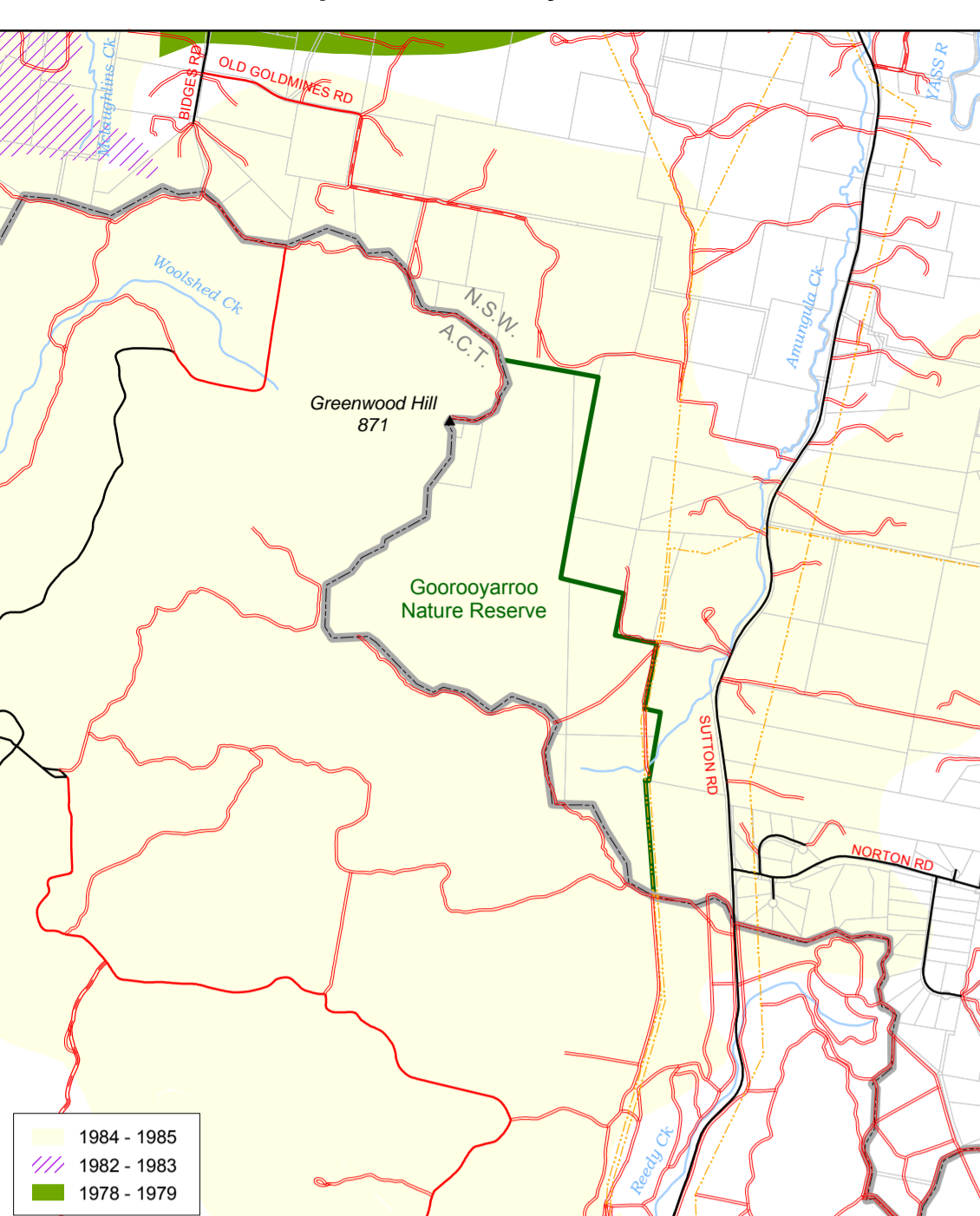
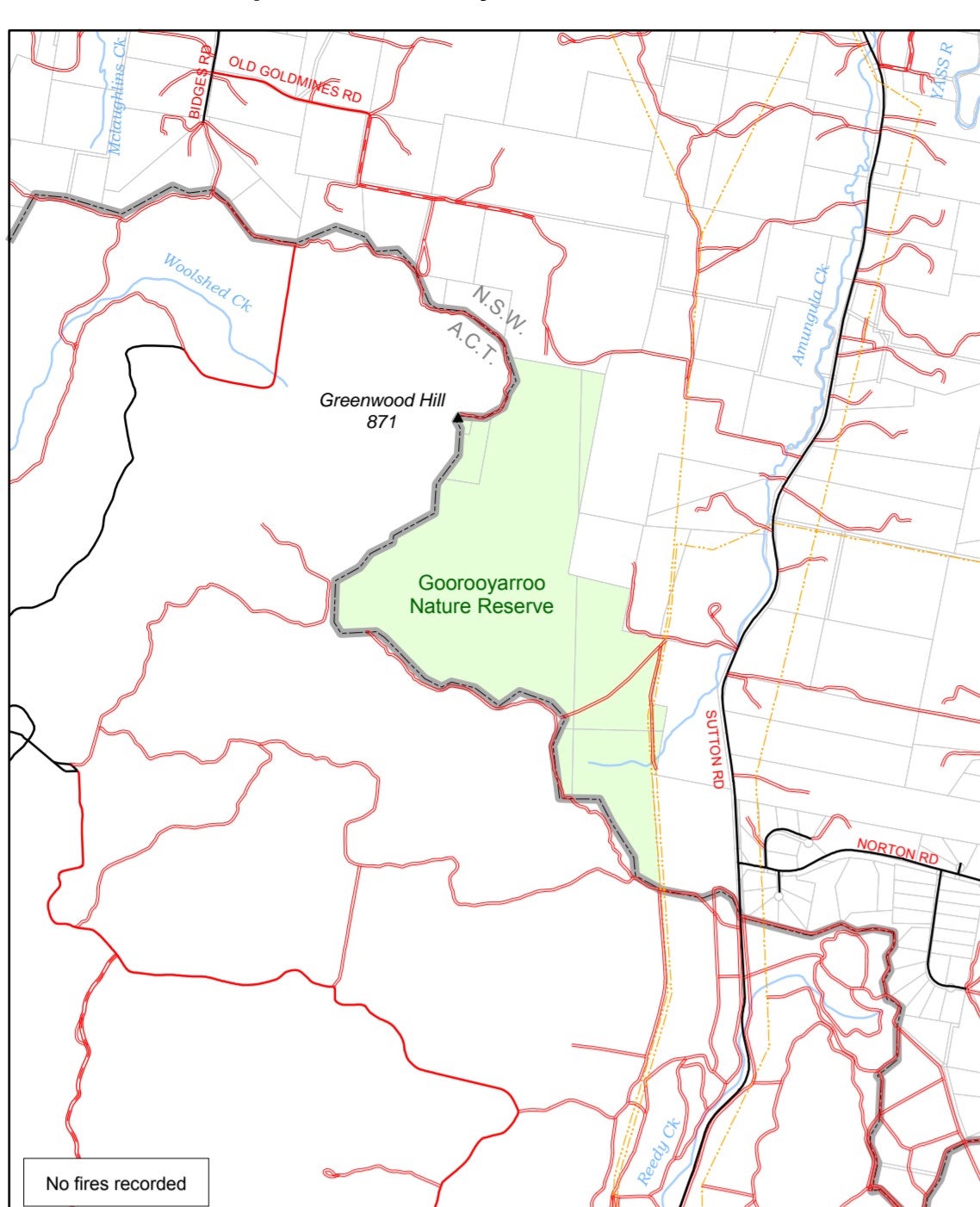


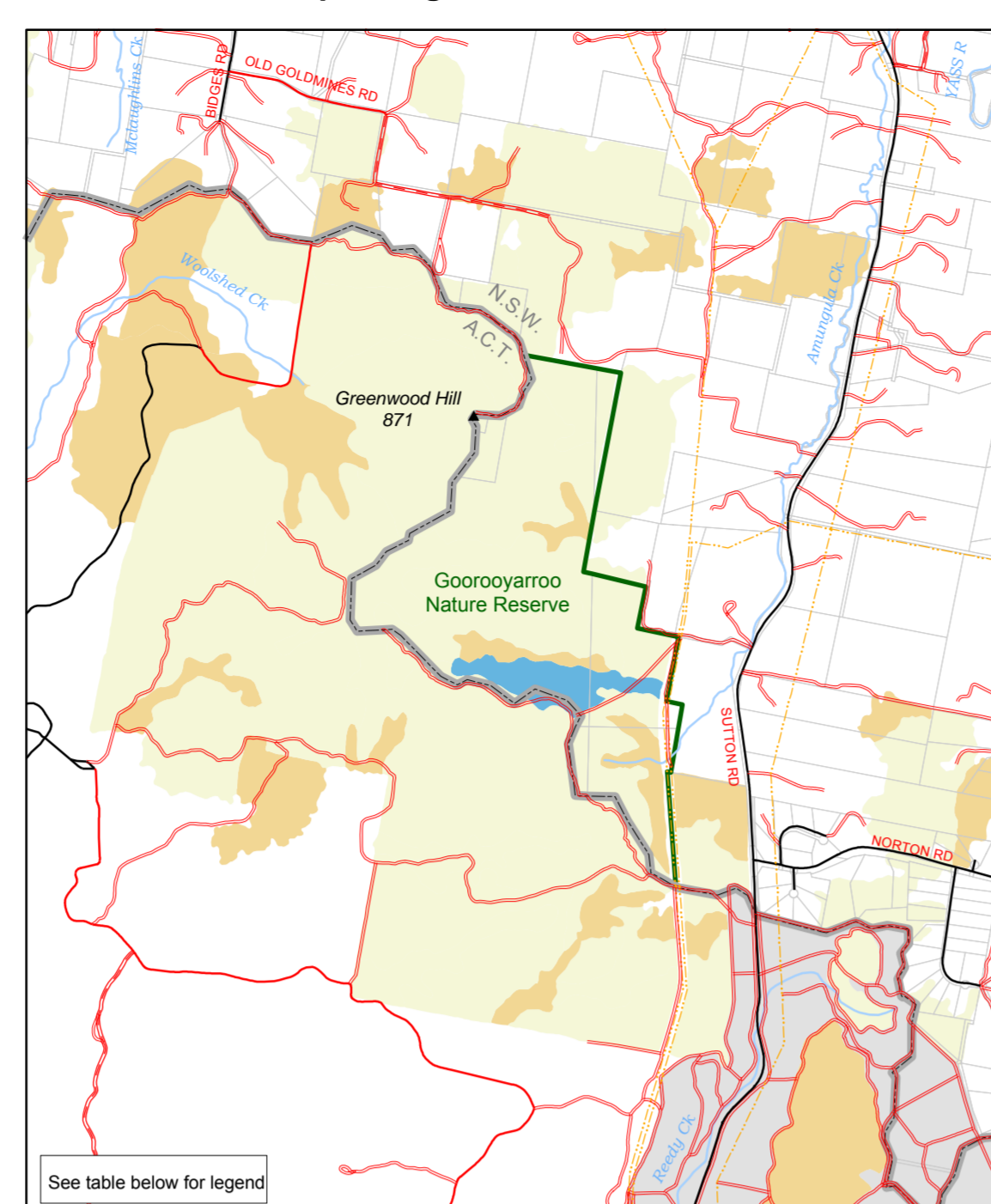
Map 1: Fire History - Wildfire



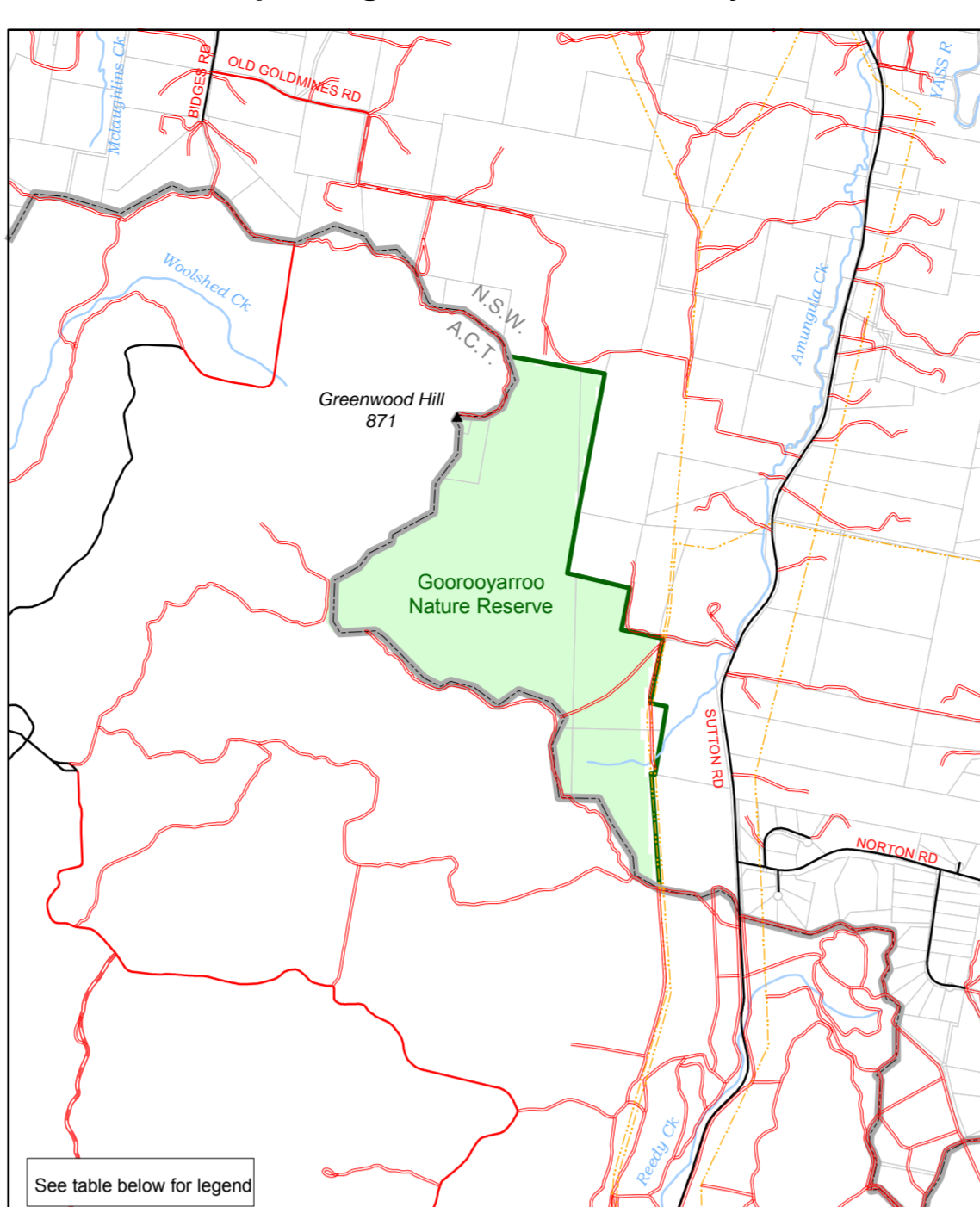
Map 2: Fire History - Prescribed Burns



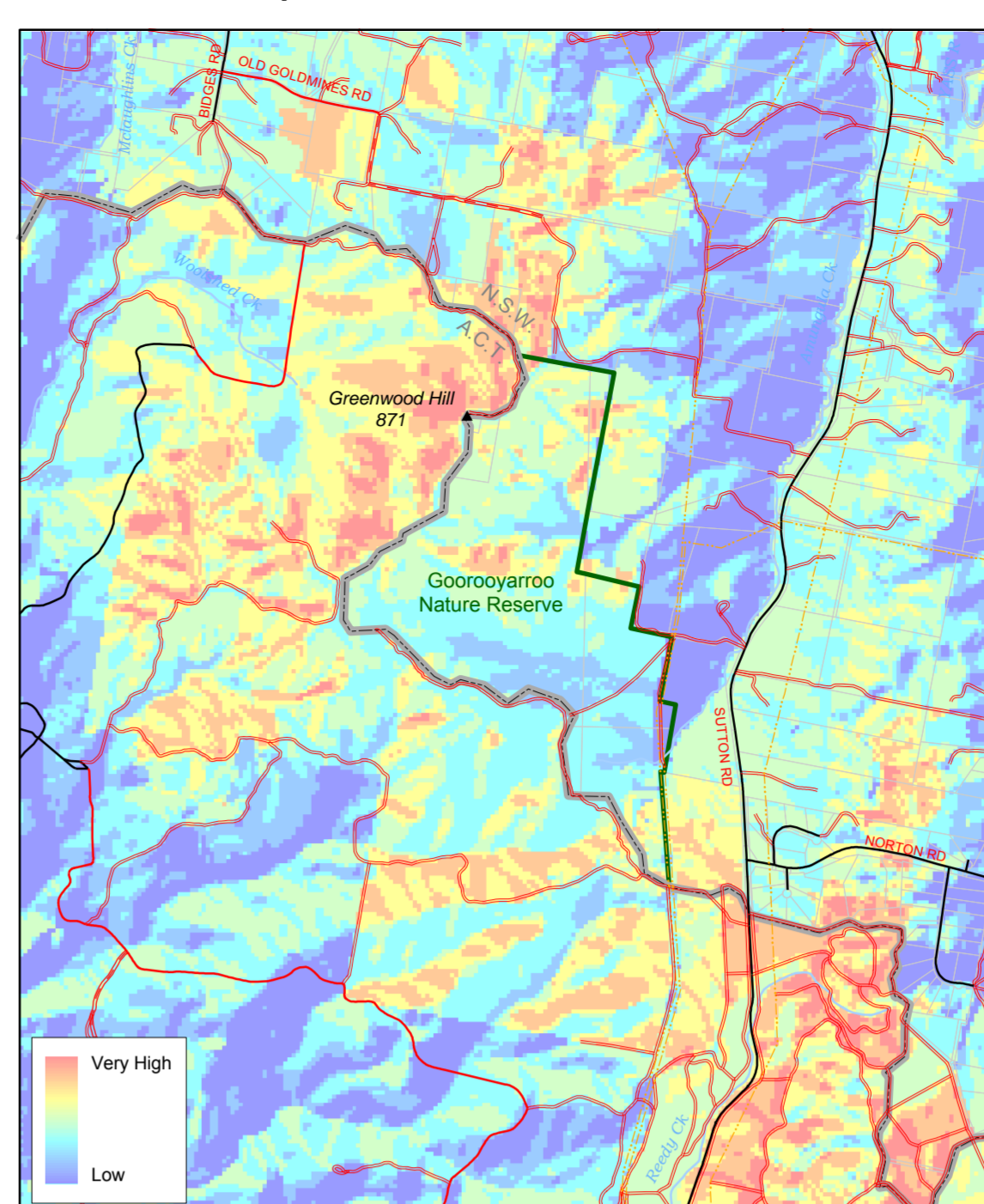
Map 3: Vegetation Communities



Map 4: Vegetation Threshold Analysis



Map 5: Bushfire Behaviour Potential



South West Slopes Region Gorooyarroo Nature Reserve Fire Management Strategy 2009



Scale: Works Program map 1:30000, Location map 1:50000, other maps 1:40000
Version: June 2009, ISBN: 978 1 74232 397 8, DECC-2009/537

This Map should be used in conjunction with air photos and ground reconnaissance during incidents and the development of incident action plans.

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MAPS 1 & 2: FIRE HISTORY

Ignitions	There are no available records of ignitions within the reserve.
Prescribed burns	There are no available records that indicate prescribed or hazard reduction burns have been conducted in the reserve or surrounding landscape by previous land managers. The NPWS have not initiated any prescribed burns since 2009.
Wildfire	In March 1985 a fire was started by arson at Mt Majura, approximately 6 km west of the reserve. This fire burnt through the reserve, jumped Sutton Rd and continued eastwards for a further 6 km, burning a total of 6 022 ha. Other smaller fires in November 1980, November 1986, and February 1988, came within a few km of the reserve. They were all started by arson. A very large (16 264 ha) fire burnt within 2 km of the reserve in February 1979.
Fire Frequency	The reserve has had one fire event in 24 years (as at 2009). The frequency of interval between fire has important implications for biodiversity and future fire management.

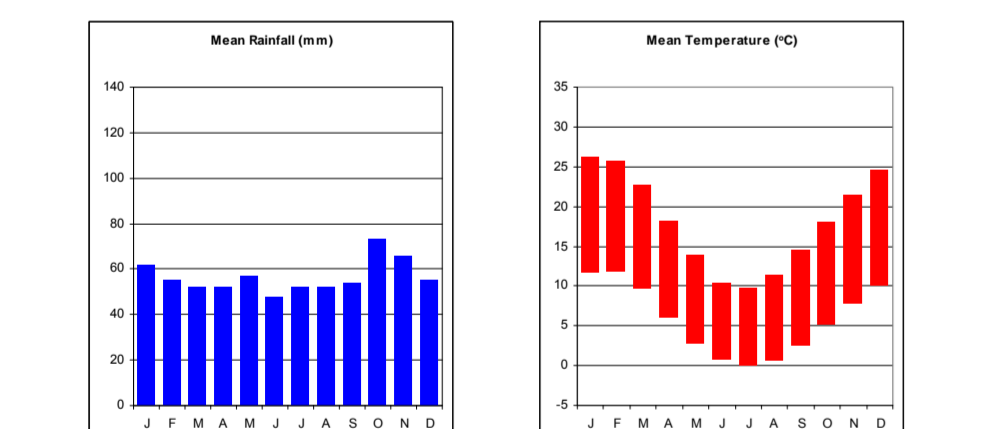
RESOURCE INFORMATION

Gorooyarroo Nature Reserve (256 ha) was gazetted on the 6th July 1973. For the purpose of this Fire Management Strategy, Gorooyarroo Nature Reserve will be referred to as the "reserve", unless otherwise stated.

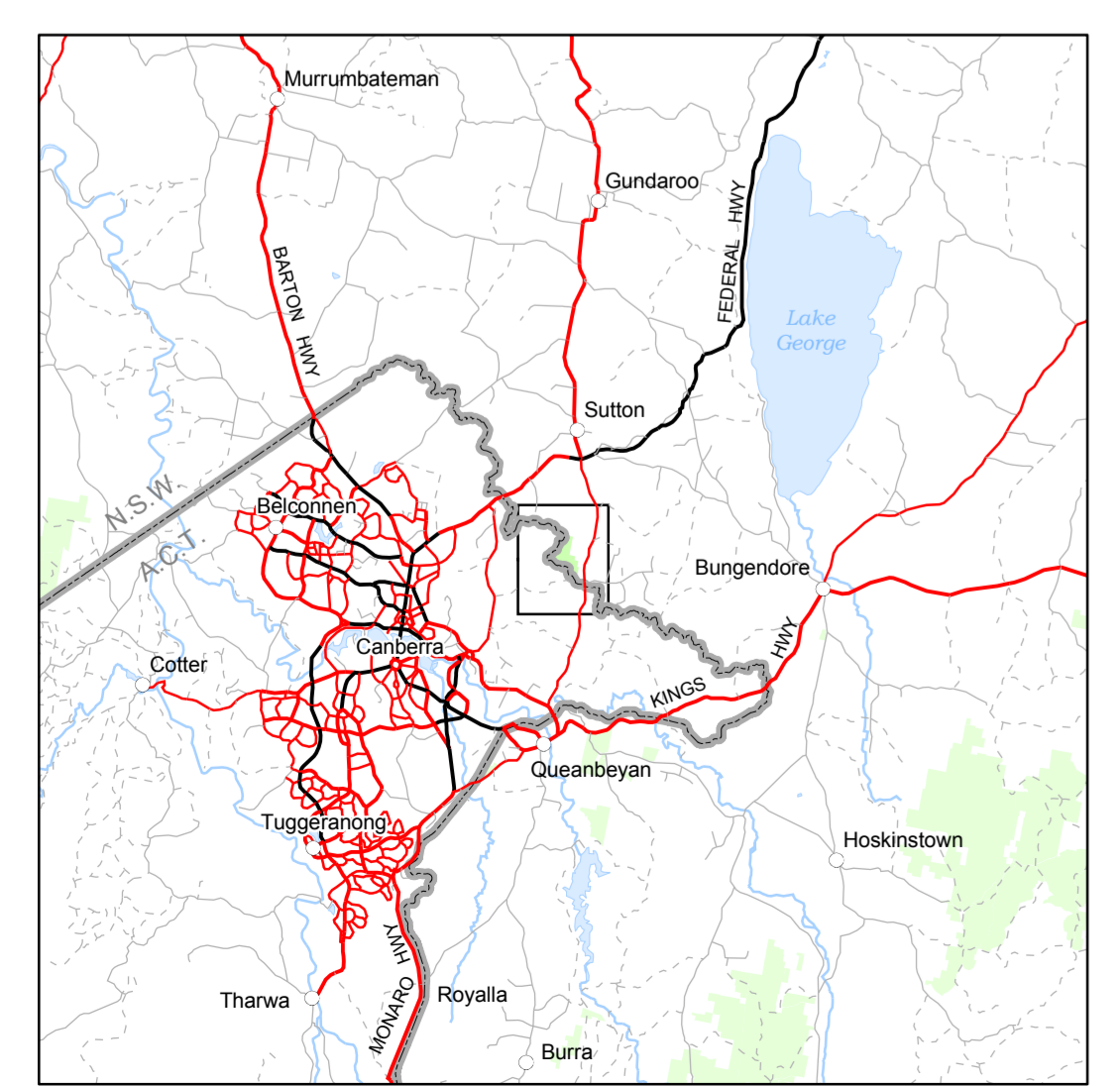
This reserve is located approximately 13.5 km due north of Queanbeyan, adjacent to the eastern Australian Capital Territory border, beside the Murrumbidgee River (Range managed by the Department of Defence). Field survey of the Reserve for unexploded ordnance in 2009 did not find evidence of high explosive ordnance within the reserve. However one live item was identified and therefore no access of forested trails in the reserve is permitted for this reason. All ground fire lighting and suppression efforts should be conducted on existing trails in the reserve. A memorandum of Understanding for Fire Management and Suppression has been signed with the ACT Emergency Services.

Department of Environment and Climate Change	Parks and Wildlife Division, National Parks and Wildlife Service, South West Slopes Region, Queanbeyan Area	Government Areas	Hume Federal Electorate, Murrumbidgee Local Government Area
Rural Fire Service	Lake George Zone (Bush Fire Management Committee)	Other Agencies	Regional Aboriginal Land Council, Murrumbidgee Catchment Management Authority, Department of Defence

IMPORTANT: The planning information is based on the best possible data for each table category. When used in conjunction with other information in the plan, concessions may be needed where asset management and biodiversity requirements differ.



Location



MAP 6: THREATENED FAUNA

File Group	Common Name	Scientific Name	TSC Schedule	Vulnerable Period
A	Brown honeyeater	<i>Chrysobothris julianorum</i>	V	May-Dec
	Diamond firetail	<i>Steganopleura bicknelli</i>	V	Aug-Jan
	Wooded robin	<i>Ashmolea capillaris</i>	V	Jul-Nov
	Spotted honeyeater	<i>Pycnonotus capillatus</i>	V	Aug-Dec
B	Regent honeyeater	<i>Eumyias uropygialis</i>	V	Aug-Jan
	Painted honeyeater	<i>Chrysobothris julianorum</i>	V	Aug-Feb

Threatened Fauna Guidelines & Considerations

A File often leads to a decline in insect abundance and diversity, which some species are dependent on. Felling hollow bearing trees (including dead and down trees) during "topping up" activities decreases nest hole availability for most species in this group. These species are likely to be disadvantaged by frequent fuel reduction fire because of the simplification of forest structure. The best likely period species would be vulnerable to fire is March.

Where possible:

- Wildfires should be kept to the smallest possible size, managed to reduce intensity and create long term modest patterns. Ensure patches of shrubs, standing and fallen timber are left in and protect hollow bearing trees (dead or living), particularly during mop up activities.
- Minimise the use of earthmoving equipment in the construction of new trails or control lines gully communities to prevent further habitat fragmentation, especially in LM2.

B All areas of vegetation by streams, swamps, dams & riparian areas. Species can often be found under debris. Fire and distribution of soil resulting from frequent fire can lead to increased runoff in streams and waterways, sedimentation and eutrophication, potentially impacting on species. High intensity fire can remove riparian vegetation, reducing the filtering benefits of vegetation. Loss of nutrient from the site can affect water quality and may lead to algal blooms. Frequent prescribed burning is expected to have severe impacts on these habitats.

Where possible:

- Minimize fire frequency and potential for high intensity fires and keep fire at least 50m from swamps, streams & riparian areas.
- Minimize the use of fire suppression chemicals and mowing within 50m of streams, swamps & riparian environments.

MAP 6: CULTURAL HERITAGE

Key Guidelines

- Where possible identified sites must be protected.
- DECC databases, AHIMS and IHRMS must be accessed during incidents and for preparation of Review of Environmental Factors for prescribed burning or other works programs to ensure new records are included. Aboriginal site information from AHIMS is sensitive and subject to a Memorandum of Understanding. Site data must respect its agreement and must be used appropriately.
- For prescribed burning programs, protection measures will be outlined in the Review of Environmental Factors and burning program outlines.
- Where possible, trained officers will provide advice on site protection methods.

Aboriginal Heritage

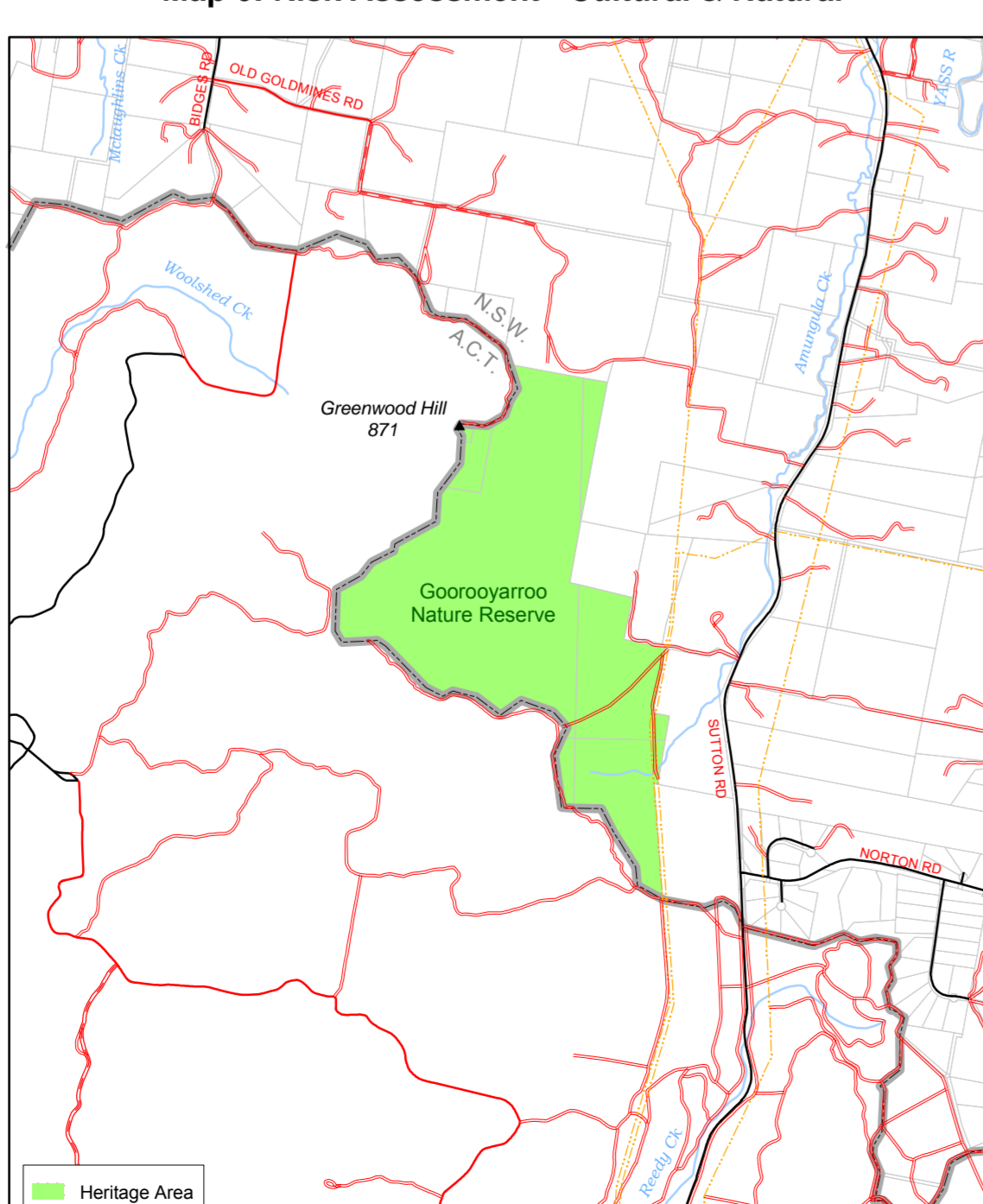
- The reserve requires a cultural heritage survey to locate sites; however this may not be possible due to unexploded ordnance within the reserve.
- Potential site locations include artefacts, scar or carved trees, special places etc.
- During wildfire operations, efforts will be made to survey for Aboriginal sites ahead of earthmoving equipment.

Historic Heritage

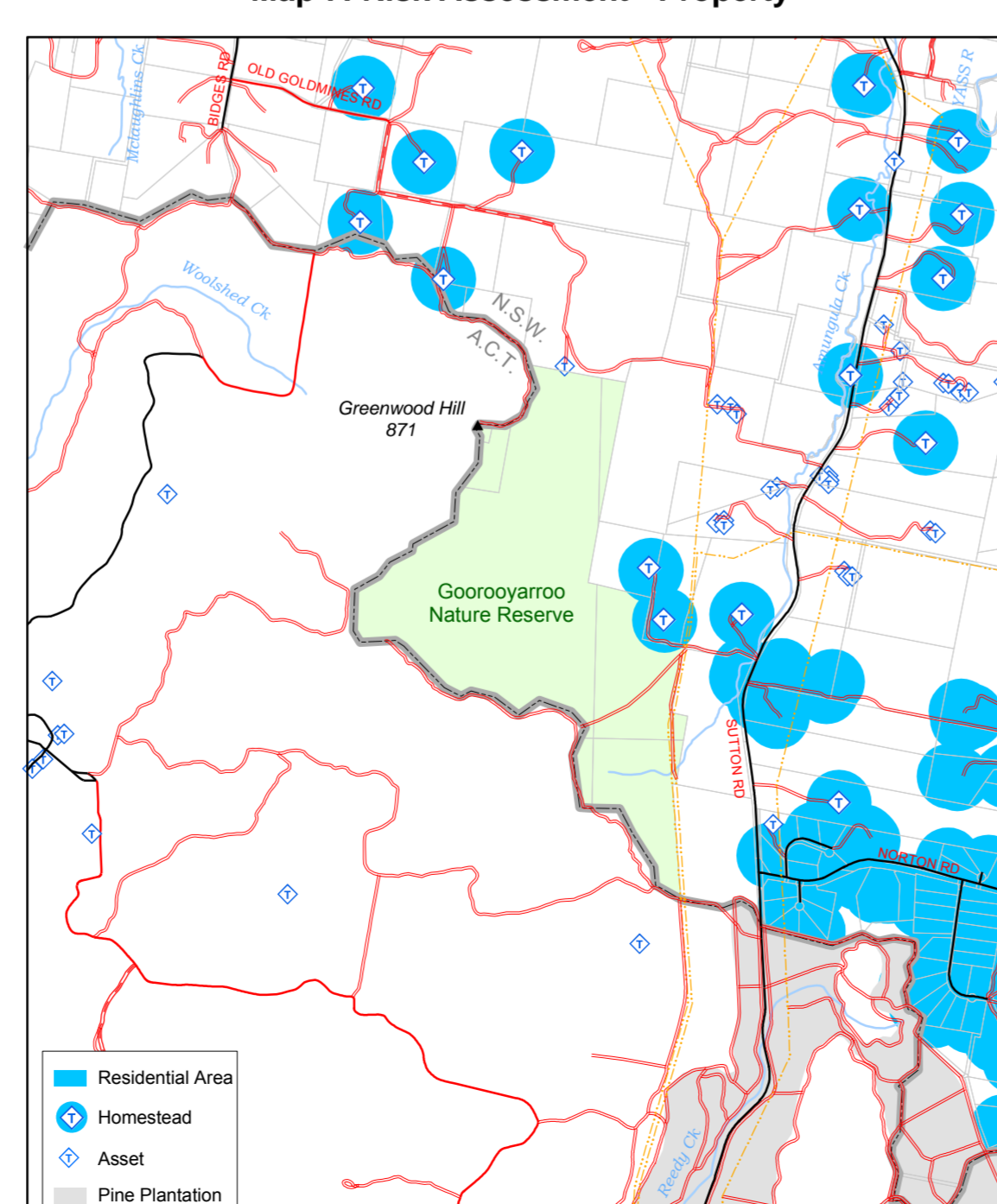
- The reserve requires a cultural heritage survey to locate sites; however this may not be possible due to unexploded ordnance.
- Potential site locations include ruins, fence lines, equipment from grazing and an army relic etc.
- Where possible, operational guidelines should be followed at all times.

Note: Cultural heritage sites are based on data recorded on AHIMS and IHRMS databases and field data recorded as at April 2009.

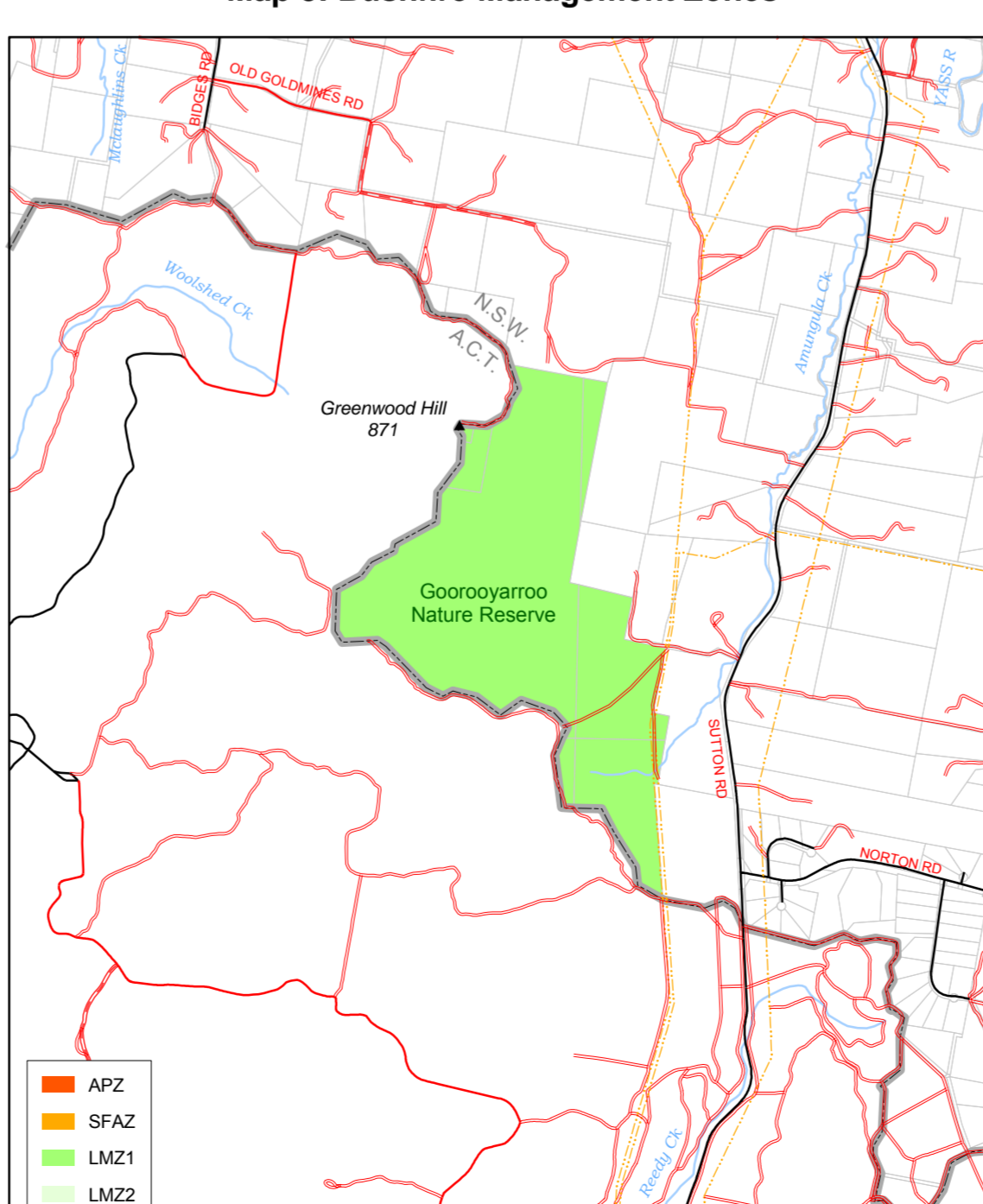
Map 6: Risk Assessment - Cultural & Natural



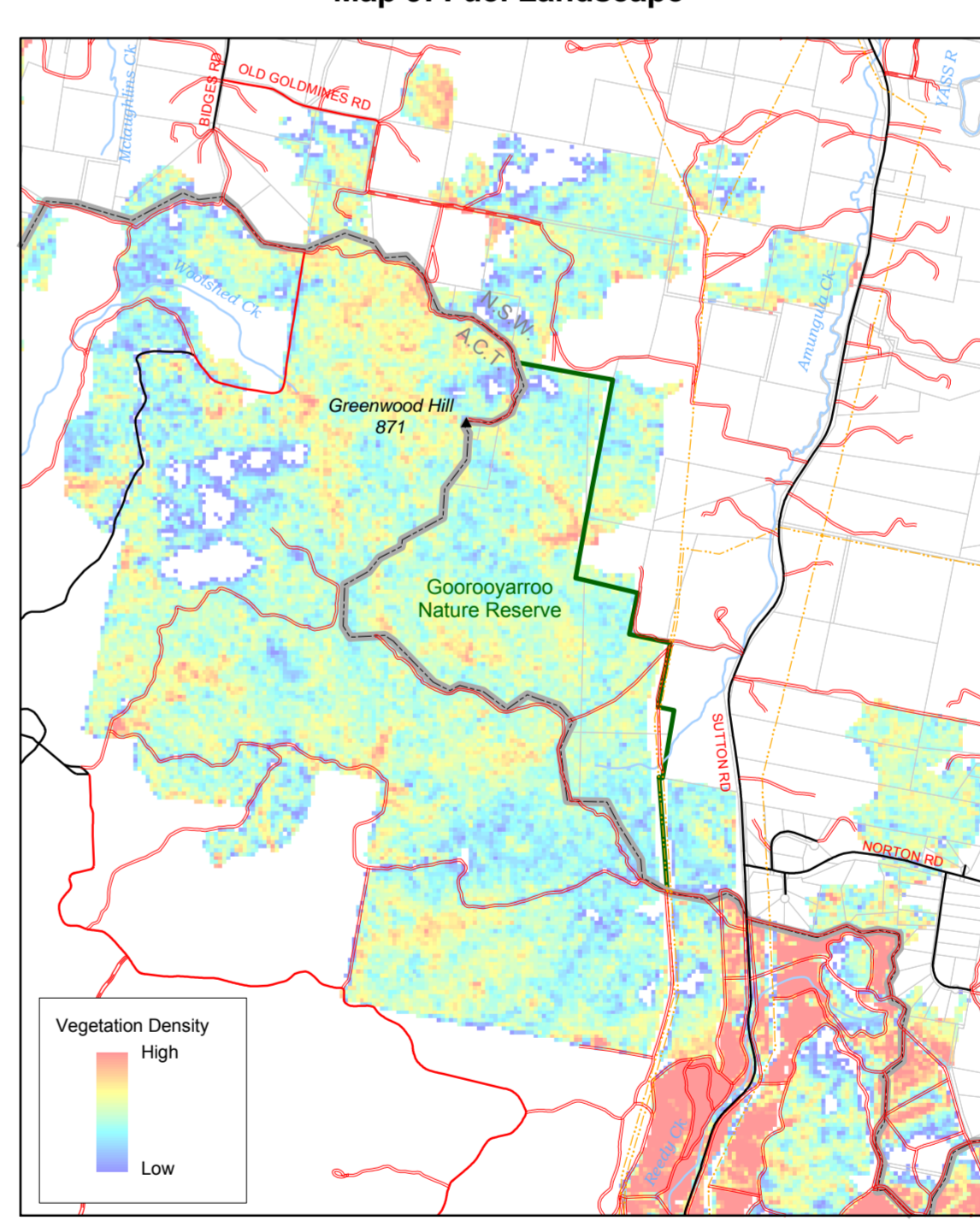
Map 7: Risk Assessment - Property



Map 8: Bushfire Management Zones



MAP 9: FUEL LANDSCAPE



MAP 9: LANDSCAPE THRESHOLDS

Slope Class	Fire Fuel Density	Threshold & Impacts
0-10	3-5	Less potential on lower slopes. Fire fuels averaging 4 t/ha are favourable.
10-15	4-7	Expected increase in gullies and wash-outs. Fire fuels averaging 6 t/ha are favourable.
15-20	10-12	Increase expected through mid slopes and drainage lines. Fire fuels averaging 11 t/ha are favourable.
20-25	12-14	Increase across disturbed slopes and trails. Fire fuels averaging 13 t/ha are favourable.
25-30	16-18	Large scale soil loss expected in disturbed areas. Impacts may be severe in areas leading to pedesters. Fire fuels between 15-18 t/ha expected to prevent slope stability.
>30	>20	High fuels on slopes >30 are rare in this reserve. Erosion potential is high and an expected natural process.

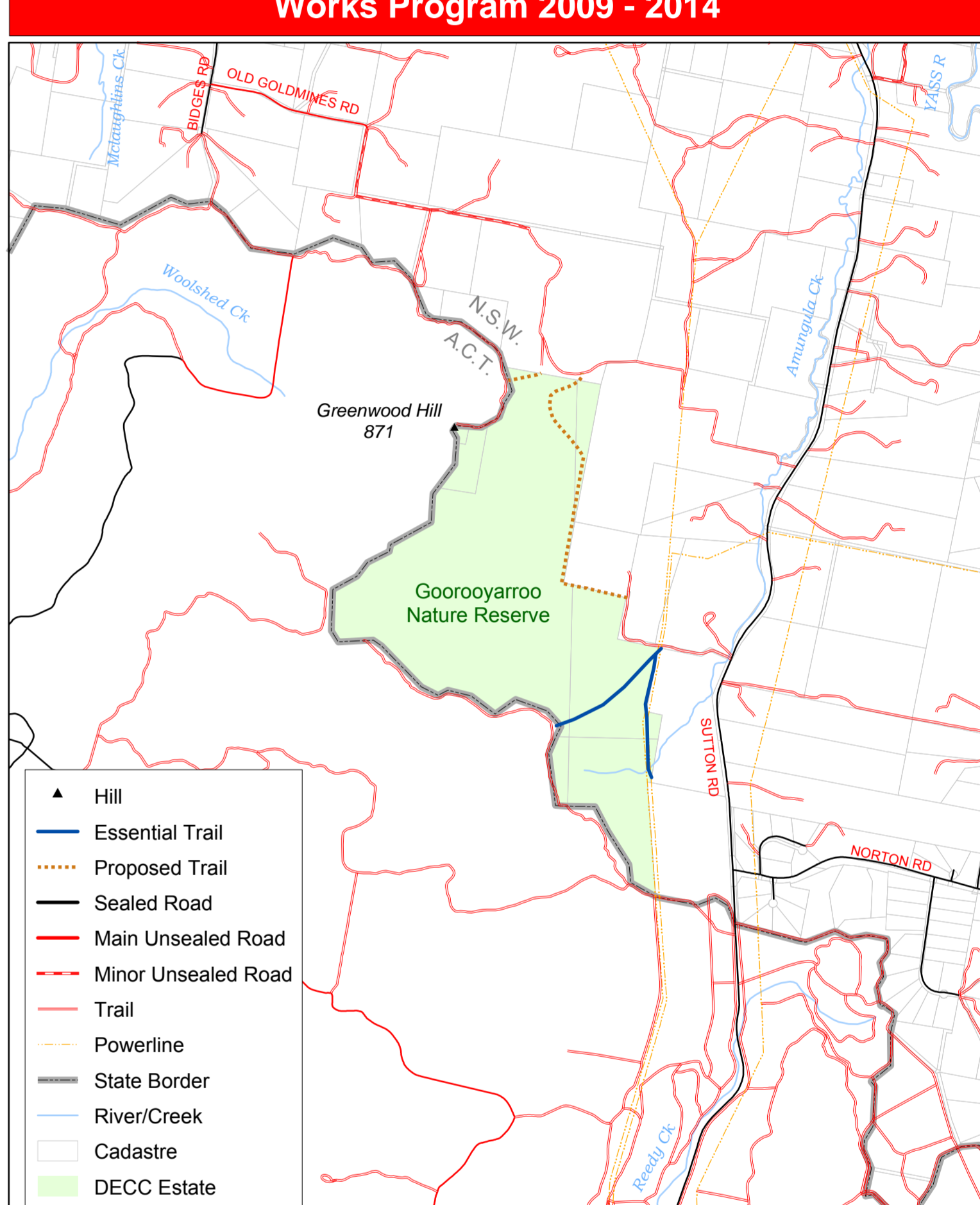
Threshold & Impacts

Currently, 44% of the park has potentially unstable soil/rocks. Water quality may be compromised by soil disturbance and silt run off after fire and may have significant impacts on local karri systems. Organisms dependent on drainage lines and specific water quality are also at risk through soil disturbance. Maintaining the fire fuel minimum range may reduce potential moisture loss in soils during summer periods. Fuel decomposition after the fire may decrease (depending on the intensity, the interval, cover and ashfall of the fire) due to a reduction in soil micro-organisms activity. The presence of humus and detritus within the soil may also affect soil and micro-organism activity. Areas with lower than average fire fuels for the corresponding slope class are expected to have increased slope instability and poorer water quality.

Where possible:

- Avoid the potential for frequent and/or high intensity fire in areas where fire fuel ranges do not meet the slope class thresholds.
- Avoid trail construction on any slopes within the reserve.
- Avoid fire during areas of extreme drought and the year preceding a severe drought.
- No control lines or fuel breaks will be constructed during an incident due to potential for unexploded ordnance in the reserve.

Works Program 2009 - 2014



WORKS PROGRAM

Asset	Priority	Name, Area or Detail	Management Strategy	Proposed Works
Gorooyarroo Nature Reserve	High	Unexploded ordnance	In the event that an item suspected of being ordnance related is found, it should not be touched, removed or moved in any way. Its general appearance should be carefully noted together with the best route to the item. The location should be prominently marked and the Queanbeyan Area Office of DECC notified immediately.	All fire suppression operations are to be undertaken from formed trails only.
Reserve Trails	High	Essential trails	Maintain trail to a standard classed as secondary in accordance with the Bush Fire Coordinating Committee Guidelines for the Classification of Fire Trails - Policy No. 2007.	Assess annually. Initiate maintenance programs and works as required, or as specified in Regional Operations Program.
		Management trails	All trails to be clearly signposted at intersections and trailheads.	Establish the feasibility of developing a fire trail along the eastern edge of the reserve on the park boundary and implement if possible. Develop a fire trail to formalise escape route from the Murrumbidgee River to the NW corner of the reserve.
			Maintain management trails for safe 4WD access.	Assess annually. Initiate maintenance programs and works as required, or as specified in Regional Operations Program.
Land MZ1	Medium	Cultural heritage, threatened, vulnerable & endangered faunas, habitats, communities and the landscape	Maintain a minimum requirement for Category 2 vehicles, unless otherwise stated.	Assess thresholds every 5 years. Initiate maintenance programs or directly after fire events.
Information & Research	Low	Fuel and vegetation monitoring	Establish fuel monitoring sites (n=3)	Monitoring will use the Overall Fuel Hazard Index.
Fuel Management & Prescribed Burns	Low	No burns have been proposed for this site (5 years)	Any prescribed burns must be managed in accordance with DECC policy and agreements with Local Bush Fire Management Committee.	Negotiate proposed works programs at Bushfire Management Committee Meetings.