20. Land use and property

This chapter provides the land use and property impact assessment of the proposal. It describes the existing environment, assesses the impacts of construction and operation on land use, including property, agriculture uses, biosecurity, and land use in general, and provides recommended mitigation measures.

20.1 Assessment approach

20.1.1 Methodology

The assessment involved:

- reviewing the regulatory framework for land use and management, including relevant State, regional and local planning legislation, environmental planning instruments, policies, strategies and guidelines
- reviewing, identifying, and mapping existing land uses within the study area based on a desktop review of GIS spatial data and aerial photography, including:
  - land use zoning under the *Parkes Local Environmental Plan 2012* (the Parkes LEP) and the *Narromine Local Environmental Plan 2011* (the Narromine LEP)
  - significant properties and/or landholdings
  - agricultural uses, including any areas of regionally significant farmland; areas used for cropping, grazing and horticulture; travelling stock reserves; and agricultural infrastructure
  - Crown land
  - conservation and forest reserves
  - mineral resources and mining leases.
- assessing the potential for impacts on agricultural land uses during construction and operation, including undertaking a land use conflict risk assessment in accordance with the *Land use conflict risk assessment guide* (Department of Primary Industries, 2011)
- consideration of the potential for impacts on other land uses during construction and operation
- providing measures to mitigate and manage the impacts identified.

20.1.2 Legislative and policy context to the assessment

Relevant legislation and planning instruments are summarised in chapter 3. Land use planning strategies relevant to the study area and proposal are summarised in chapter 5.

The main guideline relevant to the assessment is *Infrastructure proposals on rural land* (Department of Primary Industries, 2013). This guideline provides the potential impacts to be considered by consent authorities' relation to infrastructure proposals, including:

- resource use and fragmentation
- impacts on farming operations and livestock
- increased weed, biosecurity and bushfire risks
- site rehabilitation.

These potential issues were considered as part of the assessment of potential impacts on agricultural land.

20.2 Existing environment

20.2.1 General land use description

An overview of general land use in the study area is provided in chapter 2. The proposal key features and land uses in the study area (based on the land use zoning from the LEPs) are shown in Figure 20.1. Other specific land uses considered by this chapter are shown in Figure 20.2.

The majority of land within the study area is held in freehold title. This includes properties held in freehold by private owners and various State Government departments. The study area also comprises areas identified as Crown land, including reserves, waterways and public roads.

Table 20.1 provides a summary of the main land uses in the Narromine and Parkes LGAs calculated based on mapping data provided by OEH. This data indicates that agricultural land uses (grazing and cropping) account for 90 per cent of the total land area within the two LGAs.

Table 20.1 Land use by LGA

Land use	Parkes (ha)	Narromine (ha)	Total land area (ha)	Per cent
Grazing	316,240	250,114	566,354	51
Cropping	205,856	228,551	434,408	39
Conservation area	33,645	11,632	45,277	4
Tree and shrub cover	26,078	10,818	36,896	3
Transport and other corridors	5,828	6,376	12,204	1
River and drainage system	2,490	8,247	10,737	0.96
Urban	2,820	5,556	8,376	0.75
Special category	598	2,120	2,718	0.24
Mining and quarrying	1,639	169	1,808	0.16
Wetland	64	1,471	1,535	0.14
Horticulture	30	721	751	0.07
Intensive animal production	18	97	114	0.01
Power generation	6	0	6	

Land use within the proposal site

Existing rail corridor

The majority of the proposal site is located within the existing rail corridor, which is used for infrastructure (transport – rail and supporting infrastructure) purposes. The zoning of the rail corridor is either SP1 – Special Activities (Freight Transport Facility) or SP2 – Infrastructure (Rail Infrastructure).

The rail corridor is subject to active use for rail transport. Existing operations along the corridor are described in chapter 2.

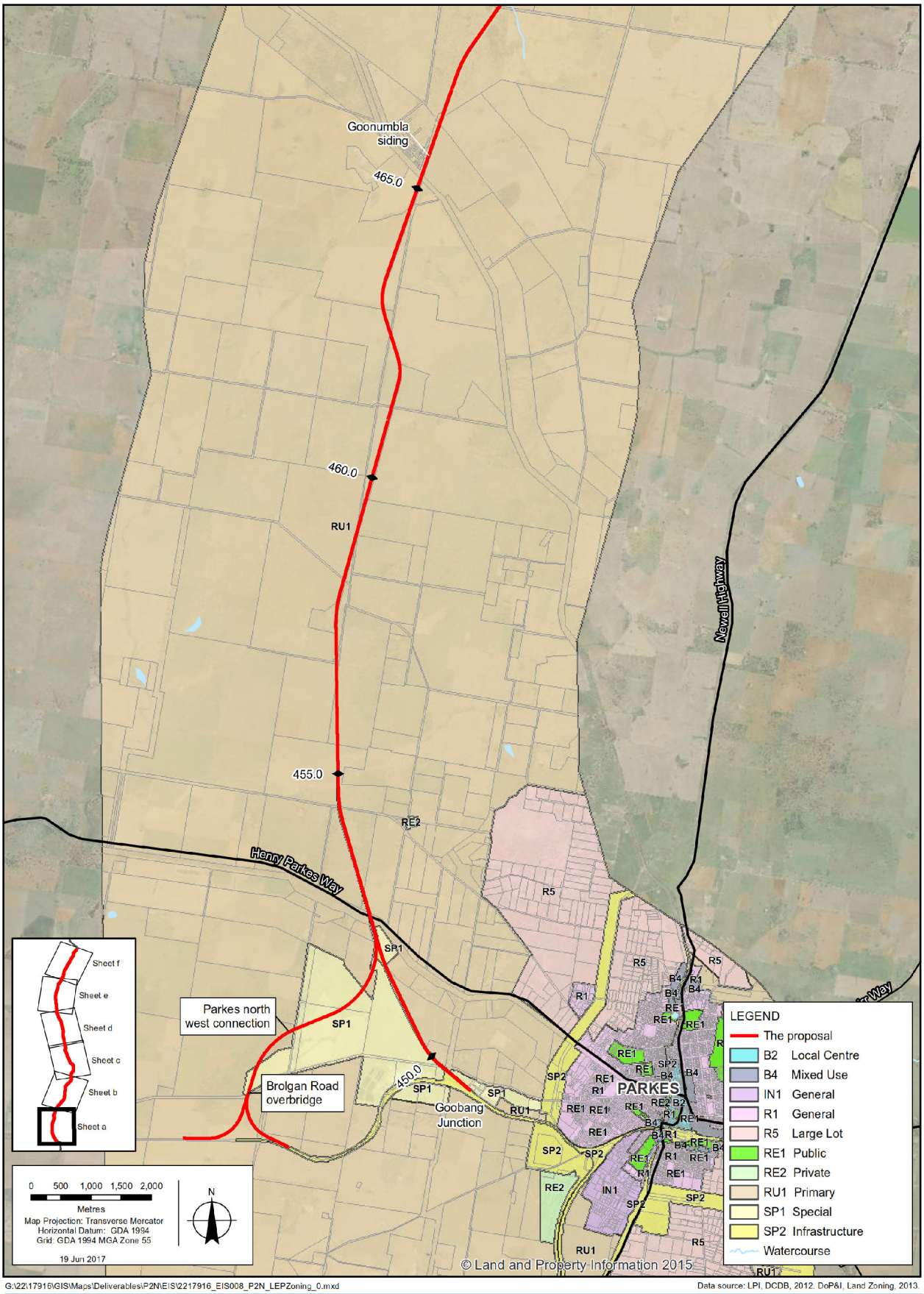

Figure 20.1a
Land use zoning

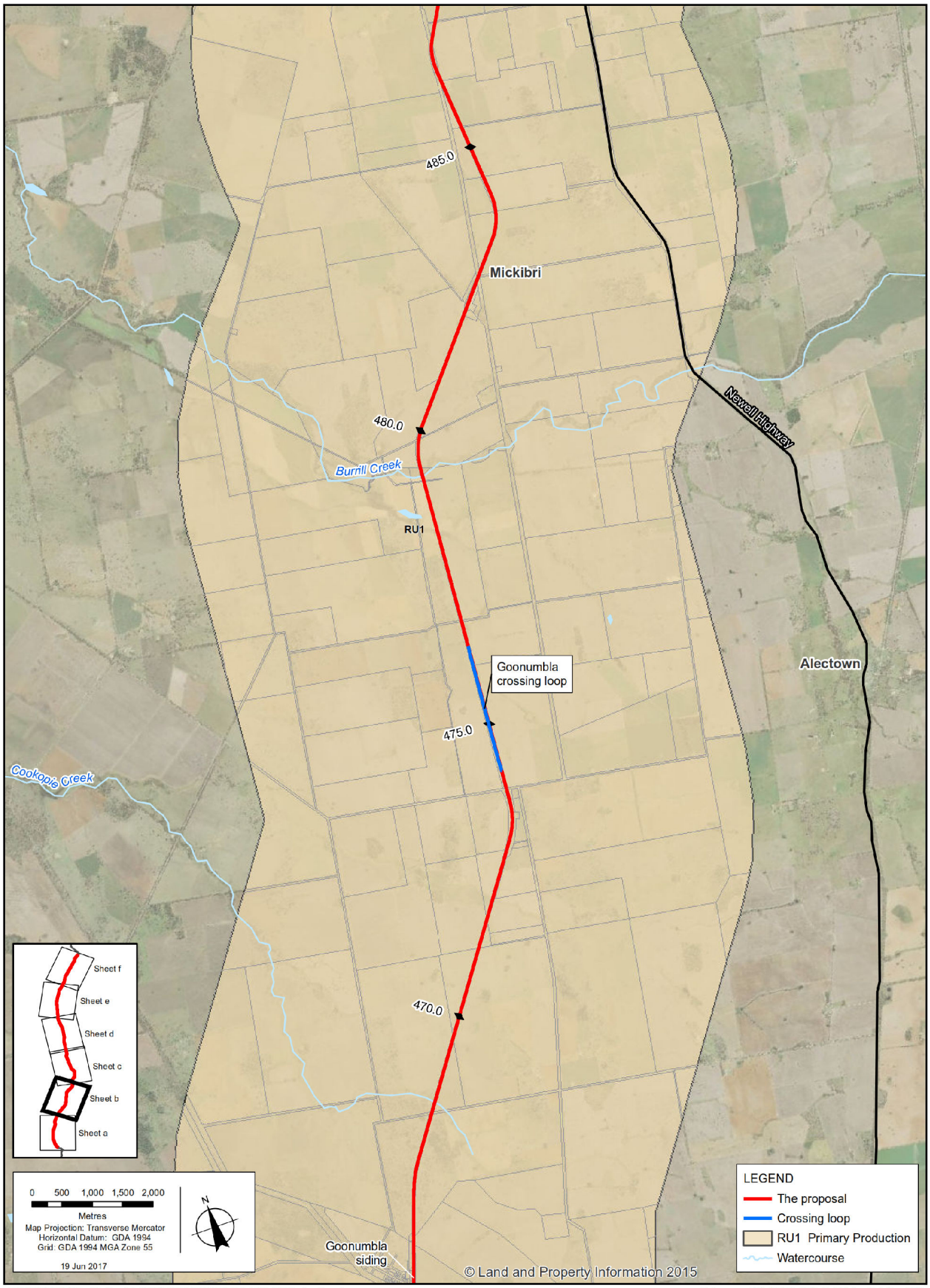

Figure 20.1b
Land use zoning

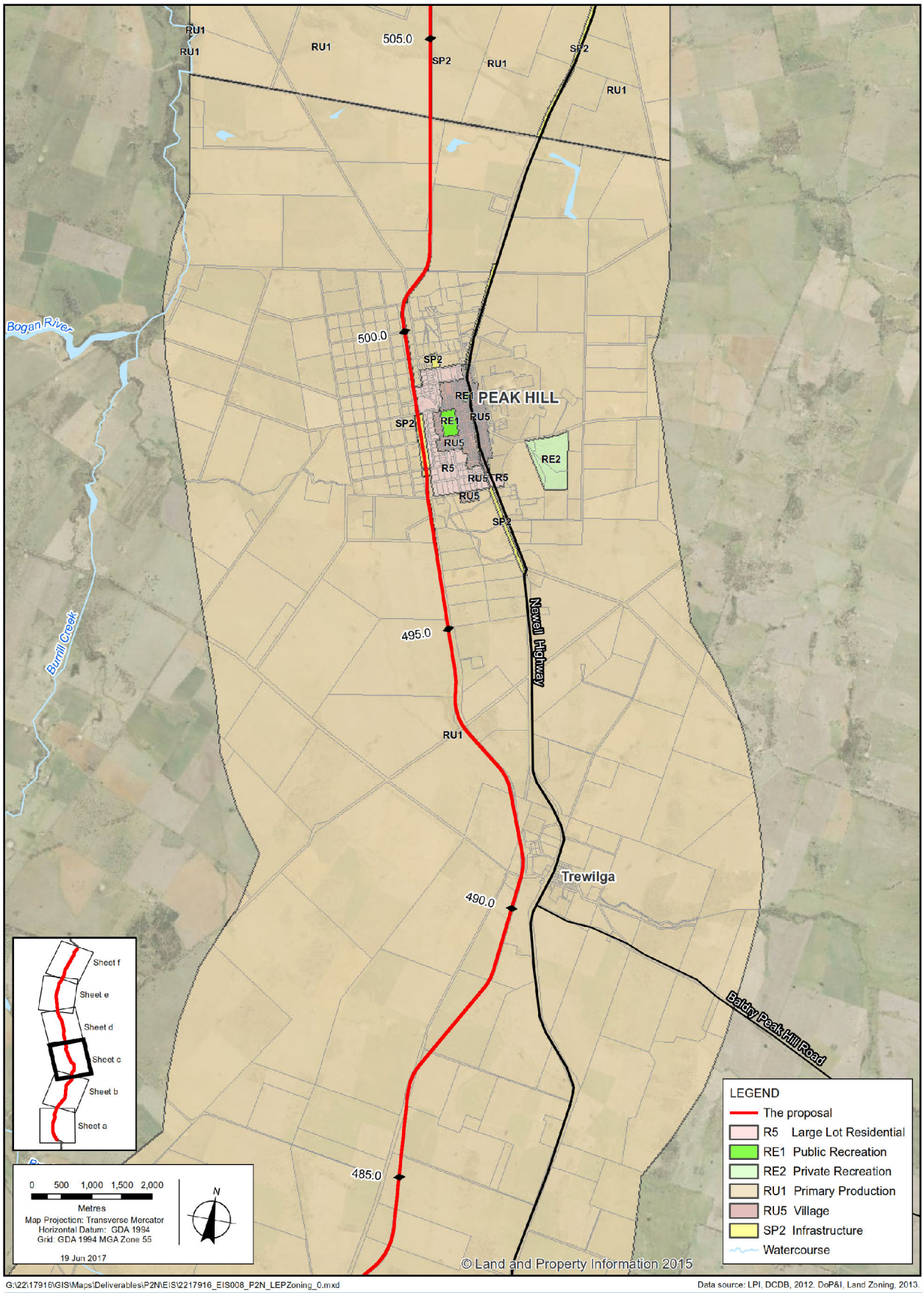

Figure 20.1c
Land use zoning

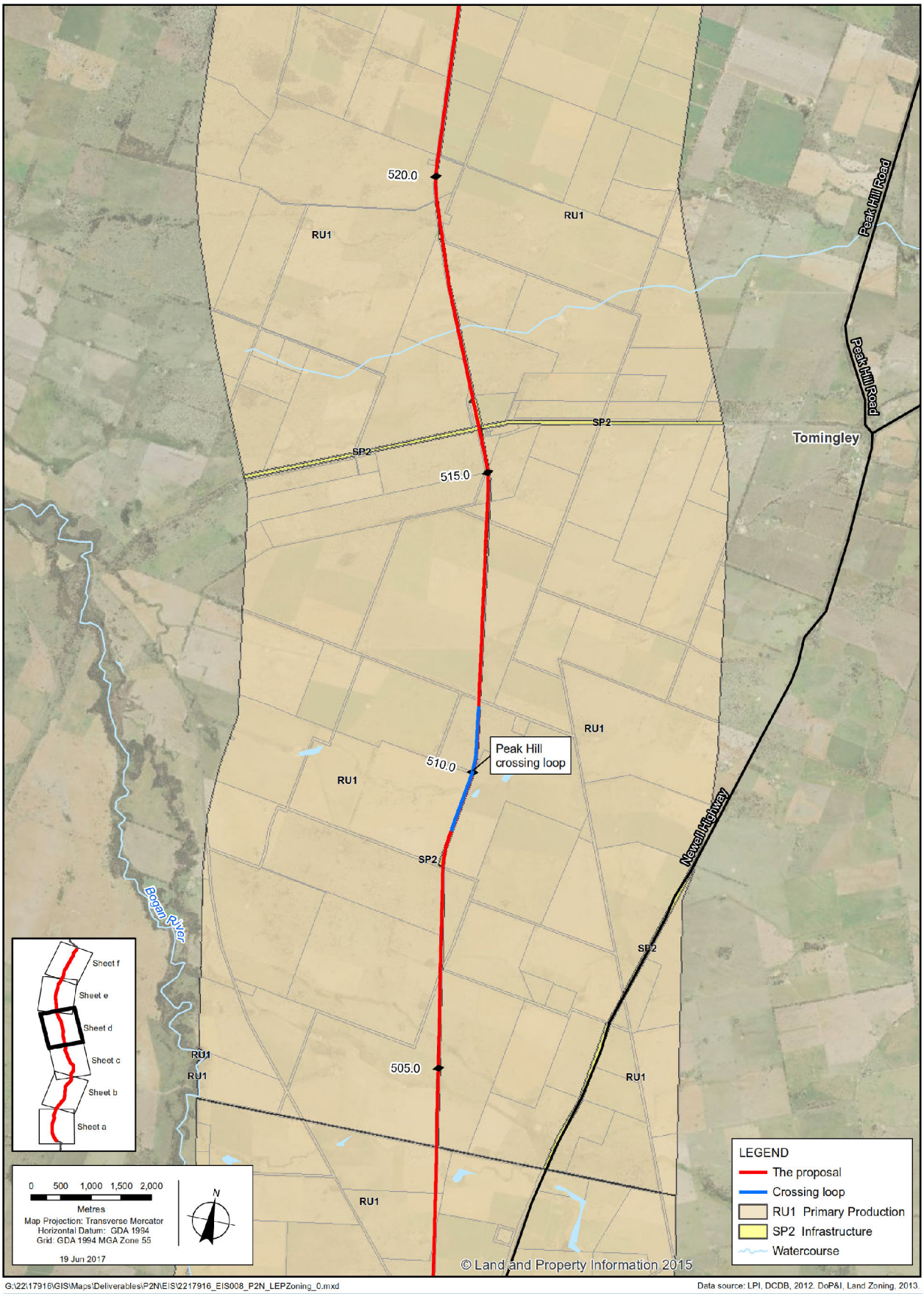

Figure 20.1d
Land use zoning

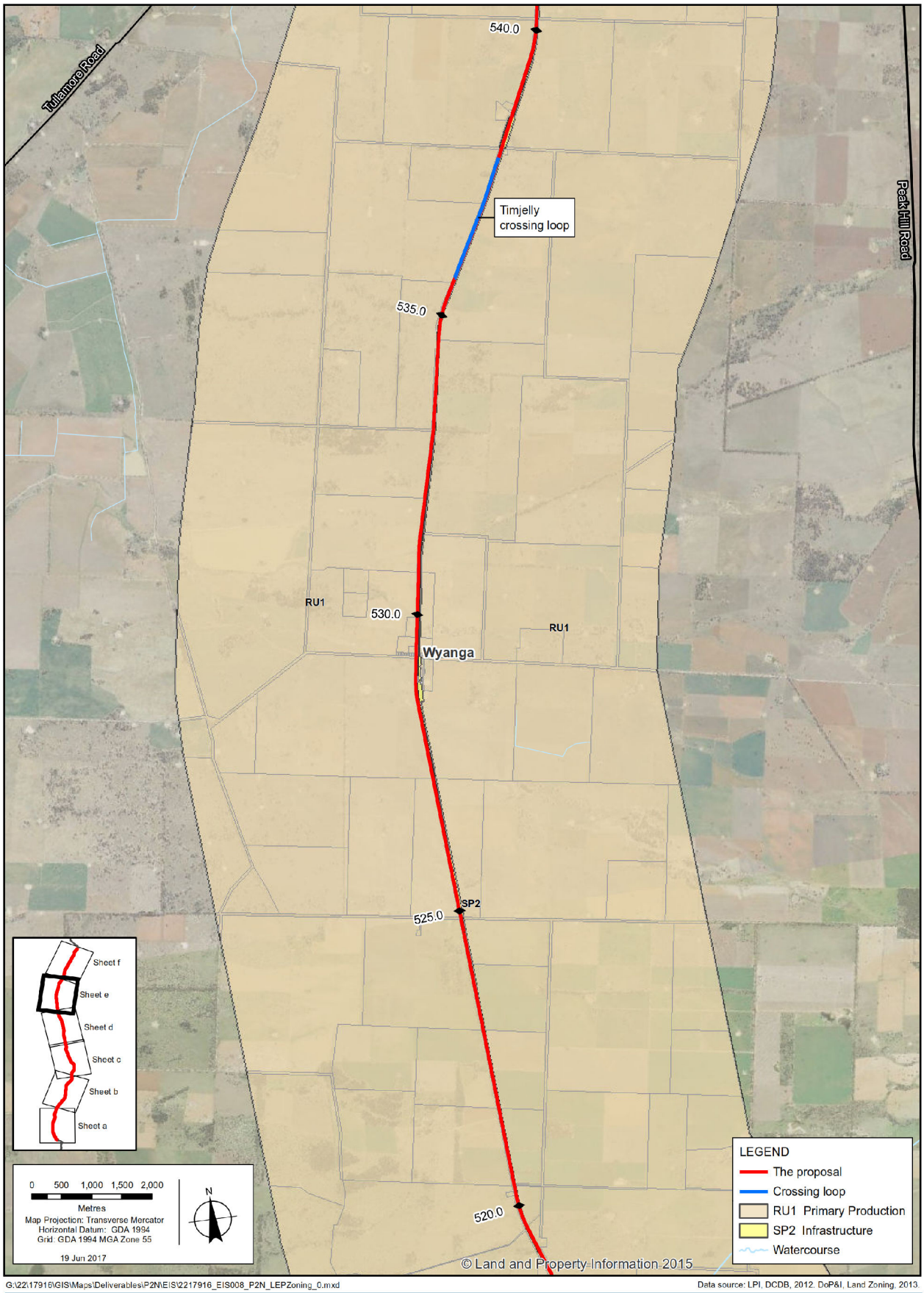

Figure 20.1e
Land use zoning

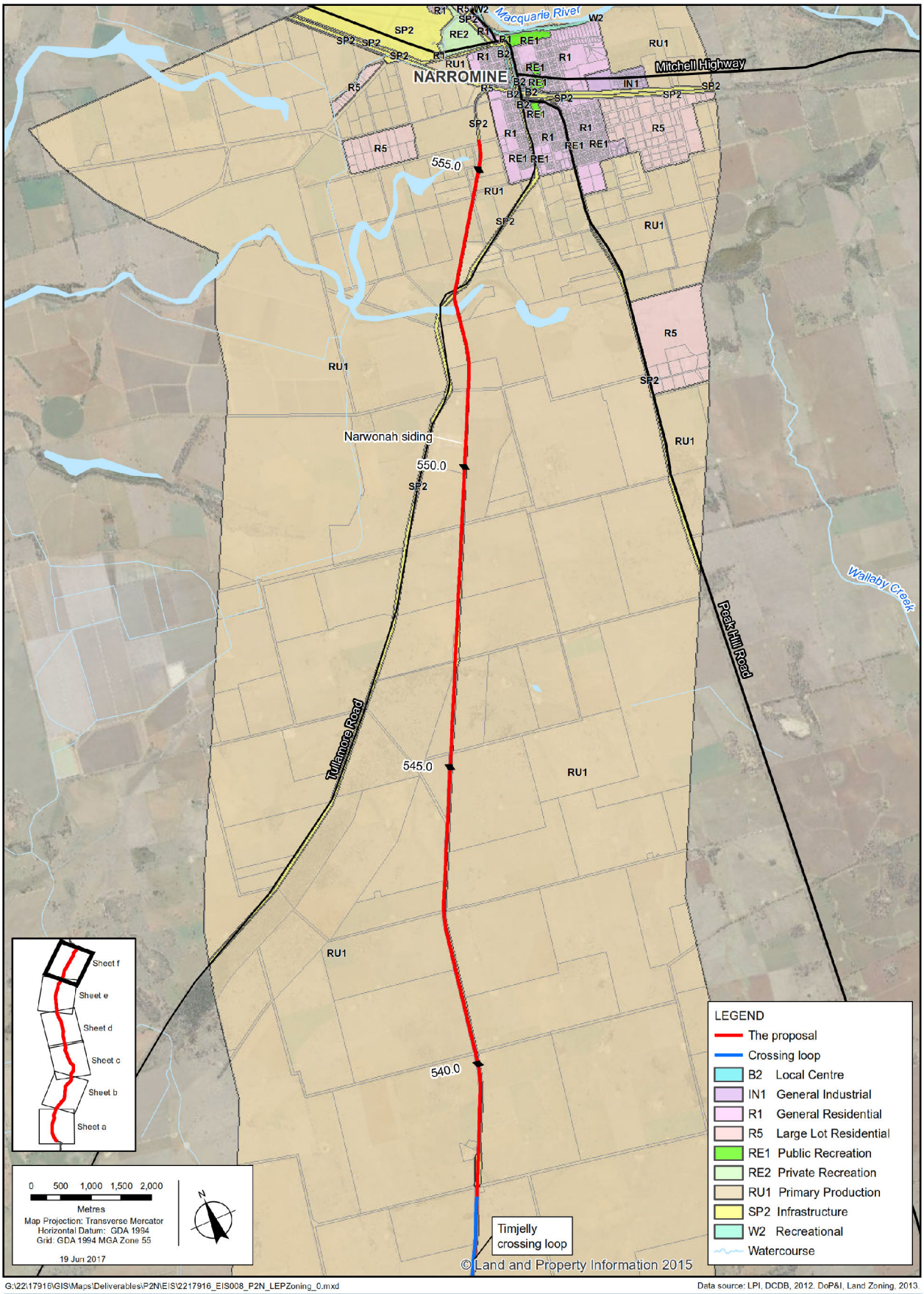

Figure 20.1f
Land use zoning

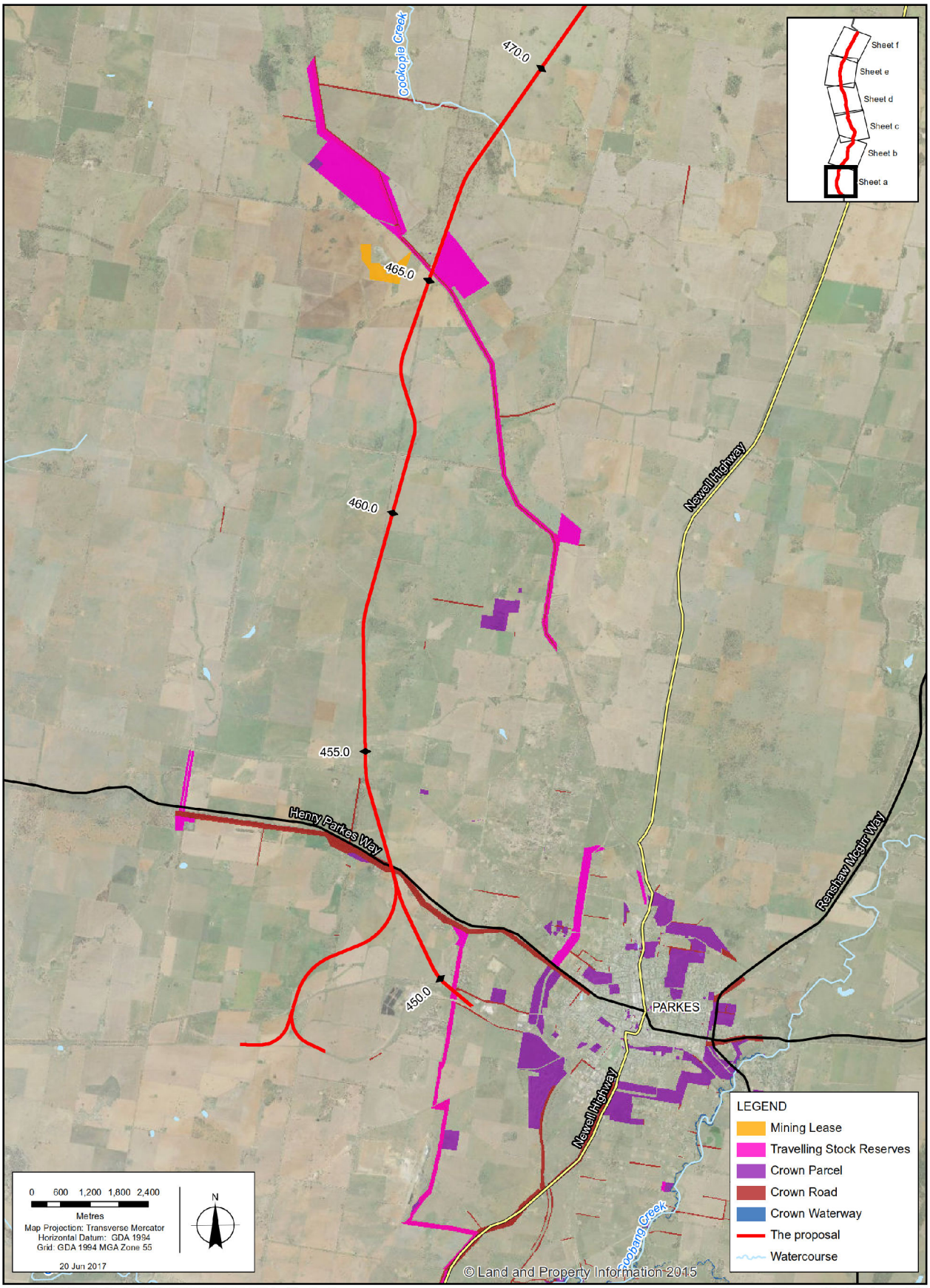

Figure 20.2a
Specific land uses

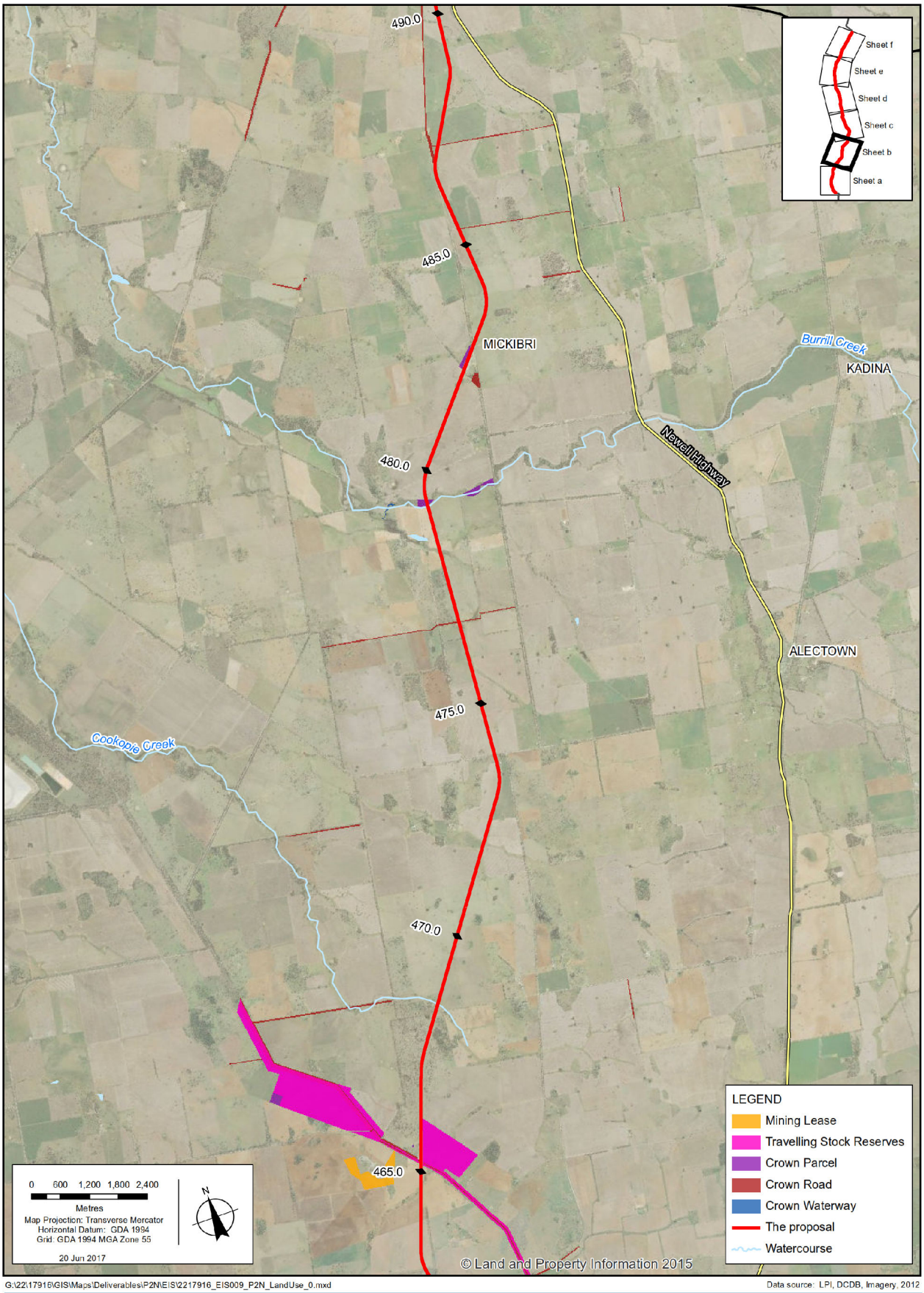

Figure 20.2b
Specific land uses

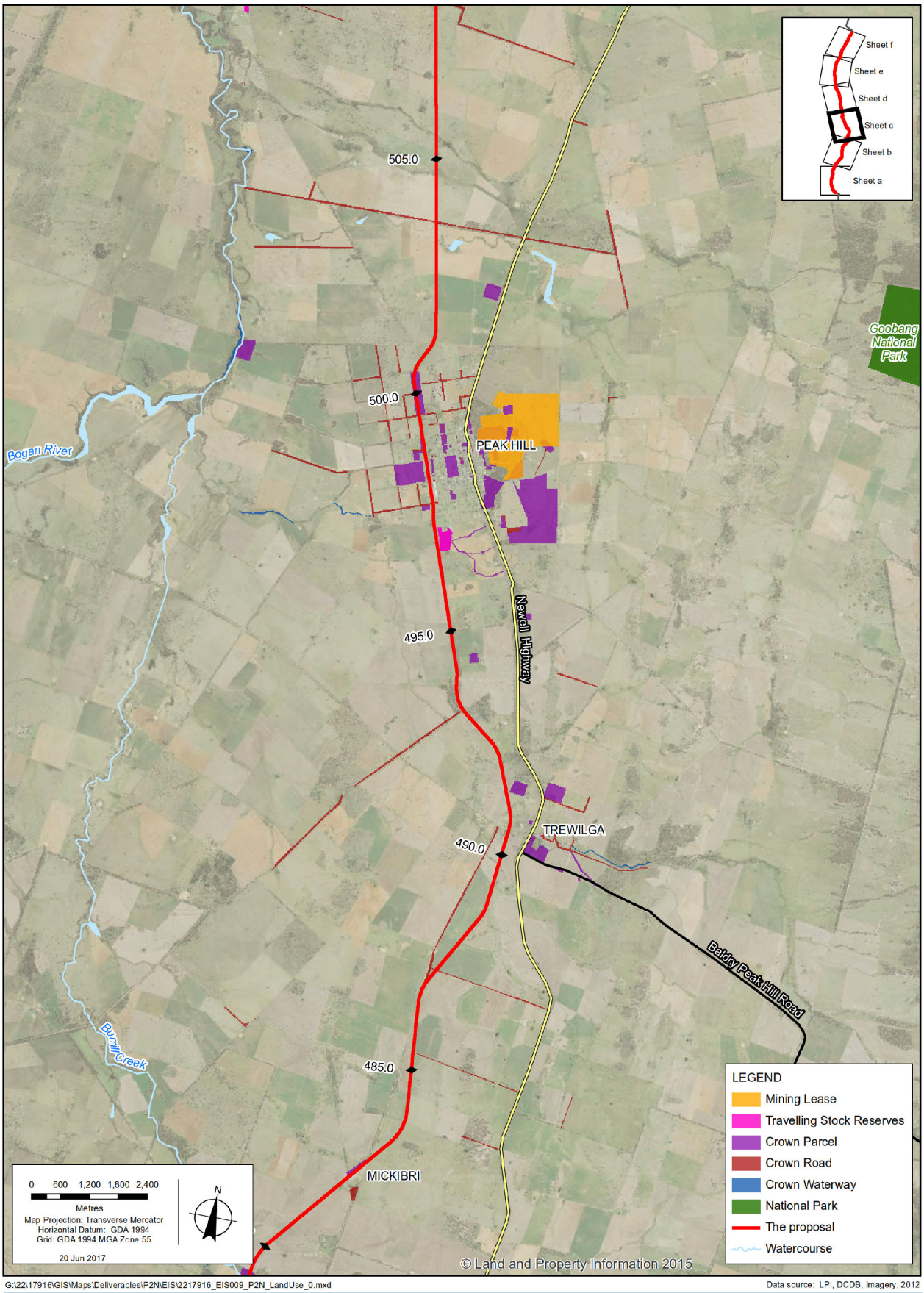

Figure 20.2c
Specific land uses

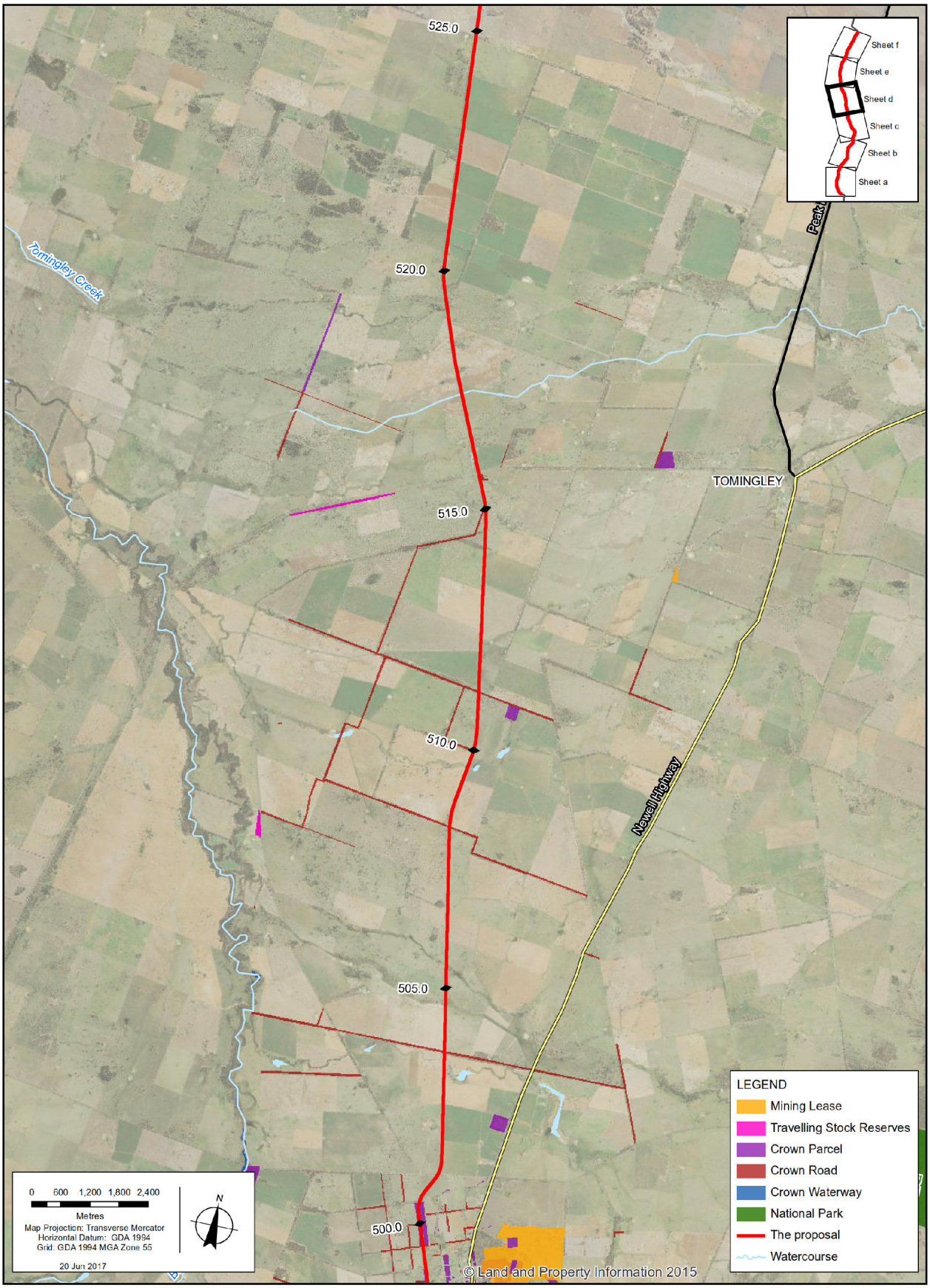

Figure 20.2d
Specific land uses

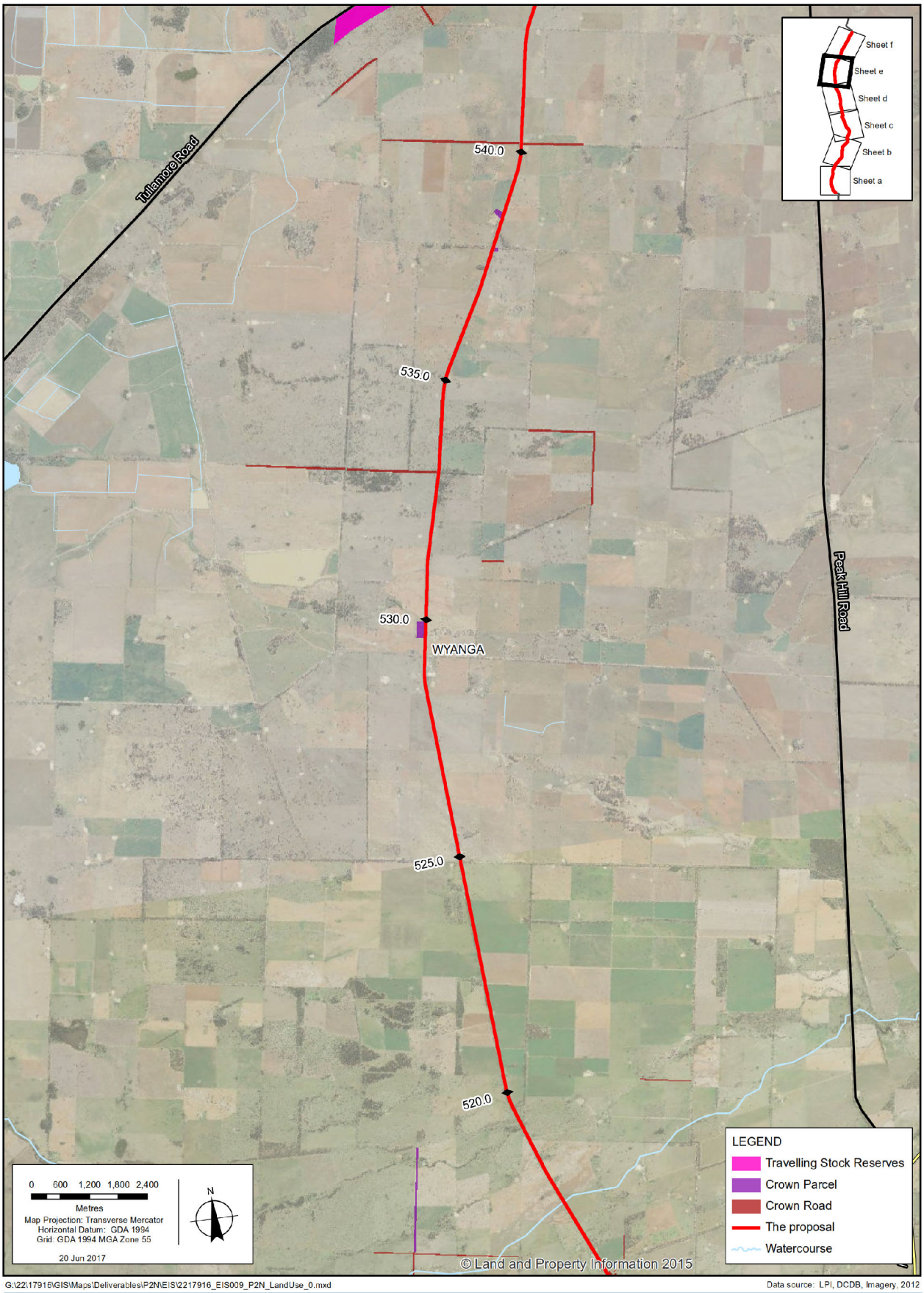

Figure 20.2e
Specific land uses

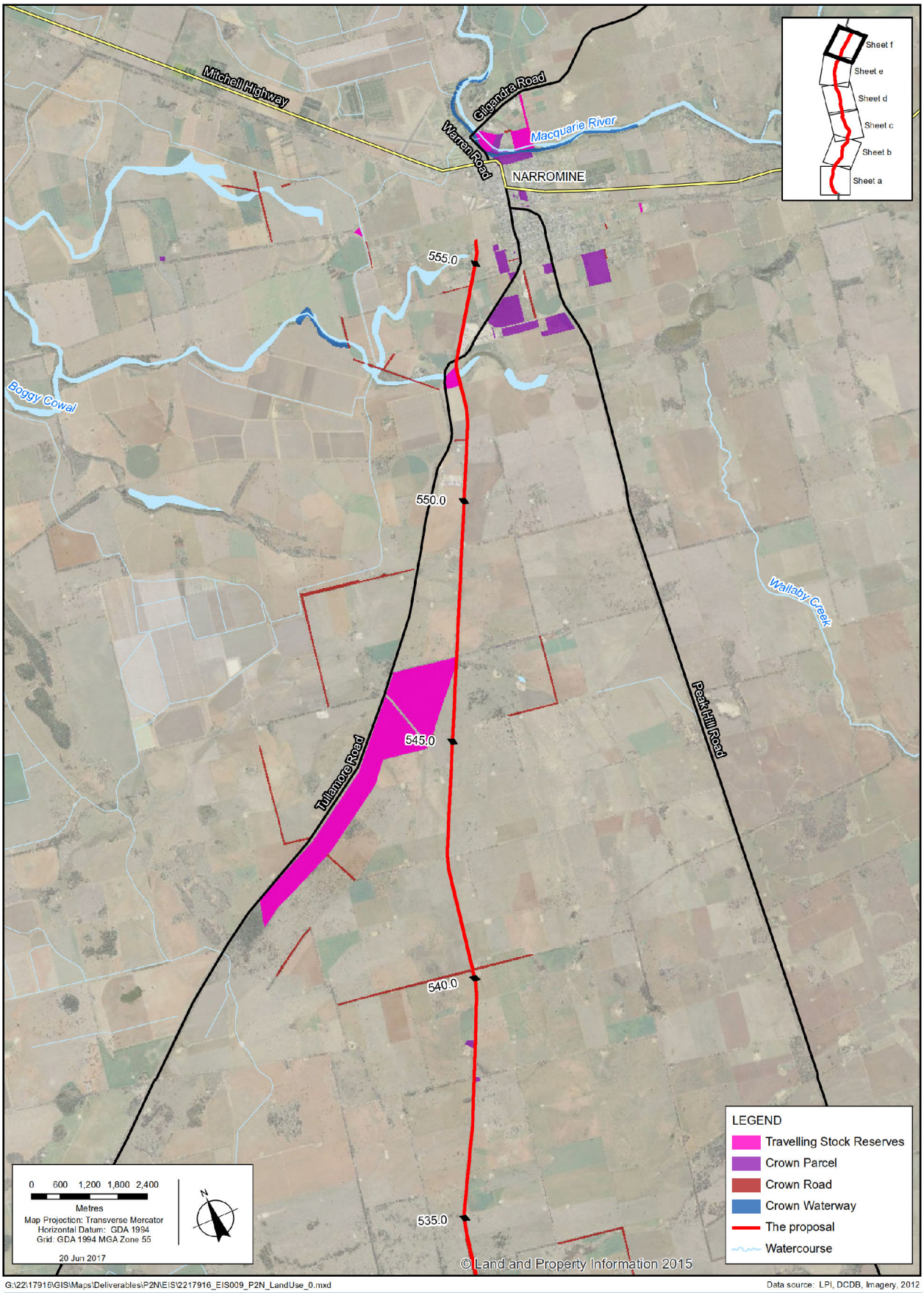

Figure 20.2f
Specific land uses

Outside the existing rail corridor

Outside the existing rail corridor, the existing land use is predominantly rural/agricultural. Land in the proposal site outside the existing rail corridor is zoned RU1 – Primary Production, with the exception of the Parkes north west connection site, which is generally zoned either SP1 – Special Activities (Freight Transport Facility) or SP2 – Infrastructure (Rail Infrastructure).

Adjoining/surrounding land uses

Land surrounding the majority of the proposal site is used for rural/agricultural purposes (mainly zoned RU1 Primary Production). Properties include open grazing land, land used for cropping, scattered vegetation, residences and other farm buildings. Further information on agricultural land uses is provided in section 20.2.2.

Other land use zones adjoining the proposal site include:

- land zoned as General Residential (R1) and Large Lot Residential (R5) where the proposal site runs through Parkes, Peak Hill and Narromine
- land zoned as Infrastructure (SP2) and used for classified roads (such as the Newell Highway). Further information on the road network in the study area is provided in chapter 9
- land zoned as Special Activities (SP1) adjoining the proposal site north west of Parkes. This zoning allows for uses including freight transport facilities, heavy industrial storage establishments, high technology industries, rural industries, transport depots and truck depots.

20.2.2 Agricultural uses and activities

The climate in the study area is generally suited to rain watered winter crop production (cereals and oilseeds) as well as pasture production for grazing livestock, although the variability in rainfall introduces significant production risks which may be alleviated by irrigation, depending on water allocations. The main crops grown in the study area are listed in Table 20.2. Livestock numbers for grazing land are listed in Table 20.3.

Table 20.2 Major crops grown

Crop variety	Parkes (ha)	Narromine (ha)	Total (ha)	Per cent
Wheat	114,280	145,138	259,418	67.4
Barley	45,628	13,857	59,485	15.5
Canola	16,001	22,634	38,635	10
Chickpeas	2,328	14,745	17,073	4.5
Cotton	864	9,655	10,519	2.7
Sorghum	273	5	278	0.08
Mung beans	189	59	248	0.07
Fava beans	0	33	33	0.02
Totals	**179,563**	**206,126**	**385,689**	**100**

Source: ABS (2012) Agricultural Commodities Small Area Data, Australia, 2010-11, Cat. No. 7121.0

Table 20.3 Livestock numbers

Livestock	Parkes	Narromine	Total
Sheep	594,110	324,097	918,207
Lambs	279,615	152,365	431,980
Cattle (beef)	20,620	35,584	56,204

Source: ABS (2012) Agricultural Commodities Small Area Data, Australia, 2010-11, Cat. No. 7121.0

Land and soil capability

Rural lands in NSW are currently being mapped according to two different land classification systems. The first of these classifies land into eight classes known as Land Capability Classes and was developed by the former NSW Soil Conservation Services, while the second system classifies land into five classes known as Agricultural Suitability Classes. The aim of the Land Capability classification is to delineate the various classes of rural land on the basis of the land to remain stable under particular land uses. The Agricultural Suitability classification also uses land capability as a basis but then incorporates other factors such as closeness to markets, availability of water etc. Because the Land Capability system classifies land in terms of inherent physical characteristics or constraints, it consider the optimum use of land rather than the maximum use and in general will not change over time, while the Agricultural Suitability may. Given this, the Land Capability system was consider better to assess how the proposal may have an impact on agricultural land use on the area through physical changes to the landscape such as flooding.

The eight-class classification is shown in Table 20.4 while Figure 20.3 shows the land capability classes in proximity to the proposal site. Land near the proposal site predominantly comprises Class 3 and Class 4 land. In the northern half of the proposal land is capable of being regularly cultivated while in the south the land is suitable for grazing with occasional cultivation as per the definition in Table 20.4. This is consistent with the land uses described in section 20.2.1 which identified cropping and grazing as the predominant land uses near the proposal site.

Table 20.4 Land and soil capability

Broad category	Class	Description
Land capable of being regularly cultivated (Slope < 10%)	Class 1	No special soil conservation works or practices necessary
	Class 2	Soil conservation practices such as strip cropping, conservation tillage and adequate crop rotation.
	Class 3	Structural soil conservation works such as diversion banks, graded banks and waterways, together with soil conservation practices as in Class 2.
Land not capable of being regularly cultivated but suitable for grazing with occasional cultivation (Slope 10% - 25%)	Class 4	Soil conservation practices such as pasture improvement, stock control, application of fertiliser and minimal cultivation for the establishment or reestablishment of permanent pastures.
	Class 5	Structural soil conservation works such as absorption banks, diversion banks and contour ripping, together with the practices as in Class 4.
Land not capable of being cultivated but suitable for grazing (Slope > 25%)	Class 6	Soil conservation practices including limitation of stock, broadcasting of seed and fertiliser, prevention of fire and destruction of vermin. This class may require some structural works.
Other lands	Class 7	Land best protected by green timber
	Class 8	Cliffs, lakes or swamps and other land incapable of sustaining agricultural or pastoral production.

Source: Cunningham et al 1988, Systems used to classify rural lands in New South Wales.