

CHAPTER

07

INLAND
RAIL 

Land Use and Tenure

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

 ARTC

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

Contents

7.	LAND USE AND TENURE	7-1
7.1	Introduction	7-1
7.2	Terms of Reference requirements	7-1
7.3	Policies, standards and guidelines	7-3
7.4	Methodology	7-5
7.4.1	Impact assessment area	7-5
7.4.2	Existing and future land use and tenure arrangements	7-29
7.4.3	Impact assessment methodology	7-30
7.4.4	Data sources	7-30
7.5	Existing environment	7-32
7.5.1	Land tenure	7-34
7.5.2	Land use	7-60
7.5.3	Future land use intent and development activity	7-147
7.6	Potential impacts	7-156
7.6.1	Permanent change in tenure and loss of property	7-157
7.6.2	Native title	7-162
7.6.3	Change in land use	7-163
7.6.4	Accessibility	7-175
7.6.5	Impacts on services and utilities	7-177
7.7	Mitigation measures	7-178
7.7.1	Mitigation through the reference design phase	7-178
7.7.2	Proposed mitigation measures	7-179
7.7.3	Summary	7-186
7.8	Compliance impact assessment	7-191
7.8.1	State Planning Policy	7-191
7.8.2	ShapingSEQ	7-194
7.8.3	Darling Downs Regional Plan 2013	7-194
7.9	Cumulative impacts	7-194
7.10	Conclusions	7-204

Figures

Figure 7.1a-w	Land use and tenure impact assessment area	7-6
Figure 7.2	Land use and tenure compliance impact assessment methodology	7-30
Figure 7.3	Regional planning and Local Government Area boundaries	7-33
Figure 7.4a-w	Land tenure	7-37
Figure 7.5a-w	QLUMP land use	7-78
Figure 7.6a-w	Land use	7-101
Figure 7.7a-w	Queensland agricultural land audit	7-124

Tables

Table 7.1	Compliance against relevant sections of the Terms of Reference	7-1	Table 7.28	Percentage of land type within Toowoomba LGA traversed by the Project footprint (outside of existing rail and road corridors)	7-164
Table 7.2	Policies, standards and guidelines relevant to this assessment	7-3	Table 7.29	Potential impacts to intensive livestock operations traversed by, or in proximity, to the Project footprint	7-165
Table 7.3	Database and document review summary	7-31	Table 7.30	apiary sites located within the project footprint	7-167
Table 7.4	Tenure within the Project footprint	7-34	Table 7.31	Potential impacts to stock routes within the Project footprint	7-168
Table 7.5	Mineral resource interests situated within the Project footprint	7-35	Table 7.32	Potential impacts to notable land uses within the Project footprint	7-171
Table 7.6	Pipeline licences within the Project footprint	7-36	Table 7.33	Impact of Project on existing Environmental Authority for prescribed environmentally relevant activities	7-173
Table 7.7	Native title claims relevant to the Project footprint	7-36	Table 7.34	Impact of the Project on future development within the Project footprint	7-174
Table 7.8	Land use within and adjacent to the Project footprint	7-60	Table 7.35	Road-rail interfaces in the reference design, by treatment type and road manager	7-176
Table 7.9	Existing land use within the Project footprint	7-64	Table 7.36	Summary of utility interface treatments by service type	7-178
Table 7.10	Land use within the Project footprint located outside of the existing rail corridors	7-65	Table 7.37	Mitigation measures for impacts on development activity	7-184
Table 7.11	Prominent existing land uses	7-65	Table 7.38	Land use and tenure mitigation and management measures for future phases of Project delivery	7-187
Table 7.12	Definition of agricultural land classes	7-68	Table 7.39	Project's consistency with the relevant SPP State interests	7-191
Table 7.13	Agricultural land identified by the Audit within the Project footprint	7-69	Table 7.40	Projects considered for the cumulative impact assessment	7-195
Table 7.14	Agricultural land identified by the Audit within the Project footprint where not using existing rail and road corridors	7-70	Table 7.41	Assessment of land use and tenure cumulative impacts	7-196
Table 7.15	Current intensive livestock operations within, or in proximity to, the Project footprint	7-71			
Table 7.16	Stock routes that interface with the Project	7-72			
Table 7.17	Coal resource area within the Project footprint	7-75			
Table 7.18	Utilities within the Project footprint	7-77			
Table 7.19	Prescribed environmentally relevant activities located within the land use study area	7-77			
Table 7.20	State Planning Policy State interests	7-147			
Table 7.21	Goondiwindi Region Planning Scheme zones within the Project footprint	7-152			
Table 7.22	Toowoomba Regional Planning Scheme zones within the Project footprint	7-153			
Table 7.23	Development activity within the impact assessment area	7-154			
Table 7.24	Potential partial or full land acquisitions within the permanent footprint	7-157			
Table 7.25	Nominated laydown areas and their USE	7-159			
Table 7.26	Land type within the Project footprint (outside of existing rail and road corridors) per LGA	7-163			
Table 7.27	Percentage of land type within Goondiwindi LGA traversed by the Project footprint (outside of existing rail and road corridors)	7-164			

7. Land Use and Tenure

7.1 Introduction

The purpose of this chapter is to identify existing land use and tenure within the impact assessment area (refer Section 7.4.1), assess the potential impacts of the Inland Rail—Border to Gowrie Project (the Project) on land use and tenure arrangements and to identify appropriate mitigation measures to address such impacts.

This chapter identifies the land use and tenure aspects relevant to the Project and, in doing so, addresses the following:

- ▶ The relevant legislative context for land use and tenure for the Project (refer Section 7.3)
- ▶ The existing land tenure for properties within the impact assessment area, including those required for construction (refer Section 7.5.1)
- ▶ The existing land use values within the impact assessment area, including those required for construction (refer Section 7.5.2)
- ▶ The likely and planned future land use environment within the impact assessment area (refer Section 7.5.3)
- ▶ The potential impacts of the Project on tenure within the impact assessment area (refer Section 7.6.1)
- ▶ The potential impacts of the Project on existing and future land uses within the impact assessment area (refer Section 7.6.3)
- ▶ Mitigation measures relevant to land use and tenure issues (refer Section 7.7)
- ▶ An assessment of consistency with the provisions of the relevant land-use planning instruments (refer Section 7.8)
- ▶ Consideration of the potential cumulative impacts to land use and tenure (refer Section 7.9).

7.2 Terms of Reference requirements

This chapter has been prepared to address the section of the Terms of Reference (ToR) of relevance to land use and tenure. A compliance check of this chapter against each of the relevant components of the ToR is presented in Table 7.1. Compliance of the EIS against the full ToR is documented in Appendix B: Terms of Reference compliance table.

TABLE 7.1 COMPLIANCE AGAINST RELEVANT SECTIONS OF THE TERMS OF REFERENCE

Land use and tenure Terms of Reference requirements		EIS section
Existing environment		
10.2	Provide real property descriptions of the proposed alignment	Appendix F: Impacted Properties
10.3	Describe and map at suitable scales key transport infrastructure including national highways, State-controlled roads, local roads, rail lines and corridors, tunnels (including road and rail), airports, and other infrastructure or services (including gas and water pipelines, and electricity transmission and distribution powerlines) existing, under construction or proposed which may be impacted within the study area.	Section 7.5 Figure 7.4, Figure 7.5, Figure 7.6 and Figure 7.7
10.5	Describe and illustrate specific information about the proposed project including the precise location of the proposed alignment in relation to designated areas, such as transport corridors, protected areas and areas of regional interest and agricultural land uses identified in the Queensland Agricultural Land Audit (see Appendix 1). Consideration should also be given to Key Resource Areas (KRA's) petroleum and gas pipelines, explosive magazines (storage and manufacturing facilities) abandoned mines and mining (exploration and production) tenures.	Section 7.5 Figure 7.4, Figure 7.5, Figure 7.6 and Figure 7.7
10.9	Describe the planning schemes, regional plans, state policies and government priorities for the proposed alignment including those that have been publicly notified. This description should include those instruments currently under development that may be implemented within the project's planning and construction timeframes.	Sections 7.3 and 7.8

Land use and tenure Terms of Reference requirements		EIS section
11.70	Detail the existing land use values for all areas associated with the proposed alignment.	Section 7.5
11.71	Discuss the compatibility of the Project with land that includes the proposed alignment and surrounding land which will be impacted by the Project. The discussion should include:	-
	a) existing and proposed land uses in and around the proposed alignment, referring to regional plans and the local government planning schemes	Sections 7.5.2 and 7.5.3.1
	b) State interests identified in the SPP (e.g. KRA No. 120 Kildonan)	Sections 7.5.1.2, 7.5.1.3 and 7.5.3.1
	c) any land characteristics that influenced the choice of the proposed alignment	Section 7.5.2
	d) a description and illustration of any tenures overlying and adjacent to the proposed alignment, and any to be applied for as part of this project and the legal implications and requirements of this tenure	Sections 7.5.1 and 7.5.2
	e) an analysis of the agricultural land uses based on the Agricultural Land Audit in the Project area	Section 7.5.2.2
	f) any petroleum and gas pipeline licence tenures and resource tenure holders within the vicinity of the proposed corridor.	Sections 7.5.1.2 and 7.5.1.3
Impact assessment		
11.72	Describe the potential for impact on all land uses during construction and operation of the Project. The assessment should include consideration of temporary and permanent impacts on agricultural production.	Section 7.6.3
11.73	Describe the potential for impact on existing holders of resource tenures, including consideration of safety and resource sterilisation where appropriate.	Section 7.6.3.4
11.74	Identify tenure required for the Project to proceed, including, proposed easements, leases or licences including the timing of such acquisitions or tenure changes.	Section 7.6.1
11.75	Provide evidence of consultation with the relevant owners/licensees of gas/petroleum pipelines in the vicinity of the rail corridors. Provide detail of agreed risk management strategies for project construction and operation with regard to the gas/petroleum pipelines. Demonstrate that the construction and operation of the Project will not inhibit the safe and efficient operation of the pipelines.	Section 7.7.2.4
11.76	Describe impacts on existing uses of State land, including State forest and uses either allowed by current tenures or publicly proposed by government at the time of preparation of the EIS.	Section 7.7.2.1
11.77	Discuss the proposal in the context of the applicable regional plans and local planning schemes.	Sections 7.5.3.1 and 7.8
11.78	Describe the potential impact of the construction and operation of the Project on existing land uses and land uses permitted under the relevant planning schemes along the proposed alignment and adjacent areas including impacts on stock routes, Council assets and KRAs. Discussion in relation to KRAs (including KRA No. 120 Kildonan) should describe the:	Section 7.6.3 and 7.6.3.4
	a) geological properties that may influence ground stability (including seismic activity), and how this might compromise rail infrastructure and operation over short and long-term time horizons	
	b) location, volume, tonnage and quality of natural resources present, and which will be potentially impacted by the Project.	

Land use and tenure Terms of Reference requirements		EIS section
Mitigation measures		
11.79	Identify the measures that would be used to avoid or mitigate any impact on land use values, including disruptions to uses of state land, the stock route network, the management of access arrangements and existing infrastructure remaining on reconfigured land parcels. Measures should include how any infrastructure built on state land will be managed, maintained or decommissioned post construction.	Section 7.7
11.80	Where coexistence with agriculture is not possible, provide mitigation and management measures to address potential associated impacts.	Section 7.7.2.2 under 'Impacts on agricultural land uses and activities'
11.81	Provide an outline of the land acquisition and compensation processes for properties directly impacted by the Project.	Sections 7.5.2 and 7.7.2.1
11.82	Provide details of measures to be undertaken to avoid, minimise and mitigate identified impacts on KRA No. 120.	Section 7.7.2.2 under 'Sterilisation of mineral and petroleum resources'
Native title		
11.83	Identify existing and potential native title rights and interests possibly impacted by the proposed project and describe how those impacts will be managed.	Sections 7.5.2, 7.6.2 and 7.7.2

7.3 Policies, standards and guidelines

The land-use planning frameworks, policies, plans and guidelines that regulate and guide land-use planning and tenure within the impact assessment area are outlined in Table 7.2.

The Commonwealth and State legislation applicable to the Project is discussed in Chapter 3: Legislation and Project Approvals Process.

TABLE 7.2 POLICIES, STANDARDS AND GUIDELINES RELEVANT TO THIS ASSESSMENT

Policy or guideline	Relevance to the Project
Policies	
<i>State Planning Policy (SPP)</i> (Department of Infrastructure, Local Government and Planning (DILGP), 2017c)	The SPP is a key component of the Queensland land-use planning system, which articulates the Queensland Government's 17 State interests in land-use planning and development across the following five key themes: ▶ Liveable communities and housing ▶ Economic growth ▶ Environment and heritage ▶ Safety and resilience to hazards ▶ Infrastructure. The SPP is a statutory instrument and requires that the State interests be integrated into local government planning schemes. Some State interests in the SPP include assessment benchmarks that apply to certain types of development where a local government planning scheme does not appropriately integrate the relevant State interest. A number of the State interests set out in the SPP are relevant to the Project. Details of the Project's consistency with the SPP is provided in Section 7.8.
Regional Plans	
<i>South East Queensland Regional Plan</i> (ShapingSEQ) (DILGP, 2017a)	In Queensland, regional planning seeks to provide long-term strategic direction to support the local growth and development of the State's regions as well as the protection of natural resources, having regard to the issues, challenges and opportunities that are important and specific within regional areas. Regional planning is regulated by the <i>Planning Act 2016</i> (Qld) (Planning Act) the <i>Regional Planning Interest Act 2014</i> (Qld) and associated regulations. ShapingSEQ is the regional plan for the South East Queensland (SEQ) region and was given effect on 11 August 2017. ShapingSEQ provides the regional framework for growth and sets a planning direction for sustainable growth, global economic competitiveness and high-quality living. The Project is partially located within the SEQ region, of which ShapingSEQ applies as the relevant statutory regional plan. The Project is also identified as a major enabling infrastructure for the SEQ region. Details of the Project's consistency with ShapingSEQ is provided in Section 7.8.

Policy or guideline	Relevance to the Project
<i>Darling Downs Regional Plan</i> (Department of State Development, Infrastructure and Planning (DSDIP), 2013b)	The <i>Darling Downs Regional Plan</i> is the regional plan for the Darling Downs region and came into effect in October 2013. The <i>Darling Downs Regional Plan</i> provides the strategic direction and policies to deliver regional outcomes that align with the State's interests in planning and development. The Project is located within the Darling Downs region, of which the <i>Darling Downs Regional Plan</i> applies as the relevant statutory regional plan. Details of the Project's consistency with the <i>Darling Downs Regional Plan</i> is provided in Section 7.8.
<i>Darling Downs Regional Transport Plan 2019</i> (Department of Transport and Main Roads (DTMR), 2019c)	The purpose of the <i>Darling Downs Regional Transport Plan</i> is to set out regional transport priorities and actions for developing the transport system in a way that supports regional goals for the community, economy and environment. The plan has been developed in accordance with the <i>Transport Planning and Coordination Act 1994</i> (Qld) and meets the department's legislative responsibility to develop integrated regional transport plans that complement land-use planning and support the goals and objectives of regional plans. The Project is located within the Darling Downs region. Furthermore, Inland Rail is recognised by the <i>Darling Downs Draft Regional Transport Plan</i> as a national Program with potential to support economic growth in the region through opportunities for connection into regional freight hubs and improving rail network efficiency.
Planning schemes	
<i>Goondiwindi Regional Council Planning Scheme</i> (Goondiwindi Regional Council (GRC), 2018a)	The <i>Goondiwindi Region Council Planning Scheme</i> is the primary planning document for land located within the Goondiwindi local government area (LGA). The Project is located within part of the Goondiwindi LGA. In accordance with Schedule 6, Part 5, Section 26(2) of the <i>Planning Regulation 2017</i>, development for the construction of transport infrastructure, where the infrastructure is government-supported transport infrastructure, cannot be made assessable by local categorising instruments. Consequently, the provisions of the <i>Goondiwindi Regional Council Planning Scheme</i> generally do not apply to the Project; however, certain Project impacts, such as potential modification of the Yelarbon levee, may remain assessable against the local planning scheme. The zoning intent for the area as determined by the <i>Goondiwindi Regional Council Planning Scheme</i> has been taken into consideration when determining the impacts of the Project on future land uses in the area. Details of the zoning intent of the impact assessment area is provided in Section 7.5.3.2.
<i>Toowoomba Regional Planning Scheme</i> (Toowoomba Regional Council (TRC), 2012)	The <i>Toowoomba Regional Planning Scheme</i> is the primary planning document for land located within the Toowoomba LGA. The Project is located within part of the Toowoomba LGA. In accordance with Schedule 6, Part 5, Section 26(2) of the <i>Planning Regulation 2017</i> (State of Queensland, 2017), development for the construction of transport infrastructure, where the infrastructure is government-supported transport infrastructure, cannot be made assessable by local categorising instruments. Consequently, the provisions of the <i>Toowoomba Regional Planning Scheme</i> generally do not apply to the Project; however, certain Project impacts may remain assessable against the local planning scheme. The zoning intent for the area as determined by the <i>Toowoomba Regional Planning Scheme</i> has been taken into consideration when determining the impacts of the Project on future land uses in the area. Details of the zoning intent of the impact assessment area is provided in Section 7.5.3.2.

7.4 Methodology

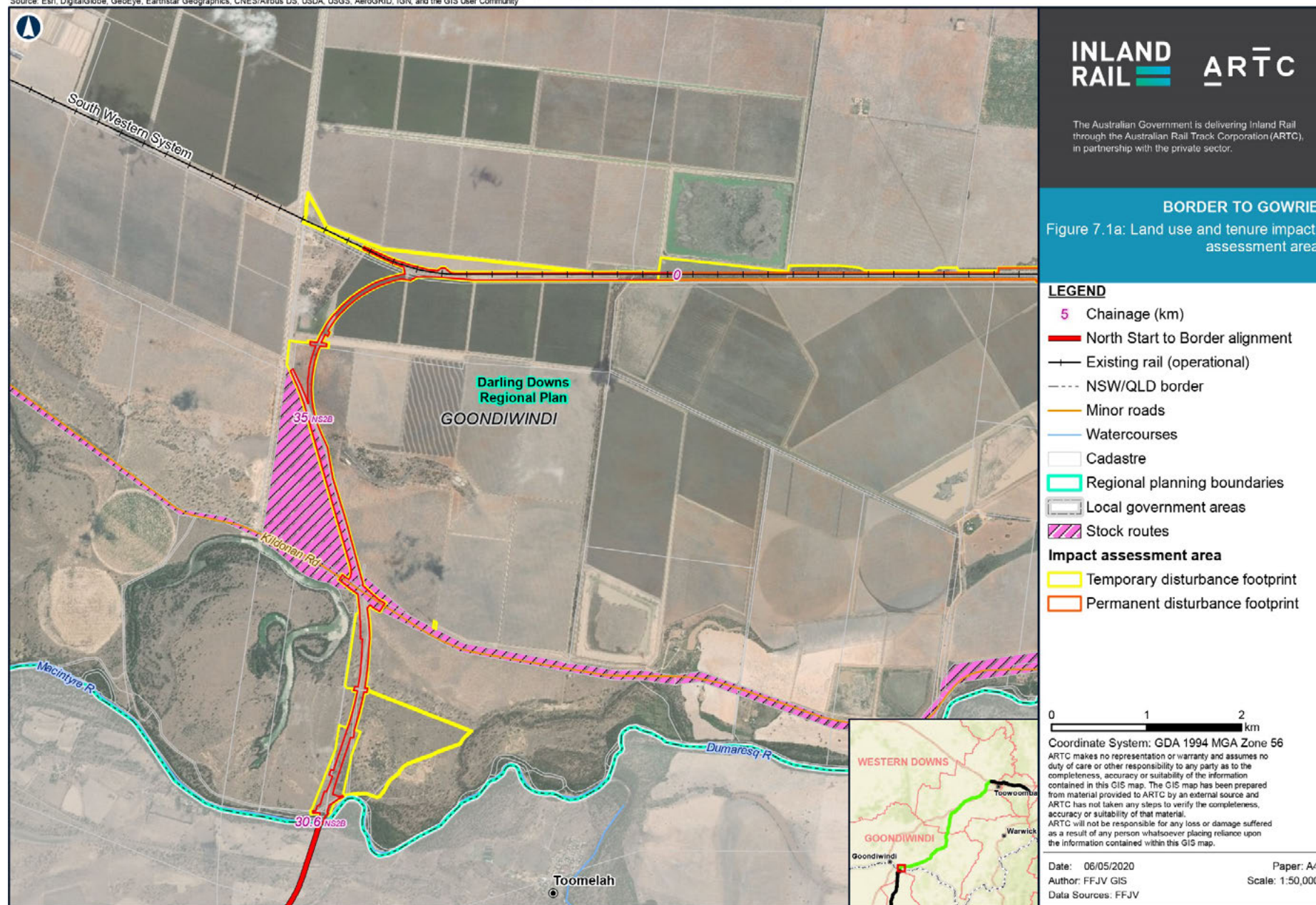
7.4.1 Impact assessment area

The impact assessment area for land use and tenure is the Project footprint, which is comprised of:

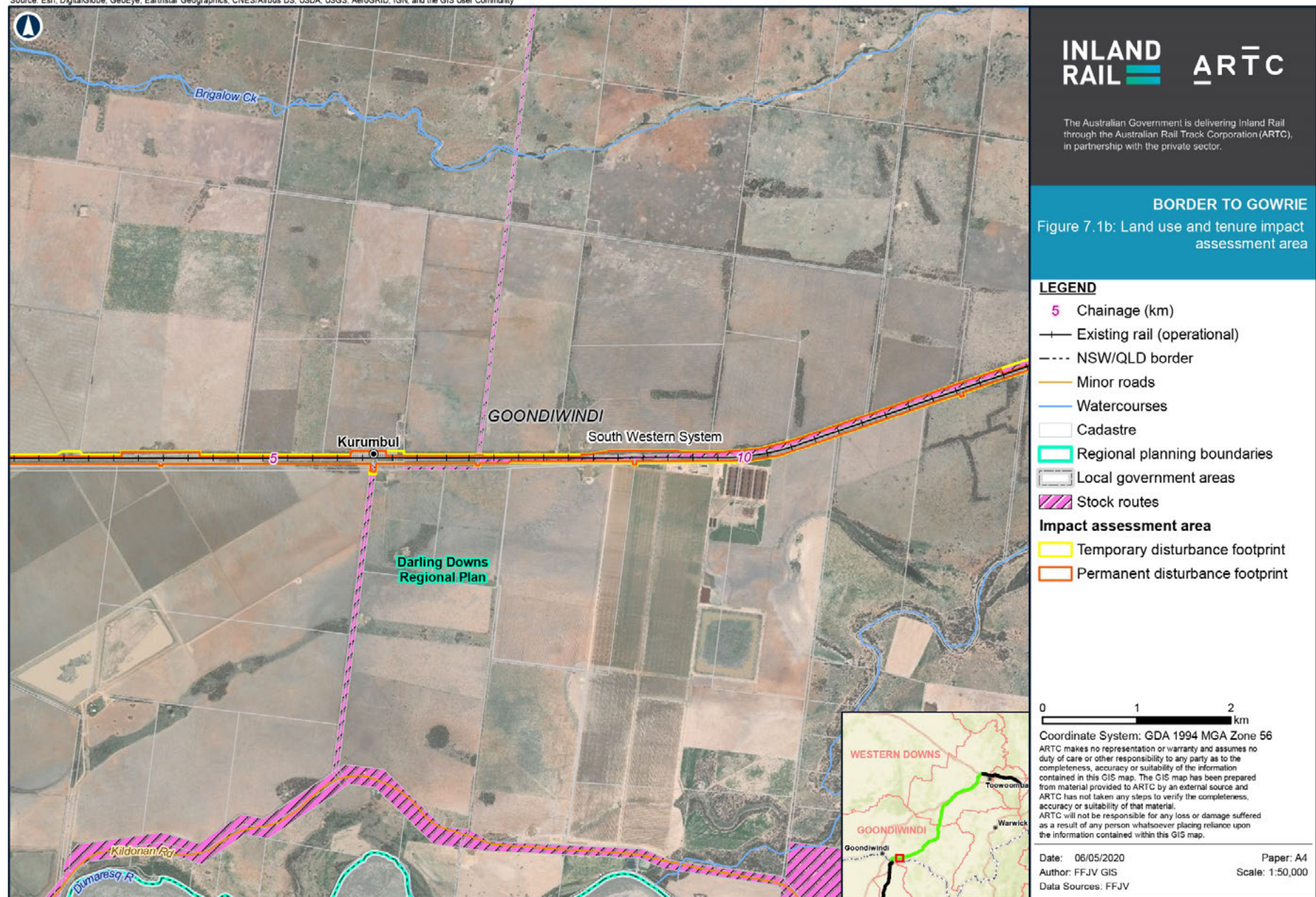
- ▶ **Permanent footprint:** The rail corridor, extent of earthworks, rail formation, tracks and associated infrastructure as well as other permanent works associated with the Project (e.g. where permanent changes to the road network are required due to the Project). The rail corridor is typically 40 m wide, however it is narrower in some locations to avoid localised impacts to existing infrastructure, where possible, (e.g. 22 m wide from Ch 7.5 km to Ch 10.0 km). In many instances it is wider to accommodate the earthworks associated with large cuts and fills, drainage works, rail infrastructure, access roads and fencing (e.g. 230 m at Ch 178.7 km). The nominated rail corridor allows for future possible upgrades of the crossing loops to accommodate trains up to 3,600 m in length.
- ▶ **Temporary footprint:** This is the anticipated footprint of construction activities where only temporary disturbance is proposed (e.g. laydown areas and site offices). The temporary footprint allows for a minimum 5 m footprint beyond the permanent footprint for site fencing and temporary drainage structures, erosion and sediment control, movement of plant and utilities connections. The temporary footprint provides for the roadworks associated with the construction of the railway, permanent realignments and new roads. A 20 m road corridor has typically been provided for all new and realigned roads.

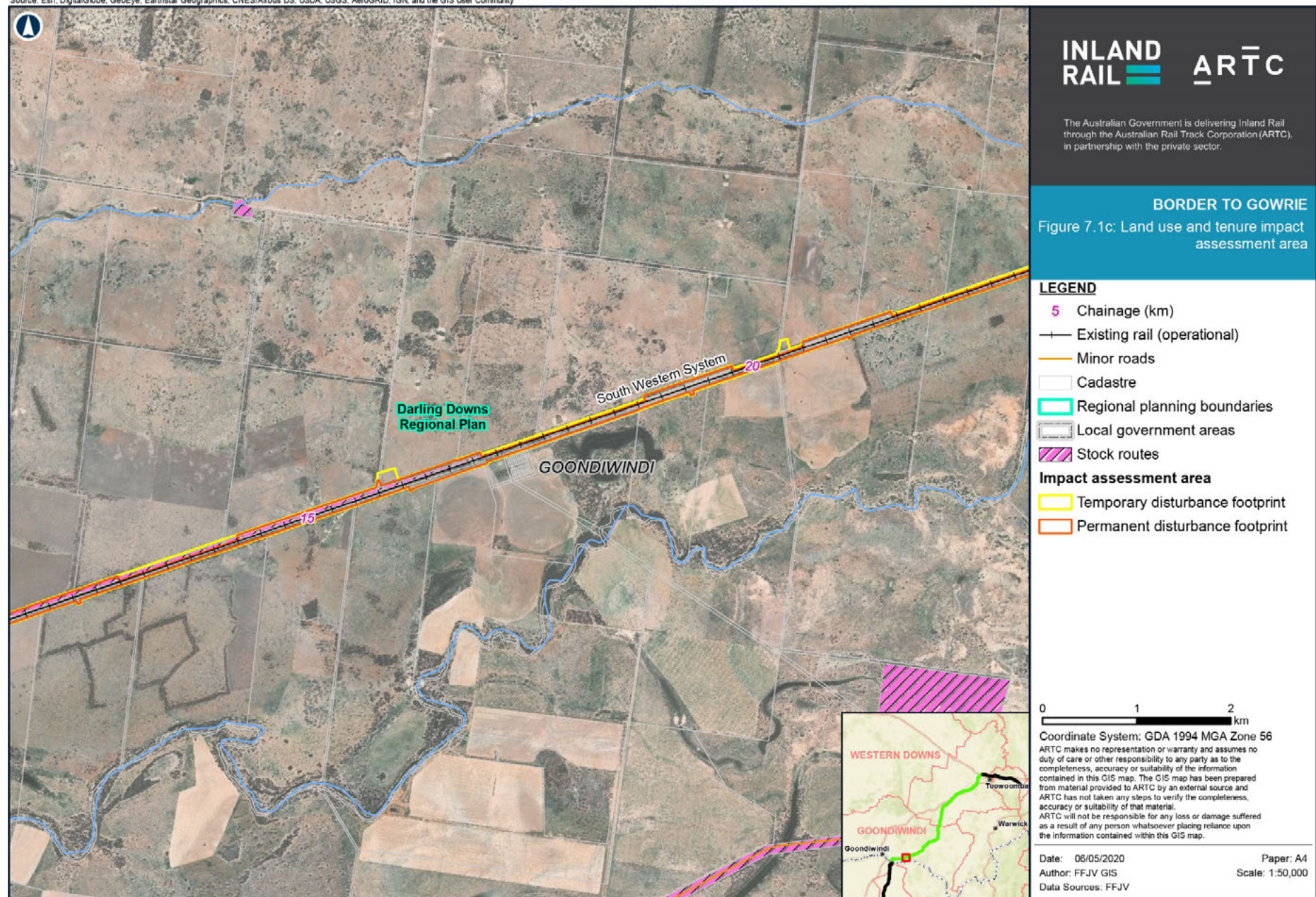
The impact assessment area for land use and tenure is depicted on Figure 7.1a to Figure 7.1w.

Where existing land use and tenure arrangement or potential impacts have been discussed, these are presented in the context of the permanent footprint, the temporary footprint or the Project footprint (both of the previous footprints combined).

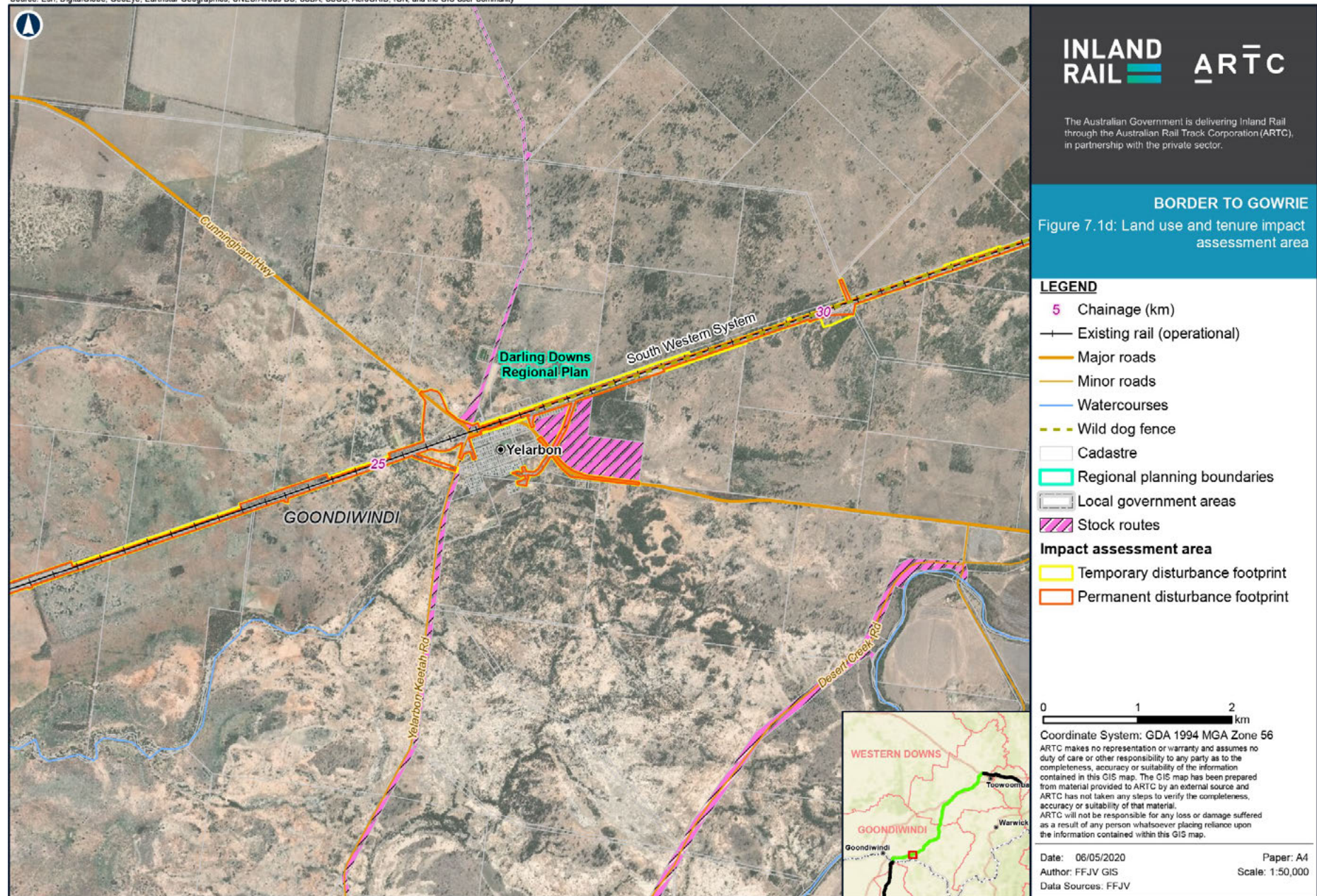


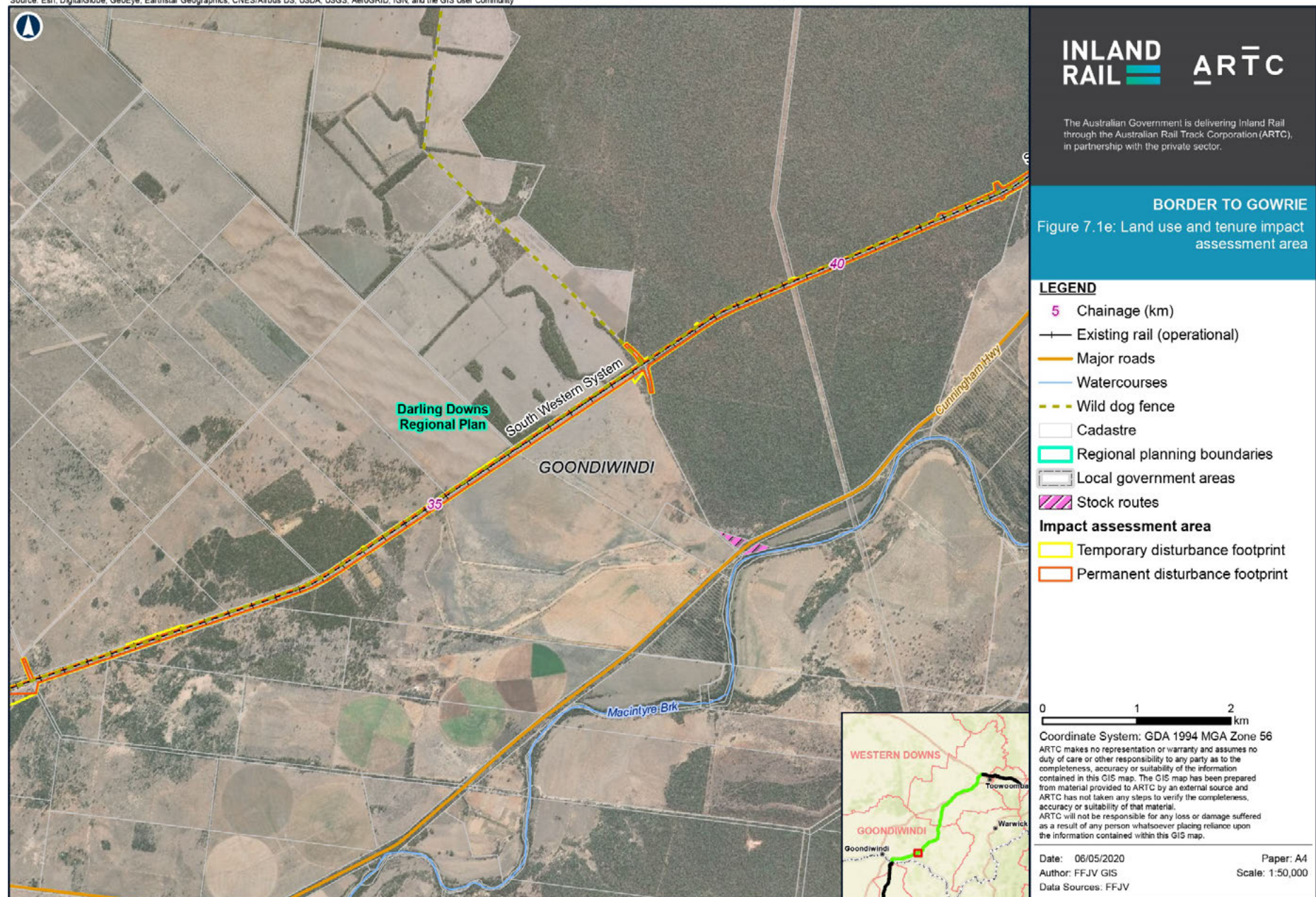
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



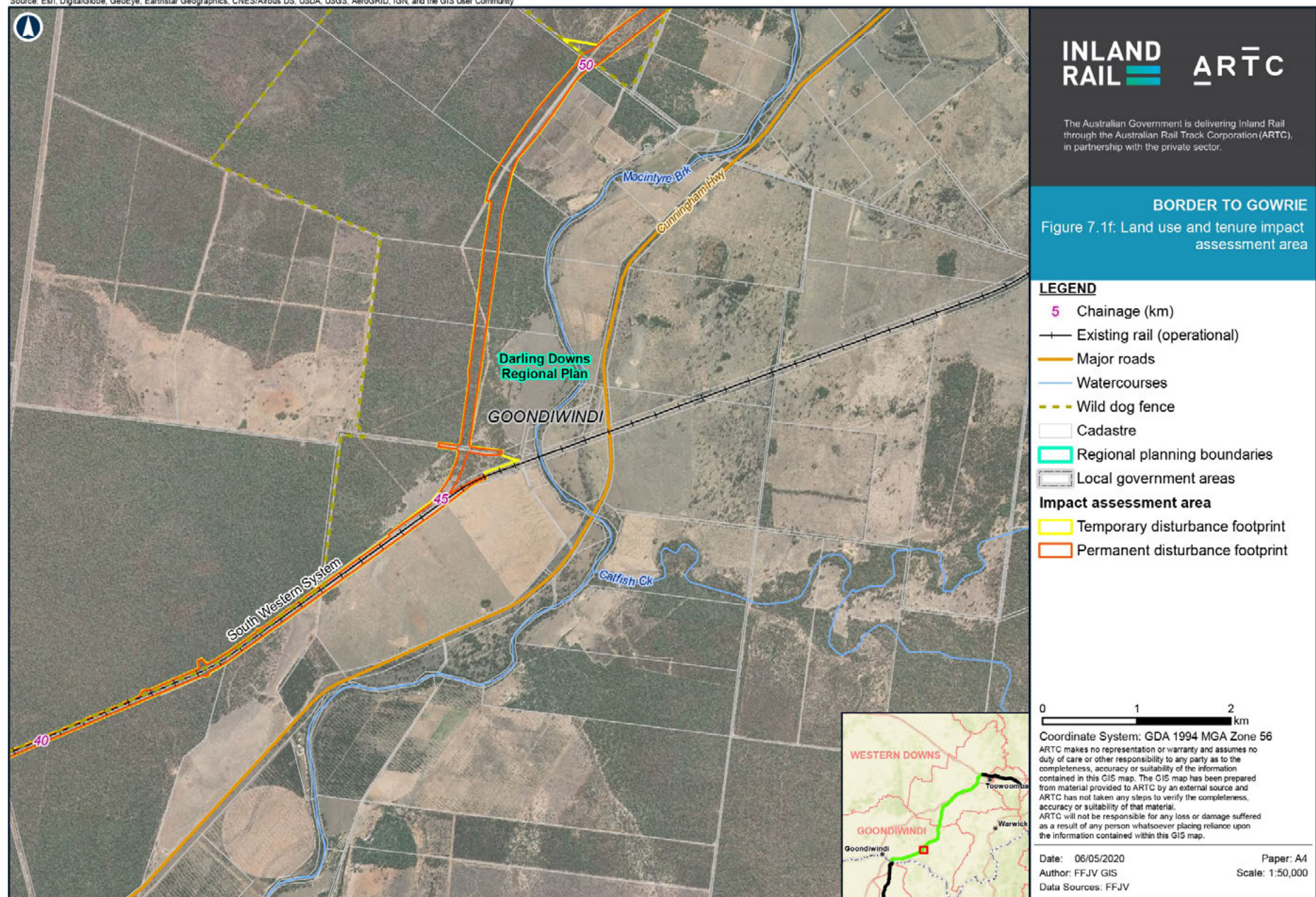


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

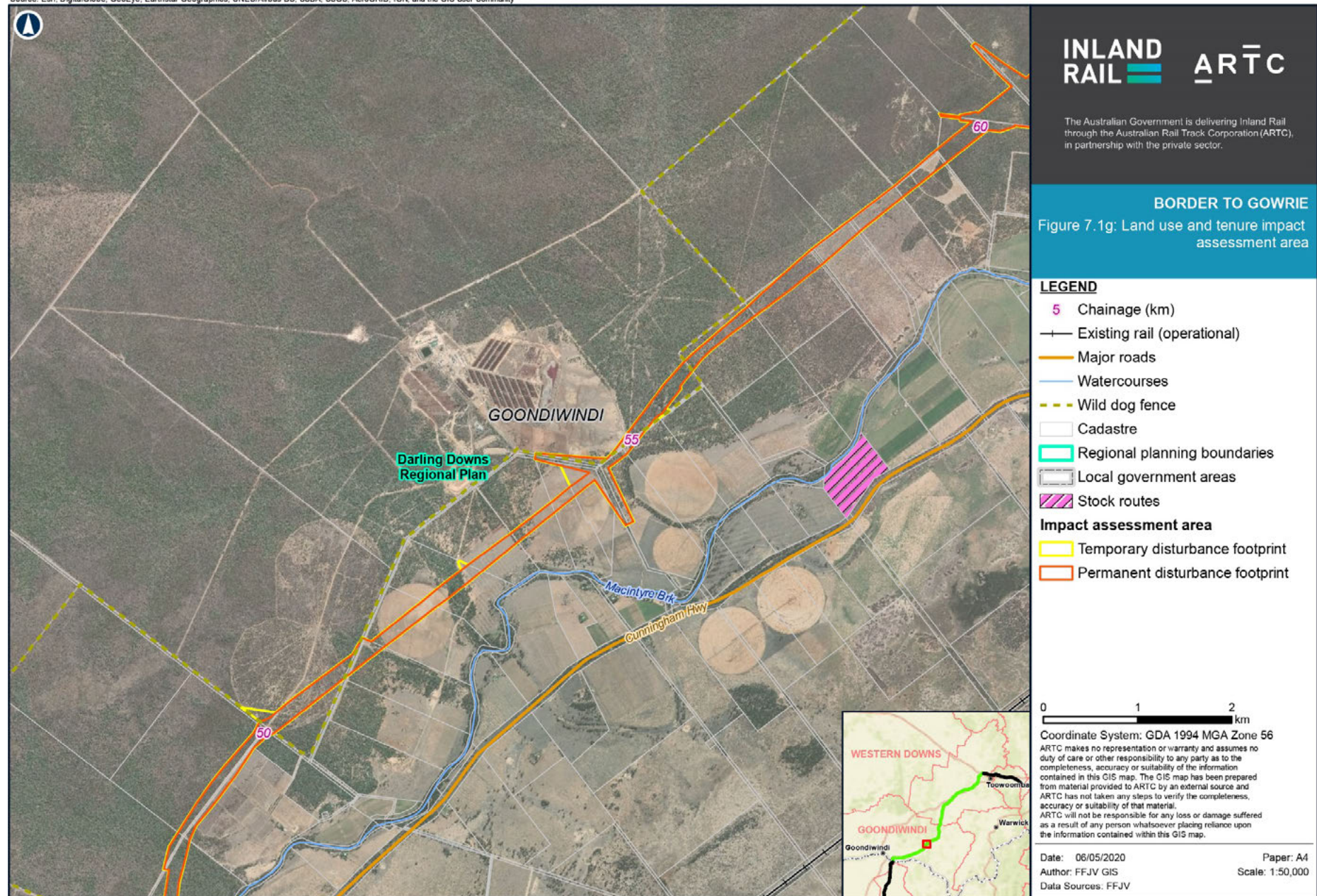


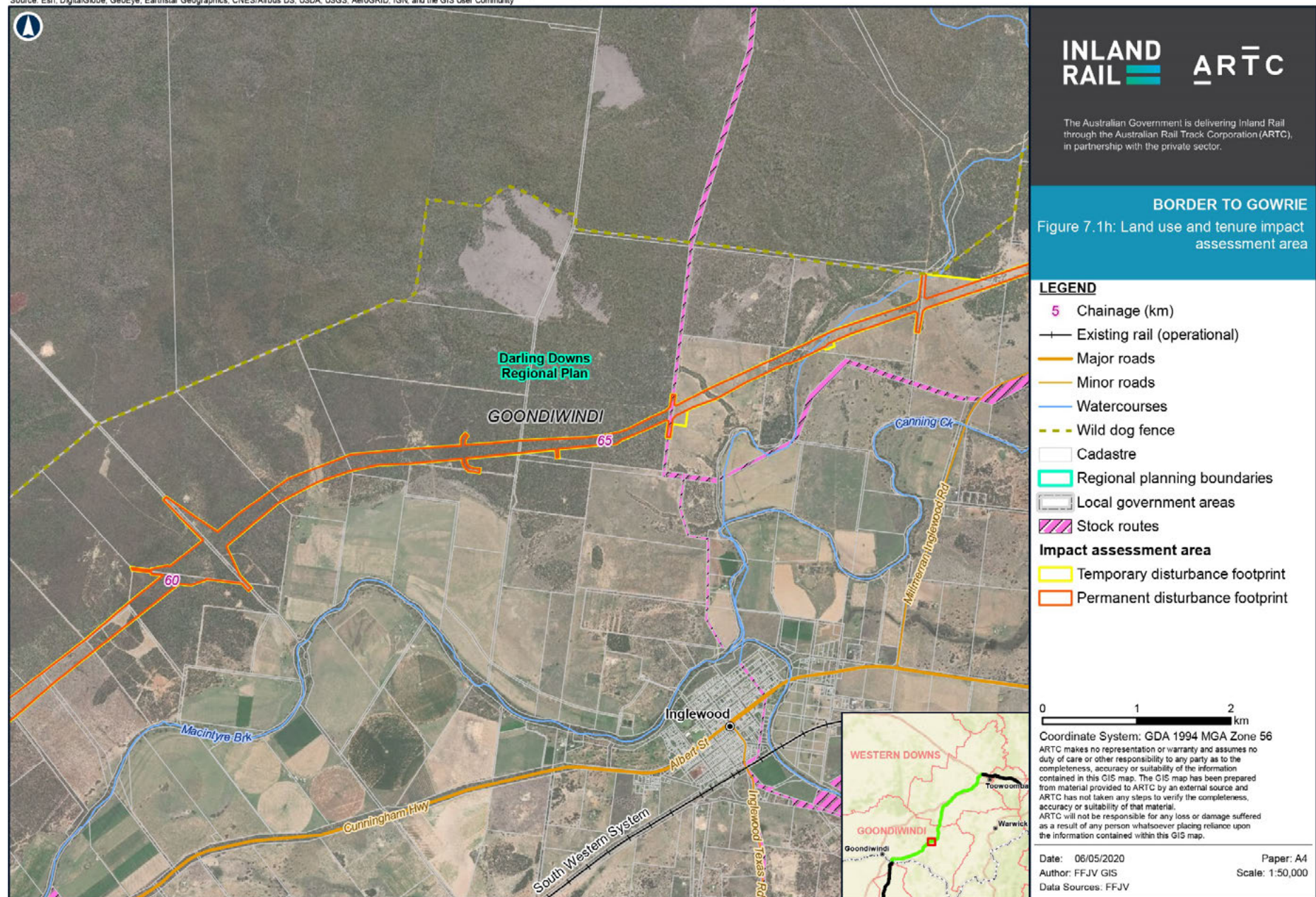


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

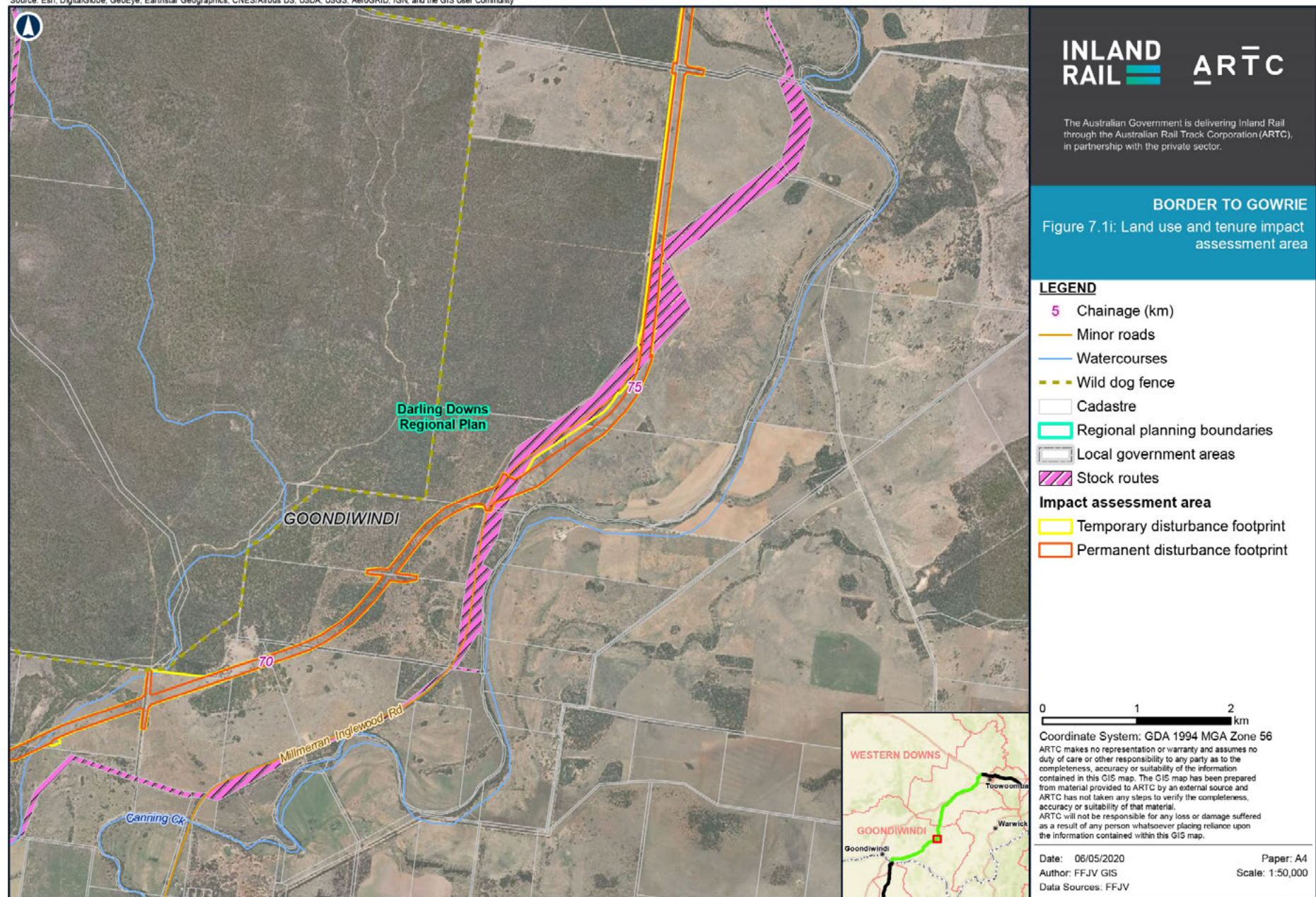


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

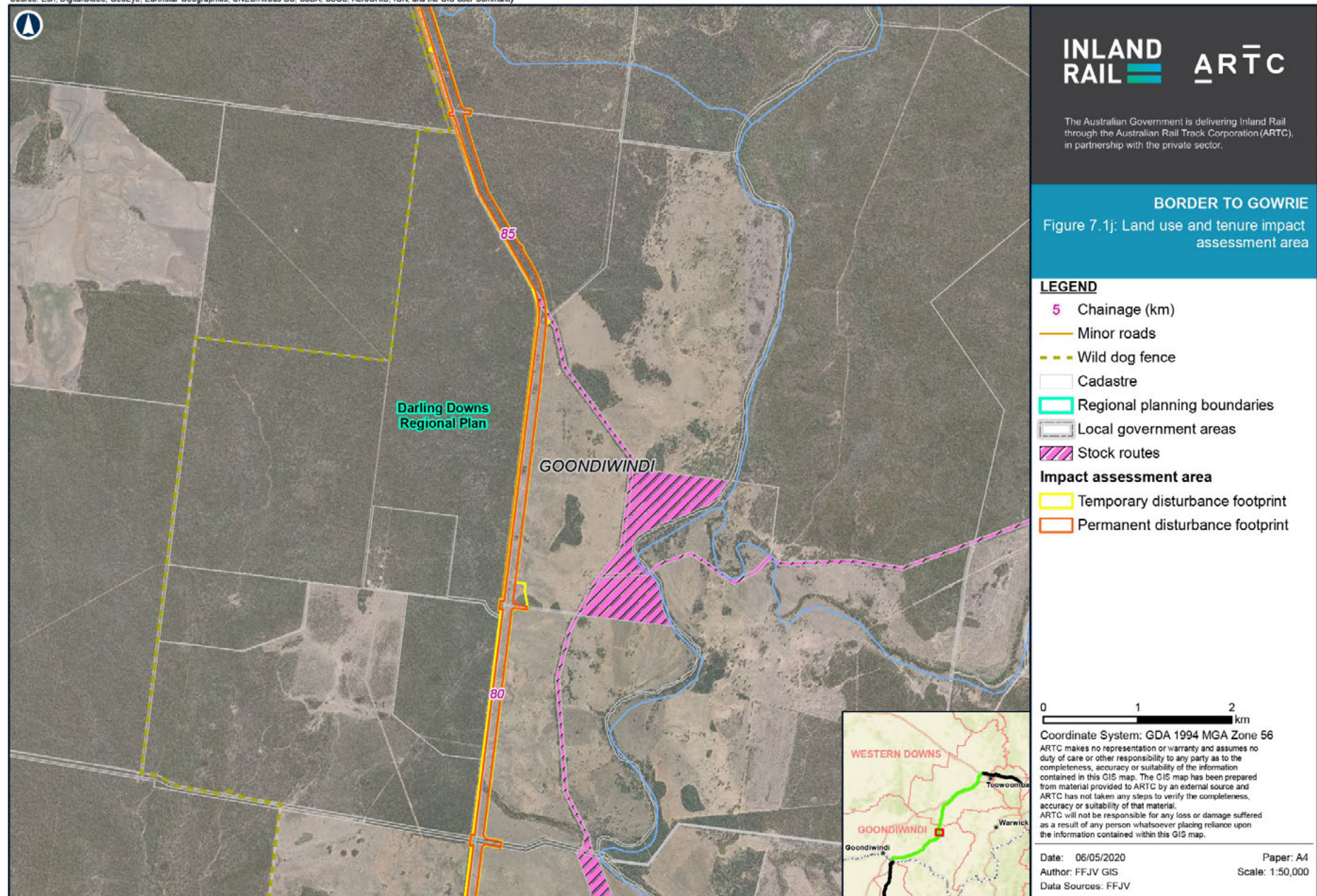


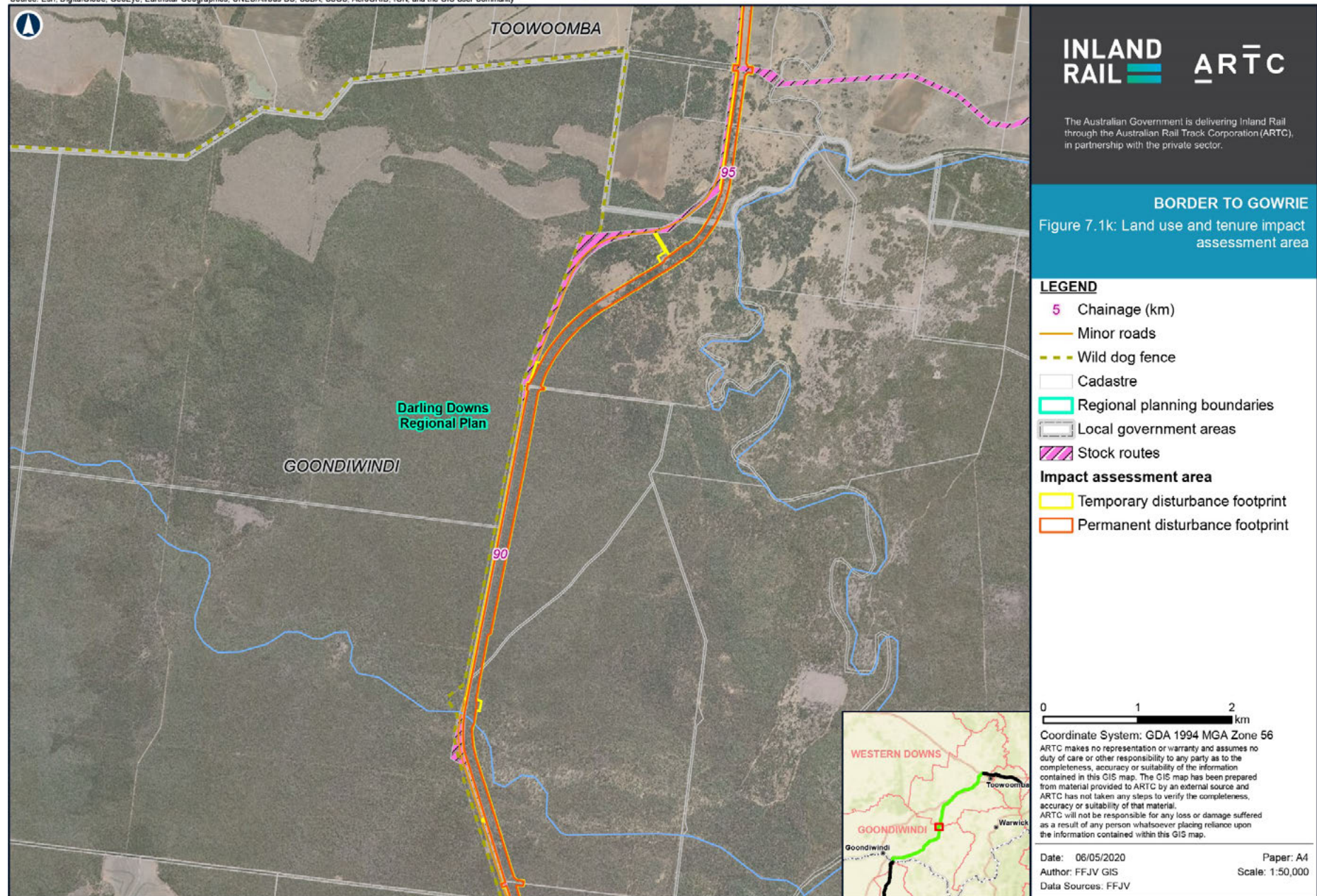


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

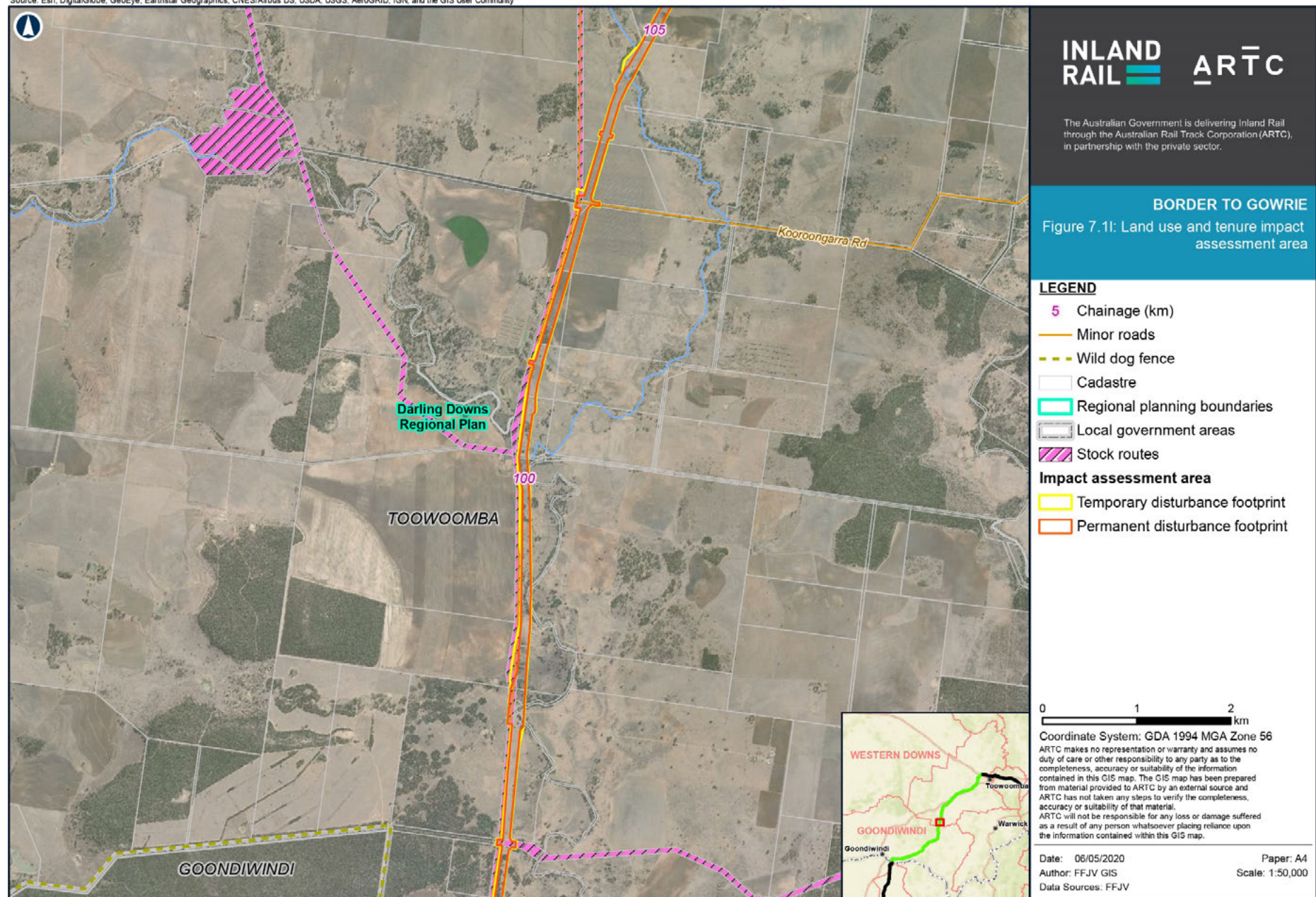


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

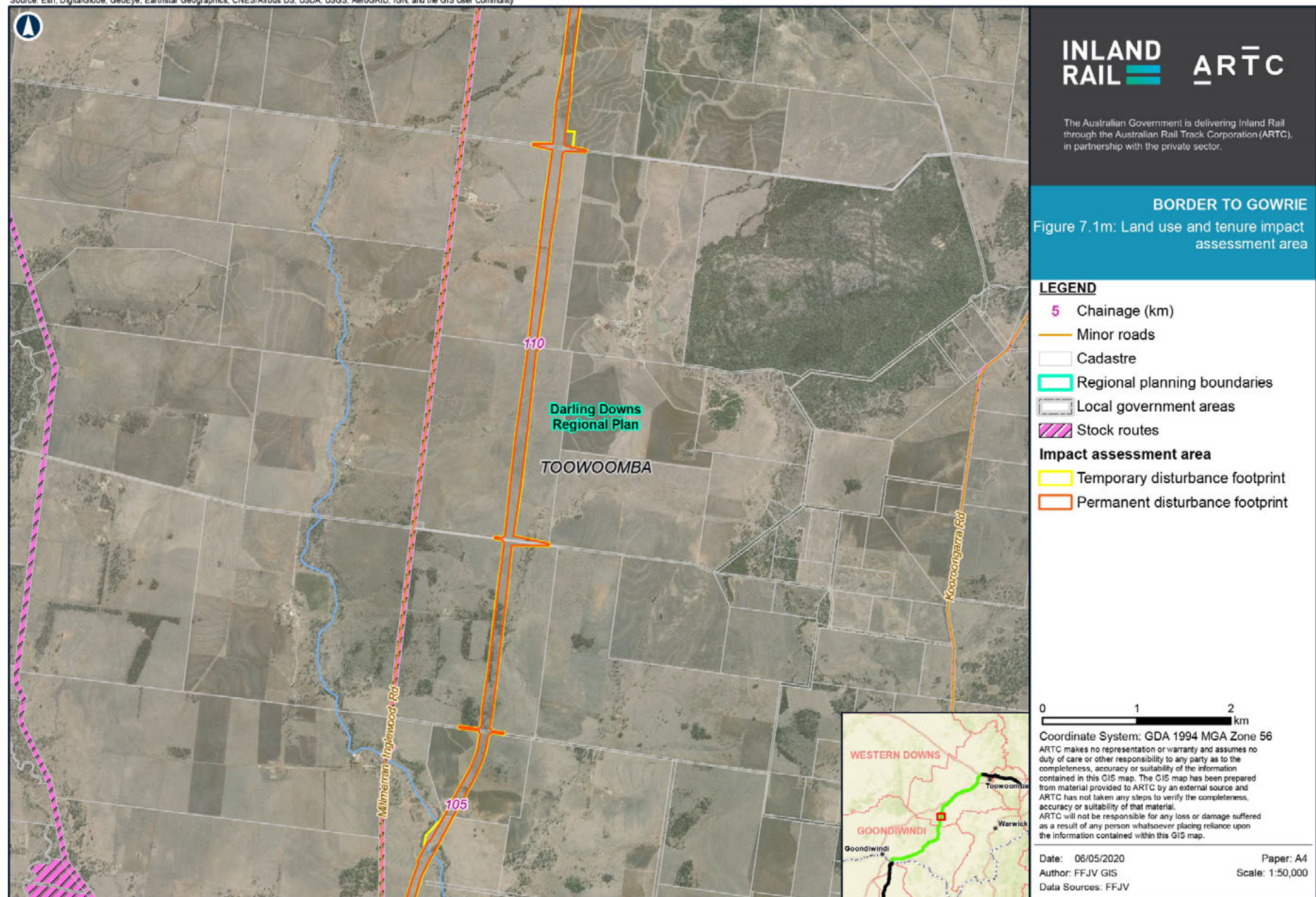




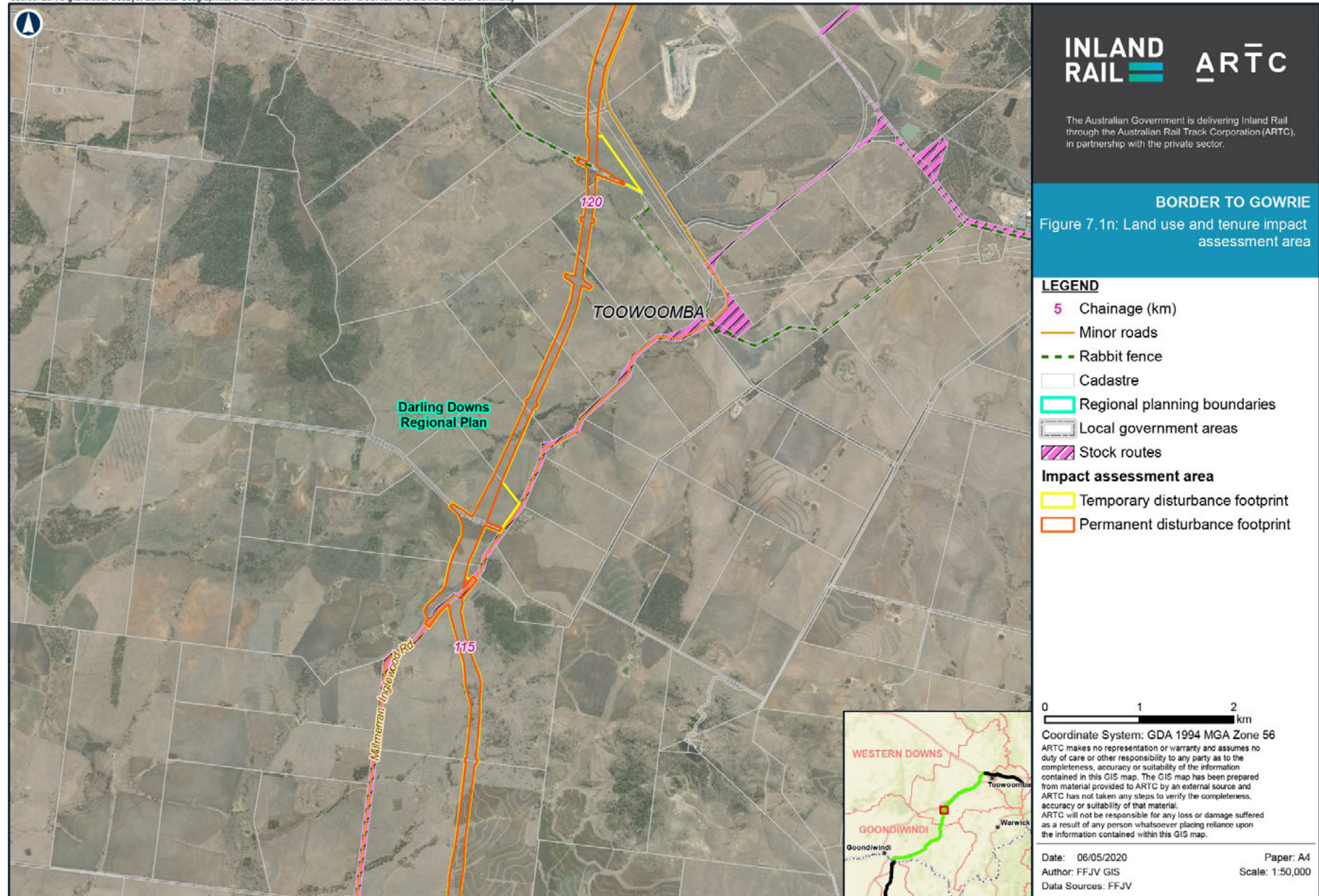
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

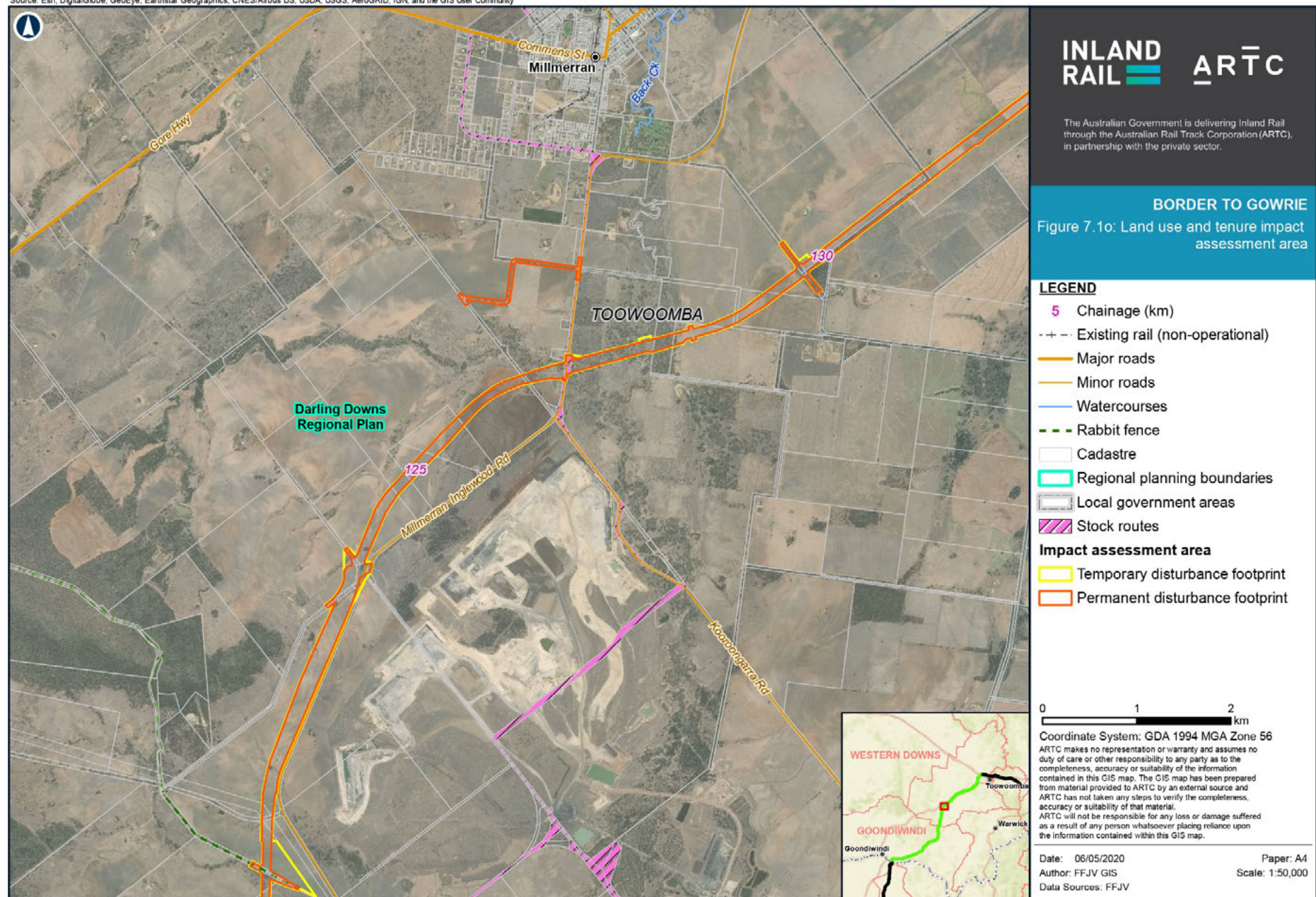


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

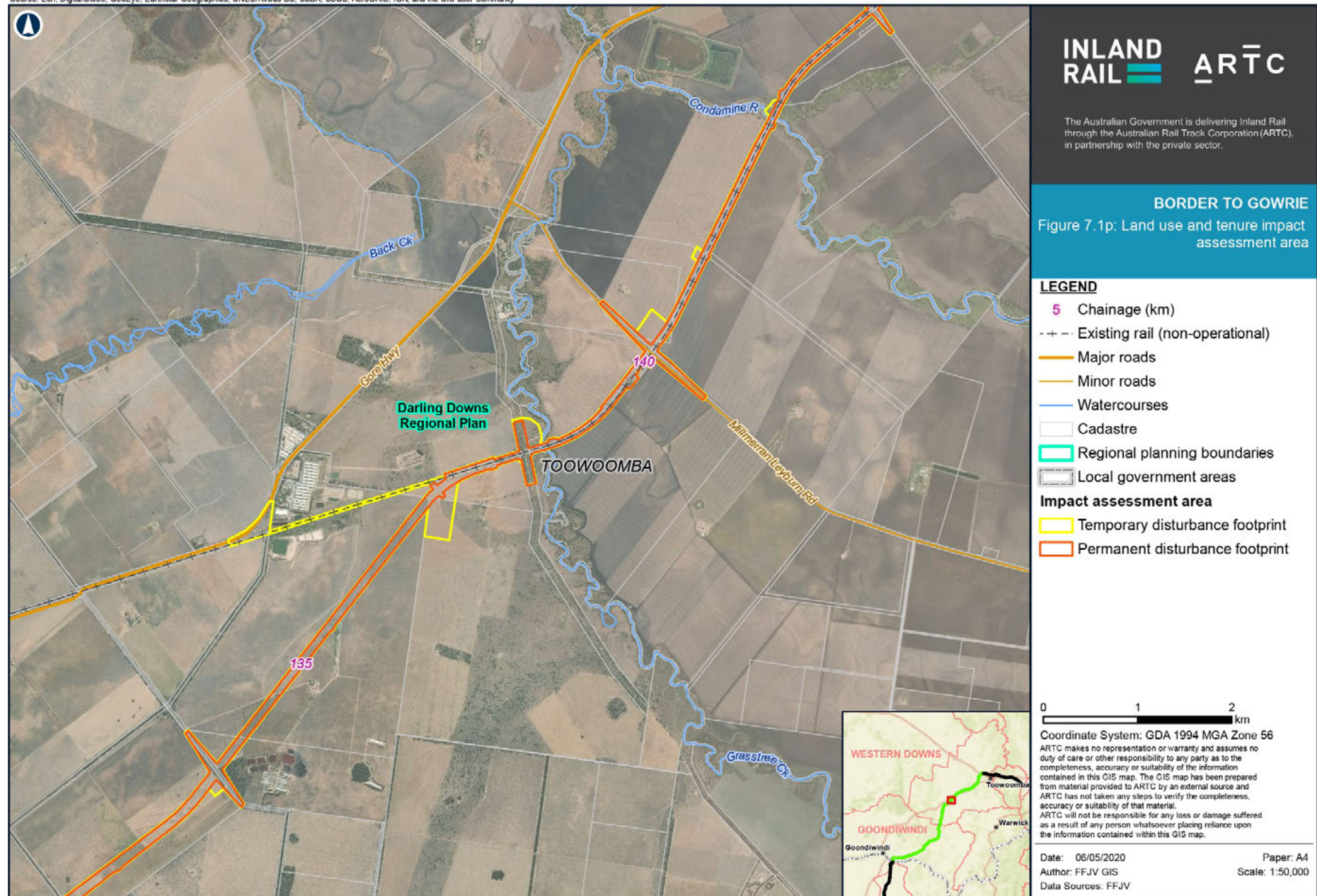


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



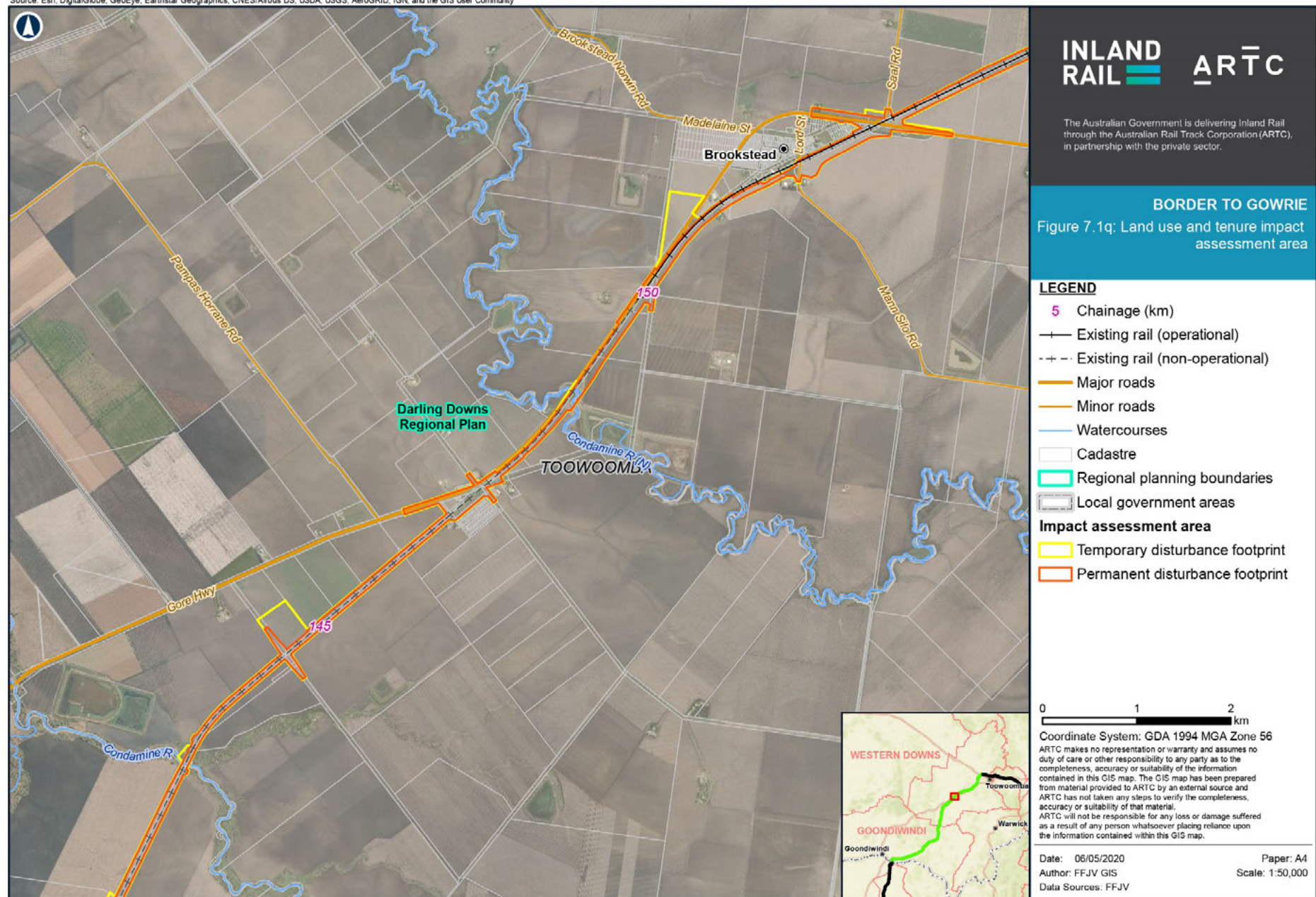


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



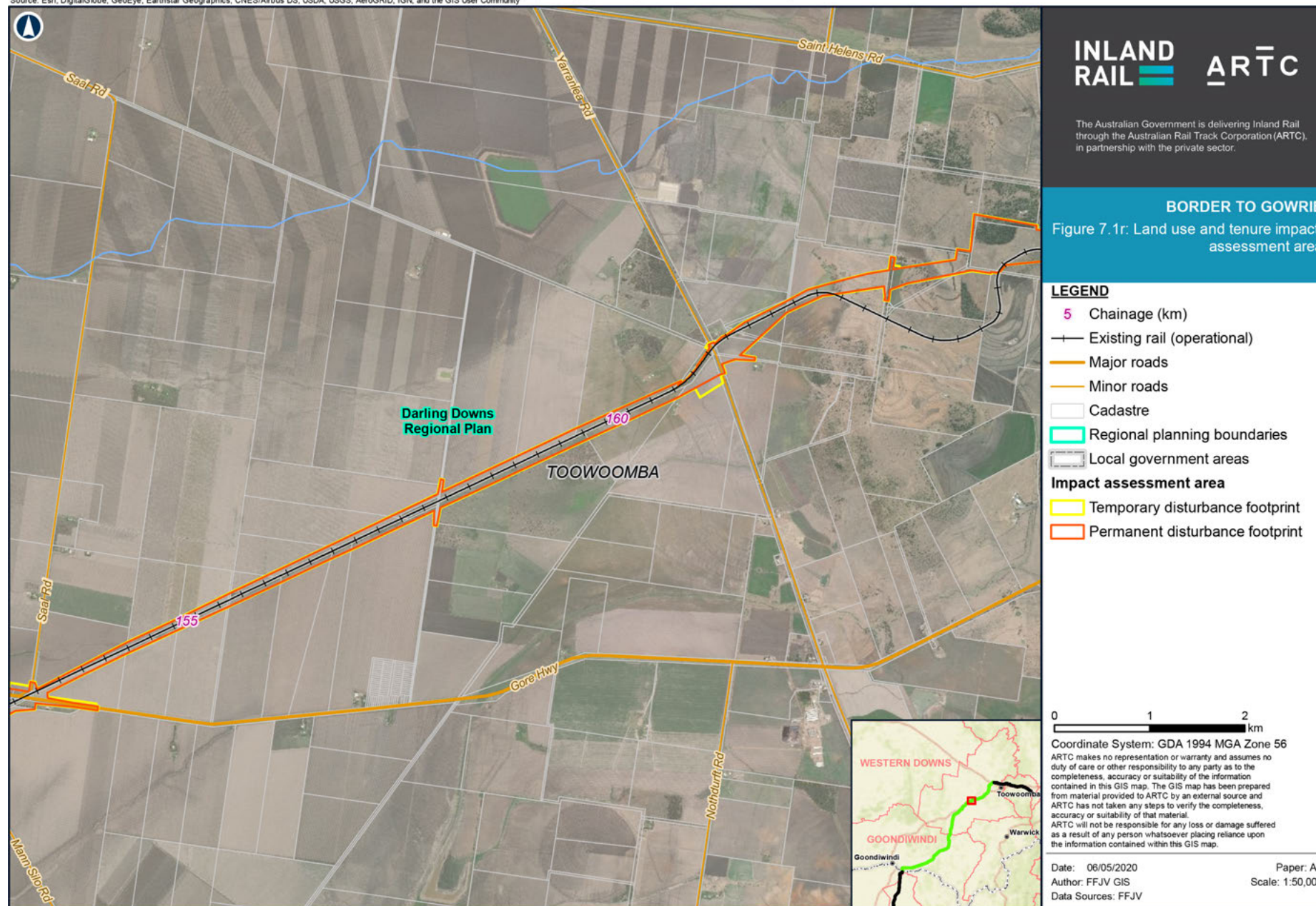
Map by: LUC/RB/CB/FC/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.1_Impact_AreaA4_v6.mxd Date: 6/05/2020 09:48

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

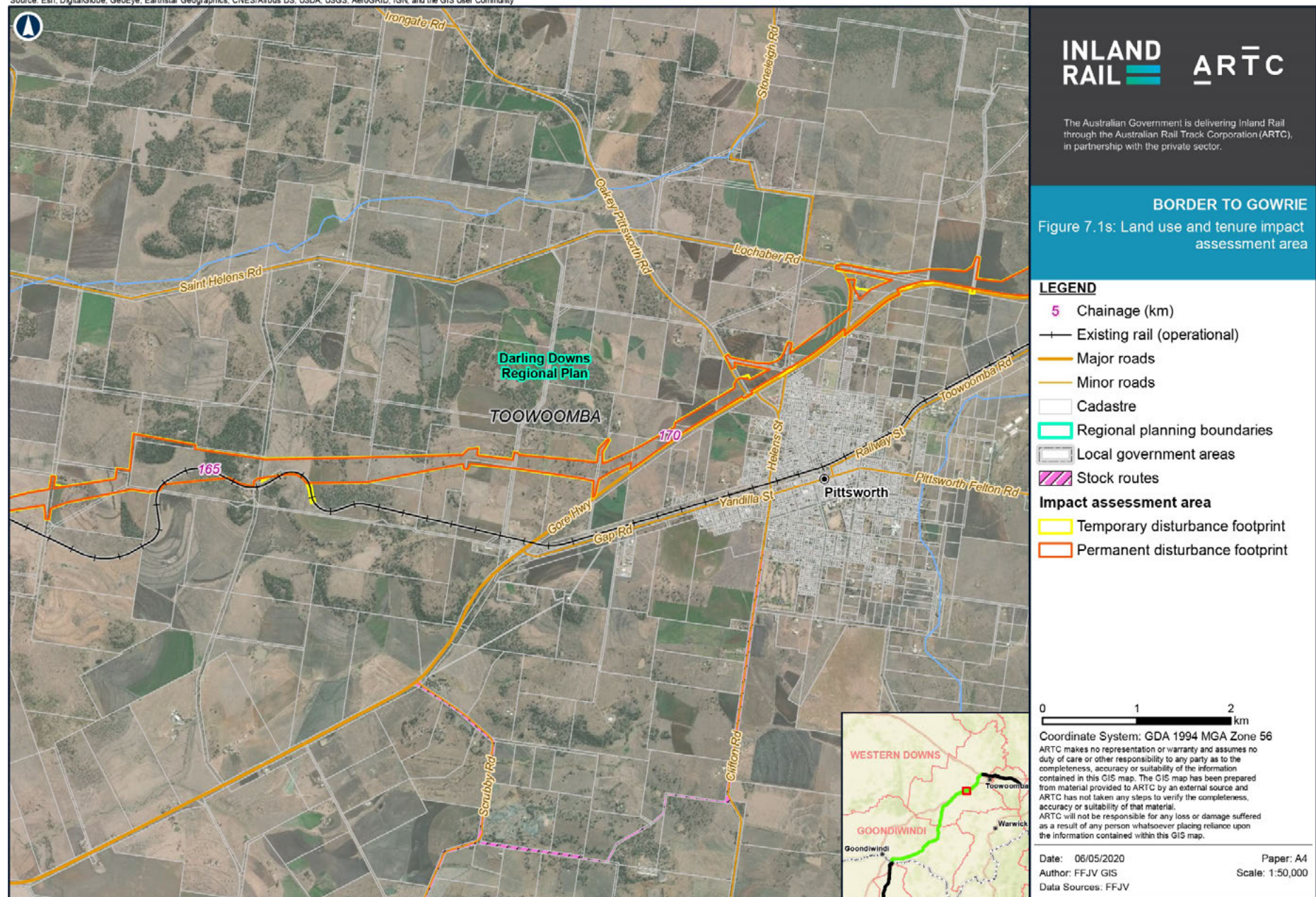


Map by: LUC/RB/CB/FC/KG Z:\GIS\GIS_310_B2\GIS\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.1_Impact_AreaA4_v6.mxd Date: 6/05/2020 09:48

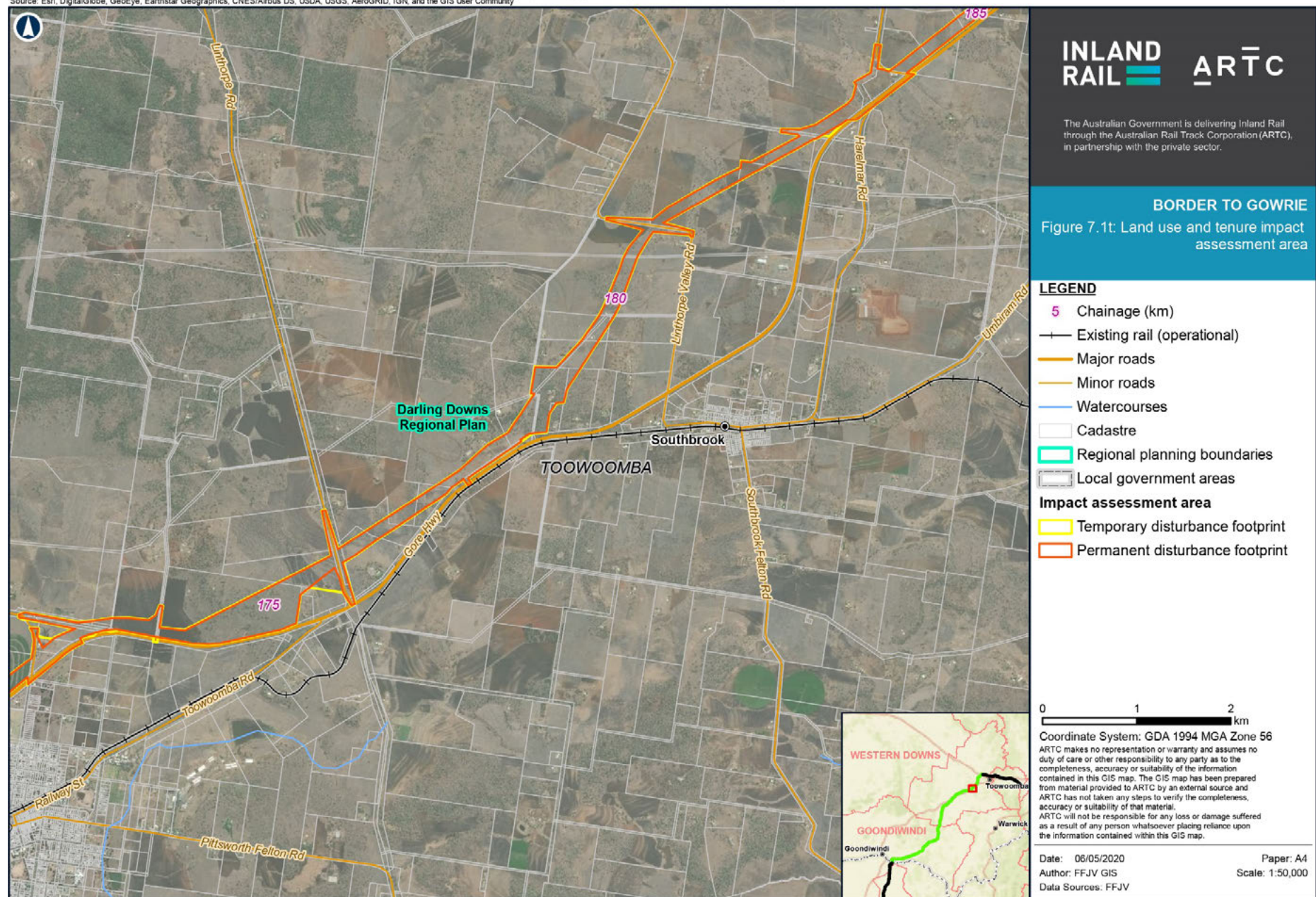
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



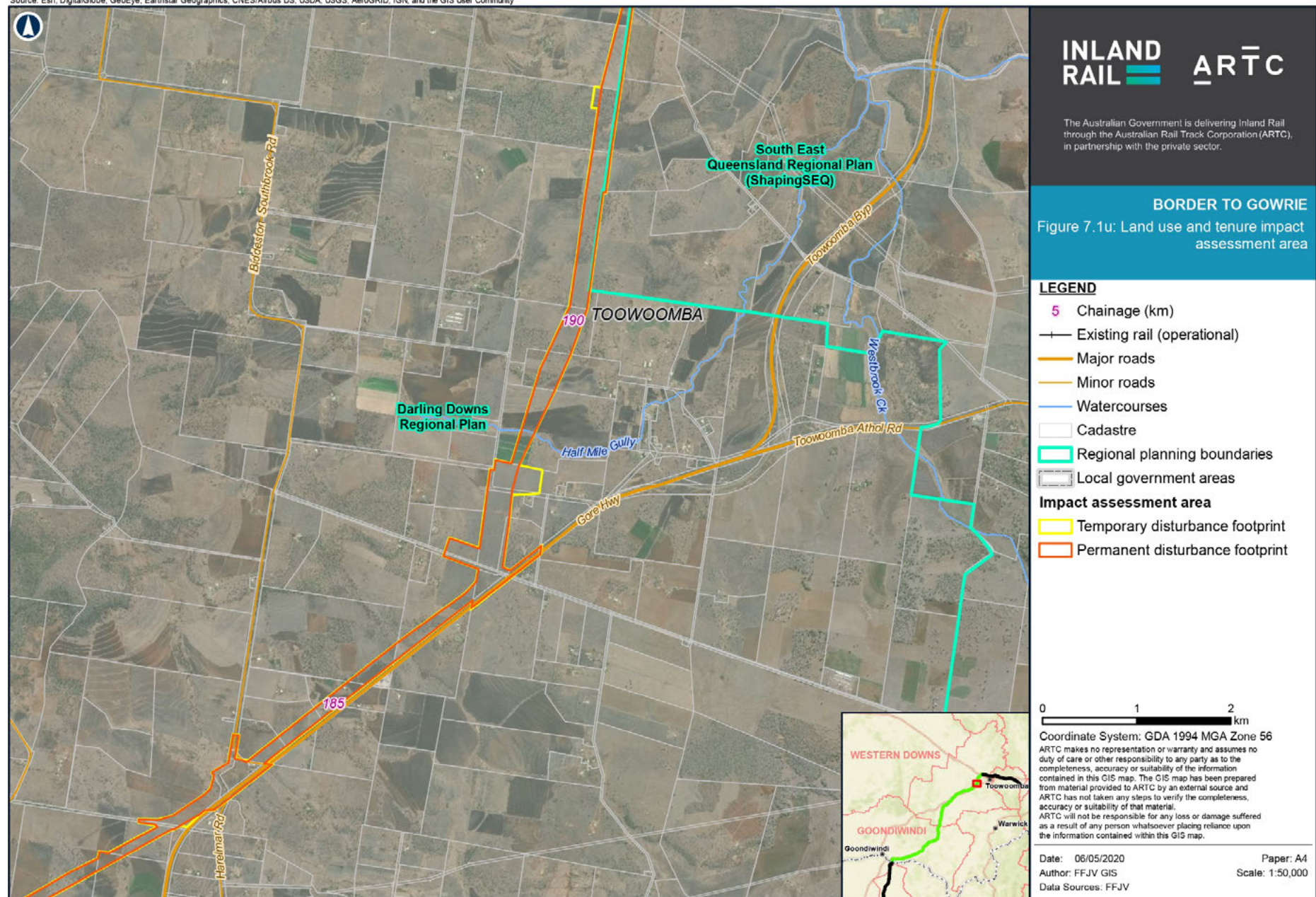
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



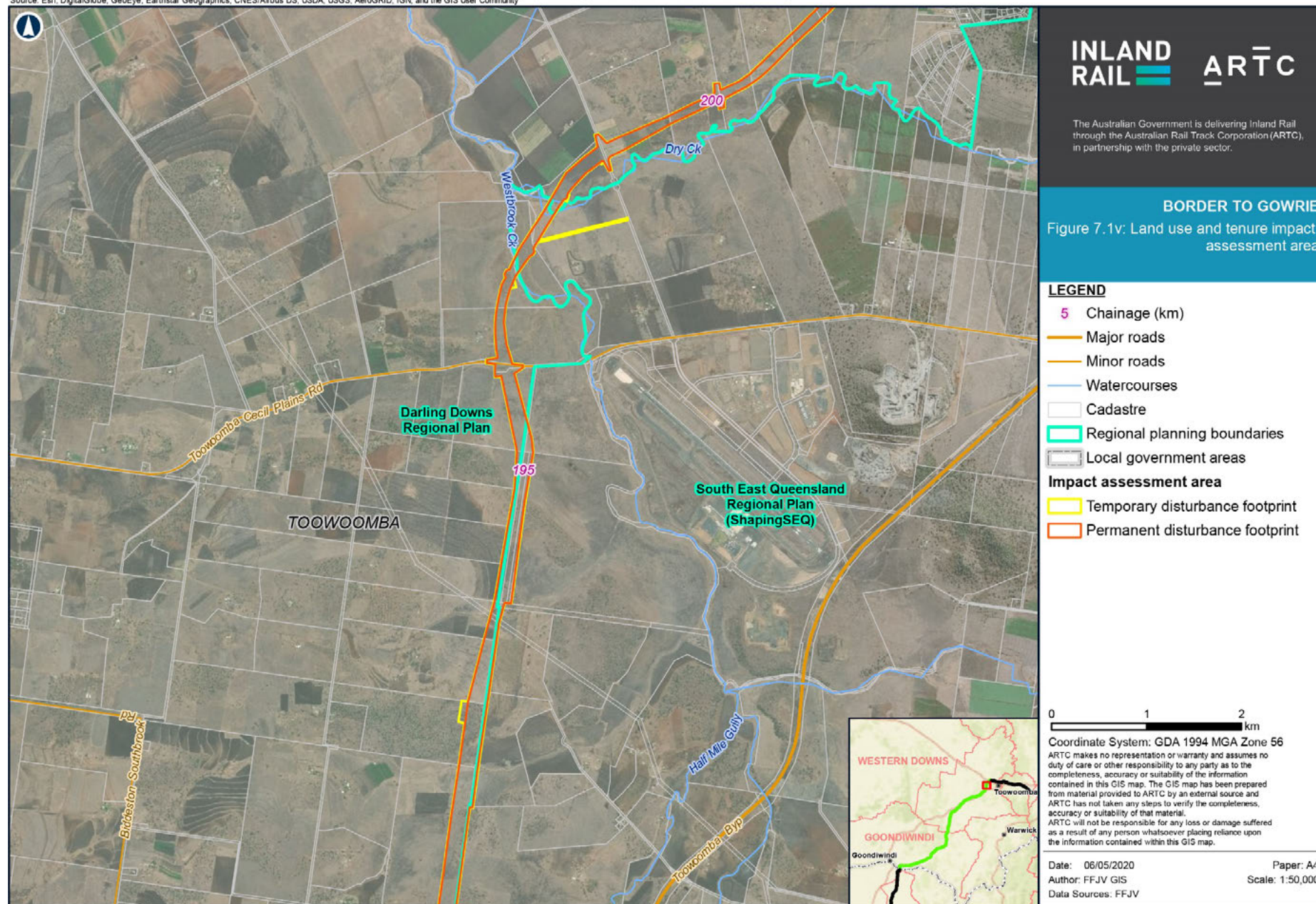
Map by: LUC/RB/CB/FC/KG Z:\GIS\GIS_310_B2\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.1_Impact_AreaA4_v6.mxd Date: 6/05/2020 09:48



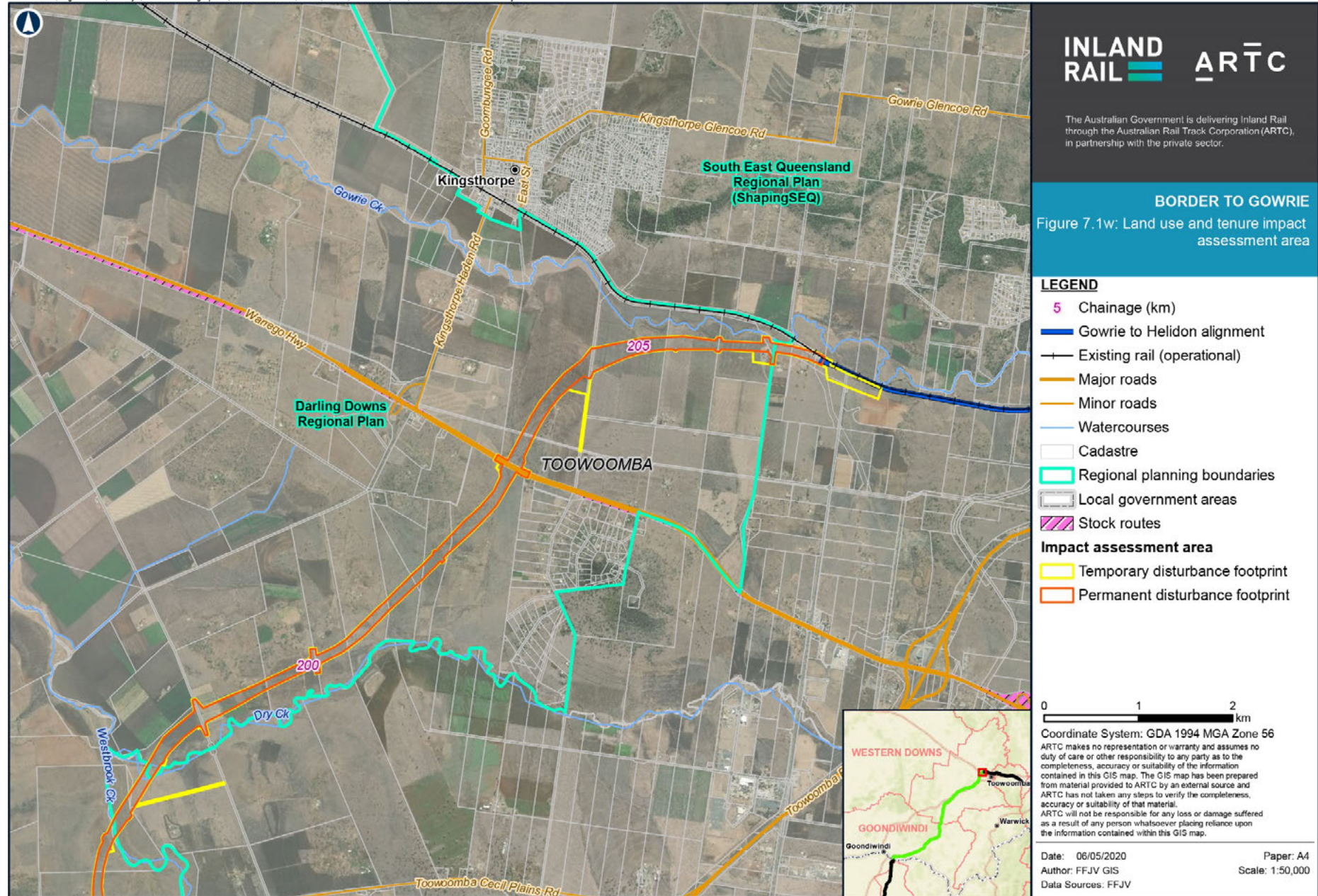
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



7.4.2 Existing and future land use and tenure arrangements

The following tasks were undertaken to understand the existing and future land use environment and tenure arrangements within the impact assessment area:

- ▶ Determination of the impact assessment area, as defined in Section 7.4.1, to clearly define the area of assessment relating to land use and tenure
- ▶ Identification, review and mapping of the existing tenure of the impact assessment area through a review of the Department of Natural Resources, Mines and Energy (DNRME) Digital Cadastre Database (DCDB) mapping and survey adjusted cadastral data, where available
- ▶ A land-use assessment (desktop and site verification) to review, identify and map existing land uses, and the approximate distance of the Project activities to these uses, including:
 - ▶ Land uses based on the Queensland Land Use Mapping Program (QLUMP). Verification of these land uses was also undertaken by means of a Project footprint drive through, undertaken on 15 August 2018 to 16 August 2018, combined with consultation feedback.
 - ▶ Agricultural uses, including land identified by the *Queensland Agricultural Land Audit* (Department of Agriculture and Fisheries [DAF], 2017a) as important to current and future agricultural production in Queensland, any areas of regionally significant farmland, areas used for cropping, grazing and/or horticulture, stock routes and agricultural infrastructure
 - ▶ Protected and sensitive land uses, including conservation and forest reserves, national parks, State forests, native title and other special interests
 - ▶ Key resource areas (KRAs), exploration and mining leases and licences, petroleum and gas resource interests
 - ▶ Infrastructure, including railways, road reserves, utilities and pipelines
 - ▶ Intermodal terminals
 - ▶ State interests identified in the SPP.
- ▶ Key strategic planning and land-use planning provisions of the relevant State and local planning instruments were reviewed to identify the future land-use planning intent
- ▶ Identification of current planned development activity and approved development plans over the past five years for the impact assessment area including:
 - ▶ Approved and planned development activity within the GRC and TRC LGAs
 - ▶ Coordinated projects declared under the *State Development and Public Works Organisation Act 1971* (Qld) (SDPWO Act)
 - ▶ Current environmental authorities (EAs) for environmentally relevant activities (ERAs) in accordance with the *Environmental Protection Act 1994* (Qld) (EP Act)
 - ▶ Development projects undertaken by Economic Development Queensland (EDQ)
 - ▶ Declared priority development areas in accordance with the *Economic Development Act 2012* (Qld)
 - ▶ Declared State development areas in accordance with the SDPWO Act
 - ▶ Private infrastructure facilities in accordance with the SDPWO Act
 - ▶ Infrastructure Australia *Infrastructure Priority List* (2016b) and *Australian Infrastructure Plan* (2016a)
 - ▶ Queensland Government *State Infrastructure Plan* (DSDMIP, 2018b)
 - ▶ *Queensland Transport and Roads Investment Program 2019–20 to 2022–23* (DTMR, 2019f)
 - ▶ Queensland regional projects under the Queensland Government Building our Regions infrastructure program and *Transport Infrastructure Development Scheme* (DTMR, 2011)
 - ▶ Infrastructure designations in accordance with the Planning Act.
- ▶ Revision of landowner and community consultation data to understand their feedback on the potential land-use impacts and issues associated with the Project
- ▶ Consultation with relevant State and local government agencies including:
 - ▶ GRC in relation to proposed new developments
 - ▶ TRC in relation to proposed new developments.
- ▶ Consultation with utility infrastructure providers including APA, Ergon, Essential Energy, GRC, Millmerran Operating Co., Nextgen, Powerlink, Santos, Telstra, TRC and TPG/Powertel/AAPT

- ▶ Assessment of potential impacts to land use and tenure, including an assessment of the Project's consistency with the relevant future land-use planning intent for the impact assessment area
- ▶ Identification of opportunities for the Project to support future industry development
- ▶ Feedback the findings of this report into the reference design to ensure relevant matters are addressed in the design of the Project, where possible
- ▶ Identification of mitigation measures to minimise impacts to land use and tenure.

The assessment of potential impacts to land use and tenure has been undertaken using the methodology detailed in Section 7.4.2 and illustrated in Figure 7.2.

7.4.3 Impact assessment methodology

A compliance assessment method, as described in Chapter 4: Assessment Methodology, has been adopted for the assessment of land use and tenure impacts. An assessment method has been undertaken to determine the consistency of the Project with relevant land-use planning instruments, specifically:

- ▶ SPP
- ▶ ShapingSEQ
- ▶ *Darling Downs Regional Plan 2013*.

Compliance with the relevant land-use planning instruments has been assessed after reference design phase mitigation measures have been applied (refer Section 7.7), in addition to assuming additional mitigation and management measures in future phases of the Project would be adopted (refer Section 7.7.2). These additional mitigation and management measures have been nominated to:

- ▶ Achieve compliance with the adopted performance criteria, if required
- ▶ Demonstrate ARTC's commitment to avoiding or minimising potential impacts, as far as is reasonably practicable.

Figure 7.2 illustrates the compliance impact assessment methodology for land use and tenure.

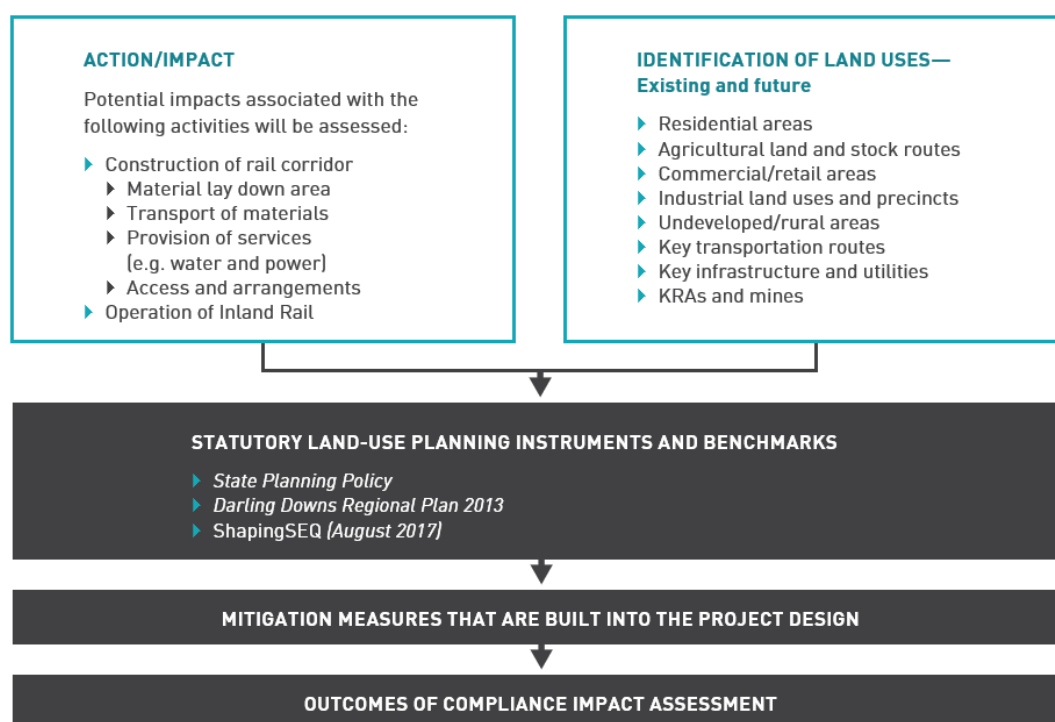


FIGURE 7.2 LAND USE AND TENURE COMPLIANCE IMPACT ASSESSMENT METHODOLOGY

7.4.4 Data sources

This section details the desktop analysis undertaken to identify existing land uses and constraints related to land use and tenure in the impact assessment area. Details of the relevant database sources, search dates, and type of information considered for the desktop study are summarised in Table 7.3.

TABLE 7.3 DATABASE AND DOCUMENT REVIEW SUMMARY

Database/data source name	
Queensland globe data layers (accessed 7 January 2019) from online database: qldglobe.information.qld.gov.au	
BOUNDARIES	IMAGERY AND BASE MAPS
▶ Local government ▶ Locality	▶ Imagery
ECONOMY	PLANNING CADASTRE
▶ Exploration permits ▶ Coal ▶ Geothermal ▶ Greenhouse gas ▶ Mineral ▶ Mineral development licence ▶ Petroleum ▶ Potential commercial area ▶ Infrastructure permits ▶ Petroleum facilities licences ▶ Petroleum pipeline licence areas ▶ Petroleum pipeline licence centrelines ▶ Production permits ▶ Geothermal leases ▶ Greenhouse leases ▶ Mining claims ▶ Mining leases ▶ Petroleum leases ▶ Resources ▶ Coal Resources - Coal resource boundary - Coal resource area ▶ KRA - KRA transport route - KRA haulage corridor - KRA transport route separation area - KRA resource/processing area - KRA separation area	▶ Coordinated projects—the Coordinator-General ▶ Land parcel tenure ▶ Land parcels ▶ Land parcel ▶ Land parcel label ▶ Natural boundary ▶ Rights and interests - Easement parcel - Strata parcel - Volumetric parcel ▶ Road parcel ▶ Priority Development Areas ▶ Land use ▶ Lease and reserve parcel ▶ Regional planning ▶ Regional planning boundaries ▶ SEQ Regional Plan 2017—ShapingSEQ ▶ State development areas ▶ State development areas
ENVIRONMENT	SOCIETY
▶ Parks ▶ Protected areas	▶ National Native Title Tribunal ▶ Registered native title bodies corporate ▶ Future act determination applications ▶ Future act objections ▶ Future act notices current ▶ Native title determination outcomes ▶ Native title determinations ▶ Register of native title claims ▶ Schedule of native title determination applications ▶ Representative Aboriginal and Torres Strait Islander Body (RATSIB) areas
FARMING	TRANSPORTATION
▶ Agricultural land audit ▶ Current agriculture - Aquaculture - Cattle feedlot - Forestry plantations - Land based aquaculture - Pasture production - Piggeries - Poultry farms ▶ Region boundary ▶ Sown pasture ▶ SPP and regional interests ▶ Stock routes ▶ Stock routes ▶ Stock routes reserves ▶ Water facility	▶ Airports and heliports ▶ Ports ▶ Railway line ▶ Railway stops ▶ Regulated air services ▶ Road

Database/data source name

Utilities (data obtained from utility owners)

APA	Geographical information systems (GIS) files
▶ Utility data	
▶ Pipelines	
Energex electrical network spatial data	Esri Shapefile
Ergon Energy utility network	Esri Shapefile
Goondiwindi Regional Council	GIS files
▶ Underground services; water, stormwater, wastewater	
▶ Roads	
NBN GIS data	GIS files
New Acland Coal – New Hope Group	DWG files
Optus utility network information	GIS files
Santos pipeline alignments	MapInfo TAB
Seqwater infrastructure	GIS files
Telstra geographic data	DXF format
Toowoomba Regional Council	GIS files
▶ Communications infrastructure	
▶ Underground services: water, sewer and stormwater	
▶ Roads	

7.5 Existing environment

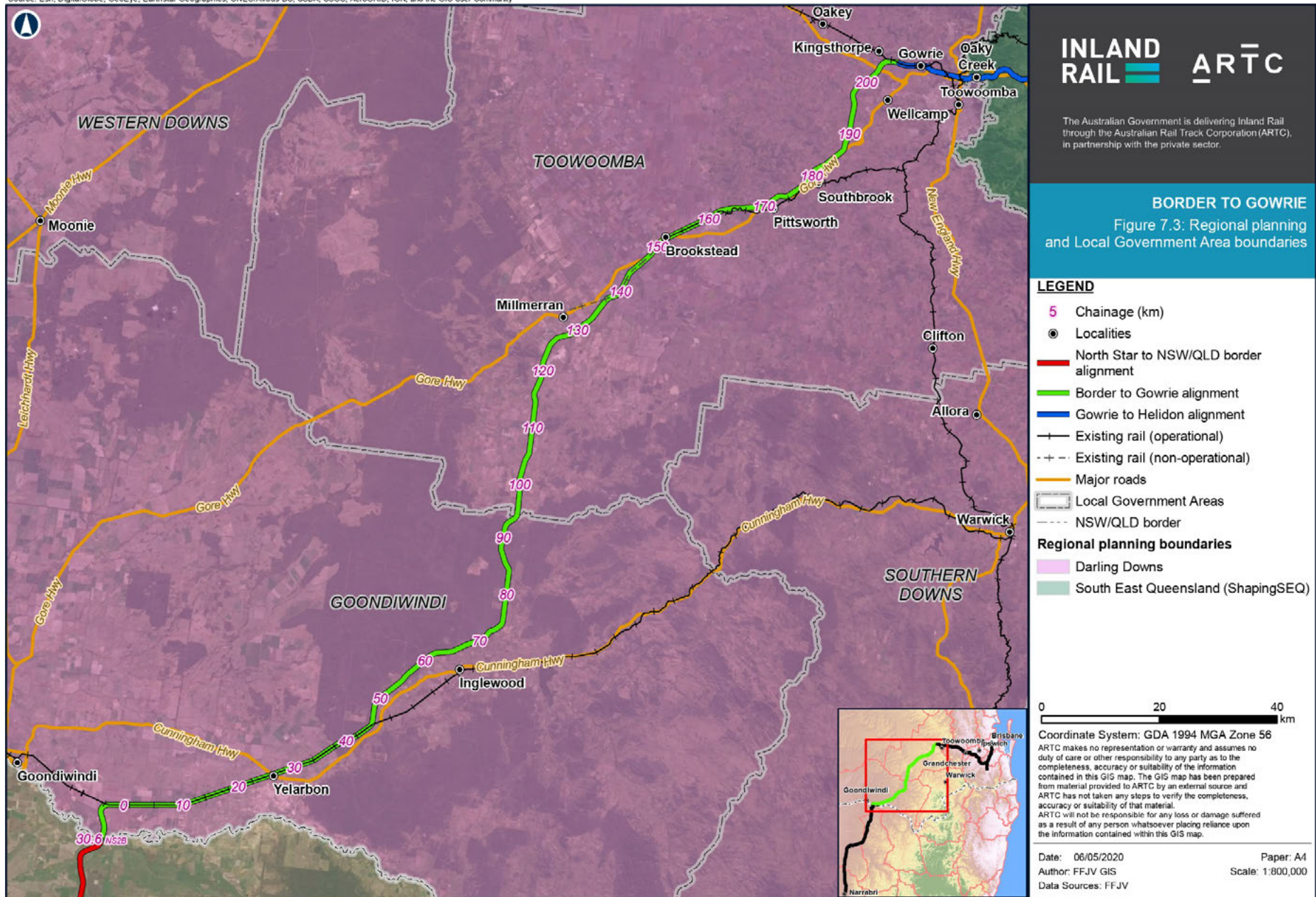
The Project is located within the Darling Downs region for the entire length of the Project alignment and SEQ region for 16 km between Kingsthorpe and Gowrie Junction as the two regions overlap with one another. The Project traverses the LGAs of Goondiwindi and Toowoomba. The Project, in the context of regional planning and local government boundaries, is shown on Figure 7.3.

The Project extends for approximately 216.2 km, from the NSW/QLD border approximately 18 km to the southeast of Goondiwindi near Kurumbul, through to the southeast outskirts of Kingsthorpe, northwest of Toowoomba. The new railway will be positioned within approximately 145 km of new rail corridor (greenfield) and approximately 71.2 km of existing rail corridor (brownfield), currently used by Queensland Rail's (QR) South Western Line and Millmerran Branch Line.

The permanent footprint traverses 440 properties and 34 easements. The temporary footprint traverses a total of 542 properties and 43 easements, including those within the permanent footprint. The potential area of impact of the Project footprint based on the current reference design, existing land use and tenure of these properties, are detailed in Appendix F: Impacted Properties.

The land tenure, existing land uses, future land use intent and development activity within the impact assessment area are outlined in the following sections.

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



Map by: KG Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.3_Regional_planning_and_LGA.mxd Date: 6/05/2020 09:10

7.5.1 Land tenure

Within Queensland, tenure types are generally defined as:

- ▶ Freehold—land is alienated from the State and the ownership rests with the individual owner for an estate in fee simple and is dealt with under the *Land Title Act 1994* (Qld)
- ▶ Lands lease—land held by the State, where leases are issued for several purposes, including pastoral, grazing and commercial or industrial purposes, or where land is leased to the State for a rail-transport purpose. Land lease tenure may also be dedicated as State forests.
- ▶ State land—land that is unallocated State land
- ▶ Reserve land—land dedicated as a reserve or granted in fee simple in trust for community purposes.

Where there is no tenure within the cadastral boundary, land may also be identified as:

- ▶ Road type parcel—land that has been designated as road
- ▶ Unlinked parcel—land with no tenure type under the DCDB mapping
- ▶ Unallocated State land, which may include watercourses.

With the exception of freehold land, tenure and interests in land in Queensland are primarily administered by the DNRME under the provisions of the *Land Act 1994* (Qld). Freehold land is held by way of an indefeasible title recorded in the Freehold Land Register under the provisions of the *Land Title Act 1994* (Qld).

The tenure of land within the permanent footprint is predominately freehold (70.8 per cent). The permanent footprint also includes small pockets of lands lease, reserve and State land tenure.

Where the Project is positioned within the existing South Western Line rail corridor and the Millmerran Branch Line rail corridor, the tenure of that existing rail corridor is lands lease, leased by the State to QR. Where the Project deviates from, or extends outside of, the existing rail corridors, the tenure of land is predominately freehold, traversing some parcels of reserve and State land tenure.

Tenure within the Project footprint is summarised within Table 7.4.

TABLE 7.4 TENURE WITHIN THE PROJECT FOOTPRINT

Type of tenure	Permanent footprint			Temporary footprint		
	No. of land parcels	Area (ha)	% of permanent footprint	No. of land parcels	Area (ha)	% of temporary footprint
Freehold	368	1,878.02	70.8	453	399.36	72.6
Lands lease (other than State forest)	61	201.40	7.6	66	10.14	1.8
Lands lease (State forest)	2	112.18	4.2	2	13.18	2.4
Reserve	7	20.89	0.8	9	4.69	0.9
State land	2	4.71	0.2	12	0.16	0.0
Road type parcel	-	433.30	16.3	-	121.71	22.1
Watercourse	-	3.06	0.1	-	0.94	0.2
Total	440	2,653.56	100.0	542	550.19	100.0

7.5.1.1 Easements

The permanent footprint traverses or encroaches on 34 easements. The temporary footprint traverses or encroaches on an additional nine easements. An easement gives a person the right to use someone else's land for a specified purpose, for example to access the land to gain access to other land.

The easements traversed or encroached on by the Project footprint have been established for one or more of the following purposes:

- ▶ Of right of way for access
- ▶ For drainage or sewerage reticulation
- ▶ For water storage/supply
- ▶ For electricity transmission.

Easements traversed by the Project footprint are detailed in Appendix F: Impacted Properties.

7.5.1.2 Mineral resource interests

The *Mineral Resources Act 1989* (Qld) provides the framework for exploration, development and mining tenure.

There is one granted mining lease within the Project footprint near the localities of Clontarf and Domville. This mining lease is associated with the open-cut Commodore Mine and is traversed by the Project alignment between chainage Ch 121.0 km to Ch 127.24 km.

There are three exploration permits within the impact assessment area for coal at Canning Creek, Millwood, Biddeston and Wellcamp. There are also two mineral development licences for coal within the Project footprint near Bringalily and Domville.

The mineral resource interests within the Project footprint are summarised in Table 7.5 and shown on Figure 7.4a and Figure 7.4w.

TABLE 7.5 MINERAL RESOURCE INTERESTS SITUATED WITHIN THE PROJECT FOOTPRINT

Permit type	Permit name	Permit No.	Holder name	Permit status	Location (approximate chainage)	Area within permanent footprint (ha)	Area within temporary footprint (ha)
Exploration permit coal	EPC 970	100186	New Hope Exploration Pty Ltd	Granted	Ch 86.7 km to Ch 96.4 km	102.06	14.64
Mineral development licence	MDL 300	107093	Queensland Power Company	Granted	Ch 104.0 km to Ch 115.1 km	55.26	6.82
Mineral development licence	MDL 299 (Commodore Mine Project)	107092	Newmont Pacific Energy Pty Ltd	Granted	Ch 116.0 km to Ch 126.8 km	179.86	29.78
Exploration permit coal	EPC 935	100167	Ambre Energy Pty Ltd	Granted	Ch 116.0 km to Ch 119.0 km	19.01	1.33
Mining lease	ML 50151 (Commodore)	109239	Queensland Power Company Pty Ltd	Granted	Ch 121.0 km to Ch 127.24 km	0.00	0.003
Exploration permit coal	EPC 762	100083	New Hope Exploration Pty Ltd	Granted	Ch 192.0 km to Ch 201.0 km	130.17	14.47

7.5.1.3 Petroleum and gas resource interests

Several different authorities for petroleum and gas exploration and production activities in Queensland are granted under the *Petroleum and Gas (Production and Safety) Act 2004* (Qld). Petroleum and gas authorities are granted for:

- ▶ Exploration—authority to prospect (ATP), potential commercial area (PCA)
- ▶ Production—petroleum lease
- ▶ Infrastructure development—petroleum facility licence and petroleum pipeline licence
- ▶ Information gathering—petroleum survey licence, water monitoring authority and data acquisition authority.

There are two petroleum licenses within the Project footprint. These licenses are associated with the Moonie to Brisbane pipeline (PPL 1) at Southbrook and the Roma to Brisbane Pipeline (PPL 2) at Kingsthorpe. There are no petroleum and gas exploration or production permits granted within the Project footprint.

Pipeline licences within the Project footprint are detailed in Table 7.6. Infrastructure and utilities within the Project footprint are further discussed in Section 7.5.2.7.

TABLE 7.6 PIPELINE LICENCES WITHIN THE PROJECT FOOTPRINT

Permit type	Permit No.	Permit purpose	Holder name	Location (approximate chainage)
Pipeline Licence	PPL 1	Oil	Moonie Pipeline Company Pty Ltd	Ch 180.4 km
Pipeline Licence	PPL 2	Gas	APT Petroleum Pipelines Pty Ltd	Ch 203.4 km

7.5.1.4 Native title

As identified in Section 7.5.1, tenure within the Project footprint is predominately freehold. In relation to each of these tenures, provided the grant of freehold was valid, native title rights and interests have been extinguished.

Where the Project alignment uses existing rail corridors that were constructed or established on or before 23 December 1996, native title rights have been extinguished through the establishment of public works. In accordance with Section 253 of the *Native Title Act 1993* (Cth) (NT Act), 'public works' includes a '*road, railway or bridge that is constructed or established by or on behalf of the Crown, or a local government body or other statutory authority of the Crown, in any of its capacities*'. The construction or establishment of public works on or before 23 December 1996 extinguished native title in relation to the area on which the works were situated.

Elsewhere, the Project footprint includes eight parcels identified as reserve tenure and two parcels identified as State land tenure in respect of which native title is unlikely to be extinguished.

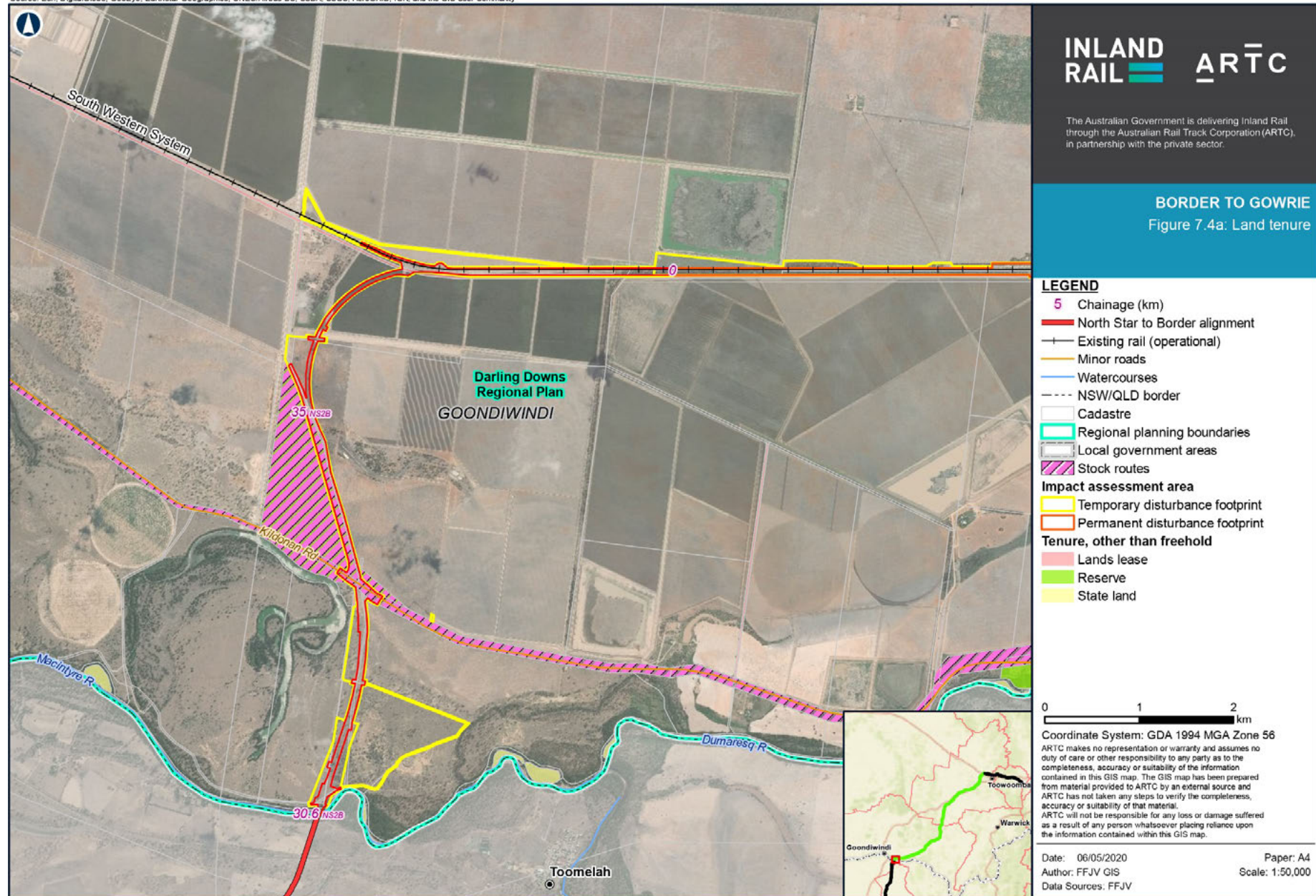
Searches of the National Native Title Register and Register of Native Title Claims, administered by the National Native Title Tribunal, were undertaken on 5 June 2020. These identified one successful native title determination in favour of the Bigambul People, and one active compensation application lodged on behalf of the Bigambul People, relevant to the Project footprint. The Project footprint traverses the affected determination and claim areas between Kurumbul and Inglewood. Summaries of the native title determination and the compensation application are set out in Table 7.7.

For those areas within the Project footprint in relation to which native title has not been extinguished, in order to enable the valid grant of the interests required to construct the Project, the Australian Rail Track Corporation (ARTC) will seek the extinguishment of the native title rights and interests in question prior to construction of the Project, either voluntarily by the surrender of the native title to the State, or by compulsory process.

TABLE 7.7 NATIVE TITLE CLAIMS RELEVANT TO THE PROJECT FOOTPRINT

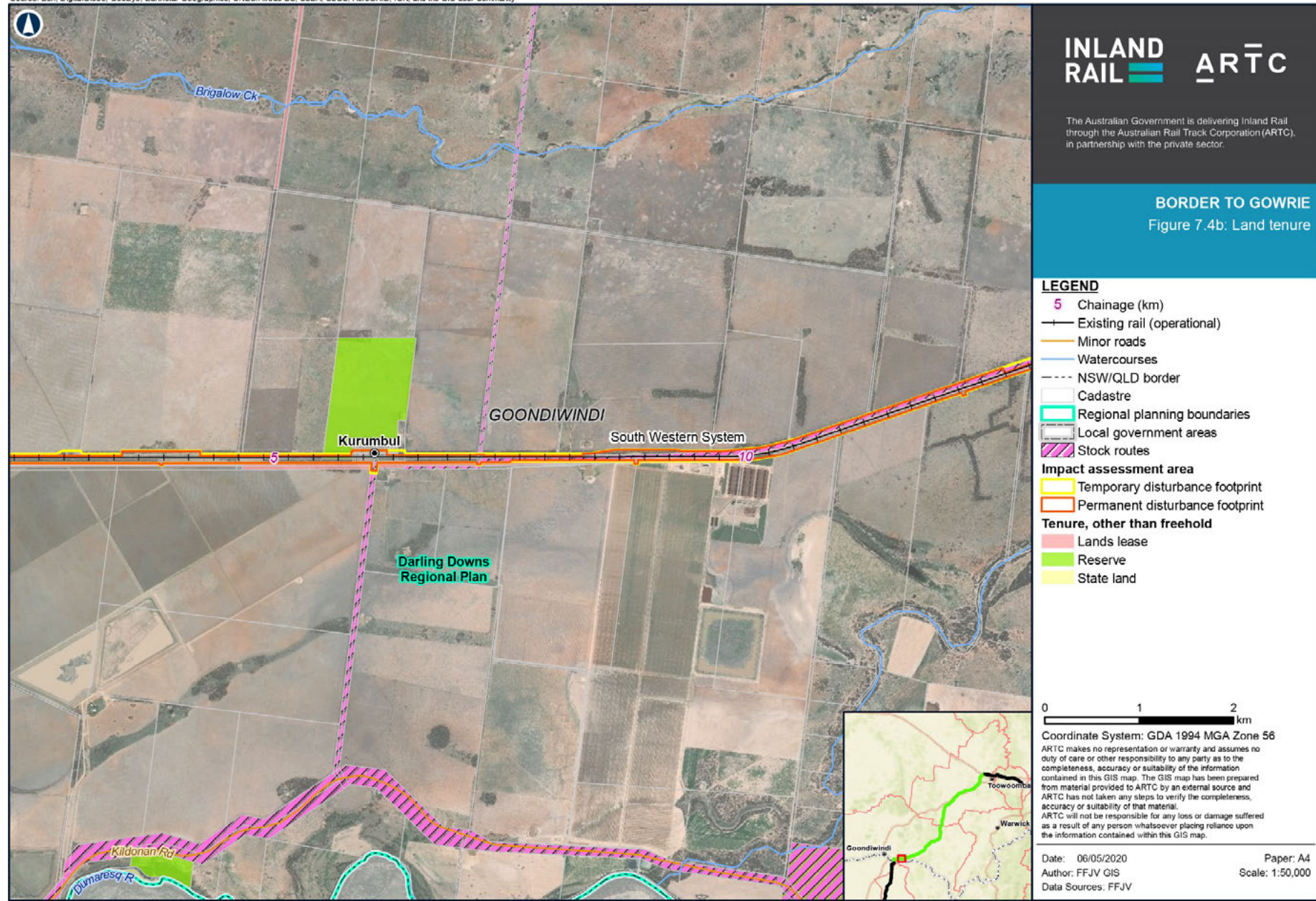
Status	Name	Tribunal file no.	Summary
In effect—finalised	Bigambul People Part A	QCD2016/012	Native title was determined to exist within the entire determination area on 1 December 2016, with effect from 5 June 2017. The determination is current within the Project footprint at Kurumbul (between Ch 33.2 km (NS2B) to 34.6 km (NS2B) and Ch 5.4 km to Ch 5.8 km) and Whetstone (between Ch 37.6 km to Ch 43.4 km).
Active compensation application	Bigambul People	QP2019/001	This application, which was filed on behalf of the Bigambul People on 10 December 2019, seeks from the Federal Court of Australia a determination that the group is entitled to compensation for (as yet unspecified) loss, impairment, diminution or extinguishment of native title rights and interests within the application area. The status of this application is active, and as of 5 June 2020, no determination has been made. The Project footprint is located within the application area from the NSW/QLD border to Ch 61.4 km.

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

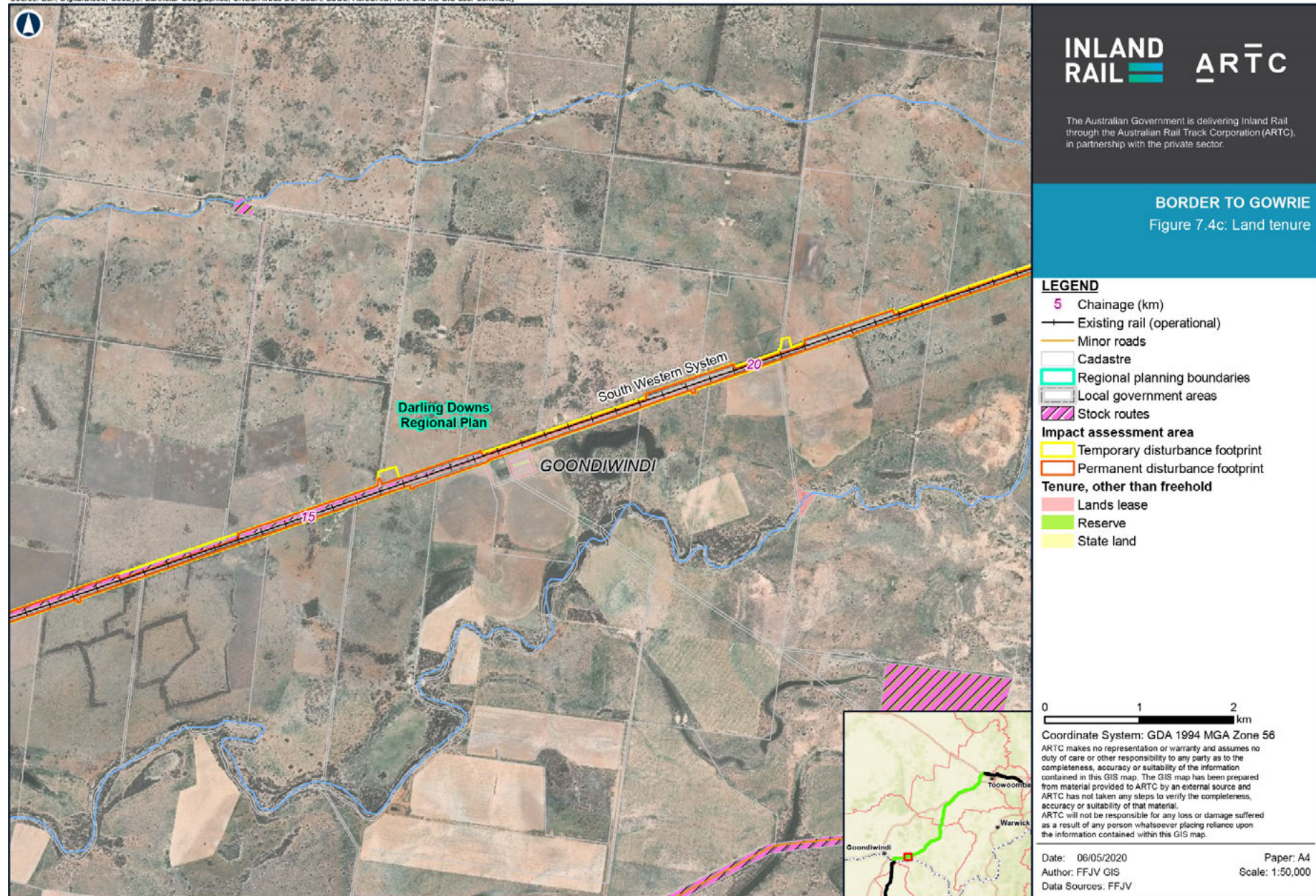


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

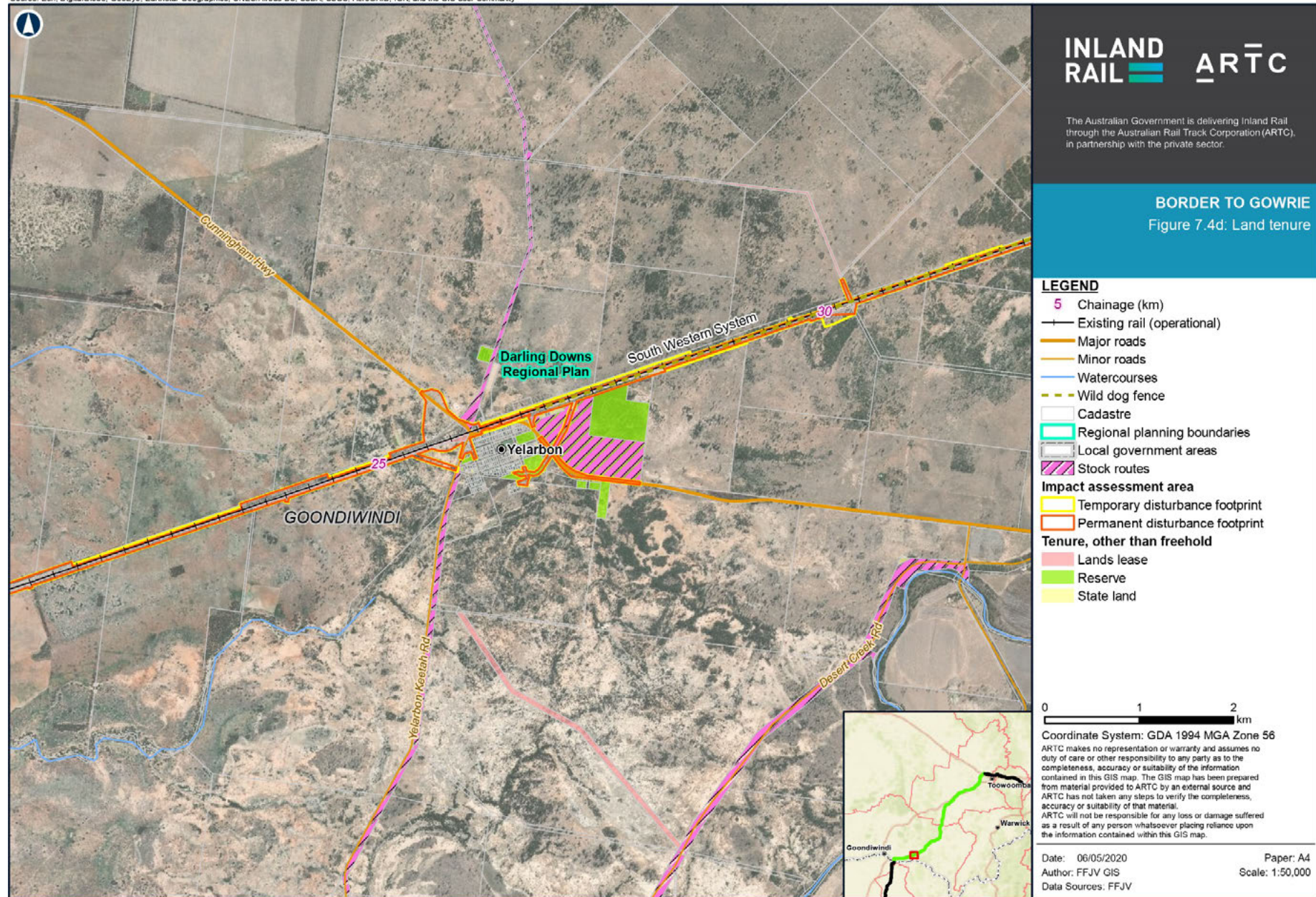
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

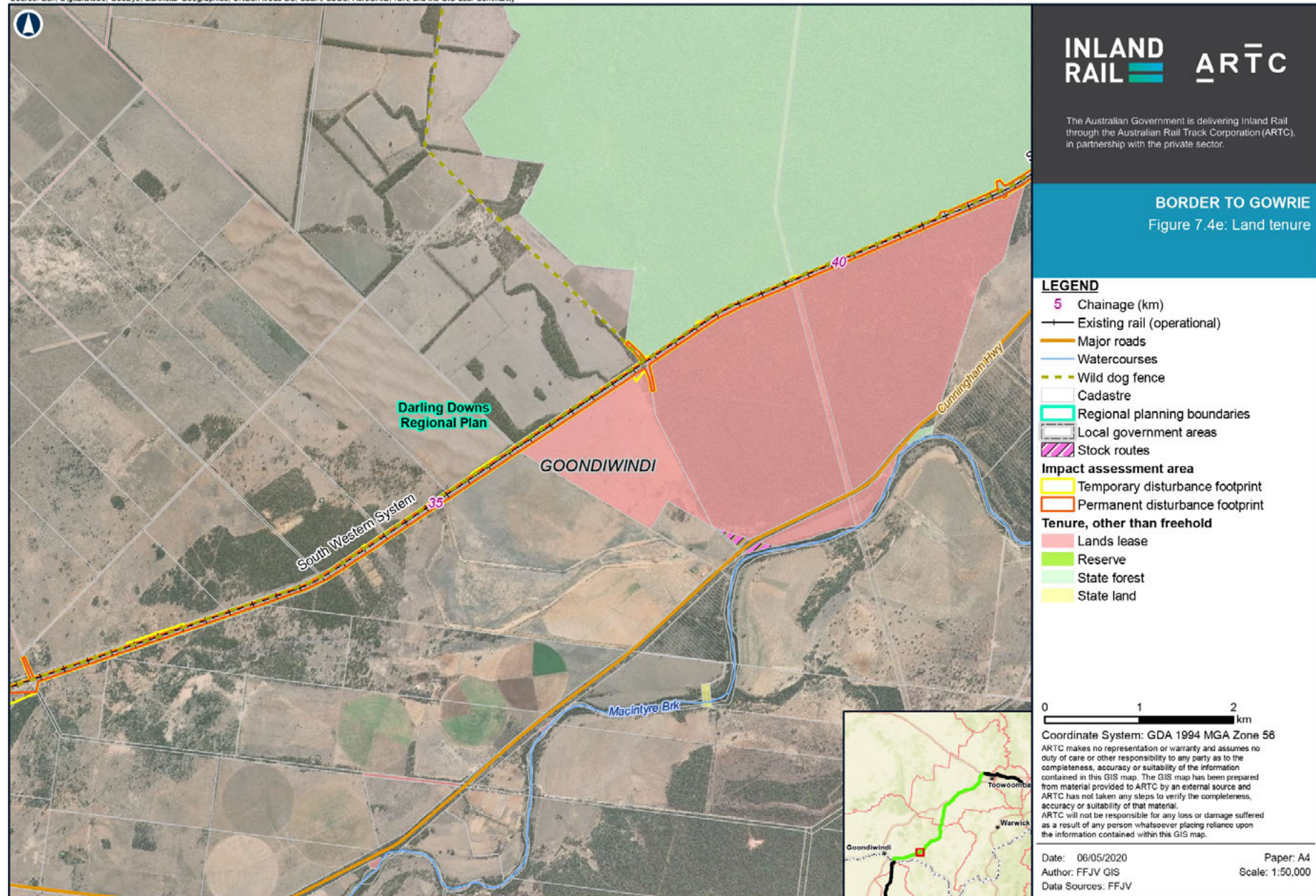


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



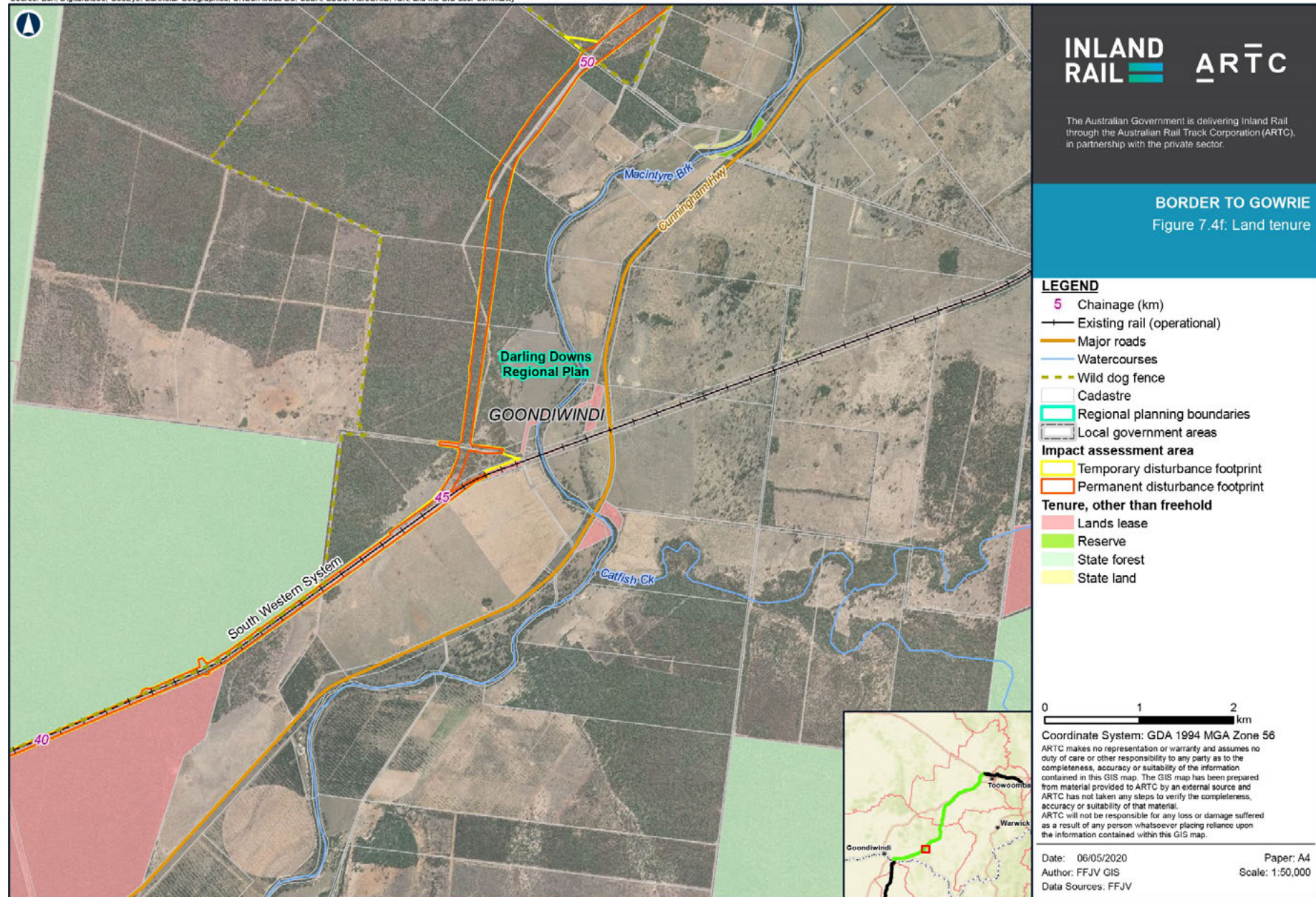
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



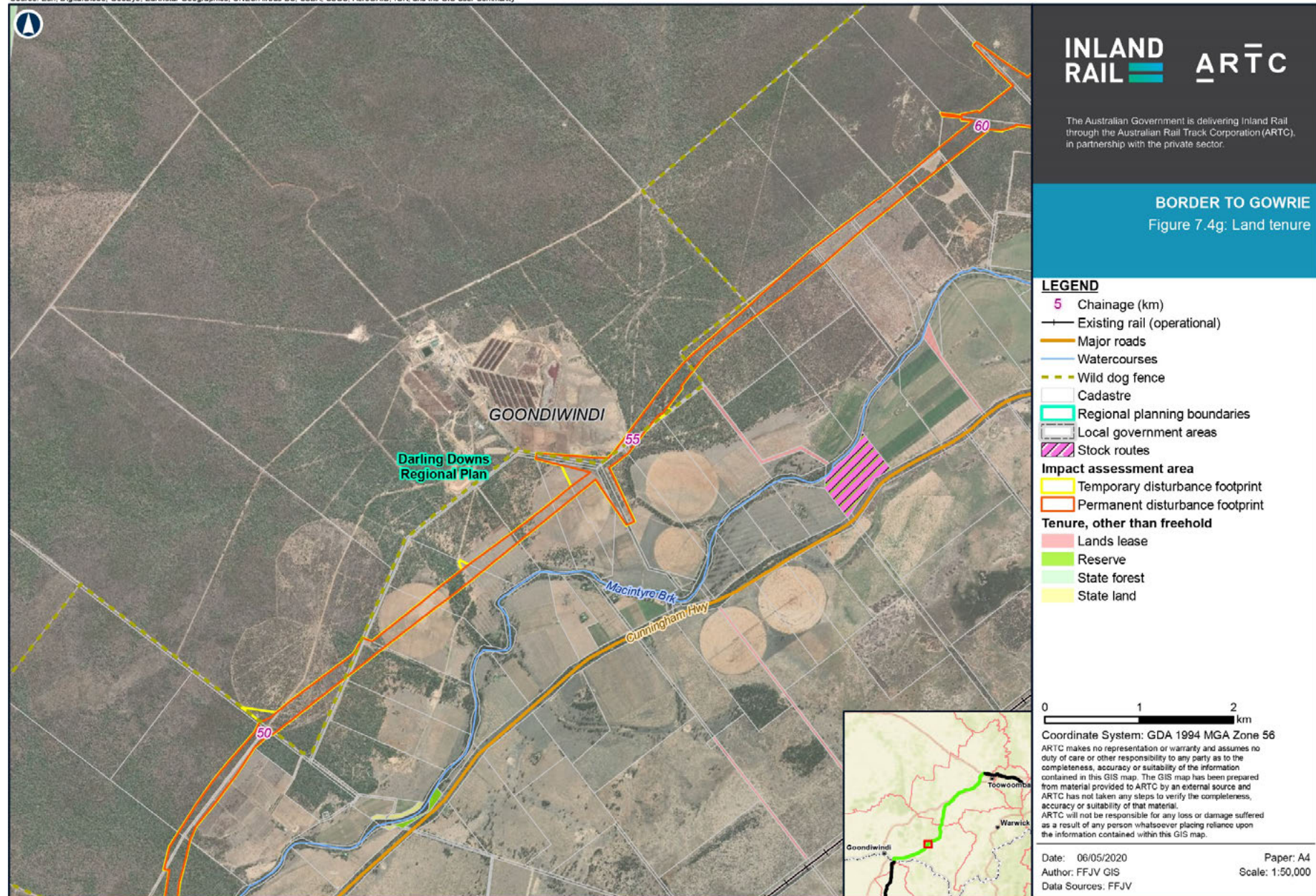
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



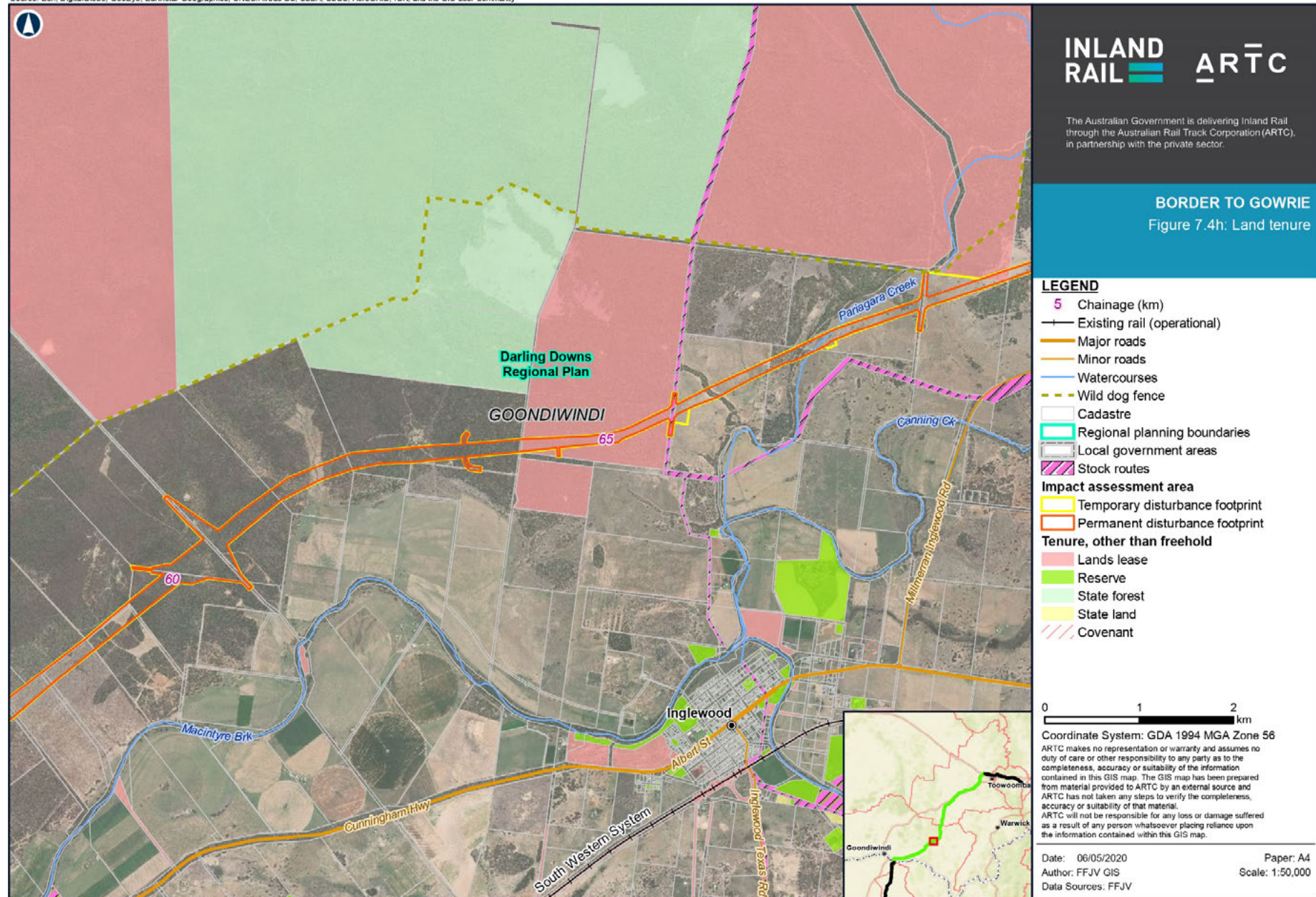
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



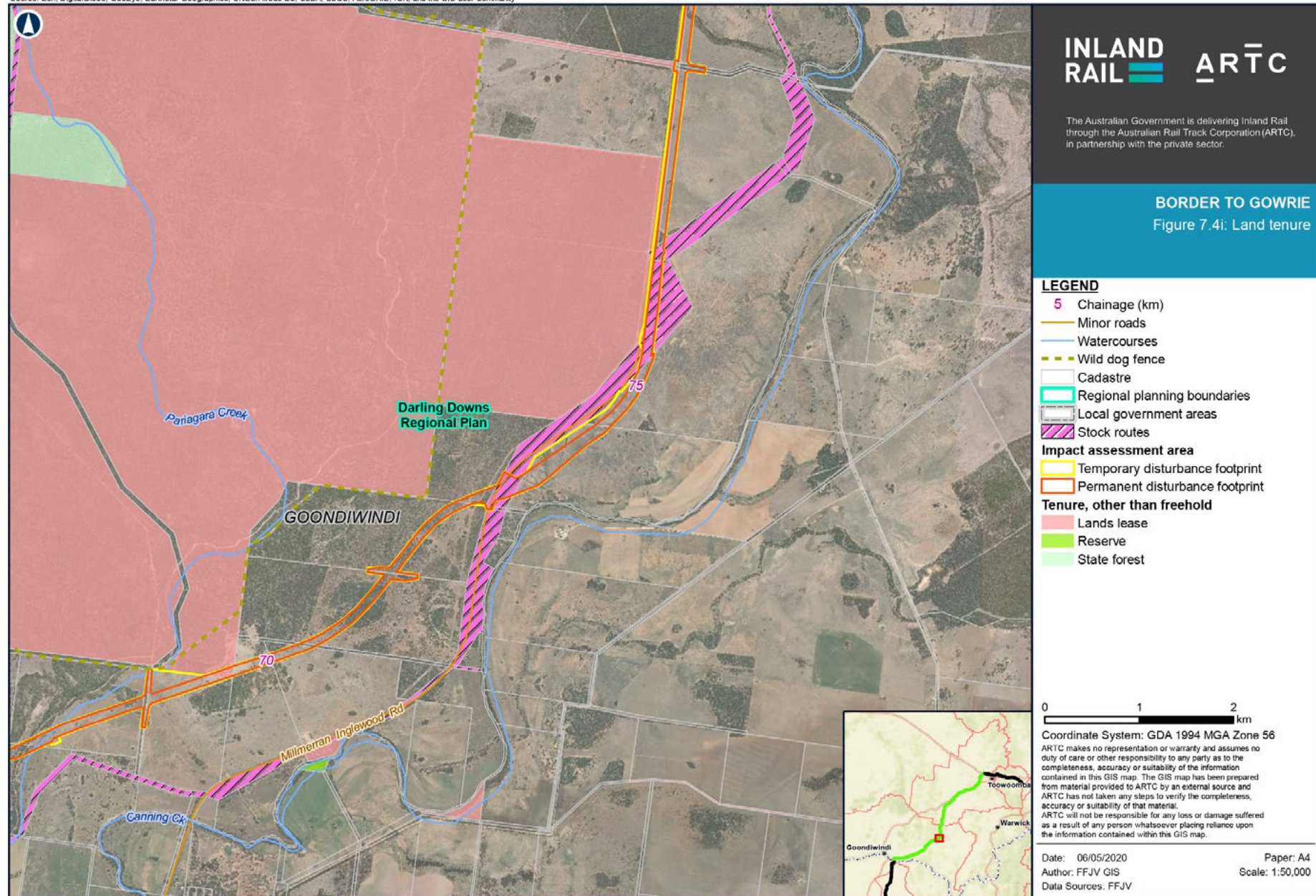
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

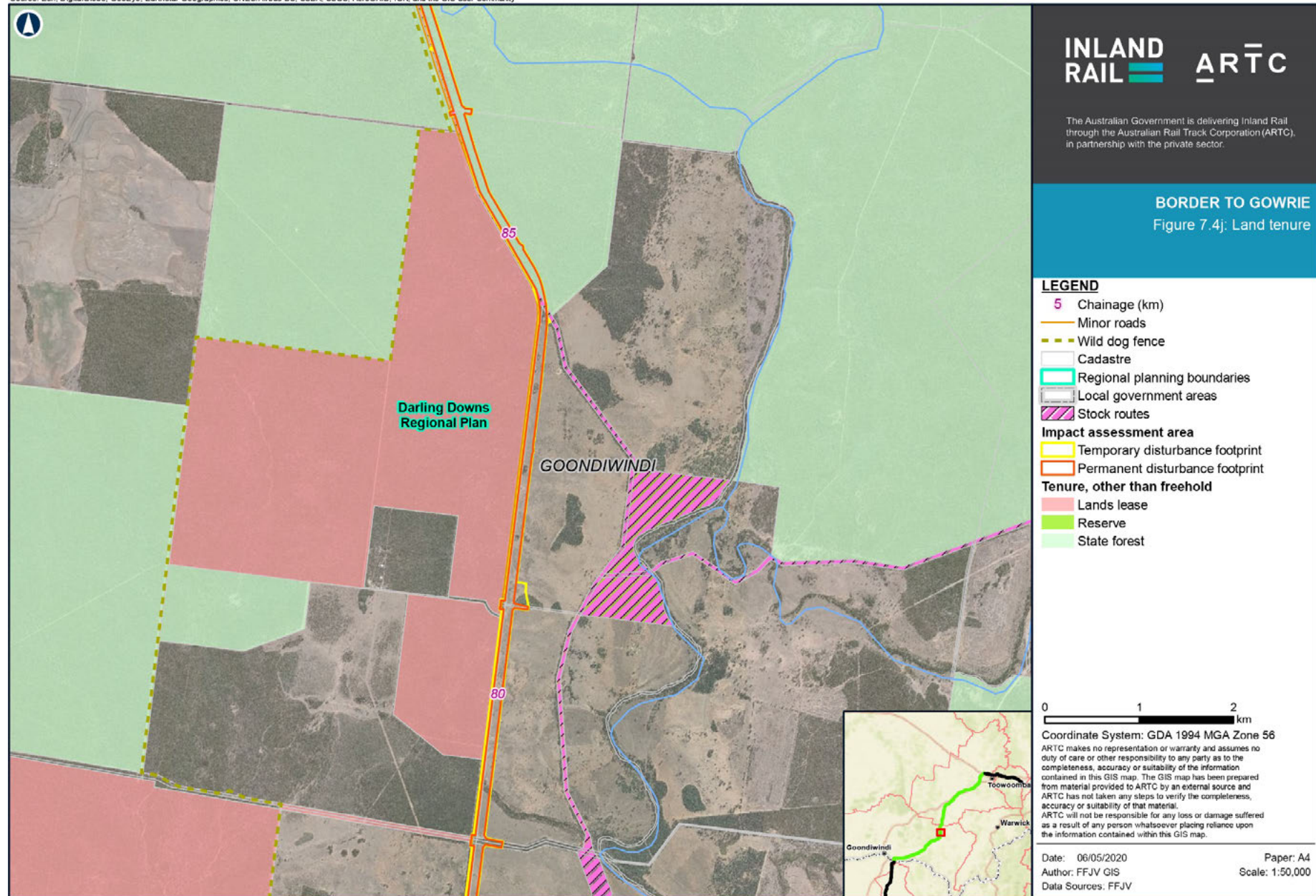


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

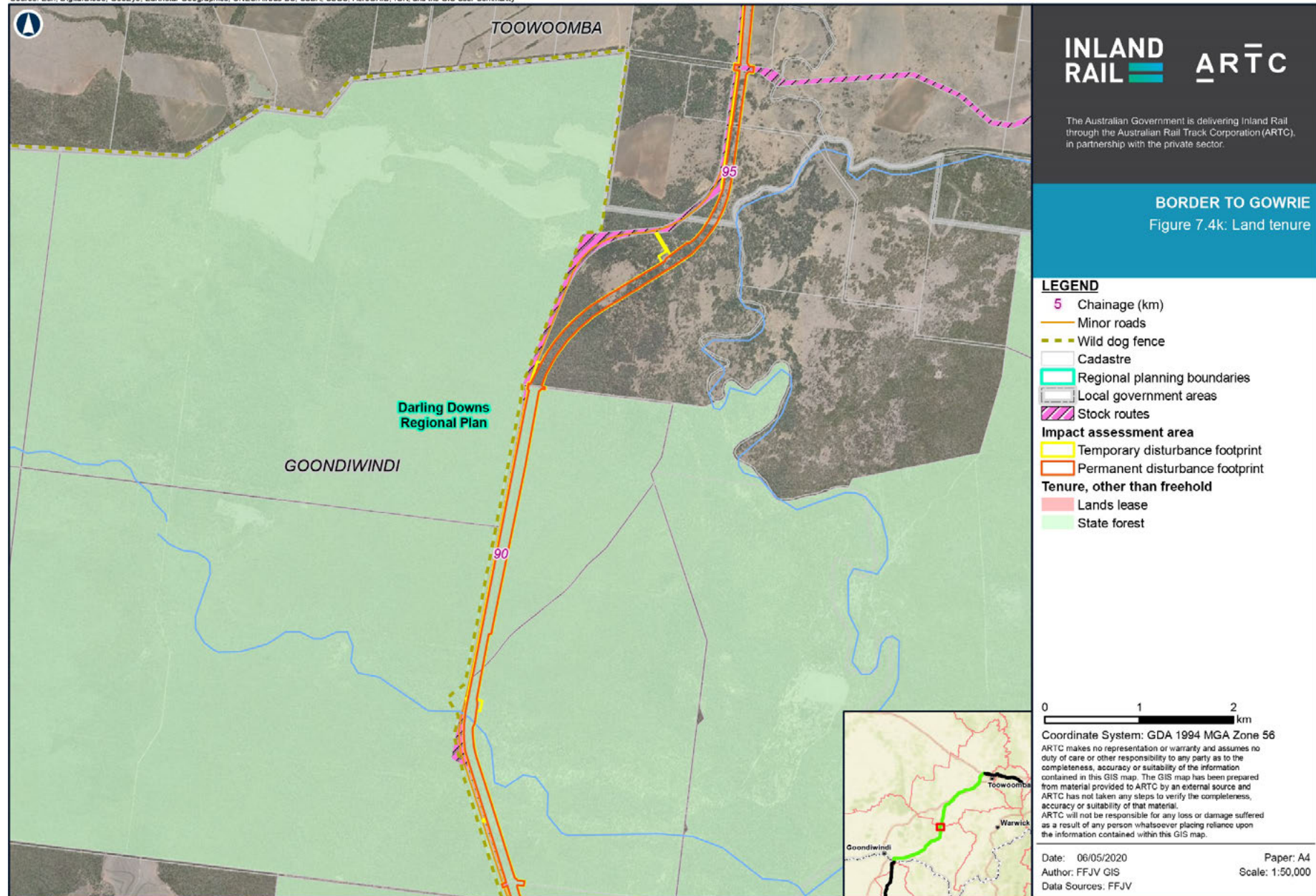


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



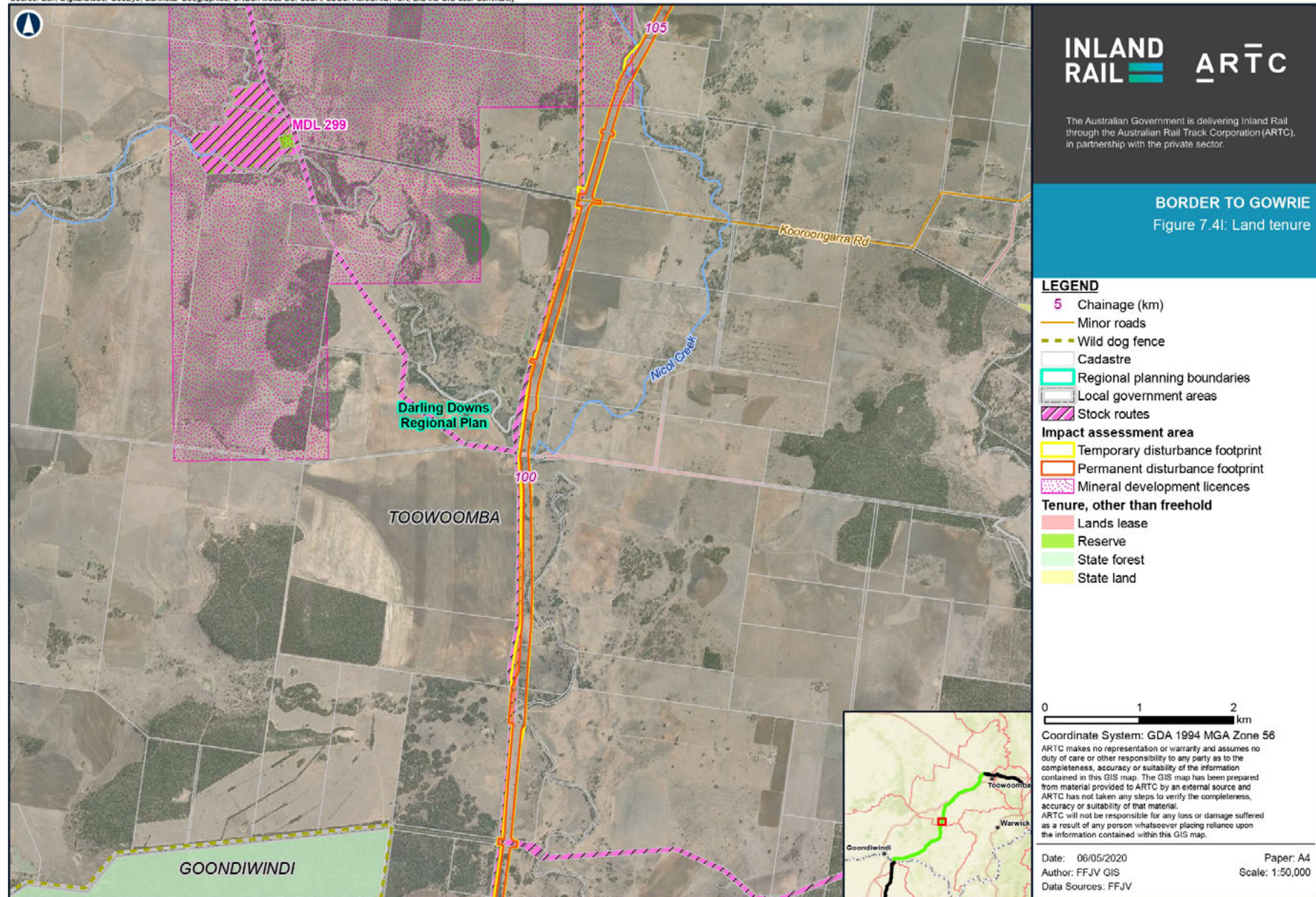
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



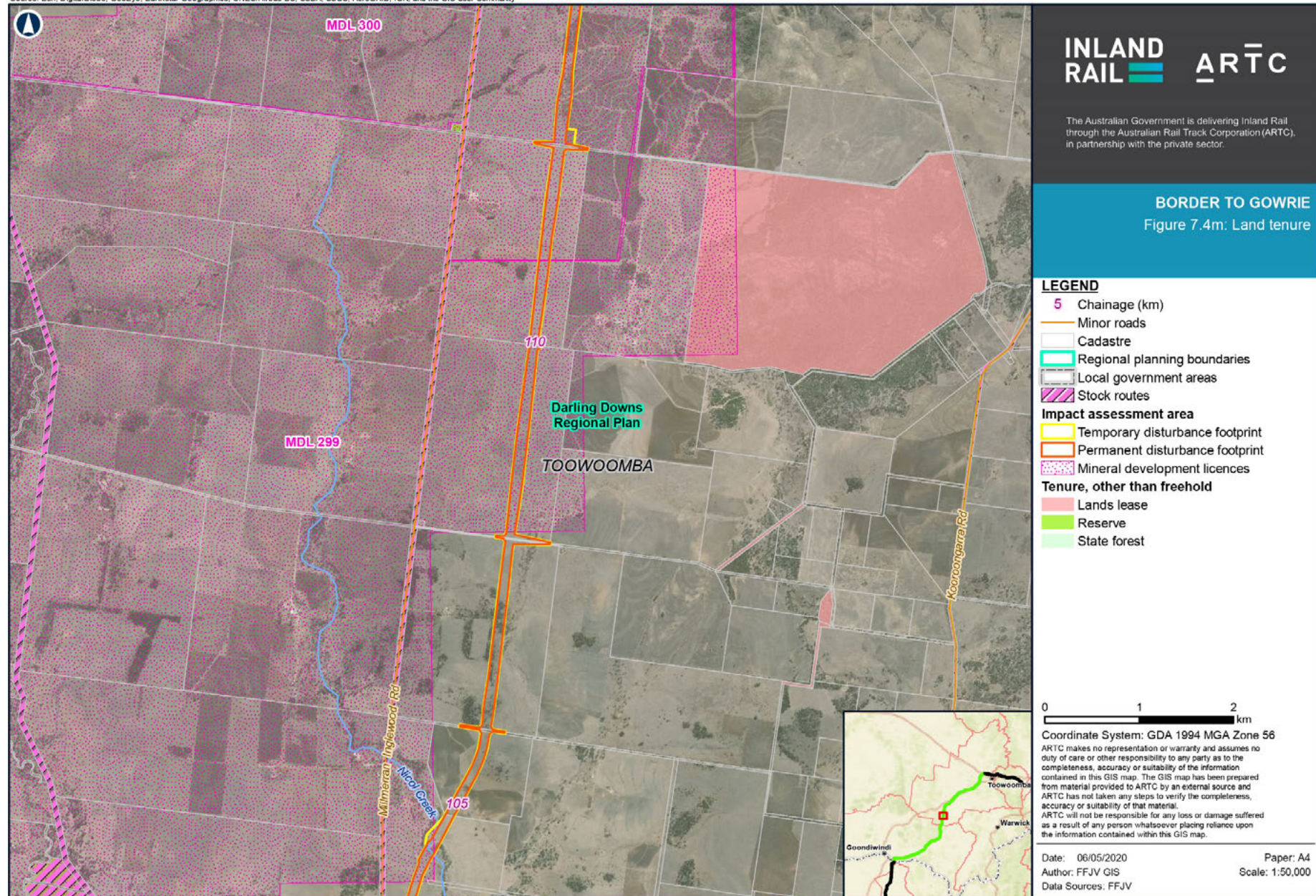
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



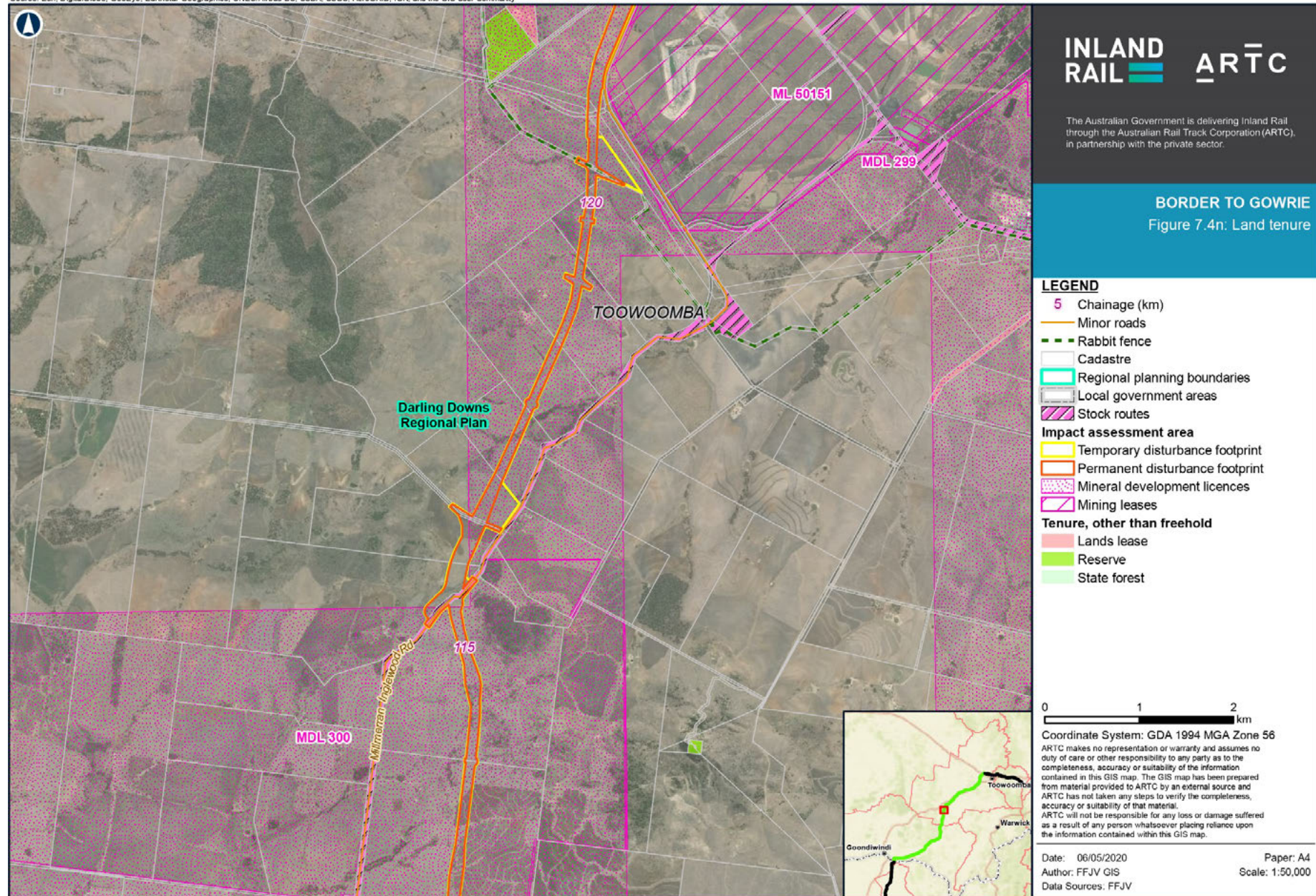
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



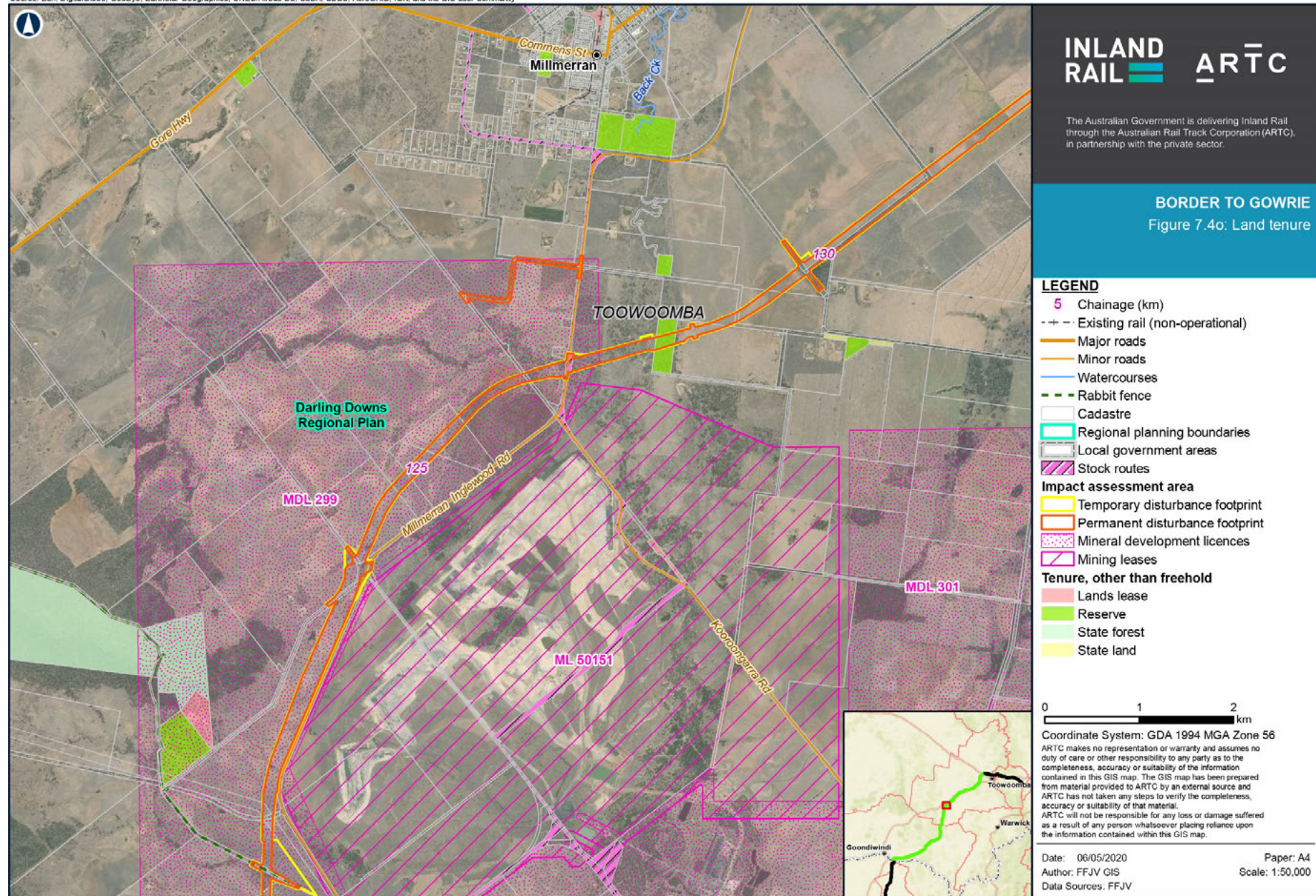
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

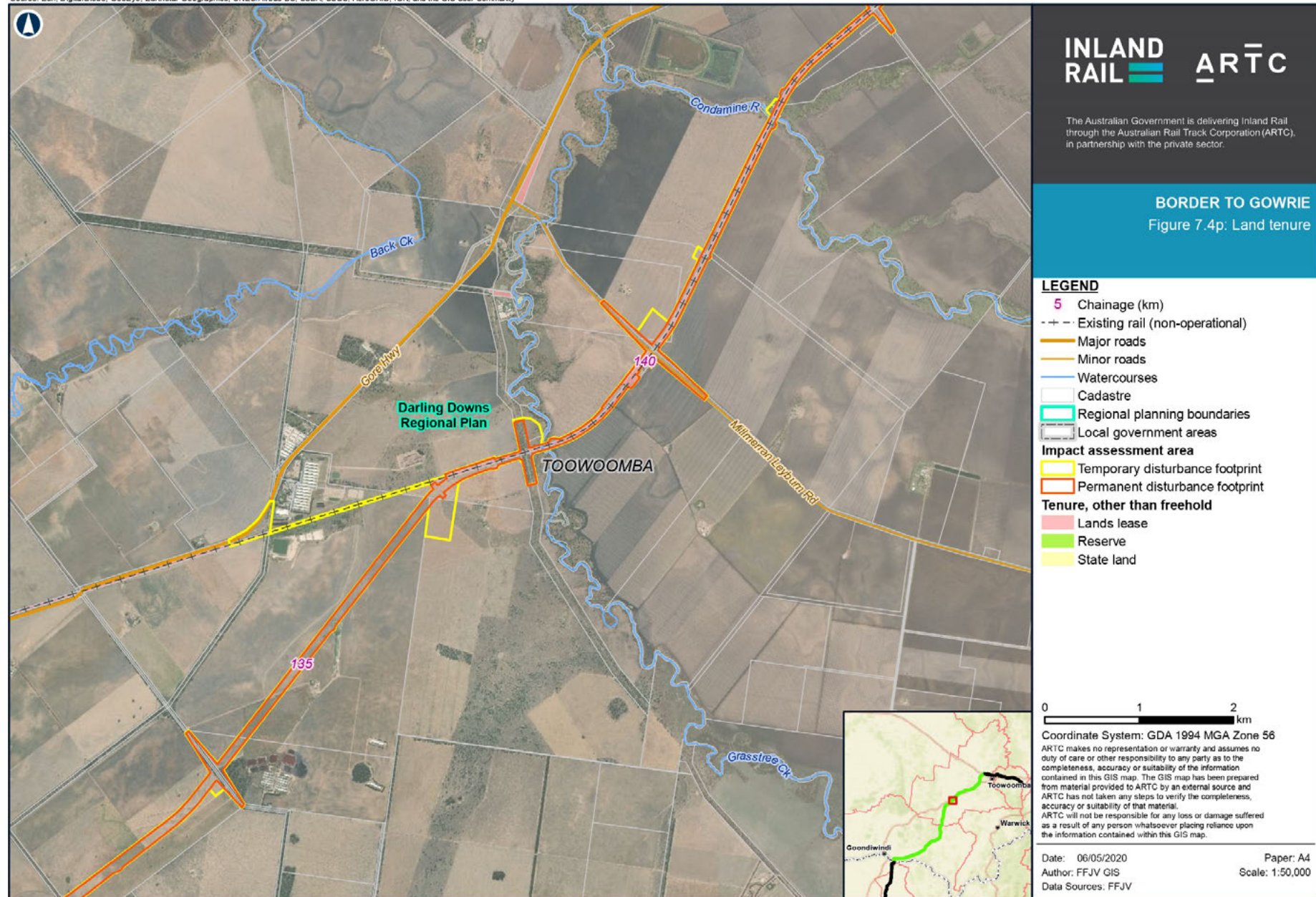


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

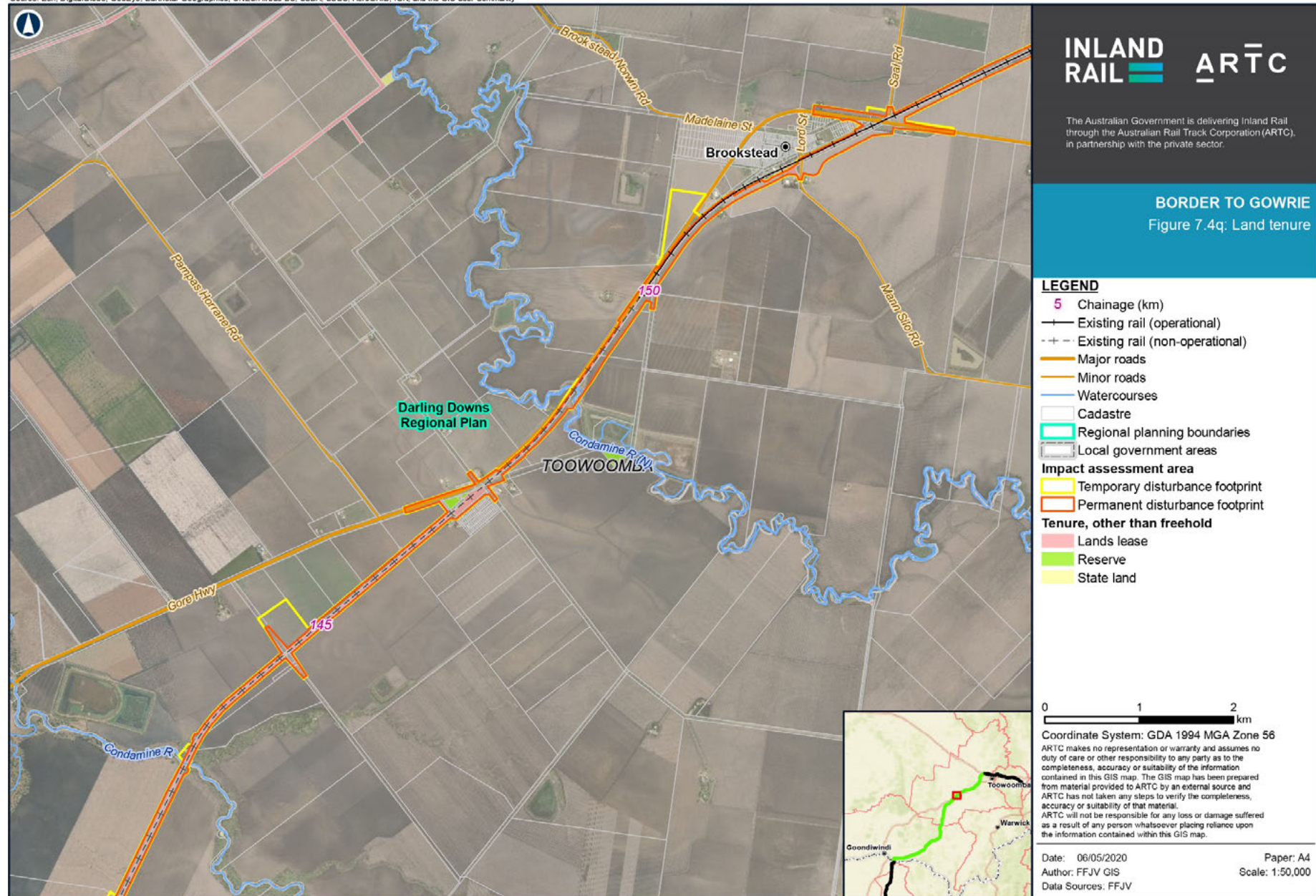


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



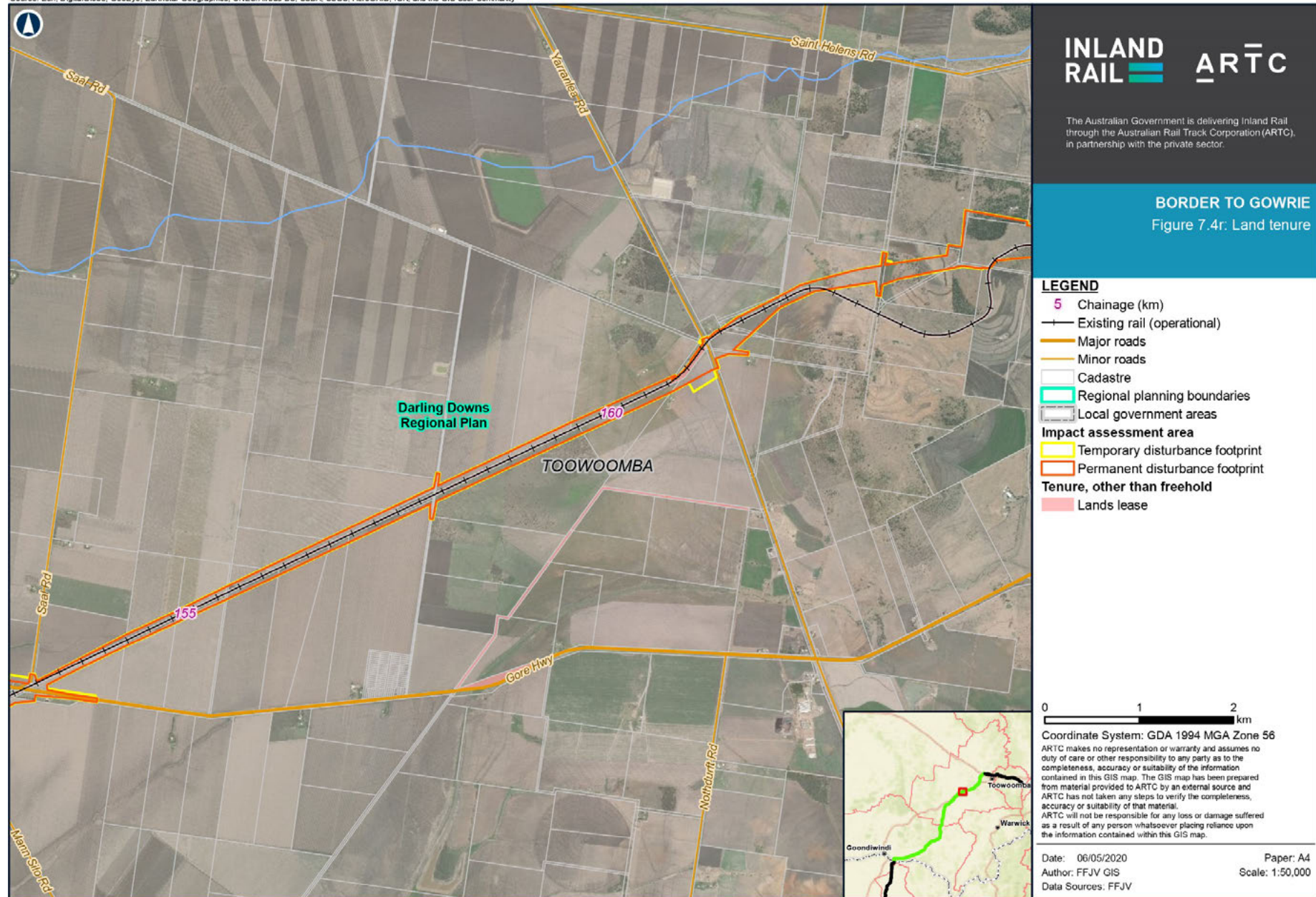
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

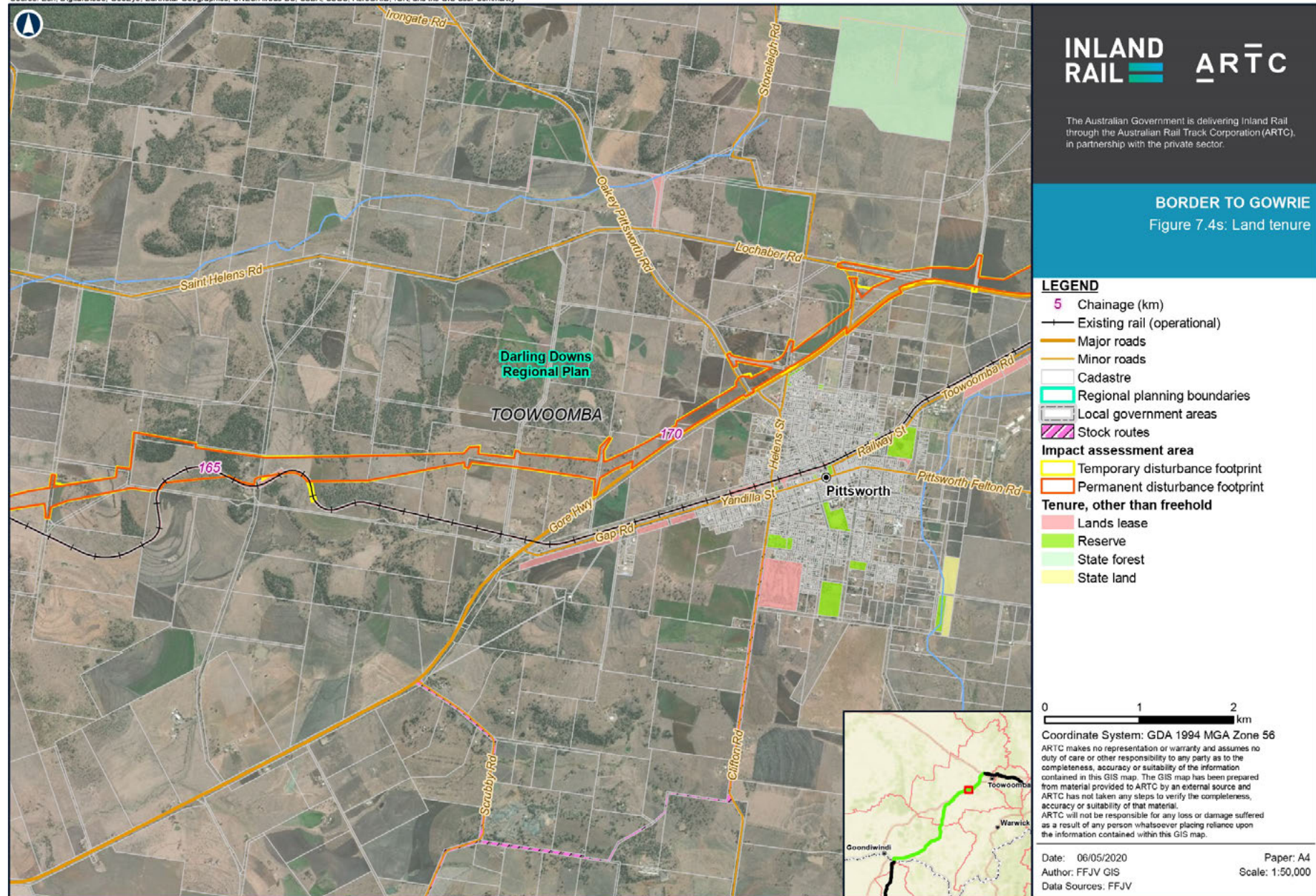


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



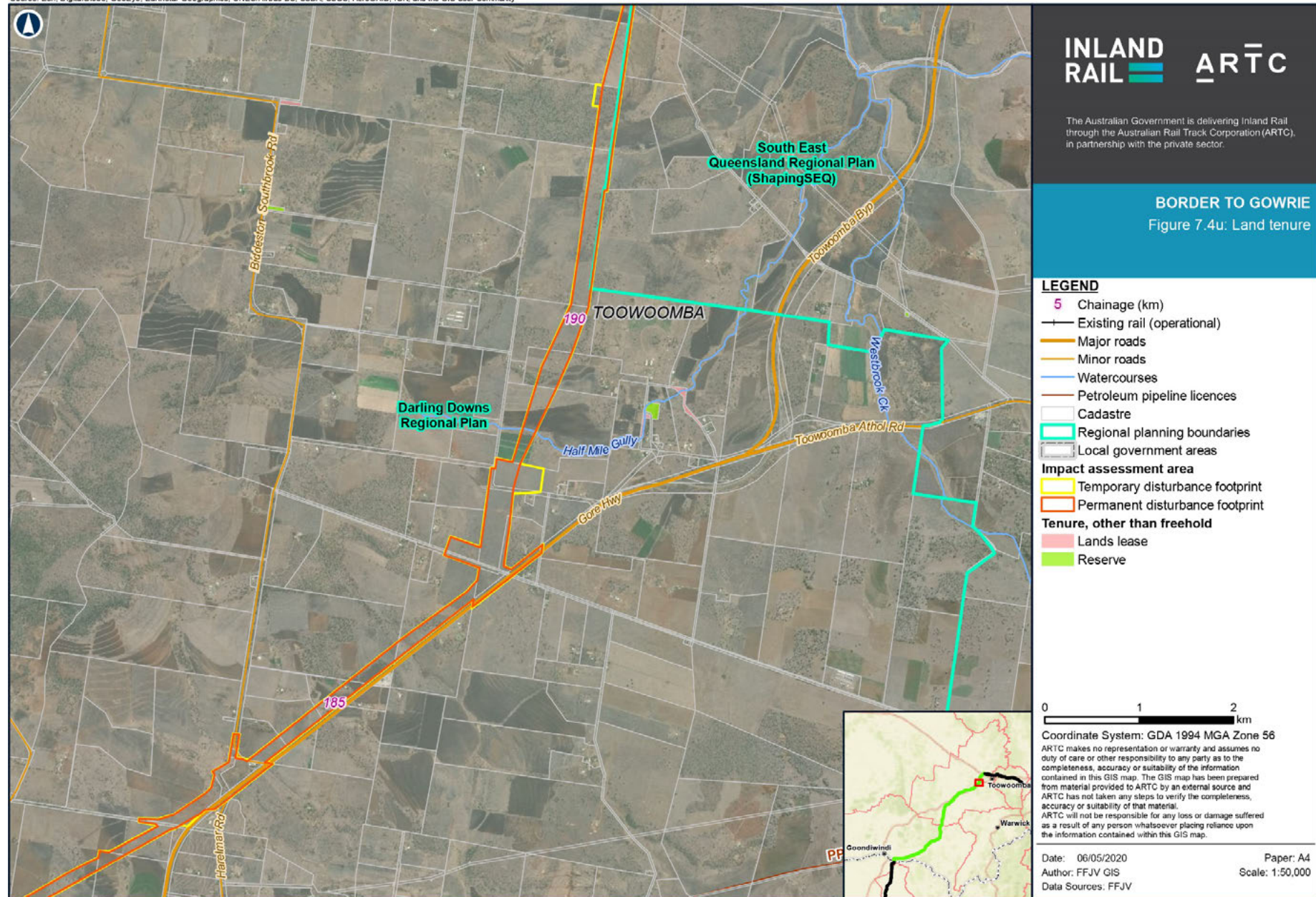
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

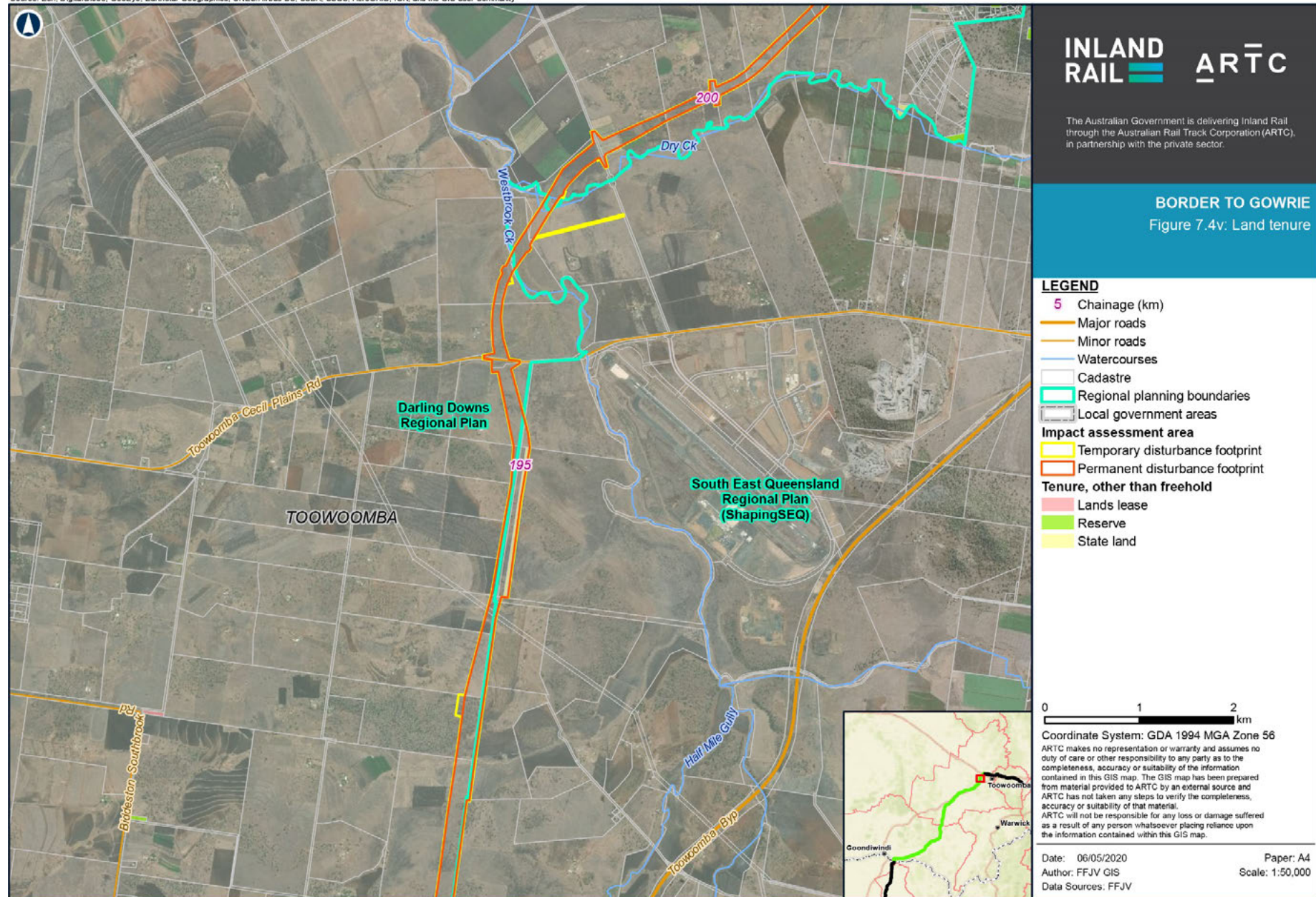


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

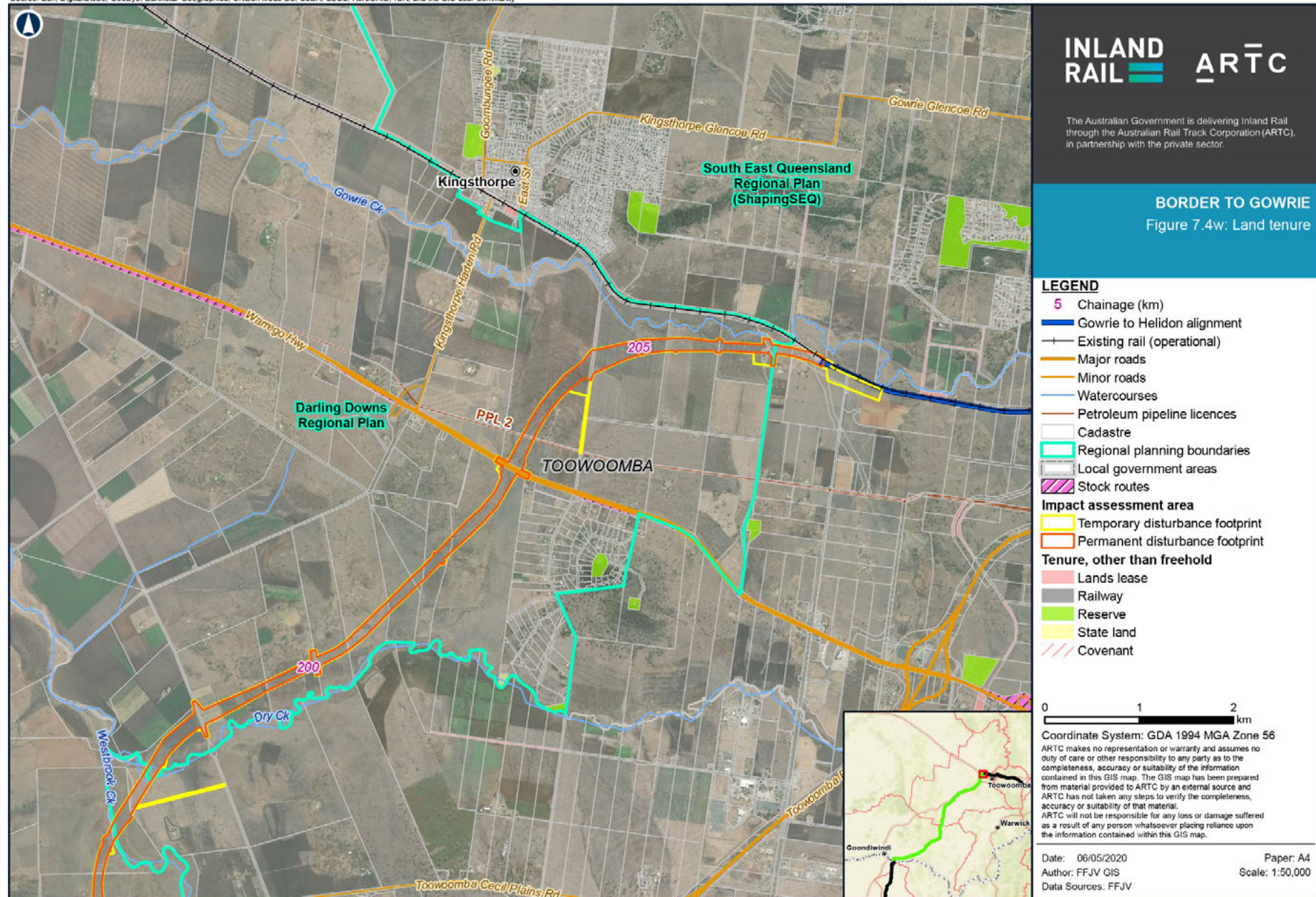


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_4_Land_Tenure_v7.mxd Date: 6/05/2020 09:26

7.5.2 Land use

7.5.2.1 Overview

Starting at the NSW/QLD border, the Project alignment extends within greenfield corridor for approximately 7 km north before joining the existing South Western Line rail corridor. The Project alignment continues northeast, remaining within the existing rail corridor for approximately 46.8 km, traversing through the localities of Kurumbul, Yelarbon and the south of the Whetstone locality. The Project alignment deviates from the existing South Western Line at Whetstone (Ch 44.5 km), continuing within a new greenfield rail corridor travelling in a northeast direction through the locality of Inglewood. Land use of this section of the Project is characterised by grazing land, cropping and forestry, with existing linear infrastructure (e.g. Cunningham Highway and QR South Western Line).

The Project alignment remains within a new greenfield rail corridor for approximately 93.4 km, generally following Millmerran–Inglewood Road, while traversing north through the localities of Canning Creek, Bringalily, Millwood, Clontarf and Domville. The Project alignment deviates from Millmerran–Inglewood Road, traversing northeast through the Millmerran and Yandilla localities, before joining the Millmerran Branch Line rail corridor at Ch 138.0 km. From Yandilla, the Project remains within the existing rail corridor for approximately 24.4 km, traversing in a northeast direction through the localities of Pampas, Brookstead and Yarranlea. Land use of this section of the Project is characterised by cropping, with grazing, production forestry, intensive animal husbandry and mining (Commodore Mine). The Gore Highway, Millmerran–Inglewood Road and the QR Millmerran Branch Line are key linear infrastructure features in this section of the Project.

At Yarranlea, the Project deviates from the existing rail corridor, traversing within a new greenfield rail corridor for approximately 44.6 km through the localities of Pittsworth, Linthorpe, Southbrook, Athol, Biddeston, Wellcamp and Kingsthorpe. The Project then connects into the Gowrie to Helidon section of the Inland Rail at Ch 206.95 km to the west of Gowrie Junction. Land use of this section of the Project is characterised by cropping and grazing, with rural residential and light commercial and industrial operations. This north-eastern portion of the Project also traverses land developed or intended for industrial development as part of Toowoomba Enterprise Hub, within the Charlton–Wellcamp Enterprise Area.

The majority of the Project footprint has been subject to clearing and land disturbance for agriculture, grazing, mining, industry, transport (road and rail corridors) and Toowoomba Wellcamp Airport. Land use within the Project footprint is predominately grazing land. The next most common land uses are also predominately of an agricultural nature, including cropping and irrigated cropping. Other land use that exceeds 1 per cent of the Project footprint includes land classified as ‘other minimal use’ (consisting of areas of land that are largely unused, for example, residual native cover or land reserved for stock routes), production forestry, and transport and communication (which includes transportation infrastructure and commercial services).

Land use as mapped by QLUMP within and adjacent to the Project footprint is described in Table 7.8.

TABLE 7.8 LAND USE WITHIN AND ADJACENT TO THE PROJECT FOOTPRINT

Locality	Land use ¹ within Project footprint	Land use ¹ immediately adjacent to the Project footprint	Figure reference
Within greenfield rail corridor (Ch 30.6 km (NS2B) to Ch 37.0 km (NS2B))			
Kurumbul	From the NSW/QLD border to Kurumbul, land use predominately consists of grazing native vegetation and irrigated cropping. The Project footprint also traverses along the eastern boundary of Rainbow Reserve, a bush camping area located adjacent to the Macintyre River.	Where greenfield rail corridor is required at Kurumbul, adjoining land use consists of grazing land, with some parcels of irrigated cropping, cropping and mining uses (associated with the Kildonan KRA 120)	Figure 7.5a Figure 7.6b
Within existing South Western Line rail corridor (Ch 37.0 km (NS2B) to Ch 44.8 km)			
Kurumbul	The existing South Western Line rail corridor is mapped as ‘other minimal use’ when traversing through Kurumbul. The Project extends wider than the existing rail corridor and traverses adjoining properties, where land use within the Project footprint includes cropping, irrigated cropping and residential.	Land use adjacent to the Project footprint at Kurumbul predominately consists of irrigated cropping, cropping and intensive animal production (Sapphire feedlot)	Figure 7.5a– Figure 7.5b Figure 7.6a– Figure 7.6b

Locality	Land use ¹ within Project footprint	Land use ¹ immediately adjacent to the Project footprint	Figure reference
Yelarbon	The existing South Western Line rail corridor is mapped as grazing native vegetation when traversing through Yelarbon. The Project extends wider than the existing rail corridor and traverses adjoining properties, where land use within the Project footprint is predominately grazing land.	Land use adjacent to the Project footprint at Yelarbon predominately consists of large parcels of grazing land, with smaller parcels of cropping and irrigated cropping. When traversing through the Yelarbon township, adjacent land use also includes residential and service uses, as well as infrastructure associated with GrainCorp's Yelarbon operations.	Figure 7.5c– Figure 7.5d Figure 7.6c– Figure 7.6d
Whetstone (southern area)	The existing South Western Line rail corridor is mapped as grazing native vegetation and production forestry when traversing through the Whetstone locality. The Project extends wider than the existing rail corridor and traverses adjoining properties, where land use within the Project footprint is predominately production forestry.	Land use adjacent to the existing rail corridor is predominately large parcels of grazing land, with some parcels of cropping and irrigated cropping, and production forestry when traversing through the Whetstone State Forest	Figure 7.5e – Figure 7.5f Figure 7.6e – Figure 7.6f
Within greenfield rail corridor (Ch 44.8 km to Ch 137.0 km)			
Whetstone (southeast area)	Where greenfield rail corridor is required at Whetstone, land use within the Project footprint is grazing land.	Land use adjacent to the Project footprint at Whetstone consists of large parcels of grazing land, with some smaller parcels of irrigated cropping and intensive animal production (the Yarranbrook Feedlot)	Figure 7.5f– Figure 7.5g Figure 7.6f– Figure 7.6g
Inglewood	The Project footprint is predominately grazing land, with some parcels of irrigated cropping and production forestry when traversing the Bringalily State Forest. The Project footprint also traverses Pariagara Creek and Canning Creek when traversing through Inglewood.	Land use adjacent to the Project footprint at Inglewood includes grazing land, cropping and production forestry associated with the Bringalily State Forest. There is also an organic farm adjacent to the Project footprint (The Willowglen Farm).	Figure 7.5h– Figure 7.5i Figure 7.6h– Figure 7.6i
Canning Creek	The Project footprint predominately traverses production forestry when within the Bringalily State Forest and grazing land. The Project footprint also traverses Canning Creek when traversing through the Canning Creek locality.	Land use adjacent to the Project footprint at Canning Creek includes production forestry associated with Bringalily State Forest and large parcels of grazing land. The Project footprint predominately follows alongside Millmerran–Inglewood Road.	Figure 7.5i– Figure 7.5l Figure 7.6i– Figure 7.6l
Bringalily	When traversing through Bringalily, the impact assessment traverse land use adjacent to the Millmerran–Inglewood road corridor, which predominately consists of cropping and grazing uses. The Project footprint also traverses Nicol Creek when traversing through Bringalily.	The Project footprint continues to follow alongside Millmerran–Inglewood Road. Land use adjacent to the Project footprint at Bringalily consists of cropping, intensive animal production, grazing land and irrigated cropping.	Figure 7.5l– Figure 7.5m Figure 7.6l– Figure 7.6m
Millwood	When traversing through the Millwood locality, land use within the Project footprint consists of large parcels of grazing and cropping land.	Land use adjacent to the Project footprint at Millwood includes cropping, grazing native vegetation and intensive animal production	Figure 7.5m– Figure 7.5n Figure 7.6m– Figure 7.6n
Clontarf	When traversing through Clontarf, land use within the Project footprint predominately consists of cropping land with some smaller parcels of grazing land.	Land use adjacent to the Project footprint at Clontarf includes cropping and grazing land as well as mining uses associated with the Commodore Mine	Figure 7.5n– Figure 7.5o Figure 7.6n– Figure 7.6o
Domville	When traversing through Domville, land use within the Project footprint consists of grazing land as well as land parcels associated with the Commodore Mine.	Land use adjacent to the Project footprint at Domville includes cropping, intensive animal production and the Commodore Mine	Figure 7.5o Figure 7.6o

Locality	Land use ¹ within Project footprint	Land use ¹ immediately adjacent to the Project footprint	Figure reference
Millmerran	When traversing through Millmerran, land use within the Project footprint predominately consists of cropping and grazing land.	Land use adjacent to the Project footprint at Millmerran consists of cropping and grazing land	Figure 7.5o– Figure 7.5p Figure 7.6o– Figure 7.6p
Within existing Millmerran Branch Line rail corridor (Ch 137.0 km to Ch 162.0 km)			
Yandilla	The existing Millmerran Branch Line rail corridor is mapped as cropping and grazing land when traversing through Yandilla. The Project extends wider than the existing rail corridor, traversing adjoining properties, where land use within the Project footprint predominately consists of cropping and grazing land. The Project footprint also traverses Grasstree Creek when traversing through Yandilla.	Land use adjacent to the Project footprint at Yandilla consists of cropping and grazing land as well as intensive animal production (associated with a poultry farming operation—Doug Hall Poultry)	Figure 7.5p Figure 7.6p
Pampas	The existing Millmerran Branch Line rail corridor is mapped as irrigated cropping and cropping land when traversing through Pampas. The Project footprint extends wider than the existing rail corridor, traversing adjoining properties, where land use consists of irrigate cropping and cropping land. The Project footprint also traverses the Condamine River when within the Pampas locality.	The Project footprint follows alongside the Gore Highway at Pampas. Land use adjacent to the Project footprint and the Gore Highway includes cropping, irrigated cropping and some rural residential uses.	Figure 7.5p– Figure 7.5q Figure 7.6p– Figure 7.6q
Brookstead	The existing Millmerran Branch Line rail corridor is mapped as cropping land use when traversing through the Brookstead locality. When traversing through the Brookstead township, the Project footprint extends wider than the existing rail corridor, traversing land use mapped as services and cropping land.	The Project footprint follows alongside the Gore Highway, where land use adjacent to the Project footprint includes cropping land with some reservoirs and dams used for agricultural purposes. The Project footprint deviates from the Gore Highway when traversing near the Brookstead township. Land use adjacent to the Project footprint and existing rail corridor includes residential land uses and services, such as transport infrastructure, commercial businesses (including GrainCorp’s Brookstead operations) and Brookstead State School.	Figure 7.5q– Figure 7.5r Figure 7.6q– Figure 7.6r
Yarranlea	The existing Millmerran Branch Line rail corridor is mapped as grazing and cropping land when traversing through Yarranlea. The Project extends wider than the existing rail corridor, traversing adjoining properties where land use within the Project footprint is predominately grazing and cropping land.	Land use adjacent to the Project footprint and existing rail corridor at Yarranlea predominately consists of large parcels of cropping and grazing land.	Figure 7.5r– Figure 7.5s Figure 7.6r– Figure 7.6s

Locality	Land use ¹ within Project footprint	Land use ¹ immediately adjacent to the Project footprint	Figure reference
Within greenfield rail corridor (Ch 162.0 km to 206.9 km)			
Pittsworth	The Project footprint deviates from the existing Millmerran Branch Line rail corridor and traverses cropping and grazing land and some residential land uses.	When traversing through Pittsworth, the Project footprint follows alongside the Gore Highway. Land use adjacent to the Project footprint consists of cropping and grazing land as well as residential and service land uses, which are located within the Pittsworth township.	Figure 7.5s– Figure 7.5t Figure 7.6s– Figure 7.6t
Linthorpe	When traversing through Linthorpe, the Project footprint predominately traverses grazing and cropping land use, and some smaller parcels of residential land use, grazing modified pastures and intensive animal production.	Land use adjacent to the Project footprint consists of the Gore Highway, grazing, irrigated cropping and cropping	Figure 7.5t Figure 7.6t
Southbrook	The Project footprint traverses large parcels of cropping and grazing land.	Land use adjacent to the Project footprint consists of cropping, grazing land and some rural residential uses. The Project footprint also predominately follows the Gore Highway.	Figure 7.5t– Figure 7.5u Figure 7.6t– Figure 7.6u
Athol	The Project footprint at Athol traverses grazing and cropping land use.	Land use adjacent to the Project footprint consists of cropping, grazing land and some rural residential uses	Figure 7.5u– Figure 7.5v Figure 7.6u– Figure 7.6v
Biddeston	The Project footprint at Biddeston traverses grazing and cropping land use.	Land use adjacent to the Project footprint consists of cropping and grazing land	Figure 7.5v Figure 7.6v
Wellcamp	The Project footprint at Wellcamp traverses grazing and cropping land use. The Project footprint traverses land developed or intended for industrial development as part of Toowoomba Enterprise Hub.	Land use adjacent to the Project footprint include the Toowoomba Wellcamp Airport and other uses the associated with the Toowoomba Enterprise Hub (including the Wellcamp Business Park currently under construction). Other land use includes grazing and cropping land.	Figure 7.5v Figure 7.6v
Kingsthorpe	The Project footprint at Kingsthorpe traverses grazing and cropping land use. The Project footprint also traverses Dry Creek when traversing through Kingsthorpe.	Land use adjacent to the Project footprint consists of grazing and cropping land, as well as residential land uses located within the adjacent Gowrie Mountain locality	Figure 7.5v– Figure 7.5w Figure 7.6v– Figure 7.6w
Approach to West Moreton System rail corridor (Ch 206.9 km)			
Gowrie Junction	While the Project does not tie-in to it, the Project footprint adjoins the West Moreton System rail corridor to the west of Gowrie Junction. The Project footprint also runs parallel to Gowrie Creek to the west of Gowrie Junction.	Land use adjacent to the Project footprint consists of grazing, irrigated cropping and cropping	Figure 7.5w Figure 7.6w

Table note:

¹ Land use as per the QLUMP.

Table 7.9 provides a summary of the land use within the Project footprint, broken down into the permanent and temporary footprints. Land uses, as mapped by QLUMP, are depicted on Figure 7.5a to Figure 7.5w. The Project footprints will use the existing South Western Line and Millmerran Branch Line rail corridors for approximately 33 per cent of the total length of the Project. Although land use within this existing rail corridor is mapped as the adjoining land use under QLUMP, it is not used for grazing, agricultural, residential or other non-infrastructure related uses.

TABLE 7.9 EXISTING LAND USE WITHIN THE PROJECT FOOTPRINT

Land Use ¹	Permanent footprint		Temporary footprint	
	Area (ha)	% of land	Area (ha)	% of land
Grazing native vegetation	1,359.74	51.2	252.56	45.9
Cropping	826.99	31.2	173.53	31.5
Production forestry	125.15	4.7	16.76	3.0
Other minimal use	114.34	4.3	31.23	5.7
Irrigated cropping	73.96	2.8	15.04	2.7
Irrigated cropping—cotton	42.11	1.6	28.75	5.2
Transport and communication	35.60	1.3	17.84	3.2
Residential	23.28	0.9	4.90	0.9
Nature conservation	16.05	0.6	2.77	0.5
Grazing modified pastures	8.92	0.3	0.89	0.2
Intensive animal production	8.15	0.3	0.65	0.1
Irrigated perennial horticulture	7.98	0.3	0.86	0.2
Services	4.39	0.2	1.76	0.3
Land in transition	2.96	0.1	0.52	0.1
Manufacturing and industrial	1.47	0.1	1.04	0.2
Mining	1.40	0.1	0.60	0.1
Reservoir/dam	0.57	Less than 0.1	0.35	0.1
River	0.08	Less than 0.1	0.04	Less than 0.1
Waste treatment and disposal	0.05	Less than 0.1	0.11	Less than 0.1
Total	2,653.19	100.0	550.19	100.0

Table note:

¹ Land use as per the QLUMP. This dataset has not been modified where localised inaccuracies are known to occur.

Table 7.10 provides a summary of land use within the permanent and temporary footprints that are located outside of the existing rail and road corridors.

For the areas of the permanent footprint outside of the existing rail corridors, land use is mapped as being predominately grazing land (50 per cent) or cropping land (36 per cent). The temporary disturbance footprint outside of existing rail corridors is also primarily mapped as grazing land (41 per cent) or cropping land (39 per cent). Other land use includes production forestry, other minimal use, irrigated cropping and transport, and communication. For areas of the permanent footprint outside the existing rail corridors, land use is mapped as predominately grazing or cropping land.

TABLE 7.10 LAND USE WITHIN THE PROJECT FOOTPRINT LOCATED OUTSIDE OF THE EXISTING RAIL CORRIDORS

Land use ¹	Permanent footprint		Temporary footprint	
	Area (ha)	% of permanent footprint, outside of existing rail corridor	Area (ha)	% of temporary footprint, outside of existing rail corridor
Grazing native vegetation	1025.32	49.7	176.49	41.5
Cropping	750.66	36.4	164.51	38.7
Production forestry	111.47	5.4	13.14	3.1
Irrigated cropping	68.53	3.3	12.64	3.0
Irrigated cropping—cotton	32.06	1.6	27.77	6.5
Residential	15.12	0.7	3.81	0.9
Other minimal use	14.94	0.7	17.42	4.1
Nature conservation	10.53	0.5	2.48	0.6
Grazing modified pastures	8.92	0.4	0.89	0.2
Irrigated perennial horticulture	7.98	0.4	0.86	0.2
Intensive animal production	7.74	0.4	0.58	0.1
Transport and communication	4.93	0.2	2.19	0.5
Services	2.59	0.1	1.26	0.3
Reservoir/dam	0.52	0.0	0.34	0.1
Manufacturing and industrial	0.17	0.0	0.67	0.2
Mining	-	-	0.27	0.1
River	-	-	0.01	Less than 0.1
Waste treatment and disposal	-	-	0.05	Less than 0.1
Total	2061.48	100.0	425.38	100.0

Table note:

¹ Land use as per the QLUMP. This dataset has not been modified where localised inaccuracies are known to occur.

Prominent land uses located within, or within proximity to, the Project footprint are summarised in Table 7.11. Prominent land uses include areas where there are multiple residential and commercial uses, mining operations and land uses of State significance (i.e. reserves and KRAs) and have been particularly considered when addressing impacts of the Project on particular land uses.

TABLE 7.11 PROMINENT EXISTING LAND USES

Prominent existing land uses	Description	Approximate chainage	Figure reference
KRA 120—Kildonan	At its closest point, the permanent footprint is located approximately 355 m west of the resource/processing area and 170 m to the west of the southeast corner of the separation area for the Kildonan KRA (KRA 120), avoiding land within the separation and processing areas. The temporary footprint includes allowance for a temporary haulage route to be established between the Project and KRA 120 to enable material to be potentially sourced from this location, subject to agreement with the owner/operator. As a result, this nominated temporary haulage route encroaches marginally into the separation area and the western boundary of the resource/processing area for KRA 120. Further discussion on the Kildonan KRA is provided in Section 7.5.2.4.	Ch 31.0 km (NS2B) to Ch 32.4 km (NS2B)	Figure 7.5a Figure 7.6a

Prominent existing land uses	Description	Approximate chainage	Figure reference
Rainbow Reserve	The Rainbow Reserve is a stock route reserve and bush camping area located on the Macintyre River. Camping on the Reserve is free of charge and there are no formal facilities at the site. The Project footprint traverses along the eastern boundary of the reserve.	Ch 33.0 km (NS2B) to Ch 35.0 km (NS2B)	Figure 7.5a Figure 7.6a
Kurumbul township	Land use within the Kurumbul township consists of rural residential properties and the Sapphire feedlot. The Project footprint traverses through the small township of Kurumbul when using the existing South Western Line rail corridor.	Ch 5.8 km to Ch 6.4 km	Figure 7.5b Figure 7.6b
Yelarbon township	Land uses within the Yelarbon township primarily consist of residential uses, services, and infrastructure associated with GrainCorp's Yelarbon operations. The Project footprint traverses through the Yelarbon township when using the existing South Western Line rail corridor.	Ch 25.6 km to Ch 27 km	Figure 7.5d Figure 7.6d
Whetstone State Forest	The Whetstone State Forest is a defined native forest timber production area, protected under the provisions of the <i>Forestry Act 1959</i> (Qld). The Project footprint traverses land within the Whetstone State Forest at Whetstone.	Ch 37.5 km to Ch 43.4 km	Figure 7.5e– Figure 7.5f Figure 7.6e– Figure 7.6f
Bringalily State Forest	The Bringalily State Forest is a defined native forest timber production area, protected under the provisions of the <i>Forestry Act 1959</i> (Qld). The Project footprint traverses land within the Bringalily State Forest between Inglewood and Canning Creek.	Ch 64.0 km to Ch 65.8 km Ch 74.0 km to Ch 91.6 km	Figure 7.5h– Figure 7.5k Figure 7.6h– Figure 7.6k
Commodore Mine	The Commodore Mine is an open pit coal mine, which supplies coal to the Millmerran Power Station. The Project footprint traverses along the north-western boundary of land associated with the Commodore Mine at Domville.	Ch 120.0 km to Ch 126.0 km	Figure 7.5n– Figure 7.5o Figure 7.6n– Figure 7.6o
Brookstead township	Land uses within the Brookstead township predominately consist of residential and commercial services as well as Brookstead State School and infrastructure associated with GrainCorp's Brookstead operations. The Project footprint is located within the existing Millmerran Branch Line rail corridor when traversing through the Brookstead township.	Ch 150.4 km to Ch 152.6 km	Figure 7.5q Figure 7.6q
Pittsworth township	The Pittsworth township is located on the South Western Line rail corridor and has access to the Gore Highway. Land uses within the Pittsworth township predominately consist of residential and commercial services. The Project footprint is located on the periphery of the Pittsworth township, along the Gore Highway.	Ch 169.0 km to Ch 172.6 km	Figure 7.5s– Figure 7.5t Figure 7.6s– Figure 7.6t
Toowoomba Wellcamp Airport	The Toowoomba Wellcamp Airport is located immediately adjacent to the Toowoomba Enterprise Hub and is an airport servicing Toowoomba, promoting interstate, intrastate and international connection for the Darling Downs, Granite Belt, Surat Basin and Southern Downs regions. At its closest point, the Project alignment is approximately 1 km and the Project footprint is approximately 865 m to the west of the northern limit of the runway.	Ch 193.0 km to Ch 195.6 km	Figure 7.5v Figure 7.6v

Other airports throughout the region include:

- ▶ Army Aviation Centre Oakey—11.4 km from the Project footprint
- ▶ Inglewood airfield (not certified or registered)—4 km from the Project footprint
- ▶ Millmerran airfield (not certified or registered)—3.9 km from the Project footprint
- ▶ Pittsworth airfield (not certified or registered)—2.5 km from the Project footprint
- ▶ Southbrook airfield (not certified or registered)—2.4 km from the Project footprint
- ▶ Wyreema airfield (not certified or registered)—10 km from the Project footprint
- ▶ Cambooya airfield (not certified or registered)—13.5 km from the Project footprint
- ▶ Colanya airfield (not certified or registered)—6 km from the Project footprint.

These airports all exist further than 1 km from the Project footprint and are unlikely to experience impacts from the establishment of the Project.

7.5.2.2 Agricultural uses and activities

The *Queensland Agricultural Land Audit* (the Audit) (DAF, 2017a) identifies land that is of importance to current and future agricultural production across Queensland. The Audit seeks to provide information on the location, extent and character of land currently used for agriculture and to identify areas with potential for future agricultural development.

The Audit assesses current and potential agricultural land uses based on the following agricultural land-use categories:

- | | |
|--|--------------------------|
| ▶ Broadacre cropping (rainfed/irrigated) | ▶ Grazing—sown pasture |
| ▶ Annual horticulture (irrigated) | ▶ Grazing—native pasture |
| ▶ Perennial horticulture (assumed to be irrigated) | ▶ Plantation forestry |
| ▶ Intensive animal industries (i.e. cattle feedlots and piggeries State-wide, and poultry in SEQ only, eggs and aquaculture) | ▶ Native forestry |
| | ▶ Sugarcane. |

Current agricultural land use is mapped across the State, predominantly using data from QLUMP, while also including data from the Queensland Government maintained registers of the Intensive Livestock Environmental Regulation Unit database for intensive animal industries, and the Safe Food Queensland Egg Register.

The Audit then identifies agricultural potential using a rule-based approach that combines biophysical characteristics of the land, such as the soil, climate and landform as well as native vegetation, and socio-economic spatial data. These rules identify land with characteristics that best match the requirements of each agricultural land-use category.

The characteristics of land/soil resources are a fundamental determinant of potential for most agricultural land uses. Soils are classified using a four-tier hierarchy ranging from Class A (arable land) through to Class D (land that is unsuitable for agriculture). These are described in Table 7.12.

TABLE 7.12 DEFINITION OF AGRICULTURAL LAND CLASSES

Agricultural land class	Description
Land Class A— Crop land	Land that is suitable for a wide range ^a of current and potential crops with nil to moderate limitations to production: ▶ A1—Land that is suitable for a wide range of current and potential broad acre and horticulture crops with limitations to production that range from non to moderate levels ▶ A2—Land that is suitable for a wide range of current and potential horticulture crops only, with limitations to production that range from none to moderate levels.
Land Class B— Limited crop land	Land that is suitable for a narrow range ^b of current and potential crops. Land that is marginal for current and potential crops due to severe limitations but is highly suitable for pastures. Land may be suitable for cropping with engineering and/or agronomic improvements.
Land Class C— Pasture land	Land that is suitable only for improved or native pastures due to limitations that preclude continuous cultivation for crop production. Some areas may tolerate a short period of ground disturbance for pasture establishment: - C1—Suitable for grazing sown pastures (with ground disturbance for establishment) or has native pastures on higher fertility soils - C2—Suitable for grazing native pastures with or without the introduction of pasture species—not suitable for ground disturbance to establish pastures - C3—Suitable for light grazing of native pastures in accessible areas and includes steep land more suited to forestry or catchment protection.
Land Class D— Non-agricultural land	Land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant conservation and/or catchment values; land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop, poor drainage, salinity, acidic drainage; or, an urbanised area.

Table notes:

- a) A 'wide range' is defined as four or more existing crops of local commercial significance. In areas where specialised infrastructure to support an agricultural industry is present, the land may only be currently suitable for two or more crops, providing at least one is regionally significant.
- b) A 'narrow range' is defined as three or less crops of local commercial significance (or less than two where specialised infrastructure is present).

Source: Queensland Agricultural Land Audit Method Technical Report (DAFF, 2013)

Agricultural land classified as being Class A or Class B land is the most productive agricultural land in Queensland, with soil and land characteristics that may allow successful crop and pasture production. Other characteristics, such as slope, climate, and socio-economic criteria, also impact on the potential for land to be used for agricultural land uses; nonetheless, Class A and B land is the key component of the State's interest in agriculture under the SPP.

In addition to the above, the Audit identifies 'important agricultural areas' (IAAs). IAAs are defined by the Audit as land that has all the requirements for agriculture to be successful and sustainable, is part of a critical mass of land with similar characteristics and is strategically significant to the region or the State. Determination of the significance of the land is based on consideration of a range of criteria that reflect the current or potential contribution that the land can make to the region and State economically and socially (DAFF, 2013). These criteria include:

- ▶ Current or potential contribution of agricultural development of the area to economic activity and employment (and other social factors) in the locality, region or State
- ▶ Strategic importance of the area for continuity and consistency of supply of particular products or markets locally, nationally or internationally
- ▶ Extent of investment required to develop the land for agriculture (e.g. through construction of irrigation schemes, grain storage facilities or sale yards).

The Audit is based on the 12 statutory regional planning boundaries of Queensland, being the South East, Darling Downs, Wider Bay Burnett, South West, Central West, North West, Central Queensland, Mackay Isaac and Whitsunday, Charters Towers, Gulf, Far North Queensland and the Cape. For each region, an economic and socio-economic profile has been prepared, along with an analysis of the strengths, weaknesses, opportunities and threats for agricultural development in the region.

As shown on Figure 7.3, the Project is located within the Darling Downs region for the entire length of the Project alignment and SEQ region for 16 km between Kingsthorpe and Gowrie Junction as the two regions overlap with one another.

Darling Downs region

The Audit recognises the Darling Downs region to have some of Queensland's best agricultural land. Traditionally, the primary production activities in the region have been grazing (both sheep and cattle), dryland and irrigated cropping, and timber production. The region also supports intensive horticulture and many intensive animal production businesses. The Audit identifies broadacre cropping to be the predominate activity undertaken in the southeast area of the Darling Downs (DAFF, 2013).

The Audit identifies the following strengths for the Darling Downs region:

- ▶ Linked to SEQ, with access to markets and ports by major road, rail and airport infrastructure
- ▶ Strong, established centres in some areas (i.e. towns along the Warrego Highway).

There are four areas identified as IAAs in the Darling Downs region, two of which are traversed by the Project footprint, being the Border Region IAA and the Eastern Darling Downs IAA.

The Border Region IAA is located in the southern area of the Darling Downs (near the NSW border) and is located in the Project footprint between Kurumbul and Yelarbon. The Border Region IAA supports a variety of broadacre cropping and grazing land. The combination of biophysical attributes exhibited in this area (including slope and water-holding capacity) enables this region to support large areas of broadacre cropping. The Balonne and Goondiwindi LGAs produce 14 per cent of Queensland's cropping commodity value, comprising mainly of cotton.

The Eastern Darling Downs IAA is located in the Project footprint between Canning Creek and Gowrie Junction. The Eastern Darling Downs IAA supports some of Queensland's best cropping lands, producing over 30 per cent of the State's cropping commodity value. The area supports extensive broadacre cropping, horticulture and significant intensive livestock businesses. Cropping in the Eastern Darling Downs IAA is dependent on the high-quality vertosol soils unique to the area. Established infrastructure in the area, including water and further processing facilities, support irrigation and industry needs.

South East Queensland region

In SEQ, the Audit outlines that the dominant agricultural industries are horticulture, poultry, cattle, dairy and cultivated turf (DAFF, 2013).

The Audit identifies the following strengths for the SEQ region:

- ▶ SEQ is in proximity to major transport hubs (airport, rail and ports) for interstate and international markets
- ▶ The region supports numerous value-adding/processing enterprises crossing many sectors (poultry, viticulture, fruit juice, ginger, garlic, fresh herbs and dairy), and many local governments are keen to expand processing and value-adding industries
- ▶ The region supplies quarry material (including material from native forests on State land) for infrastructure and construction requirements.

There are three areas identified as IAAs in SEQ located in the Lockyer Valley, Scenic Rim, and Sunshine Coast and upper Moreton Bay areas. The Project footprint does not traverse land located within these IAAs.

Relevance to the Project

Land classified by the Audit located within the Project footprint is summarised within Table 7.13 and shown on Figure 7.7a to Figure 7.7w.

TABLE 7.13 AGRICULTURAL LAND IDENTIFIED BY THE AUDIT WITHIN THE PROJECT FOOTPRINT

Agricultural Land Audit Theme	Permanent footprint		Temporary footprint	
	Area (ha)	% of permanent footprint	Area (ha)	% of temporary footprint
Land Class A	1,913.24	71.9	421.69	76.6
Land Class B	93.94	3.5	19.01	3.5
Border Region Important Agricultural Area	337.58	12.7	142.82	25.9
Eastern Darling Downs Important Agricultural Area	1,839.37	69.1	261.28	47.5

The existing rail and road corridors are mapped as containing Class A land, Class B land and IAA but no agricultural activities are undertaken, and infrastructure is already established. The permanent footprint will use existing rail and road corridors for approximately 592.24 ha, within which no agricultural activities are undertaken despite it being mapped for these uses. On this basis, it is important to assess land proposed within the permanent footprint where located outside of the existing rail and road corridors.

A total of 2,061.19 ha of the permanent footprint is located outside of the existing South Western Line and Millmerran Branch Line rail corridors and existing road corridors.

Of this area, approximately:

- ▶ 1,766.89 ha (86 per cent) is classified as Class A land
- ▶ 93.94 ha (5 per cent) is Class B land
- ▶ 254.34 ha (12 per cent) is within the Border Region IAA
- ▶ 1,451.31 ha (70 per cent) is within the Eastern Darling Downs IAA.

A total of 425.40 ha of the temporary footprint is located outside of the existing South Western Line and Millmerran Branch Line rail corridors and existing road corridors. Of this area, approximately:

- ▶ 418.00 ha (98 per cent) is classified as Class A land
- ▶ 19.01 ha (5 per cent) is Class B land
- ▶ 142.40 ha (34 per cent) is within the Border Region IAA
- ▶ 259.34 ha (61 per cent) is within the Eastern Darling Downs IAA.

TABLE 7.14 AGRICULTURAL LAND IDENTIFIED BY THE AUDIT WITHIN THE PROJECT FOOTPRINT WHERE NOT USING EXISTING RAIL AND ROAD CORRIDORS

Agricultural Land Audit	Area (ha)	Percentage of permanent footprint located outside of existing rail and road corridors
Permanent footprint located outside of existing rail and road corridors		
Land Class A	1,766.89	85.7
Land Class B	93.94	4.6
Border Region Important Agricultural Area	254.34	12.3
Eastern Darling Downs Important Agricultural Area	1,451.31	70.4
Temporary footprint located outside of existing rail and road corridors		
Land Class A	418.00	98.3
Land Class B	19.01	4.5
Border Region Important Agricultural Area	142.40	33.5
Eastern Darling Downs Important Agricultural Area	259.34	61.0

Intensive animal husbandry

The Audit also identifies current intensive livestock operations of piggeries, cattle feedlots and poultry farms. Piggeries, cattle feedlots and poultry farms are included in the Audit where there is a current environmental authority for the use under the EP Act.

Nine current intensive livestock operations are within, or in proximity to (approximately 1 km), the Project footprint. These are summarised in Table 7.15.

TABLE 7.15 CURRENT INTENSIVE LIVESTOCK OPERATIONS WITHIN, OR IN PROXIMITY TO, THE PROJECT FOOTPRINT

Type	Name	EA No.	Development approval capacity (maximum standard animal units)	Location (approximate chainage)	Relation to the Project
Current intensive livestock operations within the Project footprint					
Cattle feedlot	Yarranbrook Farms Pty Ltd (Yarranbrook Feedlot)	FL-087	15,000	Whetstone (Ch 54.0 km)	The Project footprint traverses through multiple land parcels associated with the Yarranbrook Feedlot, before crossing the access point, Cremascos Road, and traversing along the southeast corner of Lot 511 on RP226715.
Cattle feedlot	D M Fletcher	F1-0153	250	Bringalily (Ch 104.0 km)	The Project footprint traverses north to south through the centre of the land parcel associated with this feedlot (Lot 2 on RP197967) at Bringalily.
Cattle feedlot	Russell Sydney and Kim Maree Stevens (R Sydney and KM Stevens Feedlot)	F1-0026	999	Millwood (Ch 111.2 km)	The Project footprint traverses north to south through the east extent of the land parcel associated with this feedlot (Lot 6 on MH364) at Millwood.
Piggery	Cameron Pastoral Co. Pty Ltd (Moyness Piggery)	P1-0019	12,500	Yandilla (Ch 133.0 km)	The Project footprint traverses through the west corner of Lot 3 on RP16081 and through the centre of Lot 3683 on DER34116 associated with the Moyness Piggery at Yandilla.
Poultry Farm	Doug Hall Poultry Pty Ltd	Unknown	>20,000	Yandilla (Ch 137.0 km)	The Project footprint traverses along the southern boundary of land parcels (Lot 2 on RP898480 and Lot 4 SP153098) associated with the Doug Hall Poultry Farm at Yandilla.
Current intensive livestock operations within proximity to the Project footprint					
Cattle feedlot	Smithfield Service Pty Ltd (Sapphire Feedlot)	2017-05	20,000	Yelarbon (Ch 10.0 km)	The Sapphire Feedlot is located to the south of the Project footprint, adjoining the Project footprint and existing South Western Line rail corridor. The Project footprint does not traverse this feedlot.
Cattle feedlot	F J and F E Verdon	51-0150	999	Whetstone (Ch 34.0 km)	The land parcel associated with this feedlot is located to the southeast of the Project footprint, adjoining the Project footprint and the existing South Western Line rail corridor. The Project footprint does not traverse this feedlot.

Type	Name	EA No.	Development approval capacity (maximum standard animal units)	Location (approximate chainage)	Relation to the Project
Cattle feedlot	Christopher Gleeson	FL-192	150–1,000	Kooroongarra (Ch 104.0 km)	The land parcel associated with this feedlot is located approximately 400 m to the east of the Project footprint. The Project footprint does not traverse the land parcel associated with this feedlot.
Piggery	Boondooma Country Pork Pty Ltd	P2-0210	4,700	Millwood (Ch 110.0 km)	The land parcel associated with this piggery is located approximately 250 m to the east of the Project footprint at Millwood. The Project footprint does not traverse this piggery.

Stock routes

Stock routes are corridors on roads, reserves, pastoral leases and unallocated State land along which stock are driven on foot and are designated for travelling stock purposes under the relevant State legislation. Currently, the stock route network in Queensland is administered under at least three Acts:

- ▶ *Stock Route Management Act 2002* (Qld)
- ▶ *Land Act 1994* (Qld)
- ▶ *Transport Infrastructure Act 1994* (Qld) (TI Act).

The Project interfaces with the State stock route network in 12 locations. The State stock route network is primarily used by the pastoral industry as:

- ▶ An alternative to transporting stock by rail or road
- ▶ Pasture for emergency agistment
- ▶ Long-term grazing.

Locations of stock routes that intersect with the Project footprint are identified in Table 7.16 and shown on Figure 7.6a to Figure 7.6w.

TABLE 7.16 STOCK ROUTES THAT INTERFACE WITH THE PROJECT

Location and Project interface point (approximate chainage)	Stock route ID, type, status and class	Description
Kildonan Road Ch 33.1 km (NS2B)	ID: 005GWND Type: Road Status: Open Class: Primary	This stock route follows Kildonan Road. The Project alignment crosses this stock route at Kurumbul.
Rainbow Reserve and Eukabilla Road Ch 33.4 km (NS2B)	ID: RAINBOW RESERVE Type: Reserve Status: Open Class: Primary	This stock reserve encompasses the Rainbow Reserve camping area and Eukabilla Road. The Project alignment enters into this stock reserve at Ch 33.15 km (NS2B) and crosses Eukabilla Road at 33.4 km (NS2B). The Project alignment continues to run parallel to the western edge of the existing Eukabilla Road, within the stock reserve, to Ch 34.9 km (NS2B). At this point it leaves exits the stock reserve.
Wondalli–Kurumbul Road and Yelarbon–Kurumbul Road Ch 7.2 km	ID: 081GWND Type: Road Status: Open Class: Secondary	This stock route is aligned along Wondalli–Kurumbul Road and parallel to Yelarbon–Kurumbul Road, which runs adjacent to the existing South Western Line rail corridor. The Project alignment crosses this stock route at the intersection of Wondalli–Kurumbul Road and Yelarbon–Kurumbul Road.

Location and Project interface point (approximate chainage)	Stock route ID, type, status and class	Description
Yelarbon Ch 25.4 km	ID: 811GWND Type: Road Status: Open Class: Minor and unused	This stock route is aligned with Merton Road, the Cunningham Highway and Yelarbon–Keetah Road. The stock route crosses the existing QR South Western Line at an active level crossing on the Cunningham Highway. The Project will require the closure of the existing active level crossing, to be replaced by a road-over-rail crossing approximately 400 m to the west of the existing crossing point. This road reconfiguration will result in the severance of the current stock route.
East of Sawmill Road Ch 27.0 km	ID: RESERVE Type: Reserve Status: Open Class: Minor and unused	This is an isolated stock reserve, with no mapped stock route linkages. The stock reserve is bound by the Cunningham Highway to the west and East of Sawmill Road to the north. The Project involves curve easing of East of Sawmill Road, which will encroach by up to 15 m into the north-west corner of the stock reserve. The existing Yelarbon levee extends diagonally across this stock reserve. Modifications to the existing Yelarbon levee, if they are to occur, will temporarily require works within the stock reserve.
Lovells Crossing Road Ch 65.8 km	ID: 813GWD Type: Road Status: Open Class: Minor and unused	This stock route follows Lovells Crossing Road. The Project alignment crosses this stock route approximately 3 km north of Inglewood.
Millmerran–Inglewood Road (Inglewood) Ch 73.1 km to Ch 76.5 km	ID: 820GWD Type: Road Status: Open Class: Minor and unused	This stock route follows Millmerran–Inglewood Road. The Project alignment crosses this stock route twice in ten kilometres, once at Ch 75.0 km and again at Ch 85.0 km.
Millmerran–Inglewood Road (Inglewood) Ch 84.2 km	ID: 820GWD Type: Road Status: Open Class: Minor and unused	This stock route follows or runs parallel to the east of Millmerran–Inglewood Road. The Project alignment crosses this stock route at the point of the stock route re-joining Millmerran–Inglewood Road.
Koorongarra–Anderson Road Ch 96.1 km	ID: 856TOOW Type: Road Status: Open Class: Minor and unused	This stock route branches off 820TOOW and provides an east–west connection to Stonehenge Road. The Project alignment crosses this stock route at the intersection of Koorongarra–Anderson Road and Millmerran–Inglewood Road.
Millmerran–Inglewood Road (near Heckendorfs Road) Ch 115.5 km	ID: 820TOOW Type: Road Status: Open Class: Minor and unused	This stock route follows Millmerran–Inglewood Road. The Project alignment crosses this stock route approximately 900 m south of the intersection of Heckendorfs Road and Millmerran–Inglewood Road.
Koorongarra Road (Commodore Mine) Ch 127.2 km	ID: 820TOOW Type: Road Status: Open Class: Minor and unused	The stock route follows Millmerran–Koorongarra Road and Millmerran–Inglewood Road. This Project alignment crosses this stock route approximately 550 m north of the intersection between Millmerran–Inglewood Road, Millmerran–Koorongarra Road and Schwartens Road.

Location and Project interface point (approximate chainage)	Stock route ID, type, status and class	Description
Warrego Highway Ch 203.01 km	ID: No ID—Unused Type: Road Status: Open Class: Minor and unused	This stock route follows the Warrego Highway. The Project alignment crosses this stock route approximately 700 m west of the intersection between the Warrego Highway, Chamberlain Road and Jannuschs Road.

Barrier fences

There are three types of barrier fences that are identified in Queensland legislation. These are the wild dog barrier fence, wild dog check fence and the Darling Downs–Moreton Rabbit Board (DDMRB) rabbit fence.

The wild dog check fence and the DDMRB rabbit fence are both traversed by the Project footprint.

Wild dog check fences

Wild dog check fences protect areas of grazing and cropping land in southern Queensland from wild dogs. Wild dog check fences do not physically link up to the wild dog barrier fence; however, they play an important role in wild dog control in southern Queensland (DAF, 2018d). GRC is responsible for the ongoing maintenance of approximately 283 km of the wild dog check fence.

The rail alignment runs parallel to the existing wild dog check fence from Ch 26.8 km to 43.5 km (refer Figure 7.7d to Figure 7.7f). It then intersects the wild dog check fence at four locations, Ch 50.1 km, Ch 51.2 km, Ch 54.9 km and Ch 56.0 km (refer Figure 7.7g).

Rabbit fence

The DDMRB rabbit fence is a 555-km long rabbit-proof fence. The fence is managed and maintained by the DDMRB, stretching from Lamington National Park in the east, to Goombi in the southwest, where it connects to the wild dog barrier fence (DAF, 2018a).

The Project intersects the DDMRB rabbit fence when traversing through the locality of Clontarf, at approximate chainage Ch 120.2 km (refer Figure 7.7n).

7.5.2.3 Protected areas

The Queensland Government manages native forest timber production in State forests under the *Forestry Act 1959* (Qld). A State forest is an area of Crown land that is, or is part of, a timber reserve or a forest reserve declared by regulation as a State forest. Sub-leases for activities other than production forestry, such as quarry reserves and apiary sites, may be granted for land within State forests.

The Project footprint traverses through two declared State forest areas—the Whetstone State Forest and the Bringalily State Forest. The Project footprint encroaches on Whetstone State Forest when the Project alignment uses the existing South Western Line rail corridor at Whetstone between Ch 37.6 km and Ch 43.4 km. The Project footprint traverses Bringalily State Forest where new rail corridor is required between Inglewood and Canning Creek at Ch 64 km and Ch 65.8 km, and Ch 74 km and Ch 91.6 km.

ARTC have identified, through consultation with DAF and the Queensland Beekeepers' Association (QBA), that there are apiary sub-leases within the State forests that allow for beekeeping to occur. Each apiary site is 600 m², or less, and contains no more than 150 hives (Queensland Government, 2020b).

The Project footprint does not traverse any quarry reserves located within the State forests.

7.5.2.4 Resource areas

Key resource areas

Key resource areas are designated locations containing important extractive resources of State or regional significance worthy of protection for future use (DILGP, 2016b). KRAs are included in the SPP and are supported by the *State interest guideline—Mining and extractive resources* (DILGP, 2016b).

A KRA is made up of four components:

- ▶ The resource/processing area—the extent of the extractive resource and any operational areas associated with the extraction and processing of the resource
- ▶ A separation area—to maintain separation from people who might be affected by impacts such as noise, dust and ground vibrations from existing or future operations
- ▶ A transport route—from the boundary of the resource area to a major road or railway
- ▶ A separation area around the transport route—to minimise impacts on people who might be affected by noise, dust and ground vibration along the route.

The Kildonan KRA (KRA No. 120) is located approximately 18-km southeast of Goondiwindi on Kildonan–Old Warwick Road. The Kildonan KRA is mapped as containing alluvium and lacustrine deposits and is located near an alluvial terrace along the Macintyre River. The deposits are large in volume and significant for the region, as deposits of sand are sparse in the region. The KRA is identified as having the potential to supply a considerable portion of the Goondiwindi and surrounding area's demand for material (DILGP, 2016c). Kildonan KRA 120 is shown on Figure 7.6a.

At its closest point, the permanent footprint is located approximately 355 m west of the resource/processing area and 170 m to the west of the southeast corner of the separation area for KRA 120, avoiding land within the separation and processing areas.

The temporary footprint includes allowance for a temporary haulage route to be established between the Project and KRA 120 to enable material to be sourced from this location if agreement to obtain material from this location can be reached with the owner/operator. As a result, this nominated temporary haulage route encroaches marginally into the separation area and the western boundary of the resource/processing area for KRA 120. If agreement is not reached, then there may not be a need for this temporary haulage route.

The transport route of KRA 120 is located along a private road to the sealed Kildonan–Old Warwick Road. The Project footprint does not intersect the KRA transport route.

No other KRAs are located within 1 km of the Project.

Coal resource areas

Coal resource areas depict the extent of identified coal resource estimates in Queensland as presented in the publication *Queensland Coals—Physical and Chemical Properties Colliery and Company Information: 14th Edition* (Mutton, 2003).

The Project footprint traverses the Bringalily South and Bringalily North coal resource areas when within Bringalily and Millwood and the Commodore coal resource area when near to the Commodore Mine at Domville.

Bringalily North and Bringalily South coal resource areas are undeveloped coal deposits that are identified as having a large resource of thermal coal. The Commodore coal resource area is an operating mine, which produces high volatility, low sulphur bituminous thermal coal (Mutton, 2003).

Coal resource areas traversed by the Project footprint are detailed in Table 7.17 and shown on Figure 7.6a to Figure 7.6w.

TABLE 7.17 COAL RESOURCE AREA WITHIN THE PROJECT FOOTPRINT

Coal resource area	Total above ground area of coal resource area (ha)	Area within permanent footprint (ha)	Area within temporary footprint (ha)
Bringalily North	2,078.4 ha	61.88 ha	7.08 ha
Bringalily South	5,104.7 ha	28.24 ha	3.60 ha
Commodore	2,146.5 ha	40.55 ha	6.16 ha

7.5.2.5 Roads

Road–rail interfaces are points at which the Project alignment intersects a road. In some instances, multiple road–rail interfaces occur on the same road. The reference design for the Project intersects seven State-controlled roads declared under the TI Act under the management and control of DTMR. The Project intersects the following State-controlled roads in nine locations:

- ▶ Cunningham Highway (Wondalli Street)
- ▶ Millmerran–Inglewood Road
- ▶ Millmerran–Leyburn Road—three intersections
- ▶ Gore Highway
- ▶ Oakey–Pittsworth Road
- ▶ Toowoomba–Cecil Plains Road
- ▶ Warrego Highway.

The Project also intersects local roads managed and controlled by GRC and TRC. The reference design for the Project has 18 road–rail interface points with GRC-managed roads and 26 road–rail interface points with TRC-managed roads.

The Project alignment also intersects the following occupational and private roads:

- ▶ 153 private, unformed access roads or tracks
- ▶ 62 private, formed access roads or tracks.

Further discussion on road–rail interfaces is provided in Chapter 5: Project Description and Chapter 18: Traffic, Transport and Access.

7.5.2.6 Railway

The Project alignment will use approximately 71.2 km of existing rail corridor. The existing rail corridor used by the Project is leased by the State to QR for the South Western Line (46.81 km) and Millmerran Branch Line (24.43 km).

There are 12 existing QR road–rail crossings on public roads along the Project alignment. Two of these existing crossings, on the Cunningham Highway (Wondalli Street) and Fysh Road, will be relocated for the reference design. The remaining 10 will either retain their existing crossing treatment or will have an upgrade in crossing treatment as part of the reference design (refer to Chapter 5: Project Description).

7.5.2.7 Utilities

The Moonie to Brisbane Pipeline, a high-pressure oil pipeline licence (PPL 1) held by Moonie Pipeline Company Pty Ltd, is located within the Project footprint at Southbrook, at approximately Ch 180.5 km. This pipeline has been decommissioned but the easement relating to the pipeline remains in place and is held by Santos Limited.

The Roma to Brisbane Pipeline, a gas pipeline licence (PPL 2) held by APT Petroleum Pipelines Pty Ltd, is located within the Project footprint at Kingsthorpe, at approximately Ch 203.4 km. This pipeline is a gas transmission pipeline that transports natural gas between Wallumbilla gas hub, near Roma, to Brisbane.

To the west of Gowrie Junction, the Project footprint traverses the Wetalla Water Pipeline, a 45-km underground water pipeline that supplies treated wastewater from the Wetalla Wastewater Reclamation Facility in Toowoomba to the New Acland Coal Mine.

In total, the Project crosses 656 utilities including communication, electrical, water, gas and oil utilities. Utilities identified to be located within the Project footprint are summarised in Table 7.18 and are shown on Figure 7.6a to Figure 7.6w.

Initial consultation with respective infrastructure providers and pipeline licensees has occurred to establish potential interface impacts and to identify initial design solutions. Utility owners who have been consulted to date, include APA Gas, Energex, Millmerran Operating Company, Powerlink, Santos, Optus, TPG and NBN. Consultation will continue throughout the detail design phase of the Project to further verify interface impacts and to confirm appropriate interface treatments.

TABLE 7.18 UTILITIES WITHIN THE PROJECT FOOTPRINT

Utility/service	Total
Communication	504
Electricity	134
Gas	2
Oil	1
Potable water	4
Raw water	3
Recycled Water	6
Sewer Gravity Main	1
Sewer Rising Main	1
Total	656

7.5.2.8 Current environmental authorities for environmentally relevant activities

ERAs are industrial or intensive agricultural activities with the potential to release contaminants into the environment. An EA is required to perform an ERA. EAs are administered by a range of Queensland Government and local government agencies under the provisions of the EP Act.

There are two categories of ERAs:

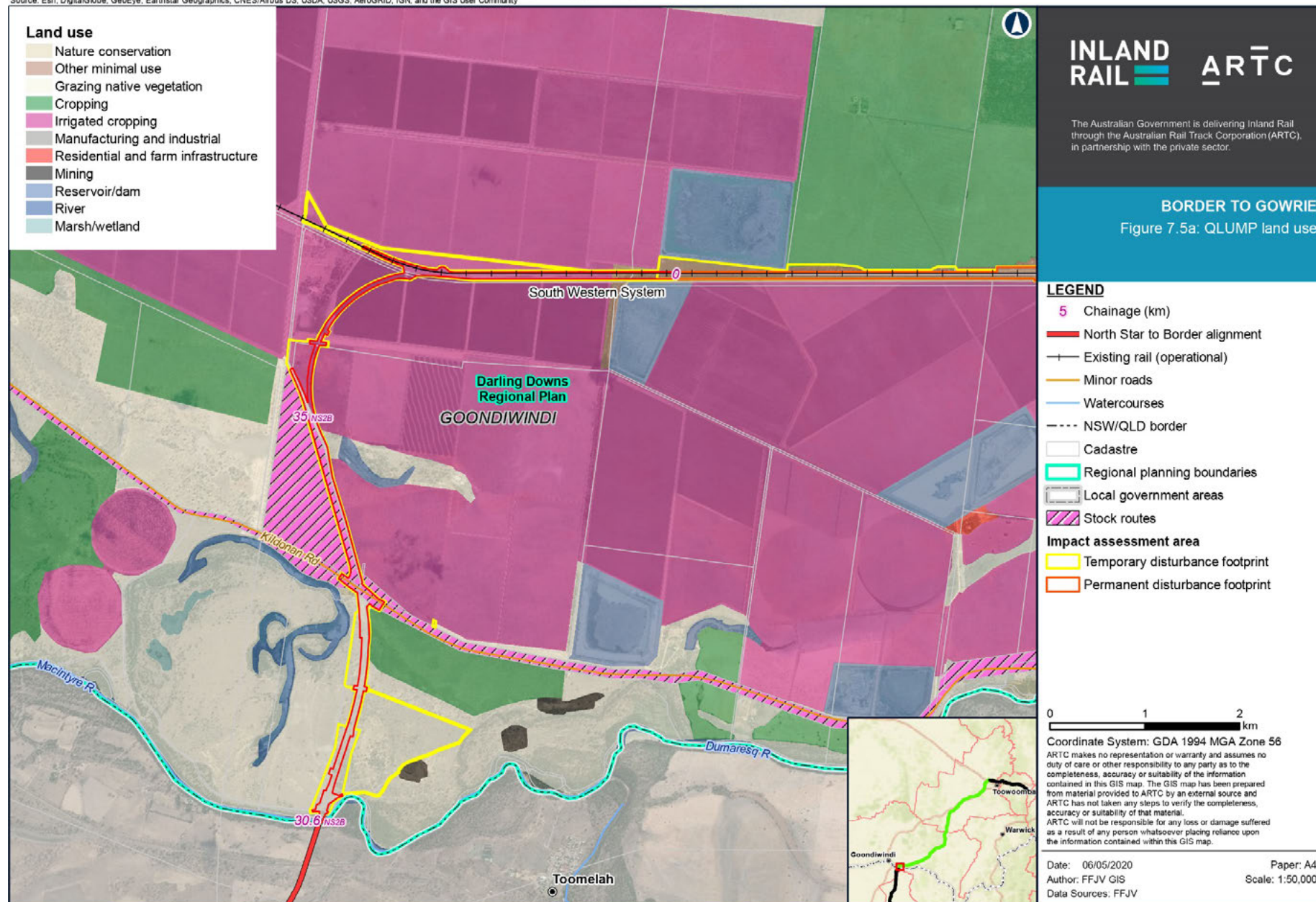
- ▶ Prescribed ERAs (as defined under Schedule 2 of the *Environmental Protection Regulation 2019*)
- ▶ Resource activities (including mining activities, petroleum activities, geothermal activities, and greenhouse gas storage activities).

Resource activities relevant to the Project are identified within Section 7.5.1.2 and Section 7.5.1.3. Current prescribed ERAs within the Project footprint are identified within Table 7.19 and shown on Figure 7.6.

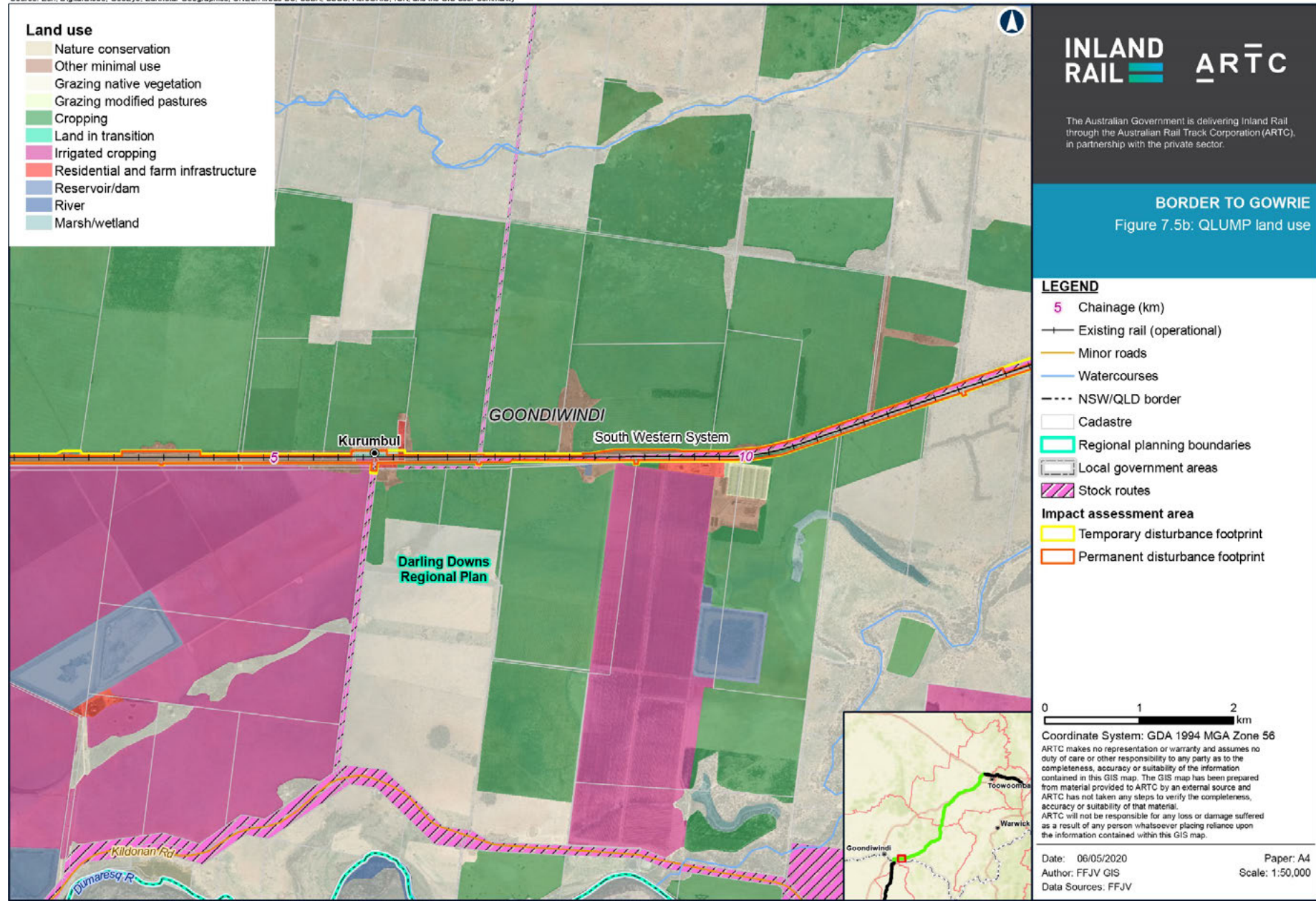
TABLE 7.19 PRESCRIBED ENVIRONMENTALLY RELEVANT ACTIVITIES LOCATED WITHIN THE LAND USE STUDY AREA

Permit number and primary holder	Locality (approximate chainage)	Description	EA date	Relationship to the Project
Prescribed ERA (Permit number: EPPR00372213)—Primary holder is Ron Johnstone Pty Ltd	Wondul Road, Inglewood Queensland (Ch 67.2–Ch 68.6 km)	This prescribed ERA is associated with Johnstone Concrete and Quarries Pty Ltd concrete quarry and has the following registered activities: ▶ ERA 16—Extraction and Screening, 1: Dredging, in a year, the following quantity of material, (a) 1000 t to 10,000 t.	EA granted in July 2018	The Project footprint traverses land subject to this EA at Inglewood
Prescribed ERA (Permit number: EPPR00865113)—Primary holder is TRC	Millmerran–Inglewood Road, Canning Creek Queensland (Ch 99.8 km)	This prescribed ERA has the following registered activities: ▶ ERA 16—Extraction and Screening >5000 t but <100000 t year	EA granted in January 2016	The Project footprint traverses land subject to this EA at Canning Creek
Prescribed ERA (Permit number: EPPR00625013)—Primary holder is TRC	Millmerran–Inglewood Road, Millwood QLD (Ch 115.8–Ch 116.2 km)	This prescribed ERA has the following registered activities: ▶ ERA 60—Waste disposal, 2: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1) (b), (a) 50 t to 2000 t.	EA granted in July 2017	The Project footprint traverses land subject to this EA at Millwood

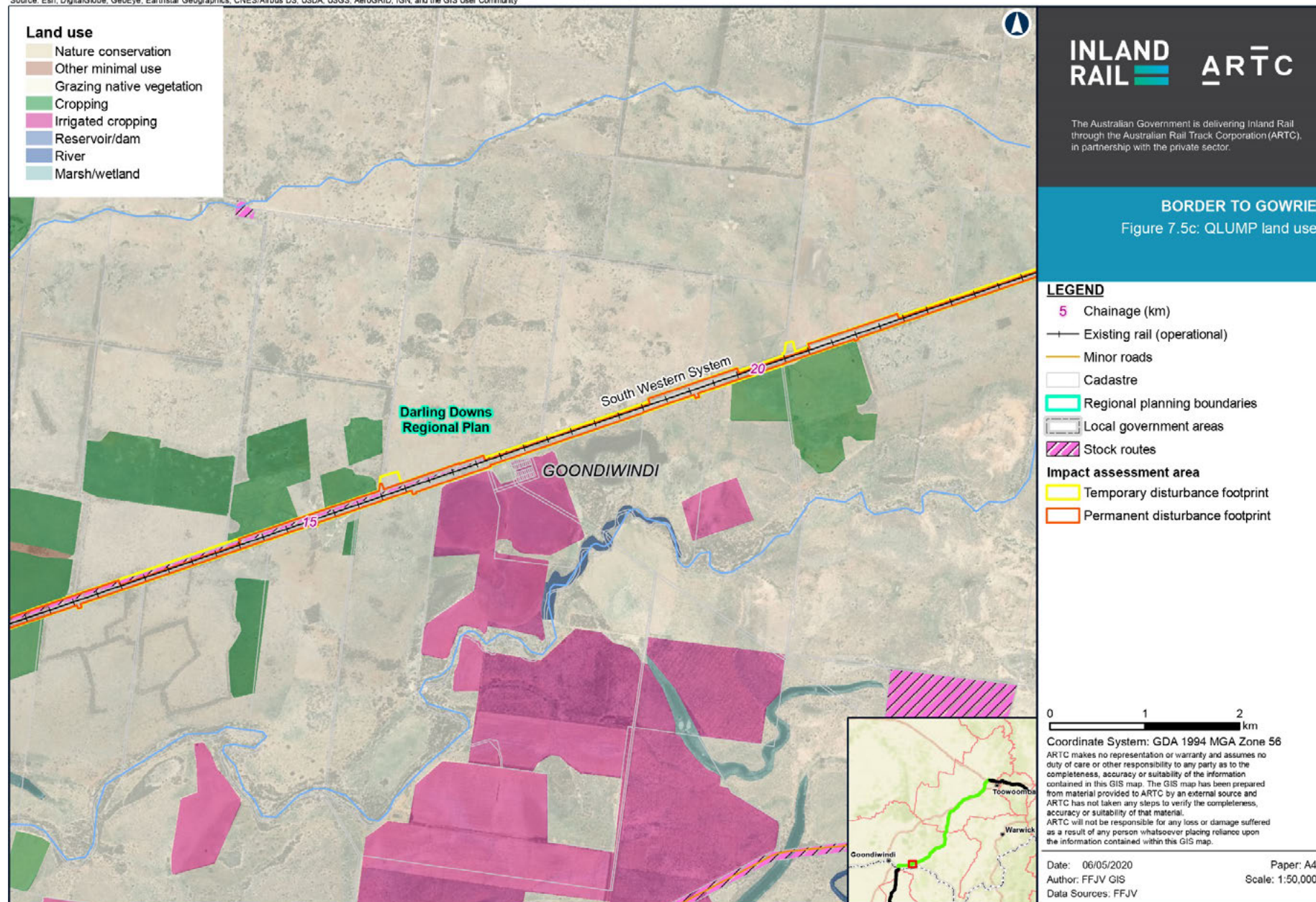
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



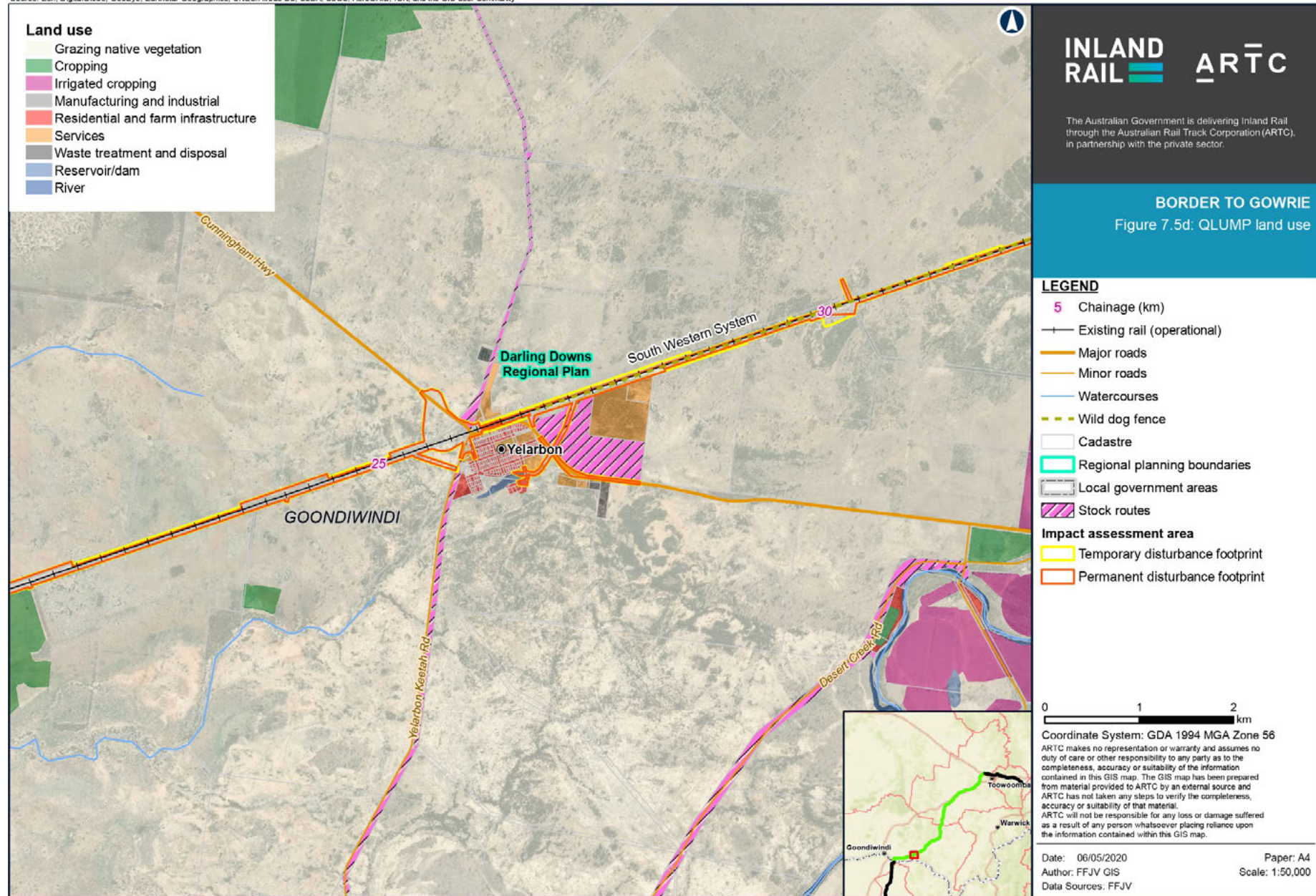
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



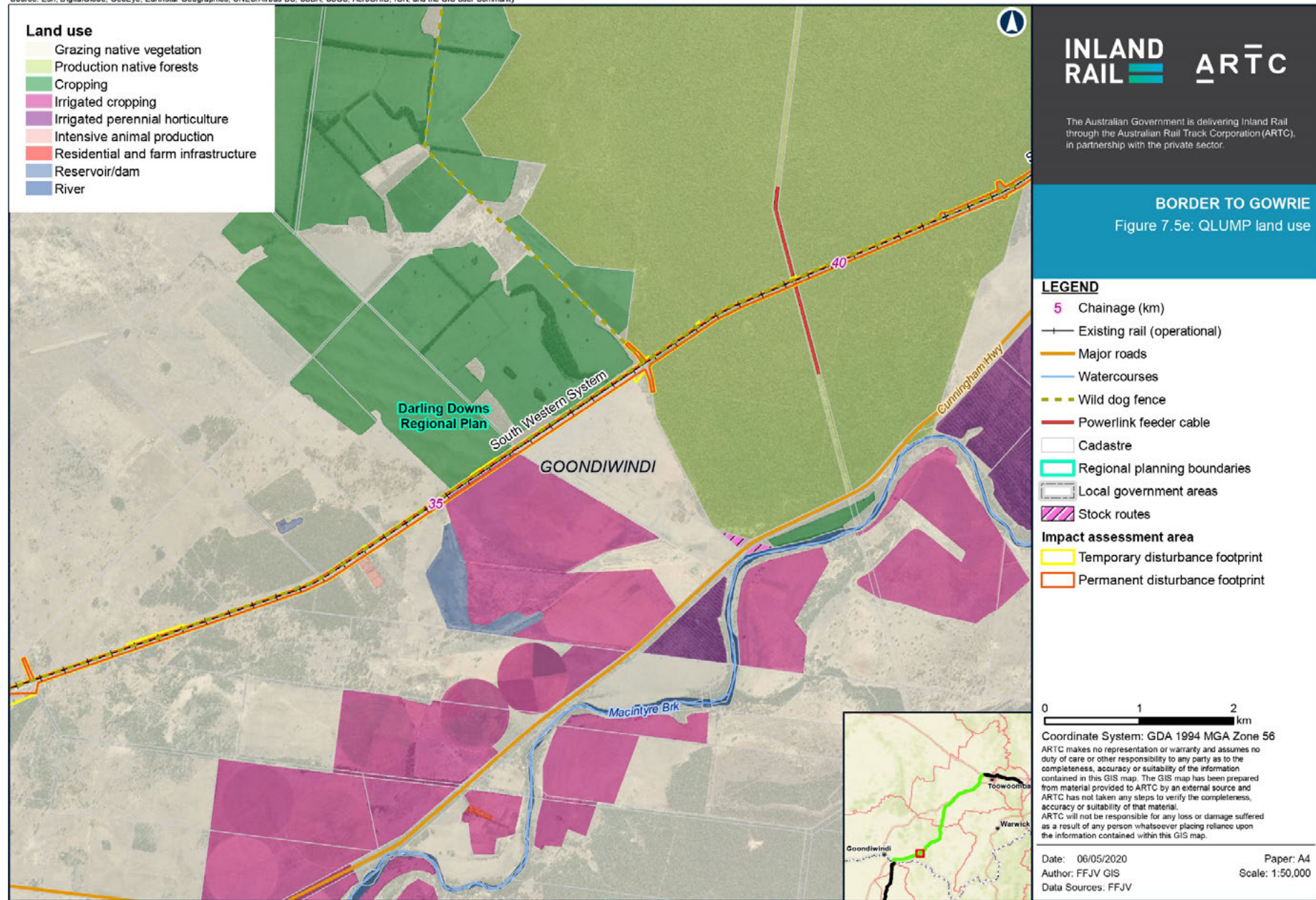
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



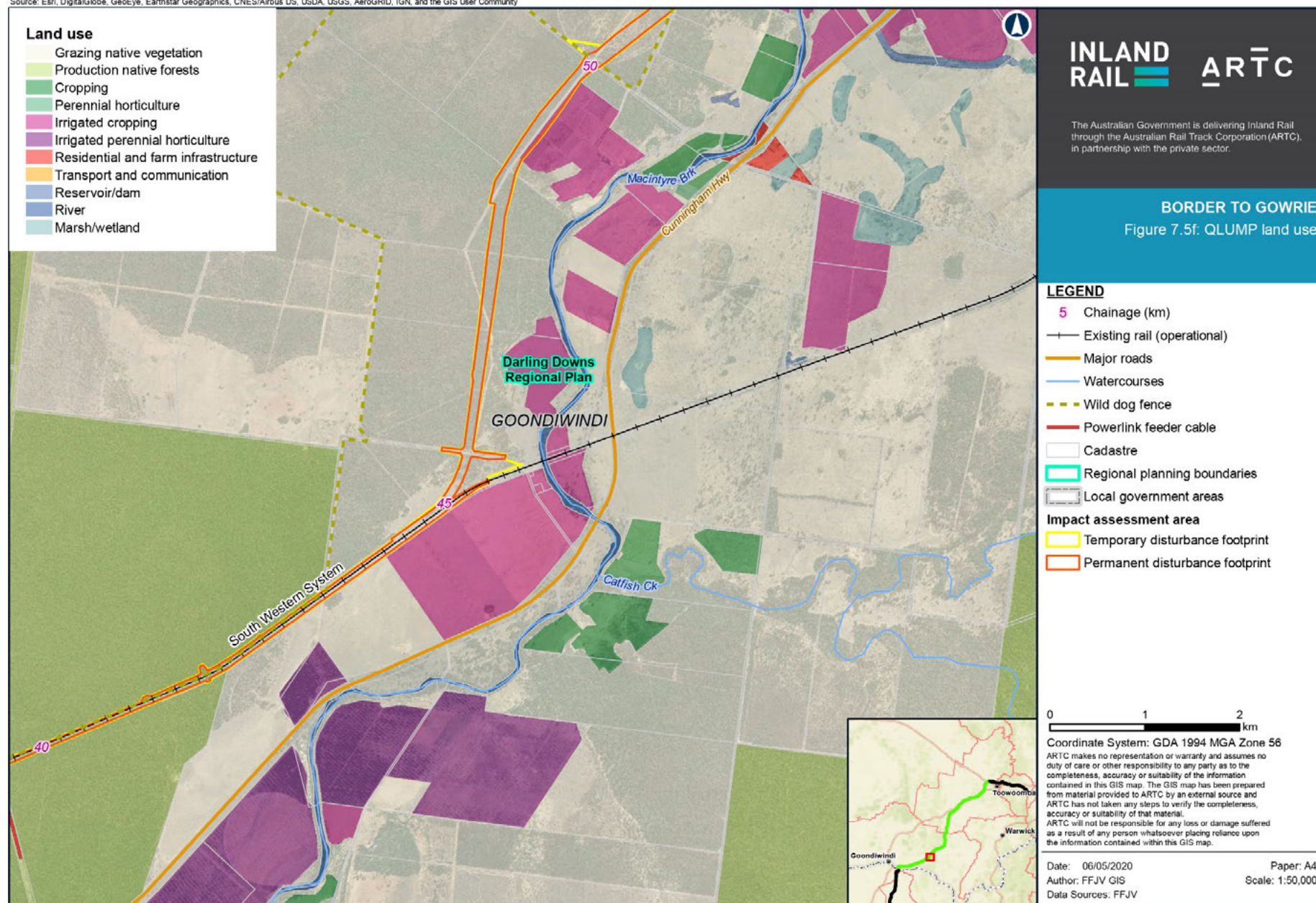
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



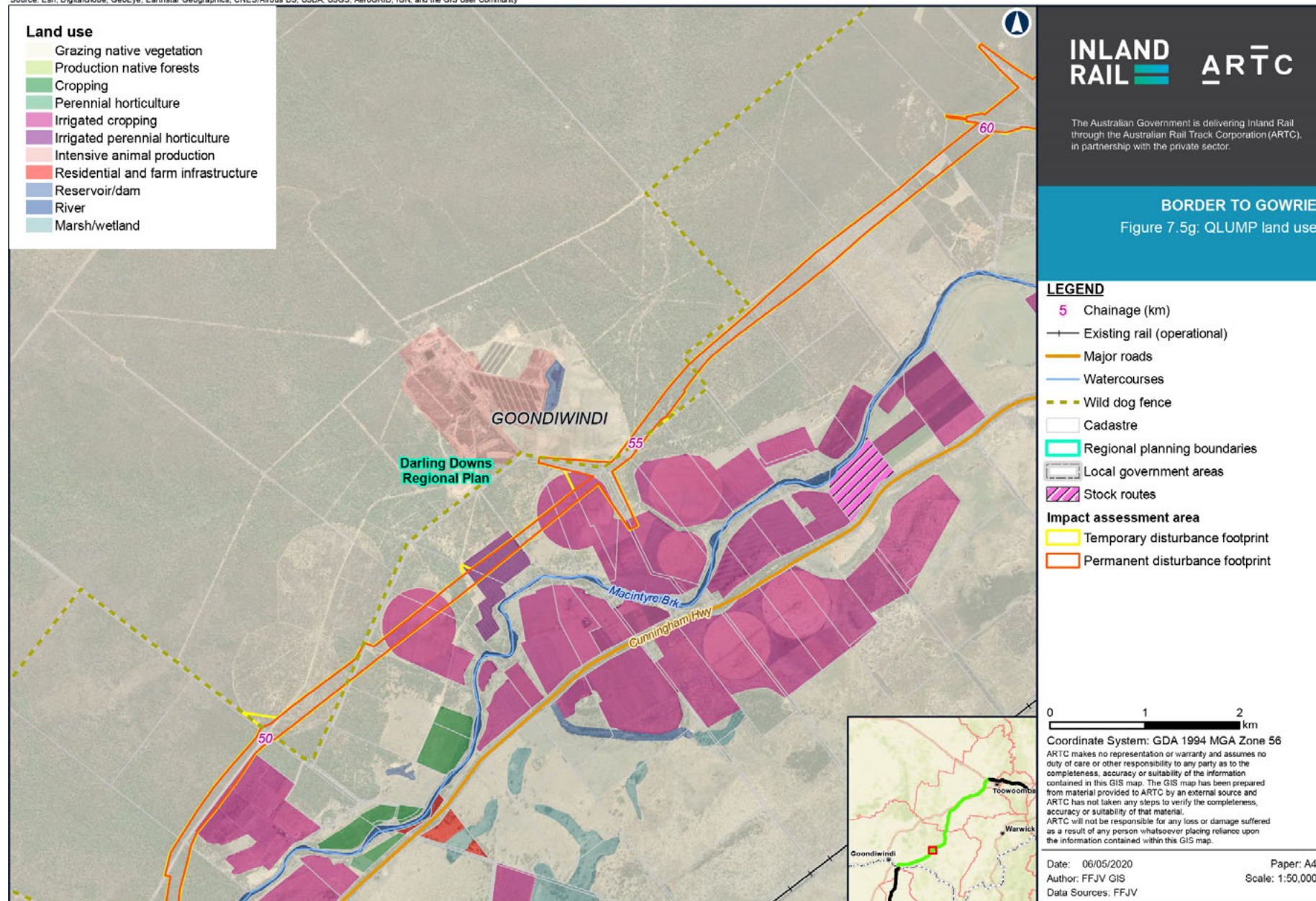
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



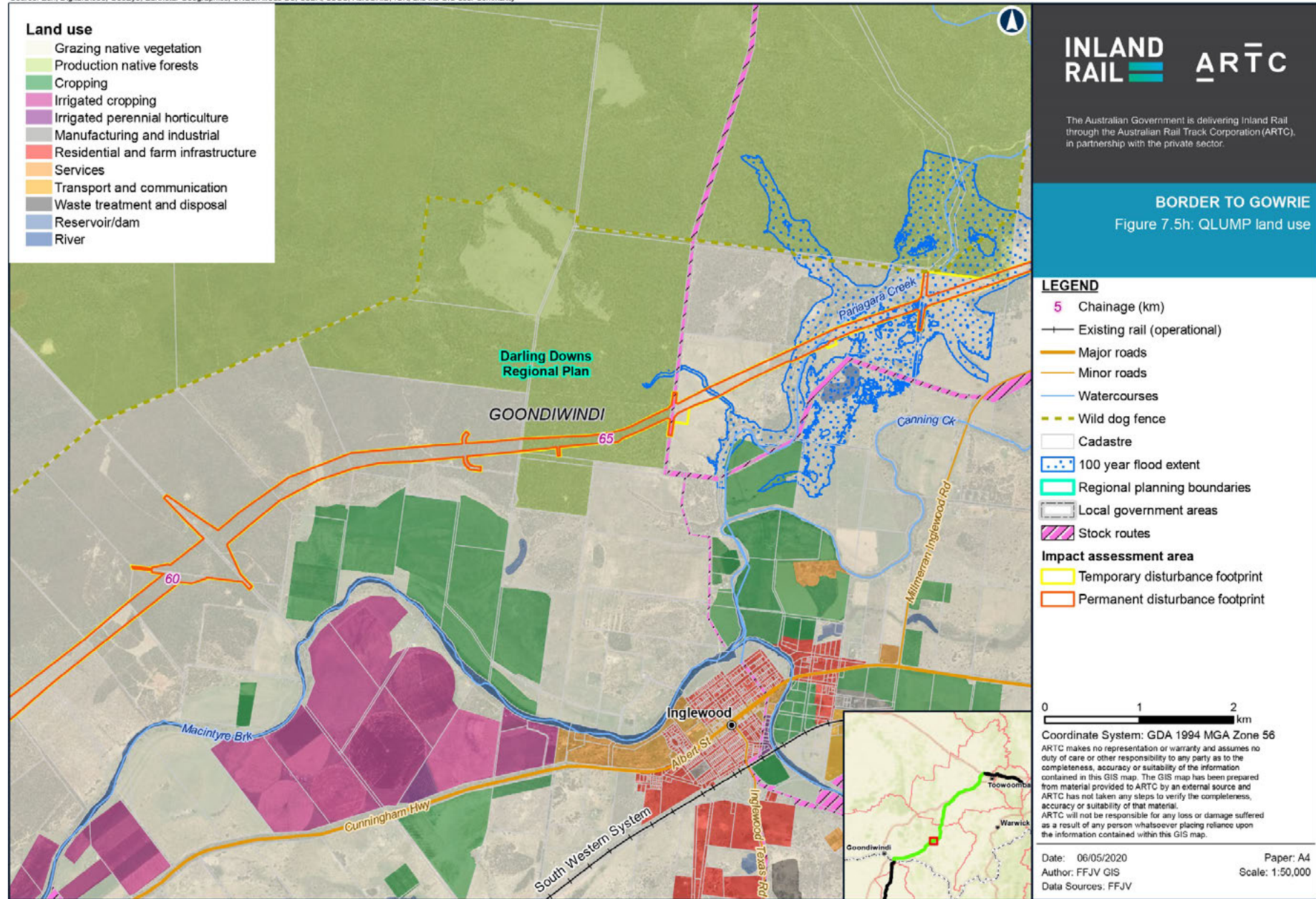
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

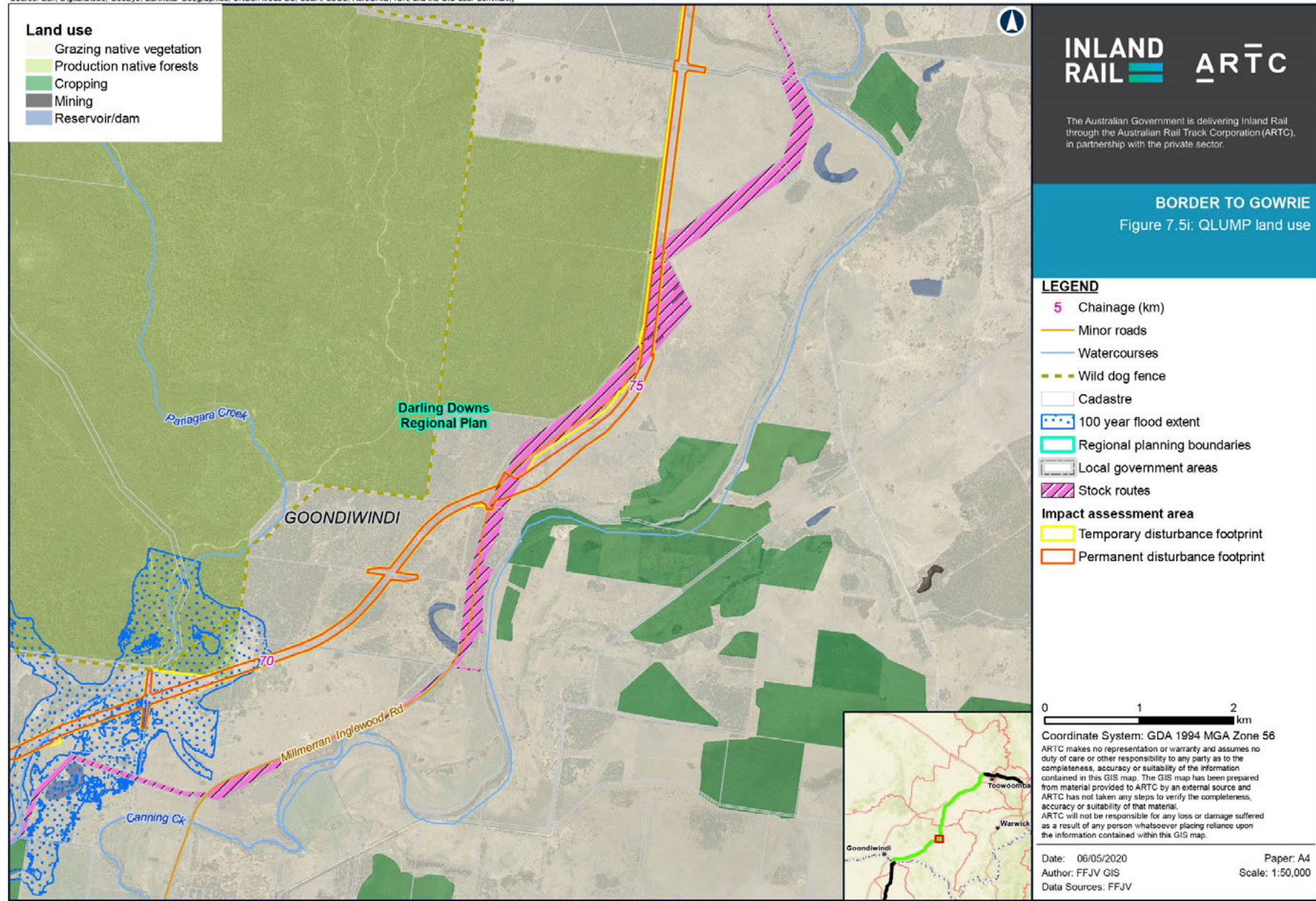


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

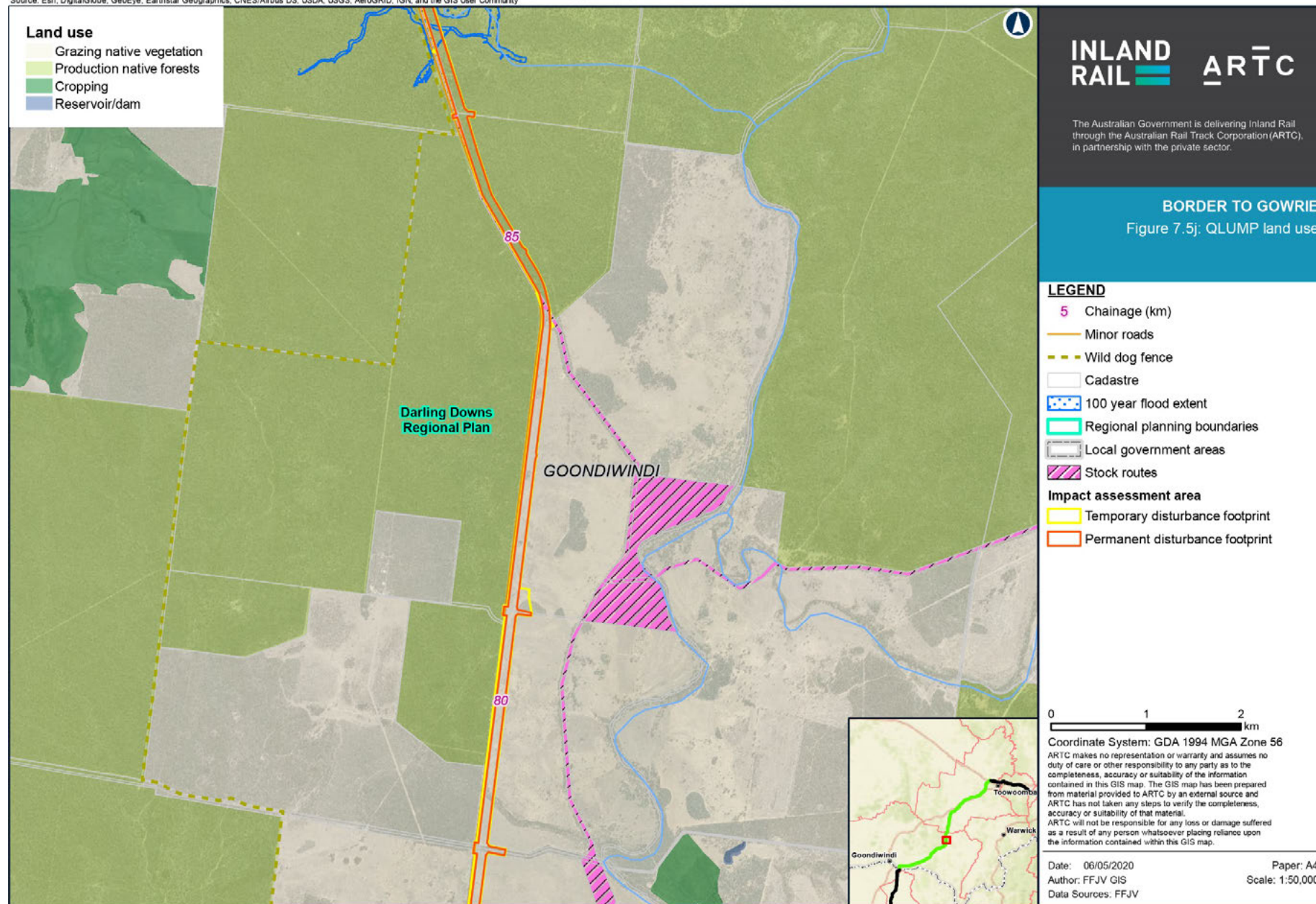


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.5_QLUMP_Land_Use_v5.mxd Date: 6/05/2020 09:30

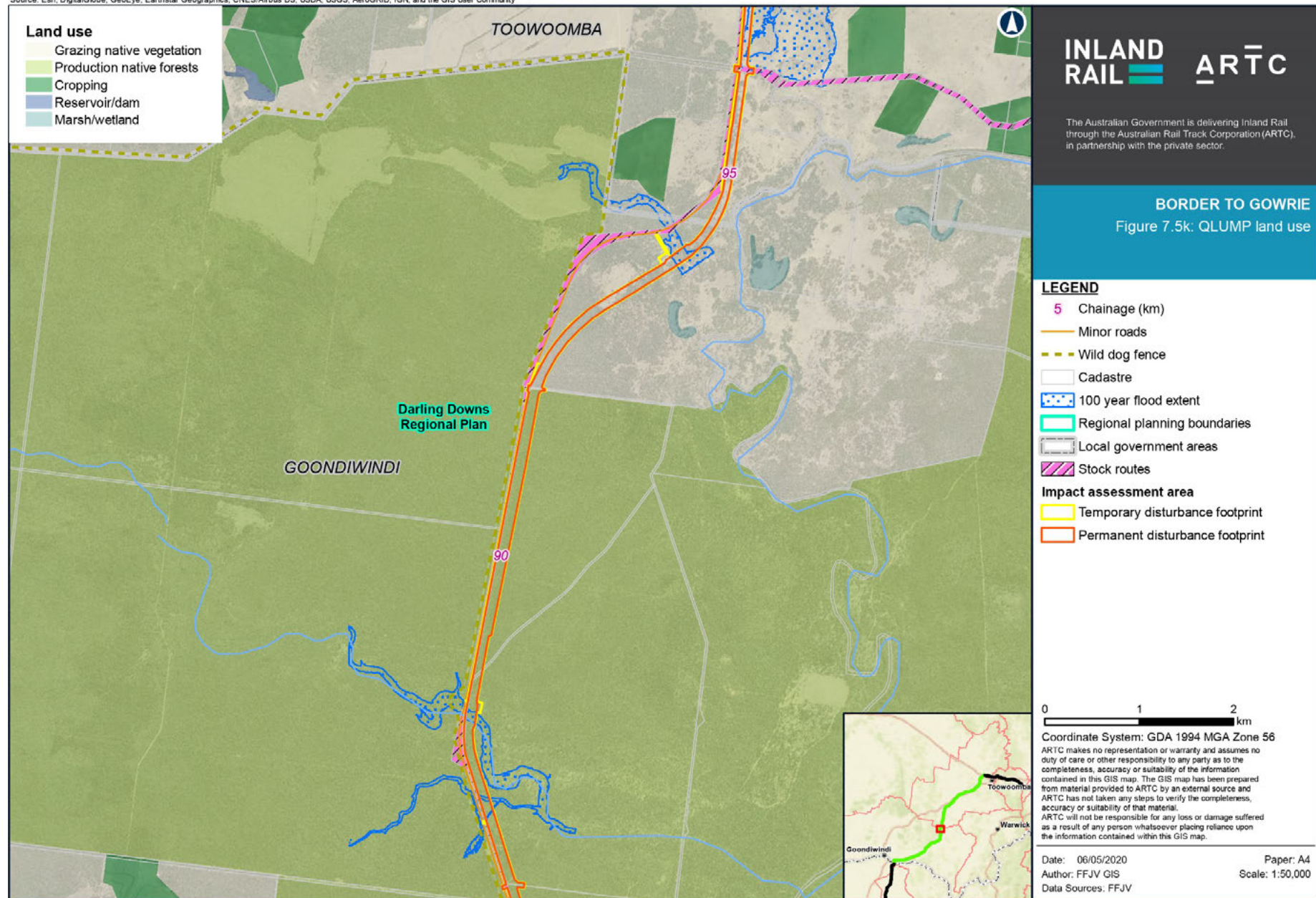
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



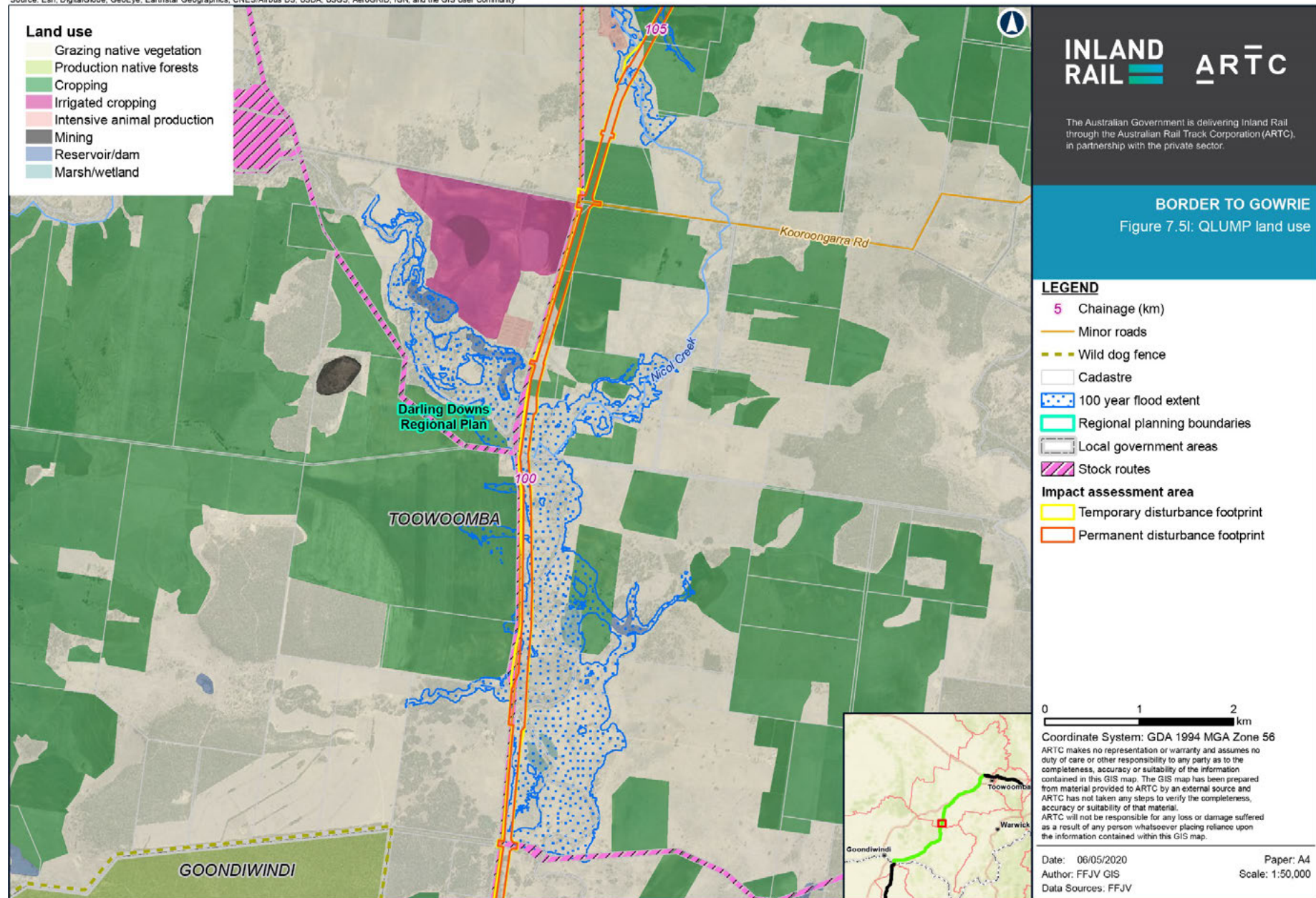
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



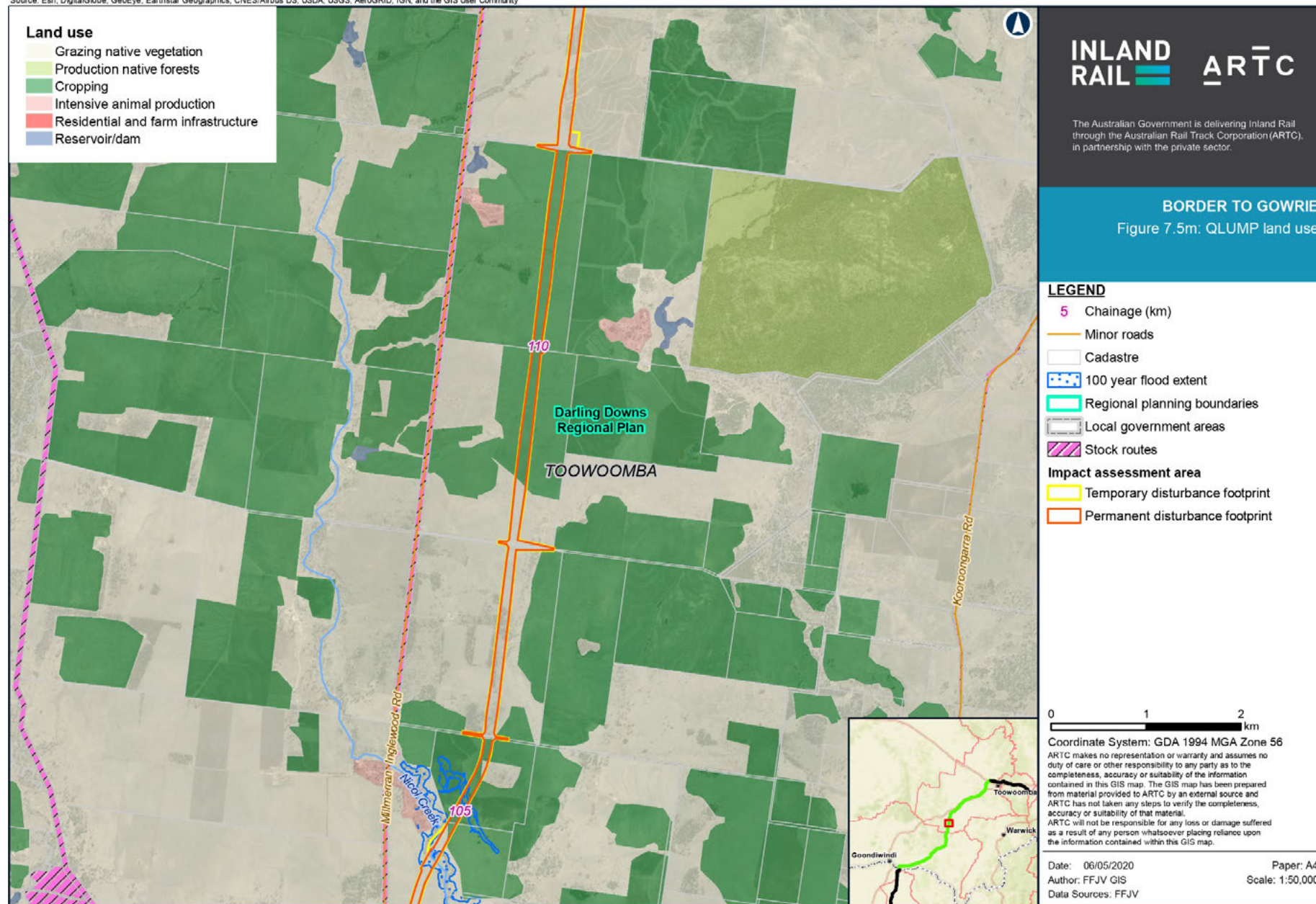
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



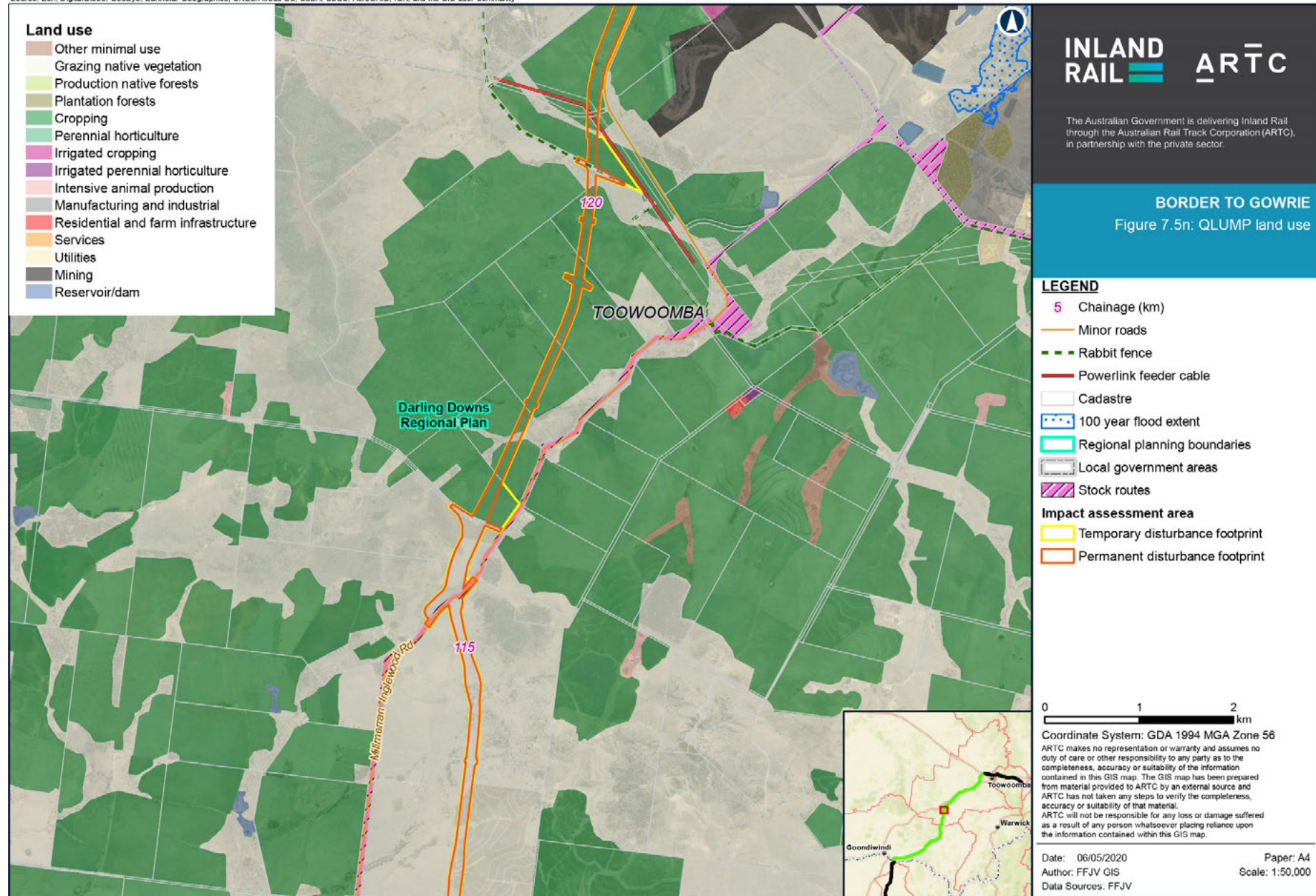
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



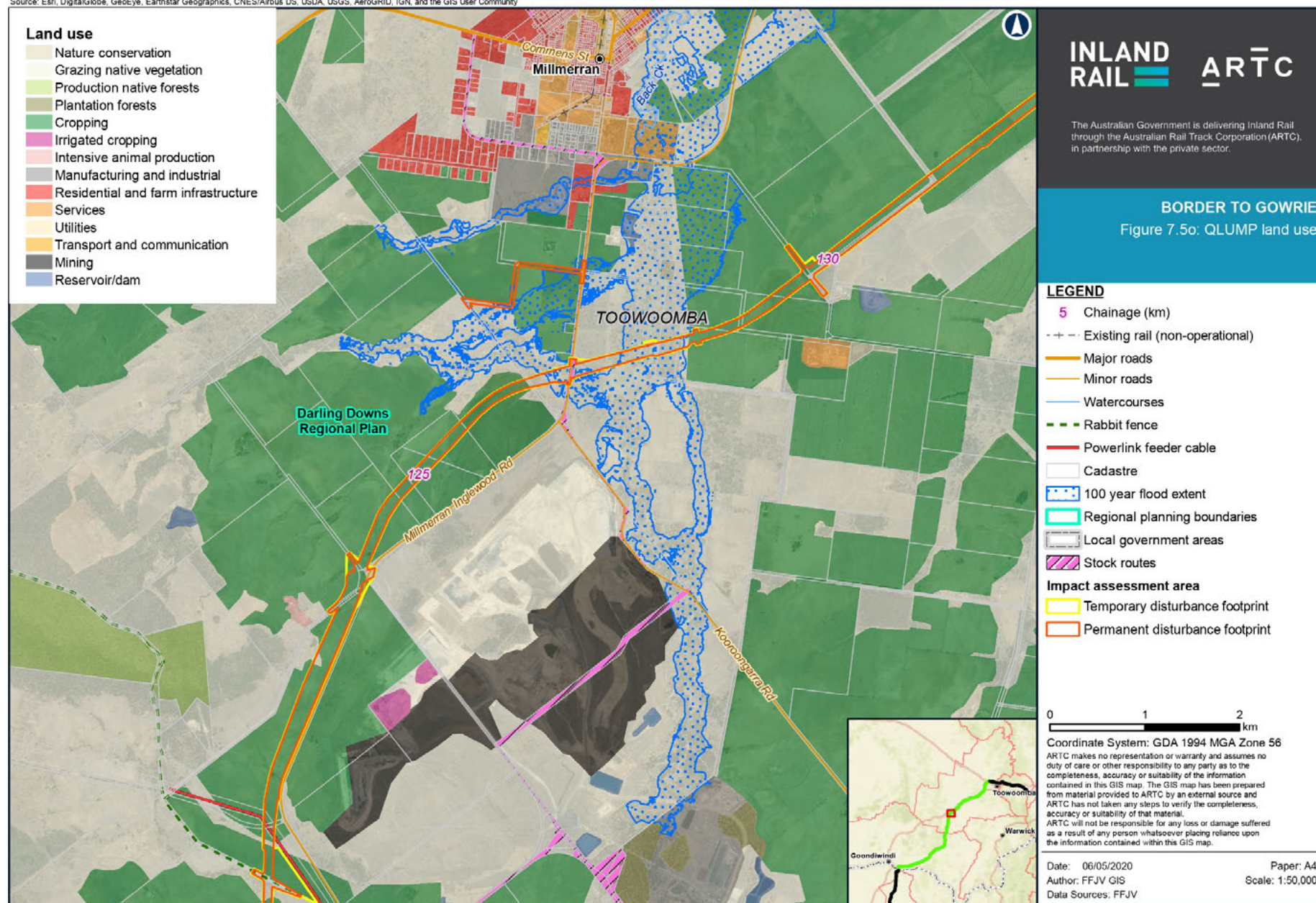
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



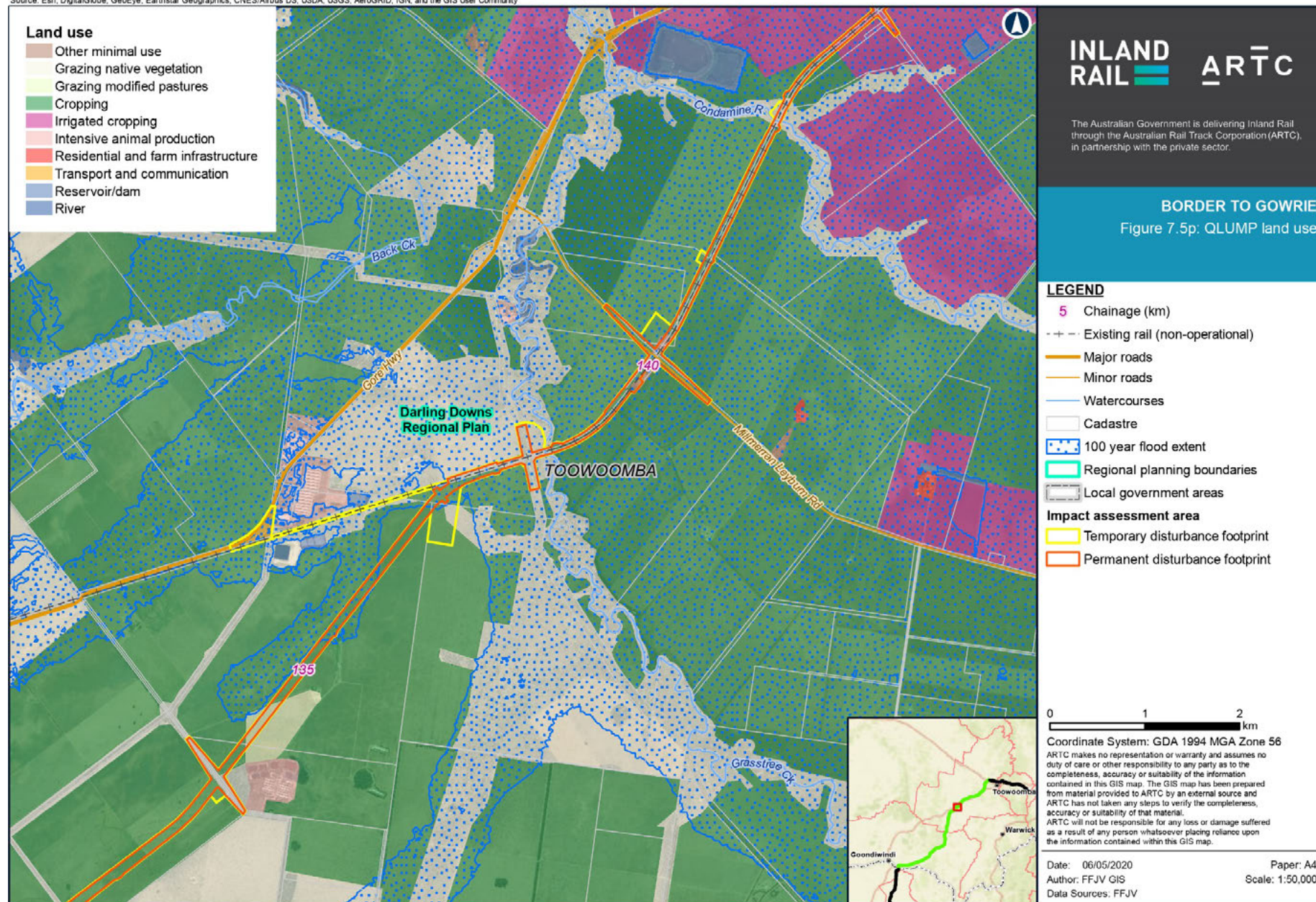
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



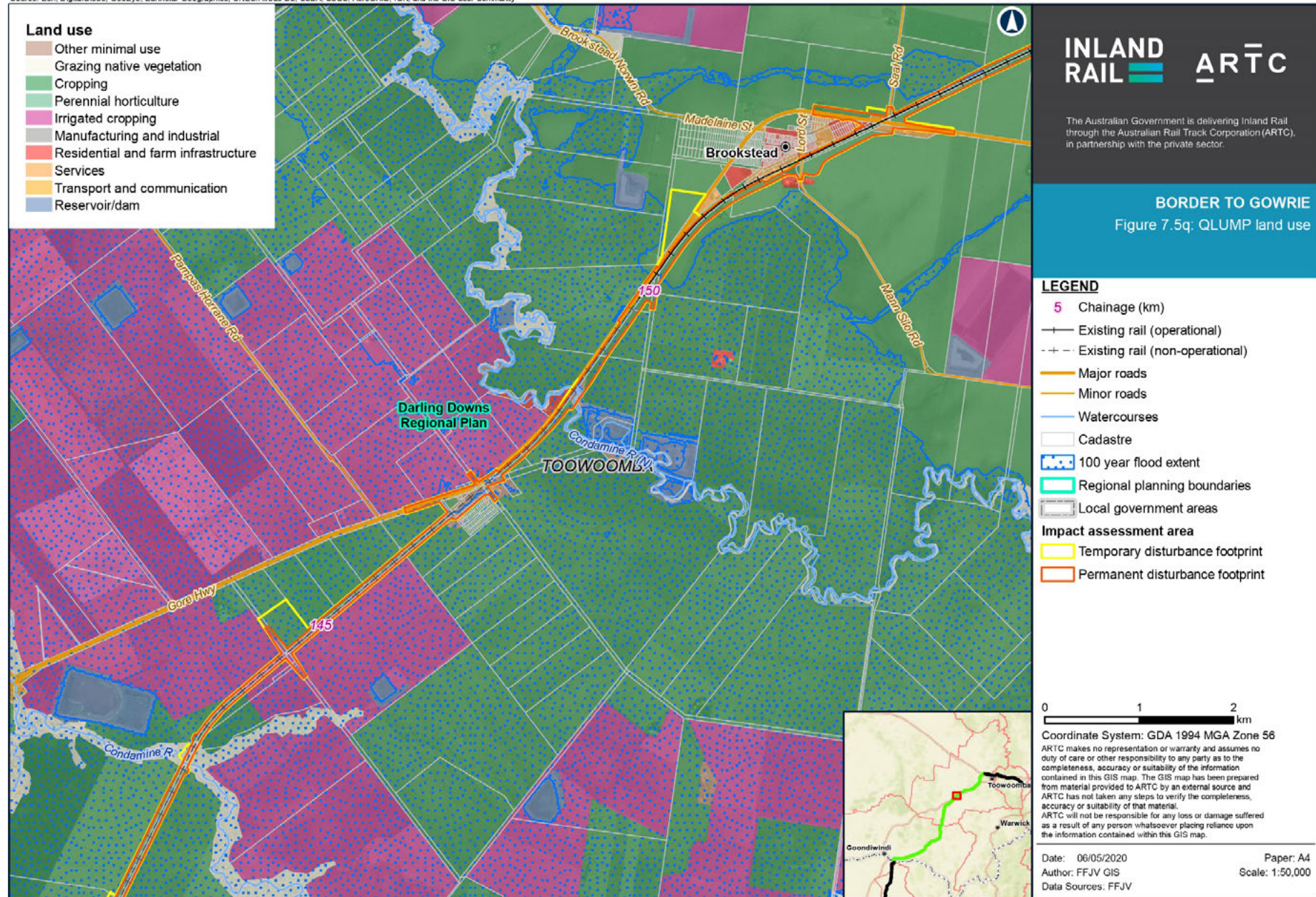
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

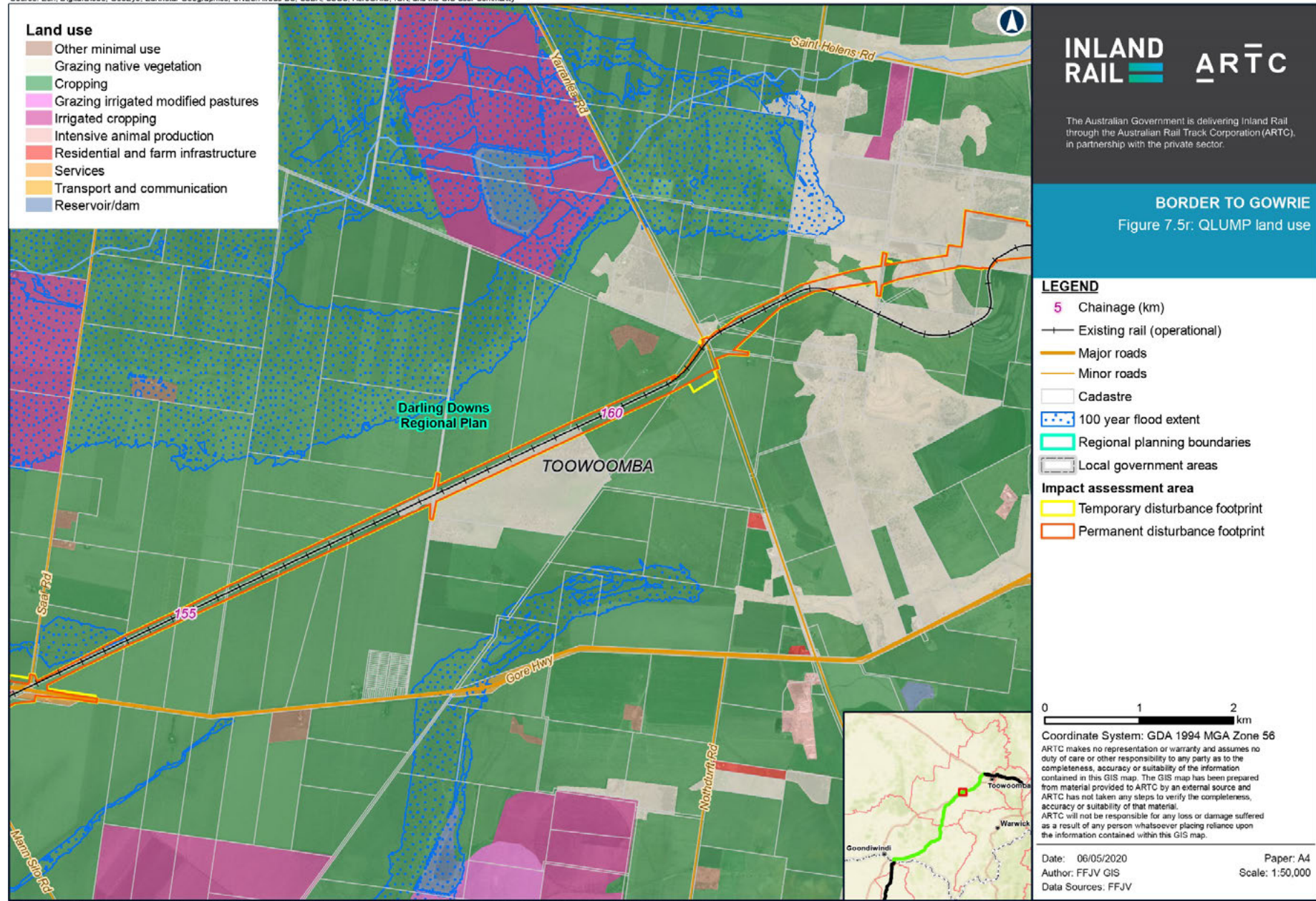


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

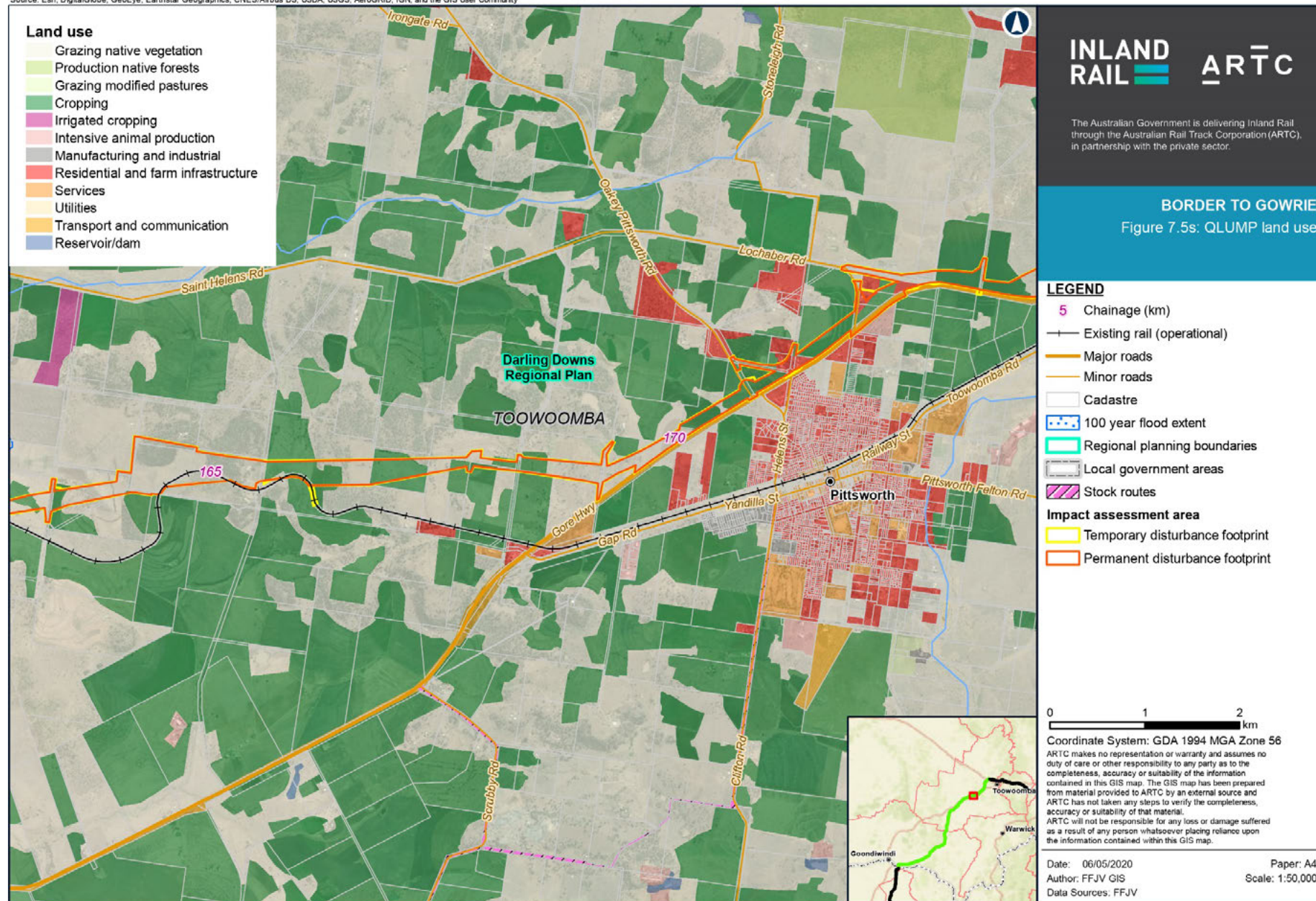


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig/5_QLUMP_Land_Use_v5.mxd Date: 6/05/2020 09:30

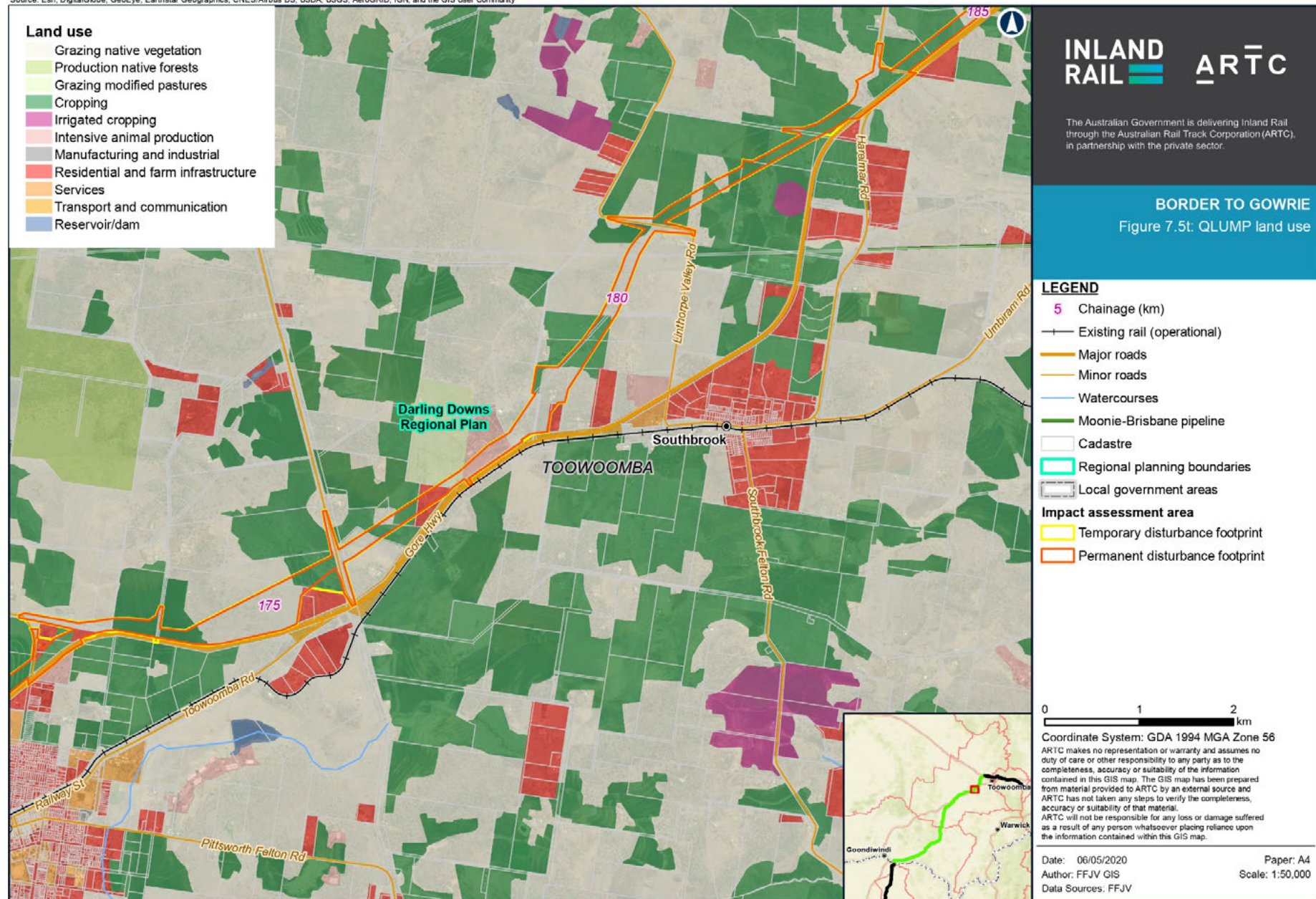
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



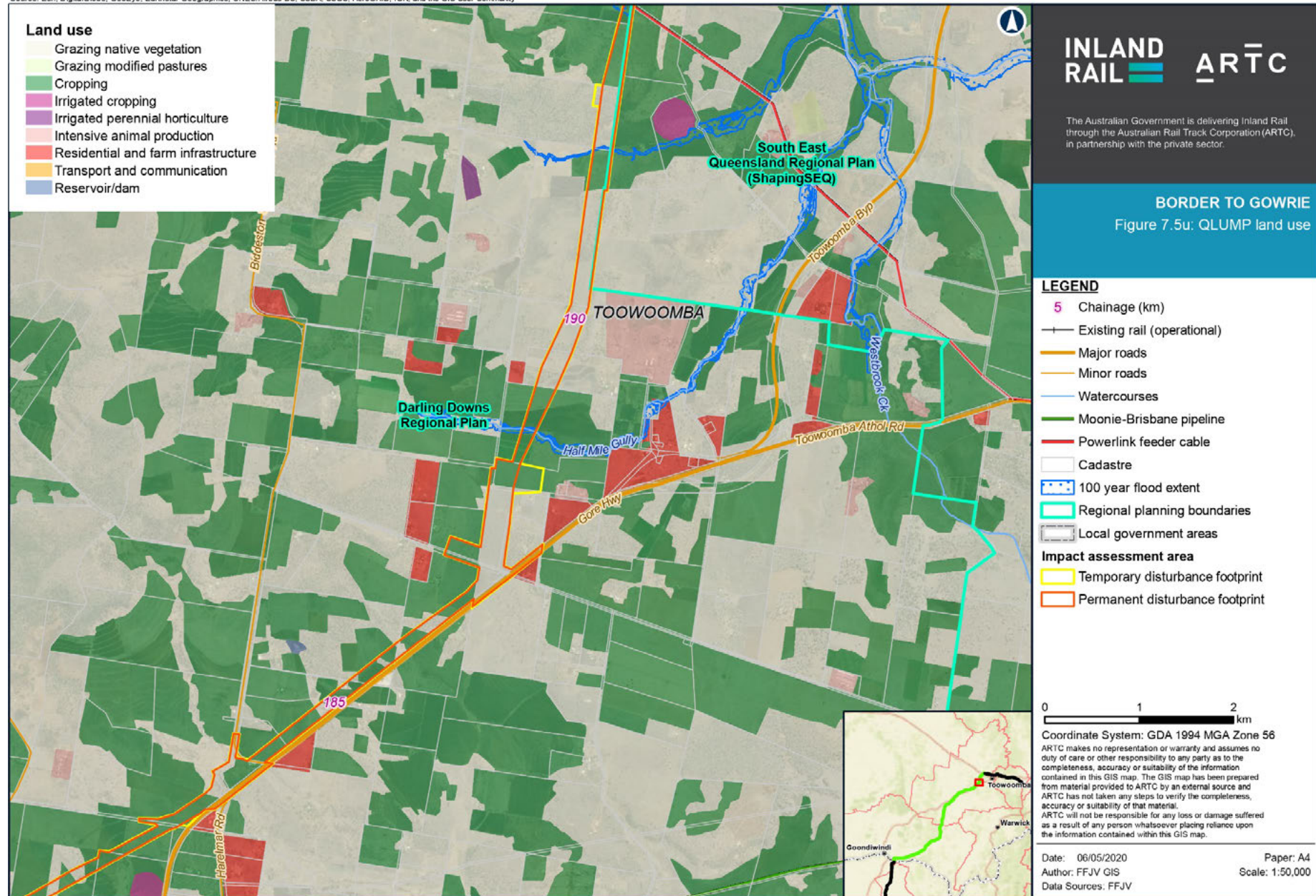
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



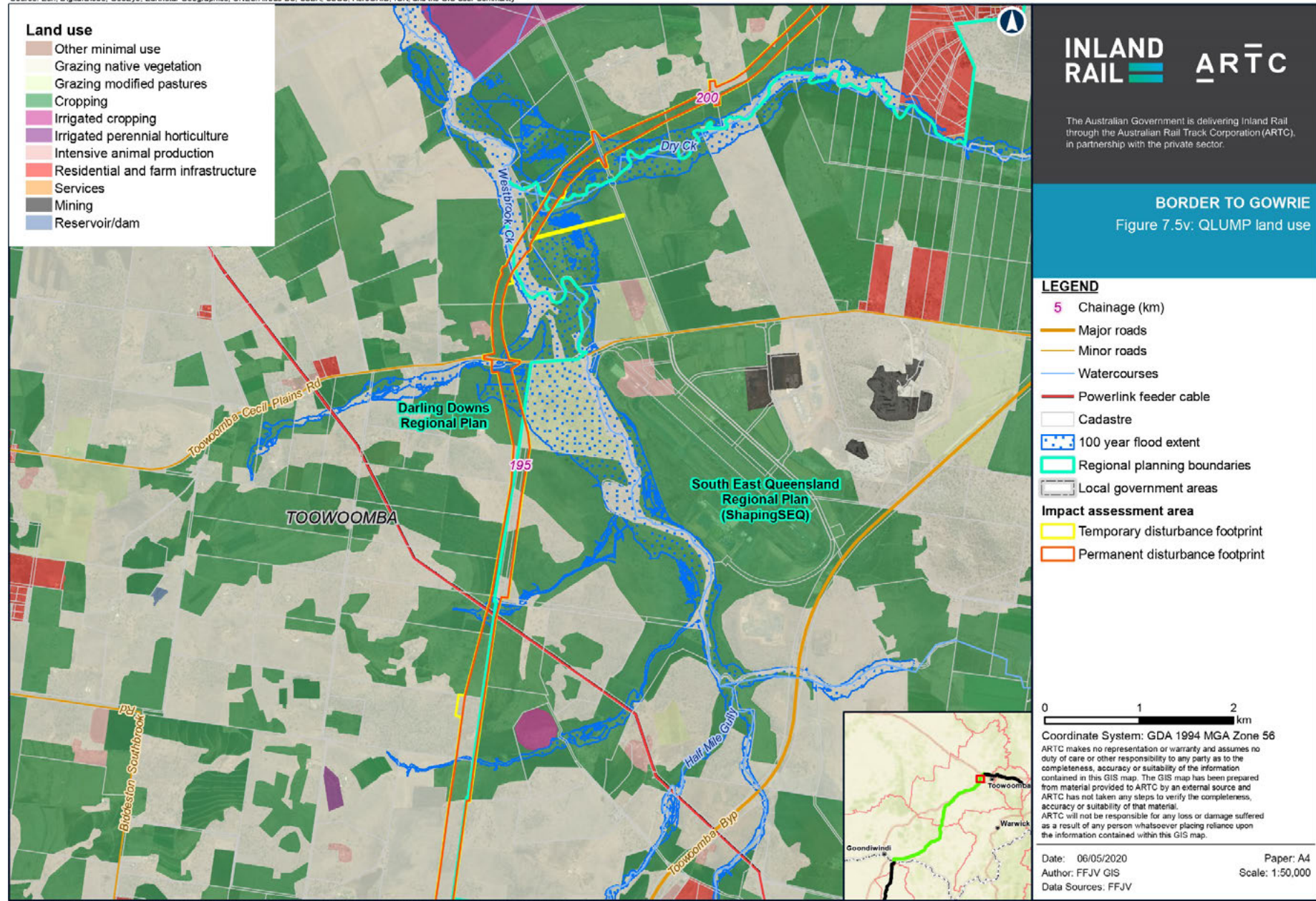
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



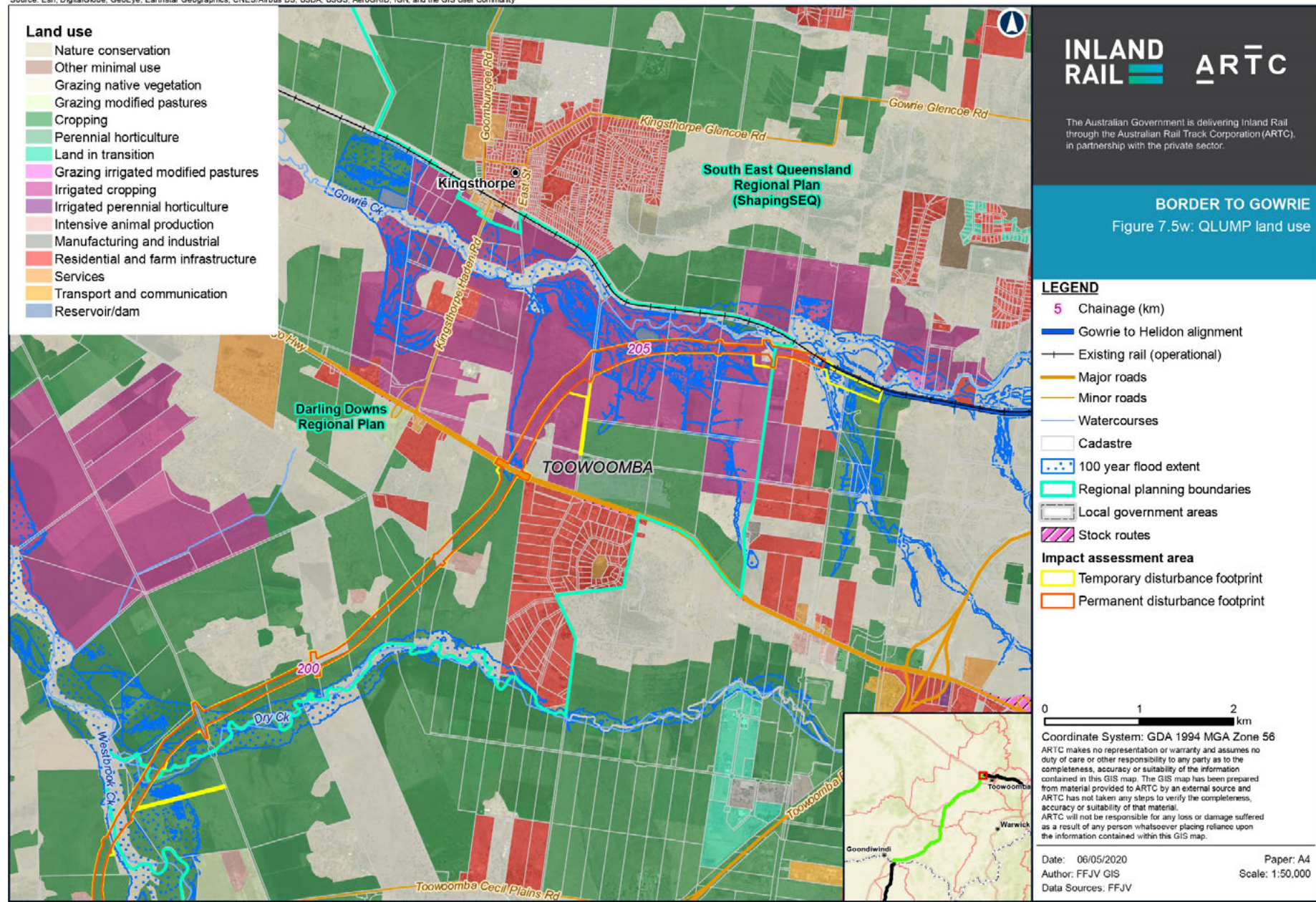
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

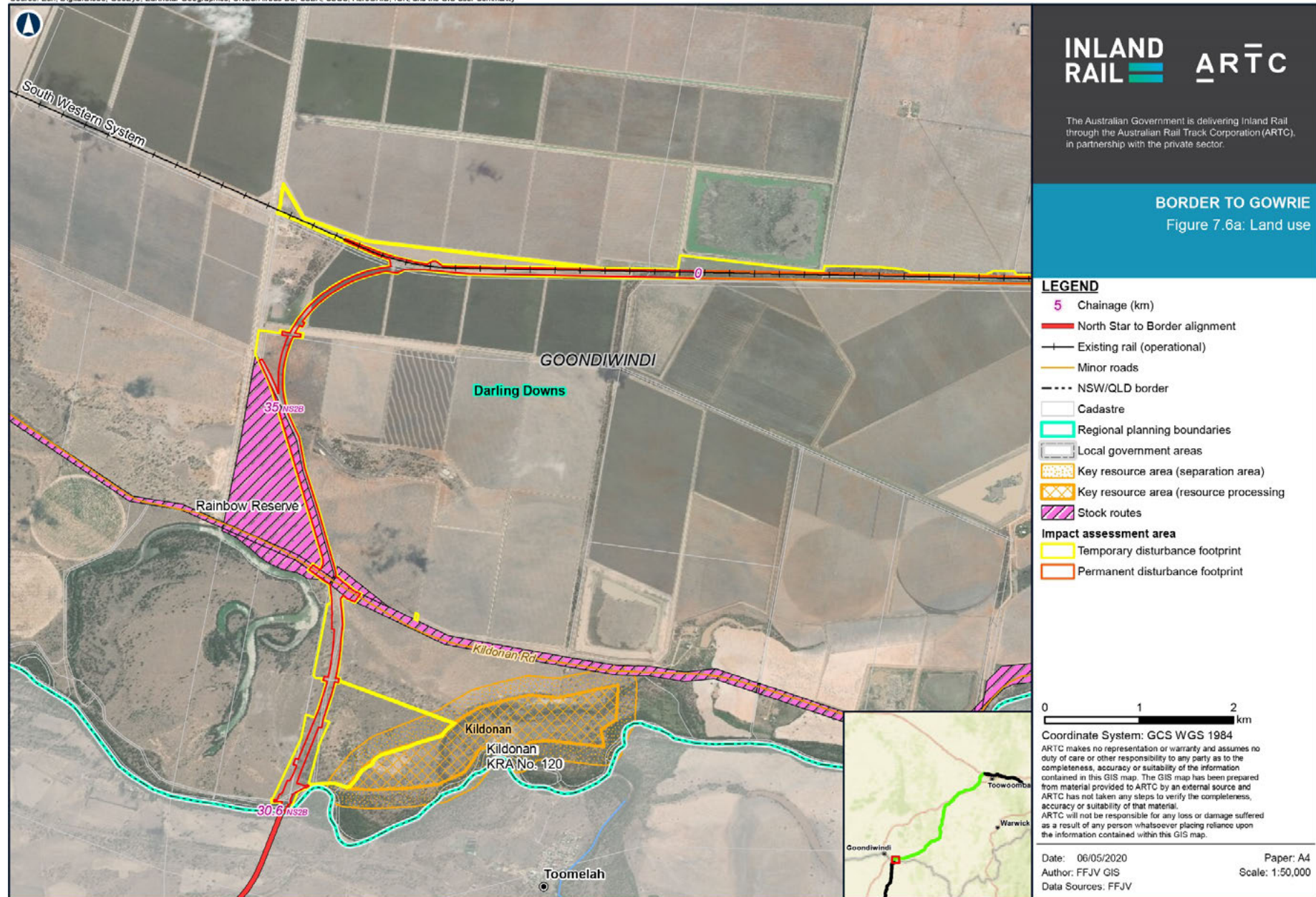


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

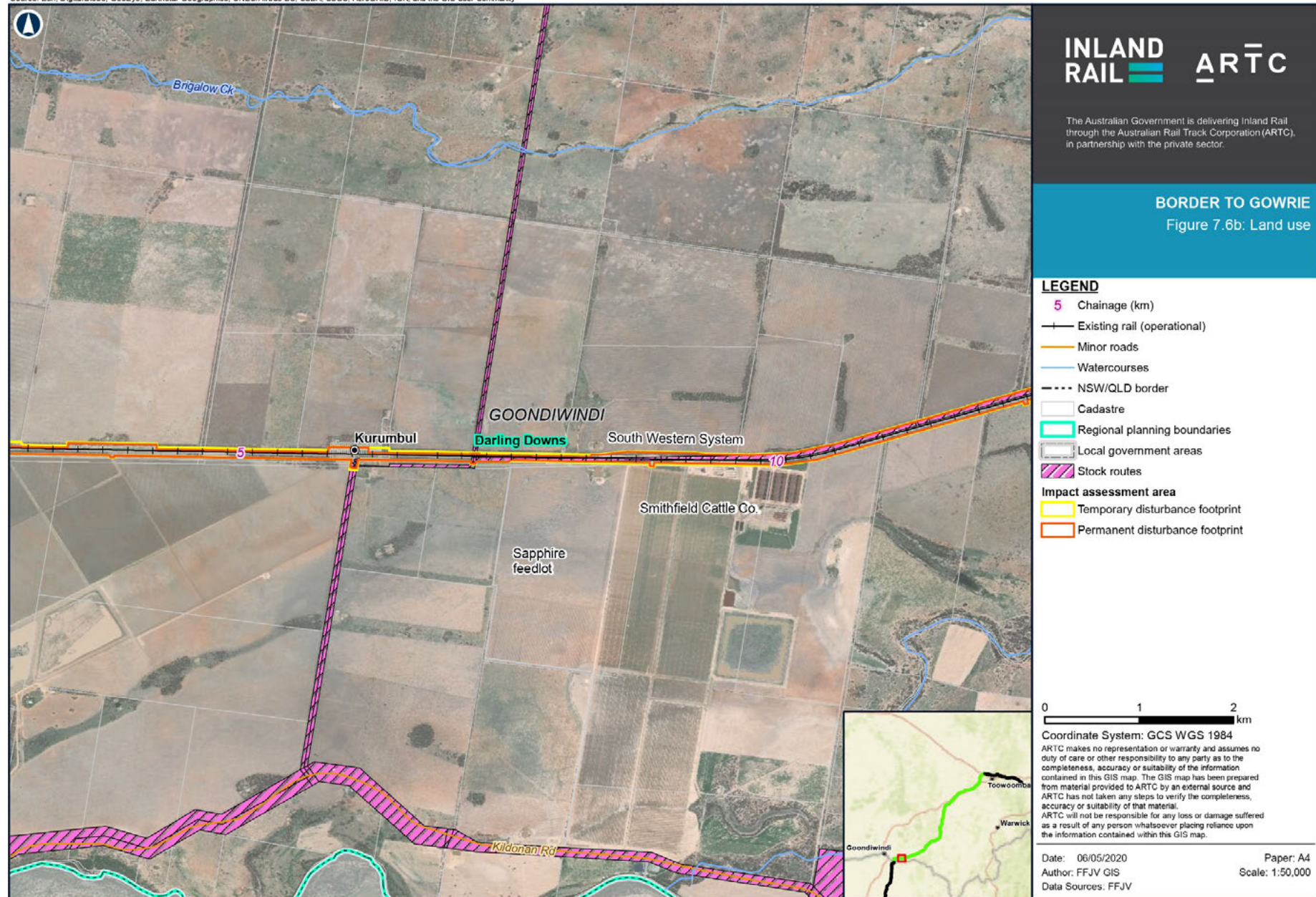


Map by: LUC/RB/CB/RKG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-2019\01091112_Land_Use_and_Tenure\310-ESV-2019\01091112_ARTC_Fig7_5_QLUMP_Land_Use_v5.mxd Date: 6/05/2020 09:30

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

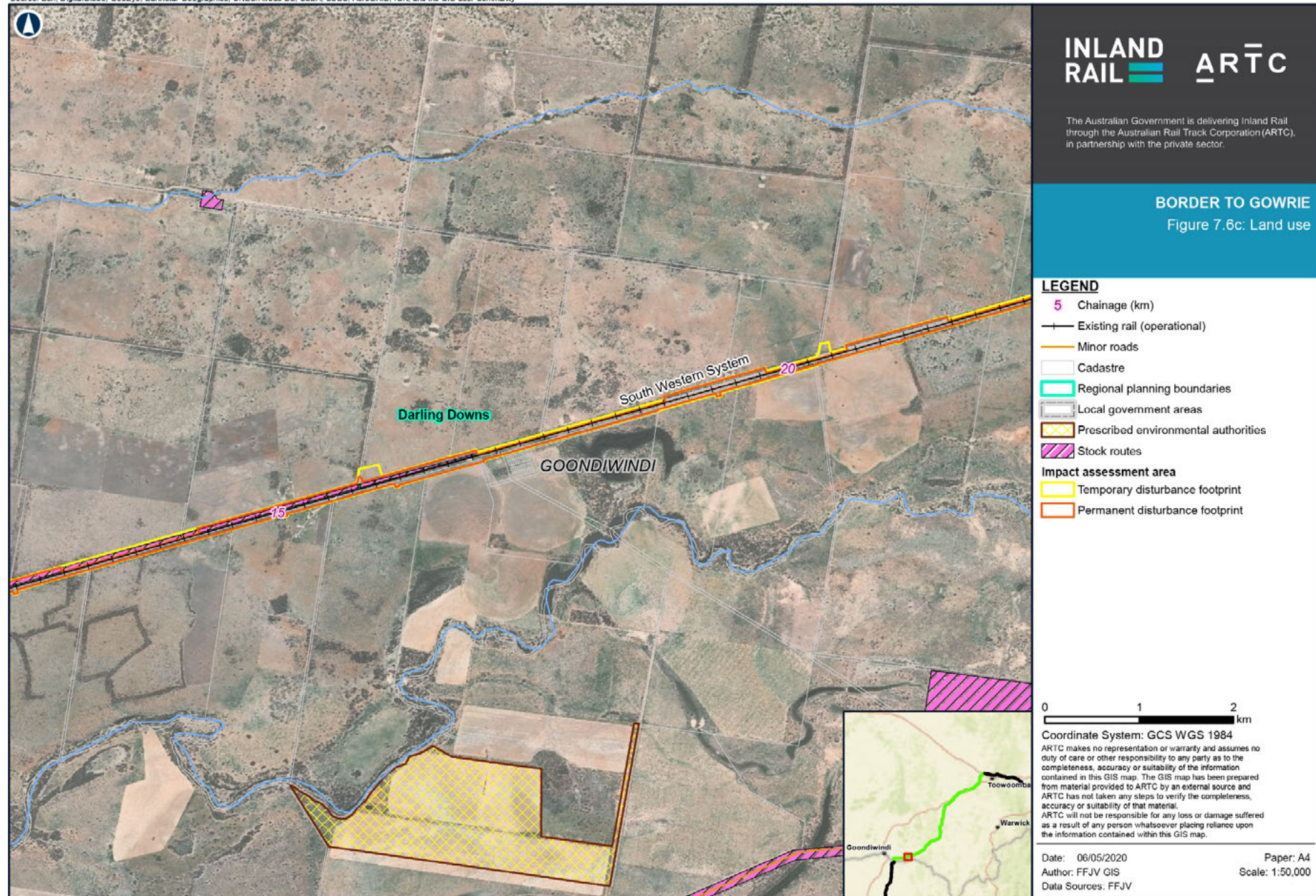


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

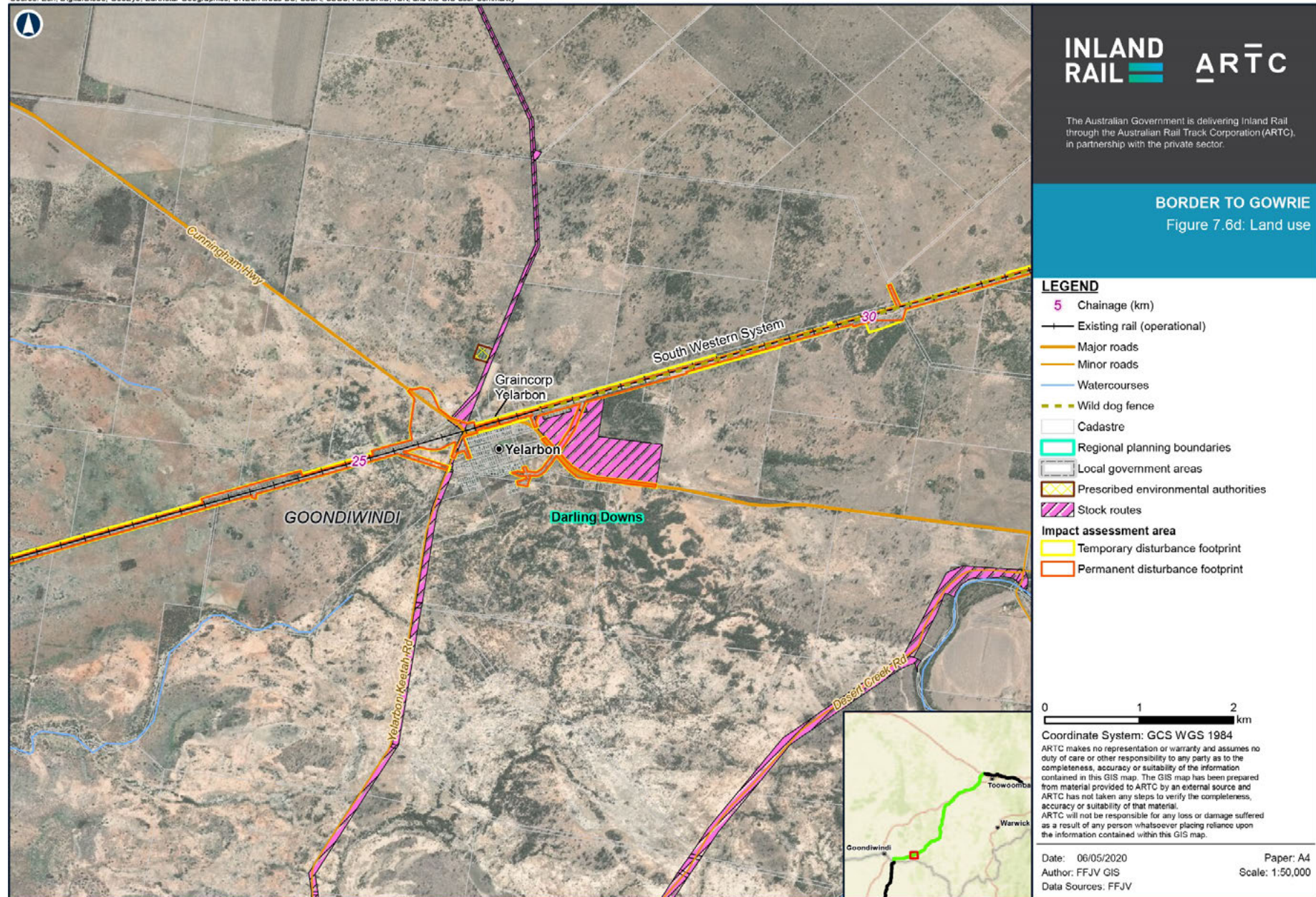


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

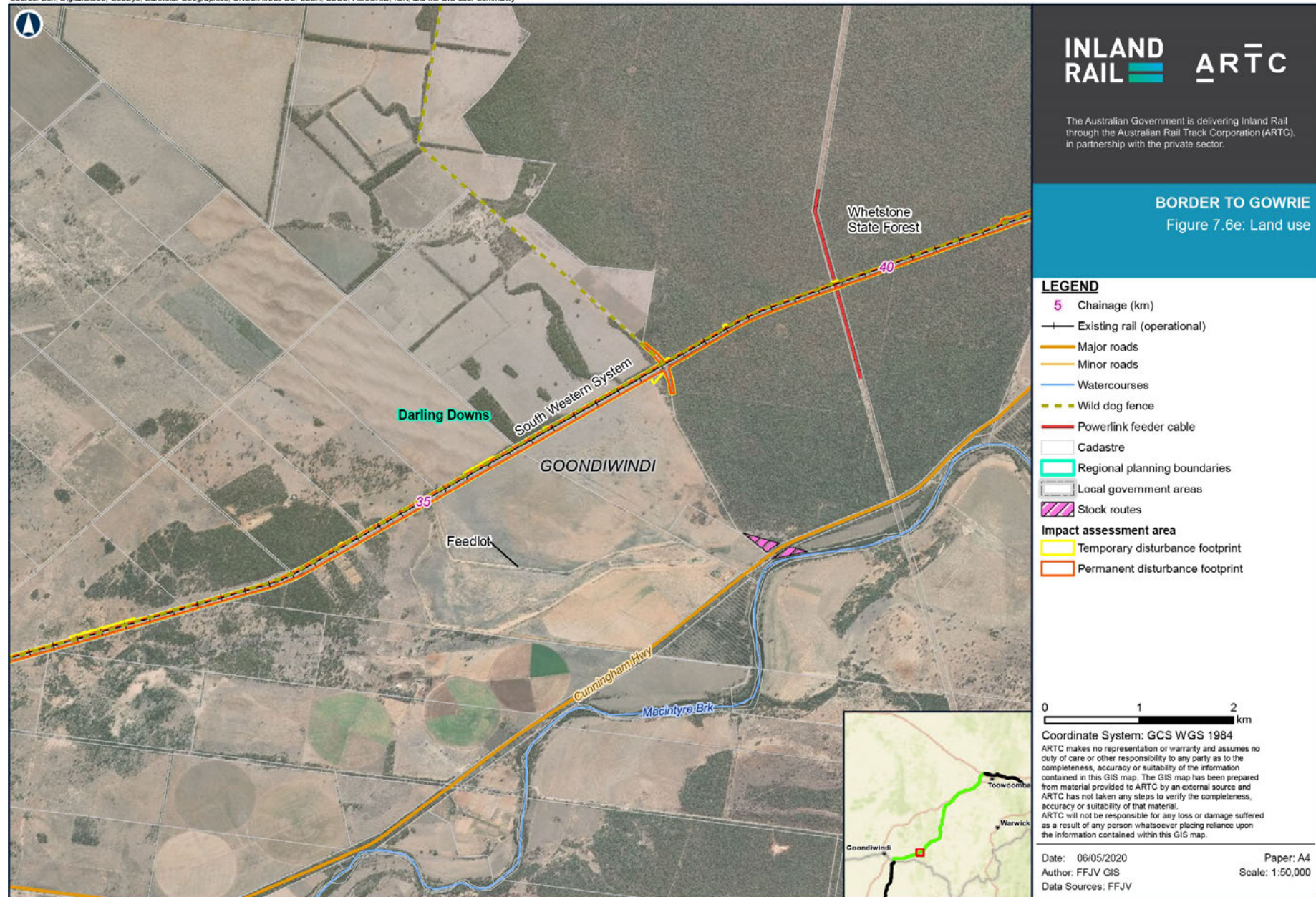


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

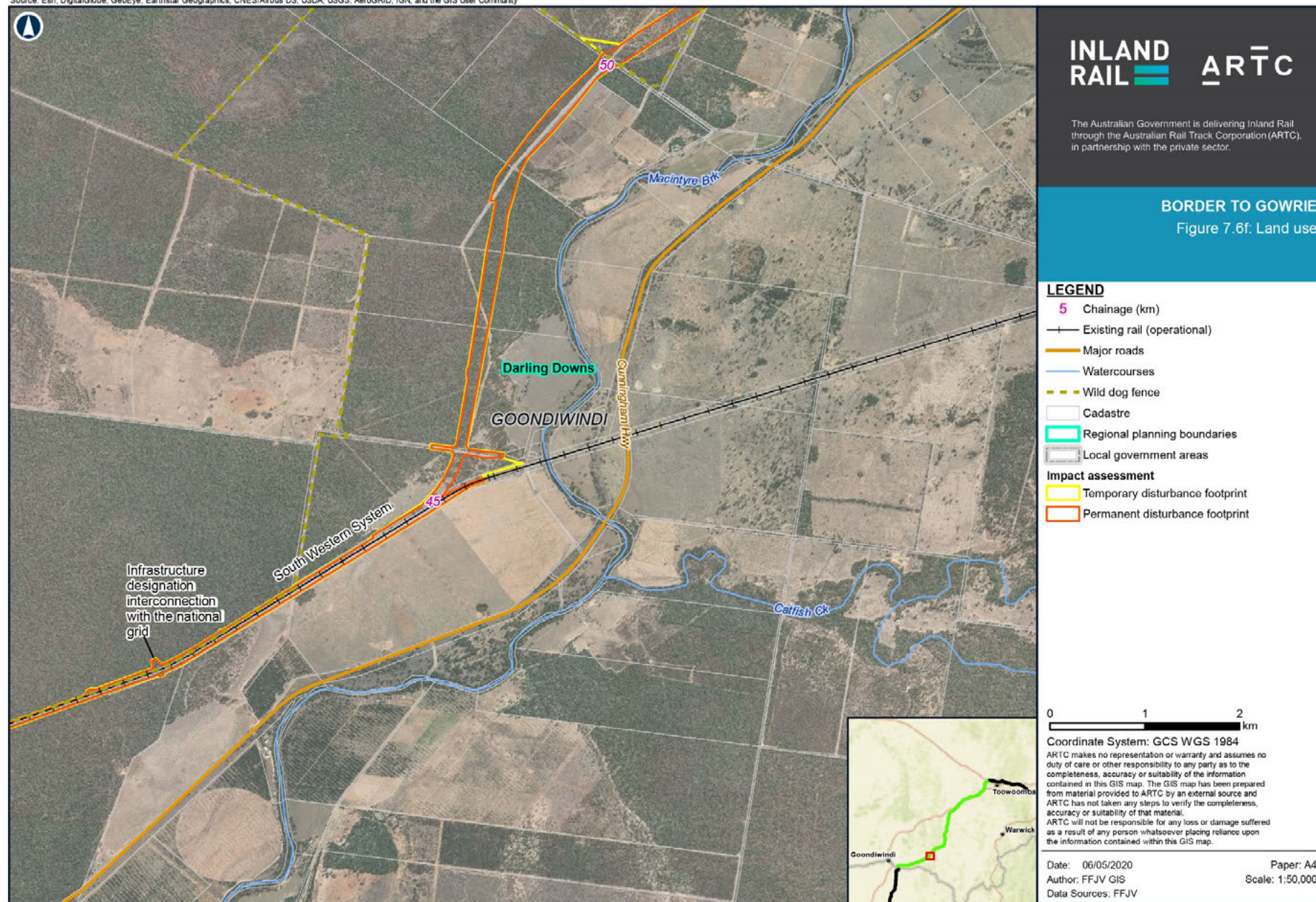


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig 7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

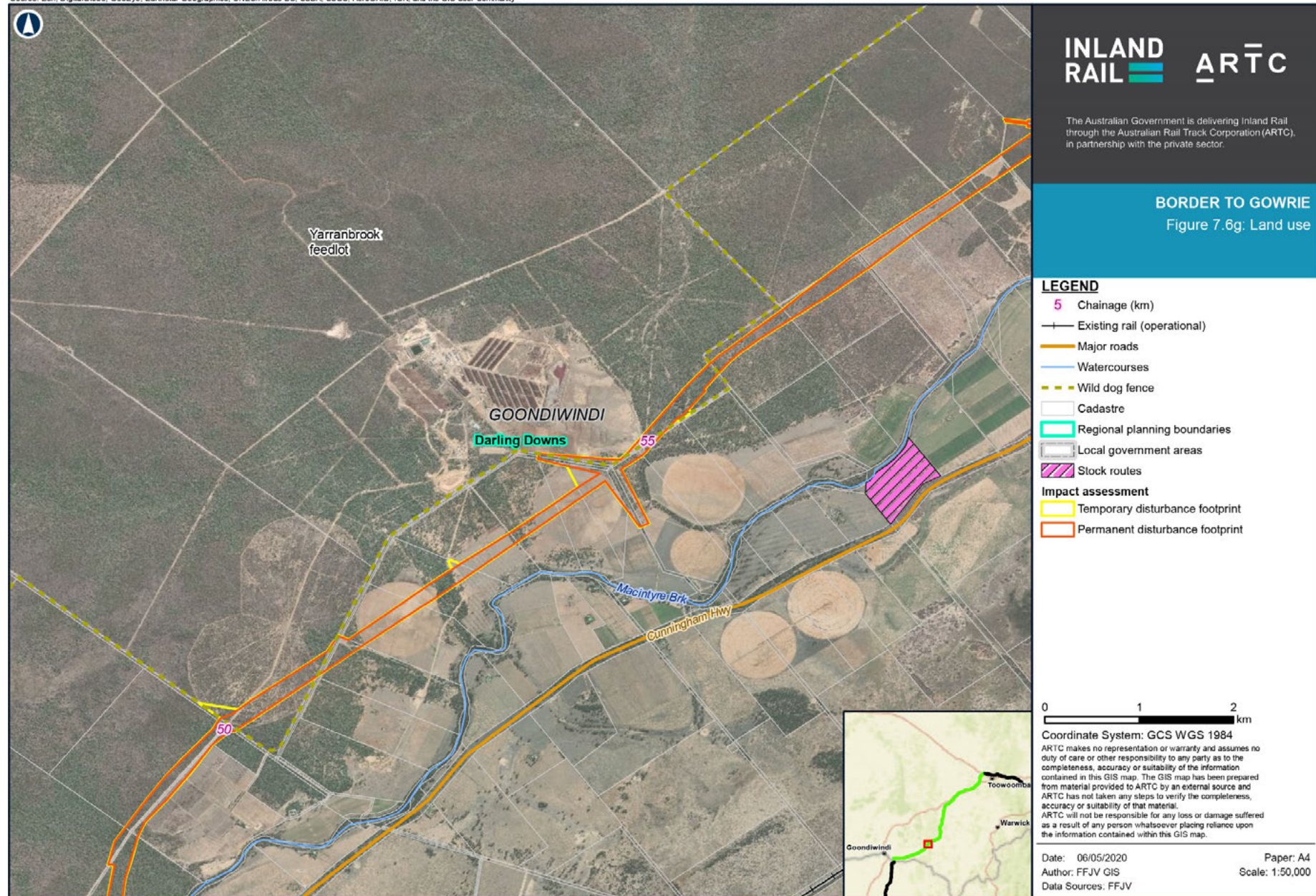


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



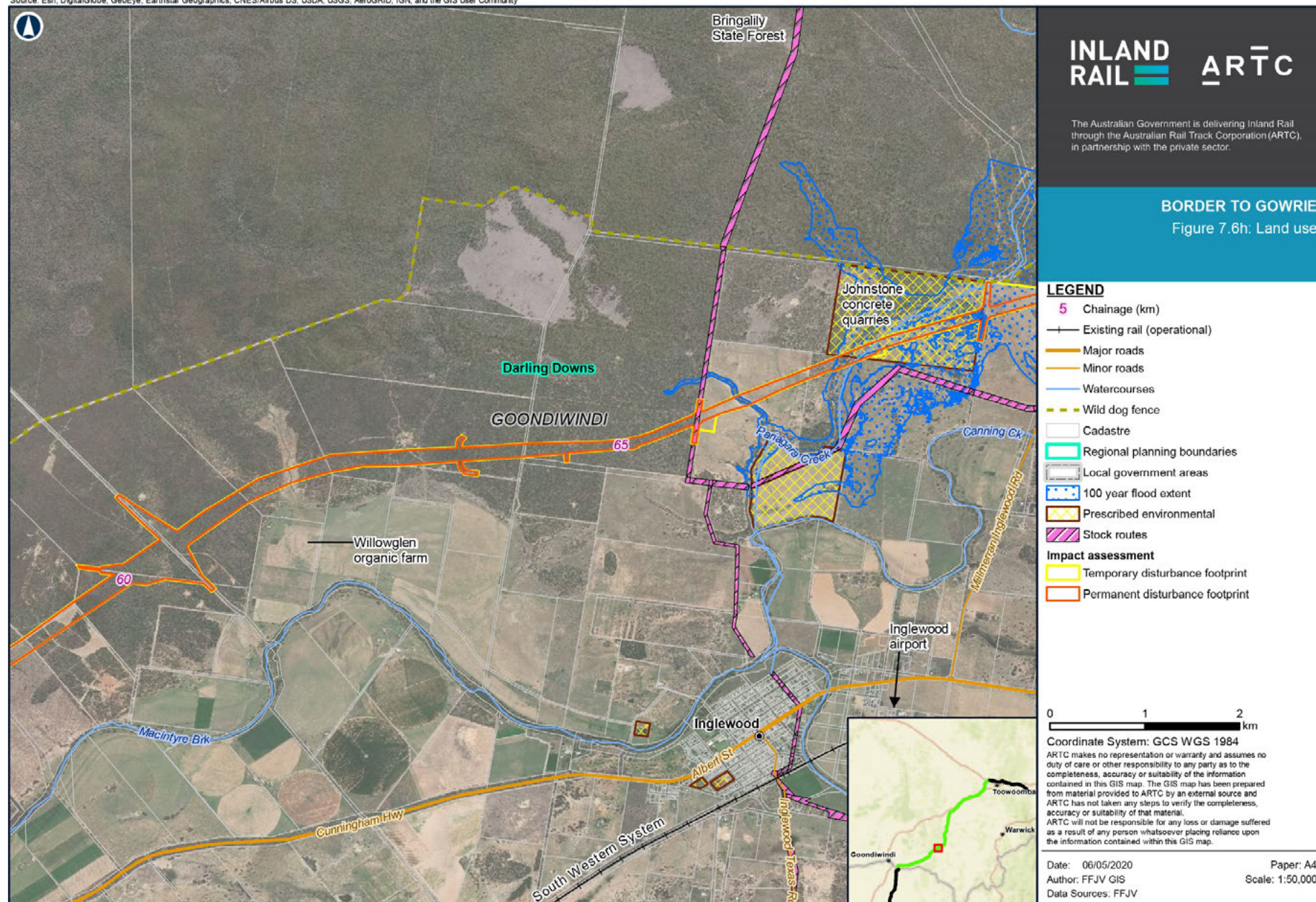
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig/7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

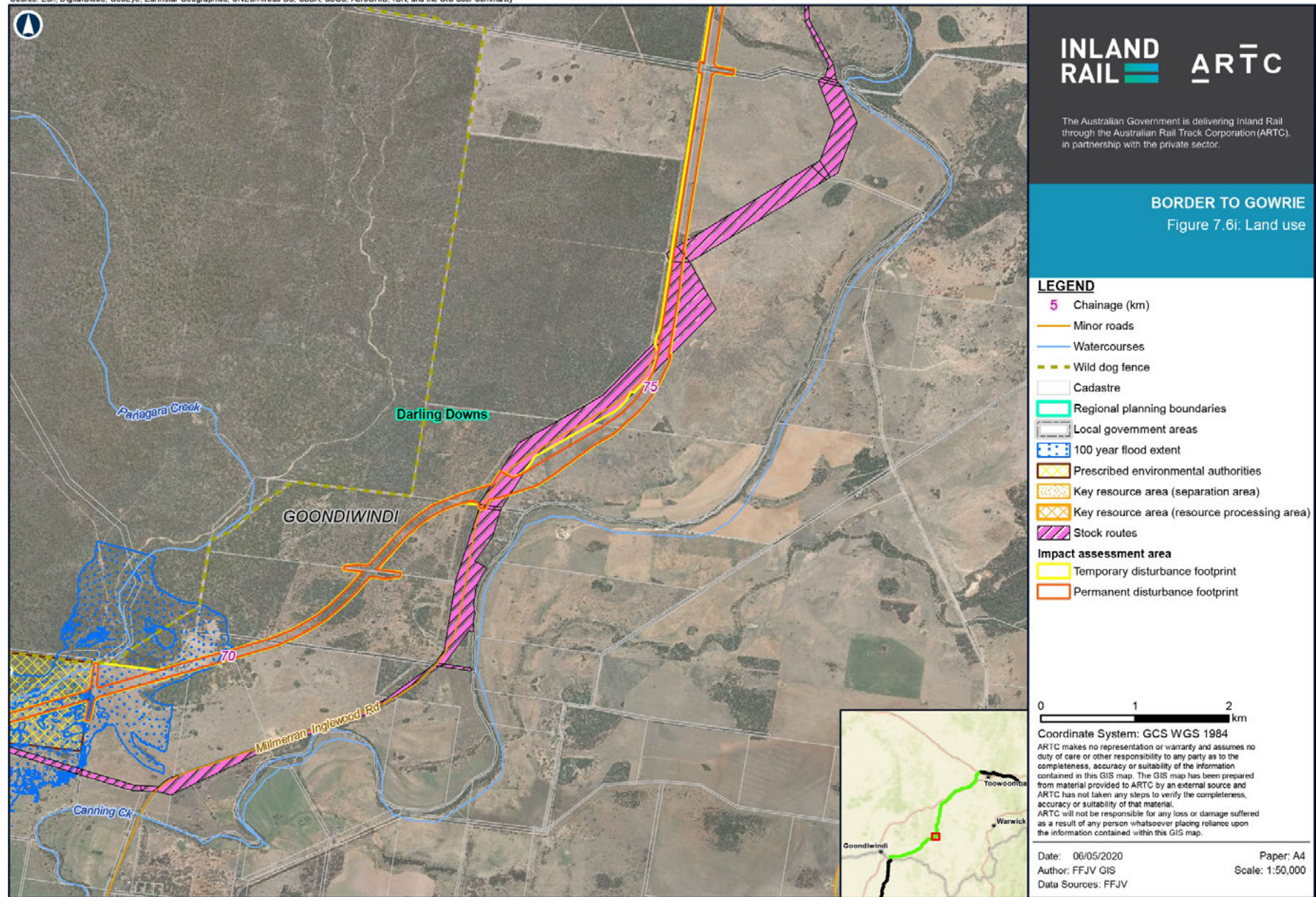


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig/7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

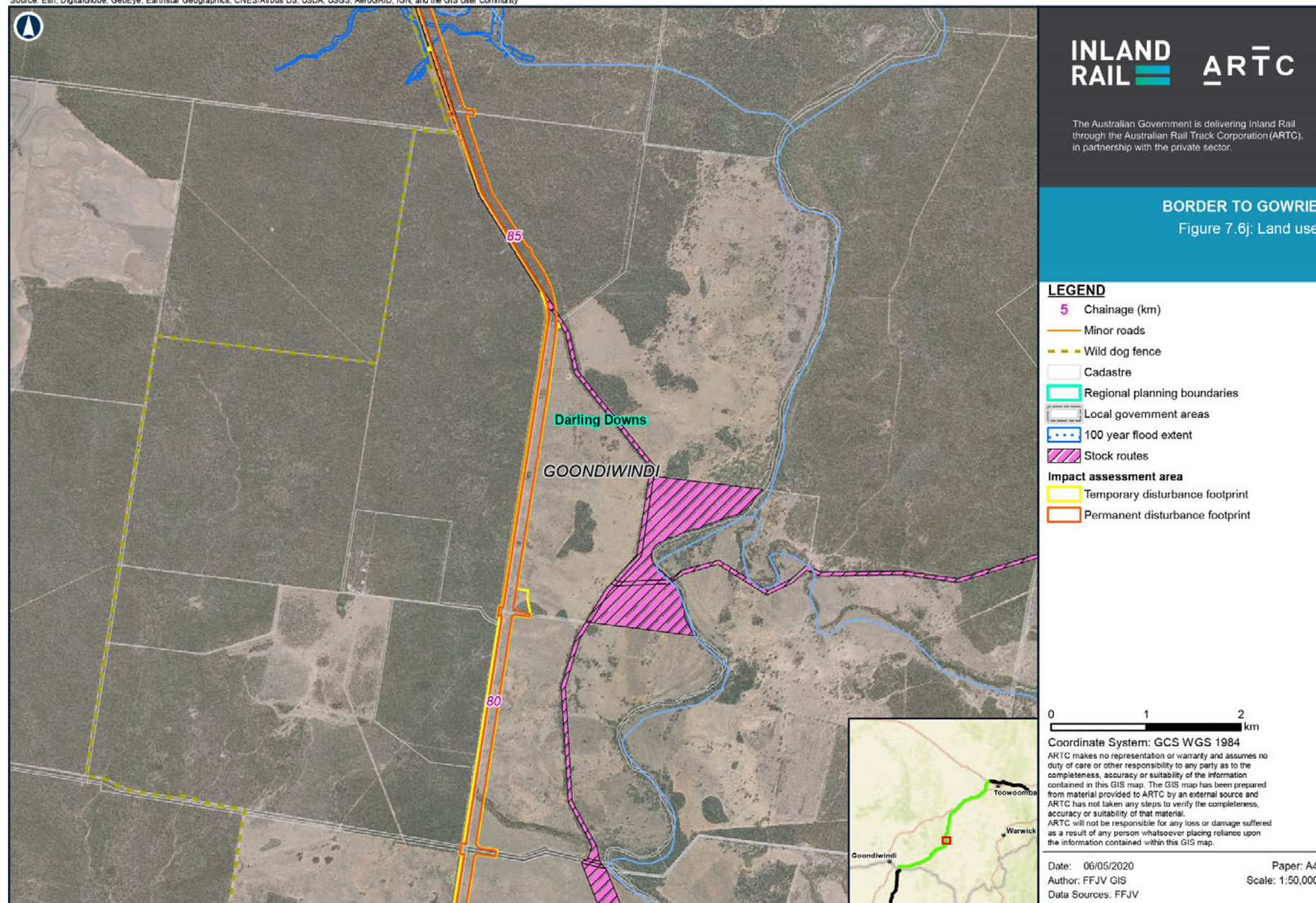


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



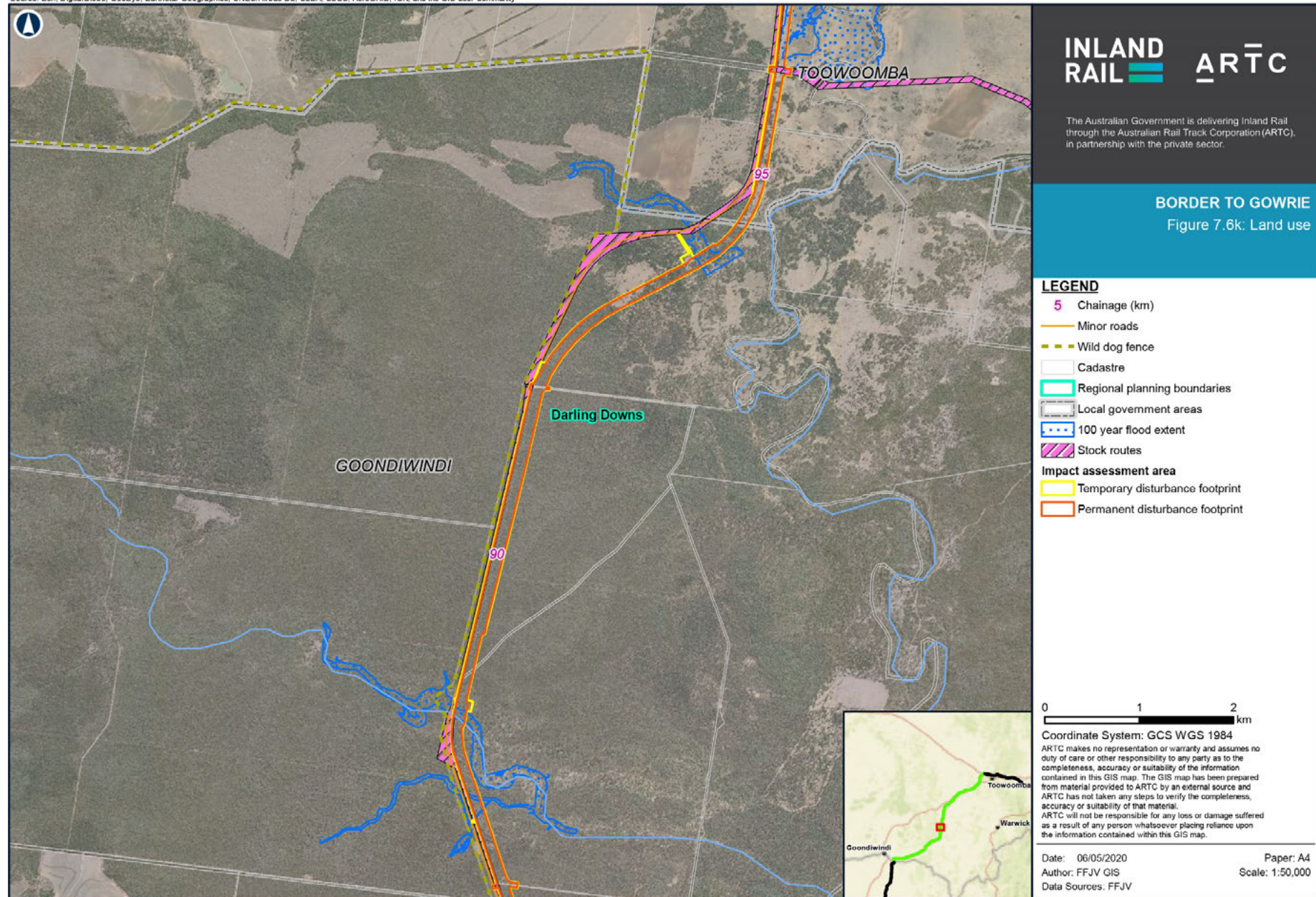
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7_6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

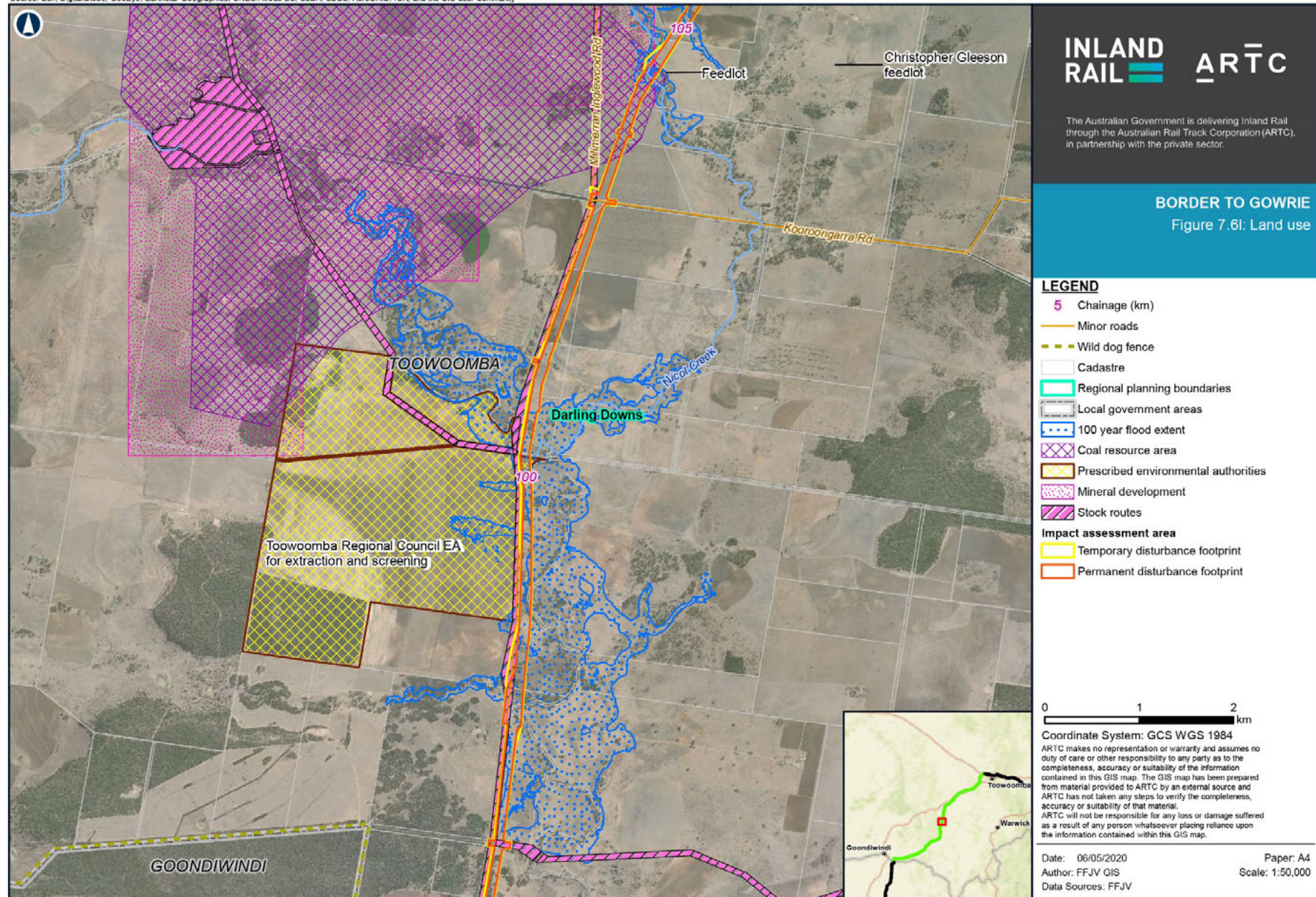


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig/7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

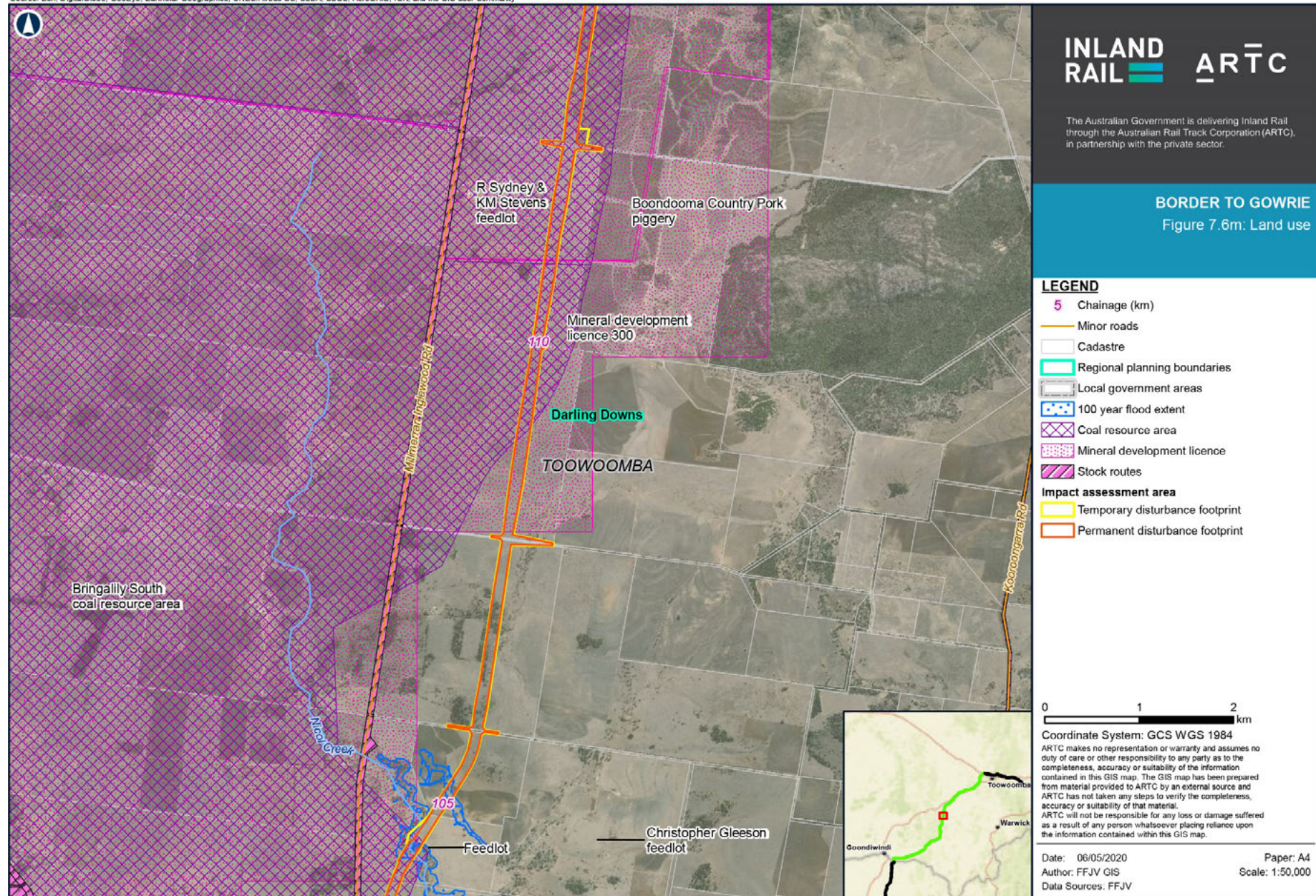
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

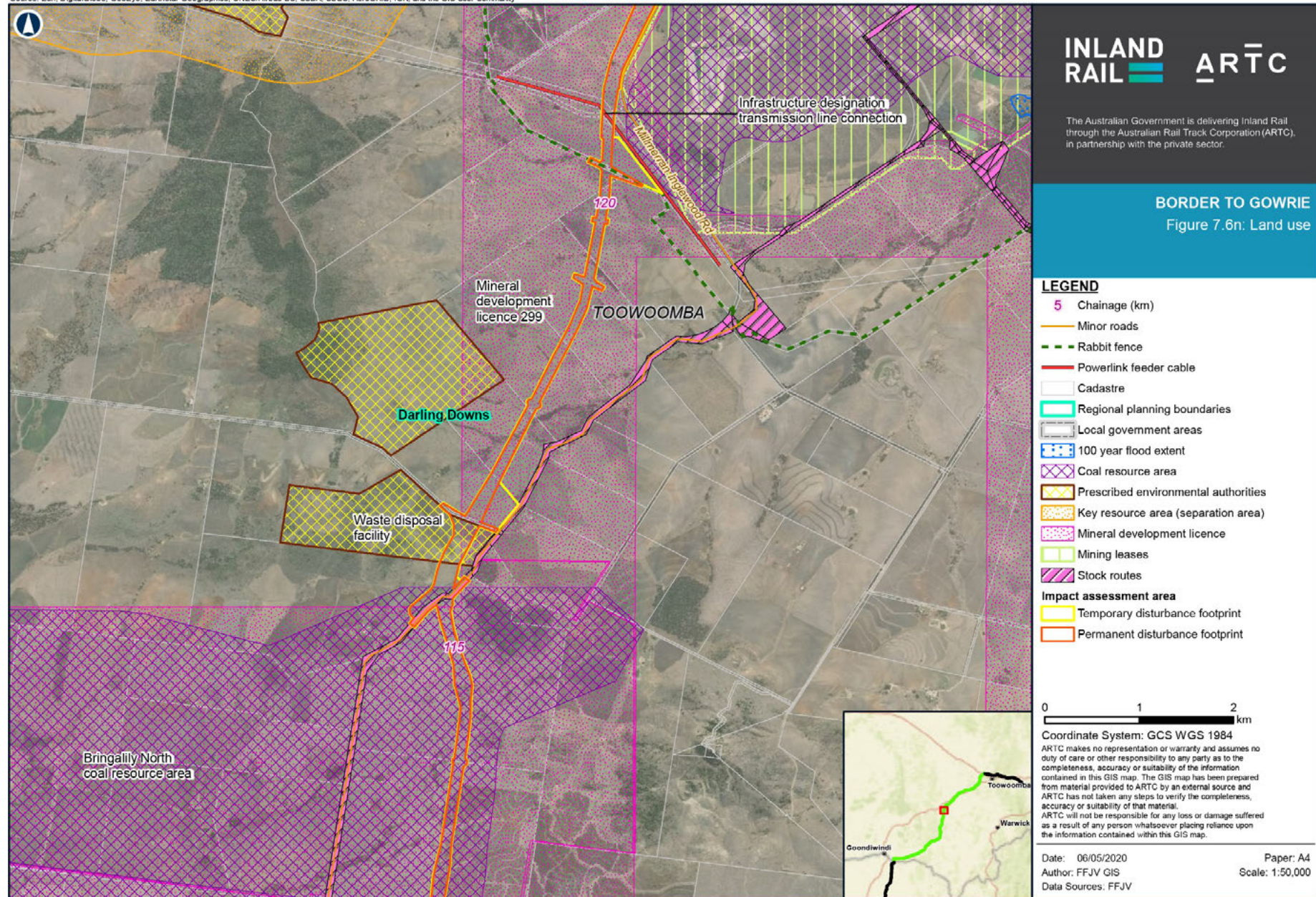


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

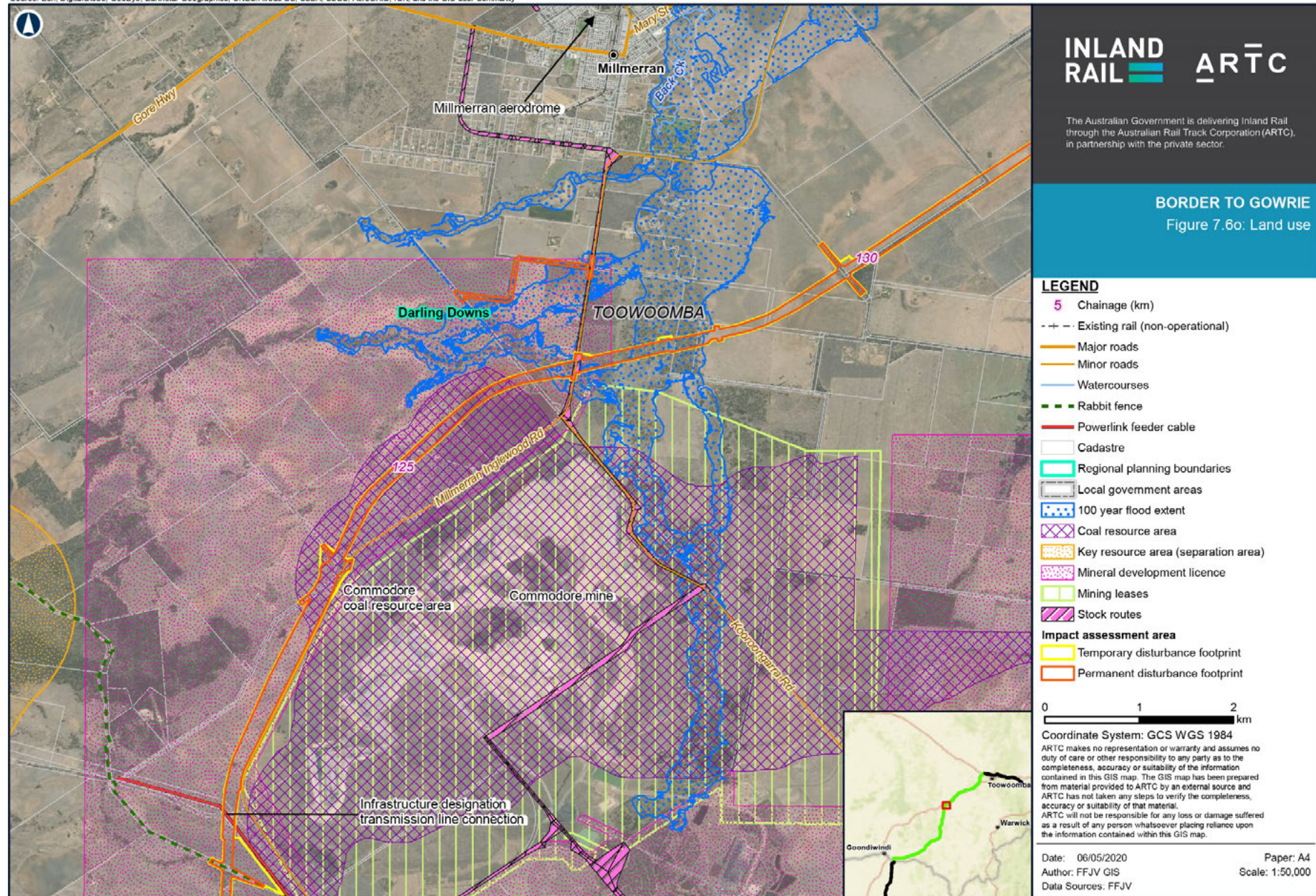


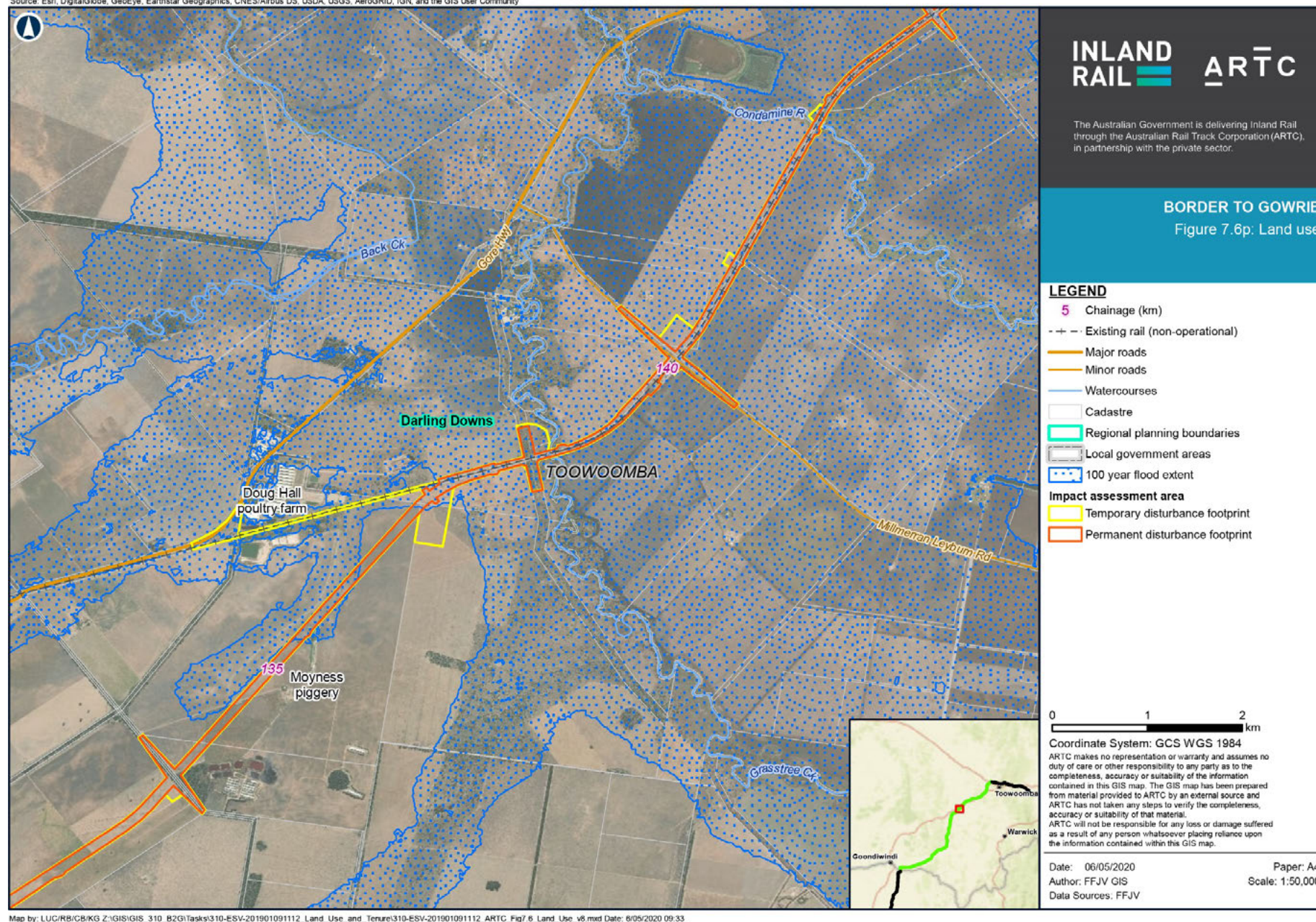
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

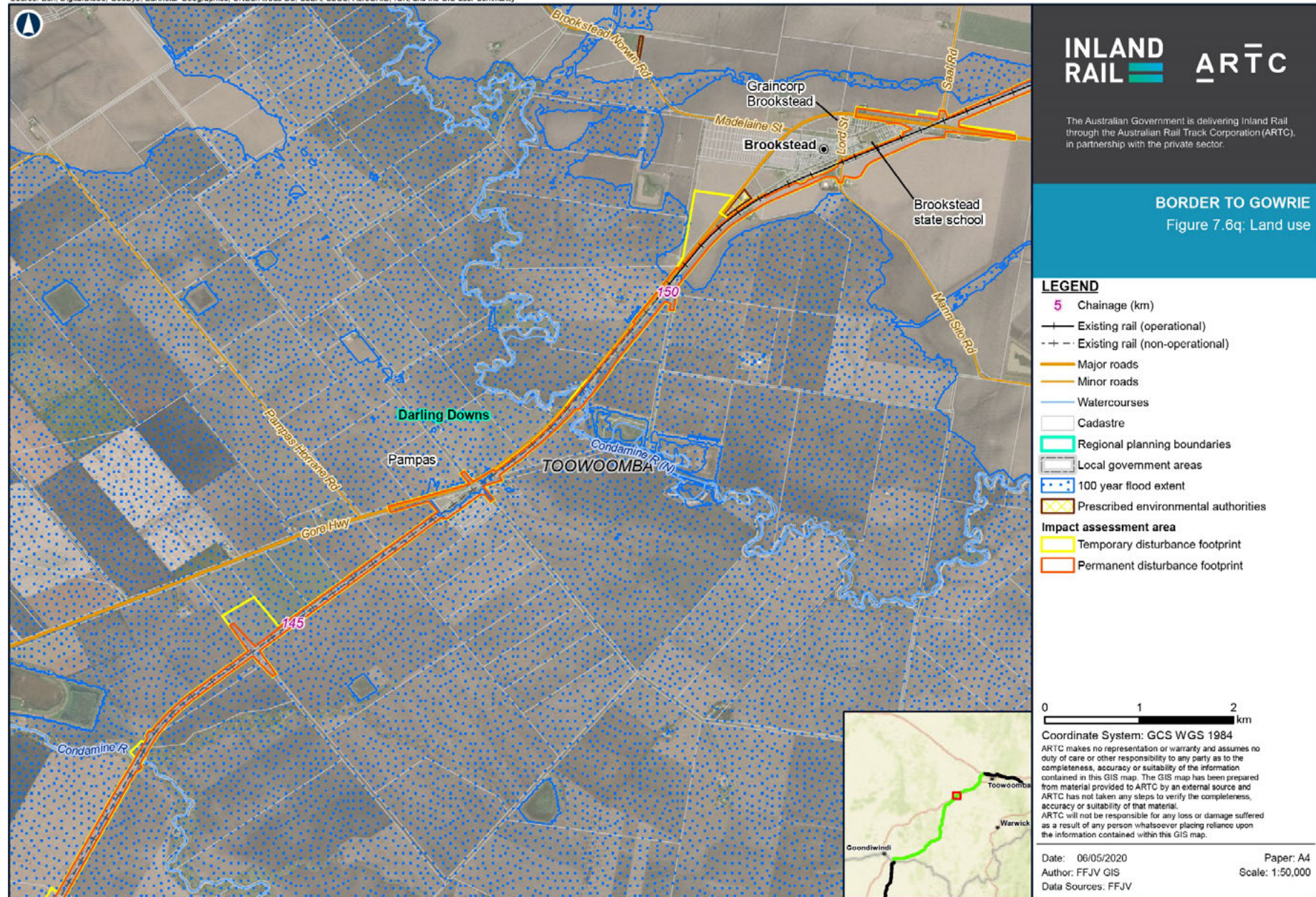


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

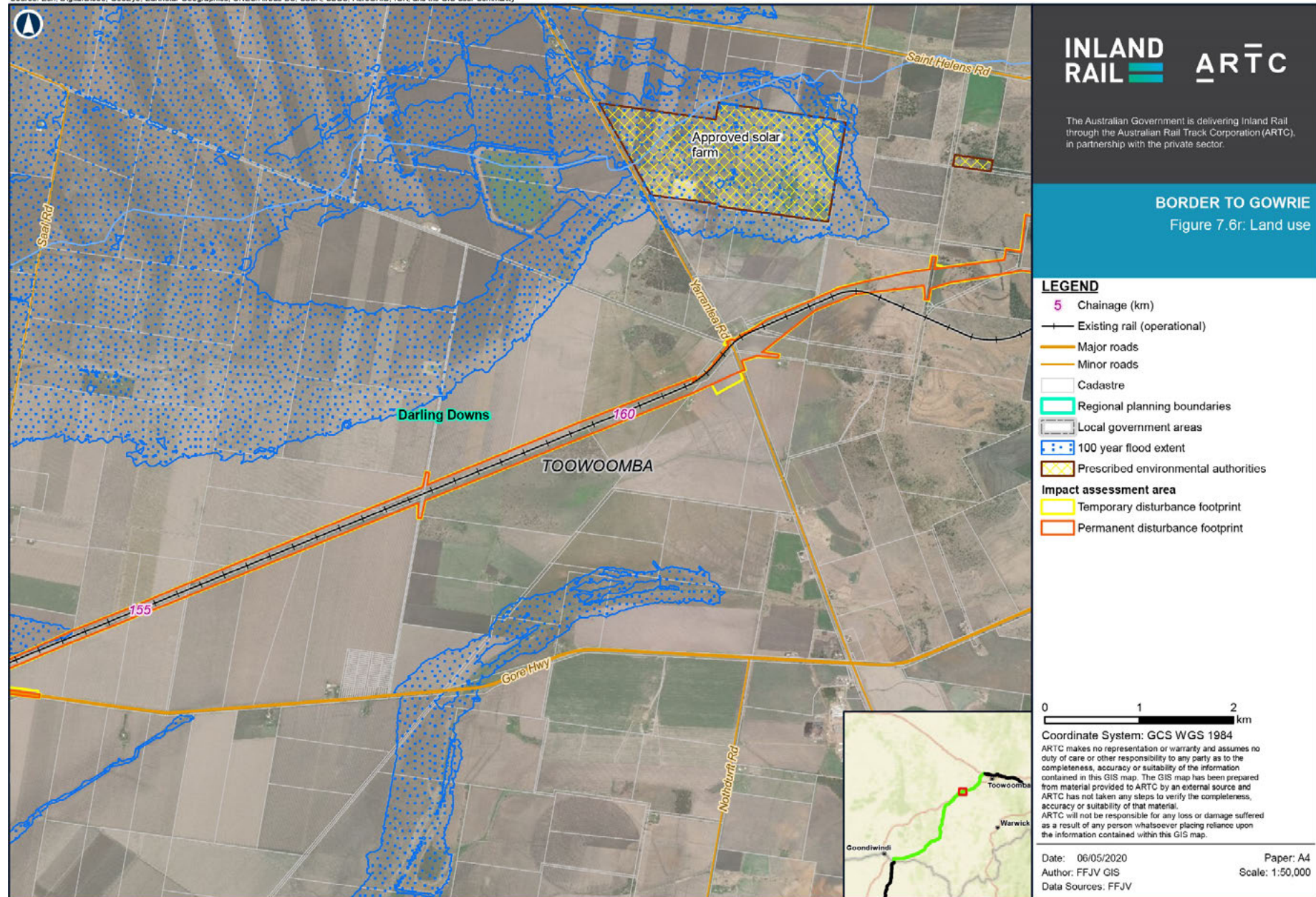




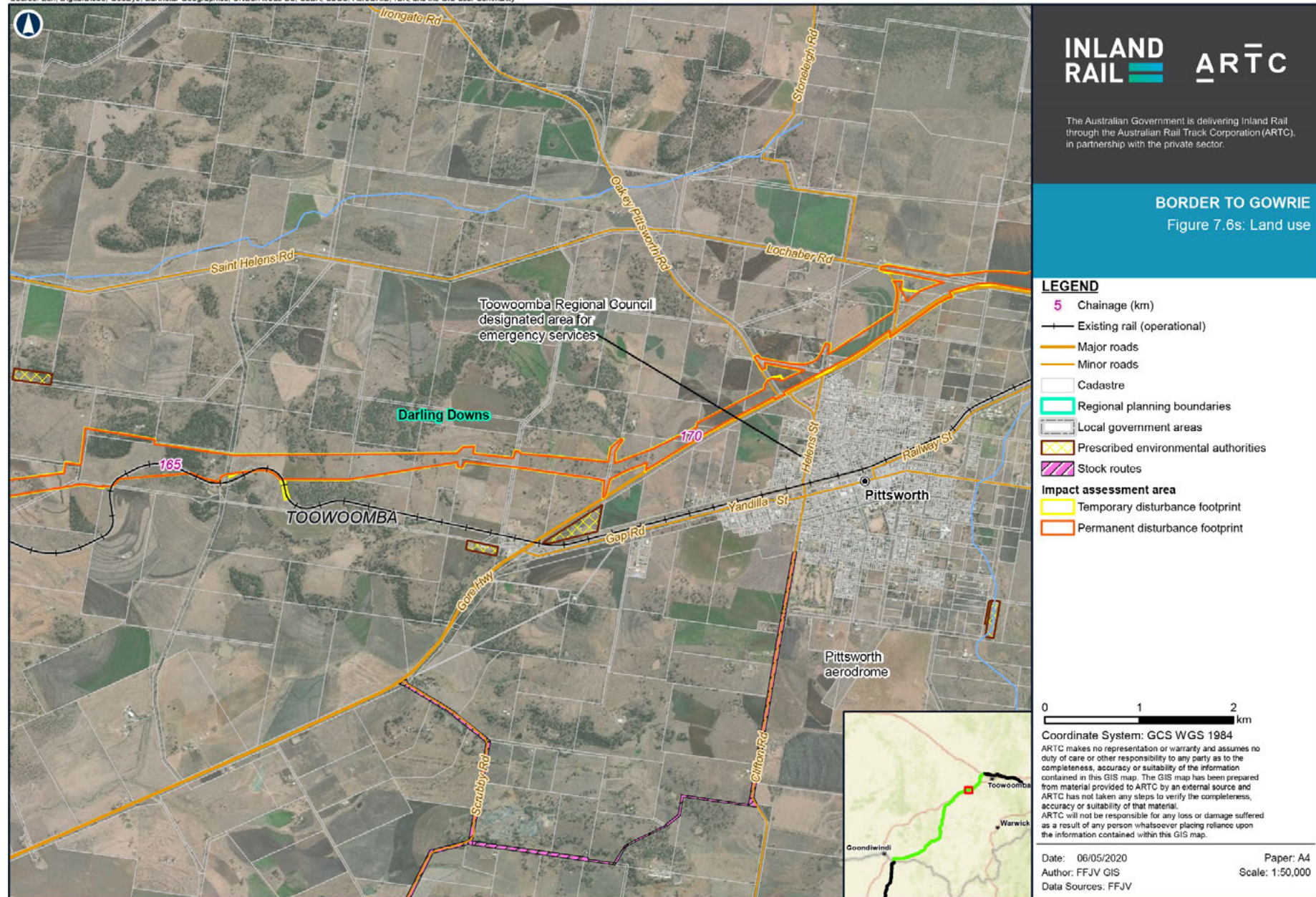
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

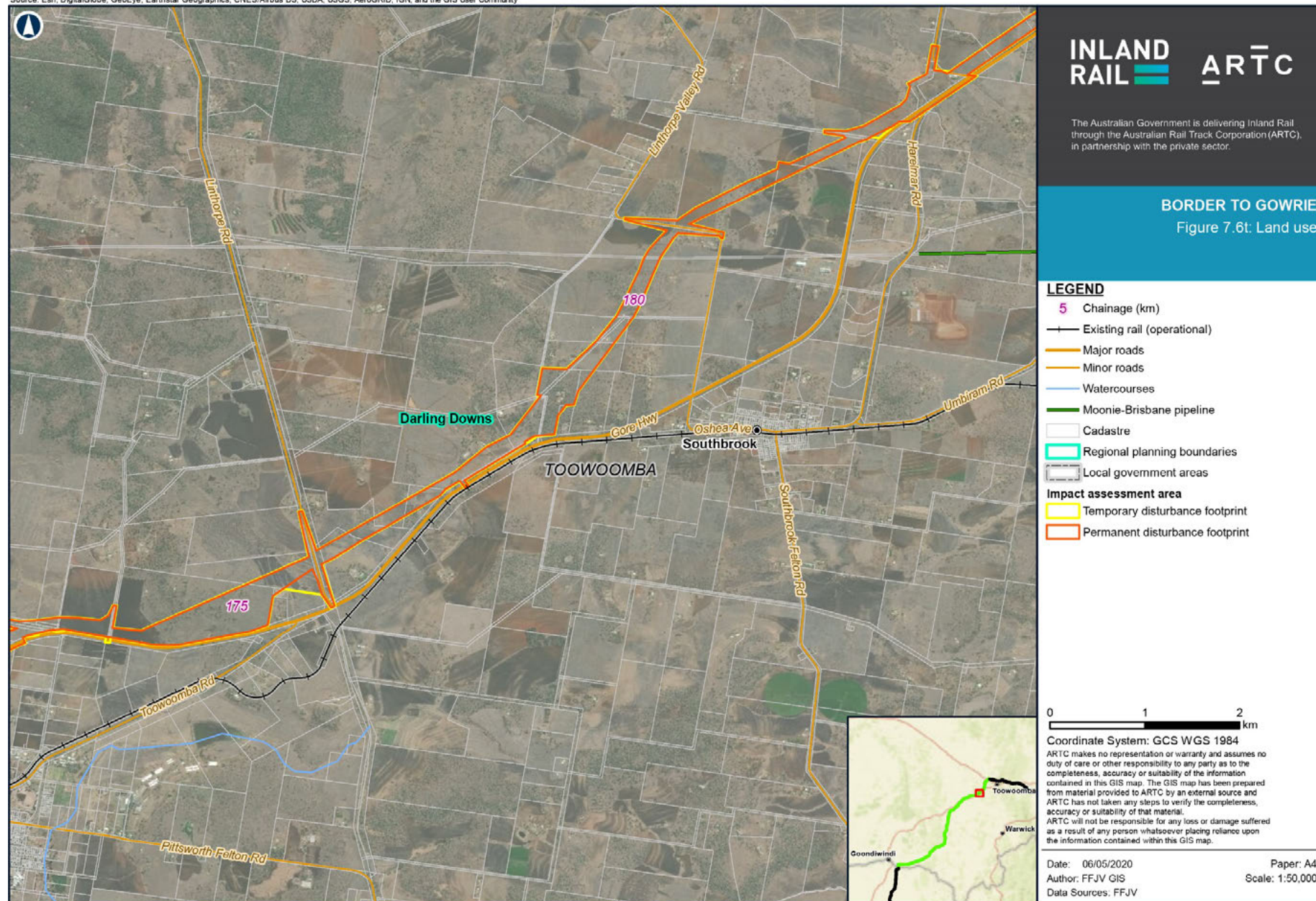


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



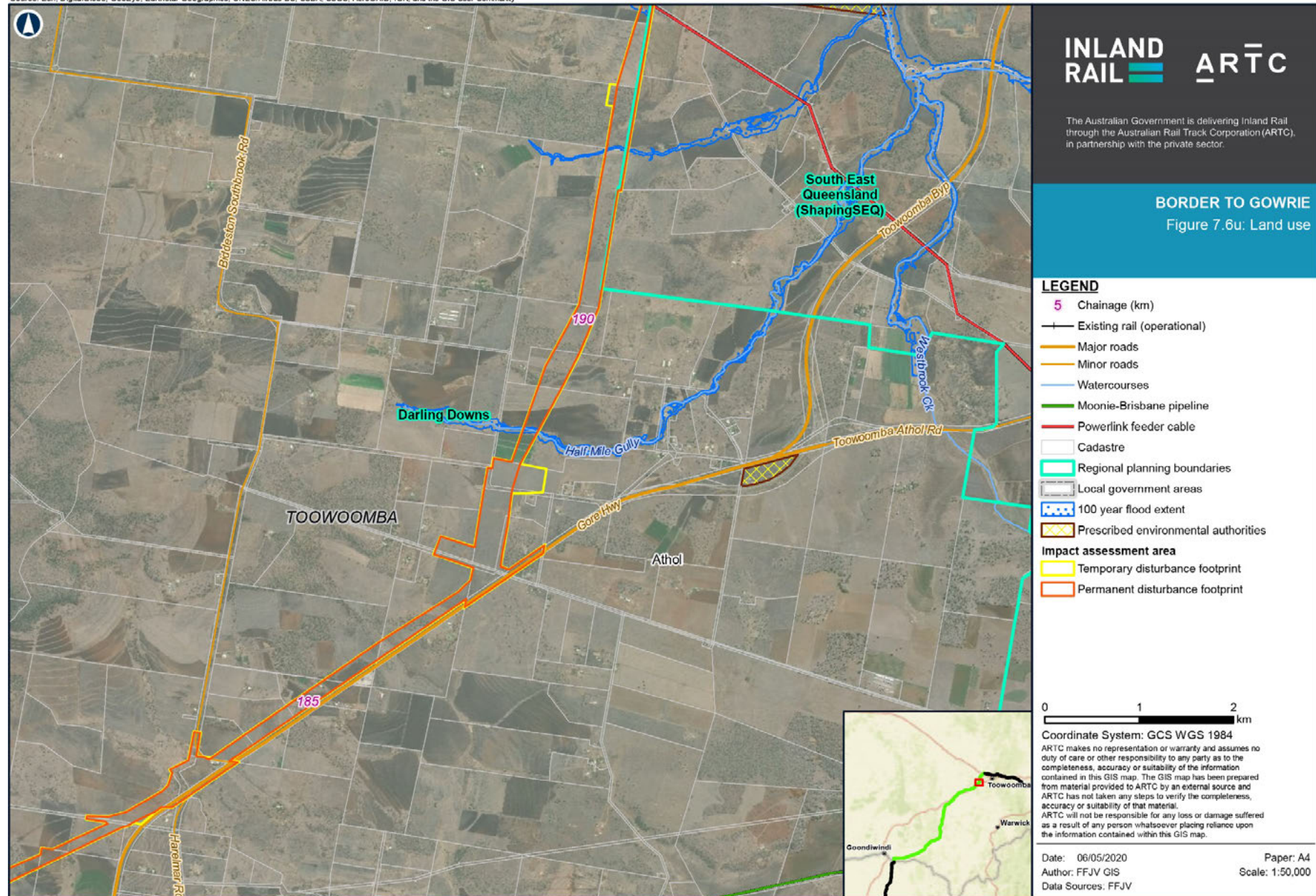
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig 7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



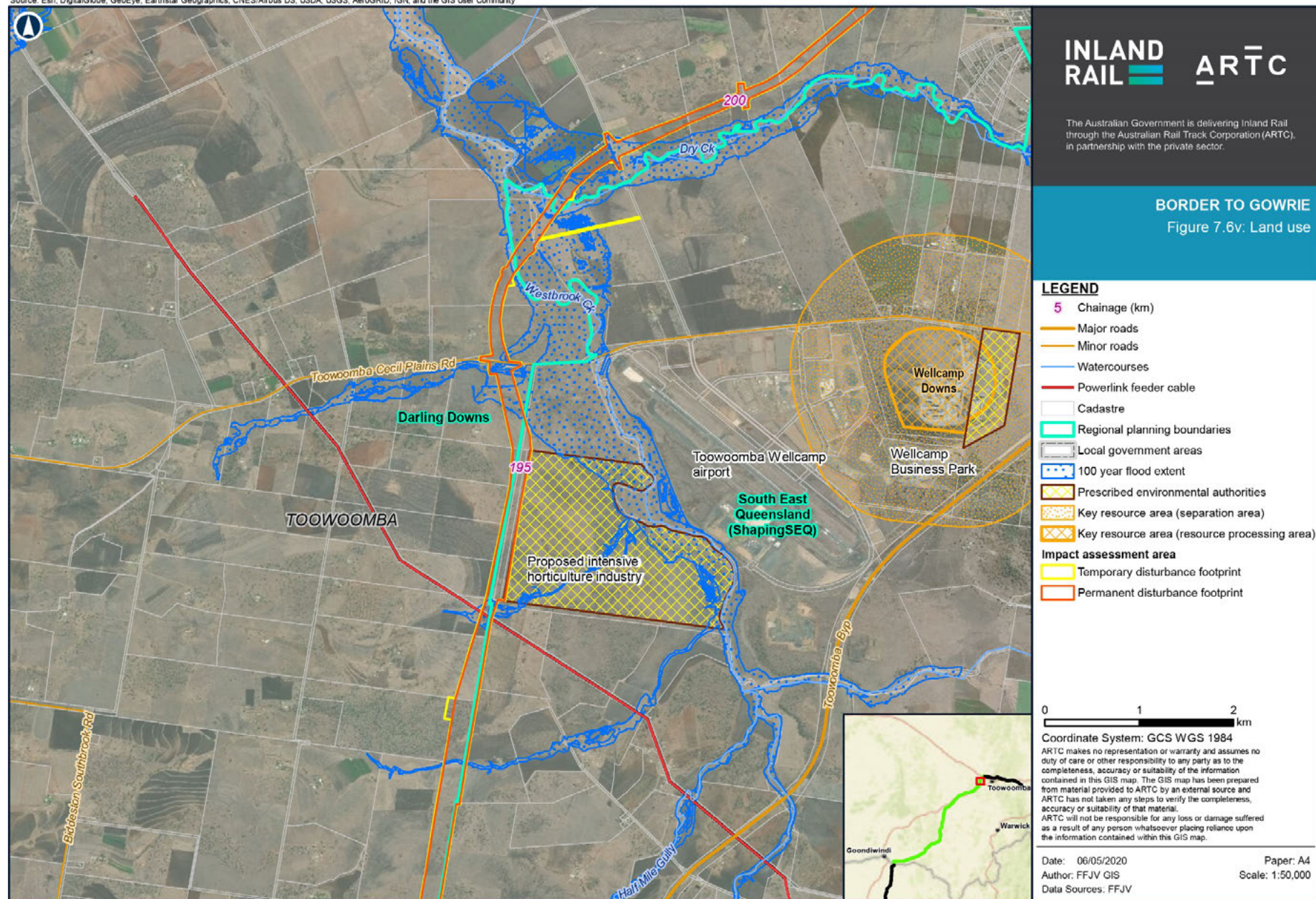
Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig/7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

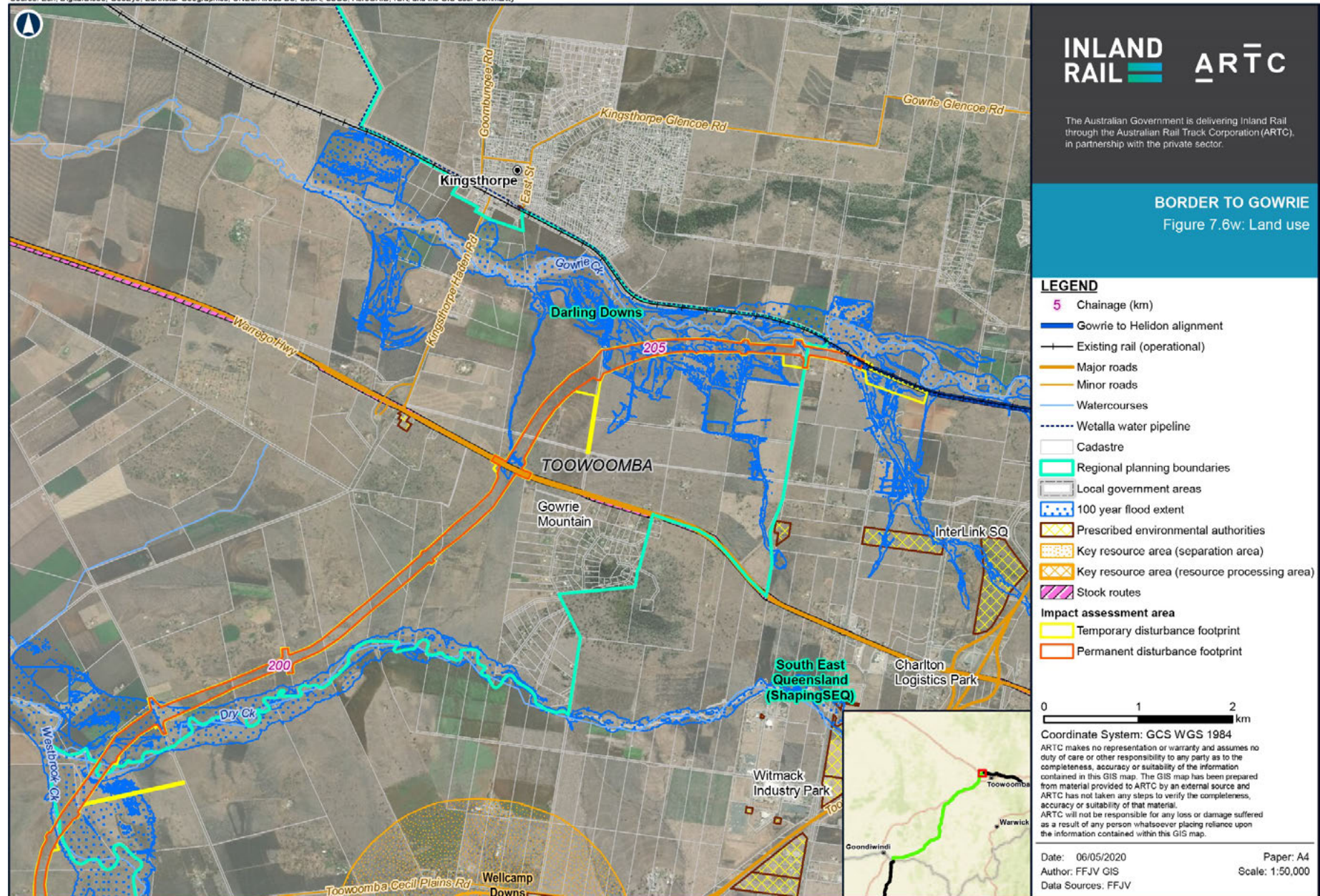


Map by: LUC/RB/CB/KG Z:\GIS\GIS_310_B2\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig/7.6_Land_Use_v8.mxd Date: 6/05/2020 09:33

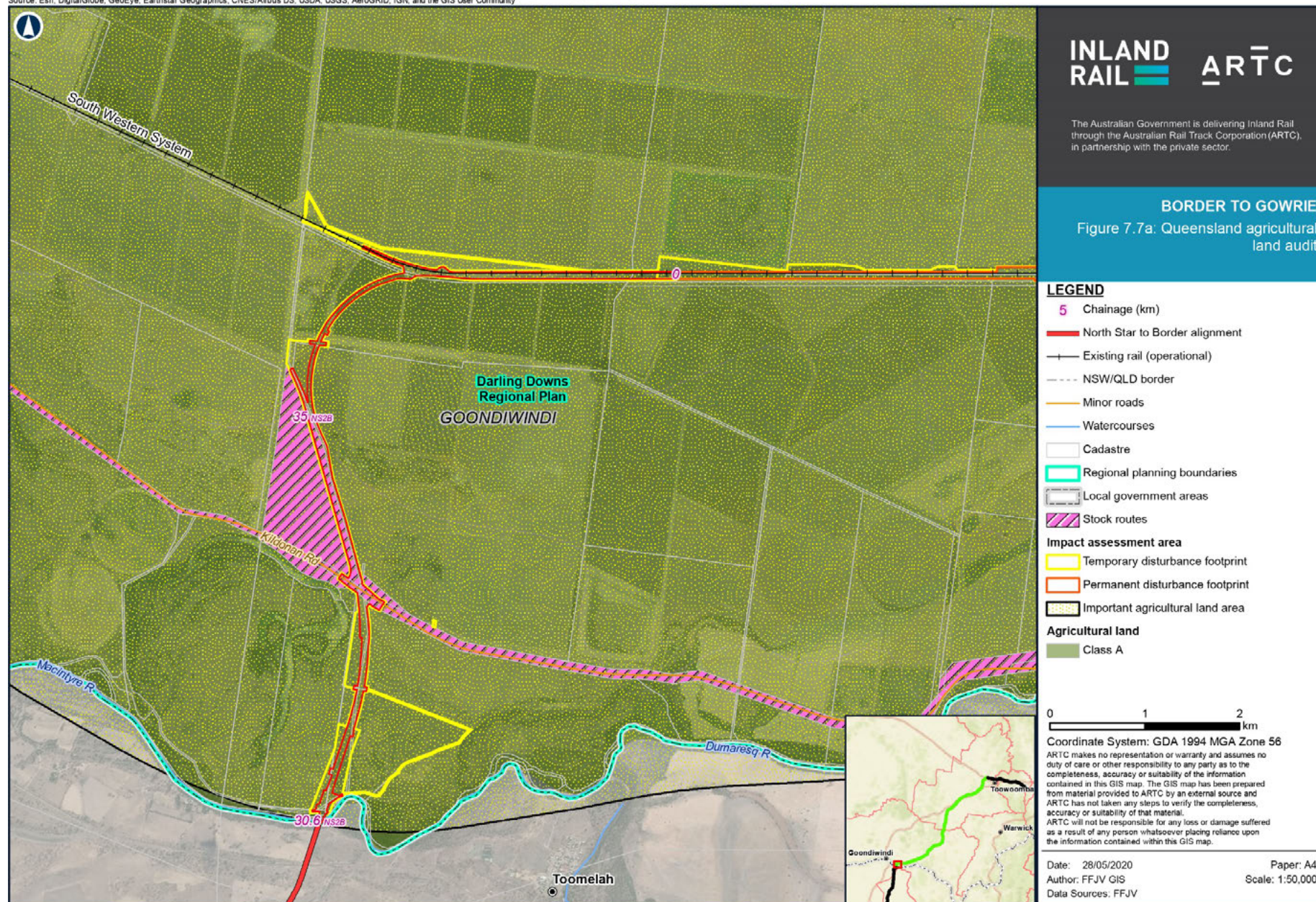
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

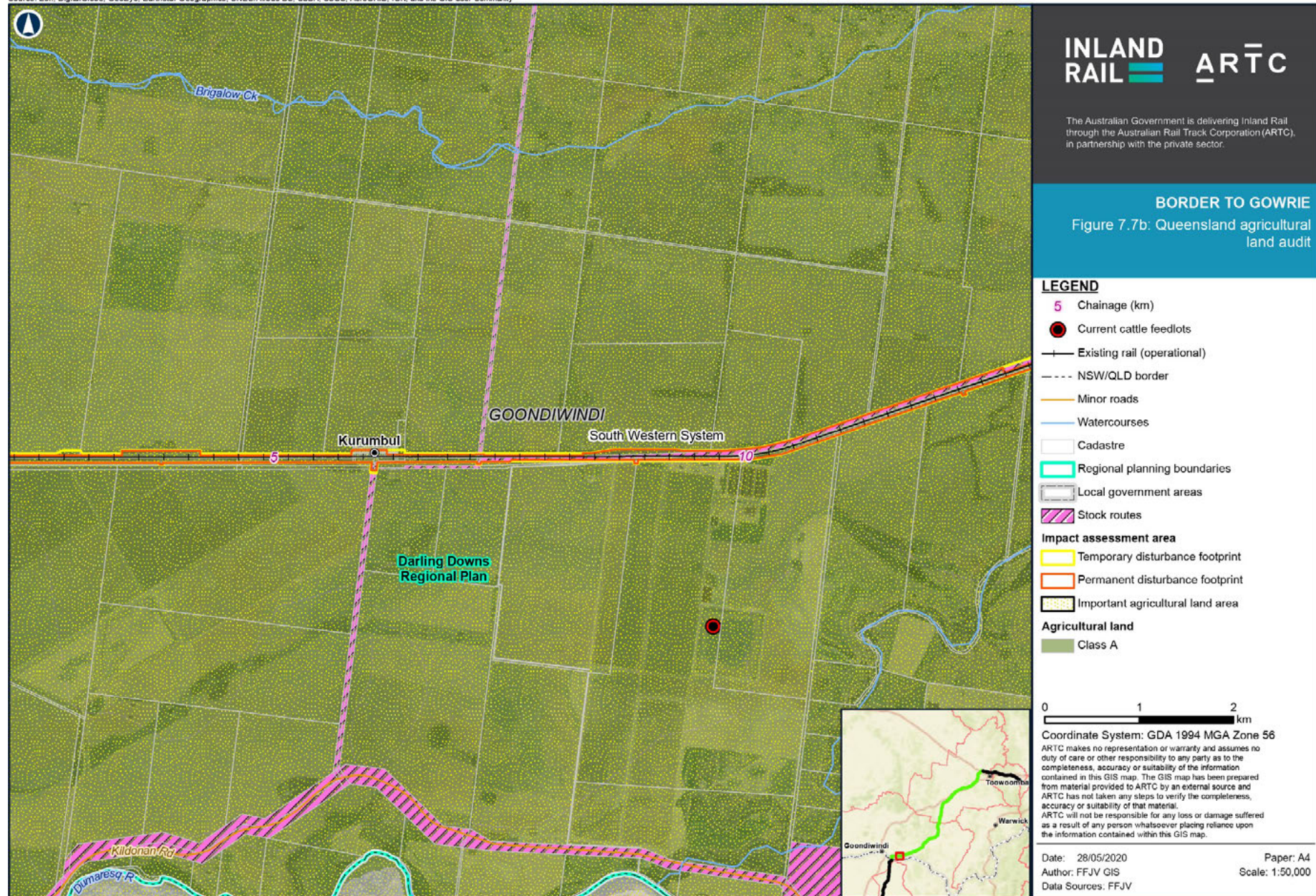


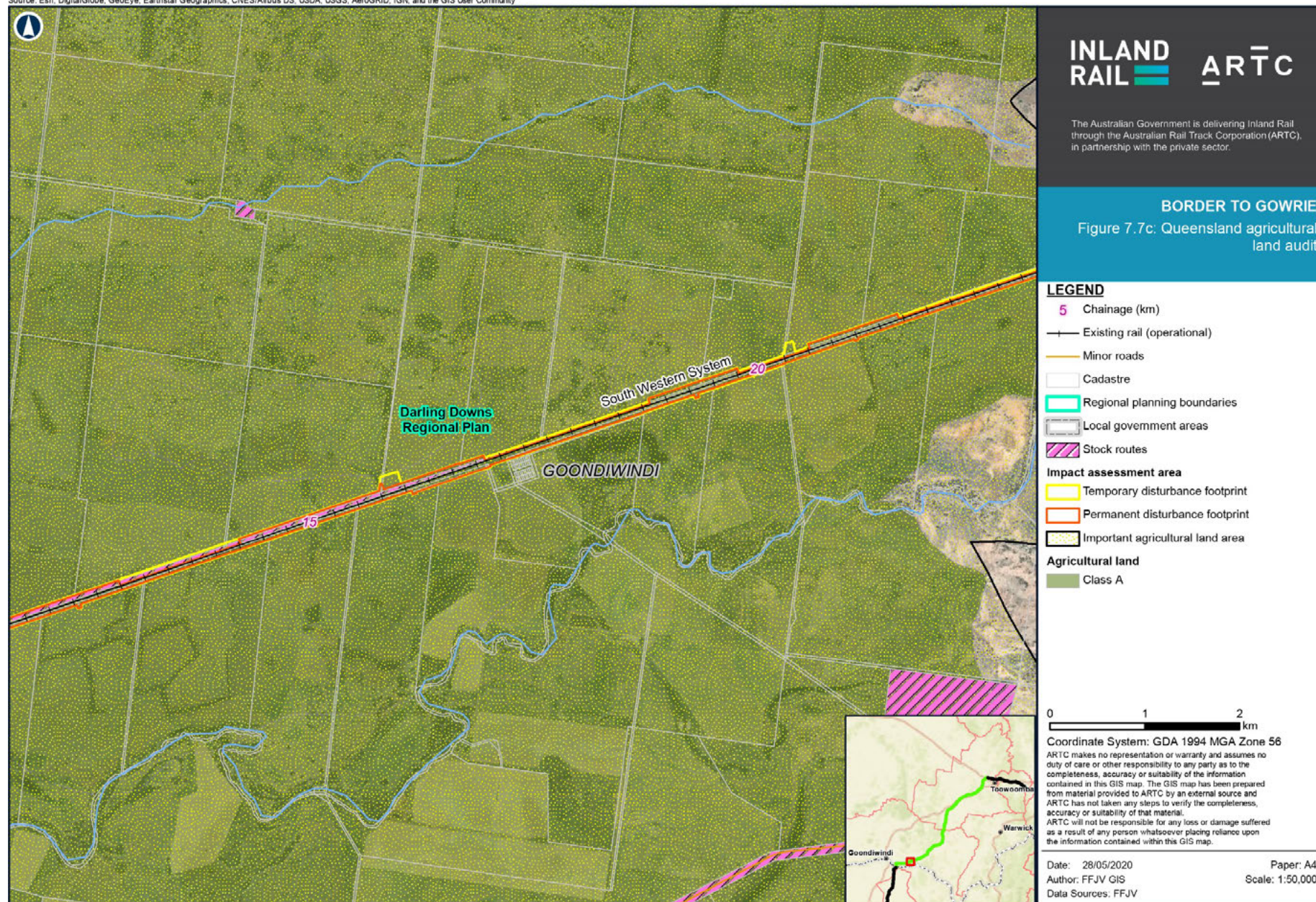
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



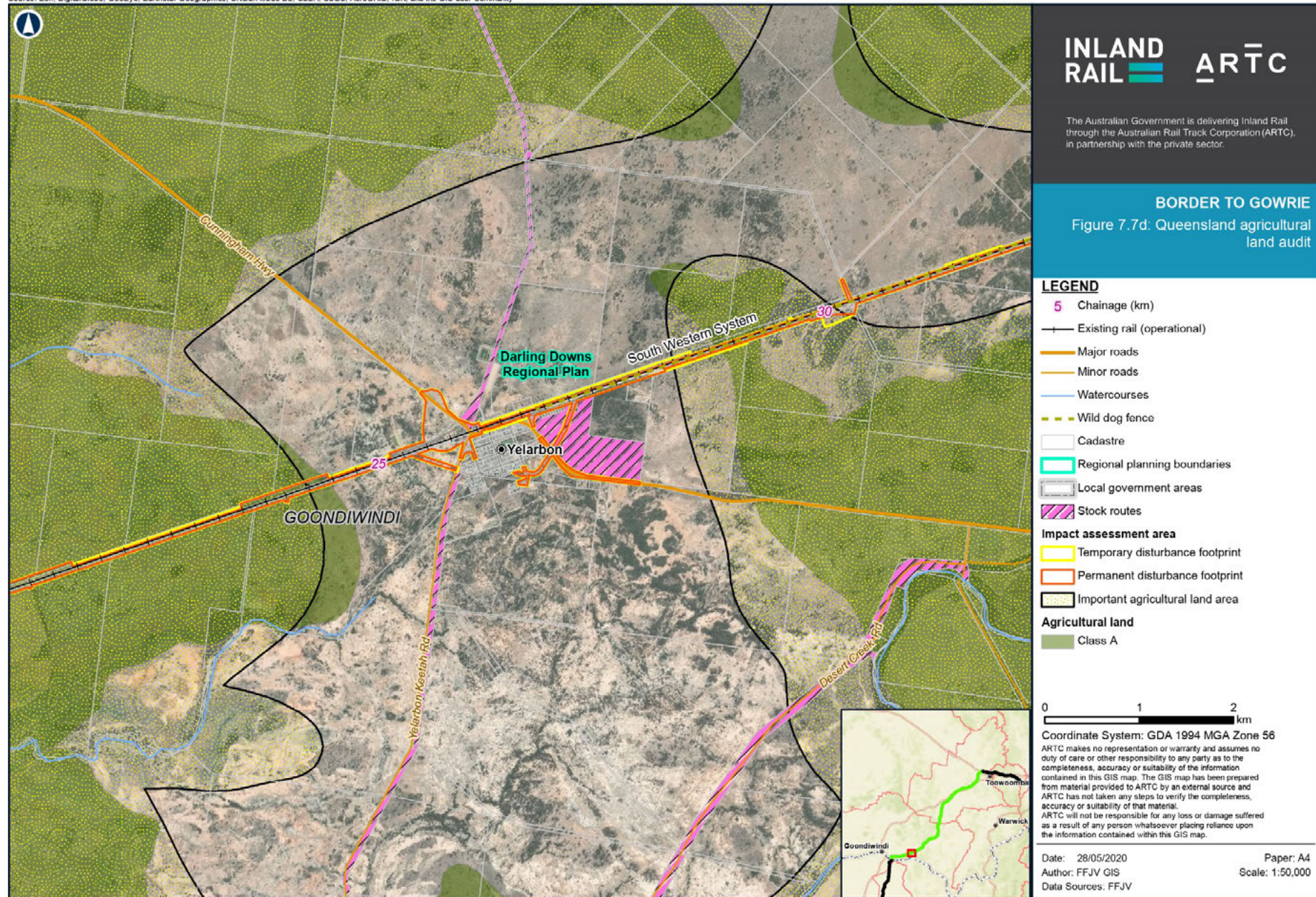
Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_QLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



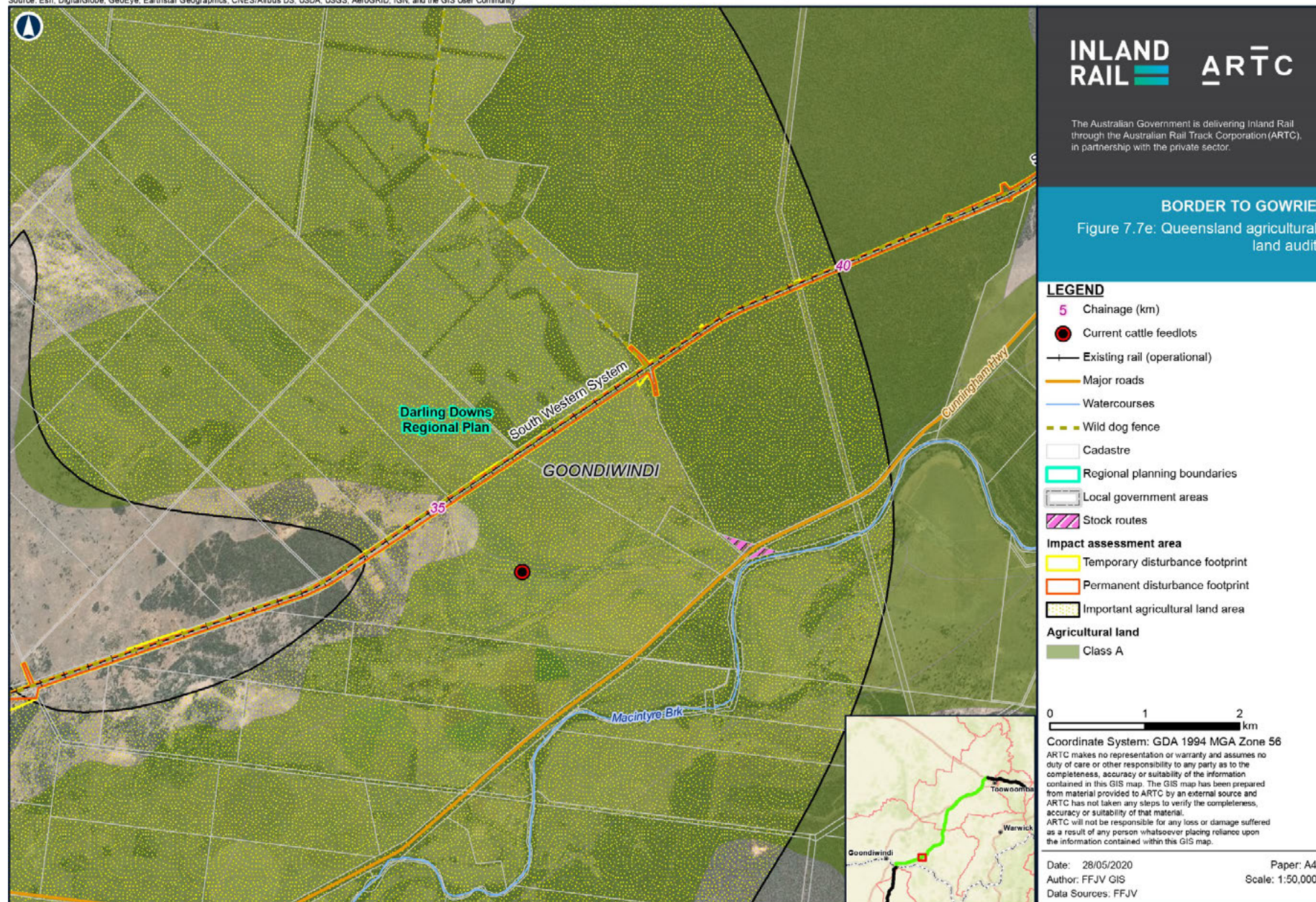


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

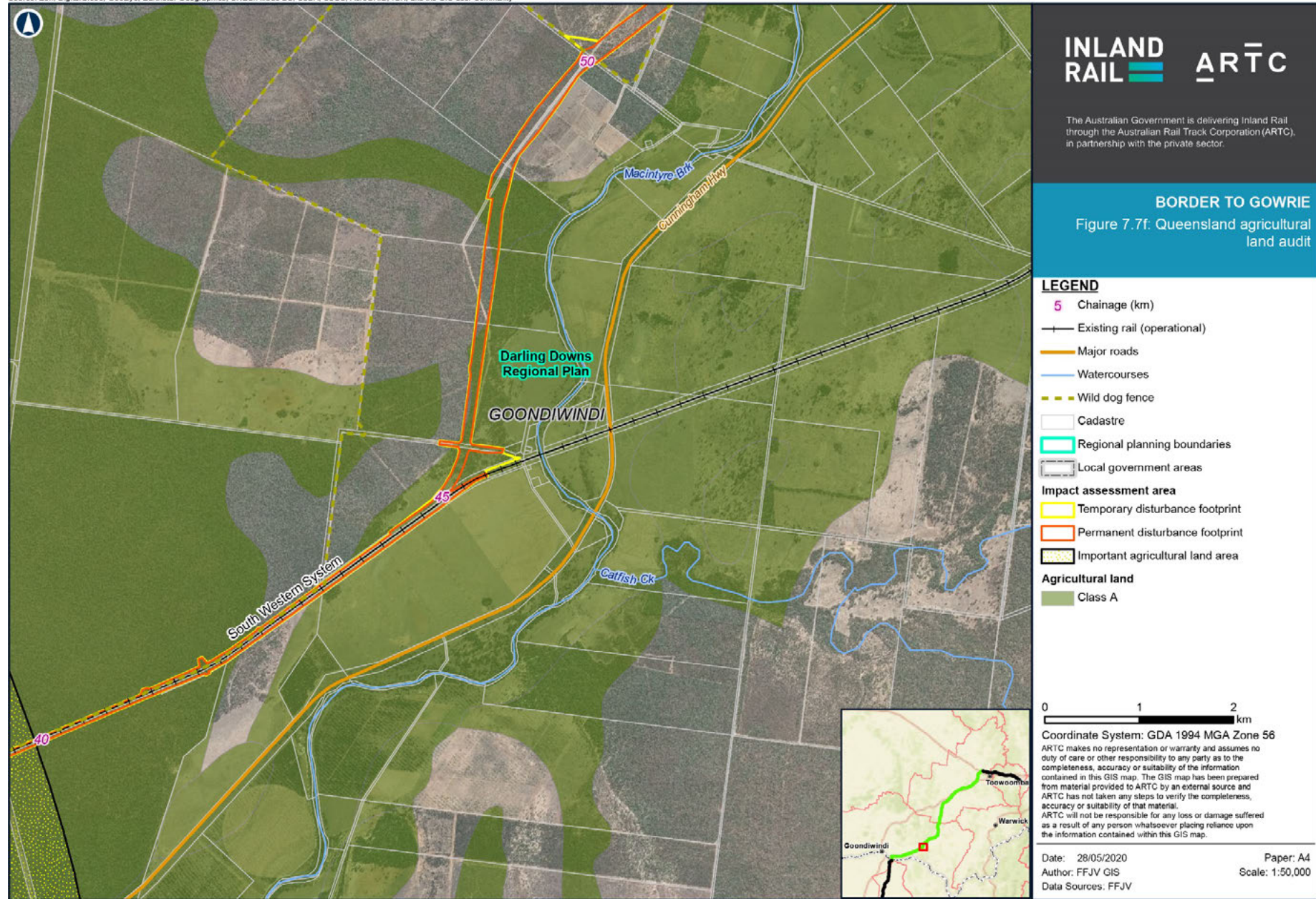


Map by: LUC/RB/CB/KG/GN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_QLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

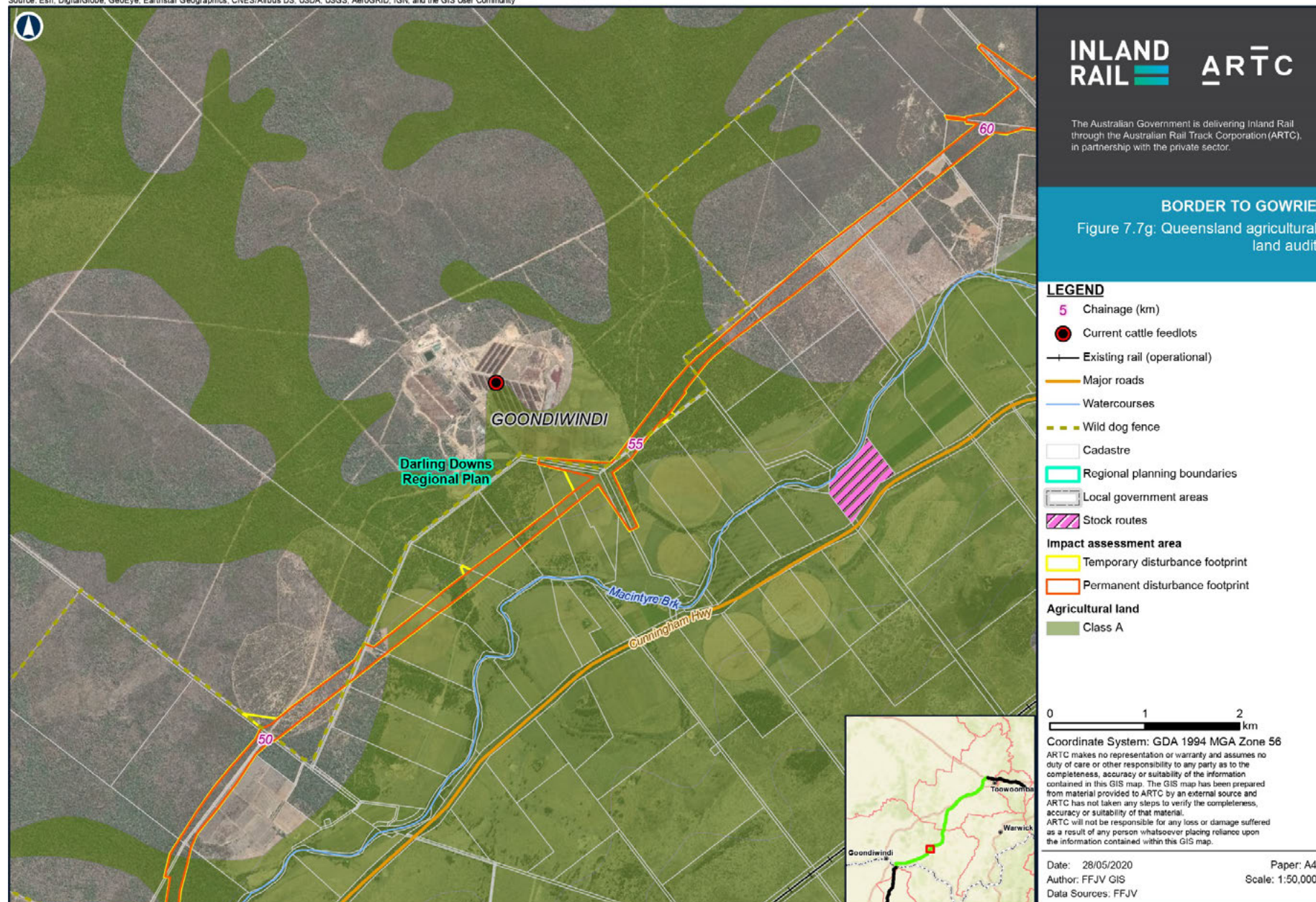
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



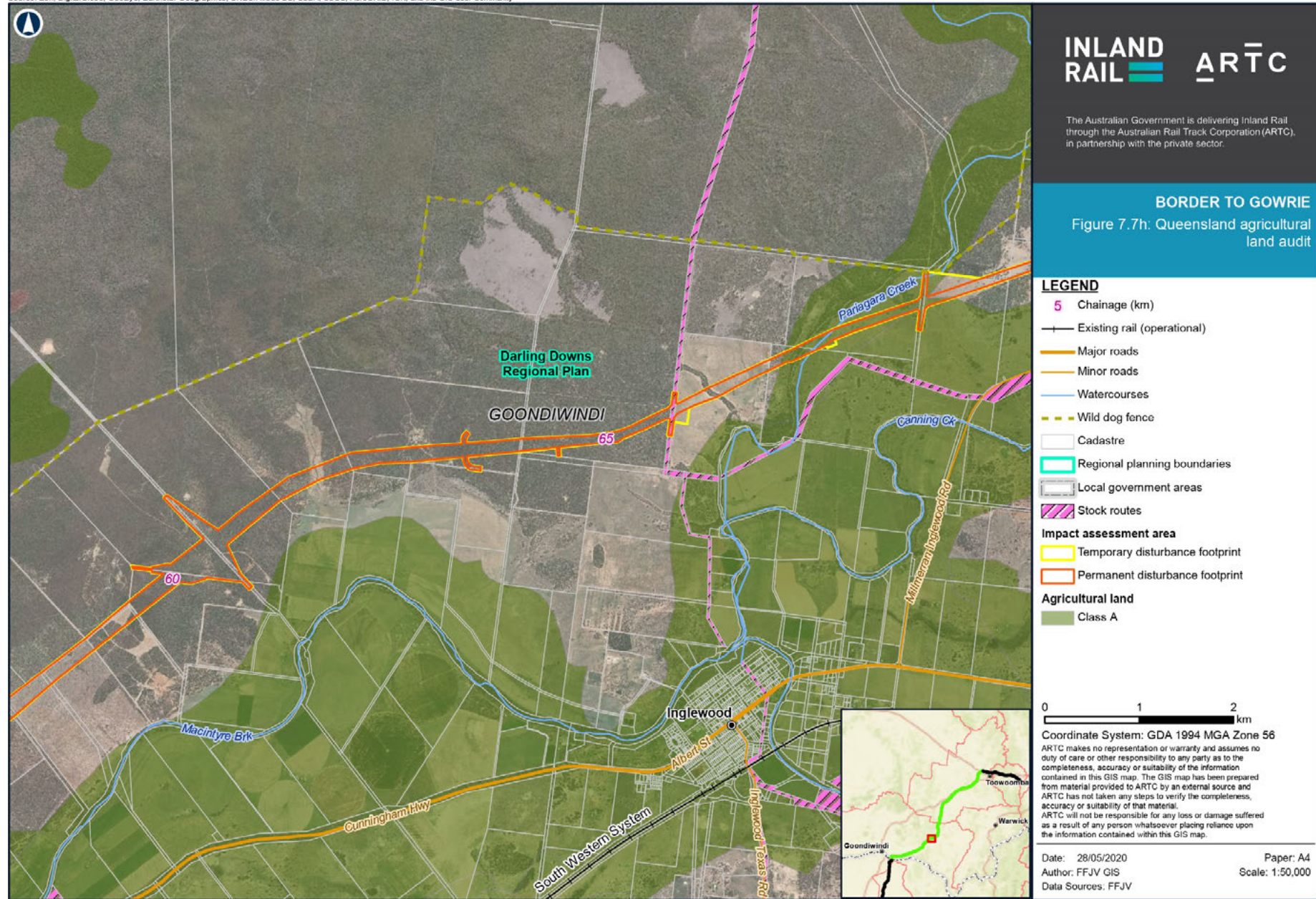
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



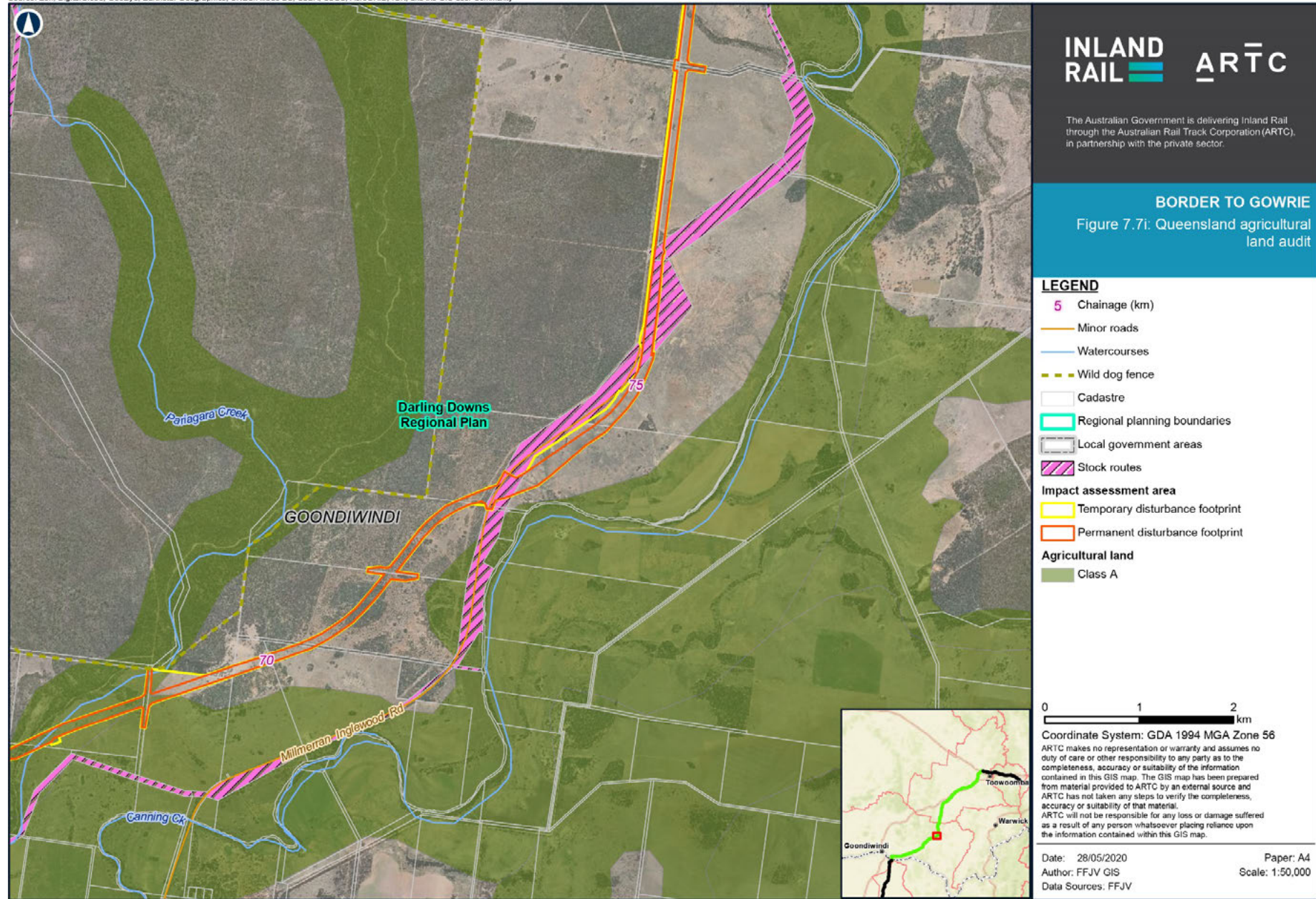
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



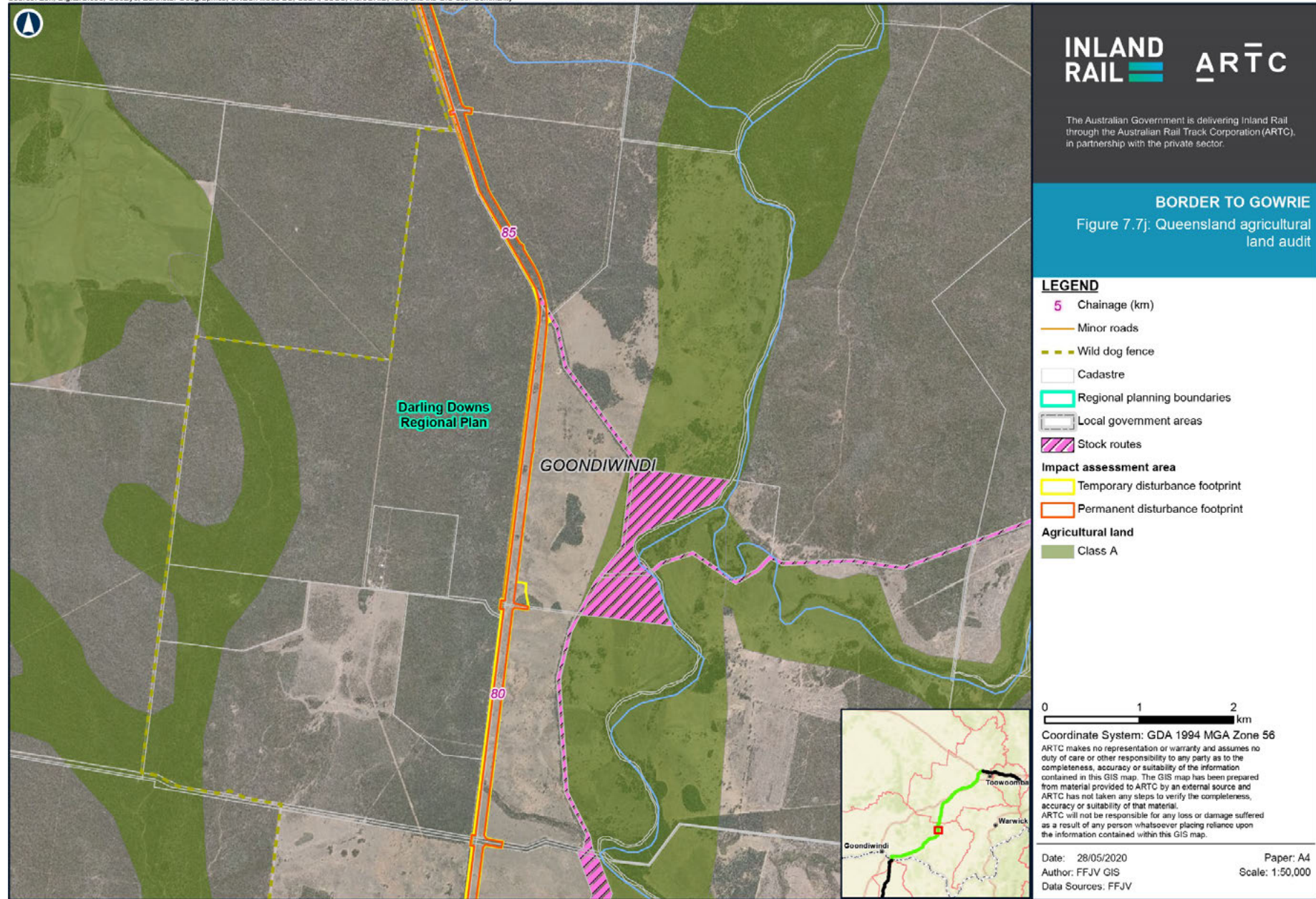
Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_QLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24



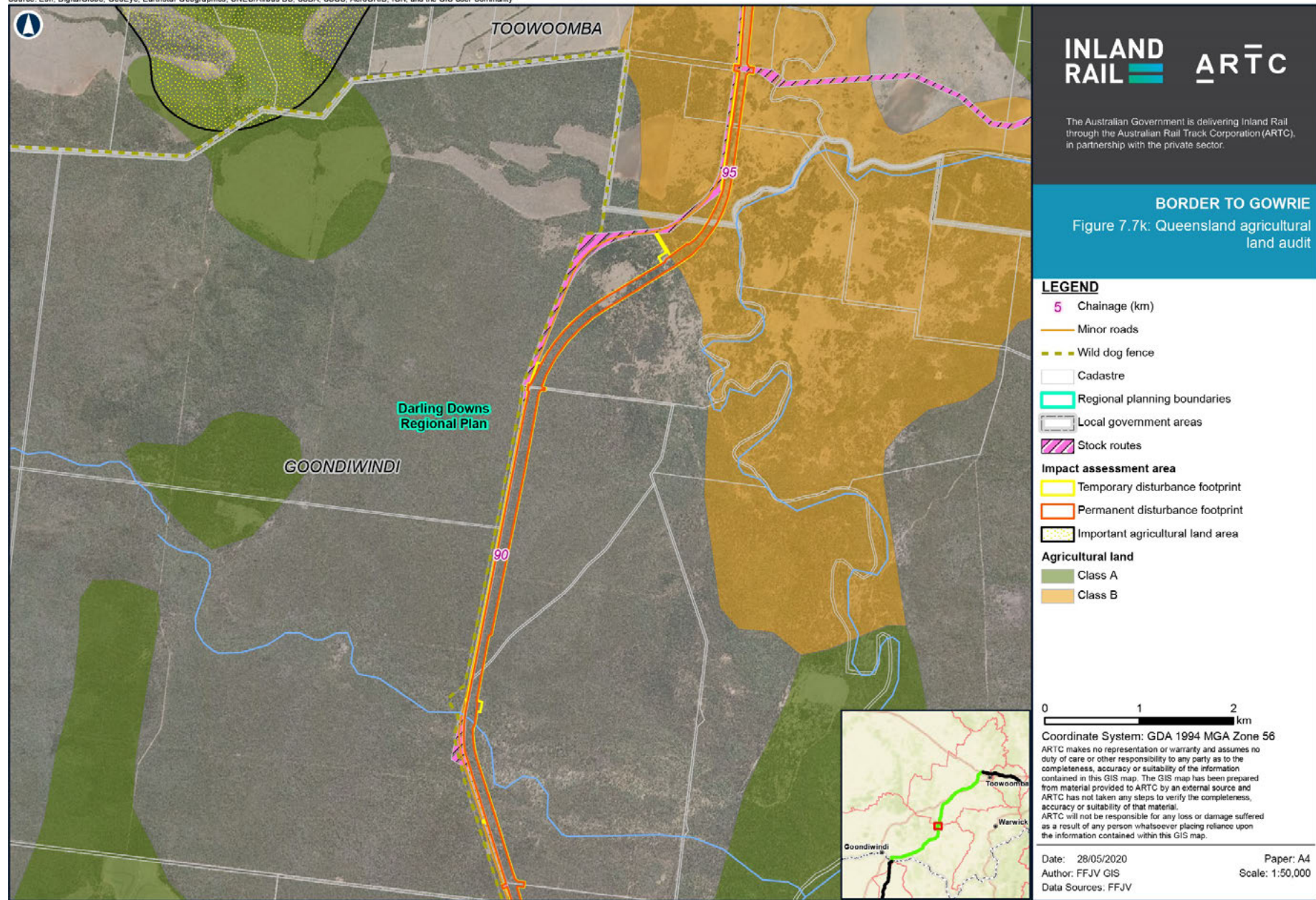
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



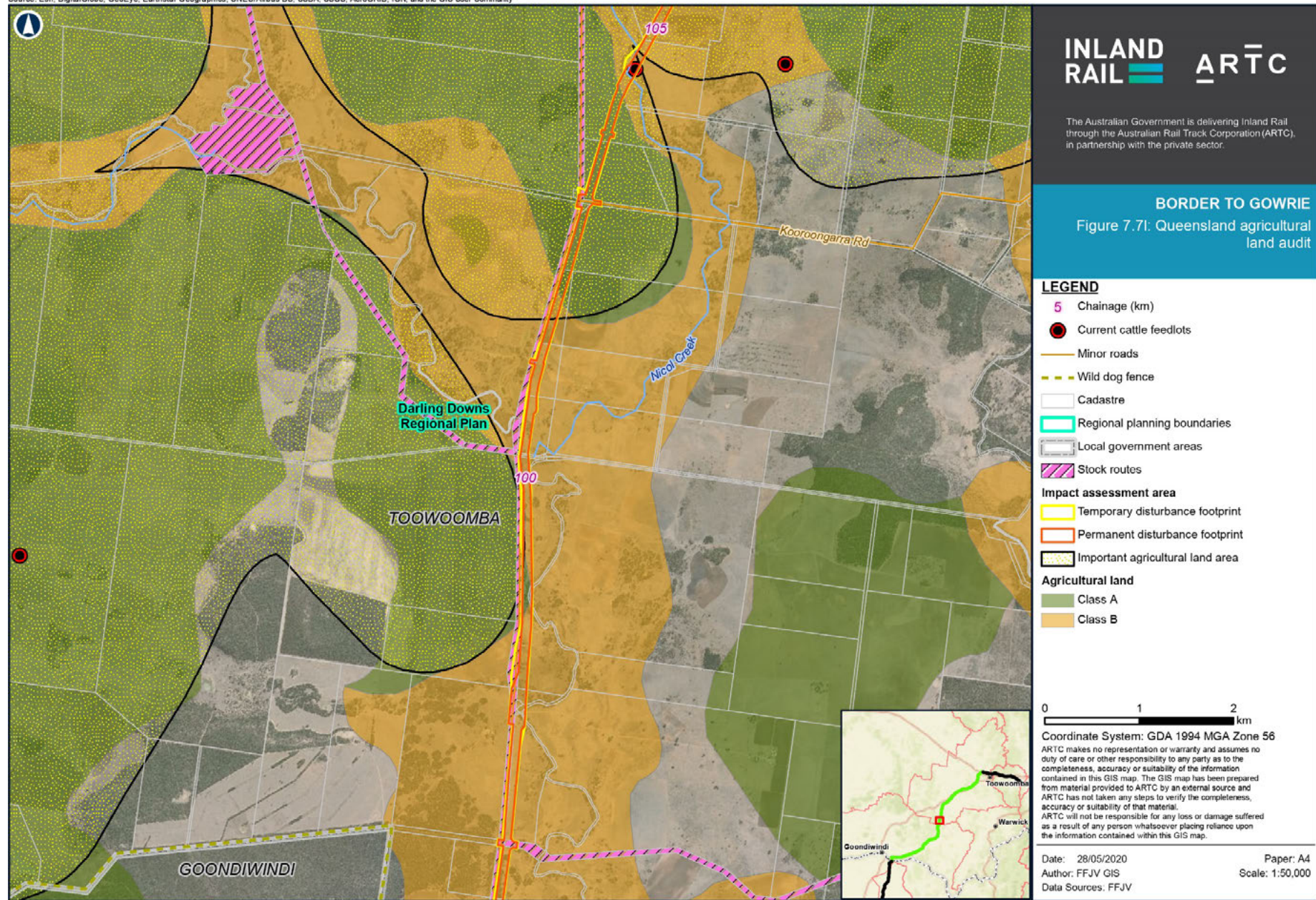
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



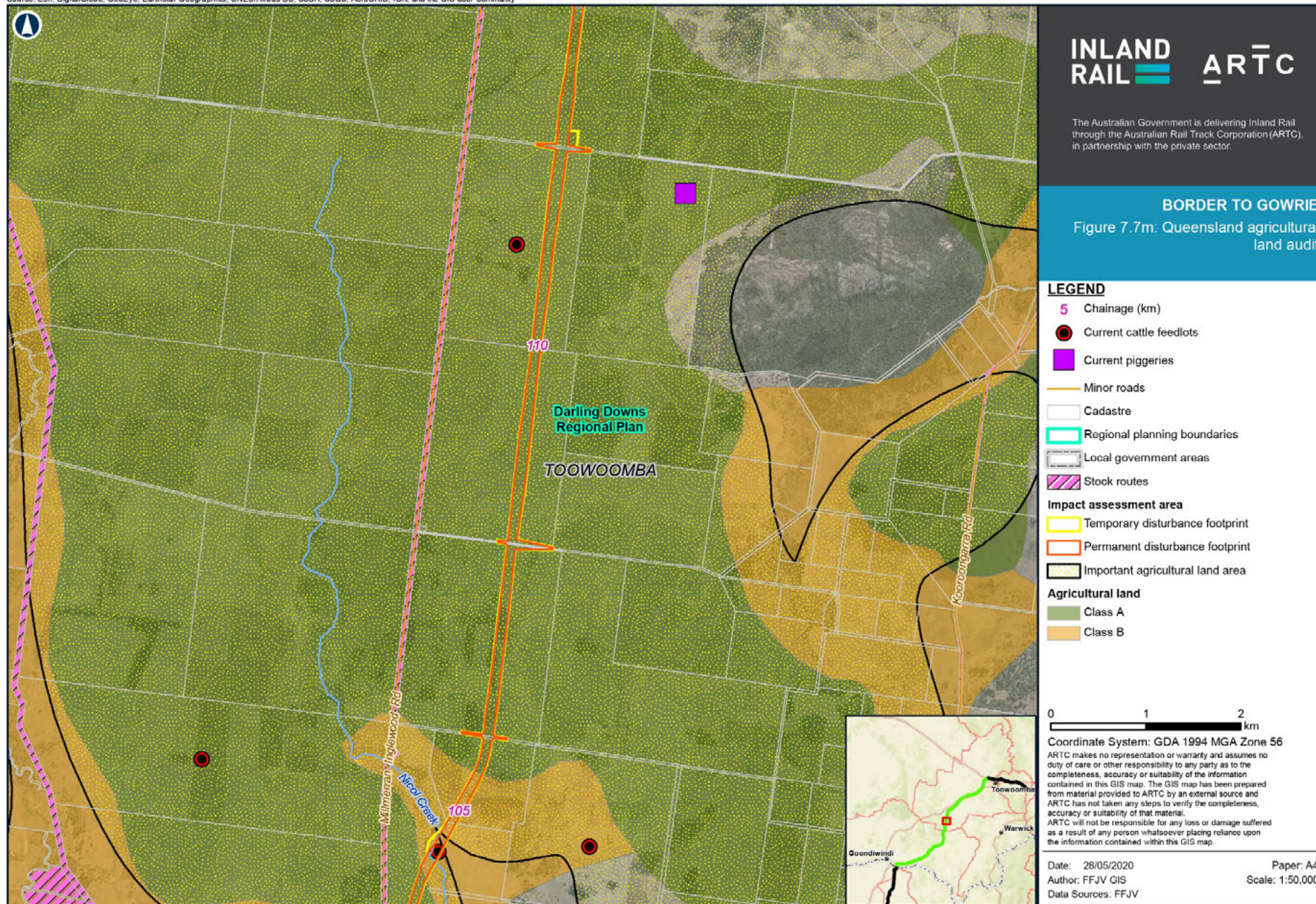
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



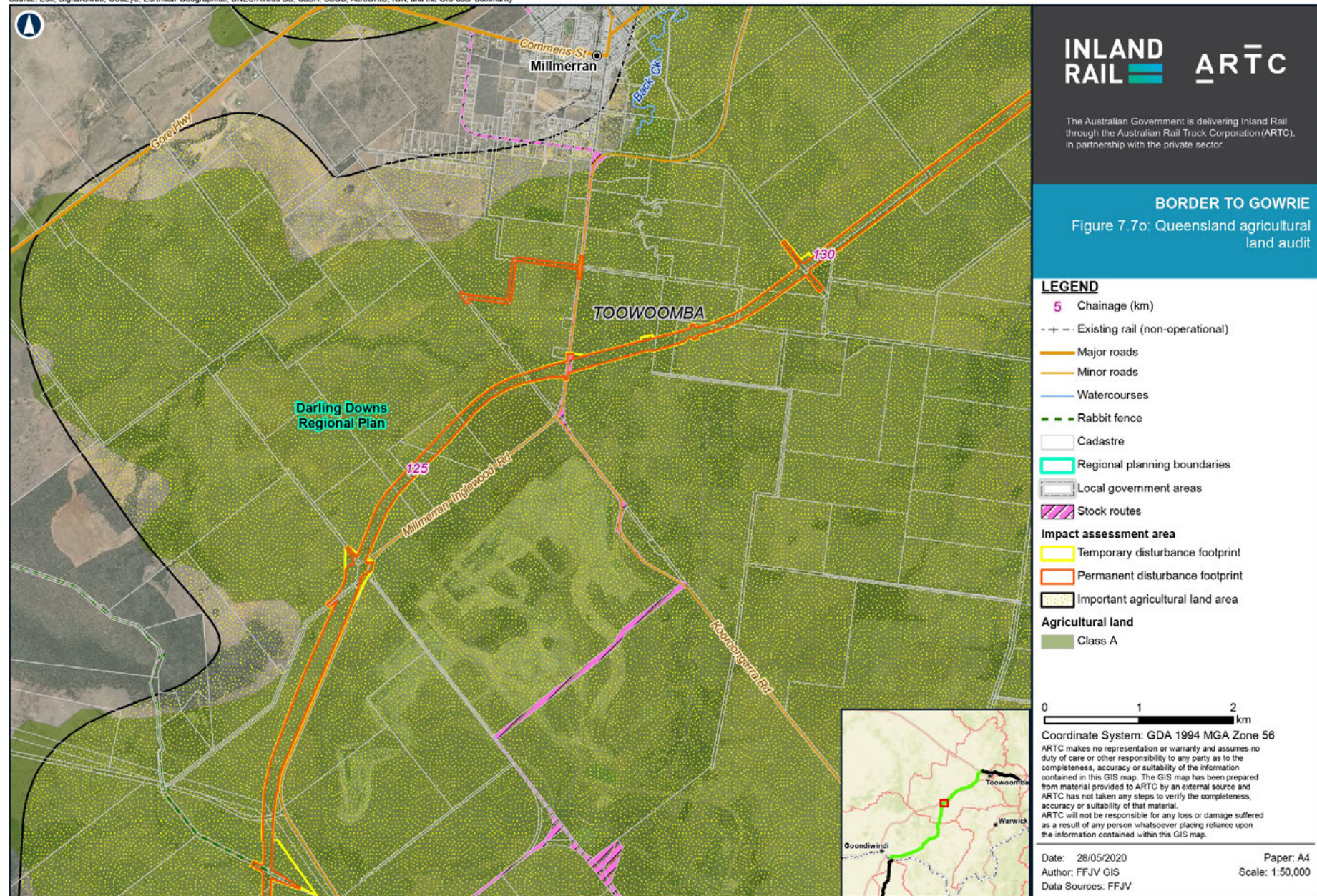
Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

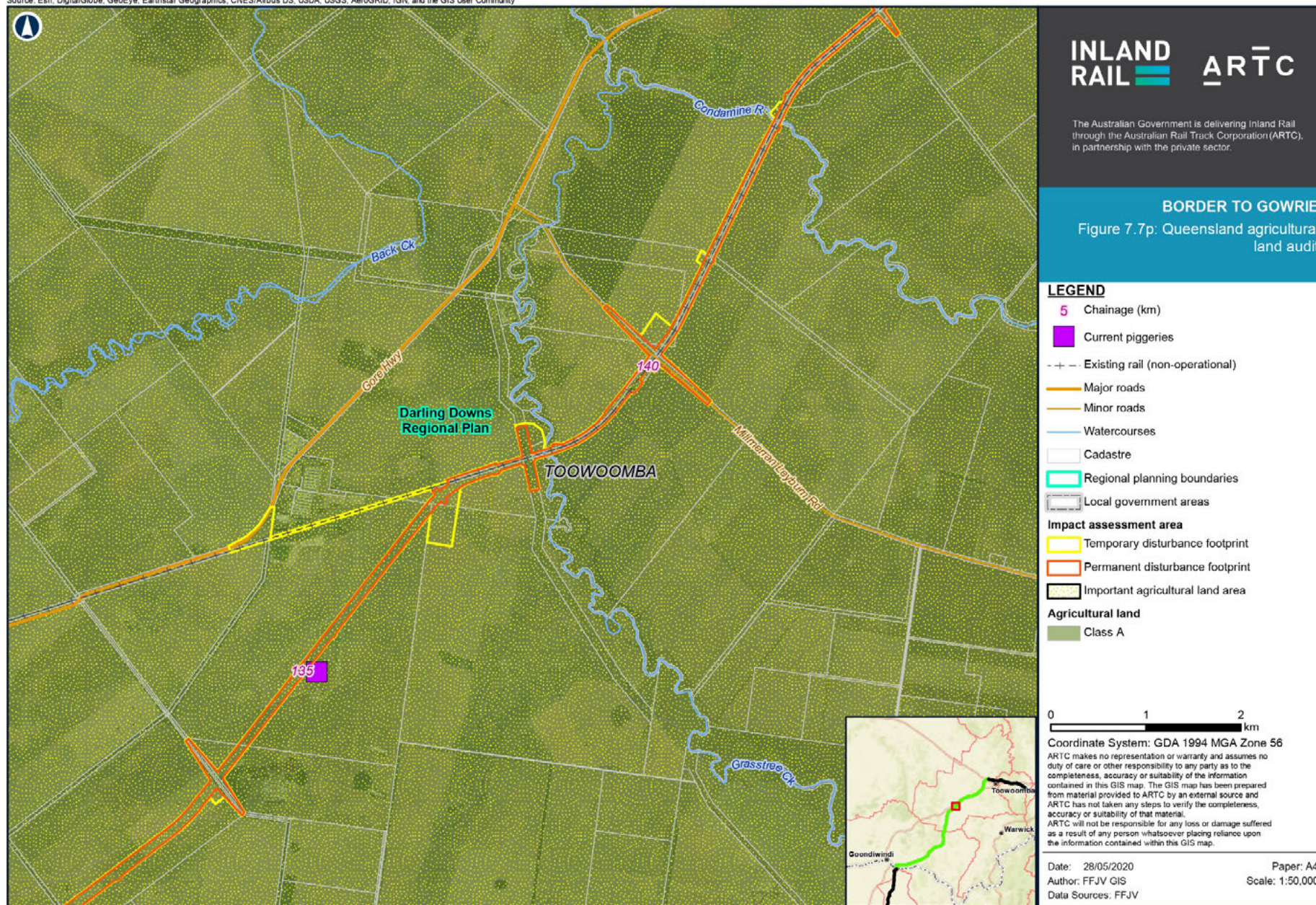


Map by: LUC/RB/CB/KG/GN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

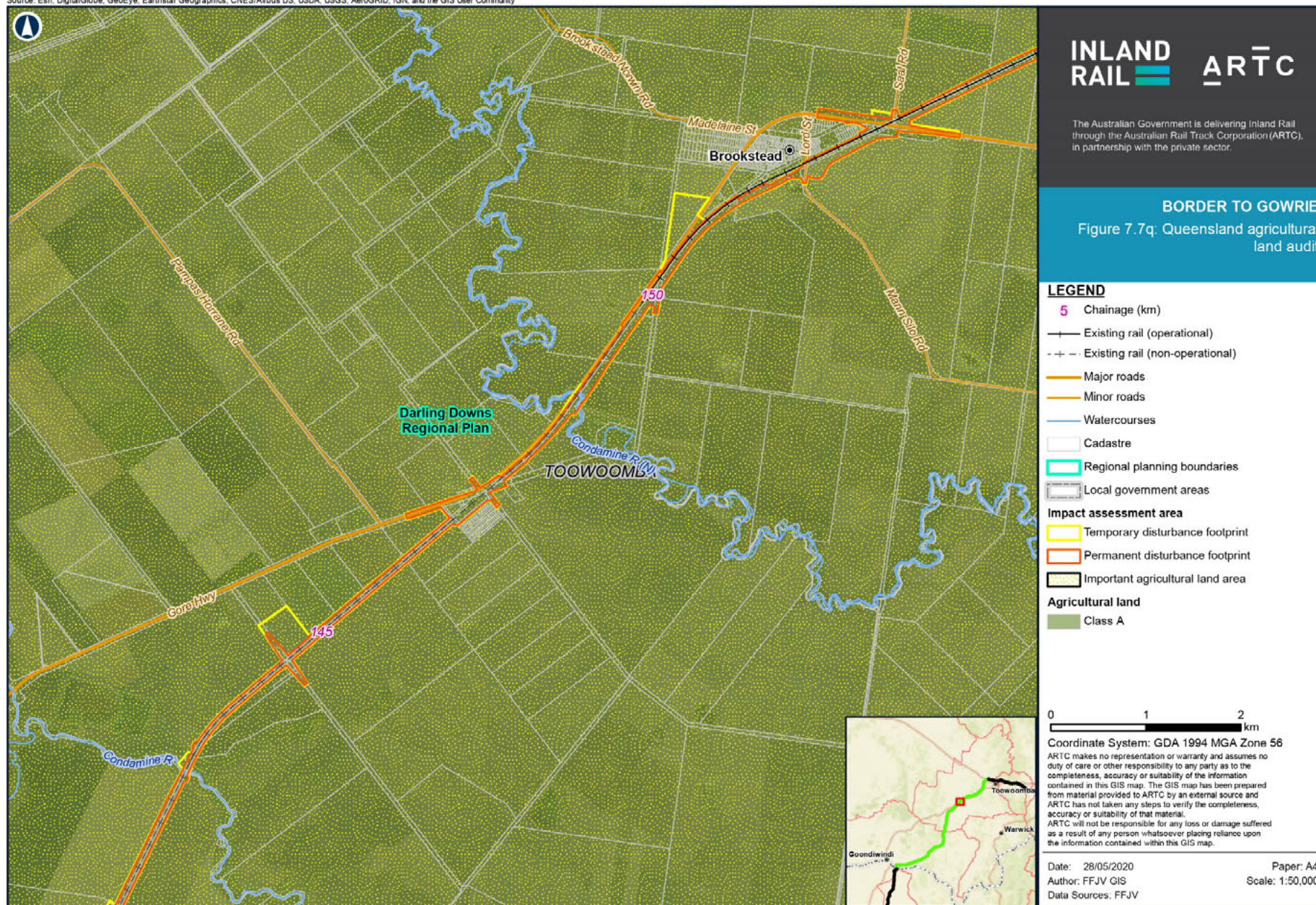
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

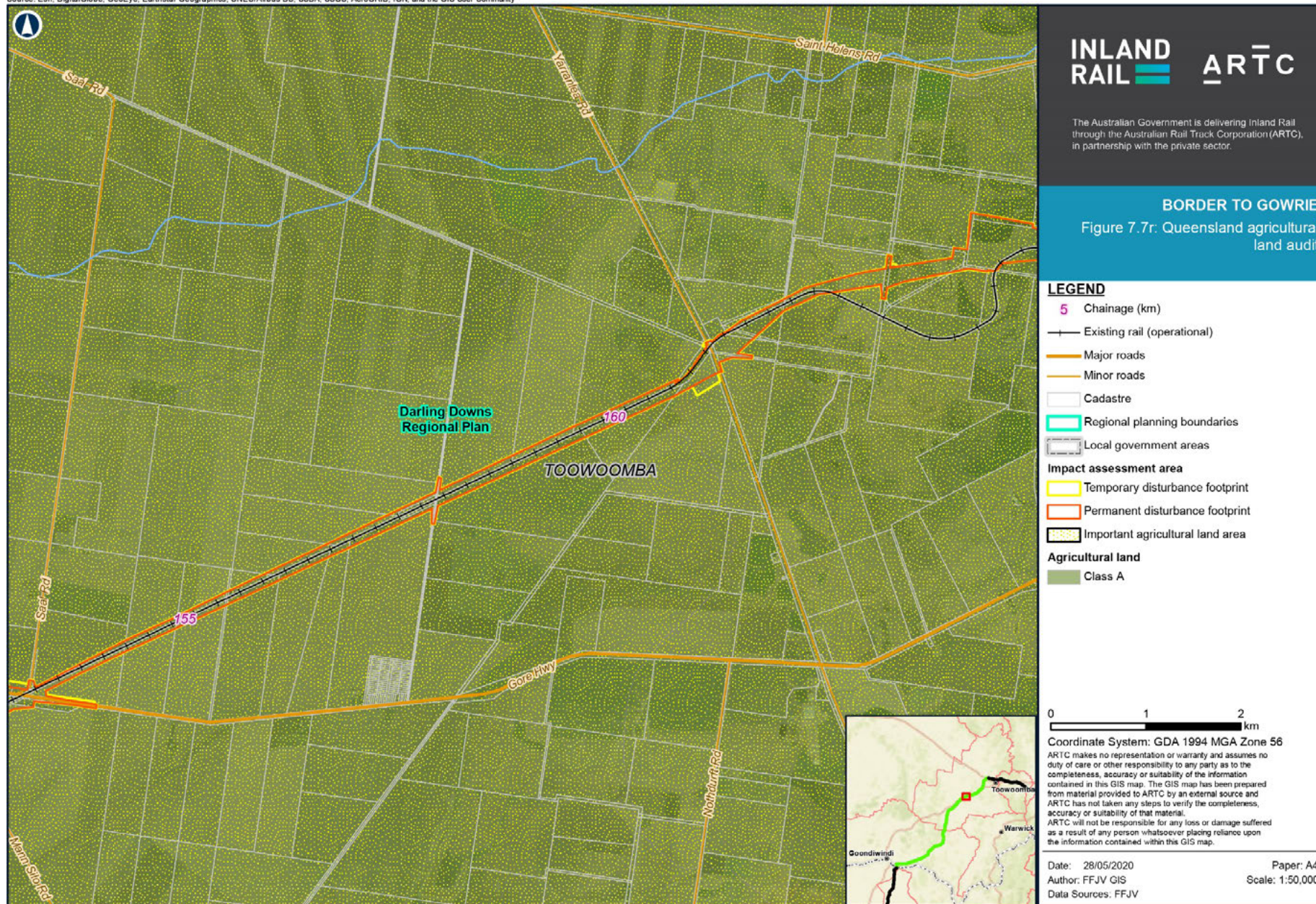


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

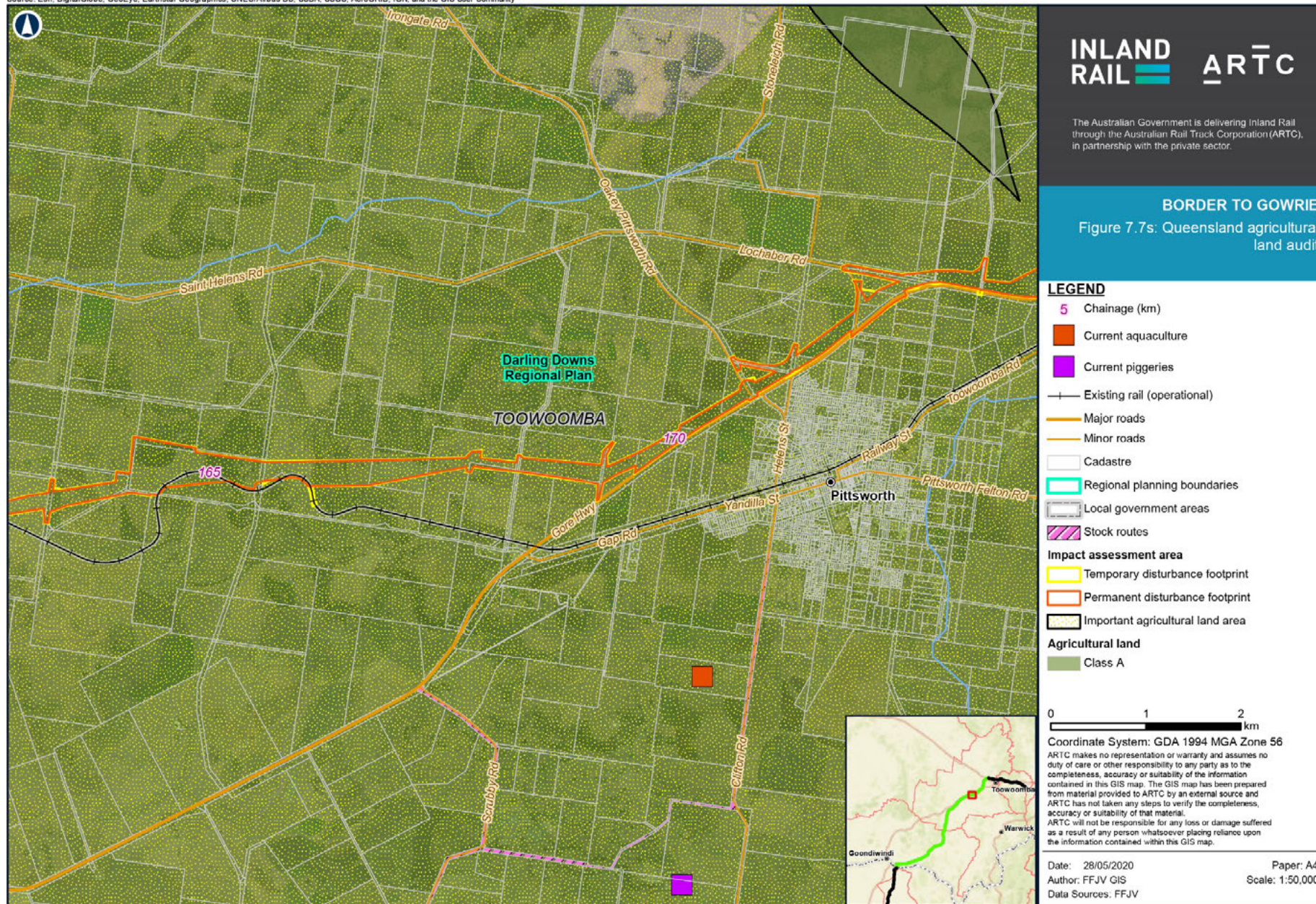


Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



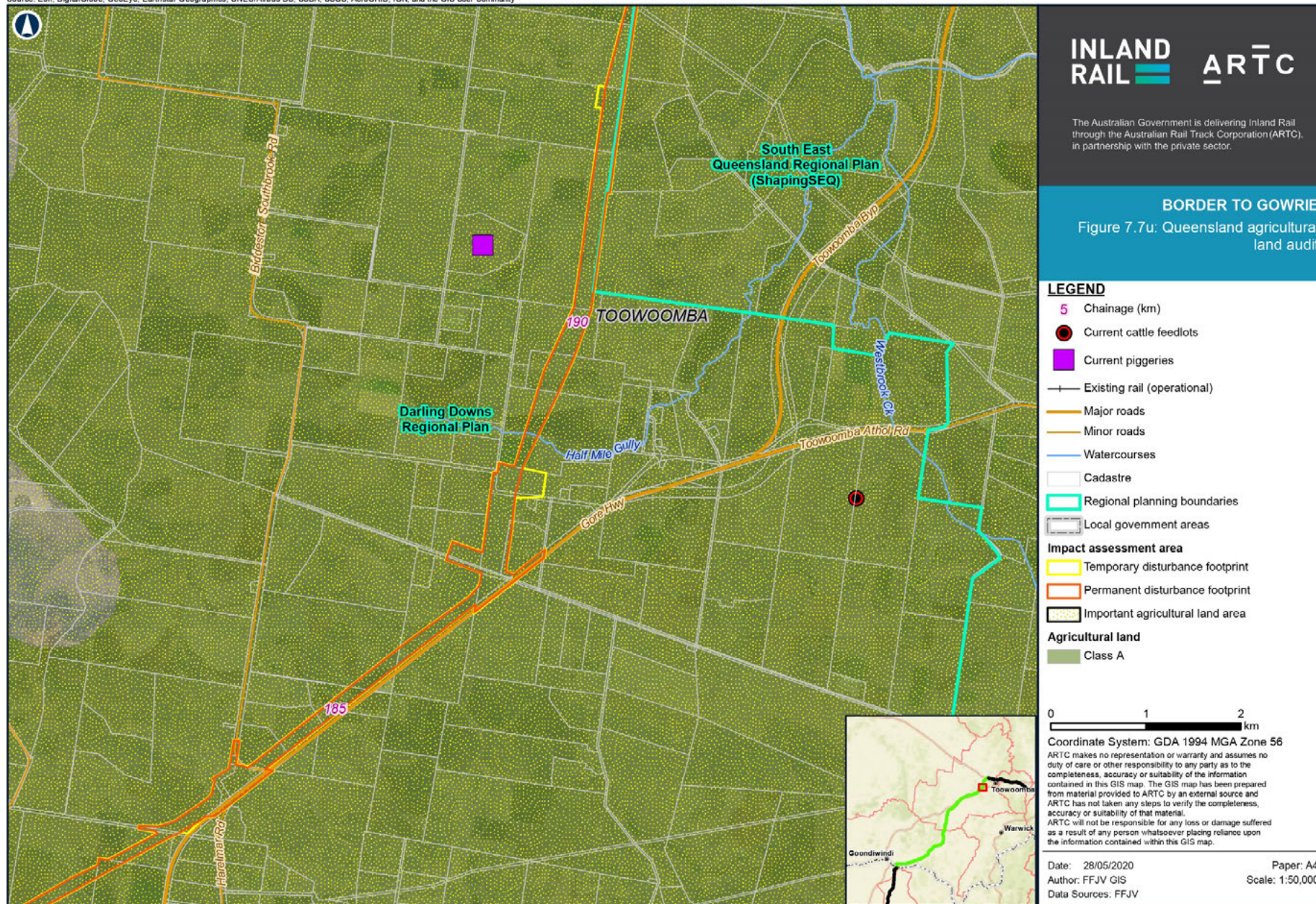
Map by: LUC/RB/CB/KG/GN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



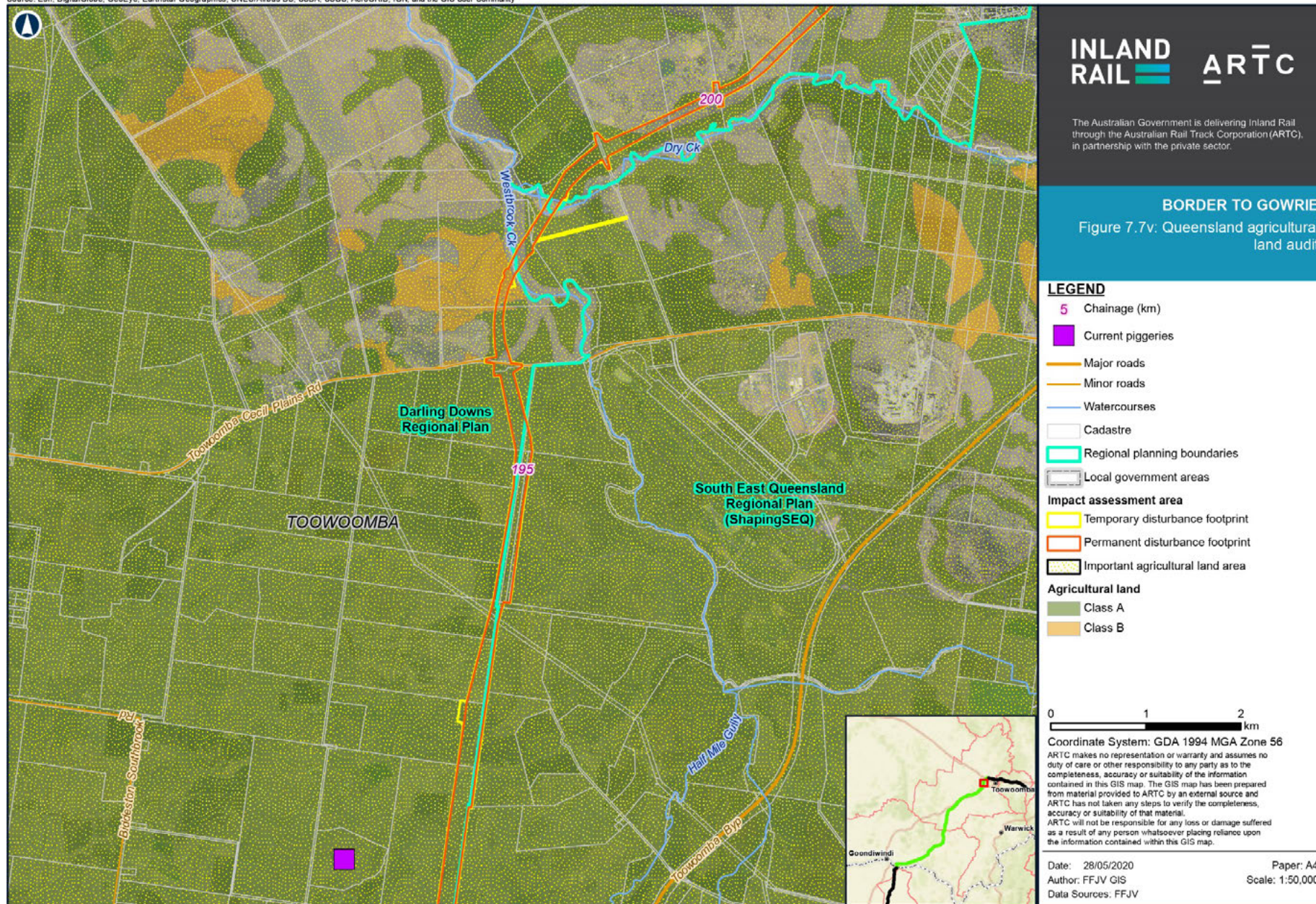
Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_82\GIS\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



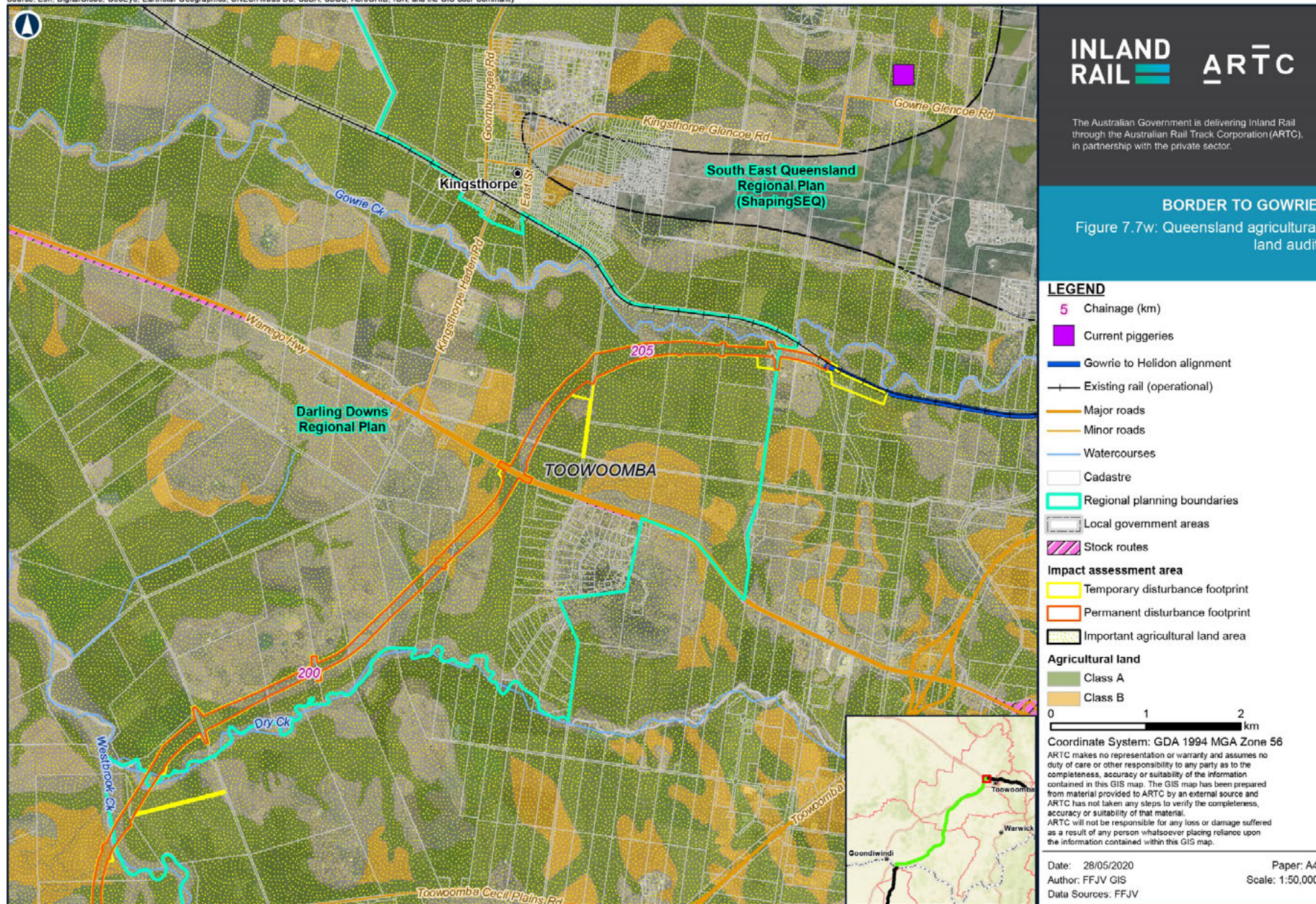
Map by: LUC/RB/CB/KG/GN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Map by: LUC/RB/CB/KG/IGN Z:\GIS\GIS_310_B2G\Tasks\310-ESV-201901091112_Land_Use_and_Tenure\310-ESV-201901091112_ARTC_Fig7.7_GLD_AgricultureA4_v6.mxd Date: 28/05/2020 16:24

7.5.3 Future land use intent and development activity

7.5.3.1 Future land use intent

A review of the relevant statutory land-use planning instruments has been undertaken to identify the planned future land-use intent, and preferred pattern of development within the Project footprint. The relevant instruments are the:

- ▶ SPP (July 2017)
- ▶ *Darling Downs Regional Plan* (October 2013)
- ▶ ShapingSEQ (August 2017)
- ▶ *Goondiwindi Region Planning Scheme 2018*
- ▶ *Toowoomba Regional Planning Scheme 2012*.

State Planning Policy

The SPP expresses 17 State interests in land-use planning and development across the following five key themes:

- ▶ Liveable communities and housing
- ▶ Economic growth
- ▶ Environment and heritage
- ▶ Safety and resilience to hazards
- ▶ Infrastructure.

A summary of each State interest and its relevance to the Project is provided in Table 7.20.

TABLE 7.20 STATE PLANNING POLICY STATE INTERESTS

State interest	State interest summary statement	Relevance to Project
Liveable communities and housing		
Housing supply and diversity	Diverse, accessible and well-served housing, and land for housing, is provided and supports affordable housing outcomes.	✓ The Project footprint traverses residential land use when located within or nearby the townships of Yelarbon, Inglewood, Millmerran, Pampas, Brookstead, Pittsworth, Southbrook, Athol, Gowrie Mountain and Kingsthorpe.
Liveable communities	Liveable, well-designed and serviced communities are delivered to support wellbeing and enhanced quality of life.	✓ The Project footprint traverses or is nearby the localities of Kurumbul, Yelarbon, Inglewood, Pampas, Brookstead, Pittsworth, Linthorpe, Southbrook, Athol and Gowrie Mountain and Kingsthorpe where there is residential land use.
Economic growth		
Agriculture	The resources on which agriculture depends are protected to support the long-term viability and growth of the agricultural sectors. Audit information has been used to support the various policy elements of the State's interest in agriculture; in particular, the identification and mapping of IAA, and agricultural land Class A and B.	✓ Land use within the Project footprint predominantly consists of open grazing land with cropping, irrigated cropping and other agricultural land uses. The Project footprint traverses the Border Region and Eastern Darling Downs IAAs and land classified as both Class A and Class B agricultural land.
Development and construction	Employment needs, economic growth, and a strong development and construction sector are supported by facilitating a range of residential, commercial, retail, industrial, and mixed-use development opportunities.	✓ The Project will generate significant employment and economic growth, and support for the construction sector. The Project is part of a larger Inland Rail Program of works. It is anticipated that 16,000 jobs will be required program-wide at the peak of construction, with an average of 800 jobs per annum over the 10-year construction period. At a local level, the Project also has the potential to catalyse the development and growth of regional intermodal hubs, such as InterLinkSQ, Toowoomba Wellcamp Airport and Charlton-Wellcamp Enterprise Area.

State interest	State interest summary statement	Relevance to Project
Mining and extractive resources	Extractive resources are protected and mineral, coal, petroleum and gas resources are appropriately considered to support the productive use of resources, a strong mining and resource industry, economical supply of construction materials and avoid land-use conflicts where possible.	✓ The Project footprint traverses one mining lease, three exploration permits for coal and two mineral development licences for coal. The Project footprint also traverses three coal resource areas. At its closest point, the permanent footprint is located approximately 355 m west of the resource/processing area and 170 m to the west of the southeast corner of the separation area for KRA 120, avoiding land within the separation and processing areas. The temporary footprint includes allowance for a temporary haulage route to be established between the Project and KRA 120 to enable material to be potentially sourced from this location, subject to agreement with the owner/operator. As a result, this nominated temporary haulage route encroaches marginally into the separation area and the western boundary of the resource/processing area for KRA 120. Other KRAs located within the general vicinity of the Project include KRA 2 (approximately 5.6 km to the southeast), KRA 3 (approximately 1.8 km to the southeast) and KRA 163 (approximately 2 km to the west). As these KRAs are located at least 1 km from the Project footprint, they are not assessed further in this chapter.
Tourism	Tourism planning and development opportunities that are appropriate and sustainable are supported and the social, cultural and natural values underpinning tourism developments are protected.	✓ The Project footprint encroaches on the Whetstone State Forest and traverses the Bringalily State Forest, which are protected for native timber production.
Environment and heritage		
Biodiversity	Matters of State environmental significance (MSES) are valued and protected, and the health and resilience of biodiversity is maintained or enhanced to support ecological processes. The State seeks to ensure that development is located in areas that avoid significant impacts on MSES and, where adverse impacts cannot be reasonably avoided, that they are minimised. This State interest also requires that ecological processes and connectivity are maintained or enhanced by avoiding fragmentation of MSES.	✓ The Project footprint is identified as being located within mapped areas of matters of national environmental significance (MNES) and MSES.
Coastal environment	The coastal environment is protected and enhanced while supporting opportunities for coastal-dependent development, compatible urban form, and maintaining appropriate public use of, and access to, long, State coastal land.	✗ The Project footprint is far removed from the coastal environment, including the Coastal Management District and Coastal Zone.

State interest	State interest summary statement	Relevance to Project
Cultural heritage	The cultural heritage significance of heritage places and heritage areas, including places of Aboriginal and Torres Strait Islander cultural heritage, is conserved for the benefit of the community and future generations. This State interest seeks to ensure matters of Aboriginal cultural heritage and Torres Strait Islander cultural heritage, and world, national, State, and local heritage are appropriately identified, conserved and considered.	✓ Places of Indigenous and non-Indigenous cultural heritage were identified within the Project footprint. Indigenous cultural heritage will be identified, assessed and managed under a Cultural Heritage Management Plan. In assessing non-Indigenous heritage values, 34 areas of interest were identified within the cultural heritage Project footprint, which is defined as the Project footprint plus 50 m. Further details are provided in Chapter 17: Cultural Heritage.
Water quality	The environmental values and quality of Queensland waters are protected and enhanced. This State interest seeks to ensure that development facilitates the protection or enhancement of environmental values and the achievement of water quality objectives for Queensland waters.	✓ The Project is located within the Condamine–Balonne Rivers catchment and the Queensland section of the Border Rivers catchment. The Project alignment crosses the full width of 15 major waterways (stream order ≥ 3) and 66 minor waterways (stream order < 3). The Project footprint and surrounds are subject to periods of inundation.
Safety and resilience to hazards		
Emissions and hazardous activities	Community health and safety, and the natural and built environment, are protected from potential adverse impacts of emissions and hazardous activities. The operation of appropriately established industrial development, major infrastructure, and sport and recreation activities is ensured.	✓ The Project involves the construction and operation of major infrastructure. Hazards and risk to human health, safety, environment and property imposed by the Project throughout the design, construction, operation and decommissioning phases are addressed in Chapter 19: Hazard and Risk.
Natural hazardous, risk and resilience	The risks associated with natural hazards, including the projected impacts of climate change, are avoided or mitigated to protect people and property and enhance the community's resilience to natural hazards.	✓ The Project footprint is located within natural hazard areas identified from local government planning schemes, including bushfire-prone and flood-hazard areas.
Infrastructure		
Energy and water supply	The timely, safe, affordable, and reliable provision and operation of electricity and water supply infrastructure is supported, and renewable energy development is enabled.	✓ The Project footprint traverses, and/or is within proximity to, existing and approved major electricity infrastructure, and corridors and water utilities.
Infrastructure integration	The benefits of past and ongoing investment in infrastructure and facilities are maximised through integrated land-use planning. This State interest seeks to ensure that development achieves a high level of integration with infrastructure planning, that it optimises the location of future infrastructure and that development occurs in areas currently serviced by infrastructure or are located in a logical and orderly location, form and sequence to enable the cost-effective delivery of State and local infrastructure.	✓ The Project will involve the expansion of existing infrastructure, involving the integration of the Inland Rail Program within the existing South Western and Millmerran Branch Line rail corridors. The Project has been strategically co-located with existing road and rail corridors where possible.

State interest	State interest summary statement	Relevance to Project
Transport infrastructure	The safe and efficient movement of people and goods is enabled, and land-use patterns that encourage sustainable transport are supported.	✓ The intent of the Inland Rail Program is to establish a rail link between Melbourne to Brisbane, to serve future rail freight demand and stimulate growth for inter-capital and regional/bulk rail freight. The Project also has potential to catalyse development and growth of nearby regional intermodal hubs associated with InterLinkSQ, and the Toowoomba Wellcamp Airport and Charlton–Wellcamp Enterprise Area.
Strategic airports and aviation facilities	The operation of strategic airports and aviation facilities is protected and the growth and development of Queensland's aviation industry is supported.	✓ No strategic airports or aviation facilities are traversed by the Project footprint. The closest strategic airport is the Toowoomba Wellcamp Airport. At its closest point, the Project alignment is approximately 1 km and the Project footprint is approximately 865 m to the west of the northern limit of the runway for Toowoomba Wellcamp Airport. The only other strategic airport located within the general vicinity of the Project is the Army Aviation Centre Oakey. This airbase is located approximately 11.4 km from the Project footprint. The Project is not expected to impact on the following regional airfields, due to the separation distance from each: ▶ Inglewood airfield (not certified or registered)—4.0 km from the Project ▶ Millmerran airfield (not certified or registered)—3.9 km from the Project ▶ Pittsworth airfield (not certified or registered)—2.5 km from the Project ▶ Southbrook airfield (not certified or registered)—2.4 km from the Project ▶ Wyreema airfield (not certified or registered)—10.0 km from the Project ▶ Cambooya airfield (not certified or registered)—13.5 km from the Project ▶ Colanya airfield (not certified or registered)—6.0 km from the Project.
Strategic ports	The operation of strategic ports and priority ports is protected and their growth and development are supported. This State interest recognises Queensland ports as a major component of both the natural and state supply chain and the defence system.	✗ While the Inland Rail Program proposes to use the existing freight line from Acacia Ridge to the Port of Brisbane, this particular Project is not located within proximity to the Port. The Project will not impact on the safety or efficient operation of any strategic ports.

Darling Downs Regional Plan 2013

The *Darling Downs Regional Plan* (Regional Plan) (DSDIP, 2013b) is the statutory regional plan for the Darling Downs region. The Regional Plan establishes outcomes for the region and policies to achieve them. The Regional Plan's policies aim to protect priority agricultural land uses while supporting the co-existence of opportunities for the resources sector.

The Project is located within the southern and eastern areas of the Darling Downs region. The southern area is the 'interstate connection' of the region, with traditional industries of forestry and agriculture playing an important role within the region's economy. These industries, and the area's proximity to and connection with northern NSW, present opportunities to strengthen interstate economic relationships. The area has access to several strategic highways, including the Gore, Warrego and Cunningham highways, which connect the southwest and the southeast. The South Western Line is also of importance to the area, supporting the transportation of agricultural and resource commodities to domestic and international export markets.

The eastern area of the Darling Downs region is identified to serve as 'the gateway' to the region, supporting an extensive network of freight routes into and out of the region. The eastern Darling Downs area is the major transport and service hub of the region as it is the location of the junction of several strategic highways and railway lines. The area facilitates the movement of goods and resources between Queensland's southeast and west, enabling access to domestic and international markets through the strategic port facilities along the east coast.

The Regional Plan also identifies priority outcomes sought for the region's transport network. These include the prioritisation of transport programs to improve freight movement and reduce conflicts in urban areas and with other network users. Further freight tasks, including supply chains for coal, petroleum products, grains, cereals, and meat and livestock from the Darling Downs to the Port of Brisbane, are expected to drive the demand for rail transport and infrastructure in the region.

The Regional Plan outlines numerous opportunities for leveraging rail infrastructure to boost economic development in the region. This includes the long-term aspiration of a modal shift towards increased rail usage to increase capacity while alleviating some of the constraints on the region's road network. A modal shift towards increased rail usage is identified within the Regional Plan as having the potential to alleviate constraints on the region's road network, reducing maintenance costs and improving safety through a reduction in heavy vehicles.

The Regional Plan also identifies that increased rail capacity in the region could provide opportunities for intermodal facilities, including hubs east of Goondiwindi and the proposed logistics hub in Toowoomba's Charlton Wellcamp industrial precinct (the Toowoomba Enterprise Hub). Additional rail capacity may also improve the productivity of under-used grain-handling facilities located on the existing rail network.

ShapingSEQ (August 2017)

ShapingSEQ is the statutory regional plan for the SEQ region. Relevant to the Project, ShapingSEQ identifies Inland Rail as a region-shaping infrastructure priority for the State.

ShapingSEQ also identifies agricultural land (Class A and Class B) and IAAs as regionally significant natural resources to be protected from loss and fragmentation.

The Project is located within the western sub-region of SEQ as identified within ShapingSEQ. The Western sub-region encompasses Ipswich, Somerset, Lockyer Valley and Scenic Rim LGAs, and Toowoomba City, and contains SEQ's major rural production and regional landscape areas. The sub-region is identified to be characterised by a predominantly regional and rural lifestyle, with a reputation as being one of the most fertile farmlands in the world.

ShapingSEQ outlines the western sub-region's role as the western gateway, connecting SEQ to the rural areas of Darling Downs and South Burnett and providing critical freight connections between northern NSW and the southern states. The sub-region is identified as an emerging national and global-oriented economy leveraging major investments in airport, logistics and freight infrastructure.

Within ShapingSEQ, the Western Gateway is identified as a Regional Economic Cluster (REC) supporting significant agricultural and resource activities and priority sectors of manufacturing, transport and logistics, and health and knowledge. The Western Gateway REC is strategically located as the gateway to the west and at the intersection of three national highways (Warrego Highway, Gore Highway and New England Highway). The ongoing development of the Toowoomba Wellcamp Airport, Toowoomba Enterprise Hub (Charlton-Wellcamp Enterprise Area), Toowoomba Second Range Crossing (now part of the Warrego Highway), as well as long-term investments, such as the Inland Rail Program, will further strengthen this regional hub as a significant inland port.

Local Government Planning Schemes

The Project footprint is located within the Goondiwindi and Toowoomba LGAs. As such, the planning schemes relevant to the Project are the *Goondiwindi Region Planning Scheme 2018* (GRC, 2018a) and the *Toowoomba Regional Planning Scheme 2012* (TRC, 2012).

The Project generally cannot be made assessable development under either planning scheme as the Project is:

- ▶ Government-supported transport infrastructure in accordance with Schedule 6, Part 5, Section 26(2) of the *Planning Regulation 2017*; however certain Project impacts, such as potential modification of the Yelarbon levee, may remain assessable against the local planning scheme
- ▶ Development that is adjacent and ancillary to the use, maintenance, repair or upgrading of the Project as defined under Schedule 6 of the TI Act (for example, non-resident workforce accommodation and borrow pits).

Further information on approvals triggered by the Project is provided in Chapter 3: Legislation and Project Approvals Process.

Although the provisions of the planning schemes do not apply, the zoning intent for the area as determined by the planning schemes has been taken into consideration when determining the current and future land-use context in the area. Table 7.21 and Table 7.22 discuss the Project in the context of the Goondiwindi and Toowoomba regional council planning schemes.

Goondiwindi Regional Council Planning Scheme

The *Goondiwindi Region Planning Scheme 2018* (GRC, 2018a) outlines the purpose and intent for each zone and identifies the preferred development to be achieved. Zones traversed by the Project footprint within Goondiwindi LGA and their relevance to the Project are outlined in Table 7.21.

TABLE 7.21 GOONDIWINDI REGION PLANNING SCHEME ZONES WITHIN THE PROJECT FOOTPRINT

Zone	Purpose/Intent	Project content
Rural Precincts traversed: ▶ Alluvial Plains Precinct ▶ Kumbarilla Rises Precinct ▶ Horticulture 1 Precinct ▶ Horticulture 2 Precinct ▶ Horticulture 3 Precinct	The purpose of the rural zone is to provide for rural uses, including cropping, intensive horticulture, intensive animal industries etc. Within the rural zone, opportunities are provided for non-rural uses that are compatible with agriculture, the environmental features and landscape character of the rural area and where the uses do not compromise the long-term use of the land for rural purposes. The purpose of the rural zone includes providing for the establishment of a limited range of complementary non-rural uses that promote sustainable economic diversification, or which provide a service to rural areas of the Goondiwindi Region. All land within the rural zone is subject to a Rural Zone precinct, which determines the minimum lot size and frontages for development within the rural zone.	The Project footprint is predominately located within the rural zone when traversing through the Goondiwindi LGA. The Project footprint traverses through the following precincts of the rural zone: ▶ Alluvial Plains precinct when traversing from the NSW/QLD border to Yelarbon ▶ Kumbarilla Rises precinct when traversing within the existing South Western Line rail corridor from Yelarbon to Whetstone and when traversing through Canning Creek ▶ Horticulture 1, 2 and 3 precincts when traversing through the Inglewood locality.
Township	The purpose of the township zone is to provide for small to medium size urban settlements located within an urban area. Development within the township zone is to provide for a mix of uses that support the needs of the local community. The purpose of the township zone is to accommodate an appropriate mix of low intensity uses in small townships, including Yelarbon, and maintaining the amenity and character of these small townships.	At Yelarbon, the Project footprint is located within the existing South Western Line rail corridor. Where the existing rail corridor requires widening for the Project, the Project footprint traverses adjacent land parcels within the township zone.

Toowoomba Regional Planning Scheme

The *Toowoomba Regional Planning Scheme* (TRC, 2012) sets out the purpose and intent for each zone and identifies the preferred development to be achieved. Zones traversed by the Project footprint within Toowoomba LGA and their relevance to the Project are outlined in Table 7.22.

TABLE 7.22 TOOWOOMBA REGIONAL PLANNING SCHEME ZONES WITHIN THE PROJECT FOOTPRINT

Zone	Purpose/Intent	Project context
Rural	The purpose of the rural zone is to provide for a wide range of rural uses including cropping, intensive horticulture, intensive animal industries, animal husbandry, animal keeping and other primary production activities.	Land within the Project footprint is predominately within the rural zone when traversing through the Toowoomba LGA.
Community facilities	The purpose of the community facilities zone is to provide for community related activities and facilities, whether under public or private ownership. These may include provision of municipal services, public utilities, government installations, hospitals and schools, transport and telecommunication networks and community infrastructure of an artistic, social or cultural nature. The zone facilitates the effective operation and optimum accessibility of community related activities.	The Project footprint traverses land within the community facilities zone when using the existing Millmerran Branch Line rail corridor.
Limited development (constrained land)	The purpose of the limited development (constrained land) zone is to identify land known to be significantly affected by one or more development constraints (such as past or future mining activities, flooding, land contamination, defence requirements, historical subdivisions and buffer areas).	The Project footprint traverses approximately eight small land parcels within the limited development (constrained land) zone when traversing through the locality of Pampas.
Open space	The purpose of the open space zone is to provide for local, district and regional scale parks that serve the recreational needs of a wide range of residents and visitors.	The Project footprint traverses one parcel within the open space zone when traversing through the locality of Pampas.
Township	The purpose of the township zone is to provide for small-to-medium size service centres located within a rural area. Development within the township zone provides for a mix of uses, including residential, retail, business, education, industrial, community purpose, recreation and open space, which support the needs of the local rural community.	At Brookstead, the impact assessment zone is located within the existing Millmerran Branch Line rail corridor but expands wider than the existing corridor, traversing adjacent land parcels within the township zone.
High impact industry	The purpose of the high-impact industry zone is to provide for high impact industry uses. Such uses within the high impact industry zone may include abattoirs, concrete batching plants, boiler making and engineering and metal foundry.	The Project footprint traverses the north-western corner of a land parcel within the high impact industry zone at Pittsworth. This land is associated with Moore Trailers.
Medium impact industry	The purpose of the medium-impact industry zone is to provide for medium-impact industry uses. Such uses within the medium-impact industry zone may include, spray painting and surface coating, wooden and laminated product manufacturing.	The Project footprint traverses land within the medium impact industry zone to the west of Charlton/Gowrie Junction. This medium impact industry zone is associated with the Toowoomba Enterprise Hub (Charlton–Wellcamp Enterprise Area).

7.5.3.2 Development activity

An assessment of planned future development activity has been undertaken to identify recent development approvals (within the last five years) and applications undergoing assessment for development relevant to the Project. A desktop investigation of the status of major projects within the region was also undertaken. The five-year scope of the assessment accounts for developments approved under the repealed *Sustainable Planning Act 2009* (Qld), which had a standard currency period of four years. The five-year period also captures development approvals under the new Planning Act, which have currency periods of up to six years.

The assessment of projects has included a review of the following:

- ▶ Local Council Planning and Development Online records for applications assessed under the TRC and GRC planning schemes
- ▶ DSDTI coordinated projects
- ▶ NSW Department of Planning, Industry and Environment Major Projects Register
- ▶ Economic Development Queensland (EDQ) current and approved development applications
- ▶ DSDMIP current and approved private infrastructure facilities
- ▶ Infrastructure Australia *Infrastructure Priority List* (2016b)
- ▶ Queensland *State Infrastructure Plan* (DSDMIP, 2018b)
- ▶ Queensland 'Building our Regions' funded projects
- ▶ Community infrastructure designations
- ▶ Ministerial infrastructure designations
- ▶ Local government infrastructure designations
- ▶ Transport and Roads Investment Program
- ▶ Local Government Infrastructure Plans (LGIPs).

A summary of development activity within the impact assessment area is provided in Table 7.23.

TABLE 7.23 DEVELOPMENT ACTIVITY WITHIN THE IMPACT ASSESSMENT AREA

Project name and proponent	Locality	Description	Development stage	Relationship to the Project
Goondiwindi LGA				
Material Change of Use—Rural Activities—Intensive Animal Industry Smithfield Cattle Co.	'Sapphire' Kildonan Road, Goondiwindi (Ch 8.8 km– Ch 10.4 km)	A development permit has been issued for the expansion of the feedlot	Original approval by GRC on 18 May 2018. Change application approved on 13 August 2019.	The Project footprint adjoins the northern boundary
Toowoomba LGA				
Material Change of Use—Renewable Energy Facility Solar Farm and Subdivision by lease Yarranlea Solar Pty Ltd	752 Murlaggan Road, Yarranlea (Ch 161.2 km– Ch 162.2 km)	A development permit has been issued for a 100MW solar farm, to be completed over four stages (Council reference: MCUI/2016/3225)	Approved by TRC on 12 December 2016	The Project footprint is located to the south of this approved development
Material Change of Use—Intensive Horticulture and Rural Industry Asterion (Australia) Pty Ltd	147 Gowrie Mountain Rd, Kingsthorpe (Ch 193.6 km– Ch 195.2 km)	A development permit has been issued for a medicinal cannabis propagation and processing facility, comprised of four greenhouse modules, a new Powerlink substation and generators and associated buildings and infrastructure. (Council reference: MCUC/2019/1740).	Approved by TRC on 4 November 2019	The Project footprint slightly traverses along the western boundary of the property

Project name and proponent	Locality	Description	Development stage	Relationship to the Project
Material Change of Use—Warehouse Interlink Global Logistics Pty Ltd ATF InterLink Global Logistics Centre Trust	167 Draper Road, Charlton	A development permit has been issued for a warehouse for the Interlink intermodal freight terminal (Council reference: MCUC/2018/5960)	Approved by TRC on 24 May 2016, with approval to extend the currency period until 2024 approved on 9 January 2020	The Project footprint traverses the boundary of the property

NSW Department of Planning, Industry and Environment's 'Major Projects'

North Star to Border—Inland Rail (ARTC)	Gwydir and Moree Plains LGAs	ARTC are seeking approval to construct and operate the North Star to NSW/Queensland border section of Inland Rail. The North Star to NSW/Queensland Border Project is generally located in the existing, non-operational Boggabilla rail corridor north of the village of North Star.	Draft EIS currently being prepared by ARTC.	The proposal is the proceeding alignment from the North Star to NSW/Queensland border alignment
---	------------------------------	---	---	---

Qld Coordinator- General 'Coordinated Projects'

Gowrie to Helidon—Inland Rail (ARTC)	Toowoomba LGA, Lockyer Valley LGA	ARTC are seeking approval to construct and operate the Gowrie to Helidon section of Inland Rail	Final Terms of Reference for EIS were issued 9 August 2017. Draft EIS is being prepared by ARTC.	The Project connects to the Gowrie to Helidon Project
--------------------------------------	-----------------------------------	---	--	---

EDQ—Development Projects

There are no Priority Development Areas or State Development Areas located within the Project footprint.

Private infrastructure facilities in accordance with the SDPWO Act

There are no approved private infrastructure facilities traversed by Project footprint.

Infrastructure Australia Infrastructure Priority List

There are no projects on the Infrastructure Priority List traversed by the Project footprint.

QLD State Infrastructure Plan

Advanced Train Management System (ATMS) implementation on ARTC network	Nationwide	ATMS is designed to support ARTC's objectives of improving rail network capacity, operational flexibility, train service availability, transit times, rail safety and system reliability	Continual	ATMS signalling will be implemented as part of the construction of the Project
--	------------	--	-----------	--

QLD 'Building our Regions' funded Projects

No completed or shortlisted Building our Regions funded projects are traversed by the Project footprint.

Infrastructure designations under the repealed *Integrated Planning Act 1997* (Qld), *Sustainable Planning Act 2009* (Qld) and now *Planning Act*

The Project footprint traverses the following Infrastructure Designations made under the repealed *Integrated Planning Act 1997* (Qld):

- ▶ Interconnection to the National Grid, Bulli Creek 500 kV Substation and Braemar 500 V Substation (ID reference 40) at Whetstone
- ▶ 330 kV transmission line connection—Millmerran power station to Bulli Creek substation (ID reference 41) at Clontarf.

Project name and proponent	Locality	Description	Development stage	Relationship to the Project
Infrastructure designations under local government planning schemes				
No infrastructure designations made by the GRC under the <i>Planning Act 2016</i> (Qld) are traversed by, or adjacent to, the Project footprint. Land adjacent to the Project footprint contains the following property designated for community infrastructure by TRC under the <i>Planning Act 2016</i> (Qld): ▶ Pittsworth Emergency Services Precinct comprising a new ambulance station, and fire station and associated facilities at Pittsworth (Lot 2 on SP216658).				
Queensland Transport and Roads Investment Program				
No significant commitments within the Queensland Transport and Roads Investment Program (QTRIP) are identified to be traversed by the Project footprint. Network planning for the Inland Rail Program is identified as a 'State Network' commitment.				
GRC Local Government Infrastructure Plan				
No significant schedule of works within the plan are identified to be traversed by the Project footprint. Consultation with GRC during the detail design phase will be required to confirm the extent of impacts to infrastructure within the LGA. If new impacts are identified through this process, appropriate mitigation measures will be agreed with GRC for implementation during detail design, construction and/or operation.				
TRC Local Government Infrastructure Plan				
No significant schedule of works within the plan were identified to be traversed by the Project footprint. Consultation with TRC during the detail design phase will be required to confirm the extent of impacts to infrastructure within the LGA. If new impacts are identified through this process, appropriate mitigation measures will be agreed with TRC for implementation during detail design, construction and/or operation.				

7.6 Potential impacts

The construction and operation of the Project has the potential to result in direct and permanent impacts to land use and tenure within the Project footprint, with the majority of impacts occurring immediately on commencement of land acquisition and construction of the Project.

Potential impacts to land use and tenure associated with the Project in both the construction and operation phase relate to:

- ▶ Change in tenure and loss of property, including impacts to native title
- ▶ Change in land use:
 - ▶ Impacts on agricultural uses and activities:
 - Loss of agricultural land
 - Land fragmentation and disruption to access and infrastructure
 - Alterations to stock routes
 - Alterations to biosecurity fences
 - Other indirect impacts on agricultural land
 - Opportunities to support the agricultural industry.
 - ▶ Change to notable land uses
 - ▶ Sterilisation of mineral resources
 - ▶ Activities that are incompatible with adjoining development activity.
- ▶ Accessibility
 - ▶ Impacts on road network
 - ▶ Impacts to property access.
- ▶ Impacts on services and utilities
- ▶ Opportunities to support future industry development.

There will be some direct property impacts associated with the land required for the Project.

The Project has the potential to impact on the rural amenity of adjoining areas during construction and operation. This impact will result from a loss of rural character through the introduction of a heavy freight rail corridor with potential impacts relating to scenic amenity, air quality, noise and vibration, and traffic. These potential impacts are further discussed in their respective chapters: Chapter 9: Landscape and Visual Amenity; Chapter 11: Air Quality; Chapter 14: Noise and Vibration; and Chapter 18: Traffic, Transport and Access.

It is ARTC's practice to engage with all private landowners in consultation and working with the constructing authority regarding acquisition of land required for the Project. ARTC has commenced discussion with all of the concerned private landowners.

7.6.1 Permanent change in tenure and loss of property

The rail alignment has been intentionally located to use the existing South Western Line and Millmerran Branch Line rail corridors, where possible, minimising the extent of 'new' properties to be acquired. Of the 440 properties within the permanent footprint, 58 are within the existing South Western Line and Millmerran Branch Line rail corridors.

Additional properties may also be acquired where certain impacts cannot be avoided or appropriately mitigated and/or acquisition is agreed upon in consultation with affected landowners.

A summary of land within the permanent footprint that will potentially be subject to full or partial acquisition is provided in Table 7.24. The extent of land acquisition will be confirmed following completion of the detail design.

TABLE 7.24 POTENTIAL PARTIAL OR FULL LAND ACQUISITIONS WITHIN THE PERMANENT FOOTPRINT

Tenure	No. of properties within the permanent footprint
Properties within permanent footprint, also within the existing South Western Line and Millmerran Branch Line rail corridors	
Lands Lease in ownership of QR	58
Properties within permanent footprint, outside of the existing South Western Line and Millmerran Branch Line rail corridors	
Freehold	368
Lands Lease	3
Lands Lease (State forest)	2
Reserve	7
State Land	2

Potential impacts as a result of land acquisitions include:

- ▶ Loss of property
- ▶ Relocation of residents
- ▶ Severance of land parcels, and potential fragmentation of agricultural land, infrastructure and services
- ▶ Disruption to access and use of property where temporarily acquired.

Impacts resulting from the relocation of residents due to land acquisitions may include loss of community cohesion as well as potential impacts to community identity and values. These impacts are consistent with those identified in Chapter 15: Social.

Consultation with affected landowners and communities has been key to obtaining an understanding of individual property operational arrangements in proximity to the Project. The Project alignment has been positioned to align with existing rail corridors, roads and property boundaries, where possible, to reduce the severance of land parcels and potential severance to private access, services or operational arrangements. Detail on consultation undertaken with landowners within the Project footprint is provided in Appendix C: Stakeholder Engagement Report.

Obtaining tenure for the Project

Acquisition of the majority of properties within the Project footprint, and subsequent tenure arrangements, will occur once the Project has been evaluated by the Coordinator General.

ARTC, as a corporation, can acquire land in its own right by private treaty but cannot compulsorily acquire land. A constructing authority that has compulsory acquisition powers under the *Acquisition of Land Act 1967* (Qld) (AL Act) will undertake the land acquisitions required for the Project in accordance with the process under the AL Act.

The tenure arrangements for the project are the subject of negotiations with the State (DTMR) and these arrangements will be finalised prior to the commencement of construction. It is expected that tenure for State-owned land for construction will be managed by way of construction leases granted by DTMR to ARTC. For operation, the rail corridor will be the subject of a lease from the Minister administering the TI Act to the State, which must then be subleased to the railway manager (ARTC). The construction areas and operational corridor will be generally consistent with the land identified in the EIS. The operational lease will be granted pursuant to section 240 of the TI Act.

ARTC's preference is to negotiate the purchase of the land required for the Project based on independent market valuation. If a negotiated purchase is not achieved, ARTC will seek to engage the resumption powers of the constructing authority where compensation can be paid to landowners if an interest in land is taken (i.e. if it is resumed).

Assessment of compensation is based on the market value of the property at the date of gazettal of the acquisition. Under the AL Act there is currently no provision to compensate property owners that are not directly affected by the Project. In assessing the compensation to be paid, regard is given to the value of the land taken, severance, injurious affection and disturbance. In a resumption situation, only land required for the Project and immediately impacted will be acquired.

If a landowner's principal place of residence is impacted by the Project and subsequently resumed, the following allowances are made in addition to the market value of the property:

- ▶ Stamp duty on the purchase of a replacement dwelling to equal value
- ▶ Conveyancing fees associated with the purchase of another dwelling of equal value
- ▶ A reasonable allowance to cover the cost of relocation of personal effects and furniture
- ▶ Charges associated with re-establishing a mortgage of equal value to that existing at the resumption date
- ▶ Post and telephone reconnection costs
- ▶ Other costs reasonably incurred in relocating to a comparable residence
- ▶ Professional fees associated with the negotiation and conveyance of the acquisitions.

Where the permanent footprint traverses State land and local roads, the tenure dealings will likely occur in accordance with the Land Act.

Further, where the Project will be co-located with the existing South Western Line and Millmerran Branch Line Rail Corridors, consultation with QR will be undertaken to confirm the mitigation requirements and construction and operation interface agreements.

Land tenure and land-use issues were taken into account during concept engineering and reference design. This process minimised potential land-use impacts without adversely affecting the safety and efficiency of the proposed rail alignment.

State forest revocation

During development of the reference design, four alignment options were investigated in the vicinity of Whetstone and Inglewood with the purpose being to minimise impacts and severance to properties along the banks of Macintyre Brook and Canning Creek. Three of the alignment options encroached, to varying degrees, on Bringalily State Forest. The need for revocation of State Forest for these options and the process that this would trigger (Ministerial in-principle approval, Queensland Legislative Assembly consideration and assent by the Governor in Council) was considered in the option comparison process. Comparative assessment of the alignment options in this section concluded that the Project alignment that has been adopted, which traverses land within the Whetstone and Bringalily State forests, was the best performing option as it:

- ▶ Minimised the number of properties impacted
- ▶ Minimised the extent of severance impact to properties
- ▶ Minimised the area of impact to productive agricultural land

- ▶ Minimised the length of alignment within the 1 % AEP associated with Macintyre Brook
- ▶ Was consistent with feedback received through stakeholder consultation, which highlighted a desire to have impacts to property and agricultural land minimised through this area.

Details of the alignment option assessment process during development of the reference design are presented in Chapter 2: Project Rationale.

Where the Project requires land to be acquired for the permanent footprint within a State forest, partial revocation of the State forests in accordance with the *Forestry Act 1959* (Qld) will be required to enable the future gazettal of rail corridor over the same land.

The request for revocation of State forest triggers the need for an application for Protected Area Estate Revocation under the *Forestry Act 1959* (Qld) and requires a compensation ratio of 5:1 for tree removal.

The application process for seeking the revocation of part of each State forest is discussed in Section 7.7.2.1.

7.6.1.2 Temporary loss of property

Land required for construction will be acquired in accordance with the requirements of the AL Act, or leased from landowners, subject to agreement. This may include the temporary acquisition of land for the establishment of non-resident workforce accommodation to house the construction workforce that will be unable to reside within local towns along the length of the Project alignment. While possible locations for three non-resident workforce accommodation sites have been identified, not all locations may be required by the appointed principal contractor. The location, capacity and layout of the accommodation that is required will be confirmed and finalised by the Principal Contractor during the detail design phase of the Project.

Land use and tenure impacts associated with the establishment of these non-resident workforce accommodation facilities are expected to be similar to those associated with the temporary acquisition of properties for construction laydown areas. As discussed in Chapter 3: Legislation and Project Approvals Process, the approvals to build and operate non-resident workforce accommodation will be sought separately to the approvals sought through the EIS and will be obtained prior to accommodation establishment works commencing.

Seventy-one properties and four road reserves have been nominated for the purpose of temporary construction facilities and laydown areas. Some of these nominated laydown areas are situated wholly or partly outside of the permanent footprint. These properties are predominantly freehold tenure and are identified in Table 7.25.

TABLE 7.25 NOMINATED LAYDOWN AREAS AND THEIR USE

ID	Approximate chainage (km)	Size (~ha)	Lot/plan	Tenure	Existing land use	Proposed use
NS2B-LDN031.0	31.0 (NS2B)	18.4	39 MH796	Freehold	Grazing native vegetation	Laydown area
NS2B-LDN032.5	32.5 (NS2B)	16.0	14 SP127017	Freehold	Grazing native vegetation	Laydown area
NS2B-LDN033.2	33.2 (NS2B)	0.7	37 MH878	Reserve	Grazing native vegetation	Laydown area
NS2B-LDN035.6	35.6 (NS2B)	8.7	2 SP142352	Freehold	Irrigated cropping	Laydown area
B2G-LDN000.9	0.3	12.6	34 CP884737	Freehold	Other minimal use	Laydown area
B2G-LDN006.3	6.3	1.0	28 MH210	Freehold	Other minimal use	Laydown area
B2G-LDN016.0	16.0	2.6	44 MH141	Freehold	Grazing native vegetation	Laydown area
B2G-LDN020.3	20.4	0.8	110 MH150	Freehold	Grazing native vegetation	Laydown area
B2G-LDN025.9S	25.9	2.1	Null	Road reserve	Road reserve	Laydown area
B2G-LDN025.9N	25.9	1.1	109 MH650	Freehold	Grazing native vegetation	Laydown area
B2G-LDN030.0	30.0	1.1	14 MH160	Freehold	Grazing native vegetation	Laydown area
B2G-LDN037.6	37.6	1.2	87 MH689	Freehold	Grazing native vegetation	Laydown area

ID	Approximate chainage (km)	Size (~ha)	Lot/plan	Tenure	Existing land use	Proposed use
B2G-FBW045.0	45.4	12.5	2 MH784	Freehold	Grazing native vegetation	Flash butt welding facility
B2G-LDN045.5	45.5	1.8	2 MH784	Freehold	Grazing native vegetation	Laydown area
B2G-LDN050.1	50.1	3.2	12 MH293	Freehold	Grazing native vegetation	Laydown area
B2G-LDN052.8	52.8	1.1	1 MH171	Freehold	Irrigated perennial horticulture	Laydown area
B2G-LDN054.2	54.3	5.4	1 RP147969	Freehold	Irrigated cropping	Laydown area
B2G-LDN055.4	55.4	1.2	511 RP226715	Freehold	Grazing native vegetation	Laydown area
B2G-LDN060.4	60.5	2.7	144 MH194	Freehold	Grazing native vegetation	Laydown area
B2G-LDN065.8	65.8	2.5	87 MH16	Freehold	Grazing native vegetation	Laydown area
B2G-LDN067.6	67.6	1.0	97 MH38	Freehold	Grazing native vegetation	Laydown area
B2G-LDN069.0	69.0	10.0	1 RP156957	Freehold	Grazing native vegetation	Laydown area
B2G-LDN073.0	72.9	1.0	171 MH75	Freehold	Grazing native vegetation	Laydown area
B2G-LDN074.0	74.2	14.7	4 MH75	Freehold	Grazing native vegetation	Laydown area
B2G-LDN081.0	81.1	2.7	2 SP214649	Freehold	Grazing native vegetation	Laydown area
B2G-LDN088.4	88.4	1.0	341 FTY1881	State Forest	Production forestry	Laydown area
B2G-LDN091.8	91.9	1.6	10 MH737	Freehold	Grazing native vegetation	Laydown area
B2G-LDN093.8	93.8	1.3	10 MH737	Freehold	Grazing native vegetation	Laydown area
B2G-LDN098.0	98.0	3.1	Null	Road reserve	Road reserve	Laydown area
B2G-LDN100.6	100.7	0.4	51 MH562	Freehold	Grazing native vegetation	Laydown area
B2G-LDN104.5	104.6	2.6	2 RP197967	Freehold	Grazing native vegetation	Laydown area
B2G-LDN112.1	112.2	2.6	5 SP194159	Freehold	Grazing native vegetation	Laydown area
B2G-LDN115.6	115.7	1.4	64 DY198	Freehold	Grazing native vegetation	Laydown area
B2G-LDN116.5	116.6	10.9	111 DY182	Freehold	Cropping	Laydown area
B2G-LDN120.2	120.4	9.0	5 SP166689	Freehold	Cropping	Laydown area
B2G-LDN127.0	127.1	1.0	2 SP260880	Freehold	Grazing native vegetation	Laydown area
B2G-LDN127.8	127.9	1.0	2 SP260880	Freehold	Grazing native vegetation	Laydown area
B2G-LDN129.8	129.8	1.0	3 RP47093	Freehold	Cropping	Laydown area
B2G-LDN133.5	133.4	2.6	1 RP124356	Freehold	Cropping	Laydown area
B2G-LDN137.0	137.2	14.5	3307 DER3493	Freehold	Cropping	Laydown area
B2G-LDN138.5	138.5	4.5	2 RP99467	Freehold	Grazing native vegetation	Laydown area

ID	Approximate chainage (km)	Size (~ha)	Lot/plan	Tenure	Existing land use	Proposed use
B2G-LDN140.2	140.3	7.6	3 RP53023	Freehold	Cropping	Laydown area
B2G-LDN141.3	141.3	1.2	2 RP53023	Freehold	Cropping	Laydown area
B2G-LDN143.0	143.0	1.2	11 SP254028	Freehold	Grazing native vegetation	Laydown area
B2G-LDN144.6	144.7	14.3	15 RP37110	Freehold	Cropping	Laydown area
B2G-LDN147.1	147.1	0.5	22 SP124720	Lands Lease	Other minimal use	Laydown area
B2G-LDN149.0	148.8	4.5	2 RP14242	Lands Lease	Cropping	Laydown area
B2G-LDN150.5	150.8	12.9	1 RP907313	Freehold	Cropping	Laydown area
B2G-LDN150.9	150.9	0.5	Null	Road reserve	Road reserve	Laydown area
B2G-LDN153.1	153.1	9.1	4 RP838169	Freehold	Cropping	Laydown area
B2G-LDN161.0	161.0	6.6	1 RP7474	Freehold	Cropping	Laydown area
B2G-LDN163.3	163.4	0.5	3829 A342007	Freehold	Cropping	Laydown area
B2G-LDN164.3	164.4	2.5	3 RP7480	Freehold	Grazing native vegetation	Laydown area
B2G-LDN165.6	165.6	0.8	3 A341936	Freehold	Cropping	Laydown area
B2G-LDN169.6	169.7	3.0	2 RP212352	Freehold	Grazing native vegetation	Laydown area
B2G-LDN171.0	171.0	0.7	61 SP146089	Freehold	Cropping	Laydown area
B2G-LDN172.0	172.0	1.5	3 RP212365	Freehold	Cropping	Laydown area
B2G-LDN172.6	172.6	2.7	12 RP212366	Freehold	Residential	Laydown area
B2G-LDN173.5	173.5	1.7	2437 A341136	Freehold	Cropping	Laydown area
B2G-LDN175.5	175.7	7.2	2 RP142680	Freehold	Cropping	Laydown area
B2G-LDN179.0	178.9	2.2	5 RP841180	Freehold	Grazing native vegetation	Laydown area
B2G-LDN183.0	183.0	1.9	2 RP215348	Freehold	Cropping	Laydown area
B2G-LDN183.8	183.8	1.5	1 AG4150	Freehold	Cropping	Laydown area
B2G-LDN185.0	185.2	3.2	1 RP215319	Freehold	Cropping	Laydown area
B2G-LDN188.2	188.2	8.1	6 SP158473	Freehold	Cropping	Laydown area
B2G-LDN192.3	192.4	3.0	12 SP228312	Freehold	Grazing native vegetation	Laydown area
B2G-LDN196.2	196.2	0.4	Null	Road reserve	Road reserve	Laydown area
B2G-LDN197.0	197.0	0.4	5 RP47487	Freehold	Cropping	Laydown area
B2G-LDN198.1	198.1	0.4	1 RP155674	Freehold	Cropping	Laydown area
B2G-LDN198.7	198.7	0.3	1 RP155674	Freehold	Cropping	Laydown area
B2G-LDN203.0	203.0	0.4	3 AG3669	Freehold	Cropping	Laydown area
B2G-LDN204.2	204.2	3.8	11 SP285307	Freehold	Irrigated cropping	Laydown area
B2G-LDN206.3	206.3	3.0	2 RP55460	Freehold	Irrigated cropping	Laydown area
B2G-LDN206.9	206.9	8.1	29 SP294200	Freehold	Grazing native vegetation	Laydown area
			33 SP294200	Freehold	Cropping	

Table notes:

1. Locations shown in reference design drawings in Volume 3 of the draft EIS

Where temporary use of land for construction is proposed, the Project has the potential to disrupt existing operations on and surrounding these properties for the duration of construction and rehabilitation. In identifying the properties to be used for activities associated with the construction of the Project, consideration was given to several factors, including but not limited to:

- ▶ Properties owned by the Queensland Government, specifically DTMR or QR, were preferentially selected
- ▶ Use of properties that will already be severed or alienated within the permanent footprint
- ▶ Alignment with property boundaries
- ▶ Access to the existing public road network
- ▶ Avoidance of stock routes, intensive livestock or cropping land uses
- ▶ Avoidance of environmentally sensitive areas
- ▶ Appropriate separation distance between social receptors, e.g. dwellings.

As impacts to tenure relate to the direct acquisition or use of land, there are unlikely to be any impacts outside of the permanent and temporary footprints.

7.6.2 Native title

The Project footprint traverses 10 properties where native title may continue to exist. This includes eight under reserve tenure and two under State land tenure. Additional areas where native title may continue to exist include boundary watercourses.

Section 24JA of the *Native Title Act 1993* (NT Act) (Cth) may be relevant to the land parcels within the Project footprint with reserve tenure. Under Section 24JA, if an act, such as the grant of a statutory approval or of land tenure, is to occur in relation to land subject to native title that was dedicated as a reserve on or before 23 December 1996, the act will be valid from a native title perspective, provided it fits within the purpose of the reserve (or would have no greater impact on native title than acts that fit within the purpose of the reserve).

If an act for the Project that is to be done on a reserve will be valid under Section 24JA of the NT Act, the act itself will extinguish native title if it consists of the construction or establishment of a public work (which includes a road, railway or bridge that is constructed or established by or on behalf of the Crown, or a local government body or other statutory authority of the Crown in any of its capacities). In other cases, the 'non-extinguishment principle' will apply to the act.

Before any such public works are done, the entity proposing to do the works needs to notify all affected representative bodies, registered native title bodies corporate (RNTBC), and registered native title claimants of the proposed works and give them an opportunity to comment.

The parties that would need to be notified for the Project are Queensland South Native Title Services Ltd (the relevant representative body) and Bigambul Native Title Aboriginal Corporation RNTBC (the registered native title body corporate for the Bigambul People Part A determination). There were no registered native title claimants for the Project footprint (refer Table 7.7).

For those areas where Section 24JA does not apply, Section 24KA would apply to future acts that permit or require, or that consist of, the construction, operation, use, maintenance or repair of a railway that is to be operated, or is operated, for the general public. Where Section 24KA applies, native title rights and interests will be suppressed (not extinguished) for the life of the future act and the native title holders will be entitled to receive the procedural rights they would receive if they instead held freehold title. The only native title holders are those represented by the Bigambul Native Title Aboriginal Corporation RNTBC (the registered native title body corporate for the Bigambul People Part A determination). For the part of the Project footprint outside the Bigambul People Part A determination area, the obligation to provide procedural rights to the native title holders can be satisfied by notifying Queensland South Native Title Services Ltd (the relevant representative body) of the act and giving it an opportunity to comment on the doing of the act.

For Section 24KA to apply, native title holders must not be prevented from having reasonable access to the area of the railway other than during construction or for safety reasons. Section 24KA also does not apply to future acts that are the compulsory acquisition of native title.

7.6.3 Change in land use

Where possible, the Project alignment has been positioned to use the exiting South Western and Millmerran Branch rail corridors and has been co-located with existing road corridors in order to minimise potential for change in land use. The following sections therefore outline impacts associated with potential land-use change where the Project is located outside of existing rail corridors or not co-located with road corridors.

The predominant land use within the Project footprint is grazing land. Other notable land uses within or nearby the Project footprint are identified and described in Table 7.11.

The primary impact of the permanent footprint will be the cumulative shift from a primarily rural and agricultural land use to rail corridor. Potential impacts as a result of this change in land use are discussed in the following sections.

Where the Project proposes to use land temporarily for construction, the Project will temporarily disrupt existing operations on and surrounding these properties for the duration of construction and rehabilitation.

7.6.3.1 Impacts on agricultural uses and activities

Loss of agricultural land

The Project will sterilise productive agricultural land located within the Project footprint. When quantifying potential productive agricultural land sterilised by the permanent footprint, it is assumed that productive land that is mapped by QLUMP as occurring within the existing South Western System and Millmerran Branch Line rail corridors and within existing road corridors has already been sterilised. On this basis, this assessment only considers the areas within the permanent footprint that are located outside of the South Western Line and Millmerran Branch Line rail corridors and existing road corridors.

Approximately 1,766.89 ha of land within the permanent footprint is classified as Class A agricultural land, with a further 93.94 ha classified as Class B agricultural land. This equates to a total of 1,860.83 ha of land within the permanent footprint (outside of existing rail and road corridors) as being classified as Class A or Class B agricultural land and that will be sterilised. These areas are primarily used for grazing and cropping, as well as some irrigated cropping and irrigated perennial horticulture uses. Approximately 1,705.66 ha of land within the permanent footprint is also within an IAA.

Approximately 418 ha of land within the temporary footprint is classified as Class A agricultural land and 19.01 ha classified as Class B agricultural land. This equates to a total of 437.01 ha of land within the temporary footprint as being classified as Class A or Class B agricultural land, which will be temporarily used for construction of the Project. These areas are primarily used for grazing activities. Approximately 401.74 ha of land within the temporary footprint is also within an IAA.

Impacts on agricultural land at a local government level have been assessed and details provided in Table 7.26.

TABLE 7.26 LAND TYPE WITHIN THE PROJECT FOOTPRINT (OUTSIDE OF EXISTING RAIL AND ROAD CORRIDORS) PER LGA

Land classification	Goondiwindi LGA		Toowoomba LGA	
	Area of land (ha)	% of land	Area of land (ha)	% of land
Permanent footprint				
Class A	389.19	18.9	1,377.69	66.8
Class B	5.88	0.3	88.07	4.3
Border Region IAA	254.34	12.3	0.00	0.0
Eastern Darling Downs IAA	0.00	0.0	1,451.31	70.4
Temporary footprint				
Class A	168.52	39.6	249.48	58.6
Class B	1.09	0.3	17.92	4.2
Border Region IAA	142.40	33.5	0.0	0.0
Eastern Darling Downs IAA	0.00	0.0	259.34	61.0

To assist in identifying the significance of this impact on agricultural land within the region, Table 7.27 and Table 7.28 identify the percentage of Class A and Class B agricultural land and IAA that the Project footprint traverses relative to the total area of these land classes within each of the LGAs.

TABLE 7.27 PERCENTAGE OF LAND TYPE WITHIN GOONDIWINDI LGA TRAVERSED BY THE PROJECT FOOTPRINT (OUTSIDE OF EXISTING RAIL AND ROAD CORRIDORS)

Land classification	Goondiwindi LGA		
	Area within permanent footprint (ha)	Total area within LGA (ha)	% of land traversed by Project footprint within LGA
Permanent footprint			
Class A	389.19	1,332,102.63	Less than 0.1
Class B	5.88	1,290.47	0.5
Border Region IAA	254.34	1,310,526.87	Less than 0.1
Eastern Darling Downs IAA	0.00	4.75	0.0
Temporary footprint			
Class A	168.52	1,332,102.63	Less than 0.1
Class B	1.09	1,290.47	0.1
Border Region IAA	142.40	1,310,526.87	Less than 0.1
Eastern Darling Downs IAA	0.00	4.75	Less than 0.1

TABLE 7.28 PERCENTAGE OF LAND TYPE WITHIN TOOWOOMBA LGA TRAVERSED BY THE PROJECT FOOTPRINT (OUTSIDE OF EXISTING RAIL AND ROAD CORRIDORS)

Land classification	Toowoomba LGA		
	Area within permanent footprint (ha)	Total area within LGA (ha)	% of land traversed by Project footprint within LGA
Permanent footprint			
Class A	1,377.69	701,672.28	0.2
Class B	88.07	57,072.94	0.2
Border Region IAA	0.00	12,948.49	0.0
Eastern Darling Downs IAA	1,451.31	673,592.86	0.2
Temporary footprint			
Class A	249.48	701,672.28	Less than 0.1
Class B	17.92	57,072.94	Less than 0.1
Border Region IAA	0.00	12,948.49	0.0
Eastern Darling Downs IAA	259.34	673,592.86	Less than 0.1

As identified in Table 7.27, the permanent and temporary footprints will traverse less than 0.1 per cent of the Class A agricultural land and land within an IAA within the Goondiwindi LGA. The permanent footprint will traverse 0.5 per cent and the temporary footprint will traverse 0.1 per cent of the Class B land mapped within the Goondiwindi LGA.

Table 7.28 identifies that the permanent footprint will traverse 0.2 per cent of Class A agricultural land, Class B agricultural land or land within an IAA within the Toowoomba LGA. The temporary footprint will traverse less than 0.1 per cent of Class A, Class B or land within an IAA within the Toowoomba LGA.

Land fragmentation and disruption to access and infrastructure

The Project may result in indirect impacts to agricultural land outside of the Project footprint.

Where the Project does not use or align with existing rail and road corridors, the Project may sever or isolate parcels of agricultural land that may prohibit or limit internal movements, leading to a further reduction and loss of access to agricultural land.

The fragmentation or alienation of properties may cause a disruption in farm operations and enterprises due to impacts to essential farming infrastructure, services or access routes. In particular, the Project may impede on the movement of livestock and machinery and on essential access to water through impacts to groundwater bores, drainage lines, diversions, or cutting off water input to and from dams. This potential fragmentation and alienation of properties may impact on the economic viability of farming operations and enterprises associated with agricultural land directly impacted by the permanent and temporary footprints.

Consideration of impacts of the Project on farming operations and enterprises on impacted properties will be assessed on an individual case-by-case basis in consultation with landowners.

Impacts to intensive animal husbandry

The Project footprint traverses, or is in proximity to, several current intensive animal husbandry operations. Details of potential impacts to these feedlots, piggeries and poultry farm are provided in Table 7.29. Details on consultation undertaken for the Project, including with operators of intensive animal husbandry operations, are included within Appendix C: Stakeholder Engagement Report.

TABLE 7.29 POTENTIAL IMPACTS TO INTENSIVE LIVESTOCK OPERATIONS TRAVERSED BY, OR IN PROXIMITY, TO THE PROJECT FOOTPRINT

Type	Name	Relation to the Project	Potential impact
Current intensive livestock operations traversed by the Project footprint			
Cattle feedlot	Yarranbrook Farms Pty Ltd (Yarranbrook Feedlot)	The Project footprint traverses through multiple land parcels associated with the Yarranbrook Feedlot, before crossing the access point, Cremascos Road, and traversing along the southeast corner of Lot 511 on RP226715.	As the permanent footprint traverses through the Yarranbrook Feedlot's pivot fields, it is likely that partial acquisition will be required for the property. Impacts of the loss in property may affect the operations of the feedlot. The permanent footprint also traverses Cremascos Road, which is the main access road to the feedlot, crucial for the transportation of livestock and grain to/from the feedlot. An active level crossing is proposed at the Cremascos Road interface point. Accessibility impacts, such as disruption to local traffic and increased travel and waiting times, may occur. Accessibility impacts are further discussed in Section 7.6.4. Land within the temporary footprint for a laydown area proposed at the Cremascos Road intersection will be required temporarily for the duration of construction.
Cattle feedlot	D M Fletcher	The Project footprint traverses north to south through the centre of the land parcel associated with this feedlot (Lot 2 on RP197967) at Bringalily.	As the permanent footprint traverses through the land parcel associated with this feedlot, it is likely partial or full acquisition will be required for the property. Impacts of the loss in property may affect the operations of the feedlot due to the severance of the land parcel and potential fragmentation of infrastructure and services.
Cattle feedlot	Russell Sydney and Kim Maree Stevens (R Sydney and KM Stevens Feedlot)	The Project footprint traverses north to south through the eastern extent of the land parcel associated with this feedlot (Lot 6 on MH364) at Millwood.	As the permanent footprint traverses through the land parcel associated with this feedlot, it is likely partial or full acquisition will be required for the property. Impacts of the loss in property may affect the operations of the feedlot due to the severance of the land parcel and potential fragmentation of infrastructure and services.

Type	Name	Relation to the Project	Potential impact
Piggery	Cameron Pastoral Co. Pty Ltd (Moyness Piggery)	The Project footprint traverses through the western corner of Lot 3 on RP16081 and through the centre of Lot 3683 on DER34116 associated with the Moyness Piggery at Yandilla.	As the permanent footprint traverses through land parcels associated with this piggery, it is likely partial or full acquisition will be required for the property. Impacts of the loss in property may affect the operations of the feedlot due to the severance of the land parcel and potential fragmentation of infrastructure and services.
Poultry Farm	Doug Hall Poultry Pty Ltd	The Project footprint traverses along the southern boundary of land parcels (Lot 2 on RP898480 and Lot 4 SP153098) associated with the Doug Hall Poultry Farm at Yandilla.	The permanent footprint traverses through the land parcel associated with this poultry farm, separating the piggery from the poultry farm operation. It is likely partial or full acquisition will be required for the property. Impacts of the loss in property may affect the operations of the feedlot due to the severance of the land parcel and potential fragmentation of infrastructure and services.

Current intensive livestock operations within proximity to the Project footprint

Cattle feedlot	Smithfield Service Pty Ltd (Sapphire feedlot)	The Sapphire Feedlot is located to the south of the Project footprint, adjoining the Project footprint and existing South Western Line rail corridor. The Project footprint does not traverse this feedlot.	The Project footprint does not encroach on the feedlot operations of this property. Access is obtained to the feedlot via an access track from Yelarbon–Kurumbul Road, where a level crossing is proposed. Accessibility impacts to local traffic and increased travel time due to waiting time at the proposed level crossing at this road–rail interface point may occur. Accessibility impacts are further discussed in Section 7.6.4.
Cattle feedlot	F J and F E Verdon	The land parcel associated with this feedlot is located to the southeast of the Project footprint, adjoining the Project footprint and the existing South Western Line rail corridor. The Project footprint does not traverse this feedlot.	The Project will not impact on this land use as the Project footprint does not cross the feedlot. Access is obtained to the feedlot via an access track where a level crossing is proposed. Accessibility impacts to local traffic and increased travel time due to waiting time at the proposed level crossing at this road–rail interface point may occur. Accessibility impacts are further discussed in Section 7.6.4.
Cattle feedlot	Christopher Gleeson	The land parcel associated with this feedlot is located approximately 400 m to the east of the Project footprint. The Project footprint does not traverse the land parcel associated with this feedlot.	The Project will not impact on this land use as the Project footprint does not cross the feedlot.
Piggery	Boondooma Country Pork Pty Ltd	The land parcel associated with this piggery is located approximately 250 m to the east of the Project footprint at Millwood. The Project footprint does not traverse this piggery.	The Project will not impact on this land use as the Project footprint does not cross the piggery.

Impacts to apiary sites

Mapping prepared by DAF of apiary sites in the Inglewood area indicates that there are two established apiary sites in Bringalily and Whetstone State forests that may be subject to direct impact by development of the Project (Queensland Government, 2020c). These sites are mapped as occurring within the Project footprint and are summarised in Table 7.30.

Apiary sites other than those listed in Table 7.30 may be subject to indirect impacts from the Project. Access to apiary sites may be modified temporarily or permanently modified. Additionally, bee behaviour may be temporarily affected by construction activities that result in the generation of dust, loud noises and ground-borne vibrations. For example, the European Honeybee (*Apis mellifera*) has been observed to exhibit temporary stopping reactions when exposed to sound levels above 108 decibels (dB) at frequencies between 100 and 6,000 hertz (Hz) (H. Franklin Little, 1962). A drill may produce sound power levels up to 126 dB at 125 Hz (refer Appendix S: Construction Noise and Vibration and Operational Road Traffic Noise Technical Report). The perceived sound level reduces with distance from the source.

ARTC will undertake further consultation with DAF and QBA during detail design to confirm the potential direct and indirect impacts of the Project on apiary sites within the Whetstone and Bringalily State forests and requirements for construction and operation of the Project.

TABLE 7.30 APIARY SITES LOCATED WITHIN THE PROJECT FOOTPRINT

Apiary Site ID	Location	Lot/Plan	Project alignment chainage (km)
626	Whetstone State Forest	79 FTY1967	39.7
451	Bringalily State Forest	54 SP129536	86.4

Impacts on homesteads in the rural area

In addition to direct impacts on rural residential properties (e.g. severance) the Project has the potential to impact on other rural residential properties adjacent to the Project footprint. As mentioned previously, the closest residential settlements are located within the townships of Kurumbul, Yelarbon, Pampas, Brookstead and Pittsworth.

During construction there is the potential for noise, dust and other construction-related activities to impact on the rural residences within these areas. There may also be a need to make temporary changes to the access for these dwellings during construction activities.

Details of impacts due to dust, noise and vibration and temporary or permanent alterations to access are discussed in Chapter: Air Quality; Chapter 14: Noise and Vibration; and Chapter 18: Traffic, Transport and Access, respectively.

Alterations to stock routes

The reference design for the Project interfaces the stock route network in 12 locations. Details of these stock routes and the potential impacts are outlined in Table 7.31.

Connectivity of the local stock route network, with and without the Project, is shown in figures included in Chapter 5: Project Description.

TABLE 7.31 POTENTIAL IMPACTS TO STOCK ROUTES WITHIN THE PROJECT FOOTPRINT

Location and Project interface point (approximate chainage)	Stock route ID, type, status and class	Proposed treatment
Kildonan Road Ch 33.1 km (NS2B)	ID: 005GWND Type: Road Status: Open Class: Primary	A rail-over-road crossing of Kurumbul Road will be provided, allowing stock movement to pass under the railway at the same location.
Rainbow Reserve and Eukabilla Road Ch 33.4 km (NS2B)	ID: RAINBOW RESERVE Type: Reserve Status: Open Class: Primary	Eukabilla Road will be realigned to run parallel to western edge of the new rail corridor, allowing for uninterrupted stock movement from Kildonan Road onto Eukabilla Road. The stock reserve will be otherwise unaffected.
Wondalli–Kurumbul Road and Yelarbon–Kurumbul Road Ch 7.2 km	ID: 081GWND Type: Road Status: Open Class: Secondary	A passive level crossing will be provided, allowing stock movement across the railway at the same location.
Yelarbon Ch 25.4 km	ID: 811GWND Type: Road Status: Open Class: Minor and unused	Realignment of the stock route to provide continued connectivity between Merton Road and Yelarbon–Keetah Road, via a passive level crossing off Yelarbon–Kurumbul Road. The new rail crossing point would be approximately 640 m west of the existing rail level crossing.
East of Sawmill Road Ch 27.0 km	ID: RESERVE Type: Reserve Status: Open Class: Minor and unused	The usability of this stock reserve is not expected to be impacted by the Project; therefore, no treatment is proposed.
Lovells Crossing Road Ch 65.8 km	ID: 813GWD Type: Road Status: Open Class: Minor and unused	A rail-over-road crossing of Lovells Crossing Road will be provided, allowing stock movement to pass under the railway at the same location.
Millmerran–Inglewood Road (Inglewood) Ch 73.1 km to Ch 76.5 km	ID: 820GWD Type: Road Status: Open Class: Minor and unused	This stock route would be realigned to remain on the eastern side of the rail alignment, thus avoiding the need to provide two separate stock route crossing treatments in close proximity. This treatment approach would provide continued connectivity for stock movement in parallel to Millmerran–Inglewood Road in this area.
Millmerran–Inglewood Road (Inglewood) Ch 84.2 km	ID: 820GWD Type: Road Status: Open Class: Minor and unused	An underpass through the railway embankment will be provided to ensure continued connectivity for stock movement along Millmerran–Inglewood Road.
Kooroongarra–Anderson Road Ch 96.1 km	ID: 856TOOW Type: Road Status: Open Class: Minor and unused	A passive level crossing will be provided, allowing stock movement across the railway at the same location.
Millmerran–Inglewood Road (near Heckendorfs Road) Ch 115.5 km	ID: 820TOOW Type: Road Status: Open Class: Minor and unused	A rail-over-road grade-separated crossing will be provided, allowing continuation of existing stock movements along Millmerran–Inglewood Road at this location.
Kooroongarra Road (Commodore Mine) Ch 127.2 km	ID: 820TOOW Type: Road Status: Open Class: Minor and unused	A rail-over-road grade-separated crossing will be provided, allowing continuation of existing stock movements along Millmerran–Kooroongarra Road and Millmerran–Inglewood Road at this location.
Warrego Highway Ch 203.01 km	ID: No ID—Unused Type: Road Status: Open Class: Minor and unused	A rail-over-road grade-separated crossing will be provided, allowing continuation of existing stock movements along the Warrego Highway at this location.

Consultation with GRC, TRC, DNRME and landowners has occurred to determine potential impacts on these stock routes and to identify potential solutions for the treatment of rail- and stock-route interfaces. This consultation will continue through the detail design phase and as the construction approach is confirmed to further ensure that potential impacts are appropriately managed. For example, construction activities for the Project may result in temporary disruption to the connectivity of the stock route network, particularly in and around the rail-road interface locations.

In addition to the State stock route network, there may also be private stock routes that are used to transfer stock to various grazing paddocks and holding yards within or across the Project footprint. Consultation is ongoing with individual landowners within the Project footprint to identify property-specific impacts, if any, to private stock routes.

Alterations to barrier fences

The Project will require severance of the wild dog check fence and the DDMRB fence at the locations specified in Section 7.5.2.2, with the potential for increased biosecurity risk due to the severance of the fencing.

Consultation with GRC, for the wild dog check fence, and the DDMRB, for the rabbit fence, will continue through the detail design phase to determine the appropriate fencing replacement design and staging of severance and reinstatement works for these locations.

Other indirect impacts on agricultural land

Productive agricultural land within proximity to the Project may also be indirectly impacted from:

- ▶ Land contamination
- ▶ Biosecurity risks
- ▶ Changes in surface water and hydrology
- ▶ Erosion and sedimentation.

Land contamination, biosecurity risks, changes to surface water and hydrology, and erosion and sedimentation all have the potential to impact on agricultural land. Potential effects include reduced soil quality, reduced productivity, and increased costs for agricultural property operation and maintenance. These impacts are further discussed in the following chapters:

- ▶ Chapter 8: Land Resources
- ▶ Chapter 10: Flora and Fauna
- ▶ Chapter 12: Surface Water and Hydrology.

Opportunities to support the agricultural industry

While it is acknowledged that the Project risk impacts on current agricultural land and land that may have the potential for agricultural use, the audit identifies several opportunities for the agricultural sector within the Darling Downs and SEQ regions.

Darling Downs region

Inland Rail, and the Project, has the potential to provide a means of facilitating a solution to the following opportunities identified by the audit for the Darling Downs region:

- ▶ There are currently issues surrounding the quality and capacity of transport networks to meet current and future requirements that have the potential to be improved through the implementation of the Project (e.g. load limits on bridges, competition for access to rail freight and bottlenecks in the transport network, and competition for access to rail freight).
- ▶ Processing industries tend to be located on the eastern side of the Great Dividing Range whereas production in the Darling Downs Region is on the western side. Improved freight transportation infrastructure between the two regions would improve connection between these the eastern and western side of the Great Dividing Range.
- ▶ There is the potential for partnerships between private and public companies to enable the construction of infrastructure and delivery services, including funded infrastructure projects to expand the road and rail network that can support agriculture currently and into the future.

South East Queensland region

The Project also has potential to address the following opportunities identified by the audit for the SEQ region:

- ▶ Traffic congestion and deterioration of road infrastructure delays access to markets and processors
- ▶ Due to the proximity of agricultural production to areas of urban growth, there is an opportunity to expand manufacturing, processing, transport, logistics and knowledge industries (including biotech industries) in SEQ.

The audit identifies the transportation of goods and services as being vital to SEQ's economic development and growth. The freight task in Queensland has accelerated, with expected demand driven by strong population growth and economic activity placing increasing pressure on key road and rail corridors. Specific to the Project footprint, the audit identifies the Warrego Highway as being over capacity. The Project, and the Inland Rail Program, will increase the capacity for freight services by reducing congestion on existing road and rail passages, including the Warrego Highway.

On this basis, in contrast to the potential adverse impacts on agricultural land, the Project has the potential to result in beneficial impacts to the agriculture sector within the area. The Project, and the Inland Rail Program, will better connect the Darling Downs and SEQ regions to domestic and international markets and will support associated future industries.

Further discussion on the beneficial impacts of the Project is provided in Chapter 2: Project Rationale and Chapter 5: Project Description.

7.6.3.2 Impacts on industrial land

In addition to the potential adverse impacts identified above, the Project has the potential to create or be the catalyst for beneficial impacts. The Inland Rail Program is a nationally significant transport initiative and will provide a high-capacity freight link between Melbourne and Brisbane through regional Australia to better connect cities, farms and mines via ports to domestic and international markets. It is anticipated that the Project will act as an enabler for regional economic development along the Inland Rail corridor.

Of relevance to this assessment, the Project is likely to support future industries associated with regional hubs such as the Charlton–Wellcamp Enterprise Area, which is an area of strategic importance in supporting industrial growth in the Toowoomba region, and includes the Toowoomba Enterprise Hub. The enterprise area will host major supplies of engineering services and logistics for the resource industry, and is comprised of the Toowoomba Wellcamp Airport, Wellcamp Business Park, InterLinkSQ, Witmack Industry Park and Charlton Logistics Park. Furthermore, the proposed access to the Inland Rail network from existing GrainCorp facilities (e.g. Yelarbon, Brookstead etc.) will facilitate transport of grain to market.

The Project will improve access to and from regional markets by providing direct connectivity to the existing QR South Western Line, Millmerran Branch Line and West Moreton Line. The Darling Downs will have improved access to key local and international markets and ability to move greater volumes of grain via rail. The Project may also act as a significant catalyst for development within the region, particularly in relation to rail-dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

Further discussion on the beneficial impacts of the Project on the facilitation of industrial development and resulting social and economic impacts associated with this is provided in Chapter 2: Project Rationale, Chapter 15: Social and Chapter 16: Economics.

7.6.3.3 Impacts to prominent land uses

Potential direct impacts to notable land uses within the Project footprint are discussed Table 7.32.

TABLE 7.32 POTENTIAL IMPACTS TO NOTABLE LAND USES WITHIN THE PROJECT FOOTPRINT

Notable existing land uses	Potential impacts
KRA 120—Kildonan	The permanent footprint does not encroach into the resource processing area, separation area or the identified transport route of the Kildonan KRA; therefore, the Project will not result in a permanent impact on this land use. The temporary footprint includes a temporary haulage route that encroaches into the separation area and the western boundary of the resource/processing area for KRA 120. The purpose of this haulage route would be to enable material from KRA 120 to be transported to the Project, if agreement to obtain material from this location can be reached with the owner/operator. Therefore, this temporary encroachment on the separation area would only occur if it would be of commercial benefit to the owner/operator. Potential impacts to the Kildonan KRA is further discussed in Section 7.6.3.4.
Rainbow Reserve	The permanent footprint traverses the eastern boundary of the reserve. Partial acquisition of land within the reserve will be required for the Project to facilitate the realignment of Eukabilla Road. The road relocation extends for a length of approximately 2.5 km along the eastern boundary of the reserve parcel. The purpose for the realignment of Eukabilla Road is to minimise agricultural land to be acquired on the adjoining properties to the north and east of the reserve. Acquisition of land within Rainbow Reserve will reduce available space for recreational and stock route activities to be undertaken within the reserve. Potential impacts to the amenity of Rainbow Reserve are further discussed in Chapter 9: Landscape and Visual Amenity.
Kurumbul township	As the Project is located within the existing South Western Line rail corridor at this location, the number of properties required for the permanent footprint are minimised. The permanent footprint traverses South Kurumbul Road when traversing through the Kurumbul township, where an active level crossing is proposed. Where this crossing is proposed, accessibility impacts such as disruption to local traffic and increased travel and waiting times may occur. Accessibility impacts are further discussed in Section 7.6.4.
Yelarbon township	As the Project is located within the existing South Western Line rail corridor at this location, the number of properties required for the permanent footprint are minimised. Laydown areas within the temporary footprint are proposed within the Yelarbon township to accommodate bridges required for grade separations. Where the Project requires land temporarily for construction, the Project has the potential to disrupt existing operations on, and surrounding, these properties for the duration of construction and rehabilitation. The impacts from the temporary change in land use are further discussed in Section 7.6.1. The permanent footprint traverses the Cunningham Highway when within the Yelarbon township. Grade separation is proposed at this road–rail interface point. As grade separation is proposed, impacts on the surrounding road network are minimised.
Whetstone State Forest	As the permanent footprint is located along the boundary of the State forest, the Project will require minimal land located within the Whetstone State Forest. As the area to be required for the permanent footprint is relatively small in comparison to the total area of the State forest, adverse impacts to production within the State forest are expected to be minor.
Bringalily State Forest	The permanent footprint will require land located within the Bringalily State Forest. As the area required for the permanent footprint is relatively small in comparison to the total area of the State forest, adverse impacts to production within the State forest are low. Furthermore, when traversing through Bringalily State Forest, the permanent footprint predominately follows and is adjacent to the Millmerran–Inglewood road corridor, reducing fragmentation within the State forest.
Commodore Mine	As the permanent footprint adjoins the boundary of the Commodore Mine, land within the Commodore Mine boundary will be required for the Project. However, as the permanent footprint is located beyond the boundary of the land parcel, the Project will not impact on the operations of the mine. Sterilisation of resources is further discussed in Section 7.6.3.4. The permanent footprint traverses two private roads, which provide access to Commodore Mine Road. Grade separation and level crossings are proposed at these interface points. Where the grade separation is proposed, impacts are minimised. Where the level crossing is proposed, accessibility impacts such as disruption to local traffic and increased travel and waiting times may occur. Accessibility impacts are further discussed in Section 7.6.4.

Notable existing land uses	Potential impacts
Brookstead township	The Project deviates from the existing Millmerran Branch Line rail corridor at this location to provide greater separation from the Brookstead township and GrainCorp operations. Laydown areas within the temporary footprint are proposed within the Brookstead township. Where the Project requires land temporarily for construction, the Project has the potential to disrupt existing operations on, and surrounding, these properties for the duration of construction and rehabilitation. The impacts from the temporary change in land use are further discussed in Section 7.6.1. The permanent footprint traverses the Gore Highway at the Brookstead township, where grade separation is proposed. As grade separation is proposed, impacts on the surrounding road network are minimised.
Pittsworth township	As the permanent footprint is adjacent to the Gore Highway when traversing to the north of the Pittsworth township, land use and tenure impacts within the township are avoided.
Toowoomba Wellcamp Airport	The Project footprint does not encroach on land within the current airport precinct; therefore, land use and tenure impacts on the airport are avoided. Furthermore, the Project has been aligned to ensure that a double-stacked train on the Project alignment will not extend vertically into the OLS for the Toowoomba Wellcamp Airport.

The Project may also have the potential to indirectly impact on the above notable land uses due to the loss of amenity. Such indirect impacts and appropriate mitigation measures associated with amenity on land uses, including from noise, vibration, dust, light and scenic amenity and traffic are further discussed in the following chapters:

- ▶ Chapter 9: Landscape and Visual Amenity
- ▶ Chapter 11: Air Quality
- ▶ Chapter 14: Noise and Vibration
- ▶ Chapter 15: Social.

7.6.3.4 Sterilisation of mineral resources

Linear infrastructure such as that associated with the Project has the potential to sterilise mineral resources as it restricts the potential for the resource to be mined.

The permanent footprint traverses the Bringalily North, Bringalily South and Commodore coal deposits. The permanent footprint traverses approximately:

- ▶ 61 ha (3.0 per cent) of the total 2,078 ha area of the Bringalily North coal resource area
- ▶ 28 ha (0.6 per cent) of the total 5,104 ha of the Bringalily South coal resource area
- ▶ 40 ha (1.9 per cent) of the total 2,146 ha of the Commodore coal resource area.

Where the permanent footprint traverses these coal resource areas, the Project may potentially impact on the extraction of this land.

The permanent footprint also traverses through three exploration permits for coal and two mineral development licences for coal. The Project may sterilise petroleum resources within these tenements as the area of land that is available for production will be reduced.

Commodore Mine

The location of the proposed alignment has been determined in ongoing consultations with the holder of the mining lease to ensure that adverse impacts on the operations of the mine, including the footprint of future mining operations, are minimised. The permanent footprint has been intentionally located to avoid land within the current mining lease (ML 50151) associated with the Commodore Mine. The temporary footprint encompasses 0.003 ha of the current mining lease area.

The current and future landforms and operations of the Commodore Mine will continue to be considered during the detail design phase, through consultation with the holder of the mining lease, to ensure that potential for impacts on, or by, the Project are avoided.

Kildonan KRA 120

The permanent footprint does not traverse the resource processing area, or the separation area associated with the Kildonan KRA 120. The temporary footprint traverses approximately 0.6 ha of the resource/processing area and 0.6 ha of the resource separation area; however, this encroachment would be for the purpose of establishing a temporary haulage route between the KRA and the Project, subject to agreement with the owner/operator. Therefore, this temporary encroachment on the separation area and resource/processing area would only occur if it would be of commercial benefit to the owner/operator.

In regards to ground stability surrounding the KRA, the maximum excavation depth for a single bench pit in the KRA is estimated to be typically less than 10 m, as groundwater has been encountered in boreholes completed to support the reference design for the Project at depths of between 8 m and 14 m (refer Chapter 13: Groundwater). Depending on the actual material type, a safe long-term batter slope for such an excavation is commonly 1:2 to 1:3 [vertical:horizontal]. Consequently, a safe and stable landform is estimated to be reached approximately 30 m set back from the edge of the working pit. The permanent footprint is located approximately 355 m west of the resource/processing area, therefore the long-term operation of the Project will not impact on the ground stability of the operations of KRA 120.

If a temporary haulage route is established in support of construction, the alignment of this haulage route would be established in consultation with the owner/operator of KRA 120 to ensure that appropriate safe setback distances from open workings allowed for.

The Project will not impact on the designated transport route for KRA 120, a private road to the sealed Kildonan–Old Warwick Road. Where the permanent footprint intersects Kildonan–Old Warwick Road, an active level crossing is proposed. Further information is provided in Chapter 18: Traffic, Transport and Access.

7.6.3.5 Impacts on current environmental authorities for prescribed environmentally relevant activities

Potential impacts to land with EAs for prescribed ERAs located within the Project footprint as identified in Section 7.5.2.8, are outlined in Table 7.33.

TABLE 7.33 IMPACT OF PROJECT ON EXISTING ENVIRONMENTAL AUTHORITY FOR PRESCRIBED ENVIRONMENTALLY RELEVANT ACTIVITIES

Permit number and primary holder	Relationship to project	Impact to project
Prescribed ERA (Permit number: EPPR00372213)—Primary holder is Ron Johnstone Pty Ltd	This ERA is located within the Project footprint at Inglewood.	The permanent footprint traverses land subject to this EA and may require partial or full acquisition of the property.
Prescribed ERA (Permit number: EPPR00865113)—Primary holder is Toowoomba Regional Council	This ERA is located within the Project footprint at Canning Creek.	The permanent footprint traverses land subject to this EA and may require partial or full acquisition of the property.
Prescribed ERA (Permit number: EPPR00625013)—Primary holder is Toowoomba Regional Council	This ERA is located within the Project footprint at Millwood.	The permanent footprint traverses land subject to this EA and may require partial or full acquisition of the property.

7.6.3.6 Impacts on development activities

Potential impacts to development activity located within the Project footprint as identified in Section 7.5.3, are outlined in Table 7.34.

TABLE 7.34 IMPACT OF THE PROJECT ON FUTURE DEVELOPMENT WITHIN THE PROJECT FOOTPRINT

Project name and proponent	Relationship to the Project	Impact to the project
Goondiwindi LGA		
Material Change of Use—Rural Activities—Intensive Animal Industry Smithfield Cattle Co.	The Project footprint adjoins the northern boundary.	The Project footprint adjoins the northern boundary. Access to the site is via Yelarbon–Kurumbul Road, across the existing railway corridor. Further detail on the Project’s potential impact to the Sapphire Feedlot is provided in Section 7.7.2.2 under ‘Impacts on agricultural land uses and activities’. Consultation with operators of the Sapphire Feedlot has commenced and will be ongoing through detail design and construction, as required.
Sapphire Feedlot expansion	The Sapphire Feedlot’s proximity to the Project is described in Section 7.5.2.2.	The Project’s potential impacts to the Sapphire Feedlot are described in ‘Impacts on agricultural land uses and activities’ Section 7.7.2.2.
Toowoomba LGA		
Material Change of Use—Renewable Energy Facility Solar Farm and Subdivision by lease Yarranlea Solar Pty Ltd	The Project footprint is located to the south of this approved development.	The Project footprint traverses land subject to this development application. The Project has been strategically designed to avoid the solar farm where possible. Consultation with Yarranlea Solar has commenced and will be ongoing through detail design and construction, as required.
Material Change of Use—Intensive Horticulture and Rural Industry Asterion (Australia) Pty Ltd	The Project footprint slightly traverses along the western boundary of the property.	The Project footprint traverses the property along the western boundary. Upon review of the current development plans submitted to TRC, it does not appear as though the Project will impact on the development footprint. Access to the Asterion site is proposed via the eastern boundary of the property, opposite the Toowoomba Wellcamp Airport terminal building.
Designated area according to Schedule 5 of the Toowoomba Regional Planning Scheme Pittsworth Emergency Services Precinct comprising a new Ambulance State and Fire State and associated facilities	The Project footprint is located less than 1 km to the north of the property	The Project footprint does not traverse this property and will therefore not directly impact the designated area. Access to the site will be unaffected for both the Project and the designated area.
Queensland Government DSDTI—Coordinated projects		
Wetalla Water Pipeline—New Acland Coal Pty Ltd	The Wetalla Water Pipeline Project is located within the Project footprint at Kingsthorpe.	The Project alignment is located to the south of the existing West Moreton System rail corridor while the Wetalla Water Pipeline is located to the north. The Project is not expected to impact the Wetalla Water Pipeline.

7.6.4 Accessibility

7.6.4.1 Impacts on road network

Where the Project alignment crosses an existing public road, a treatment has been included in the reference design. Treatments for public road–rail interfaces can be categorised as:

- ▶ Grade separated crossings—road and rail cross each other at different heights so that traffic flow is not affected. Grade separations are either road over rail, or rail over road.
- ▶ Level crossings—road and rail cross each other at the same level. Level crossings have either passive or active controls to guide road users.
- ▶ Crossing consolidation, relocation, diversion or realignment—existing road–rail interfaces may be closed, consolidated into fewer crossing points, relocated or diverted. Roads will only be closed where the impact of diversions or consolidations is considered acceptable, or the existing location is not considered safe and cannot reasonably be made safe. Approval for closures, where required, will be progressed in accordance with the requirements of the relevant legislation.

The appropriate design solution at each of the road–rail interfaces has been considered to avoid or minimise impacts to the surrounding road network. The design treatment at each of these interfaces has been determined based on multiple factors, including:

- ▶ Existing road–rail interface points
- ▶ Access to properties, potential traffic levels
- ▶ Land use
- ▶ Nearby crossings
- ▶ Adjoining properties
- ▶ The vertical geometry of the rail alignment.

The reference design for the Project includes 53 crossing points of the public road network, where the Project alignment and the road network interface. Where appropriate, grade separations have been incorporated into the reference design at road–rail interface points. These locations have been identified with consideration for topography, road and/or rail geometry, current and future usage of the existing road and the location of the interface relative to other crossings. In total, the reference design includes 12 rail-over-road bridges (one also goes over a watercourse) and three road-over-rail bridges.

Multiple factors were considered in determining the establishment of either an active or passive level crossing including future road traffic numbers, vehicle types, train numbers, speeds and sighting distances. In total the reference design includes 17 active level crossings and 20 passive level crossings of public roads along the Project alignment.

The reference design for the Project also includes 23 locations where a crossing is not provided at the location where the Project alignment and the road network interface. Where it has been determined that a road–rail interface point is unable to provide for a grade separation, active level crossing or passive level crossing, an alternative access route has been proposed. The methodology to determine viable alternative access routes is dependent on the proximity of other crossing locations, existing and future traffic volumes and the configuration of the local road network.

Road–rail interface treatments included in the reference design are summarised in Table 7.35.

TABLE 7.35 ROAD–RAIL INTERFACES IN THE REFERENCE DESIGN, BY TREATMENT TYPE AND ROAD MANAGER

Proposed treatment in the reference design	State-controlled roads	Goondiwindi Regional Council	Toowoomba Regional Council	Total
Passive level crossing	0	8	12	20
Active level crossing	2	8	7	17
Grade separation—rail-over-road (bridges)	5	1	6	12
Grade separation—rail-over-road (culverts)	0	1	0	1
Grade separation—road-over-rail	2	0	1	3
No crossing provided at this location—relocated	1	3	2	6
No crossing provided at this location—road diverted/re-aligned	0	2	8	10
No crossing provided at this location - consolidated	0	2	5	7
Totals	10	25	41	76
Totals, excluding where no crossing provided	9	18	26	53

Where the Project interfaces with public roads, potential impacts include a disruption to traffic and emergency services access, an increase in travel time, and a decrease in accessibility to community services, facilities and key destinations within the Project footprint through changes to access road arrangements.

Where level crossings are proposed, disruption to traffic can be expected with each passing train movement. It is estimated that a maximum of 25 train movements a day will occur along the Project during peak operational periods in 2040. A maximum vehicle wait time of 199 seconds during a train pass-by has been calculated, based on an 1,800 m train moving at 115 km/h, for the active level crossing proposed for Owens Scrub Road. Wait times at other proposed level crossings would be less than this. Surrounding land uses, including farming operations, will likely be impacted by the associated vehicle delay times at level crossings. This will potentially disrupt the commercial operations of agricultural activities due to the regular delay in vehicular movements to and from these land uses.

Where roads will be diverted or crossings relocated/consolidated, surrounding land uses, including industrial and farming operations, will likely be impacted by potentially extended travel times along alternative access roads. Longer journey times may result in disruption to the commercial operations of agricultural activities due to the potentially extended transportation time to and from these land uses.

Further to the above, disruption to traffic can be expected during construction as equipment, materials, and people are transported to and along the permanent footprint.

Further discussion on road–rail interfaces and potential impacts is provided in Chapter 18: Traffic, Transport and Access.

7.6.4.2 Impacts to existing rail corridors

The South Western System is a critical link in agricultural export supply chains (particularly grain), supporting the movement of significant volumes of commodities to the Port of Brisbane. Planning of exports to international markets involves significant lead times to coordinate landside logistics, shipping schedules and client demand. Supply chain stakeholders will need sufficient time to develop contingencies to mitigate potential disruption.

Poorly timed track closures and inadequate consultation and communication could have significant adverse impacts (cost and potentially reputational) for Queensland stakeholders in international supply chains currently reliant on the South Western System.

The staging of the works within existing rail corridors, and their associated impacts will be the subject of an interface agreement between ARTC and QR. It is currently assumed that proponents can occupy sections of existing corridor to avoid the need for constrained, short-term possession works. The suitable timing of such works will need to be determined in consultation with QR and key supply chain stakeholders in order to identify a period of minimum disruption.

In accordance with Section 255 of the TI Act, works cannot commence within the existing rail corridor without QR's written approval. If the construction of Project components within the existing rail corridor is completed during a temporary possession of the rail corridor, then works will be completed in accordance with the conditions of the temporary possession and/or wayleave agreement granted to ARTC by QR.

7.6.4.3 Impacts to property access

The Project will result in the severance of driveways and informal private access roads to individual properties. The Project alignment intersects the following crossings within the bounds of private properties:

- ▶ 153 private, unformed access roads or tracks
- ▶ 62 private, formed access roads or tracks.

The final number of occupational crossings on private property will be determined during detail design. ARTC has consulted with impacted landowners to obtain an understanding of property access requirements and to present potential private access solutions based on the reference design. Legal access to properties will be retained in all instances. Each property solution will be designed on a case-by-case basis through ongoing consultation with landowners and further design refinement. Consultation to identify potential occupational crossing solutions is described in Appendix C: Stakeholder Engagement Report.

Where level crossings are required, ARTC will consult with landowners to determine the design that best fits their requirements. For example, in areas where landowners use large machinery, the design of the level crossing, including gate widths, crossing surface and approach grades, will need to accommodate this. Alternatively, where there is stock on a property, the focus will be on installing appropriate fencing and gates to keep the stock out of the rail corridor.

ARTC will work with each landowner to find access solutions that minimise the number of level crossings for the Project, consistent with the safety objectives of the Office of the National Rail Safety Regulator (ONRSR) guidelines and policies.

Design and layout of occupational crossing solutions will be determined based on the following considerations:

- ▶ Feedback from consultation with landowners on specific property requirements
- ▶ Safety standards, including criteria for minimum sight distances for trains and vehicles
- ▶ Alternative access arrangements
- ▶ Rail design and landform
- ▶ Stock movements
- ▶ Vehicle access requirements (for example farm machinery, frequency of use).

Typical treatments include:

- ▶ Underpass for stock passage or vehicle and machinery use. This will be subject to topography.
- ▶ At grade level crossing
- ▶ Diversion to adjacent public road/public road crossing.

During construction, private access to individual properties may be temporarily disrupted and restricted where land is required temporarily for the construction footprint.

Further details on impacts to property access are provided in Chapter 18: Traffic, Transport and Access.

7.6.5 Impacts on services and utilities

Of the 656 utilities located within the permanent footprint, of which 560 are proposed to be relocated, 53 will require additional protection to be provided and 43 will be unaffected. Consultation has commenced with utility providers and engineering asset owners regarding their specific asset interface requirements. In doing so, ARTC has held 14 meetings to provide Project updates and discuss reference design development with 10 separate utility asset owners. In addition, one risk workshop with APA Gas (APA) was conducted to discuss the management of interface treatments between the Project and APA's Roma-Brisbane gas pipeline and access protocols for APA pipeline easements during construction. Such consultation will continue during detail design and construction. Details of consultation to support development of the reference design and EIS are included in Appendix C: Stakeholder Engagement Report (Table 4.1.7). Consultation completed to date has informed the requirements for proposed utility interface treatments provided in Table 7.36.

TABLE 7.36 SUMMARY OF UTILITY INTERFACE TREATMENTS BY SERVICE TYPE

Utility/service	Protection	Relocation	Remain in place	Total
Communication	44	457	3	504
Electricity	-	96	38	134
Gas	2	-	-	2
Oil	1	-	-	1
Potable Water	1	3	-	4
Raw Water	-	2	1	3
Recycled Water	5	1	-	6
Sewer Gravity Main	-	1	-	1
Sewer Rising Main	-	1	-	1
Total	53	560	43	656

During construction, surrounding residences and businesses may experience temporary disruption to services from time to time as these services are relocated or upgraded.

Once operational, the Project will not impact on services and utilities within the area.

7.7 Mitigation measures

7.7.1 Mitigation through the reference design phase

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

Mitigation measures and controls for land use and tenure that have been factored into the reference design, or otherwise implemented during the reference design phase for the Project, are summarised below:

- ▶ Land use
 - ▶ The Project has been aligned to be co-located with existing rail and road infrastructure where possible, minimising the need to develop land that has not previously been subject to disturbance for transport infrastructure purposes
 - ▶ Refinement of the horizontal alignment considered placement of the Project footprint such that it traverses along, or as close as possible to, property boundaries to reduce potential fragmentation and sterilisation of Class A land, Class B land and land within an IAA
 - ▶ The Project footprint has been established to provide the minimum-sized area required to safely and efficiently construct, maintain and operate the Project
 - ▶ Intensive livestock operations, including feedlots and poultry farms, have been avoided where possible
 - ▶ The Project has been aligned to avoid the current and future operational footprint of the Commodore Mine. This has been achieved through consultation with the mine owner and operator, Interger. This separation distance is intended to avoid the sterilisation of coal resource and to ensure that activities undertaken within the mine will not influence the construction or operation of the Project.
 - ▶ The Project alignment has been aligned to avoid KRA 120 to ensure that permanent adverse impacts on the operations of the KRA are avoided
 - ▶ The temporary footprint includes allowance for a temporary haulage route to be established between the Project and KRA 120 to enable material to be sourced from this location if agreement to obtain the material can be reached with the owner/operator
 - ▶ Consultation has commenced with GRC and with DDMRB regarding the severance and realignment of the wild dog check fence and the rabbit fence, respectively. This consultation will continue through the detail design process to ensure that the detail design for the Project includes fencing replacement solutions that are acceptable to each of the asset managers.
 - ▶ The Project has been aligned to ensure that a double-stacked train on the Project alignment will not extend vertically into the Obstacle Limitation Surface (OLS) for the Toowoomba Wellcamp Airport.

► Land tenure:

- The Project alignment has been intentionally located to use the existing South Western Line and Millmerran Branch Line rail corridors where possible, minimising the extent of 'new' properties to be acquired. Of the 440 properties within the permanent footprint, 58 are within the existing South Western Line and Millmerran Branch Line rail corridors.
- Where stock routes have been intersected by the Project, an allowance for the continuity of movement of stock along the same route has been made in the reference design. In some instances, such as Yelarbon (811GWND) and the southern end of Millmerran–Inglewood Road (820GWD), this has involved allowance for a localised realignment of the current stock route. Consultation has commenced with DNRME, GRC and TRC regarding the acceptability of the design solution at each stock route interface. This consultation will continue through the detail design process to ensure that the detail design for the Project achieves continued useability of existing stock routes.
- Applications for Protected Area Estate Revocation under the *Forestry Act 1959* (Qld) for the Whetstone and Bringalily State forests were submitted to DES on 4 December 2019.

7.7.2 Proposed mitigation measures

In order to manage and mitigate Project risks, several mitigation measures have been proposed for implementation in future delivery phases of the Project. The proposed mitigation measures discussed in this section have been identified to address Project-specific issues and opportunities. These proposed mitigation measures incorporate legislative requirements, ARTC's land acquisition protocols and ARTC's *Land Access Guidelines* (ARTC, 2019c).

For land not acquired by ARTC for the Project, ARTC's *Land Access Guidelines* require a Land Access Agreement to be signed with each affected property owner. The Land Access Agreement includes conditions or requirements owners may have for accessing a property, e.g. the locking of gates, livestock interactions, biosecurity requirements and times of access. The Land Access Agreement provides in-principle agreement for a property to be accessed by ARTC, or its contractors, subject to prior notification (time period agreed with each property owner).

The mitigation measures proposed in this section should be considered in conjunction with those proposed in the SIMP, as precented in Chapter 15: Social.

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

7.7.2.1 Change in land tenure and loss of property

Where the Project requires the permanent acquisition of properties, this will be undertaken in accordance with the requirements of the AL Act.

Where land is acquired by the compulsory acquisition process in accordance with the AL Act, compensation will be able to be claimed by the landowner after the 'Taking of Land Notice' is published in the Queensland State Government Gazette. Landowners will have three years from this date in which to claim compensation (this date can be extended by the constructing authority).

Compensation will be assessed on an individual basis as at the date of resumption by having regard to:

- The value of land taken
- Any damage caused by severance or injurious affection to the balance land. Injurious affection involves damage to, or a decrease in the value of, any land retained by the original landowner. This may include, but not be limited to:
 - Physical damage to the retained land
 - Limitations on the activities on, or the use of, the retained land
 - Interferences with the amenity or character of the retained land
 - Things that may deter purchasers from buying the retained land
 - Things that increase the expense of using the retained land.
- Disturbance costs. This may include reasonable legal costs, valuation or other professional fees to prepare a claim for compensation, costs related to purchase of a replacement comparable property, including stamp duty costs associated with removal and relocation of assets and infrastructure, or other reasonable financial costs incurred that are a direct result of the resumption of the land.

During construction, land will be required temporarily. Purchasing or leasing arrangements for these properties will be investigated in consultation with relevant landowners.

Surplus land not required for the Project, including for future expansion to accommodate 3,600 m trains, may be offered back to the previous landowner or leased to rural activities.

Further, where the Project will be co-located with the existing South Western Line and Millmerran Branch Line rail corridors, consultation with QR will be undertaken to confirm the mitigation requirements and construction and operation interface agreements.

The above-mentioned steps will be implemented prior to the commencement of construction of the Project.

State forest

Applications for Protected Area Estate Revocation under the *Forestry Act 1959* (Qld) for the Whetstone and Bringalily State forests were submitted to DES on 4 December 2019. Consultation with QPWS, DES, DAF (Forestry), and DNRME will continue through the detail design process. The State forest revocation application will be supported by finalised land acquisition plans for the Project. Following submission of these Protected Area Estate Revocation applications, the further stages are likely to consist of the following:

- ▶ DES interagency consultation
- ▶ Minister in-principle approval
- ▶ ARTC to address revocation requirements, including native title, cultural heritage, third-party consent, survey plan and compensation. This is to occur during detail design of the Project
- ▶ Minister requests Governor-in-Council approval
- ▶ Parliamentary consideration
- ▶ Governor-in-Council assent
- ▶ Register of title.

Tenure arrangements, including compensation and offset requirements for the revocation of State forest land, will continue to be progressed through the constructing authority during and following the completion of the EIS process and in continued consultation with DAF, DES, DNRME, leaseholders and The Bigambul Native Title Aboriginal Corporation.

CHMPs with relevant Traditional Owners have been agreed and will establish the process to undertake CH surveys for the project. A CH survey report, prepared in accordance with DES requirements will be undertaken to support the state revocation process.

Other State land

Where the Project requires the acquisition of State land, appropriate tenure or interest will be secured under the Land Act. The constructing authority and ARTC will consult with the relevant DNRME State Land Asset Management Team to discuss options for obtaining tenure or interest for the land required, and to begin proceedings under the Land Act.

Where State land is required for the Project that contains existing infrastructure used for public uses, land use impacts to these properties will be managed in accordance with the measures outlined in Section 7.7.2.2, with individual management measures to be developed with the trustees of the land.

Where the Project will be co-located with the existing South Western Line and Millmerran Branch Line Rail Corridors, consultation with QR will be undertaken to confirm the mitigation requirements and construction and operation interface agreements.

Native title

The Project has been aligned, where possible, to use the existing South Western Line and Millmerran Branch Line rail corridors and is predominately located on freehold land where native title has been extinguished.

Where native title has not been extinguished within the permanent footprint, prior to construction, ARTC will seek the extinguishment of the native title rights and interests in question to enable the grant of the interests required to construct the Project. This may involve either the voluntary surrender of native title, by the appropriate native title parties to the State under one or more registered Indigenous land use agreements (which will be valid under Section 24EB of the NT Act), or the compulsory acquisition of native title under a relevant State law (which will be valid under Section 24MD of the NT Act).

7.7.2.2 Change in land use

Land-use impacts to individual properties, including properties requiring partial acquisition, properties proposed to be temporarily used for construction and properties adjacent to Project footprint where indirect impacts may be experienced, will be confirmed through the detail design and property acquisition process. Where land-use impacts are confirmed, individual property management measures will be developed in consultation with the landowner to reduce impacts to an acceptable and agreeable level. Management measures will include:

- ▶ Individual property mitigation measures developed in consultation with landowners/occupants with respect to the development of detail design and/or the management of construction on, or immediately adjacent to, private properties. The property mitigation measures will detail required adjustments to fencing, access, farm infrastructure, and relocation of any impacted structures, as required.
- ▶ Consultation with landowners will be undertaken to ensure that owners and occupiers are informed about the timing and scope of activities in their area, particularly in relation to potential impacts to access, services, or farm operational arrangements. This consultation will be ongoing throughout construction.
- ▶ Feedback from landowner consultation, including agreed property mitigation measures, will be incorporated into property agreements (or similar), as appropriate.

The requirement for Project components outside of the Project footprint will be confirmed through the detail design process, as the construction approach is refined. Such components may include the establishment of up to three non-resident workforce accommodation sites and borrow pits. If these components are required to support construction, they will be subject to a siting assessment to identify the optimal location in regard to avoiding or minimising impacts to environmental matters and social receptors. Development approvals for the establishment and operation of these Project components will be obtained in accordance with the requirements of building approvals, Planning Act and the EP Act.

Land that is temporarily disturbed in support of construction activities (e.g. for access tracks, laydown areas etc.) will be rehabilitated at the end of its use unless otherwise agreed with the relevant landowner. Site rehabilitation will be in accordance with a Rehabilitation and Landscaping Management Sub-plan, as a component of the Construction Environmental Management Plan (CEMP) (refer Chapter 22: Outline Environmental Management Plan). This sub-plan will be based on the Inland Rail Landscape and Rehabilitation Strategy, as well as location and property specific reinstatement commitments.

Impacts on agricultural land uses and activities

Loss of agricultural land

Where loss of agricultural land was unable to be avoided, refinement of the horizontal alignment considered (among other environmental, social, cultural, economic and technical constraints), placement of the rail corridor such that it traverses around, or as close as possible to, property boundaries to reduce potential fragmentation and sterilisation of Class A land, Class B land and land within an IAA. Intensive livestock operations, including feedlots and poultry farms, have also been avoided where possible.

Where the permanent disturbance footprint is unable to avoid the severance of agricultural land and enterprises due to the partial acquisition of a property, acquisition will be investigated in consultation with landowners. The consideration of partial or full acquisition of these properties will be determined on a case-by-case basis, with consultation occurring with individual landowners to determine if the agricultural enterprise can remain viable.

Where the permanent disturbance footprint is unable to avoid the severance of agricultural land, the Project will require the acquisition of agricultural land, which may affect the operations of agricultural enterprises and grazing properties. Where land is to be acquired by the compulsory acquisition process in accordance with the AL Act, compensation will be assessed on an individual basis based on the market value of the land as at the date of resumption, any damage caused by severance or injurious affection to the balance land and disturbance cost. (refer Section 7.7.2.1).

ARTC will continue to work with directly affected landowners to develop and implement property-specific measures to mitigate impacts on properties that could affect agricultural enterprises. This has included the identification of:

- ▶ Landowners' needs regarding access to the properties and the closure of private roads
- ▶ Property infrastructure such as fences and dams which would be affected and need to be addressed as part of compensation arrangements with the Acquiring Authority
- ▶ The potential for changes to groundwater access.

This will inform development of the detailed design and CEMP.

Land fragmentation and disruption to access and infrastructure

Where possible, the Project has been aligned such that it avoids or minimises impacts to private access, property operations and private agricultural infrastructure (e.g. water storages, groundwater bores, irrigation infrastructure, etc.). In some instances, these property features could not be avoided. Where land is fragmented or isolated, any impacts on operational farm requirements, such as impacts on access, infrastructure and services, will be managed and reinstated as soon as possible. ARTC will work with individual landowners to develop suitable solutions based on individual farm management practices. Solutions may include the provision of crossing points or underpasses for access to fragmented or isolated properties. Where disruption to water supply occurs, crossing points will be provided or the relocation of dams or irrigation systems will be undertaken in consultation with landowners.

The overall disturbance of construction areas has been limited where possible. Where agricultural land is required to be used temporarily during construction, disturbed areas will be rehabilitated in accordance with the Rehabilitation and Landscaping Management Sub-plan. It is also noted that construction will occur progressively along the Project alignment and, as such, the need (duration) for temporary laydown areas has been minimised at each location.

ARTC will continue to consult with potentially impacted landowners through the detail design and construction planning process to develop and implement property-specific measures to avoid or minimise impacts that could affect agricultural enterprises. This will include the identification of:

- ▶ Landowners' needs regarding access to the properties and the closure of private roads
- ▶ Property infrastructure such as fences, water storages, groundwater bores and irrigation infrastructure that would be affected and need to be considered in compensation arrangements for the property
- ▶ The potential for changes in access to natural resources, such as groundwater and overland flow.

Where land is to be acquired by the compulsory acquisition process in accordance with the AL Act, compensation will be assessed on an individual basis based on the market value of the land as at the date of resumption (refer Section 7.7.2.1).

Alterations to stock routes

The Project interfaces with the State stock route network, which consists of stock routes and reserves, in 12 locations. In each instance, the reference design has been developed to provide continued connectivity along each stock route. The stock route interface treatments that have been included in the reference design are summarised in Section 7.6.3.1. ARTC will continue to consult with DNRME, GRC and TRC through the detail design process to ensure that the proposed stock route interface treatments are suitable for future useability purposes.

In the event that private stock routes are identified through consultation with landowners, a means of continued stock movement connectivity will be included in the detail design. Where disruption to private stock movements may occur during construction, appropriate temporary connectivity solutions will be agreed in advance with the relevant landowner.

Property fencing

Fencing will be provided for the majority of the rail corridor and its primary purpose is to limit access to the railway. Fencing will act to protect adjoining lands from trespass and to prevent stock on such adjoining land from gaining access to the railway. Fencing is to extend between the corridor and lands of owners or occupiers adjoining the railway, with any specific requirements to be designed in consultation with the adjoining landowner.

As the Project comprises substantial greenfield works in rural agricultural and grazing areas, standard rural fencing will typically be provided according to ARTC fencing procedure, Boundary Fencing ETM-17-02 (available on the ARTC Extranet: extranet.artc.com.au). Where superior fencing is required (for example where tracks are in close proximity to roads and/or communities, or where trespass is anticipated to occur) a 1.8 m chain link boundary fence may be provided.

Feedback from adjacent landowners indicates that fencing on the Condamine River floodplain:

- ▶ Increases the risk of debris being trapped on the fence and causing blockage
- ▶ Can be washed away in flood events, causing issues to downstream properties and infrastructure and subsequently requires re-instatement.

Based on this consultation feedback, and the fact that farms across the floodplain are used for agricultural purposes and not for livestock or people movement, it was determined that fencing of the corridor should not be provided across floodplain areas. In order to demarcate the rail corridor and prevent inadvertent cropping and machinery access to the rail corridor, guideposts or other alternative means of protection will be installed at the rail corridor boundary. The track elevation through these areas will also act as a deterrent to trespass or livestock access to the railway, where this may otherwise occur.

Gates will be provided at suitable corridor entry/exit locations to allow convenient access to infrastructure for maintenance purposes, and at private level crossings and stock crossings.

New fencing will be installed prior to the removal of existing fencing and prior to any works being carried out on the subject land unless otherwise agreed with the landowner.

The fencing strategy for the Project is provided in Chapter 5: Project Description and in Appendix M: Preliminary Fauna Movement Provision and Fencing Strategy.

Impacts to intensive animal husbandry

Where land containing intensive animal husbandry activities is to be permanently acquired for the Project, the mitigation measures specified in Section 7.7.2.1 will apply.

Where the Project interfaces with public and private roads that provide access to intensive animal husbandry, accessibility impacts will be managed in accordance with mitigation measures provided in in Section 7.7.2.3.

Impacts to apiary sites

ARTC will undertake further consultation with DAF and QBA during detail design to confirm the potential direct and indirect impacts of the Project on apiary sites within the Whetstone and Bringalily State forests and requirements for construction and operation of the Project.

Alterations to barrier fences

The rail alignment runs parallel to the existing wild dog check fence from Ch 26.8 km to Ch 43.5 km, and it then intersects the wild dog check fence at four locations, Ch 50.1 km, Ch 51.2 km, Ch 54.9 km and Ch 56.0 km. The wild dog check fence will be reinstated on the northwest side of the rail corridor boundary in six locations.

The Project intersects the DDMRB fence when traversing through the locality of Clontarf, at approximately Ch 120.2 km. The rabbit fence will be reinstated and a rabbit trap will be set up in this location.

ARTC have commenced consultation with the GRC to determine fencing requirements for replacement of the wild dog check fence. Consultation has also commenced with the DDMRB to determine fencing requirements for replacement of the rabbit proof fence. Detail design drawings of ARTC's nominated fencing solution for reinstatement of these fences will be submitted to GRC and DDMRB for acceptance prior to construction works commencing.

Where severance of a biosecurity fence is required, it is anticipated that fence realignment and reconstruction will be undertaken as an early works package prior to the construction of rail infrastructure commencing.

Other indirect impacts on agricultural land

The mitigation measures that are proposed to avoid or minimise indirect impacts to adjoining agricultural land from land contamination, biosecurity, surface water and hydrology and erosion and sedimentation are discussed in the following chapters of the draft EIS:

- ▶ Land contamination and erosion and sedimentation risks and mitigation measures are addressed in Chapter 8: Land Resources
- ▶ Biosecurity risks and mitigation measures are addressed in Chapter 10: Flora and Fauna
- ▶ Surface water and hydrology risks and mitigation measures are addressed in Chapter 12: Surface Water and Hydrology.

Furthermore, mitigation measures for impacts resulting from land acquisitions including impacts on local communities, agricultural enterprises and businesses are detailed in Chapter 15: Social.

All mitigation measures proposed for implementation through future phases of the Project are presented in Chapter 22: Outline Environmental Management Plan.

Sterilisation of mineral and petroleum resources

Where possible, the Project has been aligned to avoid or minimise sterilisation of mineral and petroleum resources; however, in some instances, mineral and petroleum resources could not be avoided by the Project footprint. ARTC will consult with potentially impacted holders of leases, permits or licenses over mineral and petroleum resources through the detail design and construction planning process to ensure that the Project and its construction activities are developed in a manner to minimise the extent of such impacts where possible. Where the Project may impact on deposits within the area, such as the Bringalily North, Bringalily South and Commodore coal deposits, appropriate mitigation will be agreed with the resource interest holders.

Once the proponent is granted tenure for construction and a sub-lease for the rail corridor, it will consult with petroleum tenure holders, in accordance with relevant aspects of the Land Access Code (DNRME, 2016d). The Land Access Code is provided under Section 36 of the *Mineral and Energy Resources (Common Provisions) Act 2014* (Qld) and establishes best-practice guidelines for communication between the holders of resource authorities and owners and occupiers of private land. The document also imposes mandatory conditions concerning the conduct of resource activities on private land.

Development activity

Potential impacts to known development activities have been identified in Section 7.6.3.6. Mitigation measures for development activities on which the Project may have an impact on is provided in Table 7.37.

TABLE 7.37 MITIGATION MEASURES FOR IMPACTS ON DEVELOPMENT ACTIVITY

Project name and proponent	Impact associated with the Project	Mitigation measures
Goondiwindi LGA		
Material Change of Use—Rural Activities—Intensive Animal Industry Smithfield Cattle Co.	The Project footprint adjoins the northern boundary. Access to the site is via Yelarbon–Kurumbul Road.	A level crossing is proposed to ensure access is maintained to the property.
Toowoomba LGA		
Material Change of Use—Renewable Energy Facility Solar Farm and Subdivision by lease Yarranlea Solar Pty Ltd	The Project footprint traverses land subject to this development application. The Project has been strategically designed to avoid the solar farm where possible. Consultation with Yarranlea Solar has occurred and is ongoing.	A grade-separation is proposed at Yarranlea Road, ensuring uninterrupted access to the solar farm is maintained.
Material Change of Use—Intensive Horticulture and Rural Industry Asterion (Australia) Pty Ltd	The Project footprint traverses the property along the western boundary. Upon review of the current development plans submitted to TRC, it does not appear as though the Project will impact on the development footprint. Access to the site is proposed via the east.	Consultation with Asterion will occur through the detail design and construction planning process to ensure that the Project and its construction activities are developed in a manner to minimise the extent of impacts on this development. Where necessary, appropriate mitigation measures will be negotiated with Asterion prior to the commencement of construction.
Economic Development Queensland (EDQ) Development Projects		
There are no Priority Development Area or State Development Areas located within the Project footprint.		
Current EAs for ERAs		
Prescribed ERA (Permit number: EPPR00372213)—Primary holder is Ron Johnstone Pty Ltd	The permanent footprint traverses land subject to this ERA and may require partial or full acquisition of the property.	Consultation with the holder of the ERA (TRC) has commenced and will be ongoing through detail design. If full or partial land acquisition is required, appropriate acquisition and compensation measures will be undertaken in accordance with Section 7.7.2.1 and 7.7.2.2.

Project name and proponent	Impact associated with the Project	Mitigation measures
Prescribed ERA (Permit number: EPPR00865113)— Primary holder is TRC	The permanent footprint traverses land subject to this ERA and may require partial or full acquisition of the property.	Consultation with the holder of the ERA (Ron Johnstone Pty Ltd) has commenced and will be ongoing through detail design. If full or partial land acquisition is required, appropriate acquisition and compensation measures will be undertaken in accordance with Section 7.7.2.1 and 7.7.2.2.
Prescribed ERA (Permit number: EPPR00625013)— Primary holder is TRC	The permanent footprint traverses land subject to this ERA and may require partial or full acquisition of the property.	Consultation with the holder of the ERA (TRC) has commenced and will be ongoing through detail design. If full or partial land acquisition is required, appropriate acquisition and compensation measures will be undertaken in accordance with Section 7.7.2.1 and 7.7.2.2.

7.7.2.3 Accessibility

Impacts on road network

As discussed in Section 7.6.4.1, the road interface treatments that have been incorporated into the reference design have been selected based on several factors including the nature of existing access to properties, potential traffic levels, existing land use, location of nearby interfaces, adjoining properties and the vertical geometry of the rail alignment. In the case of level crossings, these interfaces have also been subject to assessment using an ALCAM approach, which considers factors such as future road traffic numbers, vehicle types, train numbers, speeds and sighting distances.

For public crossings, ARTC will continue to undertake necessary consultation with DTMR and local governments through the detail design process in relation to the preferred road–rail interface treatments for each location. Part of this process is to work with the relevant road manager to understand the local environment and gather information on future development plans, which can be used to inform the design. In all instances, the design and safety principles introduced in Chapter 5: Project Description and Chapter 18: Traffic, Transport and Access will be used to guide the design decision-making process.

Where level crossings and road diversions are proposed, these were determined based on a number of factors, including the nature of existing access to properties, potential traffic levels, existing land use, location of nearby interfaces, adjoining properties and the vertical geometry of the rail alignment. Vehicle wait time at level crossings, as well as the anticipated change travel time and distance from road diversions, have also been considered when determining appropriate crossings at road-rail interfaces.

A Traffic Management Sub-plan will be developed as part of the CEMP. Appropriate management measures will be put in place for each of the identified issues. Furthermore, communication will be undertaken with surrounding affected landowners and businesses to notify of any changes to traffic and access during construction.

Further details are provided in Chapter 18: Traffic, Transport and Access.

Impacts to property access

The detail design for the Project will be developed to ensure that legal access for private properties is maintained.

ARTC will continue to consult with potentially impacted landowners through the detail design and construction planning process to develop and implement property-specific measures to avoid or minimise impacts that could affect property access.

The construction and operational phase provision of suitable private property access will form a component of property-specific management agreements developed in consultation with landowners. Changes to individual property access onto and across properties may be offset by consolidating access in key locations, which may be facilitated through underpasses for stock and vehicles at appropriate locations. These solutions will be developed in consultation with affected landowners.

Further details are provided in Chapter 15: Social and Chapter 18: Traffic, Transport and Access.

7.7.2.4 Impacts on services and utilities

The utility interface solutions that have been included in the reference design have been discussed with individual utility owners and are presented in Section 7.6.5. The exact methodology for utility modification, upgrade, diversion or realignment will be subject to confirmation once the Project design is finalised and will be determined through further consultation with the affected utility owners. Details on consultation undertaken through the reference design process is provided within Appendix C: Stakeholder Engagement Report.

Further geotechnical and soils investigations will be required to inform the development of the detail design. This additional information will provide details on the geotechnical condition of materials in proximity to key underground utility infrastructure within the Project footprint, such as APA's Roma–Brisbane gas pipeline and Santos' Moonie–Brisbane oil pipeline. Details of geotechnical condition will be used to develop suitable utility protection designs.

Designs for utility protection, where necessary, will be developed in consultation with the relevant utility owner and be in accordance with the following:

- ▶ Electricity:
 - ▶ *Electrical Safety Act 2002* (Qld)
 - ▶ *Electrical Safety Regulation 2002*
 - ▶ ENA NENS 03-2006: *National Guidelines for Safe Access to Electrical and Mechanical Apparatus* (Energy Networks Association, 2006)
 - ▶ AS/NZS 7000 *Overhead Line Design* (Standards Australia, 2016c)
 - ▶ *Safe Work Australia Model Code of Practice— Managing Electrical Risks in the Workplace* (Safe Work Australia, 2018b)
- ▶ Gas and petroleum pipelines:
 - ▶ *Petroleum & Gas (Production & Safety) Act 2004* (Qld)
 - ▶ AS 2885 *Pipelines—Gas and liquid petroleum* (Standards Australia, 2008b)
 - ▶ AS/NZS 4645 *Gas Distribution Network* (Standards Australia, 2018d)
- ▶ Communications:
 - ▶ *Telecommunication Cabling Provider Rules 2014*
 - ▶ *Telecommunications Technical Standard* (Requirements for customer cabling products – AS/CA S008) 2015
 - ▶ Australian Standard—*Installation requirements for customer cabling* (Wiring Rules) (Communications Alliance Ltd, 2020)
- ▶ Water:
 - ▶ *Water Supply Code of Australia* (Water Services Association of Australia, 2011)
 - ▶ AS/NZS 2566 *Buried flexible pipeline: Structural design* (Standards Australia, 1998b)
- ▶ Sewerage:
 - ▶ *Gravity Sewerage Code of Australia* (Water Services Association of Australia, 2014)
 - ▶ *Pressure Sewerage Code of Australia* (Water Services Association of Australia, 2007)
 - ▶ AS/NZS 2566 *Buried flexible pipeline: Structural design* (Standards Australia, 1998b)

Approvals including permits, licences and execution of interface agreements (such as access arrangements within utility easements) for the purposes of construction will be managed in the detail design phase of the Project and obtained prior to carrying out utility works.

With respect to service disruptions during construction, procedures will be developed and implemented to minimise the potential for service interruptions. Affected businesses and residences will be notified in advance of any planned interruptions (including durations).

Disturbance of existing utilities will occur under access arrangements and approval with the relevant asset manager, obtained prior to commencing work.

In the event that previously unidentified underground utilities are encountered during construction, work will cease in proximity to the utility until the type and status of the services (operational/disused) can be confirmed, in accordance with AS 1345 *Identification of the contents of pipes, conduits and ducts* (Standards Australia, 1995).

7.7.3 Summary

Table 7.38 identifies the relevant Project phase, the aspect to be managed and the proposed mitigation measure. The mitigation measures presented in Table 7.38 have then been factored into the assessment of compliance, as discussed in Section 7.8.

TABLE 7.38 LAND USE AND TENURE MITIGATION AND MANAGEMENT MEASURES FOR FUTURE PHASES OF PROJECT DELIVERY

Delivery phase	Potential impacts	Proposed mitigation measures
Detail design	Property acquisition	▶ Detail design to further refine the project disturbance footprint identified and assessed in the EIS, to that which is required to safely construct, operate and maintain the Project ▶ Minimise property acquisition requirements, property severance and disruption to land use and transport networks ▶ Property acquisitions will be undertaken in accordance with the requirements of the AL Act ▶ Compensation will be provided where the Project requires the acquisition of properties in accordance with the requirements of the AL Act ▶ Mitigation measures for individual property treatments will be developed in consultation with landowners/occupants, with respect to the management of construction on, or immediately adjacent to, private properties. These will detail any required adjustments to fencing, access, farm infrastructure or relocation of impacted structures, as required. Measures, where agreed, will be documented in individual property agreements. ▶ Once the proponent is granted tenure for construction and a sub-lease for the rail corridor, it will consult with petroleum tenure holders, in accordance with relevant aspects of the <i>Land Access Code</i> (DNRME, 2016d) ▶ Negotiation agreements with mineral and petroleum resource interest holders to be finalised prior to construction activities commencing. This includes consultation with the resource holders of the authority to prospects, pipeline licences and potential commercial areas within the Project footprint. ▶ ARTC will undertake further consultation with DAF and QBA during detail design to confirm the potential direct and indirect impacts of the Project on apiary sites within the Whetstone and Bringalily State forests and requirements for construction and operation of the Project.
	Biosecurity	▶ Property-specific weed hygiene requirements will be developed in consultation with the relevant landowners/operators prior to pre-construction/construction activities occurring on that property, outside of the permanent footprint. Protocols, where agreed, will be documented in individual property agreements. ▶ A Biosecurity Management Sub-plan will be developed as a component of the CEMP. This sub-plan will include: ▶ Requirements for pre-clearing and operational surveys to determine the risk of weeds or pest animals being present within the Project footprint ▶ Maps of the existing extent, confirmed through surveys, and severity of weed infestation (e.g. restricted matters including mother of millions, Opuntoid cactus, African boxthorn and Lantana) and weed management requirements ▶ Pest animal management controls, including protocols for severing, realigning and reinstating the wild dog check fence and the DDMRB rabbit fence ▶ Site hygiene and waste management procedures to deter pest animals ▶ Location of vehicle washdowns (light vehicle and oversize vehicles) and rumble grids ▶ Weed surveillance and treatment during construction and rehabilitation activities such as: – Vehicle and plant washdown requirements for fleet moving from low-risk areas to and high-risk areas – Weed certification requirements for vehicles, plant and materials arriving onto the construction site. ▶ Requirements in relation to pesticide and herbicide use, including any limitations on use. Restrictions may apply in proximity to watercourses, known areas of MNES or MSES habitat or land uses sensitive to spray-drift from the application of pesticides and herbicides (e.g. organic farming practices) ▶ Erosion and sediment control risks associated with broad-scale weed removal or treatment ▶ Corrective actions should the outcomes not achieve the adopted objectives.

Delivery phase	Potential impacts	Proposed mitigation measures
Detail design (continued)	Design interface with stock routes	▶ The reference design interfaces with the State stock route network in 12 locations (refer Table 7.16). Consultation with DNRME, GRC and TRC will continue through the detail design process to ensure that the detail design for the Project achieves continued useability of existing stock routes. ▶ In the event that private stock routes are identified through consultation with landowners, a means of continued stock movement connectivity will be included in the detail design. Where disruption to private stock movements may occur during construction, appropriate temporary connectivity solutions will be agreed in advance with the relevant landowner and documented in a property agreement. ▶ Where stock fencing is required, fencing will be constructed in accordance with the Project's general fencing strategy (refer Chapter 5: Project Description), unless an alternative approach is agreed with landowners, DNRME, GRC or TRC. This will occur prior to the removal or realignment of existing fencing and prior to any works being carried out on the subject land, unless otherwise agreed with the landowner.
	Landowner/occupier access to property	▶ Where legal access to a property is permanently affected and a property has no other legal means of access, alternative access to and from a public road will be provided to an equivalent standard, where feasible and practicable. ▶ The suitable design treatment for interfaces between the Project and private accesses will be developed in consultation with the relevant landholder, on a case-by case basis.
	Design interface with barrier fences	▶ Detail design drawings of ARTC's nominated fencing solution for reinstatement of biosecurity fences will be submitted to GRC (wild dog check fences) and DDMRB (rabbit fence) for acceptance prior to construction works commencing.
	Design interface with utilities	▶ Utility interface treatments that have been included in the reference design have been discussed with individual utility owners. The exact methodology for utility modification, upgrade, diversion or realignment will be subject to confirmation once the Project design is finalised and will be determined through further consultation with the affected utility owners. ▶ Designs for utility protection, where necessary, will be developed in consultation with the relevant utility owner and be in accordance with the following: ▶ Electricity: - <i>Electrical Safety Act 2002</i> (Qld) - <i>Electrical Safety Regulation 2002</i> - ENA NENS 03-2006: <i>National Guidelines for Safe Access to Electrical and Mechanical Apparatus</i> (Energy Networks Association, 2006) - AS/NZS 7000 <i>Overhead Line Design</i> (Standards Australia, 2016c) - <i>Safe Work Australia Model Code of Practice— Managing Electrical Risks in the Workplace</i> (Safe Work Australia, 2018b) ▶ Gas and petroleum pipelines: - <i>Petroleum & Gas (Production & Safety) Act 2004</i> (Qld) - AS 2885 <i>Pipelines—Gas and liquid petroleum</i> (Standards Australia, 2008b) - AS/NZS 4645 <i>Gas Distribution Network</i> (Standards Australia, 2018d) ▶ Communications: - <i>Telecommunication Cabling Provider Rules 2014</i> - <i>Telecommunications Technical Standard (Requirements for customer cabling products— AS/CA S008)</i> 2015 - Australian Standard—<i>Installation requirements for customer cabling (Wiring Rules)</i> (Communications Alliance Ltd, 2020) ▶ Water: - <i>Water Supply Code of Australia</i> (Water Services Association of Australia, 2011) - AS/NZS 2566 <i>Buried flexible pipeline: Structural design</i> (Standards Australia, 1998b) ▶ Sewerage: - <i>Gravity Sewerage Code of Australia</i> (Water Services Association of Australia, 2014) - <i>Pressure Sewerage Code of Australia</i> (Water Services Association of Australia, 2007) - AS/NZS 2566 <i>Buried flexible pipeline: Structural design</i> (Standards Australia, 1998b)

Delivery phase	Potential impacts	Proposed mitigation measures
Detail design (continued)	Design interface with utilities (continued)	▶ Disturbance of existing utilities will occur under access arrangements and approval with the relevant asset manager, obtained prior to commencing work. ▶ Where permanent utility protection is required, this will be designed based on further geotechnical and soil condition data and will be subject to acceptance by the relevant utility owner. ▶ A Construction Management Plan, or similar, will be prepared prior to construction commences (refer to Chapter 22: Outline Environmental Management Plan). This plan will document the construction approach for the Project, including procedures to minimise the potential for service interruptions.
	Rehabilitation and reinstatement of land	▶ A Rehabilitation and Landscaping Management Sub-plan will be developed for the Project, as a component of the CEMP. This sub-plan will be based on the Inland Rail Landscape and Rehabilitation Strategy, in addition to location- and property-specific reinstatement commitments. It will establish the following, as a minimum: ▶ Location-specific objectives for rehabilitation, reinstatement and/or stabilisation. Outside of the rail corridor, property-specific and township-specific (e.g. Yelarbon, Pampas, Brookstead, Pittsworth) rehabilitation and landscaping requirements may apply. Within the rail corridor, maintaining operational safety and rail formation stability will be the driving factors. ▶ Objectives and timeframes for rehabilitation and/or reinstatement/stabilisation works (including biodiversity, vegetation establishment and erosion and sediment control outcomes to be achieved). ▶ Details of the actions and responsibilities to progressively rehabilitate, regenerate, and/or revegetate areas, while minimising the duration of exposure in disturbed areas. ▶ Include rehabilitation requirements such as: - Milling and removal of bitumen pavement - Removal of any decommissioned culverts - Tying and ripping of base and sub-base material - Application of soil ameliorants - Topsoiling and/or compost blanket - Stabilisation and rehabilitation (e.g. planting and or seeding). ▶ Consideration for maintenance or performance issues of rehabilitation e.g. use of groundcover that does not grow and obscure signals or impact the longevity of rail infrastructure. ▶ Procedures, timeframes, measurable performance objectives and responsibilities for monitoring the success of rehabilitation and/or reinstatement/stabilisation areas. ▶ Corrective actions should the outcomes not achieve to the objectives adopted.
Pre-construction	Design interface with utilities	▶ Utilities within the Project footprint will be surveyed and marked prior to the commencement of construction ▶ Where protection or relocation of a utility is required as an outcome of consultation with asset owners and detail design, these works will be undertaken prior to the commencement of construction to reduce the likelihood of impacts to those services ▶ Protection or relocation of utilities will be conducted in accordance with relevant legislation, Australian Standards and guidelines (refer above).
	Design interface with barrier fences	▶ Where severance of the wild dog check fence or DDMRB rabbit fence is required, fence realignment and reconstruction will be undertaken as an early works package prior to the commencement of construction of rail infrastructure.

Delivery phase	Potential impacts	Proposed mitigation measures
Construction	Access to private property	▶ Property owners, occupants and businesses will be advised in advance, of the timing and scope of activities in their area and potential impacts or interruptions to access, services, or property operational arrangements.
	Biosecurity	▶ Implementation of the Biosecurity Management Sub-plan (refer above) ▶ The effectiveness of weed hygiene measures will be monitored as a component of the environmental monitoring procedure for the Project ▶ Any vegetated material containing, or with the potential to contain, weed seed material will not be used for on-site mulching or erosion-protection purposes ▶ A complaint hotline for the Project will be established and advertised to enable members of the public to notify ARTC of issues, including concerns regarding weeds and pests.
	Interface with utilities	▶ Construction activities will be planned and executed to not inhibit the safe and efficient operation of utilities that remain located within the Project footprint ▶ Affected businesses and residences will be notified in advance of any planned interruptions (including durations) ▶ Disturbance of existing utilities will occur under access arrangements and approval with the relevant asset manager, obtained prior to commencing work ▶ In the event that previously unidentified underground utilities are encountered during construction, work will cease in proximity to the utility until the type and status of the services (operational/disused) can be confirmed, in accordance with AS 1345 <i>Identification of the contents of pipes, conduits and ducts</i> (Standards Australia, 1995)
	Rehabilitation and reinstatement	▶ Land that is temporarily disturbed in support of construction activities construction (e.g. for access tracks, laydown areas etc.) will be rehabilitated at the end of its use for construction, unless otherwise required ▶ Reinstatement, stabilisation and rehabilitation of disturbed areas will be undertaken progressively, consistent with the Rehabilitation and Landscaping Management Sub-plan (refer above and Chapter 22: Outline Environmental Management Plan).
Operation	Land use	▶ If maintenance activities require access to private properties outside of the rail corridor, landowner approval will be obtained in advance of commencing the activities in accordance with ARTC land access protocols and procedures.

7.8 Compliance impact assessment

This compliance impact assessment considers the consistency of the Project with the land use and planning instruments relevant to the Project footprint and Project activities, being the:

- ▶ SPP (July 2017)
- ▶ *Darling Downs Regional Plan* (October 2013)
- ▶ ShapingSEQ (August 2017).

As the Project has been declared a coordinated Project, the provisions of local government planning schemes do not apply and therefore assessment of the Project's consistency with the planning schemes is not required.

7.8.1 State Planning Policy

An assessment of the Project's consistency with each relevant SPP State interest is provided in Table 7.39. Where these State interests relate to aspects considered in other sections of this draft EIS, reference has been made to the relevant chapter for further detail.

TABLE 7.39 PROJECT'S CONSISTENCY WITH THE RELEVANT SPP STATE INTERESTS

State interest	Project consistency	EIS reference
Liveable communities and housing		
Housing supply and diversity	Provision of non-resident workforce accommodation and implementation of the Housing and Accommodation Management Plan in the SIMP will avoid the potential for impact to accommodation supply and diversity of housing within the townships in the impact assessment area.	Chapter 15: Social
Liveable communities	The Project has committed to a range of measures to mitigate and manage impacts on those community and urban infrastructure that make a community 'liveable', through the implementation of relevant management plans including the SIMP, which includes a Health and Community Wellbeing Management Plan. The Community Wellbeing Plan will provide a framework for cooperation with key stakeholders to implement mitigation measures addressing impacts on quality of life as the result of Project impacts on amenity, character, cohesion or connectivity.	Chapter 15: Social
Economic growth		
Agriculture	Consistent with the agricultural State interest, the Project has considered and assessed potential impacts and risks to agricultural land and resources. The Project reference design is the result of several iterations of option assessment, including consideration of the impact on agricultural land uses, and consultation with community and stakeholder groups and relevant regulatory agencies. The Project will use the existing South Western Line and Millmerran Branch Line rail corridors, where possible, to minimise adverse impacts to agricultural land uses including the loss of agricultural land (including land mapped to be within IAA, Class A land and Class B land), land fragmentation and disruption to access and infrastructure. The Project footprint will be limited to that necessary to safely construct, operate and maintain the rail corridor. Further refinement of the horizontal alignment during detail design and alignment of the permanent footprint will occur such that it traverses along, or as close as possible to, property boundaries, to reduce potential fragmentation and sterilisation of Class A and Class B land. Impacts such as severance or loss of land that may have the potential to impact operations of agricultural businesses will be considered by the constructing authority in the terms of the acquisition agreements.	Section 7.5.2.2, Section 7.6.3.1, and Section 7.7.2.2 under 'Impacts on agricultural land uses and activities'

State interest	Project consistency	EIS reference
Development and construction	The Project will generate significant employment and economic growth, and support for the construction sector. The Project is part of a larger Inland Rail Program of works. It is anticipated that 16,000 jobs will be required Program-wide at the peak of construction, with an average of 800 jobs per annum over the 10-year construction period. At a local level, the Project also has the potential to catalyse the development and growth of regional intermodal hubs, such as InterLinkSQ, Toowoomba Wellcamp Airport and Charlton–Wellcamp Enterprise Area.	Chapter 2: Project Rationale
Mining and extractive resources	Consistent with the mining and extractive resources State interest, the Project has considered and assessed potential impacts to extractive resources. The Project has been positioned to avoid the main operations of Kildonan KRA and Commodore Mine, reducing permanent adverse impacts to these existing mining and extractive resource sites.	Section 7.5.1.2, Section 7.6.3.4, Section 7.7.2.2 under 'Sterilisation of mineral and petroleum resources'
Tourism	The Project has considered and assessed potential impacts to the region's natural values. These areas would support tourism. Although the Project's permanent footprint traverses areas of the Whetstone and Bringalily State forests, fragmentation of the forests is minimised, as the Project predominately follows road corridors and property boundaries, where possible. Furthermore, the Project does not intersect any other environmentally sensitive areas (national parks or conservation parks), which contribute to the State's natural values. In this way, the intent of the SPP is supported.	Section 7.5.2.3
Environment and heritage		
Biodiversity	Consistent with the provisions of the biodiversity State interest, the Project has considered and assessed potential impacts and risks to biodiversity, including MNES and MSES and matters of local environmental significance.	Chapter 10: Flora and Fauna
Cultural heritage	Consistent with the requirements of this State interest, the Project has considered and assessed potential impacts to cultural heritage, including international, national, State and local heritage, and Aboriginal and Torres Strait Islander cultural heritage.	Chapter 17: Cultural Heritage
Water quality	Consistent with the requirements of this State interest, the Project has considered and assessed potential impacts to water quality.	Chapter 12: Surface Water and Hydrology
Safety and resilience to hazards		
Emissions and hazardous activities	Consistent with the requirements of this State interest, the Project has considered and assessed potential impacts and risks associated with emissions and hazardous activities.	Chapter 19: Hazard and Risk
Natural hazards, risk and resilience	Consistent with the requirements of this state interest, the Project has considered and assessed potential impacts and risks associated with natural hazards, risk and resilience.	Chapter 19: Hazard and Risk
Infrastructure		
Energy and water supply	The Project will include the provision of its energy and water supply requirements in a safe and reliable manner. With respect to power, opportunities to connect to existing sources will be explored with relevant service providers, and where connections are not available, power will be provided by generators. Water supply and storage will be needed for construction activities, dust suppression, vehicle wash down, and operations and maintenance activities.	Chapter 5: Project Description
Infrastructure integration	The Project supports the expansion of existing infrastructure associated with the introduction of a heavy freight rail between Melbourne and Brisbane. The Project is likely to support current and future industries associated with the Charlton–Wellcamp Enterprise Area, including Toowoomba Enterprise Hub, which is an area of strategic importance in supporting industrial growth in the Toowoomba region.	Section 7.6.3.2

State interest	Project consistency	EIS reference
Transport infrastructure	The Project supports this State interest by using the existing South Western Line and Millmerran Branch rail corridors where possible. Furthermore, the Project has considered and assessed potential impacts to State-controlled roads, local government roads and stock routes within the impact assessment area.	Chapter 18: Traffic, Transport and Access
Strategic airports and aviation facilities	No strategic airports or aviation facilities are directly traversed by the Project footprint. The closest strategic airport is the Toowoomba Wellcamp Airport. At its closest point, the Project alignment is approximately 1 km and the Project footprint is approximately 865 m to the west of the northern limit of the runway for Toowoomba Wellcamp Airport. The Project footprint does not intersect the public safety area of Toowoomba Wellcamp Airport. At its closest point, the Project alignment encroaches into the 470 m OLS contour that extends from north-western end of the runway. Through consultation with the operator of Toowoomba Wellcamp Airport, the Project has been aligned to ensure that a double-stacked train on the rail alignment will not extend vertically into the OLS. While the Project footprint is located 11.4 km southeast of Army Aviation Centre Oakey, the Project alignment does extend across properties on which the 45 m height-restriction zone applies. The Project has been aligned to ensure that a double-stacked train on the rail alignment will not extend vertically into this height restriction zone. At its closest point, the Project alignment extends into light restriction Zone B for Toowoomba Wellcamp Airport. As detailed within the <i>State Planning Policy—State interest guideline</i> (DILGP, 2016d), configurations of lights in straight parallel lines 500–1,000 m long, particularly in the vicinity of large unlit areas, can replicate the appearance of airport runways at night (DILGP, 2016d). In addition, occasional glare or flashes can distract pilots at critical moments. Construction-phase lighting requirements for the Project are minimal as the majority of works will occur during daylight hours. Some security lighting will be required around construction laydown areas and site offices; however, lighting in these instances will be directed and screened to prevent light spill beyond the extent of the Project footprint. Once operational, lighting will be restricted to the headlamps on rollingstock and the safety lighting requirements at road–rail interfaces. Neither of these sources are expected to have an adverse effect on the operational airspace. Construction and operation of the Project will not result in airborne particulates or gaseous plumes that may otherwise impair pilot or air-traffic control visibility. The Project will not result in the introduction of new wildlife hazards that may otherwise increase the risk of aircraft strike. Australian Noise Exposure Forecast contours are not available for Toowoomba Wellcamp Airport. However, construction or operation activities for the Project do not constitute a sensitive receptor to aircraft noise. Based on the above, the Project is considered to be consistent with the intent of this State interest. In fact, the Project complements the role of a strategic airport as an economic, freight and logistics hub, and will enhance the economic opportunities that are available in proximity to a strategic airport.	Chapter 18: Traffic, Transport and Access

7.8.2 ShapingSEQ

The Project is consistent with the intent of ShapingSEQ, given the Inland Rail Program is identified within the regional plan as key region-shaping infrastructure that supports the vision for SEQ.

ShapingSEQ acknowledges the importance of infrastructure investments such as the Inland Rail Program to enable future connection of ports, such as the Port of Brisbane and the Toowoomba Wellcamp Airport, to an extensive freight network of major interstate rail and road connections, reinforcing SEQ as the apex of Australia's strategic freight network. These ports are significant economic assets that provide unrivalled access to a growing global market for our goods and services, in traditionally strong areas, such as agriculture and tourism, and emerging sectors such as knowledge and service-based activities. Furthermore, this presents significant opportunities for the regional economy by providing a competitive rail freight network connecting to existing and future distribution hubs and intermodal terminals presenting a viable alternative to road transport.

ShapingSEQ identifies the Inland Rail Program as being able to support increased capacity to manage freight through SEQ generally and provides specific opportunities in major enterprise and industrial areas in the Toowoomba LGA, such as the Toowoomba Enterprise Hub (Charlton–Wellcamp Enterprise Area). Furthermore, the Inland Rail Program has the potential to enhance the Western Gateway Regional Economic Cluster. This regional economic cluster (REC) supports significant agricultural and resource activities and priority sectors of manufacturing, transport and logistics, and health and knowledge. The Project provides for the movement of freight by rail connecting Toowoomba Wellcamp Airport, Toowoomba Bypass, Warrego, Gore and New England highways, InterLinkSQ and the city of Toowoomba.

7.8.3 Darling Downs Regional Plan 2013

The *Darling Downs Regional Plan* (DSDIP, 2013b) identifies a priority outcome sought for the region's transport network to include the prioritisation of transport programs that improve freight movement. The Project will assist with the region's longer-term aspiration for a modal shift towards increased rail usage. Increased rail capacity will particularly benefit the region for the movement of agricultural commodities and improving the inward logistics for the mining sector.

The *Darling Downs Regional Plan* (DSDIP, 2013b) identifies the eastern area of the Darling Downs Region as being 'the gateway' to the region, supporting an extensive network of freight routes into and out of the Darling Downs Region. The Project is consistent with the intent of the eastern Darling Downs area as being the major transport and service hub of the region. The Project will improve access to and from regional markets and may act as a significant catalyst for development, particularly in relation to rail-dependent industries and support industries associated with transport, freight handling, warehousing and logistics.

Intermodal facilities, including hubs east of Goondiwindi and the logistics hub in Toowoomba's Charlton–Wellcamp Enterprise Area, would also be supported by the proposed intent to construct a freight railway network of national significance in the region.

The Project will improve road safety, ease congestion, and reduce environmental impacts by moving freight from road to rail.

Based on the above, the Project is considered to be consistent with the intent of *Darling Downs Regional Plan*.

7.9 Cumulative impacts

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

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

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

Twenty-three projects were initially identified as having potential to contribute to cumulative impacts in combination with the Border to Gowrie project. These projects are either currently operational, expected to undergo future expansion or are currently going through an approval process. A full list of the 22 projects, with a description of each, is presented in Chapter 21: Cumulative Impacts.

For the purposes of land use and tenure, projects that directly interface the Border to Gowrie project and will have temporal overlap in construction or expansion activities are considered to have potential to result in cumulative impacts. Only 4 of the initial 22 projects identified meet these criteria. These projects are listed in Table 7.40.

TABLE 7.40 PROJECTS CONSIDERED FOR THE CUMULATIVE IMPACT ASSESSMENT

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

The combined land requirements of these projects have potential to result in cumulative impacts associated with:

- ▶ Loss of Class A and Class B agricultural land, and land within an IAA
- ▶ Disruption to agricultural operations
- ▶ Impacts on accessibility within the wider road network and to private properties
- ▶ Temporary disruption to services and utilities.

Due to a lack of publicly available quantitative data on land use and tenure impacts for the projects, specified in Table 7.40, a qualitative assessment method has been applied for assessing the cumulative impacts. The qualitative assessment assigns a relevance factor to the potential cumulative impact for the following aspects:

- ▶ The probability of impact
- ▶ The duration of the impact
- ▶ The magnitude/intensity of impact
- ▶ Sensitivity of receiving environment.

Assessment of these for the potential impacts identified above is provided in Table 7.41.

TABLE 7.41 ASSESSMENT OF LAND USE AND TENURE CUMULATIVE IMPACTS

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
InterLinkSQ	Loss of Class A and Class B agricultural and within an IAA	Probability of the impact	Low (1)	6	Low	Will be managed through:
		Duration of the impact	High (3)			▶ Refining the Project design during detail design to minimise the Project footprint to the extent required for the construction works and safe operation of the Project in proximity to the InterLinkSQ site
		Magnitude/intensity of the impact	Low (1)			▶ Rehabilitation of land that is temporarily disturbed in support of construction activities construction (e.g. for access tracks, laydown areas etc.) at the end of its use for construction, unless otherwise agreed with the relevant landowner
		Sensitivity of the receiving environment	Low (1)			▶ Development and implementation of a Rehabilitation and Landscaping Management Sub-plan, as a component of the CEMP for the Project, which is compatible with InterLinkSQ's adjoining activities and addresses cumulative impacts to agricultural land.
	Disruption to agricultural operations	Probability of the impact	Low (1)	6	Low	Will be managed through the development of individual property treatments in consultation with landowners/occupants, with respect to the management of cumulative construction activities on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure or relocation of impacted structures, as required. Measures, where agreed, will be documented in individual property agreements.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Impacts on accessibility to the road network and to private properties	Probability of the impact	Low (1)	5	Low	Will be managed through:
		Duration of the impact	Medium (2)			▶ The detail design process to ensure legal access to properties is maintained. Alternative access to and from a public road will be provided to an equivalent standard where feasible and practicable. Alternative access arrangements will be developed in consideration of cumulative accessibility impacts, in combination with InterLinkSQ activities.
		Magnitude/intensity of the impact	Low (1)			▶ Open channel of communication between ARTC and the operators of InterLinkSQ to establish a shared understanding of construction, operation and maintenance schedules for both projects. This information sharing will be used to inform property owners, occupants and businesses in advance of the timing and scope of activities in their area; and potential impacts or interruptions to access or property operational arrangements.
		Sensitivity of the receiving environment	Low (1)			

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
InterLinkSQ	Temporary disruptions to services and utilities.	Probability of the impact	Low (1)	4	Low	ARTC will liaise with the operators of InterLinkSQ to establish a shared understanding for the utility and service requirements for each of the two projects during construction, operation and maintenance. This information sharing will be used to inform the optimal timing of temporary service disruptions and realignment/relocation of services, if either is required. This information sharing will also be used to inform property owners, occupants and businesses in advance of the timing and scope of disruptions to services and utilities in their area.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
Commodore Mine and Millmerran Power Station	Loss of Class A and Class B agricultural and within an IAA	Probability of the impact	Low (1)	6	Low	Will be managed through: ▶ Refinement of the Project design during detail design to minimise the Project footprint to the extent required for the construction works and safe operation of the Project in proximity to the Commodore Mine and Millmerran Power Station ▶ Rehabilitation of land that is temporarily disturbed in support of construction activities construction (e.g. for access tracks, laydown areas etc.) at the end of its use for construction, unless otherwise agreed with the relevant landowner ▶ Development and implementation of a Rehabilitation and Landscaping Management Sub-plan, as a component of the CEMP for the Project that is compatible with plans for the adjoining Commodore Mine and Millmerran Power Station and addresses cumulative impacts to agricultural land.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Disruption to agricultural operations	Probability of the impact	Low (1)	6	Low	Will be managed through the development of individual property treatments in consultation with landowners/occupants, with respect to the management of cumulative construction activities on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure or relocation of impacted structures, as required. Measures, where agreed, will be documented in individual property agreements (or similar). It is noted that a large number of properties surrounding the Commodore Mine and Millmerran Power Station are owned and leased for private occupancy by entities that also have an ownership interest in the mine and power station.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
Commodore Mine and Millmerran Power Station	Impacts on accessibility to the road network and to private properties	Probability of the impact	Low (1)	5	Low	Will be managed through:
		Duration of the impact	Medium (2)			▶ The detail design process to ensure legal access to properties is maintained. Alternative access to and from a public road will be provided to an equivalent standard where feasible and practicable. Alternative access arrangements will be developed in consideration of cumulative accessibility impacts, in combination with plans for the adjoining Commodore Mine and Millmerran Power Station.
		Magnitude/intensity of the impact	Low (1)			▶ An open channel of communication between ARTC and the operators of the Commodore Mine and Millmerran Power Station to establish a shared understanding of construction, expansion, operation and maintenance schedules for both projects. This information sharing will be used to inform property owners, occupants and businesses in advance of the timing and scope of activities in their area; and potential impacts or interruptions to access or property operational arrangements.
		Sensitivity of the receiving environment	Low (1)			
	Temporary disruptions to services and utilities.	Probability of the impact	Low (1)	4	Low	ARTC will liaise with the operators of the Commodore Mine and Millmerran Power Station to establish a shared understanding for the utility and service requirements for each of the two projects during construction, operation and maintenance. This information sharing will be used to inform the optimal timing of temporary service disruptions and realignment/relocation of services, if either is required.
		Duration of the impact	Low (1)			This information sharing will also be used to inform property owners, occupants and businesses in advance of the timing and scope of disruptions to services and utilities in their area.
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
North Star to NSW/QLD Border (Inland Rail)	Loss of Class A and Class B agricultural and within an IAA	Probability of the impact	Low (1)	6	Low	ARTC is the Proponent for both projects and therefore potential cumulative impacts will be managed through:
		Duration of the impact	High (3)			▶ Refinement of both projects during detail design to minimise the footprint to the extent required for the construction works and safe operation of the Project
		Magnitude/intensity of the impact	Low (1)			▶ Rehabilitation of land that is temporarily disturbed in support of construction activities construction (e.g. for access tracks, laydown areas etc.) at the end of its use for construction, unless otherwise agreed with the relevant landowner.

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
North Star to NSW/QLD Border (Inland Rail)	Loss of Class A and Class B agricultural and within an IAA	Sensitivity of the receiving environment	Low (1)	6	Low	▶ ARTC to ensure that Rehabilitation and Landscaping Management Sub-plans (or equivalent) are prepared for both adjoining Inland Rail projects, and that these sub-plans are complementary and are consistent with the Inland Rail Landscaping and Rehabilitation Strategy ARTC to ensure that construction contract documentation for adjoining projects have consistent clauses regarding the monitoring and defect correction for revegetated and rehabilitated areas, particularly in areas designated as Class A and Class B agricultural or within an IAA.
	Disruption to agricultural operations	Probability of the impact	Low (1)	6	Low	ARTC is the proponent for both projects and therefore potential cumulative impacts will be managed through: ▶ The development of individual property treatments in consultation with landowners/occupants, with respect to the management of cumulative construction activities on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure or relocation of impacted structures, as required. Measures, where agreed, will be documented in individual property arrangement. ▶ Requiring all site personnel to adhere to ARTC land access protocols and procedures and property agreements when entering private properties adjacent to the Project footprint.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Impacts on accessibility to the road network and to private properties	Probability of the impact	Low (1)	5	Low	ARTC is the proponent for both projects and therefore potential cumulative impacts will be managed through: ▶ Maintaining legal access to properties through the detail design process. Alternative access to and from a public road will be provided to an equivalent standard where feasible and practicable. Alternative access arrangements will be developed in consideration of cumulative accessibility impacts associated with the adjoining Inland Rail projects. ▶ Disruptions to access during construction will be addressed through temporary diversions and onsite traffic management in consultation with the local community. Roads will only be closed permanently where the impact of diversions or consolidations is considered acceptable, or where the existing location is not considered safe and cannot reasonably be made safe. In consultation with landowners, an appropriate level of access will be maintained for agricultural businesses across and between properties affected by the Project.
		Duration of the impact	Medium (2)			

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
North Star to NSW/QLD Border (Inland Rail)	Impacts on accessibility to the road network and to private properties	Magnitude/intensity of the impact	Low (1)	5	Low	- During construction, regular Project updates will be provided to stakeholders, including affected landowners, which forecast road works, road realignments and closures, and explain alternative routes to enable agricultural and other business operators to plan their travel with minimal disruptions. - Depending on the compartmentalisation of contracts for the adjoining Inland Rail projects, ARTC will facilitate an open channel of communication between principal contractors to establish a shared understanding of construction, expansion, operation and maintenance schedules for both projects. This information sharing will be used to inform property owners, occupants and businesses in advance of the timing and scope of activities in their area and potential impacts or interruptions to access or property operational arrangements.
		Sensitivity of the receiving environment	Low (1)			
	Temporary disruptions to services and utilities	Probability of the impact	Medium (2)	6	Low	- Depending on the compartmentalisation of contracts for the adjoining Inland Rail projects, ARTC will facilitate an open channel of communication between principal contractors to establish a shared understanding for the utility and service requirements for each of the two projects during construction, operation and maintenance. This information sharing will be used to inform the optimal timing of temporary service disruptions and realignment/relocation of services, if either is required. - This information sharing will also be used to inform property owners, occupants and businesses in advance of the timing and scope of disruptions to services and utilities in their area.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Low (1)			

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
Gowrie to Helidon (Inland Rail)	Loss of Class A and Class B agricultural and within an IAA	Probability of the impact	Low (1)	6	Low	ARTC is the proponent for both projects and therefore potential cumulative impacts will be managed through: ▶ The design for both projects will be refined during detail design to minimise the footprint to the extent required for the construction works and safe operation of the Project ▶ Land that is temporarily disturbed in support of construction activities construction (e.g. for access tracks, laydown areas etc.) will be rehabilitated at the end of its use for construction, unless otherwise agreed with the relevant landowner ▶ ARTC to ensure that Rehabilitation and Landscaping Management Sub-plans (or equivalent) are prepared for both adjoining Inland Rail projects, and that these sub-plans are complementary and are consistent with the Inland Rail Landscaping and Rehabilitation Strategy ▶ ARTC to ensure that construction contract documentation for adjoining projects have consistent clauses regarding the monitoring and defect correction for revegetated and rehabilitated areas, particularly in areas designated as Class A and Class B agricultural or within an IAA.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			
	Disruption to agricultural operations	Probability of the impact	Low (1)	6	Low	ARTC is the proponent for both projects and therefore potential cumulative impacts will be managed through: ▶ The development of individual property treatments in consultation with landowners/occupants, with respect to the management of cumulative construction activities on or immediately adjacent to private properties. These will detail any required adjustments to fencing, access, farm infrastructure or relocation of impacted structures, as required. Measures, where agreed, will be documented in individual property agreements (or similar). ▶ All site personnel will be required to adhere to ARTC land access protocols and procedures and property agreements when entering private properties.
		Duration of the impact	High (3)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
Gowrie to Helidon (Inland Rail)	Impacts on accessibility to the road network and to private properties	Probability of the impact	Low (1)	5	Low	ARTC is the proponent for both projects and therefore potential cumulative impacts will be managed through: ▶ Maintaining legal access to properties through the detail design process. Alternative access to and from a public road will be provided to an equivalent standard where feasible and practicable. Alternative access arrangements will be developed in consideration of cumulative accessibility impacts associated with the adjoining Inland Rail projects. ▶ Disruptions to access during construction will be addressed through temporary diversions and onsite traffic management in consultation with the local community. Roads will only be closed permanently where the impact of diversions or consolidations is considered acceptable, or where the existing location is not considered safe and cannot reasonably be made safe. In consultation with landowners, an appropriate level of access will be maintained for agricultural businesses across and between properties affected by the Project. ▶ During construction, regular Project updates will be provided to stakeholders, including affected landowners, which forecast road works, road realignments and closure, and explain alternative routes to enable agricultural and other business operators to plan their travel with minimal disruptions. ▶ Depending on the compartmentalisation of contracts for the adjoining Inland Rail projects, ARTC will facilitate an open channel of communication between principal contractors to establish a shared understanding of construction, expansion, operation and maintenance schedules for both projects. This information sharing will be used to inform property owners, occupants and businesses in advance of the timing and scope of activities in their area; and potential impacts or interruptions to access or property operational arrangements.
		Duration of the impact	Medium (2)			
		Magnitude/intensity of the impact	Low (1)			
		Sensitivity of the receiving environment	Low (1)			

Project	Cumulative impact	Aspect	Relevance factor	Sum of relevance factors	Impact significance	Comments
Gowrie to Helidon (Inland Rail)	Temporary disruptions to services and utilities.	Probability of the impact	Medium (2)	6	Low	► Depending on the compartmentalisation of contracts for the adjoining Inland Rail projects, ARTC will facilitate an open channel of communication between principal contractors to establish a shared understanding for the utility and service requirements for each of the two projects during construction, operation and maintenance. This information sharing will be used to inform the optimal timing of temporary service disruptions and realignment/relocation of services, if either is required. ► This information sharing will also be used to inform property owners, occupants and businesses in advance of the timing and scope of disruptions to services and utilities in their area.
		Duration of the impact	Low (1)			
		Magnitude/intensity of the impact	Medium (2)			
		Sensitivity of the receiving environment	Low (1)			

Table notes:

Relevance factors between 1 and 3 were determined using professional judgement to select most appropriate relevance factor for each aspect and summing the relevance factors.

Sum of relevant factors definition:

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

It is recognised that the Project may contribute to cumulative impacts to land use and tenure, as the development of agricultural land cannot be fully mitigated; however, the Project is consistent with the State land-use planning expectations for the area, having endeavoured to minimise potential land-use impacts through a rigorous route and alignment selection process. Further details on the route and alignment selection process is presented in Chapter 2: Project Rationale. Furthermore, with the application of the identified mitigation measures (refer Table 7.38), the residual land use and tenure impacts of the Project are expected to be low at a regional and State level.

The significance of the overall cumulative impact on land use and tenure is assessed as low.

7.10 Conclusions

This chapter has addressed the ToR requirements through the identification of existing and proposed land uses, including land characteristics, tenures, agricultural land, petroleum and gas pipeline licences, and resource tenures. The chapter provides an impact assessment to identify potential impacts on existing and proposed land uses that may arise as a result of the Project, providing management measures used to avoid or mitigate potential impacts.

Through this process, it has been identified that the Project has the potential to result in the following impacts of relevance to land use and tenure:

- ▶ Change in tenure and loss of property including impacts to native title
- ▶ Change in land use
 - ▶ Impacts on agricultural uses and activities
 - Loss of agricultural land
 - Land fragmentation and disruption to access and infrastructure
 - Alterations to stock routes
 - Alterations to biosecurity fences
 - Other indirect impacts on agricultural land
 - Opportunities to support the agricultural industry.
 - ▶ Change to notable land uses
 - ▶ Sterilisation of mineral resources
 - ▶ Activities that are incompatible with adjoining development activity.
- ▶ Accessibility
 - ▶ Impacts on road network
 - ▶ Impacts to property access.
- ▶ Impacts on services and utilities.

Where possible, potential impacts have been avoided or minimised through measures that have been factored into the reference design or otherwise implemented during the reference design phase for the Project (refer Section 7.7.1). Where impacts cannot be avoided, mitigation measures have been proposed for implementation during future phases of the Project to further reduce and manage the potential impacts (refer Section 7.7.2).

In addition to the potential adverse impacts identified, the Project has the potential to result in beneficial impacts. Beneficial impacts of the Inland Rail Program, and this Project, include:

- ▶ Improved access to and from regional markets
- ▶ Reduced inter-capital freight costs
- ▶ Improved reliability and certainty of transit time
- ▶ Increased capacity of the freight transport network
- ▶ Reduces freight transportation distances
- ▶ Improved safety
- ▶ Improved sustainability.

In support of these benefits, Inland Rail is recognised by the *Darling Downs Draft Regional Transport Plan 2018* as a national Program with potential to support economic growth in the region through opportunities for connection into regional freight hubs and improving rail network efficiency.

The Project has been specifically incorporated into other State planning instruments and its design aligns with the land-use intent and relevant land-use planning principles of these instruments. As a result, it has been concluded that the Project is consistent with the intent of the SPP, *Darling Downs Regional Plan* and *ShapingSEQ*.