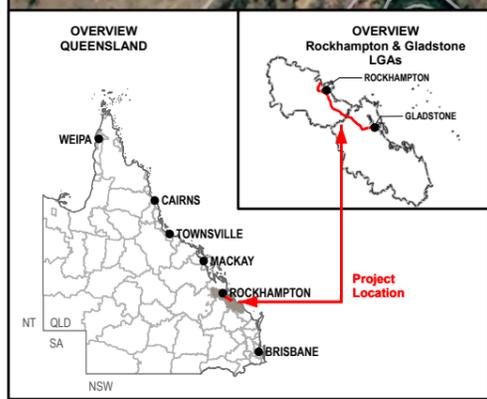
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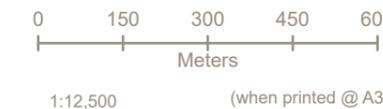
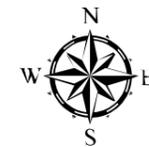
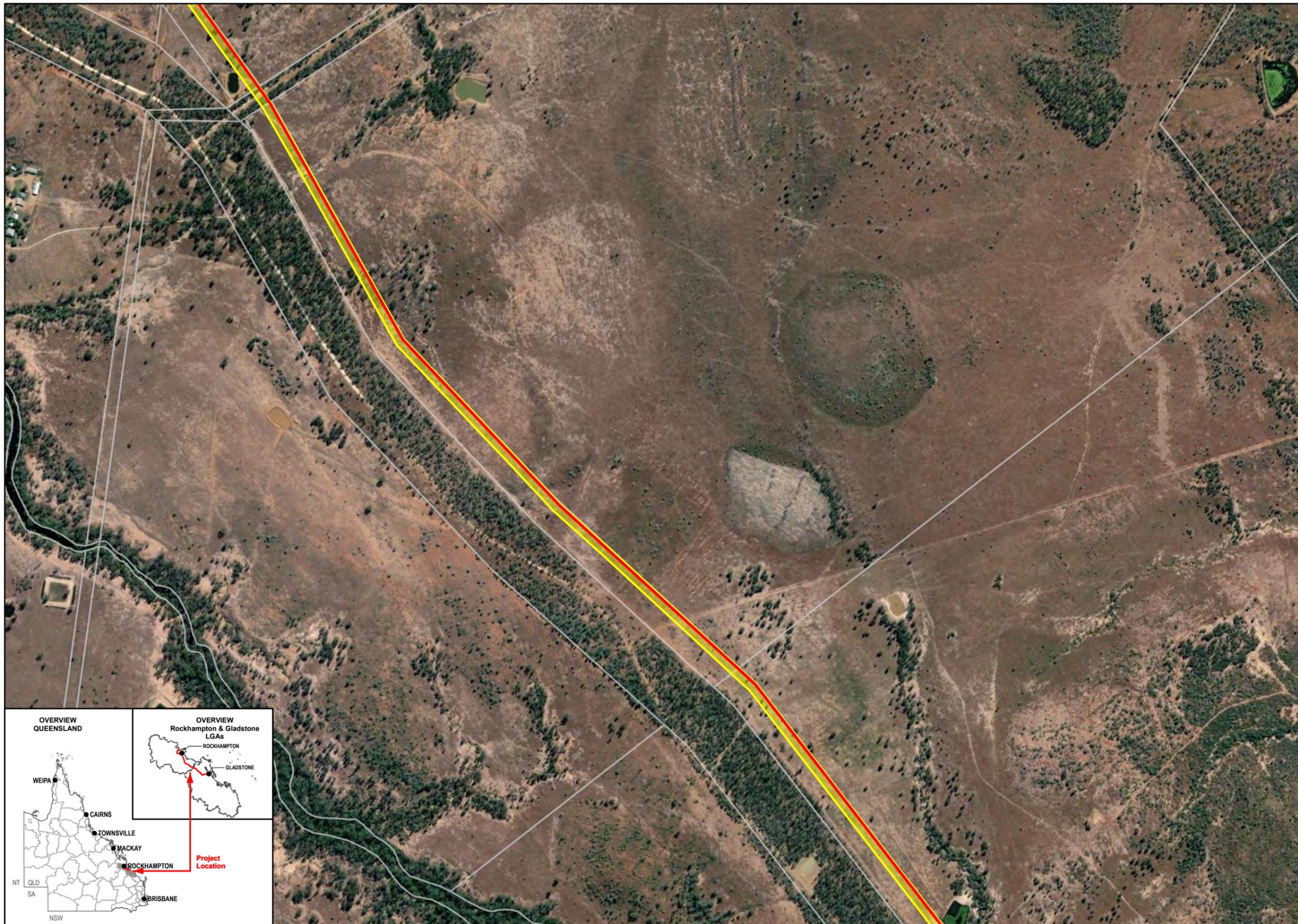
LEGEND

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- Property Boundaries



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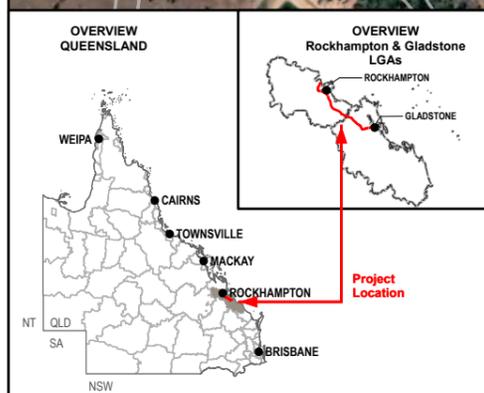


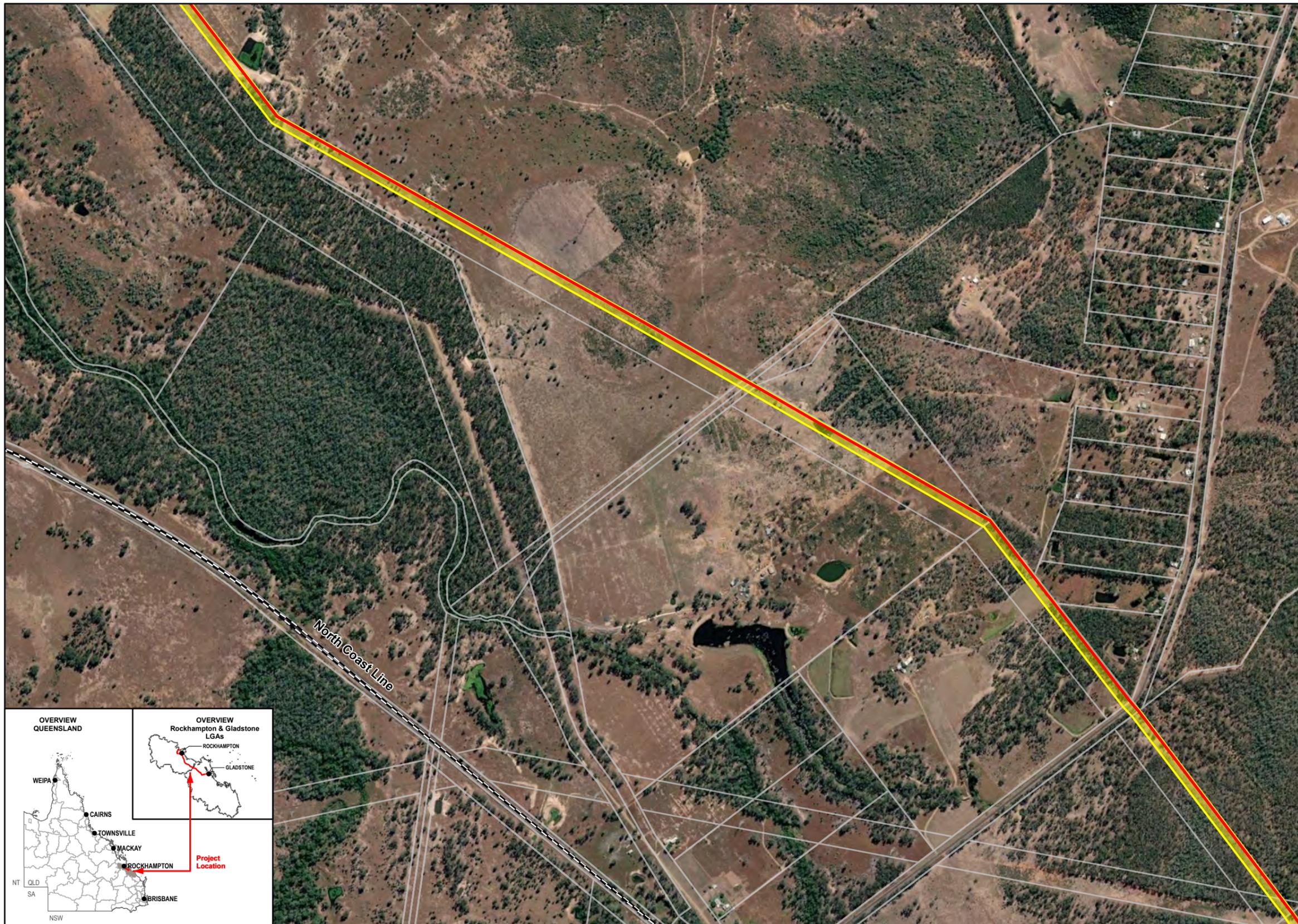
LEGEND

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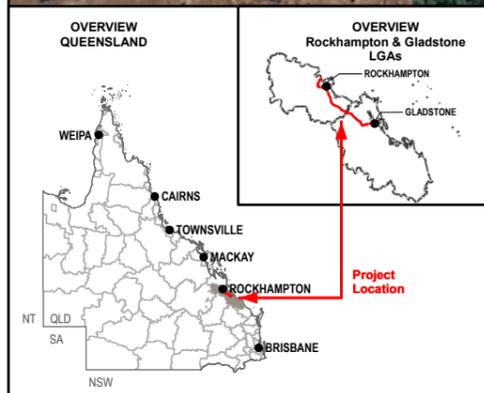
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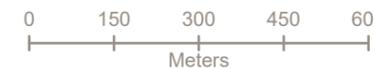
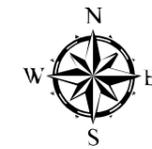
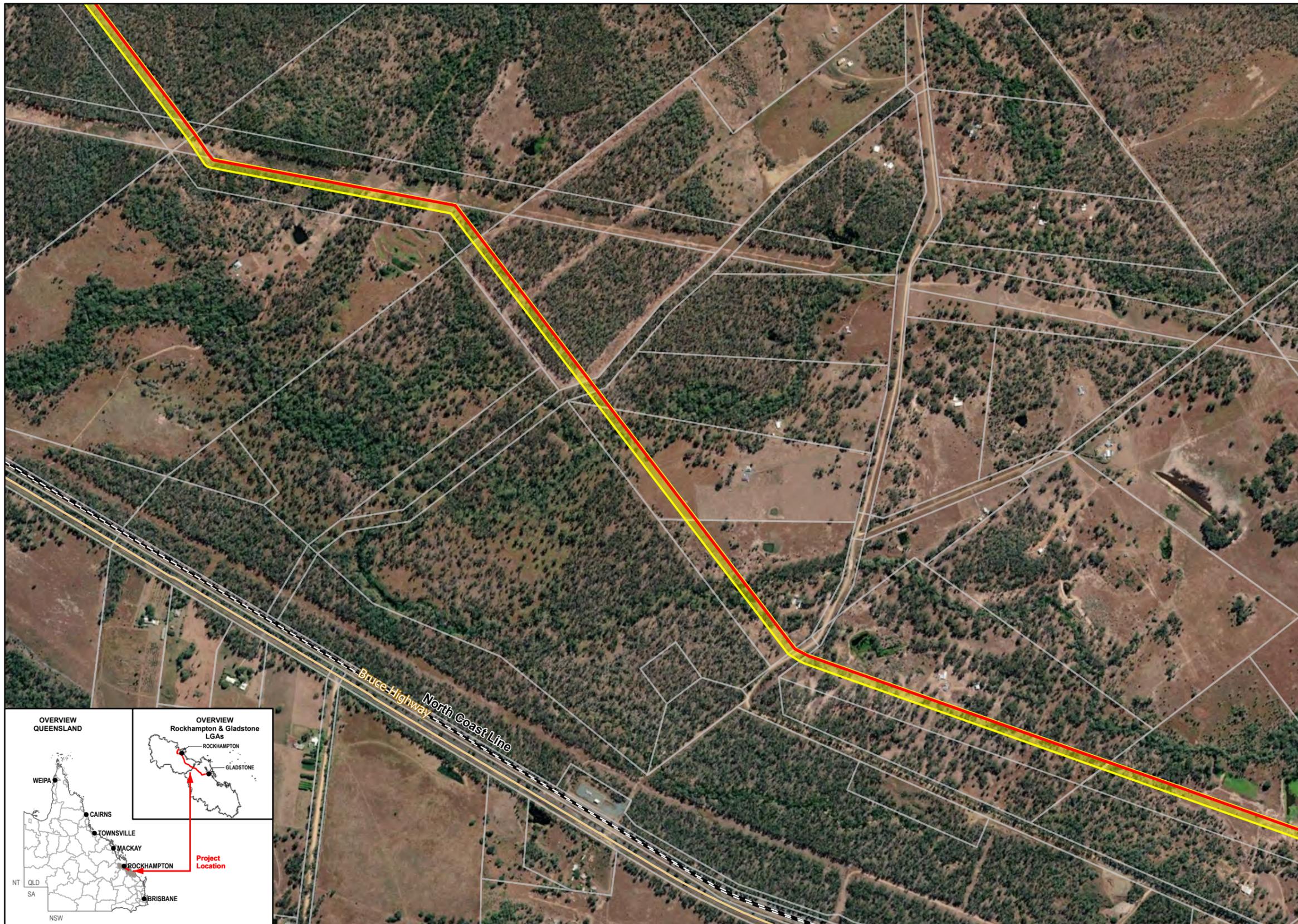
LEGEND

- FGP Alignment
- Rail Network
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- Property Boundaries

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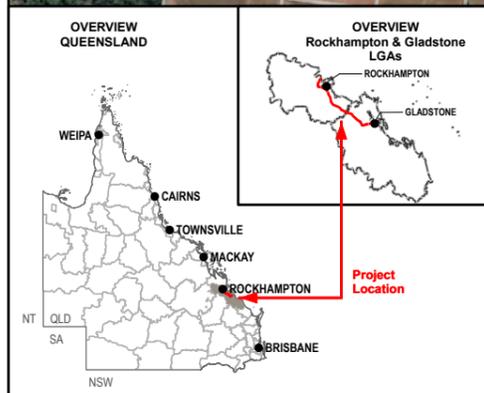
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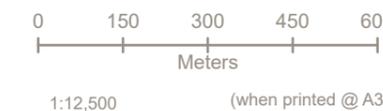
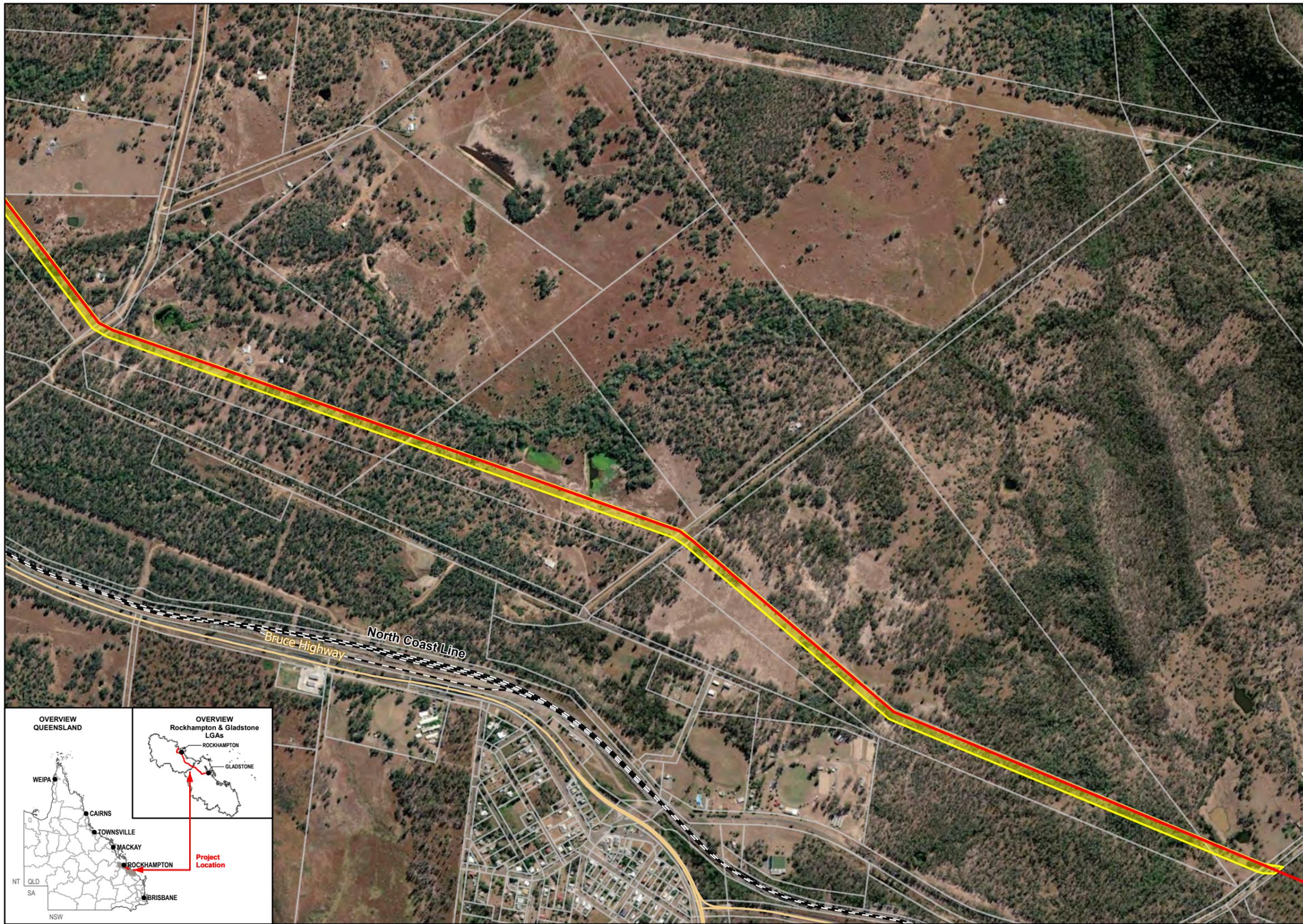
LEGEND

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3.5.3.3 Marine Plants

A marine plant is defined by the *Fisheries Act 1994* as any plant that usually grows on or adjacent to tidal land where tidal land is land subjected to tidal influence.

GHD undertook an ecology assessment of the FGP SGIC SDA alignment between 3 and 10 May 2022 which included an assessment of aquatic ecology matters. The Ecology Assessment Report (GHD, 2022; refer to Appendix D) confirmed that that marine plant surveys were undertaken at six locations within the FGP SGIC SDA alignment area.

Installation works within the FGP SGIC SDA alignment is expected to temporarily impact an area of up to 17,175 m² (1.71 ha) of marine plants and a permanently impact an area of up to 9,499 m² (0.95 ha). It is expected that the areas would be substantially reduced if a narrowed construction footprint was adopted in areas occupied by marine plants or alternative construction methodologies are employed in such areas (e.g. underground boring).

Section 7 provides a discussion of the potential impacts (and associated mitigations) the proposed works may have on aquatic habitat.

3.5.4 Terrestrial Ecology Values

Terrestrial ecological values of FGP SGIC SDA alignment have been identified using the following methods:

- Review of the EIS (Arup, 2008) to identify Matters of National Environmental Significance (MNES) that were identified for the FGP SGIC SDA alignment and would be required to be managed in accordance with the EPBC Approval:
 - Appendix B of this Planning Report presents Appendix G from the EIS that assessed potential impacts to MNES for the Project, *Appendix G Potential Impact on MNES*. Appendix B also includes *Chapter 6 – Terrestrial Flora* and *Chapter 7 – Terrestrial Fauna* which provided additional details about MNES.
 - The EPBC Approval reference: EPBC 2007/3501 (approved 4 November 2011) included a number of conditions for the Project that are required to be met to minimise impact upon MNES. These matters, where relevant, have been clarified.
- Review of the EIS (Arup, 2008) to identify any State listed species under the *Queensland Nature Conservation Act 1992* (NC Act) that were identified for the FGP SGIC SDA alignment and would be required to be managed in accordance with:
 - Appendix B of this Planning Report which presents chapters from the EIS that assessed terrestrial flora fauna values and potential impacts for the Project, *Chapter 6 – Terrestrial Flora* and *Chapter 7 – Terrestrial Fauna*.
 - The Coordinator-General's evaluation report which was reviewed for requirements associated with terrestrial ecology.
- Ecological field survey from 3 and 10 May 2022 was undertaken by suitably qualified persons to assess MNES and MSES. The survey methods included:
 - Verification of vegetation communities using a combination of Quaternary level assessments and informal observations. Data and observations were collected on the structural and floristic composition of vegetation communities to determine the regional ecosystem (RE) type.
 - Searches for potentially occurring conservation significant flora species were undertaken in potential habitat and a timed meander method was also utilised.
 - Searches for targeted fauna species, and general habitat assessments were undertaken.
 - A copy of the Ecology Assessment Report (GHD, 2022) is provided in Appendix D.

3.5.4.1 Regulated Vegetation and Regional Ecosystems

Regulated vegetation intersecting the FGP SGIC SDA alignment comprising a mixture of Category B (remnant vegetation), Category R (Great Barrier Reef riverine regrowth vegetation), Category C (high-value regrowth vegetation) and Category X vegetation (not generally regulated under the *Vegetation Management Act 1999* (VM Act)). The regulated vegetation condition categories (i.e. Category B, Category R, etc.) identified along the FGP SGIC SDA alignment are mapped in Appendix D The Ecology Assessment Report (GHD, 2022; refer to Appendix D) includes the area of clearing required for each regional ecosystems (RE) community. In summary, the ROW of approximately 30 m will result in the clearing of:

- Category B remnant vegetation that is a least concern RE: 4.90 ha.
- Category B remnant vegetation that is an of concern RE: 4.08 ha.
- Category C high value regrowth vegetation that is a least concern RE: 2.00 ha.
- Category C high value regrowth vegetation that is an of concern RE: 9.04 ha.
- Category C high value regrowth vegetation that is an endangered RE: 3. 14 ha.
- Category X non-remnant vegetation (including previously cleared areas, i.e. not defined as vegetation under the VM Act): 219.12 ha.

Field verification of on ground Res occurred during the ecology survey for the sites assessed. A number of discrepancies were identified between the mapped DoR RE layer and the field verified Res within the SGIC SDA alignment. Most commonly, mapped heterogenous polygons comprising multiple Res were comprised of single RE within the extent of the alignment. Often, the VM Act status (endangered, of concern, least concern) and/or remnant status (remnant, regrowth, non-remnant) of verified polygons remained the same, despite the change in RE designation. Where a change was recorded, the VM Act status was typically a lower conservation status (i.e. less threatened). The Ecology Assessment Report (GHD, 2022; refer to Appendix D) details the outcomes of the field verification.

Several areas containing Property Maps of Assessable Vegetation (PMAVs) were mapped as Category X, despite vegetation appearing to have reached remnant status. These polygons were historically secured as Category X vegetation through the PMAV process and their assigned designation within the study area was retained.

To amend regulated vegetation, a PMAV process is generally required prior to lodging any application for operational works that is clearing native vegetation. DoR has advised, through the pre-lodgement process, that detailed surveys are required including transects of the community/polygon, not just the impact site, with a PMAV also impacting underlying landowners. Therefore, GAWB is not proposing to amend any regulated vegetation mapping.

Further information on regulated vegetation and Res is provided in Ecology Assessment Report (GHD, 2022; refer to Appendix D).

Due to the advancement of the FGP SGIC SDA alignment and design, and GAWB land ownership, proposed easements and leases, alternatives to the current alignment and vegetation clearing are not practical. Potential impacts to regulated vegetation during the construction and operation are detailed in Section 7.

3.5.4.2 Threatened Ecological Communities

The EIS assessed Threatened Ecological Communities (TECs) which are MNES (Arup, 2008) (refer to Appendix B). The TECs there were identified as potentially occurring included:

- Brigalow (*Acacia harpophylla* dominant and co-dominant) (currently listed as endangered).
- Semi-evergreen vine thickets of the brigalow belt (currently listed as endangered).

The predicted TECs and their associated Res are summarised in Table 3.10. In the table the TEC with 'yes' for MNES are considered MNES for the purposes of the EPBC Approval as they were listed at the time of the approval.

Table 3.10 TECs Predicted to Occur Within the Desktop Search Extent of the FGP SGIC SDA Alignment

TEC	EPBC Act status	Associated Res	RE(s) mapped in study area	MNES	Identified in the Field
Brigalow (<i>Acacia harpophylla</i> dominant and co-dominant)	Endangered	11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14 and 11.12.21	Yes	Yes	Yes
Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland	Endangered	12.1.1, 12.3.20	No	No	No
Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	11.3.3, 11.3.16, 11.3.15, 11.3.37, 11.3.28	Yes	No	No
Lowland Rainforest of Subtropical Australia	Critically endangered	12.3.1a, 12.3.16, 12.3.17, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1, 12.12.16, 12.5.13b	No	No	No
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	11.3.2, 11.3.17, 11.4.7, 11.4.12, 12.3.10	Yes	No	Yes
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	11.11.18, 11.2.3, 11.3.11, 11.4.1, 11.5.15, 11.8.13, 11.8.3, 11.8.6, 11.9.4, 11.9.8	No	Yes	No
Weeping Myall Woodlands	Endangered	11.3.2, 11.3.28	Yes	No	No

The following two EPBC Act listed TECs were confirmed present within the FGP SGIC SDA alignment (GHD, 2022; Appendix D):

- Brigalow (*Acacia harpophylla* dominant and co-dominant) – recorded as a single patch within Lot 98 on DS186. Up to 1.5 ha of the TEC will be impacted by the Project.
- Poplar Box Grassy Woodland on Alluvial Plains – recorded as a single patch within Lot A on SP226047. Up to 0.45 ha of the TEC will be impacted by the project. Although this TEC was confirmed as present, it was not listed at the time of the approval and therefore, is not an MNES and is not considered further with respect to legislative or offset obligations.

The Ecology Assessment Report (GHD, 2022; Appendix D) presents an assessment of the significance of impact on the Brigalow TEC. The assessment found that the Project is likely to have a significant impact on the community due to fragmentation and impact upon habitat critical to the survival of the community.

Section 7 provides a discussion of the potential impacts the proposed works may have on habitat and fauna species (including TEC) during the design, construction and operational phases and outlines a range of mitigation measures aimed at minimising impacts.

3.5.4.3 Threatened Flora Species

The EIS (Arup, 2008) assessed threatened flora that are MNES. Whilst a number of species were identified as potentially occurring in the FGP SGIC SDA alignment, no species were observed along the alignment. The EIS found that a significant impact upon flora MNES will not occur, refer to Appendix B. Therefore, threatened flora did not require management in accordance with the EPBC Approval.

For the purpose of this report and the ecology assessment, further review of flora species associated with the FGP SGIC SDA alignment has been undertaken due to changes in State legislation, State species listing and species likelihoods.

Some limitations in the assessment were noted due to the potential MNES flora species being scrub species which were difficult to survey given the adopted survey extent and method, along with the regrowth nature of the area. Therefore, during the ecology assessment (3 to 10 May 2022) the MNES flora species, as listed at the time of the EPBC Approval, were assessed for likelihood of occurrence.

The Ecology Assessment Report (GHD, 2022; Appendix D) identified that threatened MNES flora species are unlikely to occur within the FGP SGIC SDA alignment, and as such, management under the EPBC approval is not required.

The Ecology Assessment Report (GHD, 2022; Appendix D), includes the findings of the desktop assessment and the ecology surveys. Of importance are the areas mapped by DES as high risk area under the protected plants flora survey trigger mapping (GHD, 2022; Appendix D). Within these areas, the ecology survey was in accordance with the DES Protected Plants Flora Survey Guidelines. Opportunistic searches were also undertaken beyond the high-risk flora trigger areas. The ecological survey determined that no threatened flora species were recorded during the field assessment. Results of the protected plant surveys were presented in a standalone flora survey report which was submitted to DES on 3 August 2022 to support an exempt clearing notification. The exempt clearing notification was acknowledged by DES on 15 August 2022.

Potential impacts to protected plant species during the design, construction and operational phases is described in Section 7.

3.5.4.4 Threatened Fauna Species

Threatened fauna species and species habitat can be identified as MNES or MSES. MNES for the FGP SGIC SDA alignment are identified as listed threatened species at the time of the EPBC Approval (i.e. the EIS (Arup, 2008)). While MSES associated with threatened fauna species (as per the current NC Act) includes protected wildlife habitat that is:

- An area of essential habitat on the essential habitat map for an animal or plant that is endangered or vulnerable wildlife.
- An area of habitat (e.g. foraging, roosting, nesting or breeding habitat) for an animal that is endangered, vulnerable or a special least concern animal.

The EIS (Arup, 2008; Appendix B) assessed threatened fauna species that are MNES. The MNES threatened fauna species confirmed present during the EIS associated with the FGP SGIC SDA alignment were:

- Squatter pigeon southern subspecies (*Geophaps scripta scripta*) that was listed as endangered at the time of the EIS.
- Capricorn yellow chat (*Ephianura crocea macgregori*) that was listed as critically endangered.
- Ornamental snake (*Denisonia maculat*) that was listed as vulnerable.

MNES, as listed at the time of the EPBC Approval, were re-assessed as part of the Ecology Assessment Report (GHD, 2022; Appendix D). The assessment identified MNES species considered likely to occur or confirmed present within the FGP SGIC SDA alignment, these are summarised in Table 3.11.

It is noted that the conditions within the EPBC Approval, condition 2, and Coordinator-General’s evaluation report, condition 10, related to provision of funding for research for the Yellow chat. GAWB has been able to complete this condition and outcomes of the research have been published.

Table 3.11 EPBC Approval Threatened Fauna Species Likelihood of Occurrence

Threatened Species	EPBC Act Status	NC Act Status	Likelihood of Occurrence	MNES	MSES	Significant impact
Curlew sandpiper (<i>Calidris ferruginea</i>)	Critically endangered	Critically endangered	Likely to occur		✓	Unlikely
Capricorn yellow chat (<i>Ephianura crocea macgregori</i>) Previously known as Yellow chat	Critically endangered	Endangered	Confirmed present	✓	✓	Unlikely
Squatter pigeon (southern subspecies) (<i>Geophaps scripta (scripta)</i>)	Vulnerable	Vulnerable	Confirmed present	✓	✓	Likely
White-throated needletail (<i>Hirundapus caudacutus</i>)	Vulnerable	Vulnerable	Likely to occur		✓	Unlikely

Threatened Species	EPBC Act Status	NC Act Status	Likelihood of Occurrence	MNES	MSES	Significant impact
Powerful owl (<i>Ninox strenua</i>)	Not listed	Vulnerable	Likely to occur		✓	Unlikely
Australian painted snipe (<i>Rostratula australis</i>) Previously known as Painted snipe (<i>rostratula benghalensis</i>)	Vulnerable	Endangered	Likely to occur	✓	✓	Unlikely
Greater glider (southern and central) (<i>Petauroides Volans</i>)	Endangered	Vulnerable	Likely to occur		✓	Likely
Yellow-bellied glider (south-eastern) (<i>Petaurus australis australis</i>)	Vulnerable	Vulnerable	Likely to occur		✓	Likely
Koala (<i>Phascolarctos cinereus</i>)	Endangered	Endangered	Likely to occur		✓	Likely
Grey-headed flying-fox (<i>Pteropus poliocephalus</i>)	Vulnerable	Least concern	Likely to occur	✓	✓	Likely
Ornamental snake (<i>Denisonia maculate</i>)	Vulnerable	Vulnerable	Confirmed present	✓	✓	Unlikely
Grey snake (<i>Hemiaspis damelii</i>)	Endangered	Least concern	Likely to occur		✓	Unlikely

Under State mapping, the FGP SGIC SDA alignment intersects multiple areas of mapped essential habitat for conservation significant species listed under the NC Act as shown in Appendix D. These areas are MSES and include essential habitat for:

- Curlew sandpiper (*Calidris ferruginea*) – listed as critically endangered under the NC Act.
- Lesser sand plover (*Charadrius mongolus*) – listed as endangered under the NC Act.
- Ornamental snake (*Denisonia maculate*) – listed as vulnerable under the NC Act.
- Yellow chat (Dawson) (*Epthianura crocea macgregori*) – listed as endangered under the NC Act.
- Squatter pigeon (*Geophaps scripta scripta*) – listed as vulnerable under the NC Act.
- Australian painted snipe (*Rostratula australis*) – listed as endangered under the NC Act.
- Powerful owl (*Ninox strenua*) – listed as vulnerable under the NC Act.
- Koala (*Phascolarctos cinereus*) – listed as endangered under the NC Act.

Those MSES species and species habitat that were identified as likely to occur are summarised in Table 3.11.

The Ecology Assessment Report (GHD, 2022; Appendix D) assessed the significance of impacts from the FGP SGIC SDA alignment on MNES and MSES that have been confirmed present or are considered likely to occur. The significance of impact assessments were undertaken in accordance with the Queensland *Significant Residual Impact Guideline* (DEHP, 2014) or the Commonwealth *Significant Impact Guidelines 1.1* (DoE, 2013). A summary of outcomes of MNES and MSES significant impact assessment are provided in Table 3.11.

The FGP has been designed to avoid or, where this has not been practicable due to factors such as topographic constraints, minimise impacts to areas of remnant vegetation. There is existing vegetation along the alignment and it will be cleared to accommodate the proposed works and threatened fauna species could be impacted by clearing activities.

Section 7 provides a discussion of the potential impacts the proposed works may have on habitat and fauna species during the design, construction and operational phases of the FGP SGIC SDA alignment and outlines a range of mitigation measures aimed at minimising impacts.

3.5.4.5 Biosecurity

Weed species were commonly observed throughout the FGP SGIC SDA alignment. Weed species were observed along the FGP SGIC SDA alignment that are either (or both) listed as Weeds of National Significance (WoNS) or restricted invasive weeds listed under the *Queensland Biosecurity Act 2014* (Biosecurity Act) are listed in Table 3.12.

Table 3.12 Weed Species Identified Within the FGP SGIC SDA Alignment

Species Name	Common Name	WoNS	State Declaration Biosecurity Act
<i>Parthenium hysterophorus</i>	Parthenium	X	Category 3
<i>Lantana camara</i>	Lantana	X	Category 3
<i>Opuntia stricta</i>	Common pest pear	X	Category 3
<i>Opuntia tomentosa</i>	Velvety tree pear	X	Category 3
<i>Sporobolus pyramidalis</i>	Giant rat's tail grass		Category 3
<i>Cryptostegia grandiflora</i>	Rubber vine	X	Category 3
<i>Cascabela thevetia</i> syn. <i>Thevetia peruviana</i>	Yellow oleander		Category 3
<i>Baccharis halimifolia</i>	Groundsel bush		Category 3
<i>Harrisia martinii</i>	Harrisia cactus		Category 3

Six introduced fauna species were identified within the FGP SGIC SDA alignment (Table 3.13), including four mammal species declared as restricted invasive animals under the Biosecurity Act (DAF 2017).

Table 3.13 Introduced Fauna Species Recorded Within the FGP SGIC SDA Alignment

Species name	Common name	State declaration Biosecurity Act
<i>Canis lupus familiaris</i>	Wild dog	Category 3, 4 and 6
<i>Oryctolagus cuniculus</i>	European rabbit	Category 3, 4 and 6
<i>Rhinella marina</i>	Cane toad	-
<i>Sturnus tristis</i>	Common Myna	-
<i>Sus scrofa</i>	Feral pig	Category 3, 4 and 6
<i>Vulpes</i>	European red fox	Category 3, 4 and 6

Construction and operation of the FGP SGIC SDA alignment has the potential to introduce and/or spread exotic weeds and pests throughout the footprint and surrounding areas. Potential impacts and mitigation measures are summarised in Section 7.

The FGP SGIC SDA alignment traverses the following biosecurity zones that have been declared under the Biosecurity Act:

- Cattle tick area.
- Sugar cane pest (zone 4).
- Grape phylloxera.

These biosecurity zones may require consideration for the Project where agricultural land is being impacted. These biosecurity zones may require consideration for the FGP SGIC SDA alignment where agricultural land is being impacted.

3.5.5 Protected Areas

3.5.5.1 Fish Habitat Areas

Raglan Creek is part of the declared Fitzroy River Fish Habitat Area which is a MSES. However, the FGP SGIC SDA alignment is approximately 1.2 km south of the boundary of the Fitzroy River Fish Habitat Area. Therefore, direct impacts to the Fitzroy River Fish Habitat Area are not proposed and indirect impacts will be minimised through implementation of management measures (refer to Section 7).

3.5.5.2 National Parks and Other Conservation Areas

The FGP SGIC SDA alignment does not traverse any national and/or State protected areas not mentioned elsewhere in this report (such as National Parks, MSES Conservation Areas or Nature Refuges).

3.6 Cultural Heritage Values

3.6.1 Aboriginal Cultural Heritage

The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) identified the cultural heritage party for the FGP SGIC SDA alignment as the Darumbal People with a cultural heritage body of Darumbal Enterprises Pty Ltd and cultural heritage party Bailai, Gurang, Gooreng, Taribelang Bunda People (BGGGTBP) with a cultural heritage body of First Nations BGGGTP Aboriginal Corporation RNTBC.

GAWB has entered into Cultural Heritage Management Plans (CHMPs), approved under the *Aboriginal Cultural Heritage Act 2003* (Qld) for the FGP SGIC SDA alignment. In preparation of the CHMPs, surveys of the FGP SGIC SDA alignment were undertaken. A number of Aboriginal sites were identified within approximately 20 m of the FGP SGIC SDA alignment, refer to Table 3.14. Table 3.14 provides a summary of the primary management actions for the relevant site.

The ongoing nature of determining Aboriginal cultural heritage is acknowledged. The unsurveyed areas will be surveyed in accordance with the requirements of the approved CHMPs. Unexpected finds of cultural heritage significance when carrying out work on the Project will be managed in accordance with the approved CHMPs.

Section 7 provides a discussion of the potential impacts (and associated mitigations) the proposed works may have on cultural heritage values during the construction and operational phases.

Table 3.14 Aboriginal Cultural Heritage Assessment

Object ID	Site Type	Property	Eastin g	Northin g	Description	Primary Management Actions	Party
5	Scarred Tree	143 LN2246	237659	7409997	Sacred tree	Fence edge of corridor and avoid	Darumbal People
6	Scarred Tree	143 LN2246	237926	7409947	Sacred tree	Fence edge of corridor and avoid	Darumbal People
7	Scarred Tree	143 LN2246	237936	7409925	Sacred tree	GAWB to investigate if tree can be fenced and avoided within existing easement	Darumbal People
8	Isolated Stone	1 SP266123	244107	7407961	Isolated stone	Mitigate, collect and remove	Darumbal People
9	Isolated Stone	1 SP266123	244128	7407950	Isolated stone	GAWB to investigate if tree can be fenced and avoided within existing easement	Darumbal People
10	Scarred Tree	28 PL4017	246359	7406670	Sacred tree	On-site inspection with Darumbai elders to confirm status of tree and	Darumbal People

Object ID	Site Type	Property	Eastin g	Northing	Description	Primary Management Actions	Party
						management requirements.	
11	Scarred Tree	35 PL4017	247417	7405758	Sacred tree	On-site inspection with Darumbai elders to confirm status of tree and management requirements.	Darumbal People
12	Isolated Stone	1 RP601377	247973	7404338	Isolated stone	Mitigate, collect and remove	Darumbal People
13	Isolated Stone	142 DS634	264017	7383796	Isolated stone	Fence edge of corridor and avoid	Darumbal People
14	Isolated Stone	95 DS186	266072	7382921	Isolated stone	Mitigate, collect and remove	Darumbal People
15	Isolated Stone	167 CP859402	277359	7376395	Isolated stone	Mitigate, collect and remove	Darumbal People, BGGGTB People
12	Low density artefact scatter	124 SP257851	282964	7375239	Low-density artefact scatter. Brown chert core 70 x 70 x 15mm, and brown chert flake 20 x 35 x 15mm, and 2 pieces of brown and black chert debitage.	Lies outside of corridor - no management actions	BGGGTB People
11	Isolate	39DS688	283364	7375151	Dark green chert core 35 x 40 x 22mm	Relocate	BGGGTB People
8	Isolate	5 SP218851	293631	7366470	Brown metasedimentary flake 50 x 45 x 25mm	Relocate	BGGGTB People
10	Low density artefact scatter	5 SP218851	293631	7366470	Dark green chert flakes x 4 and black chert with white cortex flake in area 6m x 5m	Relocate	BGGGTB People
9	Isolate	5 SP218851	293663	7366441	Brown chert flake 50 x 25 x 12mm	Lies outside of corridor - no management actions	BGGGTB People
7	Low density artefact scatter	5 SP218851	293663	7366441	Low density artefact scatter. 2 flakes (1 broken) of green chert in area c. 9m x 3m. 20 x 45 x 10mm. 35 x 50 x 20mm (fragment)	Relocate	BGGGTB People
6	Isolate	5 SP218851	293690	7366443	Green chert flake 52 x 55 x 30mm	Relocate	BGGGTB People
5	Debitage	5 SP218851	294128	7366261	6 pieces of dark green chert debitage in area c. 5m x 4m	Relocate	BGGGTB People

3.6.2 Non-Indigenous Cultural Heritage

A search of the commonwealth and world heritage places register did not identify any places in the vicinity of the FGP SGIC SDA alignment. A search of the commonwealth and world heritage places register did not identify any places in the vicinity of the FGP SGIC SDA alignment.

A search of the State heritage register and local heritage places within RRC and GRC Planning Schemes identified two places of non-indigenous places of cultural heritage located within 1 km of the FGP SGIC SDA alignment, refer to Table 3.15. Impacts to these places are not proposed.

Table 3.15 Non-Indigenous Cultural Heritage within 1 km

Place ID	Place Name	Lot on Plan	Status	Distance from Alignment
601819	Rockhampton Botanic Gardens	521 SP300242	State heritage place	710 m
600389	Raglan Homestead	804 DT407	State heritage place	300 m

3.6.3 Native Title

Native title has been determined to exist in the following area relevant to the FGP SGIC SDA alignment:

- a. Watercourse – Scrubby Creek (GAWB Property ID # 89).
- b. Watercourse – Gavial Creek (GAWB Property ID # 101).
- c. Watercourse – Bob’s Creek (GAWB Property ID # 129).
- d. Lot 1 on AP2418 (GAWB Property ID # 141).
- e. Watercourse – Inkerman Creek (GAWB Property ID # 142).
- f. Watercourse – Horrigan Creek (GAWB Property ID # 176).
- g. Watercourse – Raglan Creek (GAWB Property ID # 178).

There has been no determination about native title on Lot 167 on CP859402 (GAWB Property ID # 177), which is between the Darumbal and BGGGTB determination areas. Lot 167 on CP859402 is not subject to any current native title claim.

GAWB is of the view that the grant of approval for the SDA application (MCU) (SDA Approval (MCU)) is a future act to which section 24KA of the *Native Title Act 1993* (Commonwealth) applies, on the basis that:

- i. The SDA Approval (MCU) relates to an onshore place, being the proposed Fitzroy to Gladstone Pipeline.
- ii. The SDA Approval (MCU):
 - A. permits the construction, operation, use, maintenance or repair; or
 - B. consists of the construction, operation, use, maintenance or repair, by GAWB of infrastructure that is expressly referred to in section 24KA(2)(h) (that this, a pipeline for water supply), and which will be operated for the general public.
- iii. Noting that the pipeline will be underground, the SDA Approval (MCU) does not prevent native title holders in relation to land or waters on which the pipeline will be located from having reasonable access to such land or waters in the vicinity of the pipeline (except while the pipeline is being constructed, or for reasons of health and safety).
- iv. The *Aboriginal Cultural Heritage Act 2003* (Queensland) provides for the preservation or protection of areas or sites that may be in the area of the SDA Approval (MCU) which are of particular significance to Aboriginal people, in accordance with their traditions.

3.7 Natural Hazards

The Queensland Government Development Assessment Mapping System (State of Queensland, 2022), the Rockhampton Region Planning Scheme (2022) and the GRC Planning Scheme mapping (2021) identifies bushfire and flooding as hazards potentially impacting the FGP SGIC SDA alignment.

3.7.1 Bushfire

Bushfires are a natural part of the Australian environment. Historically, Indigenous people practiced traditional burning for cultural hazard mitigation and conservation purposes. The primary drivers that determine bushfire behaviour and intensity include weather, topography, localised fuel type and load. Bushfires require a source of ignition which can occur naturally, for example through dry lightning strikes or anthropogenically, either unintentional or deliberate means. Increased risks occur with landscapes bearing slopes greater than 10% which can increase the potential for fires to establish in tree canopies and cause difficulties with accessing undulating terrain and establishing containment lines.

The FGP SGIC SDA alignment intercepts very high, high and medium potential bushfire intensities at various locations. Escarpments which are within close proximity and some parcels of land within the ROW of the FGP SGIC SDA alignment are areas identified as a very high potential for bushfire intensity.

Bushfires have the potential to impact works, and there is potential that hot works along the FGP may ignite and start a bushfire. Bushfire risks include, but are not limited to, equipment / plant damage and personnel plans and emergency management plans will be prepared and implemented to identify and manage the risk of bushfire.

The FGP SGIC SDA alignment is buried its full length, therefore the potential to increase bushfire risk would be minimal. The valves are the only above ground infrastructure associated with the pipeline as part of this SGIC SDA application (MCU). The valves have been designed to be fire resistant and are unlikely to increase bushfire risks. Any impacts to above ground infrastructure will be managed by a Bushfire Management Plan as part of the Operational Environmental Management Plan (OEMP).

3.7.2 Flooding

Riverine flooding is a significant hazard in Queensland. The main risk to the FGP SGIC SDA alignment is predominately associated with flooding of the Fitzroy River and the associated creeks and tributaries. Approximately 30 km of the alignment is potentially impacted by flooding during severe weather events. The following areas have been identified as susceptible to flooding:

- Tributaries of Scrubby Creek including Scrubby Creek itself.
- Tributaries of Gavial Creek including Gavial Creek itself.
- Tributaries of Serpentine Creek.
- Tributaries of Inkerman Creek including Inkerman Creek itself.
- Tributaries of Pelican Creek including Pelican Creek itself.
- Tributaries off Sandy Creek and Sandy Creek itself.
- Tributaries of Boat Creek and Boat Creek itself.
- Tributaries of Pelican Creek including Pelican Creek itself.
- Coastal area as a whole north of Raglan associated with the Fitzroy River.

The Raglan Pump Station and Reservoir are located outside the mapped area susceptible to flooding.

The FGP SGIC SDA alignment is buried for its full length. Therefore, the potential to alter flooding regimes is primarily restricted to the construction phases where potential hydrological impacts will be localised and temporary. The valves are the only above ground infrastructure associated with the pipeline as part of this SGIC SDA application (MCU). The valves have been designed to withstand potential flood events and are unlikely to impede on flooding regimes.

4. Development Proposal

The development details relevant to this report will consist of the underground water pipeline (commencing at near Malchi Nine Mile Road (Lot 71 on CP LIV40477) through to The Narrows Road, approximate CH 15,000 m to 96,000 m), and the access road for the Raglan Pump Station and Reservoir where it intersects the SGIC SDA. A summary of the infrastructure and construction methodology is detailed below. The most recent design information is summarised in the sections below and design drawings are included in Appendix E.

The design and construction of the FGP SGIC SDA alignment will be in accordance with water industry standards and codes of practice with a view to achieving generally a design lifespan of a minimum of 80 years, considering the conditions of the sites and the nature of the materials and processes involved.

4.1 Pipeline

4.1.1 Design

The FGP SGIC SDA alignment will be buried for its full length with varying cover depending on pipe material, ground conditions and loading. It will be laid with a minimum grade of 1 in 500. A fibre optic cable will run alongside the pipeline within the trench. This will be used to transmit signals along the FGP alignment.

The concept design has documented the use of MSCL pipeline with rubber ring joints (RRJ) (Sinta Joints) for the majority of the pipeline. RRJ pipes will require welded lugs to provide electrical connection for cathodic protection. Welded ball and socket type joints, will be used where pipeline is laid in areas of steep gradients (>30%), at minor creek crossings, major creek crossings, major roads and rail and at changes in direction to reduce large thrust blocks. Cathodic protection is considered necessary for the proposed MSCL pipeline, to provide additional protection against corrosion and ensure an asset life of 80 years.

The FGP SGIC SDA alignment will have an external diameter of 1,067 mm. Refer to Table 4.1 for a summary of the pipeline material.

Table 4.1 Pipeline Design and Material

Capacity (GL/annum)	Design Flow (L/S)	Pipeline External Diameter (mm)	Pipeline Material	Cathodic Protection
30	1,057	1,067 mm	MSCL with rubber ring joints or welded joints at connection points	Required

Valves are included within the pipeline design to allow for maintenance, control and surge protection. Where possible design is being advanced so that valves are located in proximity to property boundaries or easy to access locations. The valves are the only above ground infrastructure associated with the pipeline as part of this SGIC SDA application (MCU). The types of valves required include:

- Air valves:
 - Allow the expulsion of dissolved air from the water during normal operation.
 - Approximately 240 air valves are included in the design of the Project from 500 m to 1000 m spacing.
- Check valves:
 - To prevent backflow for pipes and pumps, protect pumps under emergency conditions and protect components against surge.
 - There will be one check valve installed before the high point of the pipeline between Raglan and Aldoga (approximately 15 km from Aldoga). Other check valves are located near reservoirs and at the pump stations.
- Isolation valves:
 - Allow isolation of sections of the pipeline in the case of failure in the adjacent pipeline, pump station, storage reservoir or WTP.

- Isolation valves will typically be installed every 5 km, and will be installed at the inlet and outlets of all pump stations and storage reservoirs (namely Alton Downs, Raglan and Aldoga Reservoirs).
- Scour valves:
 - Are used to drain the pipeline and to allow scouring of the main pipe.
 - Scour valves are to be included at all low points in the pipeline and will function under gravity where possible. There are approximately 230 scour valves along the FGP and are located at every 200 m to 800 m, final locations and discharge arrangements will be developed during the detailed design.
- Branch tees – future connections:
 - Will be provided to allow cross connection to any future duplication.
 - These are not intended to provide water supply from the transmission mains; however, branch tees may also be included in a limited number of locations near populated areas.

The design is currently in the concept stage. The alignment is currently being finalised, and major alterations are not anticipated. Appendix E provides design.

4.1.2 Construction

ROW is the total construction width within which vegetation will be cleared to enable construction processes to occur. The ROW width is approximately 30 m, but it will be reduced over short distances (e.g. in environmentally sensitive areas) and may vary depending on project or site specific considerations. The ROW will allow room for the pipeline trench, vegetation and soil stockpiles, a roadway with appropriate width for passing and the pipeline preparation area. A typical ROW layout is shown in Figure 4-1.

4.1.2.1 Main Construction Stages

The main stages of construction are outlined as follows:

- **Survey** – prior to the commencement of construction, the ROW will be fully surveyed, and the pipeline centre line will be pegged.
- **Clearing** – clearing of the pipeline construction area involves removal of vegetation, rocks and obstructions from the pipeline ROW. The pipeline vegetation will be stockpiled as shown in the diagram below in Figure 4-1.
- **Grading** – bulldozers and graders will level the ground in certain areas within the ROW to prepare a safe construction platform.
- **Pipeline stringing** – pipes will be delivered to site by truck from stockpile locations adjacent to the ROW and then laid next to the trench on skids (timber blocks like railway sleepers used to keep the pipe off the ground) or sandbags to protect the pipe from damage.
- **Trenching** – the pipeline trench will generally be 2 m deep but could be up to 5 m deep depending on pipeline design and location. The top of the excavation trench will generally be 12 m wide but could be up to 16 m wide in some locations depending on trench wall soil stability and pipeline design. Specialist heavy earth moving machinery will be used to excavate the pipeline trench. Topsoil and trench spoil will be stockpiled separately as shown in Figure 4-1.
- **Pipe laying and backfilling** – appropriate bedding material is required to prepare the trench for pipe laying. Following placement of the bedding the remainder of the trench will be backfilled using trench spoil and finally topsoil.
- **Clean up and rehabilitation** – all areas affected by construction including ROW, work areas, access tracks, and temporary site office areas will be cleaned up and rehabilitated to pre-construction conditions as far as practicable. The stockpiled vegetation, will be utilised in the rehabilitation process, where possible (e.g. use of mulch and placement of logs etc. in the ROW (pending end land use).
- **Pipeline cleaning and testing** – this process occurs at the end of construction to remove debris from the inside of the pipe and test for leaks.

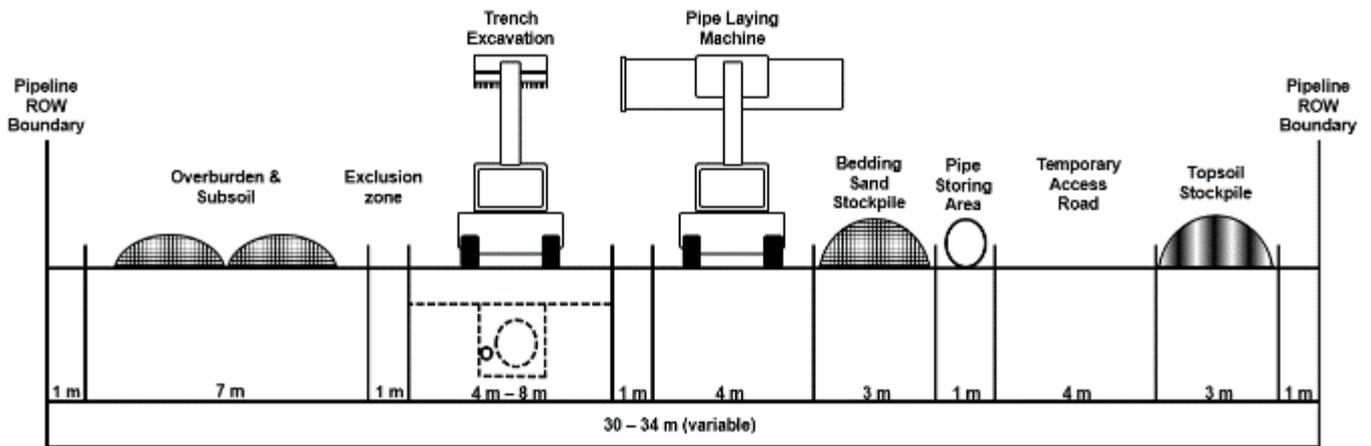


Figure 4-1 Typical ROW

4.1.2.2 Crossing Methods

Trenchless construction methods are preferred where the pipeline crosses creeks, roads and rail. Details of the crossing methods are summarised as follows:

- Open trenching (non-trenchless):
 - It involves excavation of the trench directly through the stream or roadway. Excavators or backhoes are generally used with the trench spoil to be stockpiled away from the stream bed or road. The prefabricated pipe is strung out, lowered in and the trench backfilled immediately.
 - This method is proposed for minor roads and minor/dry creeks.
- Thrust boring or pipe-jacking:
 - Trenchless method involving launch and reception pits which are excavated on both sides of the crossing location.
 - An enveloper pipe with an open face is pressed into the ground with hydraulic jacks from the launch pit to the reception pit and an auger or drill removes the materials inside the pipe. The carrier pipe is then laid inside the enveloper pipe. The annular space between the enveloper and carrier pipes are then grouted.
 - The launch pit would be approximately 8 m by 4 m and the reception pit approximately 4 m by 3 m.
 - This method is proposed for major road and rail crossings.
- Micro-tunnelling or horizontal directional drilling:
 - Trenchless method involving launch and reception pits on either side of the crossing.
 - A tunnelling machine is used to excavate an underground path for the pipeline.
 - Powerful hydraulic jacks are used to push specially designed enveloper pipes through the ground behind a shield at the same time as excavation is taking place within the shield. The enveloper pipe is pushed from the launch pit to the reception pit. After the installation of the enveloper pipe, the carrier pipe is laid inside the enveloper pipe. The annular space between the enveloper and carrier pipes are then grouted. This method is suitable for sections up to 350 meters in length. Provided the working pits are set well back there is minimal impact to fringing riparian vegetation and river banks.
 - Within the SGIC SDA the following creeks (as identified in the Coordinator-General evaluation report) will be crossed by this method due to their sensitive nature:
 - Gavial Creek.
 - Bob's Creek.
 - Inkerman Creek.
 - Twelve Mile Creek.
 - Marble Creek.
 - Horrigan Creek.
 - Raglan Creek.

- Other creeks may also be crossed by this method. Considerations in deciding if a waterway is to be crossed by this method include:
 - Whether the waterway is ephemeral or perennial.
 - Presence of riparian vegetation and its ecological value.
 - Aquatic ecology values of the waterway and substrate type.
 - Length of the crossing.
 - Geotechnical considerations.
 - Engineering feasibility.
 - Cost of the crossing.
 - Construction duration.
- Major road and rail crossings as detailed in Section 3.3.1.

4.1.2.3 Access

The current base case for construction is to utilise the existing road network to access the alignment, with access undertaken along the FGP SGIC SDA alignment within the ROW. Temporary gravel access tracks will be constructed along the FGP SGIC SDA alignment where required to temporarily access facilities and work areas.

The Construction Contractor will ensure that any vehicles that are used in the execution of the works, deliveries or consignments to and from the FGP SGIC SDA alignment have the relevant permits, escorts and can access the FGP GSDA alignment with minimal disruption to the existing infrastructure. All vehicles or equipment hauling material on public roads must be fitted with tight tailgates and comply with the relevant road safety and transport legislation.

4.1.3 Commissioning

The Construction Contractor will develop a detailed commissioning plan to manage all aspects of commissioning including the water intake and discharge for wet testing.

The commissioning process will be undertaken in two stages for each section of the pipeline and its associated infrastructure. These include pressure testing and leak testing, i.e. wet testing.

The FGP will be commissioned in various sections of approximately 5 km in length. The commissioning will include flushing and filling each section with water to test the pressure of the pipe and for any leaks. It is expected that approximately 4 ML to 5 ML of water will be required for this testing.

Following the successful commissioning of a particular pipeline section, the water will be stored in the pipeline until the next section is ready for commissioning.

For the FGP SGIC SDA alignment, it is expected that no water will be discharged, as it will be used for the FGP GSDA alignment.

It should be noted, the water is expected to contain residual sediments from within the pipeline, no chlorine will be used in the commissioning process.

If for some reason, water will need to be discharged during commissioning, measures will be taken to:

- Minimise the waste volumes of water generated.
- Minimise the treated water to be discharged to the environment.
- Ensure that the water to be discharged meets the requirements of any relevant guidelines, water quality objectives and the requirements of stakeholders.
- Ensure erosion protection measures are in place.
- Ensure that treated water meets the requirements of the Operations Manual (GAWB requirements) as soon as possible.

4.1.4 Rehabilitation

All areas affected by construction including work areas, temporary access tracks (if required) and temporary site office areas will be cleaned up and rehabilitated. Grass species are proposed within the ROW.

Clean up will include removal of waste material and equipment, compaction relief (particularly on heavily trafficked areas) and rehabilitation will include profiling to stable contours, mulching to minimise any subsidence and erosion.

Signs, fences and barriers will be installed where required to prevent unauthorised access to sensitive areas, and to prevent damage. Rehabilitation measures will be conducted according to recommendations in the *Australian Pipeline Industry Association Code of Environmental Practice – Onshore Pipelines 2005* and will consider the application of vegetation regeneration and/or revegetation techniques as appropriate. These will encourage the natural regeneration of disturbed vegetation, which may include topsoil replacement, weed management, re-spreading stockpiled vegetation over disturbed area and seed planting to promote soil stabilisation.

The Project’s draft Construction Environmental Management Plan (CEMP) (GHD, 2022), provided in Appendix F, includes a rehabilitation and revegetation control plan which includes the following measures, to be undertaken progressively as works are staged:

- Recontouring and compaction – This will include monitoring and the re-instatement of any subsidence and other associated works.
- Topsoil replacement – Topsoil will be stockpiled and replaced after works to enable ground layer species to re-establish.
- Weed control – Weeds will be managed according to the Contractors’ CEMP and relevant control plans.
- Erosion protection – Erosion will be managed according to the Contractors’ CEMP and relevant control plans.
- Revegetation – consistent with surrounding conditions. The vegetation stockpile will be utilised in the rehabilitation process.

The Construction Contractor will develop and finalise a CEMP for approval and implementation that includes, at a minimum, the requirements of the draft CEMP and any additional measures required to address approval conditions. The draft CEMP is included in Appendix F.

4.2 Raglan Pump Station and Reservoir Access

The Raglan Pump Station and Reservoir is located midway along the FGP on an area of approximately 6 ha within Lot 125 SP257841. The majority of the Raglan Pump Station and Reservoir is located adjacent and outside the SGIC SDA. The portion of the Raglan Pump Station and Reservoir that is within the SGIC SDA is the access road from Woorilla Road reserve.

The access road will be a two-lane road of approximately 5.5 m wide. During operation entry points to the access road will be secured with a steel lock gate.

4.3 Construction Timeframe

It is proposed that the FGP will be completed within 24 months from the commencement of construction. A high-level construction timeframe for the FGP SGIC SDA alignment is outlined in Table 4.2.

Table 4.2 Indicative FGP SGIC SDA Alignment Pipeline Alignment Construction Timeframe

Activity	Start	Completion
Right of Way Preparation		
Section B1 – CH 15,133 to CH 22,117	May 2024	July 2024
Section B2 – CH 22,117 to CH 23,860	May 2024	July 2024
Section B3 – CH 24,056 to Ch 53,683	May 2024	August 2024
Section B4 – CH 53,683 to CH 58,005	May 2024	August 2024
Section B4 – CH 58,005 to CH 73,454	June 2024	August 2024
Section C1 – CH 73,454 to CH 96,473	May 2023	August 2023
Pipe Installation		
Section B1 – CH 15,133 to CH 22,117	May 2024	July 2024
Section B2 – CH 22,117 to CH 23,860	May 2024	August 2024

Activity	Start	Completion
Section B3 – CH 24,056 to CH 53,683	May 2024	August 2024
Section B4 – CH 53,683 to CH 58,005	May 2024	August 2024
Section B4 – CH 58,005 to CH 73,454	June 2024	August 2024
Section C1 – CH 73,454 to CH 96,473	May 2023	August 2023
Pre-commissioning, Commissioning and Reinstatement Activities		
Section B	May 2024	November 2024
Trenchless Crossings		
Thrust Bore		
Nine Mile Road	May 2024	September 2024
Fogarth Road	May 2024	September 2024
Capricorn Highway	May 2024	August 2024
Bruce Highway	June 2024	September 2024
Bajool	May 2024	August 2024
Port Alma Road	June 2024	September 2024
Microtunnelling / HDD		
Inkerman Creek	May 2024	September 2024
Twelve Mile Creek	July 2024	September 2024
Marble Creek	July 2024	September 2024
Horrigan Creek	July 2024	September 2024
Raglan Creek	July 2024	September 2024
Raglan Pump Station and Reservoir		
Site Preparation	March 2023	May 2024
Construction Activities	May 2023	August 2024
Pre-commissioning Activities	July 24	August 2024

4.4 Operation

There will be minimal operational activities associated with the FGP SGIC SDA alignment. Indicative maintenance activities and frequencies for the FGP SGIC SDA would include:

- Routine easement maintenance: 2-3 times per year.
- Routine pipeline inspections and valve maintenance: 2-3 times per year.
- Abnormal pipeline maintenance and repairs: as required.
- Inspections of erosion prone areas after significant rainfall events: as required.

Easement maintenance activities typically tie in with pipeline inspection activities (within 2-3 weeks) so that grass is slashed, and ground is visible for the pipeline infrastructure inspection. Access for operation and maintenance works will be via the local and publicly available road network, with subsequent access along the pipeline easement or licence area.

Operation of the Raglan Pump Station and Reservoir will be in accordance with procedures and management prepared and implemented for other GAWB reservoirs. The Raglan Pump Station and Reservoir will be operated and monitored remotely through an automated control system. The Site will be inspected regularly, and activities undertaken on the Site will be general operational maintenance, as required, grounds maintenance and water quality monitoring.

5. Development Assessment

5.1 State Development and Public Works Organisation Act 1971

The main purpose of the SDPWO Act is to facilitate co-ordinated and environmentally responsible infrastructure planning and development in Queensland. The SGIC SDA Development Scheme, which relates to the FGP SGIC SDA alignment, is created under Section 79 of the SDPWO Act.

The following provides an assessment of the FGP SGIC SDA alignment against the SGIC SDA Development Scheme.

5.2 SGIC SDA Development Scheme

In 2005 the OCG identified the need for a multi-user infrastructure corridor for the installation of below ground pipes between the Rockhampton area. The SGIC SDA was declared in 2008 and links the Stanwell Energy Park and the GSDA. The SGIC SDA Development Scheme is the relevant categorising instrument, with the OCG as the assessment manager. The current SGIC SDA Development Scheme is dated September 2012.

The regulated development associated with the FGP SCIG SDA alignment is a MCU (Section 2(1) of the SGIC SDA Development Scheme), where no person shall carry out a MCU within the approval of the OCG (Section 8(1) of the SGIC SDA Development Scheme).

In accordance with Section 8(4) of the SGIC SDA Development Scheme, the OCG shall have regard to the purpose, intent and objectives of the development scheme in assessing an application for a MCU, as outlined in Table 5.1. The following sub-sections provide an assessment of the proposed FGP SGIC SDA alignment against the relevant framework of the SGIC SDA Development Scheme.

Table 5.1 GSDA Assessable Development Assessment Framework

Development Assessment Framework	Relevant Section of Report
Purpose of the SGIC SDA	Refer to Section 5.2.1
Intent of the SGIC SDA Development Scheme	Refer to Section 5.2.2
Objectives of the SGIC SDA	Refer to Section 5.2.3
Policy 1 – Outcomes for the SGIC SDA	Refer to Section 5.2.4

5.2.1 Purpose of the SGIC SDA

Section 6(1) of the SGIC SDA Development Scheme identifies:

The purpose of the SGIC SDA is to provide an efficient and effective route for materials transportation and services infrastructure, between Rockhampton and Gladstone areas.

The FGP SGIC SDA alignment meets the purpose of the SDA as the Project is for the transportation of water between Rockhampton and Gladstone. Schedule 1 of the SGIC SDA Development Scheme identifies that material transportation and services infrastructure is highly likely to meet the purpose of the SGIC SDA if it meets the outcomes contained in Policy 1 of the SGIC SDA Development Scheme. An assessment of the FGP SGIC SDA alignment against Policy 1 – Outcomes for the SGIC SDA is presented in Section 5.2.4.

5.2.2 Intent of the SGIC SDA

An assessment of the FGP SGIC SDA alignment against the development intent of the SGIC SDA is provided in Table 5.2.

Table 5.2 Assessment Against the Intents for the SGIC SDA

Development Intent	Proposal Response
1. Establish a set of objectives for the orderly development of the Stanwell – Gladstone Infrastructure Corridor State Development Area.	<p>Complies</p> <p>Compliance with the SGIC SDA Development Scheme objectives has formed the foundational basis for the strategic approach of the proposed works in the SGIC SDA.</p>
2. Provide guidance and a framework for the orderly development of the Stanwell – Gladstone Infrastructure Corridor State Development Area.	<p>Complies</p> <p>The SGIC SDA Development Scheme provides guidance and an orderly framework for development.</p> <p>The placement, design and construction of the FGP SGIC SDA alignment has been strategically planned to consider environmental factors and identified sensitive values and receptors. Installation has been customised to specific areas to mitigate disruption an impact to specific areas. During planning, the FGP SGIC SDA has identified and engaged with known future developments to implement measures to reduce the anticipated impact between the developments.</p> <p>The standard ROW construction allows for orderly and efficient installation works within the SGIC SDA for the majority of the construction, with the ability to modify construction techniques such as underground boring etc, where necessary.</p>
3. Protect the interests of users within the Stanwell – Gladstone Infrastructure Corridor State Development Area to ensure the corridor's long term viability.	<p>Complies</p> <p>The FGP SGIC SDA alignment is consistent with the background objectives within the SGIC SDA Development Scheme. The alignment location has been determined based on consultation with the OCG to minimise impacts to future infrastructure uses within the SGIC SDA and to maintain the SGIC viability.</p>
4. Identify land uses considered appropriate for the Stanwell – Gladstone Infrastructure Corridor State Development Area	<p>Complies</p> <p>The SGIC SDA Development Scheme identifies land uses that are considered suitable. The FGP SGIC SDA alignment is an underground pipeline and is therefore suitable as per the Development Scheme. Refer to Sections 5.2.3 and 5.2.4 for further information.</p>
5. Establish a procedure for determination by the Coordinator-General of the suitability of uses in the Stanwell-Gladstone Infrastructure Corridor State Development Area	<p>Complies</p> <p>Consultation has been undertaken with the OCG and is continuing. Consultation to date has determined this project may proceed to applying for MCU having complied the objectives for works within the SGIC SDA (this report).</p>
6. Recognise the Coordinator-General has primary carriage of the development, operation and management of the Stanwell – Gladstone Infrastructure Corridor State Development Area	<p>Complies</p> <p>Consultation has been undertaken with the OCG and will continue throughout the design and construction of the development.</p>
7. Assist in achieving ecological sustainability of activities within the Stanwell – Gladstone Infrastructure Corridor State Development Area	<p>Complies</p> <p>The design of the FGP SGIC SDA alignment has minimised environmental impacts where practical.</p> <p>The construction methods, particularly at waterway crossings, will vary depending on the environmental values of the area. For example, at major waterway crossings, trenchless techniques will be used so that these environmentally sensitive areas will be subject to less disturbances relative to the standard ROW installation sections.</p> <p>A sustainability assessment has been undertaken in accordance with the Infrastructure Sustainability Council (ISC) requirement, which considers ecological values.</p> <p>Construction will also be undertaken in accordance with a CEMP (refer Appendix F).</p>

5.2.3 Overall Objectives for Development in the SGIC SDA

An assessment of the FGP SGIC SDA alignment against the objectives of the SGIC SDA is provided in Table 5.3.

Table 5.3 Assessment Against the Overall Objectives of the SGIC SDA

Overall Objectives	Proposal Response
<p>1. Provide land for underground infrastructure purposes to facilitate economic development in the Rockhampton and Gladstone area</p>	<p>Complies</p> <p>The city of Gladstone is currently being serviced by a single raw water source. Gladstone was officially drought declared on 1 May 2019 and has had three consecutive failed wet seasons in 2018-19, 2019-20 and 2020-21.</p> <p>The Installation of the FGP within the SGIC SDA meets the objects of the designated land by using the corridor to install an underground water pipeline from the Fitzroy River to Gladstone to provide an alternate water source.</p> <p>Water security facilitates the expansion capability for existing industry, the ability to develop new and emerging industry in the area and to expand with associated population growth and development as required.</p>
<p>2. Provide a dedicated and efficient means of access for materials, products, wastes and services between Rockhampton and Gladstone</p>	<p>Complies</p> <p>A large portion of the FGP is proposed to be constructed underground within the SGIC SDA to provide water for the Gladstone region. The FGP was a preferred approach after detailed considerations by DRDMW.</p> <p>GAWB is committed to providing greater certainty of water reliability to support business investment in the emerging hydrogen industry.</p>
<p>3. Provide planned development that recognises environmental values and community values</p>	<p>Complies</p> <p>Although impacts to environmental and community values are unavoidable, the design phase has aimed to minimise impacts by reducing the project footprint (i.e. ROW) in sensitive areas, utilising a range of construction methods including trenchless methods and implementing a CEMP and specific management plans as required. A draft CEMP is provided in Appendix F.</p> <p>Potential impacts and management plans associated with the underground water pipeline are discussed in Sections 3.4, 3.5 and 7.</p> <p>Cultural heritage impacts and management plans associated with the underground water pipeline has also been addressed and discussed in Sections 3.6 and 7.</p> <p>Operational impacts are anticipated to be minor however environmental, cultural heritage and community values will be managed in accordance with an OEMP.</p>
<p>4. Establish a development framework that provides for long-term orderly development of the provision of infrastructure in the Rockhampton and Gladstone area</p>	<p>Complies</p> <p>The FGP SGIC SDA Development Scheme and CQ Regional Plan provides established development frameworks that promotes long-term orderly development of infrastructure within the regions.</p> <p>The FGP is considered infrastructure itself and is consistent with the overall outcomes sought by the SGIC SDA Development Scheme through the provision of a secure water supply.</p>
<p>5. Ensure that the integrity and functionality of the Stanwell– Gladstone Infrastructure Corridor State Development Area is maintained and protected from land uses and activities that may be incompatible with, or adversely affect, the continued use of the State Development Area</p>	<p>Complies</p> <p>It is considered that the FGP will maintain functionality of the SGIC SDA as the infrastructure supports industrial development and is compatible with the intended purpose of the corridor. As such, the FGP does not introduce incompatible uses or adversely impact the SGIC SDA.</p>

5.2.4 Assessment Against SGIC SDA Policy 1– Outcomes

An assessment of the Project against the Outcomes defined in Policy 1 of the SGIC SDA Development Scheme is provided in Table 5.4.

Table 5.4 Assessment Against SGIC SDA Policy 1-- Outcomes

Outcome	Probable Solution	Proposal Response
<p>The habitat and wildlife corridor functions of riparian vegetation are retained.</p>	<ul style="list-style-type: none"> – Infrastructure is located underground when crossing creeks and wetlands. – The pipeline is constructed using directional drilling, thrust boring or similar techniques when crossing watercourses with habitat value or intact riparian vegetation. 	<p>Complies</p> <p>The design and placement of the underground water pipeline has considered existing habitat and wildlife corridors and identified areas containing riparian vegetation. Wherever possible, the pipeline footprint will avoid sensitive environments and ecological communities by trenchless construction methods. The key locations identified for trenchless methods include:</p> <ul style="list-style-type: none"> – Gavial Creek. – Bob's Creek. – Inkerman Creek. – Twelve Mile Creek. – Marble Creek. – Horrigan Creek. – Raglan Creek. <p>Further, there is potential for the ROW footprint to be reduced in key environmental areas where trenchless methods are not feasible.</p> <p>Rehabilitation with localised vegetation will be used in the post construction clean-up which includes reinstatement of native habitat where practical.</p>
<p>Potential and known yellow chat habitats are retained.</p>	<p>Natural Hydrology</p> <ul style="list-style-type: none"> – The pipeline is constructed using directional drilling, thrust boring or similar techniques. – No fill is used to construct accessways to service the underground pipelines located in the 100 year average recurrence interval (ARI) and tidal areas. – In areas with acid sulfate soils, acidic drainage does not occur. <p>Construction</p> <ul style="list-style-type: none"> – Construction adjacent to yellow chat breeding areas occurs between May and September. – Pipeline construction does not adversely impact on surface and subsurface waterflows or impact on habitat through modification of water quality. 	<p>Complies</p> <p>Natural hydrology:</p> <ul style="list-style-type: none"> – The use of trenchless methods, i.e. directional drilling or thrust boring, is being prioritised for key waterways (refer above) and other waterbodies where practical. – No permanent access tracks are proposed for the FGP SGIC SDA alignment, therefore no fill is to be used for access in the 100 year ARI. A permanent access to Raglan Pump Station and Reservoir is required. This access is outside the 100 year ARI. – The Construction Contractor will be responsible for undertaking ASS investigation where land is below 5 m AHD, or land is below 20 m AHD and requires excavation to depths of below 5 m AHD. If ASS are identified, the Construction Contractor will develop and implement a site specific ASS Management Plan(s). <p>Construction:</p> <ul style="list-style-type: none"> – The FGP SGIC SDA alignment will be constructed in accordance with a CEMP which includes surface and groundwater quality mitigation measures and monitoring. A draft CEMP is provided in Appendix F. – Construction in or adjacent to identified Yellow chat habitat areas will occur between May and September. – The EPBC Approval requires the OCG to approve all management plans, this includes a Special Area Plan for areas where Yellow chat habitat occurs, or where works are adjacent to

Outcome	Probable Solution	Proposal Response
		<p>habitats. The Plan will include aspects such as timing, surveys and water / hydrology impacts and mitigation.</p> <ul style="list-style-type: none"> – Conditions within the EPBC Approval, condition 2, and Coordinator-General evaluation report, condition 10, related to provision of funding for research. GAWB has been able to complete this condition and outcomes of the research have been published.
<p>The ecological values of wetlands are retained.</p>	<ul style="list-style-type: none"> – Avoid construction in wetlands wherever feasible and practical. – If it is not feasible or practical to avoid construction in wetlands, construction shall occur between May and September. – The freshwater pools are not drained due to pipeline construction. – Disturbed areas are rehabilitated and revegetated so they retain their ecological value. 	<p>Complies</p> <p>The Project has been designed to minimise impacts to wetlands by avoiding wetland habitats where possible. This has largely been achieved through the utilisation of previously disturbed areas; however, it is not possible to avoid all areas that support wetland environmental values.</p> <p>In areas where wetlands cannot be avoided the trench method will be used and will be confirmed by the Construction Contractor. The draft CEMP (refer to Appendix F) will be implemented and natural profiles will be reinstated following construction. This will include relevant controls such as works in wetland areas to occur between May and September and no draining of freshwater pools.</p> <p>The findings of the Ecology Assessment Report (GHD, 2022; Appendix D) will be utilised in planning for rehabilitation.</p>
<p>Infrastructure is able to operate during and immediately after a natural hazard event.</p>	<ul style="list-style-type: none"> – No above ground assets are located within the 100 year ARI flood area. – Pipelines are located underground within the 100 year ARI area. 	<p>Complies</p> <p>The development will be in accordance with best practice in consideration of natural hazards. Additionally, given the pipeline will be buried, it is considered that it will not increase the severity of a natural hazards in the area.</p> <p>Above ground infrastructure along the pipeline includes valves, refer to Section 4.1.1. The location of these valves will be determined during detailed design; however, these valves will continue to operate in flood conditions. Other above ground infrastructure, namely the Raglan Pump Station and Reservoir access, is outside the 100 year ARI flood area.</p>
<p>The existing flood risk in tidal areas and within the flood area is unaffected by the corridor.</p>	<ul style="list-style-type: none"> – No fill is placed in the floodway for permanent access to service the underground pipelines located in the 100 year ARI and tidal areas. – Temporary access during construction does not alter overland flows. 	<p>Complies</p> <p>The development will be in accordance with best practice in consideration of natural hazards. Additionally, given the pipeline will be buried, it is considered that it will not increase the severity of flood risk in tidal areas is not proposed.</p> <p>The FGP SGIC SDA alignment does not include provision for any permanent accesses in floodplains or tidal areas. No permanent access or fill, including the Raglan Pump Station and Reservoir access, is required in 100 year ARI or tidal areas.</p> <p>Temporary access during construction will be undertaken in accordance with regulatory requirements and the draft CEMP (refer to Appendix F). There is potential for temporary overland flow impacts during construction due to temporary access. Where appropriate consideration of overland flow will be undertaken by the Construction Contractor.</p>

Outcome	Probable Solution	Proposal Response
Infrastructure is not visually intrusive and does not create a physical barrier which unreasonably restricts the existing use of the land.	<ul style="list-style-type: none"> Infrastructure is located underground, with the exception of limited locations where it is either impractical or operationally necessary for the proper functioning of the infrastructure (for example pump station and balance tank locations). 	<p>Complies</p> <p>The pipeline will be buried for its entire length and as such, it will not be visually intrusive, nor would it create a physical barrier which would unreasonably restrict the existing use of land. Any access to the pipeline easement will be in accordance with the easement agreement.</p> <p>Minor above ground infrastructure, such as valves and the Raglan Pump Station and Reservoir access are required. The aboveground infrastructure is not expected to create a physical barrier or to be visually intrusive. Details are provided in the design, refer to Appendix E.</p>
Animal husbandry/grazing are able to use the land.	<ul style="list-style-type: none"> Infrastructure is located underground, with the exception of limited locations where it is either impractical or operationally necessary for the proper functioning of the infrastructure (for example pump station and balance tank locations). 	<p>Complies</p> <p>The pipeline will be buried and the ROW rehabilitated to pre-disturbance levels, where possible. As such, ongoing use for animal husbandry or grazing can occur.</p>

5.3 State Planning Policy

The State Planning Policy (SPP) sets out the State’s interests in land-use planning and development across Queensland. The SPP was updated and introduced in 2017 to coincide with the release of the *Planning Act 2016*. The SPP details the matters of State interest in land use planning which enables development, protects our natural environment, and allows communities to grow and prosper.

The State interests relevant to the FGP SGIC SDA alignment are detailed in Table 5.5.

Table 5.5 State Interests Relevant to the FGP SGIC SDA Alignment

State Interest	Triggers	Reference Section
Liveable Communities and Housing		
Liveable Communities	Not Applicable.	-
Housing Supply and Diversity	Not Applicable.	-
Economic Growth		
Agriculture	Agricultural land classification— class A and B.	Section 3.5.1.3
Development and Construction	The FGP SGIC SDA alignment is to be constructed within the SDA creating jobs and providing water to communities and industry.	Section 3.1.
Mining and Extractive Resources	<p>Infrastructure permits:</p> <ul style="list-style-type: none"> Jemena Queensland Gas Pipeline Pty Ltd. Arrow Bowen Pipeline Pty Ltd for coal seam gas, runs parallel to the FGP for the majority of the SGIC SDA. <p>Exploration permit:</p> <ul style="list-style-type: none"> Raglan Resources Pty Ltd for minerals, reference EPM 2647. 	Section 3.2.3
Tourism	Not Applicable.	-
Environment and Heritage		
Biodiversity	<ul style="list-style-type: none"> MSES – Wildlife habitat (endangered or vulnerable). MSES – Wildlife habitat (special least concern animal). MSES— Regulated vegetation (Category B). MSES— Regulated vegetation (essential habitat). MSES— Regulated vegetation (intersecting a watercourse). MSES— High ecological significance wetlands. 	Sections 3.5.3 and 3.5.4.

State Interest	Triggers	Reference Section
Coastal Environment	<ul style="list-style-type: none"> – Tidal waterways. – CMD. 	Section 3.5.2.4
Cultural Heritage	<ul style="list-style-type: none"> – Aboriginal cultural heritage may be impacted. Approved CHMPs have been entered into for the Project. – Non-Indigenous heritage values will not be impacted. 	Section 3.6
Water Quality	Water is proposed to be used for construction only. Water quality to be managed in accordance with a CEMP.	Section 3.5.2
Safety and Resilience to Hazards		
Emissions and Hazardous Activities	Not applicable.	-
Natural Hazards Risk and Resilience	<ul style="list-style-type: none"> – Coastal hazards. – Bushfire prone area. – Flood hazard. 	Section 3.5.2.4 Section 3.7.1 Section 3.7.2
Infrastructure		
Energy and Water Supply	Major electricity infrastructure (Ergon and Powerlink).	Section 3.3.1.
Infrastructure Integration	Not Applicable.	-
State Transport Infrastructure	<ul style="list-style-type: none"> – State-controlled road. – Future State-controlled road. – Railway corridor. – Future railway corridor. – Active transport corridor. 	Section 3.2.1.
Strategic Airports and Aviation Facilities	<ul style="list-style-type: none"> – ANEF 20— 25 contour. – ANEF 25— 30 contour. – Obstacle limitation surface area. – Obstacle limitation surface contours. – Light restriction zone (Zones C & D). – Lighting area buffer 6km. – Wildlife hazard buffer zone (3 km, 8 km, & 13 km). 	-
Strategic Ports	Not Applicable.	-
Priority Ports	Not Applicable.	-

The proposed development has considered these matters in the likely impacts of the development and proposed mitigations measures, refer to Section 7.

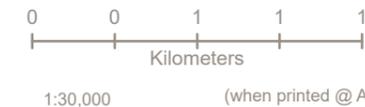
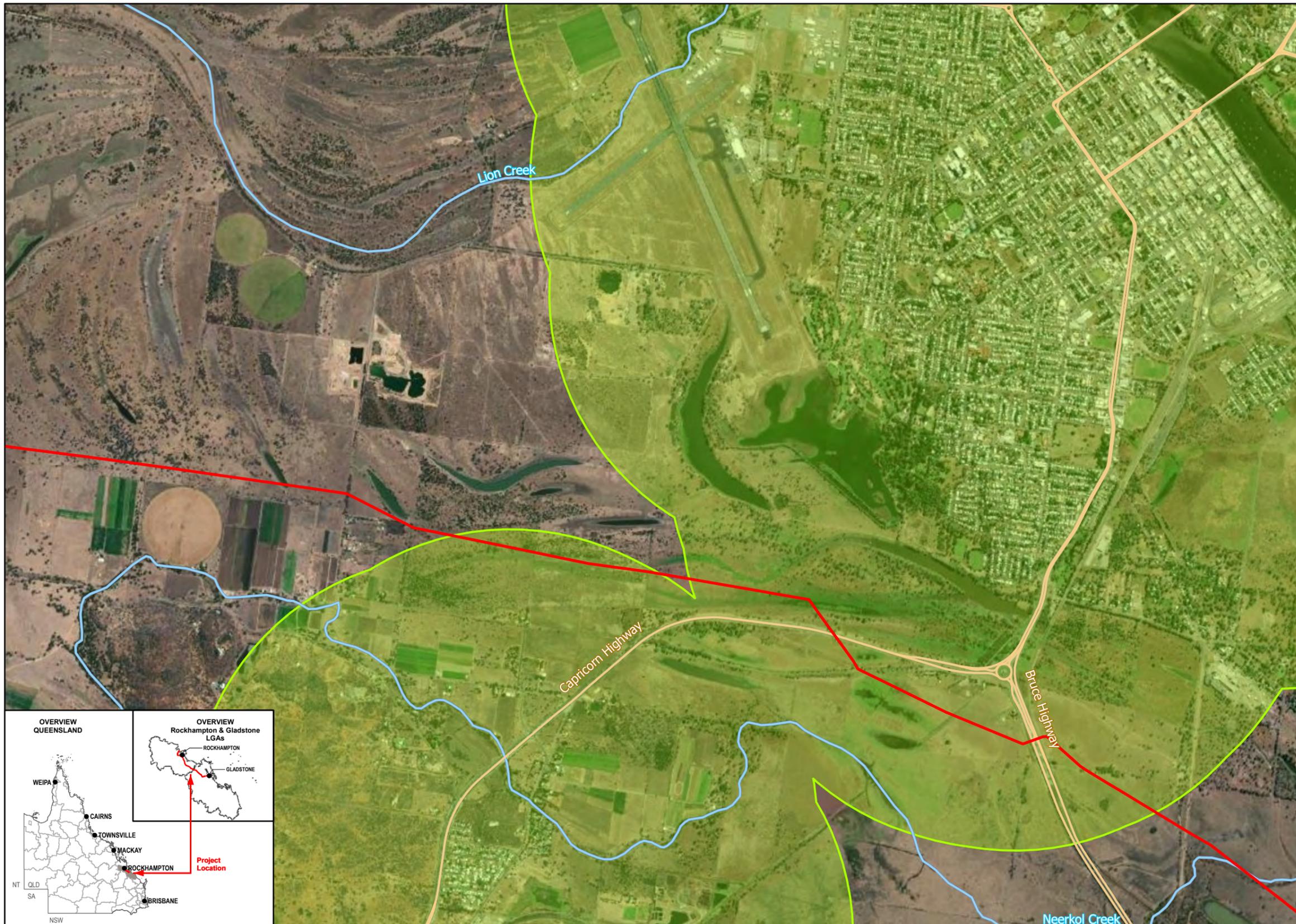
5.4 Central Queensland Regional Plan

The FGP SGIC SDA alignment is within the boundaries of the Central Queensland Regional Plan (CQ Regional Plan). The CQ Regional Plan came into effect on 18 October 2013 and provides Central Queensland with a regional planning framework to “*address emerging regional issues of land use competition between the agricultural and resource sectors, and the need to protect areas required for the growth of towns.*” The CQ Regional Plan enables Banana Shire Council, Central Highlands Regional Council, GRC, RRC and Woorabinda Aboriginal Shire Council to work together to drive a leading economy in regional Australia. It also highlights opportunities for prosperity and liveability. The CQ Regional Plan key drivers focus on:

- Enable opportunities for economic growth to ensure our regions are resilient and prosperous.
- Protect areas of regionally significant agricultural production from incompatible resource activities while maximising opportunities for co-existence of resource and agricultural land uses.
- Safeguard the areas required for the growth of towns.
- Drive the region’s economic diversity and opportunity.
- Identify infrastructure outcomes that will support economic growth.

- Facilitate tourism pursuits across the region.
- Avoid the introduction of additional, unnecessary regulation.
- Recognise and respect the role of local government to plan for their local area.

A section of the northern FGP SGIC SDA alignment is located inside the priority living area of Rockhampton, and a section of the southern FGP SGIC SDA alignment is located inside the priority living area of Mount Larcom (refer to Figure 5-1a to Figure 5-1h). The intent of the priority living area is to identify areas for urban expansion for towns likely to experience growth. The Pipeline is consistent with the intent of priority living areas located in the Rockhampton Region and Mount Larcom as it aligns with the overall outcomes sought by the CQ Regional Plan through the provision of a secure water supply.

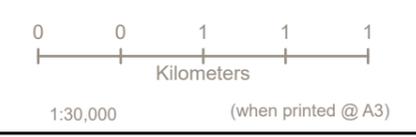
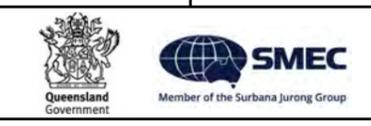
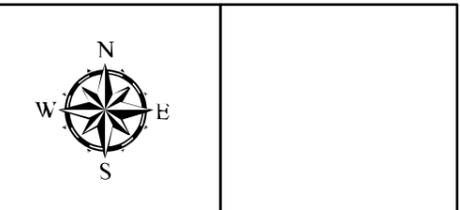
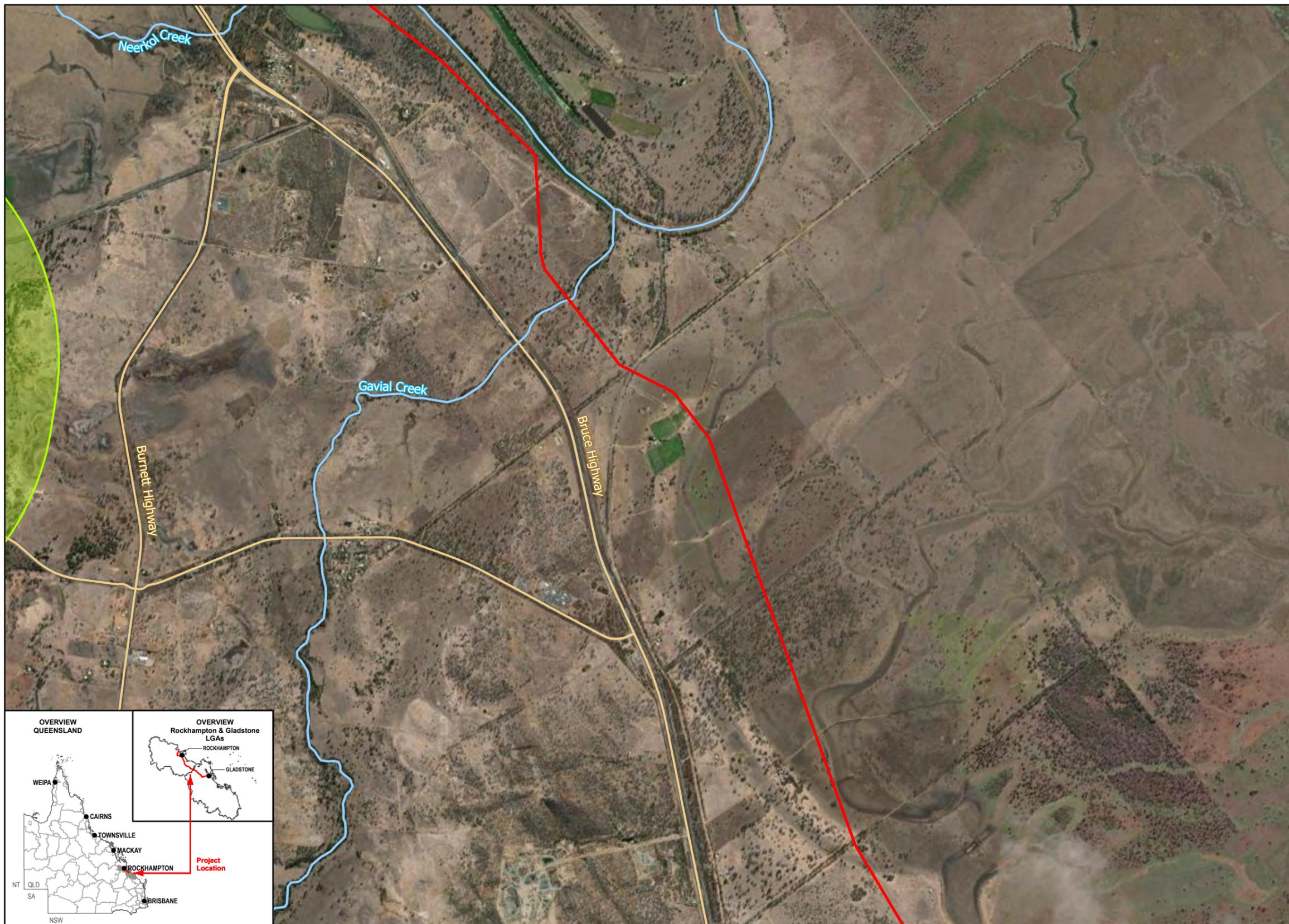


LEGEND

- FGP Alignment
- Main Roads
- Waterway
- Priority Living Area

Data Sources:
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 2. Cadastral data - Queensland series @ QSpatial, 2022
 3. State Development Area precincts - Gladstone SDA @ QSpatial, 2022
 4. Imagery @ Esri, Maxar, GeoEye, Earthstar Geographics, CNES-Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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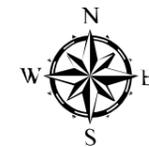
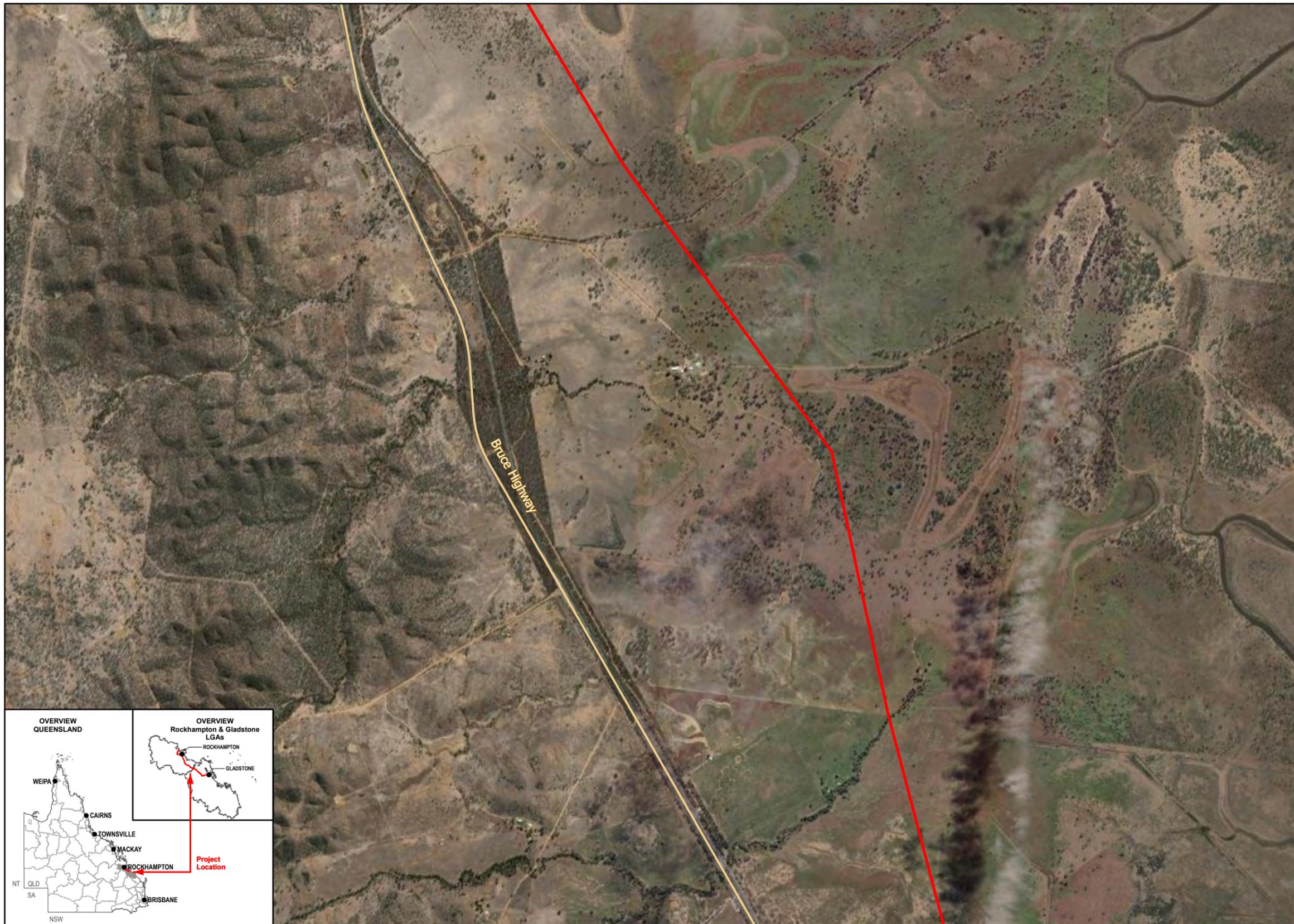


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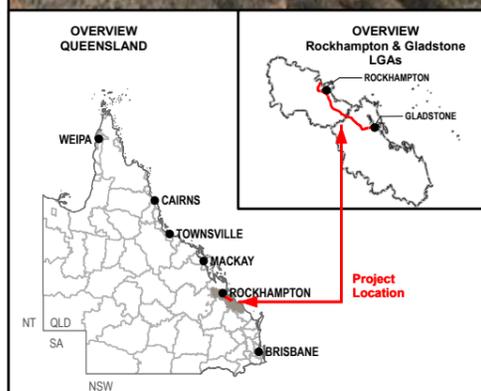
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LEGEND

- FGP Alignment
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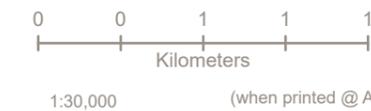
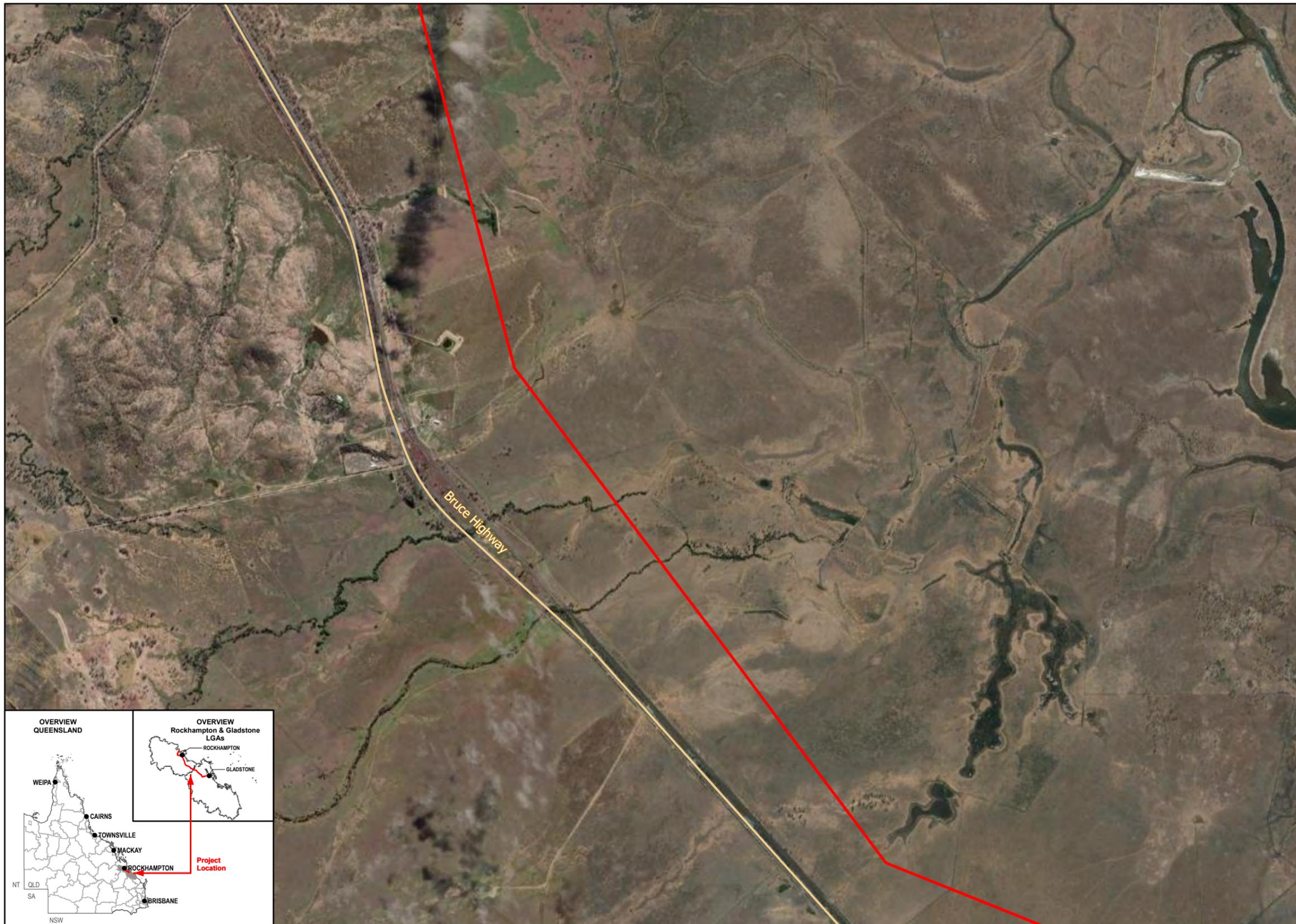
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PROJECTION UTM Zone 56
(Datum GDA2020)

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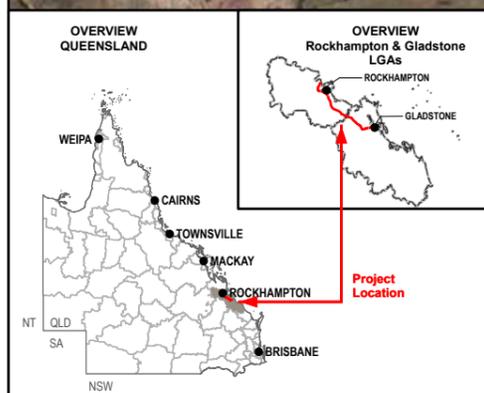


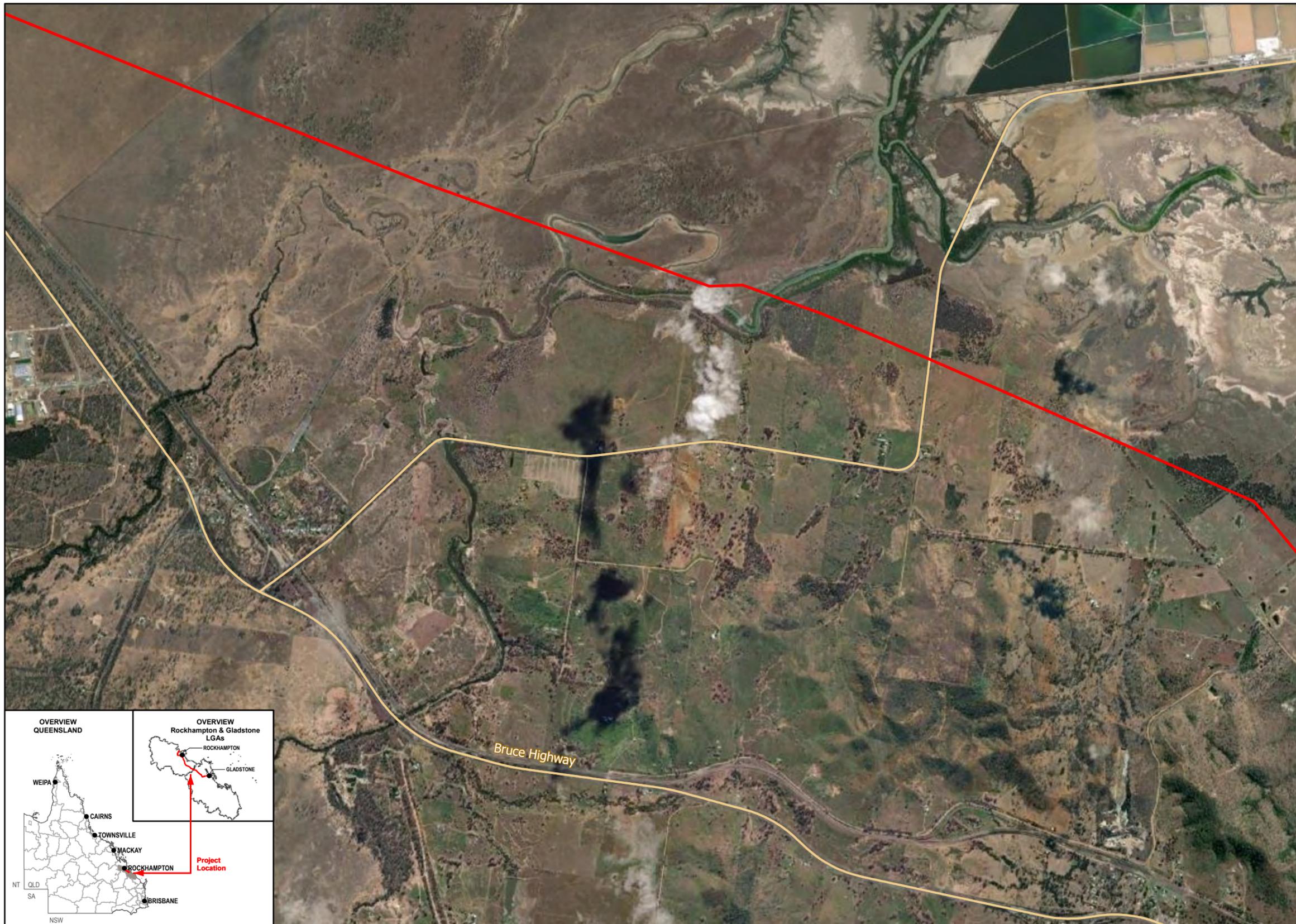
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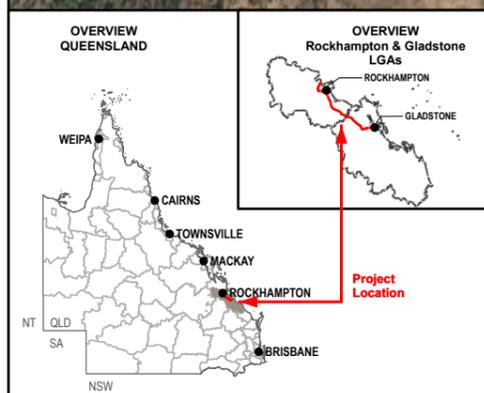
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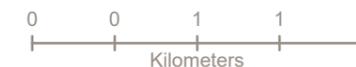
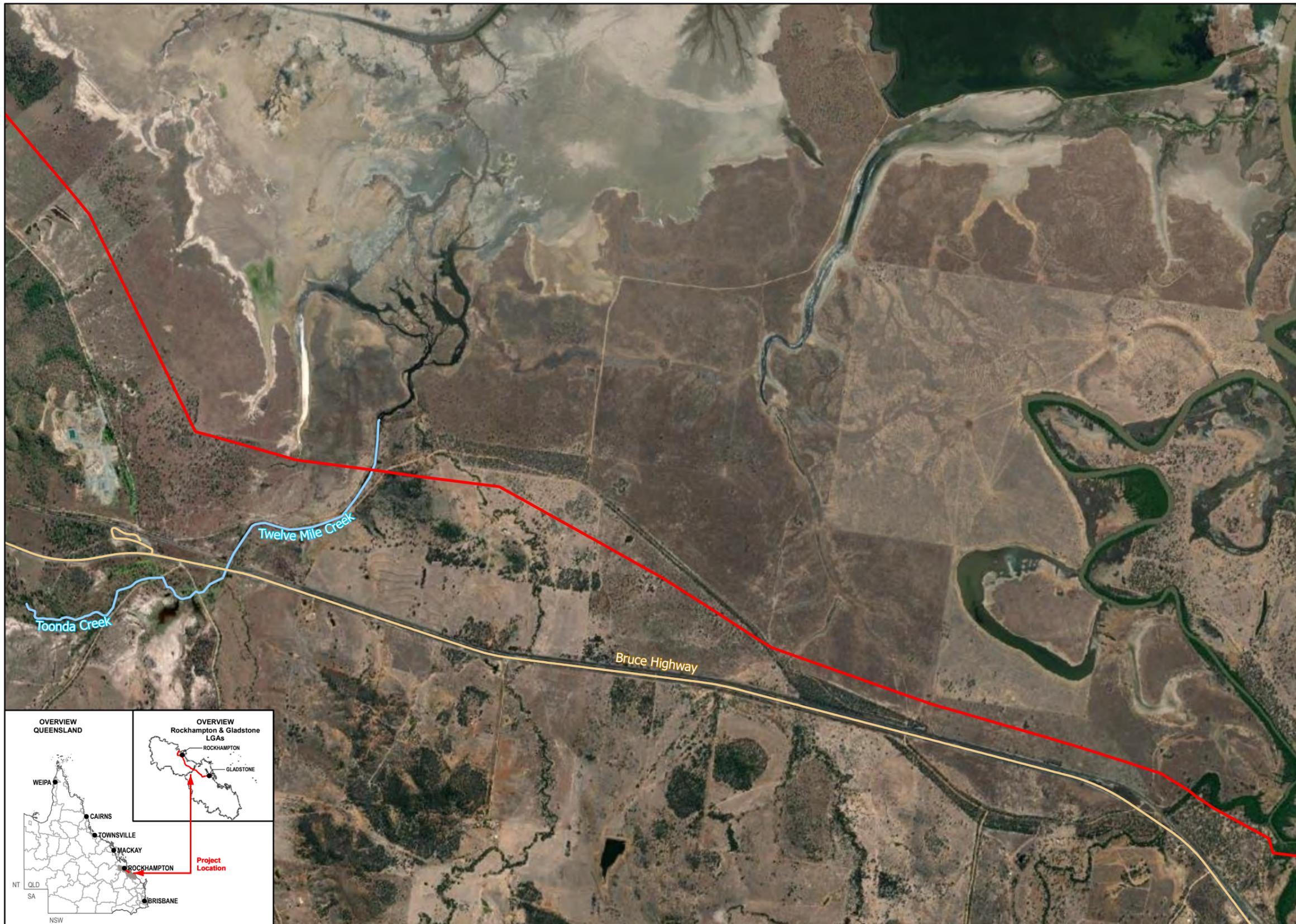
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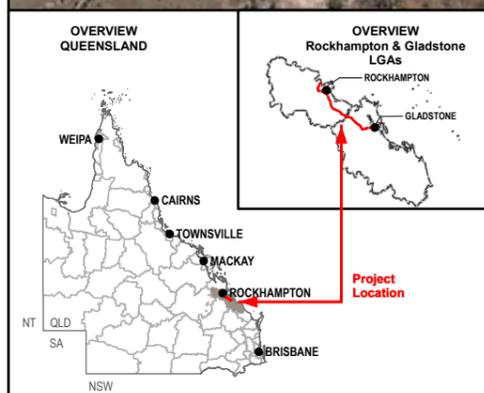
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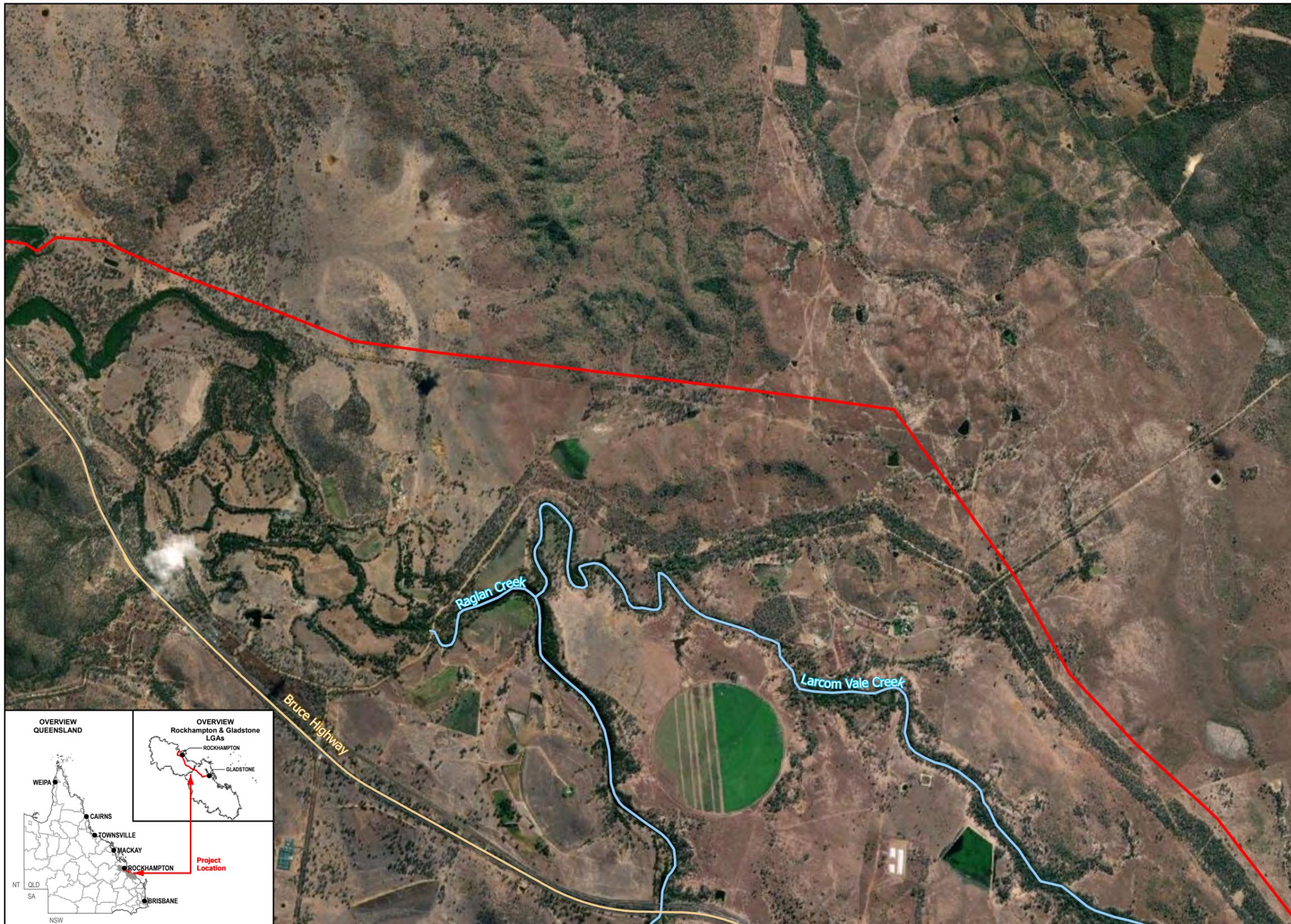
LEGEND

- FGP Alignment
- Main Roads
- Waterway

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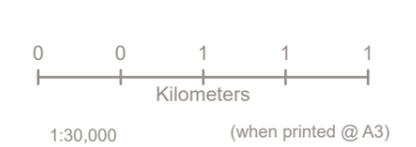
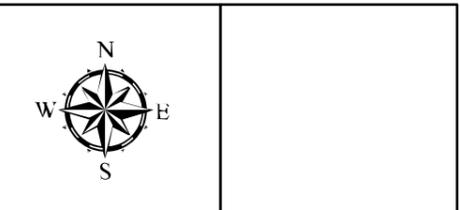
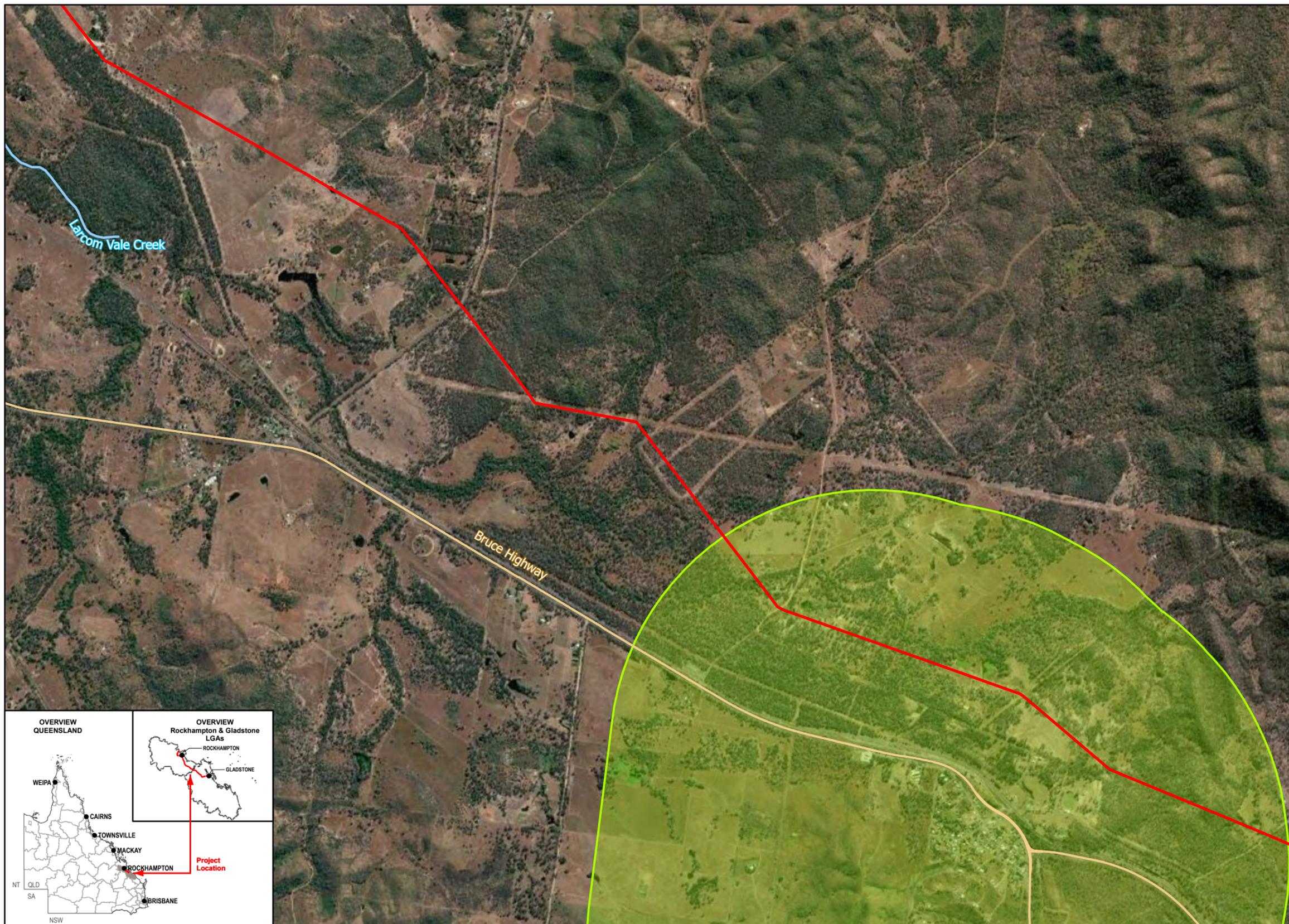
OVERVIEW QUEENSLAND

OVERVIEW Rockhampton & Gladstone LGAs

Data Sources:

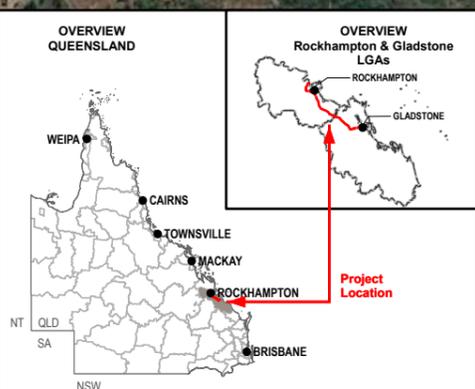
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LEGEND

- FGP Alignment
- Main Roads
- Waterway
- Priority Living Area



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6. Statutory Considerations

The following section presents the statutory requirements relevant to the FGP SGIC SDA alignment that are additional to those outlined in Section 5. A register of key requirements is provided in Section 6.4.

6.1 Existing Approvals / Agreements

6.1.1 EPBC Act and SDPWO Act

In 2007, the Coordinator-General declared the Project a 'significant project', requiring an EIS under Section 26(1) of the SDPWO Act. An EIS was prepared for the Project under the Queensland and Commonwealth bilateral agreement (EPBC Act Referral Reference EPBC 2007/3501, 1st July 2007).

Following the EIS process, the Project obtained the following:

- Commonwealth government EIS approval under EPBC Act (reference: EPBC 2007/3501, approved 4 November 2011) for the proposed construction and operation of a 110 km pipeline and associated infrastructure to transport up to 30 GL of water per annum from an intake point at Laurel Bank on the Fitzroy River to Gladstone, near Aldoga, Queensland.
- Coordinator-General evaluation report on the Project's EIS dated 2 February 2010 which established the framework for the State approvals required for the Project (noting the report lapsed in February 2018).

6.1.2 Aboriginal Cultural Heritage Act 2003

GAWB has entered into two approved CHMPs for the Project. GAWB is in the process of actioning Cultural Heritage requirements for the Project.

6.2 Planning Act 2016 and Associated Operational Works

Under the *Planning Act 2016* and subordinate Planning Regulation, the FGP SGIC SDA alignment is identified as assessable development for a number of activities. To assist with determining assessable development pre-lodgement advice was sought through the State Assessment and Referral Agency (SARA). A copy of this advice is provided in Appendix G.

GHD on behalf of GAWB is in the process of preparing a development application for the assessable operational works. The development application includes an operational works planning report and assessment against the relevant State Development Assessment Provisions (SDAP) State Codes.

The following presents a summary of the assessable operational works development for the FGP SGIC SDA alignment that will form part of development applications. By the time the SDA application (MCU) is lodged, it is anticipated that the operational works development applications outlined below will be lodged and approved.

6.2.1 Marine Plants

The ecological assessment undertaken in May 2022 confirmed the presence of marine plants where the FGP SGIC SDA alignment intersects waterways below the HAT. Under Schedule 10 of the Planning Regulation, for works requiring the removal or damage of marine plants an operational works development application is required. The development application will comprise:

- Assessing against SDAP State Code 11: Removal, destruction or damage of marine plants.
- Mapping confirming the marine plant disturbance footprints.
- Assessing potential significant residual impacts in accordance with the *Environmental Offsets Act 2014*.

6.2.2 Clearing Native Vegetation

Clearing native vegetation within the FGP SGIC SDA alignment will occur within the SGIC SDA, as confirmed by the ecological assessment undertaken in May 2022. Under Schedule 10 of the Planning Regulation, the clearing of native vegetation is considered assessable development and triggers the need for a development permit for operational works that is clearing native vegetation. The areas of regulated vegetation to be cleared, which are assessable include:

- Category X non-remnant.
- Category B remnant.
- Category C high-value regrowth vegetation.
- Category R reef-regrowth watercourse vegetation.

The remnant and regrowth vegetation communities are primarily consisting of least concern and of concern REs with isolated endangered REs impacted. The VM Act also regulates essential habitat for protected flora and fauna species. Approximately 50% of the Category B vegetation impacted is also mapped as essential habitat.

The development application will be supported by:

- Relevant purpose determined (s22A of the VM Act).
- Assessment against SDAP State Code 16: Native vegetation clearing.
- Mapping confirming the regulated vegetation disturbance footprints.
- Assessment of potential significant residual impacts in accordance with the *Environmental Offsets Act 2014*.

6.2.3 Tidal Works

The FGP SGIC alignment will involve works in tidal zones. The FGP SGIC SDA alignment on the following properties has been identified below the indicative MHWS:

- Scrubby Creek (GAWB ID 89).
- Gavial Creek (GAWB ID 101).
- Lot 3 on RP6017985 (GAWB ID 140).
- Lot 1 on AP2418 (GAWB ID 141).
- Inkerman Creek (GAWB ID 142).
- Road reserve (GAWB ID 159).
- Lot 85 on DS185 (GAWB ID 160).
- Horrigan Creek (GAWB ID 176).
- Lot 167 on CP859402 (GAWB ID 177).
- Raglan Creek (GAWB ID 178).
- Lot 1 on PER4653 (GAWB ID 179).

The indicative MHWS will be confirmed following bathymetric survey and further interpretation of tidal planes.

Based upon advice received from SARA, where tidal waters are not trenchless (i.e. the pipeline is constructed under tidal areas), a development permit for operational works that is tidal works is required to be prepared for the identified properties.

The development application will be supported by:

- Landowner consents.
- Confirmation of development below MHWS (where not trenchless).
- Assessment against SDAP State Code 8: Coastal development and tidal works.
- Registered Professional Engineer of Queensland (RPEQ) design drawings.
- Assessment of potential significant residual impacts in accordance with the *Environmental Offsets Act 2014*.

6.2.4 Work in a CMD

The FGP SGIC SDA alignment is located within a CMD as defined under the *Coastal Management and Protection Act 1995*. Any work on land that is State land, within the CMD and above MHWS will require a development application for operational works. Based upon indicative MHWS, the following properties have been identified to be State land with works occurring above MHWS and are assessable:

- Inkerman Creek (GAWB ID 142).
- Toonda Port Alma Road (GAWB ID 151).
- Horrigan Creek (GAWB ID 176).
- Lot 167 on CP859402 (GAWB ID 177).
- Raglan Creek (GAWB ID 178).
- Lot 1 on PER4653 (ID 179).

The indicative MHWS will be confirmed following bathymetric survey and further interpretation of tidal planes.

The development application will be supported by:

- Confirmation of development below MHWS.
- Assessment against SDAP State Code 8: Coastal development and tidal works.
- Assessment of potential significant residual impacts in accordance with the *Environmental Offsets Act 2014*.

The operational works development application has been lodged with SARA.

6.2.5 Infrastructure Related Referrals

The proposed FGP SGIC SDA alignment intersects:

- Two State-controlled roads, namely Capricorn Highway (Rockhampton – Duaringa) and the Bruce Highway (Benaraby – Rockhampton).
- One State-controlled railway, namely the North Coastal Rail Line.
- One future State-controlled transport corridor (road and rail), namely the Rockhampton Ring Road.

This triggers an infrastructure related referral for works within a State -controlled transport corridor (i.e. if all or part of the premises are within 25 m of a State transport corridor). The FGP SGIC SDA alignment design is being advanced to minimise direct impact to roads where possible, by using trenchless installation methods. This will avoid permanent impacts to the structure of the roads and temporary impacts with road users. The operational works development application will be supported by the relevant SDAP State Codes:

- State code 1: Development in a state-controlled road environment.
- State code 2: Development in a railway Environment.
- State code 6: Protection of state transport networks.

6.3 Other Approvals, Permits or Considerations

Other State and local approvals, permits or considerations relevant to the FGP SGIC SDA alignment are outlined in Section 6.4.

6.4 Legislative Requirements and Approval Register

Table 6.1 provides a summary of State and local environmental and planning legislation and their applicability to the FGP SGIC SDA alignment.

Table 6.1 Legislative Requirements and Approvals Register

Legislation	Agency	Activity Trigger	Applicability	Licence/Permit/ Approval Required	Pre-lodgement Advice	Process and Supporting Information	Additional Notes for Consideration
<i>Aboriginal Cultural Heritage Act 2003</i>	DSDSATSIP	Require those conducting activities in areas of significance to take all reasonable and practical measures to avoid harming cultural heritage.	Applicable Section 23 of the <i>Aboriginal Cultural Heritage Act 2003</i> states that a person who carries out an activity must take reasonable and practicable measures to ensure the activity does not harm Aboriginal Cultural Heritage.	Approved CHMPs, another agreement or Duty of Care Guidelines. The ongoing nature of determining cultural heritage is acknowledged.	NA	GAWB has entered into two (2) approved CHMPs for the Project.	Some areas within the SGIC SDA alignment have been surveyed for cultural heritage significance. The unsurveyed areas will be surveyed in accordance with the requirements of the approved CHMPs.
Planning Regulation – Operational Works							
<i>Coastal Protection and Management Act 1995</i>	Assessment manager to be confirmed SARA / DES	Works in land under tidal water.	Applicable Tidal waters are traversed by the FGP SGIC SDA alignment.	Operational works for prescribed tidal works	Obtained – refer to Appendix G	Application: – Landowner consents – SDAP assessment – RPEQ – Coastal assessment	Design is required to be finalised to confirm areas where tidal works is assessable.
		Where works are carried out completely or partly within a CMD and includes interfering with quarry material on State coastal land above high-water mark.	Applicable CMD State land above the high-water mark is disturbed.	Operational works for works in a CMD.	Obtained – refer to Appendix G	Application: – SDAP assessment – Coastal assessment	-

Legislation	Agency	Activity Trigger	Applicability	Licence/Permit/ Approval Required	Pre-lodgement Advice	Process and Supporting Information	Additional Notes for Consideration
<i>Environmental Protection Act 1994</i>	SARA / DES	Operational works that are high impact earthworks within a Wetland Protection Area.	Not Applicable The FGP SGIC SDA alignment is not defined as high impact earthworks.	-	Obtained – refer to Appendix G	-	The Construction Contractor is to minimise works within wetlands where practical.
<i>Fisheries Act 1994</i>	SARA / DAF	Permanent works within waterways that are the construction or raising of a waterway barrier.	Not Applicable The FGP is buried below the bed of the waterways and is not considered to be WWBW.	-	Obtained – refer to Appendix G	-	If the detailed design of the FGP SGIC SDA alignment indicates in a barrier forming at a waterway crossings approval need to be sought. This will include where trenched crossings where scour protection to be placed in the bed of the waterway.
		Temporary works within waterways that form waterway barriers.	Applicable Temporary works will be required within mapped waterways (including excavations and access tracks)	Assessment against ADR for WWBW	Obtained – refer to Appendix G	-	The Construction Contractor is responsible for meeting the ADR for WWBW.
		Works where marine plants are removed, destroyed or damaged.	Applicable Marine plants have been identified and will be removed.	Operation works involving the removal, destruction or damage of marine plants	Obtained – refer to Appendix G	Application: – SDAP assessment – Marine plant impact figures	-
<i>Vegetation Management Act 1999</i>	SARA / DoR	Work where native vegetation clearing is required.	Applicable Clearing native vegetation is required.	Operation works for clearing native vegetation	Obtained – refer to Appendix G	Application: – S22A determination – SDAP assessment – Clearing impact figures	-
<i>Transport Infrastructure Act 1994</i>	TMR	Work or properties within 25 m of State-controlled transport corridors.	Applicable Current and future State-controlled transport corridors are traversed.	Forms part of operational works application	-	SDAP assessment	-

Legislation	Agency	Activity Trigger	Applicability	Licence/Permit/ Approval Required	Pre-lodgement Advice	Process and Supporting Information	Additional Notes for Consideration
<i>Environmental Offsets Act 2014</i>	DES / Various	The Environmental Offset Regulation 2014 sets out the MSES. An offset may be required if an action is likely to result in a significant residual impact to a MSES.	Applicable A significant residual impact assessment on MSES is required for the FGP SGIC SDA alignment.	Forms part of operational works application and subsequent development permit	-	Significant residual impact assessment within operational works application	-
Other State Requirements							
<i>Environmental Protection Act 1994</i>	DES	Disposal of contaminated material.	Applicable There is contaminated land within the FGP SGIC SDA alignment.	Application for a disposal permit for contaminated soil.	-	Supporting information includes a Contaminated Land Investigation and agreement for spoil disposal	Applications required will be sought prior to the commencement of works on the particular property if spoil is to be removed from the property.
<i>Land Act 1994</i>	DoR	Owners consent requirements for work on State land for certain activities and certain approvals.	Applicable Required for the SDA application (MCU).	-	Owners Consent	-	Refer to Appendix A.
<i>Native Title Act 1993 (Cth)</i>	DoR Coordinator-General	An act that may affect native title rights and interests.	Applicable See section 3.6.3	Native title assessment	-	-	-
<i>NC Act Nature Conservation (Wildlife) Regulation 2006</i>	DES	Clearing of protected plants as part of the Project.	Applicable Parts of the FGP SGIC SDA Alignment occur within areas mapped as high risk flora trigger area. The ecology survey did not identify any protected plant species.	Exemption Notification.	-	Protected Plant Flora Survey Report	An exemption notification has been lodged (3/08/2022) and DES acknowledged the notification (15/08/2022)
		Tampering with an animal breeding place of a protected animal.	Applicable Vegetation clearing is required potential animal breeding places where identified.	Species Management Program	-	Ecological survey required to determine if animal breeding places will be tampered with.	A Species Management Program will be prepared, and approval obtained.

Legislation	Agency	Activity Trigger	Applicability	Licence/Permit/ Approval Required	Pre-lodgement Advice	Process and Supporting Information	Additional Notes for Consideration
<i>Transport Infrastructure Act 1994</i>	TMR	Work that is located within or interferes with a State-controlled road corridor.	Applicable State-controlled roads are traversed by the FGP SGIC SDA alignment.	Road Corridor Permit	Meetings with TMR held	Supporting information includes detailed design plans and appropriate forms.	-
	Aurizon	Work that is located within or interferes with a State-controlled railway.	Applicable A State-controlled railway is traversed by the FGP SGIC SDA alignment.	Wayleave	-	Supporting information includes detailed design plans and appropriate forms.	GAWB is in the process of obtaining wayleave for the railway crossing.
<i>Water Act 2000</i>	DRDMW	Where works require the destruction of vegetation, excavating or placing fill in a watercourse, lake or spring.	Applicable A number of watercourses or potential watercourses are traversed where clearing or excavation is required.	Riverine Protection Permits Exemption Requirements	-	-	GAWB is an entity for the Riverine Protection Permits Exemption Requirements WSS/2013/726. Contractor is to meet the requirements.
Local Requirements							
<i>GRC Planning Scheme – Our Place Our Plan</i> And <i>RRC Planning Scheme – Rockhampton Region Planning Scheme</i>	GRC and RRC	Undertaking operational works (excavation or filling) within the LGA.	Not Applicable The <i>Planning Regulation 2017</i> states that the Planning Scheme does not apply to operational works for a public sector entity authorised under State Legislation to carry out the work. Therefore, it is considered that a development permit for operational works is not required.	-	Confirmed by GRC during pre-lodgement Confirmed by RRC during pre-lodgement	-	-

Legislation	Agency	Activity Trigger	Applicability	Licence/Permit/ Approval Required	Pre-lodgement Advice	Process and Supporting Information	Additional Notes for Consideration
<i>GRC - Local Laws</i>	GRC	Local laws in relation to carrying out work interfering with roads or within road reserves.	Applicable Local road reserves are traversed and impacted by the FGP SGIC SDA alignment.	Application to carry our works on a council road or interfere with a road or its operation	Confirmed by GRC during pre-lodgement.	<ul style="list-style-type: none"> - Application form - Design - Traffic Management Plans 	GRC have identified that Traffic Management Plans are required to be submitted as part of the application(s), therefore GHD on behalf of GAWB have lodged a preliminary application (5/8/2022) to obtain in-principal support.
<i>GRC - Local Laws</i>	GRC	Local laws in relation to carrying out work interfering with roads or within road reserves.	Applicable An access to Raglan Pump Station and Reservoir from local road reserve is required.	Driveway Crossover Application	Confirmed by GRC during pre-lodgement	Application form Design	-
<i>RRC - Local Laws</i>	RRC	Local laws in relation to carrying out work interfering with roads or within road reserves.	Applicable Local road reserves are traversed and impacted by the FGP SGIC SDA alignment.	Application for Road Reserve Works Permit	Confirmed by RRC during pre-lodgement	Application form Design	An application has been lodged with RRC (5/8/2022)

7. Impacts of Proposal and Management

A significant portion of the FGP SGIC SDA alignment will be located within previously disturbed areas. However, there is potential for impacts on environmental values and existing infrastructure during the construction and operation phases. Table 7.1 outlines the potential impacts that may occur to the following matters during the design, construction and operational phases:

- Land tenure and landowners.
- Land.
- Water resources including surface and groundwater.
- Biodiversity including fauna, flora and vegetation communities.
- Sensitive receptors.
- Existing infrastructure.
- Cultural heritage.
- Community values.

Impacts to these matters will be required to be managed by GAWB and its relevant Contractors. Key commitments and mitigation measures applicable to the FGP SGIC SDA alignment have been summarised in Table 7.1. The mitigation measures have been developed in accordance with legislative requirements with respect to Commonwealth, State (Queensland) and local legislation and anticipated statutory approvals associated with the Project. The mitigation measures are further detailed in the draft CEMP provided in Appendix F.

The impacts and proposed mitigation measures outlined in Table 7.1 were informed by previous and current studies and reports relevant to the Project including:

- Gladstone Fitzroy Pipeline Project Environmental Impact Statement and Supplementary Environmental Impact Statement (Arup 2008).
- Coordinator-General evaluation report for an environmental impact statement: Gladstone-Fitzroy Pipeline Project (Queensland Government 2010).
- Gladstone to Fitzroy Pipeline DA Draft Environmental Technical Report (Ref no. 30032656) (SMEC, 2021)
- Ecology Assessment Report (GHD 2022).
- Draft CEMP (GHD 2020).

As part of the EIS process, GAWB made a number of key commitments in the EIS which involved implementing a number of measures during design, construction and/or operation of the Project. The key commitments have been captured in the draft CEMP which is included in Appendix F. Additional management plans for the Project may be required prior to the commencement of construction as outlined in the Coordinator-General evaluation report, which is referred to within the EPBC Approval, for the Project. Management Plan requirements are being worked through by GAWB, with the updated ecological surveys expected to influence management plan outcomes and offset requirements.

The identified potential environmental impacts anticipated to be encountered and associated proposed mitigation measures are summarised in Table 7.1.

Table 7.1 Key Potential Impacts During Design, Construction and Operation Phases and Proposed Mitigation Measures

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
Land	<p>Soils</p> <ul style="list-style-type: none"> Changes in landform may influence erosion and sedimentation in the area. <p>ASS</p> <ul style="list-style-type: none"> ASS has the potential to corrode pipelines if not addressed. <p>Contaminated Land</p> <ul style="list-style-type: none"> Contaminated land impacts to be identified and confirmed. 	<p>Soils</p> <ul style="list-style-type: none"> Erosive and dispersive soils are not recognised or treated appropriately, leading to erosion and sedimentation, and associated water quality and ecosystem health impacts. Subsidence of backfilled trench, which could lead to gully erosion and affect local catchment hydrology if soils have not been compacted to a level corresponding with the surrounding soils. <p>ASS</p> <ul style="list-style-type: none"> Exposure of PASS / AASS and inappropriate management or treatment leading to adverse environmental impacts. <p>Contaminated Land</p> <ul style="list-style-type: none"> Disturbance of potentially contaminated soil associated with land parcels identified as moderate and high risk sites in the Preliminary Contamination Report (GHD, 2021), leading to release of toxic leachate, mobilisation of pollutants and exposure of workers or public to contaminated water or soil. 	<p>Soils</p> <ul style="list-style-type: none"> Erosive and dispersive soils are not recognised or treated appropriately during maintenance of the pipeline, leading to erosion and sedimentation, and associated water quality and ecosystem health impacts. <p>ASS</p> <ul style="list-style-type: none"> Exposure of PASS / ASS during maintenance of the underground pipeline. <p>Contaminated Land</p> <ul style="list-style-type: none"> Disturbance of potentially contaminated during maintenance of the underground pipeline. 	<p>Design</p> <ul style="list-style-type: none"> Minimise land disturbance as much as practical. Design appropriate stabilisation of waterway banks and steep areas. Liaise with impacted property owners during the design phase. Undertake ASS Investigations. Where ASS has been identified design appropriately. Undertake Contaminated Land Investigations where spoil may be required to be removed from site, or where a high risk is present for workers/environment. <p>Construction</p> <ul style="list-style-type: none"> Implement a CEMP Develop, implement and maintain an ESCP that is prepared by a Certified Professional in Erosion and Sediment Control (CPESC). Minimise the stockpiling of spoil as much as possible, particularly during the wet season. Progressively stabilise exposed trenches. Compact backfilled soils to a level commensurate with the surrounding soils. Implement progressive revegetation and rehabilitation or install temporary protection measures to reduce erosion. Only import fill materials (for structural or landscaping purposes) that are certified as contaminant free. Maintain, monitor and remediate, as required, stabilisation works including landscaping and rehabilitation works. Develop and implement an ASS Management Plan to effectively manage ASS identified and outline procedures for encountering ASS in unidentified areas. Implement contaminated land management requirements as identified, including obtaining a Soil Disposal Permit where spoil requires removal from the property / alignment. <p>Operation</p> <ul style="list-style-type: none"> Minimise soil disturbance when undertaking maintenance earthworks. Undertake regular inspections and maintenance in areas that are subject to erosion risks. Prepare and implement an OEMP.

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
Waterways and Surface Water Quality	The pipeline traverses a number of waterways, there is potential for impact to waterway features (flow, banks, etc.) if design of crossings is not appropriate.	<ul style="list-style-type: none"> – Contamination through the release of polluting substances (e.g. spills of fuels or oil, litter, and disturbance of ASS), disturbance of contaminated material, or inappropriate waste disposal. – Changes due to surface and stormwater discharge from the pipeline during construction works (e.g. release of sediment laden water) and reduced bank stability (erosion) of receiving watercourses. – Changes to the hydrological regime and reliant vegetation associated with the extraction of water from existing sources for construction purposes. – Scouring of bed and bank around structures in and near waterways and drainage lines, exposure of in-stream infrastructure or re-suspension of suspended solids within the waterway. – Changes to river morphology (fluvial processes) and altered flood flows due to the project infrastructure. – Sediments entering drainage lines, waterways or wetlands and causing a reduction in downstream water quality. 	<ul style="list-style-type: none"> – Changes due to surface and stormwater discharge from the Project during maintenance works (e.g. release of sediment laden water) and reduced bank stability (erosion) of receiving watercourses. – Release of chlorinated water to waterways subsequent harm to aquatic ecosystems, from pipeline rupture. – During maintenance activities sediments entering drainage lines, waterways or wetlands and causing a reduction in downstream water quality. 	<p>Design</p> <ul style="list-style-type: none"> – Design to consider all mapped waterways, watercourses and drainage pathways: <ul style="list-style-type: none"> • Trenchless methods to be designed for larger waterways, at a minimum Gavial Creek, Bob’s Creek, Inkerman Creek, Twelve Mile Creek, Marble Creek, Horrigan Creek and Raglan Creek. • Trenched pipeline crossings to be at a depth so that scour during waterway flows does not occur. • Reestablishment of waterway profiles (bed and bank) to be allowed for, including use of natural materials. – Identify where ROW can be reduced to minimise impact to waterways (e.g. 10 m width clearing in riparian margins). – Conduct flood risk assessment to identify at risk properties during construction phase and developing mitigation and communication strategies. – Locate key infrastructure associated with the Project outside of flood risk areas where reasonable and feasible to do so, and managing flows, velocities and afflux through appropriately sized drainage infrastructure. <p>Construction</p> <ul style="list-style-type: none"> – Implement ESCP. – Implement CEMP, that includes: <ul style="list-style-type: none"> • Measures for managing fuel and chemical handling, storage, distribution and spill response during construction. • Measures to minimise commissioning water discharges and ensure discharges meet regulatory requirements and water quality objectives. • Drainage, erosion and sediment control measures. • ASS Management Plan to manage potential water quality impacts. • Contaminated Land Management Plan to manage potential water quality impacts. • Regular site inspections and monitoring, including of storage areas, water quality parameters, water levels, waterway crossing points, presence of flora and fauna to inform management measures. • Where reasonably practicable, water used during testing and commissioning of the FGP SGIC SDA alignment will be reused within the system or passed down the pipe if of sufficient quality, in preference to disposal.

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
				<ul style="list-style-type: none"> • Water disposed during commissioning to land or waterways will be in compliance with regulatory requirements and have relevant controls in place to reduce impacts. • Test water disposal will not occur on areas of exposed soil in dry ephemeral creeks without appropriate erosion prevention measures such as a rock lined channel or into a grassed area. <ul style="list-style-type: none"> – Retain vegetation in riparian margins as much as possible or implementing stabilisation of exposed/disturbed soils (e.g. temporary geofabric/revegetation). – Dispose wastewater offsite at a licenced facility to manage potential water quality impacts. – Implement water sensitive urban design principles. – Restore local drainage profiles following construction. – Riverine Protection Permit Exemption Requirements to be met. <p>Operation</p> <ul style="list-style-type: none"> – Instal a control system to shut down the pipeline in event of a rupture. – Implement an OEMP to manage leakages from the pipeline, pipeline degradation and maintenance activities.
Groundwater	Potential for groundwater bores to be present in the pipeline ROW.	<ul style="list-style-type: none"> – Construction trenching activities interacting with aquifers. – Disturbance of ASS resulting in soil acidification with through leaching to groundwater and subsequent groundwater acidification. – Pipeline rupture or degradation (e.g. corrosion) affecting groundwater level and quality. – Vegetation clearance resulting in increased groundwater recharge. 	Pipeline rupture or degradation (e.g. corrosion) affecting groundwater level and quality.	<p>Design</p> <ul style="list-style-type: none"> – Identify and confirm that groundwater bores are not impacted by the pipeline. If groundwater bores are identified, appropriate mitigation will be implemented such as decommissioning and relocation of bores as required. – Consider of design options that would reduce the construction footprint, the need for cut and fill near waterbodies during construction and construction impacts to groundwater systems (e.g. by placing underground pipe along clay areas). <p>Construction</p> <ul style="list-style-type: none"> – Implement a Groundwater Management Plan for any dewatering during construction. – Review ancillary work areas to avoid direct impact to groundwater bores. <p>Operation</p> <ul style="list-style-type: none"> – Implement an OEMP to manage leakages from the pipeline, pipeline degradation, possible groundwater contamination.
Aquatic Ecology	<ul style="list-style-type: none"> – The pipeline traverses a number of waterways for the purpose of 	<ul style="list-style-type: none"> – Impacts to fish passage and habitat as a result of the pipeline construction and access tracks 	Degradation or impact to waterway crossings impacting fish passage or habitat.	<p>Design</p> <ul style="list-style-type: none"> – Design to consider all mapped waterways:

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
	<p>waterway barrier works. There is potential for fish passage and habitat to be impacted if design of crossings is not appropriate.</p> <ul style="list-style-type: none"> – The pipeline traverses wetland areas, there is potential for wetland values to be negatively affected. 	<ul style="list-style-type: none"> – Impacts to wetland biodiversity as a result of earthworks. 		<ul style="list-style-type: none"> • Trenchless methods to be designed for larger waterways, at a minimum Gavial Creek, Bob’s Creek, Inkerman Creek, Twelve Mile Creek, Marble Creek, Horrigan Creek and Raglan Creek. • Trenched pipeline crossings to be at a depth so that scour during waterway flows does not occur. It is preferred that scour protection is not permanently established along the waterway beds or banks where disturbance has occurred. • Currently no scour protection is proposed; however, if scour protection in the waterway bed is required, the crossing may be assessable development requiring operational works approval. If required, obtain approvals and comply with conditions. • Reestablishment of waterway profiles (bed and bank) to be allowed for in design. <ul style="list-style-type: none"> – Identify priority wetland areas where impact is to be minimised (such as reduced ROW width). <p>Construction</p> <ul style="list-style-type: none"> – Implement CEMP. – Temporary works in waterways are to meet the DAF Accepted development requirements. – Progressively rehabilitate waterway bed and banks. – If required, wildlife handlers (e.g. licensed fauna spotter catchers) will be called to site to attend to fauna issues such as fish entrapment. – Timing in-stream works in a manner that minimises impacts to aquatic fauna, for example undertaking in-stream construction works in the dry season and avoiding spring and summer months, where possible. – Design, construct and remove ancillary work areas (access tracks) to meet DAF Accepted development requirements. – Watercourse crossings / disturbed areas are to be revegetated with trees, shrub and grasses endemic to the area, sufficient to re-establish a riparian environment and protect bed and banks from erosion as per the Riverine protection permit exemption requirements WSS/2013/726 Version 2.01 (former Department of Natural Resources, Mines and Energy, 2019). <p>Operation</p> <ul style="list-style-type: none"> – Implement an OEMP to manage leakages from the pipeline and pipeline degradation.
Terrestrial Ecology – Vegetation	<ul style="list-style-type: none"> – Fragmentation, loss of native vegetation and loss of threatened flora 	<ul style="list-style-type: none"> – Loss of native vegetation and threatened flora species caused by clearing. 	Introduction and spread of weeds to the project by operational vehicles and machinery during	<p>Design</p> <ul style="list-style-type: none"> – Minimise clearing of large connected areas of native vegetation, where possible.

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
	<p>habitat caused by clearing based on design.</p> <ul style="list-style-type: none"> Note: no protected flora species have been identified within the FGP SGIC SDA alignment. 	<ul style="list-style-type: none"> Additional fragmentation of vegetation communities due to the FGP SGIC SDA alignment or ancillary clearing (such as access tracks). Introduction and spread of weeds to the project by construction vehicles and machinery. 	<p>routine inspections and maintenance works.</p>	<ul style="list-style-type: none"> Implement the requirements of the Exemption Notification for clearing within a high risk areas for protected plans. Significant impacts to flora, including TECs, that cannot be mitigated will be offset, where relevant. <p>Construction</p> <ul style="list-style-type: none"> Implement CEMP. Locate works areas in previously cleared areas wherever possible. Identify and delineate the approved area of disturbance to minimise the risk of impact upon flora. Minimise vegetation clearing, where practical. Implement staged clearing protocols and completing revegetation / rehabilitation works as soon as areas are no longer required, this is particularly important near and within waterways and wetlands. Constrain clearing widths / areas to the minimum necessary to allow construction of infrastructure and fulfil environmental management requirements. Implement biosecurity management measures such as vehicle wash-downs and inspections, hygiene certification for materials to be used during construction, and active weed control within the work area. Clearly communicate mitigation measures to contractors to ensure awareness, including installing temporary signage to inform personnel of protected species that may be present. The Construction Contractor will develop and implement Rehabilitation Plans that consider soil type and existing local ground layer vegetation characteristics (i.e. native or improved pastures). Subject to approval of the Rehabilitation Plans, cleared native vegetation will be mulched and spread with topsoil at revegetation areas (including temporary access tracks that are only longer used) as soon as reasonably practicably after the completion of construction works. Revegetate disturbed areas with local native flora species. <p>Operation</p> <ul style="list-style-type: none"> Implement OEMP. Implement biosecurity management. Monitor the effectiveness of controls and establishing triggers for corrective action where potential impacts are observed. Clearly communicate mitigation measures to contractors to ensure awareness to inform personnel of protected species that may be present.

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
Terrestrial Ecology – Fauna	Loss or disturbance to threatened fauna habitat or breeding places caused by clearing based on design.	<ul style="list-style-type: none"> – Loss and fragmentation of habitat used by a range of fauna, including areas of MSES, essential and wildlife habitat. – Fauna injury or death during the construction of the project. – The pipeline instatement is likely to be progressive and therefore sections of open trench will be unavoidable. This open trench has the potential to form a barrier to fauna movement and result in entrapment of ground dwelling fauna. – Noise and vibration will be generated by the project during construction works (i.e. through the use of machinery). Increases in noise and vibration may result in habitat becoming unsuitable for fauna. 	Fauna injury or death during the operation of the project.	<p>Design</p> <ul style="list-style-type: none"> – Minimise impact to native fauna habitats by avoiding wetland habitats and large connected areas of native vegetation, where possible. – Obtain relevant permits for interfering with animal breeding places. – Utilise findings from survey to inform design if appropriate (e.g. fauna fencing). – Significant impacts to fauna that cannot be mitigated will be offset where relevant. <p>Construction</p> <ul style="list-style-type: none"> – Implement a CEMP. – Minimise vegetation clearing, where practical. – Install fauna exclusion fencing around construction areas, particularly the sections of open trenching. – Complete a check of open trenches for entrapped fauna each day prior to works commencing. – Install temporary fencing around non-works areas with retained ecological values to prevent entry during construction. – Engage a fauna spotter-catcher to be present during vegetation and habitat clearing. – At the start of work hours and on a daily basis, construction personnel will inspect the entire open length of the trench for entrapped or injured wildlife. Engage a fauna spotter-catcher for inspections when stipulated by Management Plans. – Implement an ESCP. – Implement biosecurity management measures such as vehicle wash-downs and inspections, hygiene certification for materials to be used during construction, and active weed control within the FGP SGIC SDA alignment. – Clearly communicate mitigation measures to contractors to ensure awareness, including installing temporary signage to inform personnel of protected species that may be present. – Reinstate habitat (e.g. logs and fallen vegetation) after construction. <p>Operation</p> <ul style="list-style-type: none"> – Implement an OEMP. – Monitor the effectiveness of controls and establishing triggers for corrective action where potential impacts are observed.
Air Quality	Design may influence air quality (e.g. unformed roads	<ul style="list-style-type: none"> – Exhaust emissions from site plant, equipment and vehicles. 	Only relatively small effects on local air quality are anticipated from the	Design

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
	resulting in ongoing dust).	<ul style="list-style-type: none"> – Fugitive dust emissions from construction related activities including excavation, vegetation clearing and movement of vehicles. 	operational traffic associated with the project. As such, the effect of the operational project on local air quality is negligible and there is no need for operational-phase mitigation measures.	<ul style="list-style-type: none"> – Prevent dust emissions where possible, rather than applying dust suppression methods. – Identify appropriate water sources for dust suppression purposes (water used should not lead to soil contamination), or where water resources are scarce, dust stabilisers could be used. – No specific measures related to mitigating greenhouse gases have been provided due to the relatively low contribution of the project to these emissions during construction. <p>Construction</p> <ul style="list-style-type: none"> – Implement a CEMP. – Water pipeline access roads during prolonged dry periods. – Ensure that dusty materials are transported, stored and handled appropriately. – Confine vehicles to designated routes that are constructed from an appropriate material to minimise dust, and restricting vehicle speeds on access roads and other unsurfaced areas. – Implement dust monitoring as part of management practices to monitor the success of dust control measures used.
Noise and Vibration	Noise and vibration emissions have the potential to negatively impact adjacent sensitive receptors (such as residents and other land users) and fauna habitat. Vibration may also result in structural impact to other infrastructure or buildings.	<p>Increased levels of construction-related noise and vibration, resulting in impacts to surrounding sensitive receptors as a result of:</p> <ul style="list-style-type: none"> – Operation of diesel generators. – Light vehicle construction traffic. – Earthworks. – Clearing and grubbing. – Tunnelling / trenchless methods. – Rock breaking. – Blasting. – Operation of plant and machinery. – Materials delivery and waste removal. 	It is not expected that the FGP SGIC SDA alignment will impact upon sensitive receptors during operation.	<p>Design</p> <ul style="list-style-type: none"> – Undertaking stakeholder consultation and community liaison strategies. – If required, design appropriate vibration control elements for adjacent infrastructure. <p>Construction</p> <ul style="list-style-type: none"> – Implement a CEMP that establishes work hours, work practices, community liaison requirements, mitigation measures, roles and responsibilities and construction noise complaint protocol. – Implement source noise control strategies, e.g. keep horns and reversing alarms to the minimum volume level possible, use non-tonal / broadband type reversing alarms and use stockpiled materials as “noise barriers” to shield sensitive receivers. – Limit construction activities to 6am to 6pm Monday to Saturday. – Develop and implement vibration management to include condition monitoring / assessment where relevant. <p>Operation</p> <ul style="list-style-type: none"> – Implement an OEMP.

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
Existing Infrastructure	<ul style="list-style-type: none"> – Potential for direct impact upon third party infrastructure. – Potential for indirect impacts on known and unknown infrastructure. 	<ul style="list-style-type: none"> – Meeting onerous design criteria and construction methodologies as required by impacted utility providers. – Potential for direct impact on existing infrastructure (such as gas pipelines or communications network) as a result of construction negatively impacting the infrastructure entity and its customers. – Potential for the FGP SGIC SDA alignment to affect maintenance access or schedules for existing infrastructure. 	Future planned infrastructure corridors impacting on the footprint of the FGP SGIC SDA alignment.	<p>Design</p> <ul style="list-style-type: none"> – Undertake appropriate infrastructure identification activities. – Negotiate early with impacted third party infrastructure entities. – Obtain approval from third party construction entities to work within their infrastructure corridors (i.e. RRC and GRCs’ road reserve). <p>Construction</p> <ul style="list-style-type: none"> – Identify all infrastructure onsite. – Stage works appropriately based on design. – Engage third party infrastructure entities during the construction phase to avoid conflicts for existing infrastructure. – Manage potential road impacts in consultation with RRC, GRC and TMR. – Implement procedures to remove dirt, where possible, and other materials from roads that may have been deposited from haulage or other road use. – Construction plant and equipment must not be allowed to park on or within the pavement or shoulders of any existing trafficked roadway without approval from the relevant authority. – Implement required construction methodologies from utility providers during the construction phase. <p>Operation</p> <ul style="list-style-type: none"> – Register the infrastructure with development authorities to minimise risk of accidental damage in the future.
Non-Indigenous Heritage	There are no non-indigenous heritage values within 1 km of the FGP SGIC SDA alignment. However, undocumented non-indigenous heritage sites may be impacted.	There are no non-indigenous heritage values within 1 km of the FGP SGIC SDA alignment. However, undocumented non-indigenous heritage sites may be impacted.	There are no non-indigenous heritage values within 1 km of the FGP SGIC SDA alignment. However, undocumented non-indigenous heritage sites may be impacted.	<p>Construction</p> <ul style="list-style-type: none"> – Develop and implement an incidental find procedure for archaeological heritage that includes reporting to DES and ceasing work in the area for 20 business days, unless approval is granted to continue work prior.
Aboriginal Cultural Heritage	Aboriginal Cultural Heritage sites may be encountered along the FGP SGIC SDA alignment and be directly impacted. The surveyed areas in the approved CHMPs have	The project has the potential to impact Aboriginal cultural heritage during the construction phase.	During operation, impacts to Aboriginal cultural heritage sites and values are not anticipated (e.g. maintenance works do not involve further land disturbance).	<p>Design</p> <ul style="list-style-type: none"> – All Aboriginal cultural heritage sites identified will be mapped on design drawings and in construction plans. <p>Construction</p> <ul style="list-style-type: none"> – Implement the approved CHMPs and any required site-specific procedures as per the <i>Aboriginal Cultural Heritage Act 2003</i>. – The environmental induction will include a basic level of training for all personnel with regard to their obligations under the approved CHMPs

Values	Potential Impacts – Design	Potential Impacts – Construction	Potential Impacts - Operation	Proposed Mitigation Measures
	identified sites that may be impacted.			<p>and the measures to be taken in the event of an historic or Aboriginal cultural heritage find.</p> <ul style="list-style-type: none"> – The Approved CHMPs have identified sites where there is Aboriginal cultural heritage. Unsurveyed areas will be surveyed in accordance with the CHMPs to identify any further sites of Aboriginal cultural heritage. – The Approved CHMPs establish procedures for unexpected cultural heritage finds and discovery of human remains in the unlikely event that suspected human remains are uncovered. <p>Operation</p> <ul style="list-style-type: none"> – Implement an OEMP.
Community Values	Earthworks have the potential to impact visual amenity.	Impacts upon the road network and general visual amenity (such as site tidiness) during the construction phase.	Impacts upon general visual amenity (such as site tidiness) during the operation phase.	<p>Design</p> <ul style="list-style-type: none"> – Due to generally the low sensitivity of visual amenity impact (as identified in Chapter 15 of EIS (Arup, 2008) (refer Appendix B) no specific design measures are proposed. <p>Construction</p> <ul style="list-style-type: none"> – Implement a CEMP. – Landscape and rehabilitate disturbed areas as soon as possible. – Use locally endemic vegetation species in rehabilitation that are known to be well adapted to the area and soils. – Minimise vegetation clearing, where practical. – Restrict lighting of compounds and worksites to low impact lighting and minimise lighting spill. – Locate storage facilities away from residential areas. – Store materials and machinery neatly during the works, and where possible behind solid hoardings. – Maintain access roads to works areas as free of dust and mud as far as reasonably practicable. – Maintain a high level of housekeeping at all times. – Remove all construction materials to a suitable location upon completion of construction. <p>Operation</p> <ul style="list-style-type: none"> – Implement an OEMP.

8. Conclusion

This Planning Report has been prepared in accordance with the provisions of the SGIC SDA Development Scheme, and the proposed SDA application requirements for an MCU for 'services infrastructure' and Operational Works for the clearing native vegetation along the FGP SGIC SDA alignment in accordance with the *State Development and Public Works Organisation Act 1971*.

A full assessment of the relevant FGP SGIC SDA alignment section has been made against the strategic vision and overall objectives of the SGIC SDA Development Scheme, including the preferred development intents and the SGIC SDA Policy 1 Outcomes.

The conclusion of this assessment is that the FGP achieves compliance with the relevant strategic vision, objectives and intents of the SGIC SDA Development Scheme.

The Project is considered to be appropriate development for the area based on the following justification:

- The Project directly supports the industrial land uses within the SGIC SDA through the provision of a secure water supply.
- The Project accords with the relevant objectives of the SGIC SDA Development Scheme, the preferred development intents and SGIC SDA Policy 1 Outcomes.
- The Project is appropriate and has been sited to ensure minimal disruption to existing (and future proposed) services and the amenity of the area.
- The Project has been situated to ensure minimal impacts upon the environment and local biodiversity.

Having regard to the justification provided in Section 2.4 of this report under the Public Consultation Policy State development areas (State of Queensland, Coordinator-General, 2021), additional public consultation for the purposes of this SDA application (MCU) is not considered required in this instance.

It is recommended that the Coordinator-General supports this SDA application (MCU) to meet the growing need to provide a reliable supply of water for the current customers and future demand in Gladstone.

9. References

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Appendices

Appendix A

Landowners Consent



Office of the
Coordinator-General

Our ref: DEPC22/994
Your ref: 12559247

17 October 2022

Ms Amanda Smedley
Senior Environmental Scientist
Team Leader – Environment, Gladstone
GHD Pty Ltd
amanda.smedley@ghd.com

Dear Ms Smedley

Request for land-owner's consent for lodgement of an application on 115 lots in the Stanwell - Gladstone Infrastructure Corridor State Development Area

I refer to your correspondence dated 14 September 2022 requesting, on behalf of the proponent Gladstone Area Water Board, land-owner's consent for lodgement of a development application with the Office of the Coordinator-General over the lots specified in Table 1 below, which are located within the Stanwell - Gladstone Infrastructure Corridor State Development Area (SDA). The Coordinator-General has requested that I respond on her behalf.

The proposed development application is for the construction and operation of a water pipeline in the Stanwell - Gladstone Infrastructure Corridor SDA.

As delegate of the Coordinator-General, the registered easement holder over the lots specified in Table 1 below, I consent to the lodgement of the abovementioned application by GHD Pty Ltd on behalf of Gladstone Area Water Board.

By consenting to the lodgement of the application, the Coordinator-General does not:

- waive any of the Coordinator-General's rights as owner of the land under any law, or
- give or warrant any representation that the Coordinator-General, State of Queensland, or any other person has granted or will grant the proponent or any other person rights to occupy or use any part of the land in future.

1 William Street
Brisbane Queensland 4000
PO Box 15517
City East Queensland 4002
Telephone 13 QGOV (13 74 68)
Website www.statedevelopment.qld.gov.au
ABN 29 230 178 530

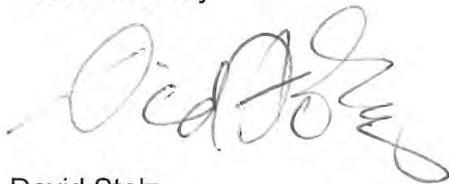
Furthermore, nothing in this letter:

- restricts or fetters the exercise by the Coordinator-General, the State of Queensland, or any other relevant authority of any rights, powers or discretions, or any planning, resumptive or other regulatory power, or
- acts as an estoppel, warranty or representation or creates an agreement of any kind.

This consent is valid for a period of six months from the date of this letter.

If you require any further information, please contact Ms Wendy Paton, Principal Project Officer, Office of the Coordinator-General, on 3452 7549, who will be pleased to assist.

Yours sincerely

A handwritten signature in black ink, appearing to read 'David Stolz', written in a cursive style.

David Stolz
Assistant Coordinator-General
Planning and Services
(as delegate of the Coordinator-General)

Table 1

Lot and Plan details			
Lot 71 on CP LIV40477	Lot 36 on CP PL4017	Lot 93 on CP DS611	Lot 41 CP DS21
Lot 143 on CP LN2246	Lot 37 on CP PL4017	Lot 94 on CP DS186	Lot 162 CP DS61
Lot 247 on CP R2621	Lot 45 on CP PL4017	Lot 95 on CP DS186	Lot 4 RP614012
Lot 248 on CP LIV401036	Lot 1 on RP601377	Lot 97 on CP DS186	Lot 8 CP DS11
Lot 241 on CP LIV401036	Lot 2 on RP601377	Lot 98 on CP DS186	Lot 13 CP DS10
Lot 24 on RP603312	Lot 3 on RP601377	Lot 99 on CP DS186	Lot 6 RP614228
Lot 238 on CP LIV401036	Lot 76 on CP LN184	Lot 100 on CP DS185	Lot 3 RP614228
Lot 237 on CP LIV401036	Lot 77 on CP LN195	Lot 101 on CP DS185	Lot 2 RP614228
Lot 13 on RP617197	Lot 4 on SP103554	Lot 102 on CP DS185	Lot 1 RP614228
Lot 11 on RP603184	Lot 79 on CP LN195	Lot 102 on CP DS185	Lot 1 SP303543
Lot 10 on RP603184	Lot 31 on SP181941	Lot 84 on CP DS185	Lot 5 SP218851
Lot 12 on RP844280	Lot 81 on CP LN183	Lot 85 on CP DS185	20 CP DT40124
Lot 13 on RP844280	Lot 82 CP LN183	Lot 29 on CP DS37	Lot 22 RP905534
Lot 14 on RP844281	Lot 83 CP LN183	Lot 28 on CP DS37	
Lot 15 on RP844281	Lot 160 CP LN271	Lot 27 on CP DS28	
Lot 19 on RP844281	Lot 129 on CP LN271	Lot 26 on CP DS47	
Lot 3 on RP605157	Lot 130 on CP LN271	Lot 36 on CP DS47	
Lot 1 on RP603319	Lot 103 on CP LN182	Lot 1543 CP DS588	
Lot 1 on SP266123	Lot 103 on CP LN182	Lot 7 CP DS53	
Lot 1 on SP266124	Lot 2 on RP605082	Lot 2 RP618935	
Lot 1 on SP263972	Lot 3 on RP601896	Lot 1 RP618912	
Lot 1 on SP263973	Lot 2 on RP612565	Lot 1 RP618935	
Lot 10 CP LN1189	Lot 5 on RP604251	Lot 2 RP618913	
Lot 11 CP LN1189	Lot 3 on RP600950	Lot 5 RP618913	
Lot 17 on RP603306	Lot 4 on RP600951	Lot 2 RP618918	
Lot 16 on RP603306	Lot 3 on CP LIV40208	Lot 36 CP DT40169	
Lot 42 on RP603259	Lot 4 on CP LIV40208	Lot 37 CP DT40169	
Lot 38 on RP603259	Lot 76 on CP LIV40208	Lot 124 SP257851	
Lot 28 on CP PL4017	Lot 3 on RP603158	Lot 125 SP257851	
Lot 31 on CP PL4017	Lot 1 on RP602706	Lot 124 SP257851	
Lot 32 on CP PL4017	Lot 3 on RP601795	Lot 39 CP DS688	
Lot 33 on CP PL4017	Lot 142 on CP DS634	Lot 804 CP DT407	
Lot 34 on CP PL4017	Lot 68 on CP DS141	Lot 39 CP DS688	
Lot 35 on CP PL4017	Lot 69 on CP DS141	Lot 40 CP DS21	



Our ref 500/1219
Your ref
Enquiries Jason Giddy

Department of
Transport and Main Roads

8 November 2022

Amanda Smedley
Level 2 100 Goonoon Street
Gladstone QLD 4680
Via email: Amanda.Smedley@ghd.com

LANDOWNER'S CONSENT – GLADSTONE SDA APPLICATION FOR WATER PIPELINE CROSSINGS UNDER VARIOUS STATE CONTROLLED ROAD

Dear Amanda

Reference is made to your request for landowner's consent in relation to the Fitzroy to Gladstone Pipeline Project dated 12 October 2022. As indicated in your submission at Table 1, the pipeline crosses three separate state-controlled roads, being Capricorn Highway (Rockhampton – Duarina) Ch. 1.29km, Bruce Highway (Benaraby – Rockhampton) Ch. 16.3km and Bajool Port Alma Road Ch. 6.23km.

It is understood that the consent is required in order to submit an application within a State Development Area (SDA). It is also understood that in order to construct the pipeline crossings under state-controlled roads, approvals from TMR under section 50 of the *Transport Infrastructure Act 1994* are required. This separate application has been received by TMR under Permit to Access the Road Corridor reference 2022-23605.

The department advises that it consents to the making of this SDA application for the road crossings referred to in Table 1 of your submission. Please note that any crossings of railway corridors will need to obtain a separate landowner's consent from the TMR Rail Corridor Management team via rcm@tmr.qld.gov.au.

Should you wish to discuss the matter further, please contact Jason Giddy (Senior Town Planner) on 49311686 or at Jason.B.Giddy@tmr.qld.gov.au.

Yours sincerely

Faruk Hossain

Manager (Project Planning & Corridor Management)

Telephone +61 7 49311686
Website www.tmr.qld.gov.au
Email Jason.B.Giddy@tmr.qld.gov.au
ABN 39 407 690 291

Our ref 485/00391, e62700
Your ref
Enquiries Patrick Leys

Department of
Transport and Main Roads

1 NOV 2022

Ms Amanda Smedley
Senior Environmental Scientist
GHD
100 Goodoon Street
Gladstone Qld 4680

Dear Ms Smedley

REQUEST TO OBTAIN OWNER'S CONSENT – DETERMINATION NOTICE

This notice is in response to your request of 12 October 2022 to obtain owner's consent from the Department of Transport and Main Roads (TMR) to lodge a development application completely or partially over land held or administered by the department.

Pursuant to section 9.2, item (2)(d)(ii) of the *Stanwell-Gladstone Infrastructure Corridor State Development Area Development Scheme*, the consent of the owner of land that is the subject of a development application is required in order for the development application to be considered as "properly made". For the purposes of the SGIC SDA Development Scheme, the Chief Executive of the Department of Transport and Main Roads is taken to be the owner of the land. The department has considered your request and **provides owner's consent** for the making of the following application:

Material change of use for infrastructure services, which involves the following rail and non-rail corridor land;

- Lot 1 on SP234061; and
- Lot 2 on RP601795.

This consent only applies to the applications lodged by GHD Pty Ltd on behalf of the Gladstone Area Water Board.

TMR's owner's consent is only provided for the purposes of making the application and does not:

- constitute TMR's approval of, or support for, the development application for the purpose of the Development Assessment System (DAS);
- provide permission to undertake works on land held or administered by the department associated with a development approval without the permission of TMR;

- remove the requirement to obtain any other approvals from TMR or another government department;
- constitute owner's consent for any other development application over land owned or administered by the department; or
- constitute approval for any person to enter a rail corridor.

TMR regulates structures, works and activities that occur within land administered or owned by the department. It may be necessary to obtain TMR or Railway Manager approval prior to accessing or undertaking works within an existing or future transport corridor.

If you have any queries or wish to seek clarification about any of the details in this response, please contact Patrick Leys on 3066 7430.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Craig England', written in a cursive style.

Craig England
Manager, Rail Corridor Management
Authorised Delegate of the Chief Executive

Author: Louise Schefe
File / Ref number: 2022/002956
Directorate / Unit: Land and Surveying Services
Phone: (07) 46241548



13 December 2022

Department of Resources

Amanda Smedley
GHD Pty Ltd
PO Box 373
GLADSTONE QLD 4680

Dear Amanda

REQUEST FOR OWNER'S CONSENT TO LODGE A DEVELOPMENT APPLICATION FOR MATERIAL CHANGE OF USE WITHIN THE STANWELL-GLADSTONE INFRASTRUCTURE CORRIDOR STATE DEVELOPMENT AREA (SGIC SDA) FOR THE FITZROY TO GLADSTONE PIPELINE

Reference is made to the request for owner's consent on behalf of Gladstone Area Water Board required to accompany the development application for material change of use within a State Development Area for Fitzroy to Gladstone Pipeline with the proposed works to be located on various roads, Lot 1 on RL8197, Lot 1 on AP2418, Lot 167 on CP859402, Lot 1 on PER4653 and tidal watercourse.

The department hereby gives owner's consent as the owner to accompany the development application for material change of use to accommodate the Fitzroy to Gladstone Pipeline as shown in table 1 below:

Table 1 Land subject to landowners' consent

GAWB Property ID #	Land	Nature of Impact	Approximate Co-ordinates	Intersected Adjacent Lot on Plan	Figure
47A	Road Reserve – Unnamed Road	Crossing – Open Cut	150.436679, -23.399492,	143 LN2246	Figure 3, Attachment 2
50	Road Reserve - Fogarty Road	Crossing – Thrust Boring	150.448911, -23.4013141	248 LIV401036	Figure 4, Attachment 2
52	Road Reserve - Titman Road	Crossing – Open Cut	150.453013, -23.403394	214 LIV401036	Figure 5, Attachment 2
54	Road Reserve - Newman Road	Crossing – Open Cut	150.453528, -23.403635	24 RP603312	Figure 6, Attachment 2
57	Road Reserve – Unnamed Road	Crossing – Open Cut	150.462792, -23.405606	237 LIV401036	Figure 7, Attachment 2
60	Road Reserve – Unnamed Road	Crossing – Open Cut	150.468849, -23.40672	11 RP603184	Figure 8, Attachment 2
64	Road Reserve – Unnamed Road	Crossing – Open Cut	150.478998, -23.408437	13 RP844280	Figure 9, Attachment 2
68A	Road Reserve – Unnamed Road	Crossing – Open Cut	150.486473, -23.413745	19 RP844281	Figure 10, Attachment 2
69	Road Reserve – Old Capricorn Highway	Crossing – Open Cut	150.486455, -23.413761	19 RP844281	Figure 10, Attachment 2
71	Road Reserve – Unnamed Road	Crossing – Open Cut	150.487709, -23.414496	3 RP605157	Figure 10, Attachment 2
76A	Road Reserve – Unnamed Road	Crossing – Open Cut	150.500208, -23.418825	1 SP234081	Figure 11, Attachment 2
78	Road Reserve – Unnamed Road	Crossing – Open Cut	150.503232, -23.42108	1 SP266124	Figure 11, Attachment 2
81	Road Reserve – Old Bruce Highway	Crossing – Open Cut	150.510735, -23.425425	1 SP263973	Figure 12, Attachment 2
86	Road Reserve – Unnamed Road	Crossing – Open Cut	150.512422, -23.426355	16 RP603306	Figure 13, Attachment 2
89	Watercourse – Scrubby Creek	Crossing – Open Cut	150.516254, -23.429142	38 RP603259	Figure 14, Attachment 2
94	Road Reserve – Unnamed Road	Crossing – Open Cut	150.523745, -23.434757	33 PL4017	Figure 15, Attachment 2
99	Road Reserve – Unnamed Road	Crossing – Open Cut	150.5308, -23.446957	37 PL4017	Figure 16, Attachment 2
101	Watercourse – Gavial Creek	Crossing – Micro-tunnel	150.532843, -23.451216	45 PL4017	Figure 17, Attachment 2
104A	Road Reserve – River Road	Crossing – Open Cut	150.537239, -23.456095	3 RP601377	Figure 18, Attachment 2
105	Road Reserve – Roope Road	Crossing – Open Cut	150.537239, -23.456095	3 RP601377	Figure 18, Attachment 2
109	Road Reserve – Unnamed Road	Crossing – Open Cut	150.547039, -23.471553	4 SP103554	Figure 19, Attachment 2
113	Road Reserve – Unnamed Road	Crossing – Open Cut	150.553405, -23.48878	81 LN183	Figure 20, Attachment 2
121	Road Reserve – Georges Road	Crossing- Open Cut	150.56589, -23.50804	129 LN271	Figure 21, Attachment 2

GAWB Property ID #	Land	Nature of Impact	Approximate Co-ordinates	Intersected Adjacent Lot on Plan	Figure
124	Road Reserve – Casuarina Road	Minor Road Crossing – Open Cut	150.573416, -23.517964	103 LN182	Figure 22, Attachment 2
129	Watercourse – Bobs Creek	Crossing – Micro-tunnel	150.281933, -23.542396	2 RP612565	Figure 23, Attachment 2
133	Lot 1 RL8197 Lands Lease / Road licence	Crossing – Open Cut	150.812, -23.60593	-	Figure 24, Attachment 2
141	1 AP2418 State Land	Crossing – Horizontal Directional Drilling (HDD)	150.68552, -23.63753	-	Figure 25, Attachment 2
142	Watercourse – Inkerman Creek	Crossing – HDD	150.684136, -23.638467	1 AP2418	Figure 26, Attachment 2
151	Road Reserve - Toonda Port Alma	Crossing – Open Cut	150.812, -23.60593	95 DS186	Figure 27, Attachment 2
157	Road Reserve – Unnamed Road	Crossing – Open Cut	150.734036, -23.673383	102 DS185	Figure 28, Attachment 2 Attachment 3
159	Road Reserve – Unnamed Road	Crossing – Open Cut	150.744321, -23.680417	84 DS185	Figure 29, Attachment 2
161	Road Reserve – Twelve Mile Road	Crossing – Open Cut	150.750996, -23.681323	85 DS185	Figure 30, Attachment 2 Attachment 3
167	Road Reserve – Twelve Mile Road	Crossing – Open Cut	150.778917, -23.693491	36 DS47	Figure 31, Attachment 2
170	Road Reserve – Unnamed Road	Crossing – Open Cut	150.790923, -23.697725	7 DS53	Figure 32, Attachment 2
176	Watercourse – Horrigan Creek	Crossing – Micro-tunnel	150.810257, -23.70409	5 RP618913	Figure 33, Attachment 2
177	167 CP859402 Reserve	Trenched / buried pipeline	150.81631, -23.71265	-	Figure 34, Attachment 2
178	Watercourse – Raglan Creek	Crossing – Micro-tunnel	150.819411, -23.708943	167 CP859402	Figure 35, Attachment 2
179	1 PER4653 Lands Lease	Trenched / buried pipeline	150.81810, -23.70658	-	Figure 36, Attachment 2
185	Road Reserve – Unnamed road	Crossing – Open Cut	150.849319, -23.716588	124 SP257851	Figure 37, Attachment 2
190	Road Reserve – Reedy Creek Road	Crossing – Open Cut	150.892317, -23.732259	39 DS688	Figure 38, Attachment 2
193	Road Reserve – Unnamed Road	Crossing – Open Cut	150.928911, -23.7657	41 DS21	Figure 39, Attachment 2
196	Road Reserve – Darts Creek Road	Crossing – Open Cut	150.940887, -23.775154	4 RP614012	Figure 40, Attachment 2
200	Road Reserve – Unnamed Road	Crossing – Open Cut	150.957771, -23.788528	6 RP614228	Figure 41, Attachment 2
204	Road Reserve - Popenia Road	Crossing – Open Cut	150.964111, -23.7962	1 RP614228	Figure 42, Attachment 2
207	Road Reserve - Gostevsky Road	Crossing – Open Cut	150.982168, -23.802492	5 SP218851	Figure 43, Attachment 2
210	Road Reserve – The Narrows Road	Crossing – Open Cut	151.000206, -23.812243	22 RP905534	Figure 44, Attachment 2

- **Lot 1 on RL8197** - GAWB Property ID 133 – Figure 24, Attachment 2 – Given that there are constraints with GAWB discussing the project with the licensee prior to project approval, I am prepared to give owners consent over this area (as shown on Figure 24)

with a disclaimer that no works to be done until the area of road licence is surrendered and the road re-opened.

- **Lot 1 on AP2418** - GAWB Property ID 141 – Road – Figure 25, Attachment 2 – Although owner’s consent for the material change of use application has been provided, your client is always required to comply with responsibilities and the purpose, terms and conditions of proposed easement over Lot 1 on AP2418 and undertake works only if and when the application has been approved by the assessment manager, and in accordance with the conditions of that approval.
- **Lot 167 on CP859402** - GAWB Property ID 177 – Road – Figure 34, Attachment 2 – Although owner’s consent for the material change of use application has been provided, your client is always required to comply with responsibilities and the purpose, terms and conditions of proposed easement over Lot 167 on CP859402 and undertake works only if and when the application has been approved by the assessment manager, and in accordance with the conditions of that approval.

The owner’s consent is subject to the compliance with any requirements of Gladstone Regional Council as road manager including obtaining an appropriate authority to authorise the proposed works.

Although owner’s consent for the development has been provided, the applicant will be required to comply with the purpose, terms and conditions of the proposed Council authority to carry out works on road and should undertake works only if and when the development has been approved by the assessment manager or responsible entity, and in accordance with the conditions of that approval.

A copy of this letter is to be attached to your development application as the required evidence of owner’s consent.

The applicant will also need to comply with all other legislative and regulatory requirements which may also include approvals that are not part of the assessment of the development application under the Gladstone State Development Area (GSDA) Development Scheme 2015 e.g. a marine park permit if in a marine park.

Further, please note that the above consent will expire on **13 June 2023**. Should the development application not be lodged with the assessment manager or responsible entity prior to this date, you will be required again to lodge a further request for owner’s consent and any further request will need to be reconsidered by the Department.

It is also advised that any land use activities must comply with the *Aboriginal Cultural Heritage Act 2003* or the *Torres Strait Islander Heritage Act 2003*. Please note that it is the responsibility of the assessment manager to address native title rights and interests in accordance with the *Native Title Act 1993*.

Finally, owner’s consent is required under the GSDA Development Scheme to enable the application to be considered properly made for lodging with the assessment manager or responsible entity and is a completely separate process to assessment of the application under the GSDA Development Scheme.

Accordingly, the State may act at a later date as assessment manager or responsible entity or referral agency or affected entity in the assessment of the development application - providing owner’s consent will not influence any role the State may have in this development assessment.

If you wish to discuss this matter please contact Louise Scheffe on (07) 46241548.

All future correspondence relative to this matter is to be referred to the contact Officer at the address below or by email to lassismajorprojects2@resources.qld.gov.au. Any hard copy correspondence received will be electronically scanned and filed. For this reason, it is recommended that any attached plans, sketches or maps be no larger than A3-sized.

Please quote reference number 2022/0002956 in any future correspondence.

Yours sincerely



Annie Maccheroni
Principal Land Officer
A duly authorised delegate of the Minister
Under the current Land Act (Ministerial) Delegation

14 December 2022

Gladstone Area Water Board
136 Goonoon St
Gladstone Central QLD 4680
Attn: Simon Wakefield
Approvals Project Manager – Fitzroy to Gladstone Pipeline

Via email: SWakefield@gawb.qld.gov.au

To whom it may concern,

REQUEST FOR OWNER'S CONSENT TO THE MAKING OF A DEVELOPMENT APPLICATION AT LOT 2 ON RP603319 TO DEPARTMENT OF STATE DEVELOPMENT, LOCAL GOVERNMENT, INFRASTRUCTURE & PLANNING (DSDLGIP)

This notice is in response to your request of 12 October 2022 seeking owner's consent from Queensland Rail Limited (Queensland Rail) to lodge an application completely or partially over land held by Queensland Rail, properly described as Lot 2 on RP603319.

Queensland Rail has considered your request and provides conditional owner's consent for the making of the following application:

Development Permit for Material Change of Use (Infrastructure Services) within the Stanwell-Gladstone Infrastructure Corridor State Development Area over Lot 2 on RP603319 (the 'Application').

A copy of this letter is to be attached to the application as the required evidence of owner's consent.

This consent is provided specifically in relation to the Application as described above. If the Application is changed and/or if the applicant applies for a different development, the applicant will be required to lodge a further request for owner's consent and any further request will need to be considered by Queensland Rail.

It is noted that the giving of owner's consent to enable an application to be considered properly made for lodging with the assessment manager only and is a completely separate process to the assessment of the application under the *State Development & Public Works Organisations Act 1971*. Please note that the provision of owner's consent will not influence any role Queensland Rail may have in the assessment of the Application.

The applicant will also need to comply with other legislative and regulatory requirements which may also include approvals that are not part of the assessment of the subject development application under the *State Development & Public Works Organisations Act 1971*.

This consent is not intended to create any further agreement, consent or permission and Queensland Rail reserves all rights as owner of any affected land/lot and/or operator of any affected railway or associated operations. Queensland Rail's consent as owner of the above-mentioned land is only provided for the purposes of making the Application and does not:

- constitute Queensland Rail's approval of, or support for, the Application;
- constitute owner's consent to change, or to extend the currency period of, any resulting approval arising out of the Application;
- provide permission to undertake works on land held or administered by Queensland Rail associated with a development approval or for any other reason;
- remove the requirement to obtain any other approvals from Queensland Rail;
- constitute acceptance by Queensland Rail to pay any amounts payable in relation to the Application or any resulting development approval, including but not limited to any infrastructure charges;
- constitute owner's consent for any other development application over land held or administered by Queensland Rail; or
- constitute approval for any person to enter a rail corridor or any other land held or administered by Queensland Rail for any reason.

Please note that the above consent will expire on 6 months from the date of this letter. Should the application described above not be lodged with the assessment manager prior to this date, the applicant will be required to lodge a further request for owner's consent and any further request will need to be reconsidered by Queensland Rail.

If you have any queries or wish to seek clarification about any of the details in this response, please contact Renee Schwartz, Senior Property Development Adviser via email QRPropertyWayleaves@qr.com.au.

Yours sincerely,



Lisa Fielding
Senior Manager Property
Power of Attorney
Queensland Rail