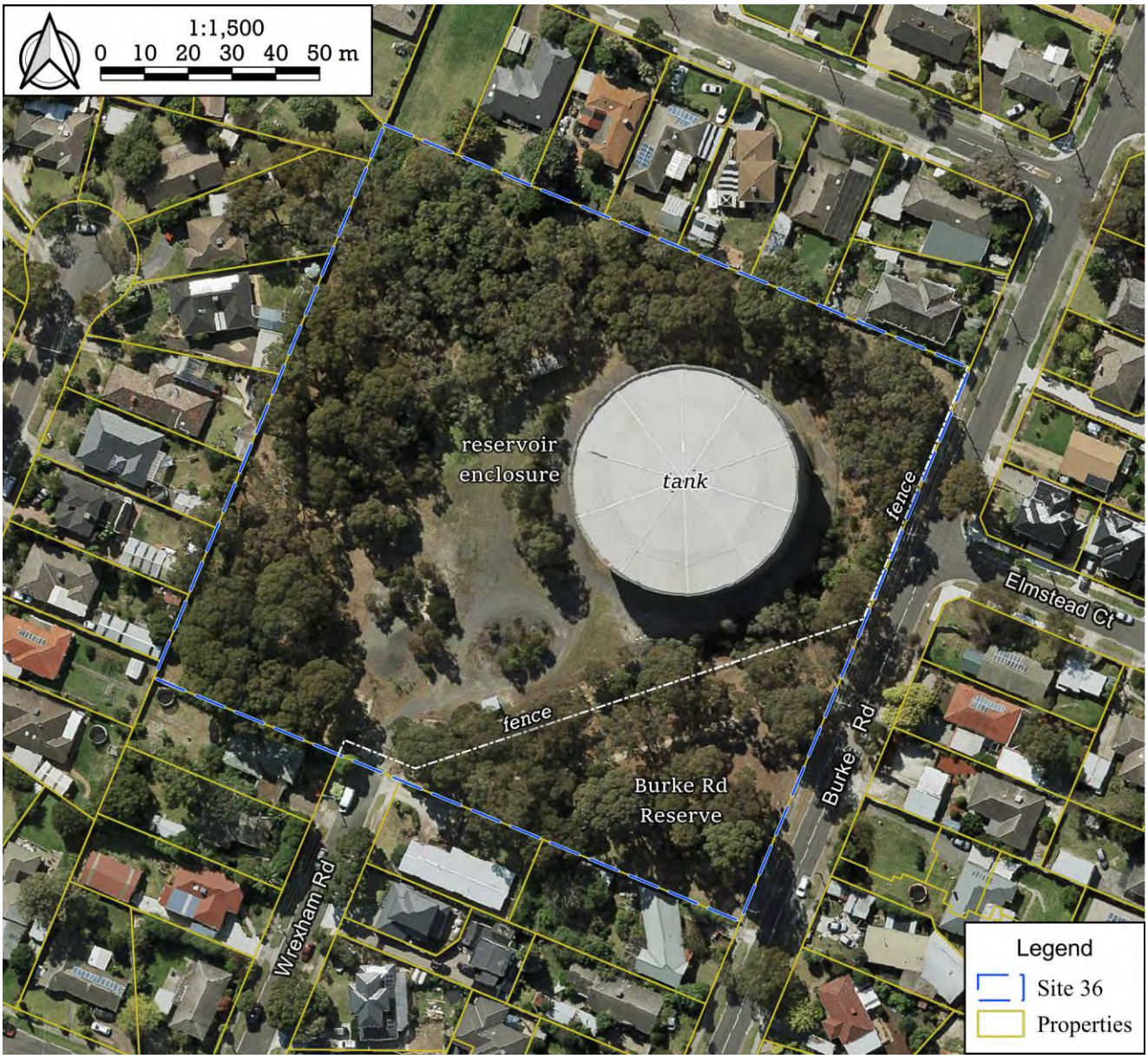
Site 36. Burke Road Reserve and Knox Reservoir, Ferntree Gully

Reserve in Burke Rd opposite Elmstead Ct and adjoining land around the Knox Reservoir water storage tank.

Summary of significant features:

- State significance: a patch of the regionally-endangered Ecological Vegetation Class, Valley Heathy Forest;
- Locally significant: viable populations of plant species threatened with dying out in Knox.



Boundaries

The site comprises the whole of a single lot, Lot 6 LP6617, which includes the 'Burke Road Reserve' and adjoining fenced land to the north around the water storage tank known as the Knox Reservoir. The lot measures 1.98 ha.

Note: Permission was not obtained to enter the fence around the reservoir. Most vegetation was evident from around the boundaries, but some plant species could well have been undetected.

Land use & tenure: Zoned 'Public Park and Recreation Zone'. There is a public park in the southern corner and the remainder of the property is a fenced enclosure with a South East Water water tank (the 'Knox Reservoir') and associated infrastructure.

Site description

The site is on the upper slope of a broad, low ridge, which is oriented roughly northwest to southeast. The slope of the natural soil surface is shallow and faces west. The elevation is approximately 110–115 m. About one third of the site has been cleared and levelled, leaving an embankment rising from the eastern edge of the cleared area on which the tank is situated.

The soil is shallow, clay loam over clay subsoil, derived from weathering of the underlying Lower Devonian siltstone of the Humevale formation.

A 1946 aerial photograph shows that the land was treeless north of a line perpendicular to Burke Rd through the centre of the property. South of that line, the tree canopy was of fairly natural density but the crowns were smaller than fully-grown. The 2020 aerial photograph above shows the water tank (reservoir) and small buildings that were constructed since 1946 on an excavated flat platform.

The eucalypt canopy in the current-day public park (south of the fence) is very similar to the 1946 photograph except that the crowns are generally larger. Some of the eucalypts present today would be in the 1946 aerial photograph, particularly some large, old Yellow Box (*Eucalyptus melliodora*). The native understorey in the park has been kept mown low for scores of years, so the only signs of shrubs or regenerating trees are a single Sweet Bursaria (*Bursaria spinosa*) and a handful of plants a few centimetres tall, continually mown. However, a surprising cover of indigenous groundcover species persists despite the mowing, e.g. many Chocolate Lilies (*Arthropodium strictum*) and a dense cover of native grasses. There is, however, a strip along the park's south-southwestern fence with negligible native understorey, broadening toward Burke Rd. That strip was fairly denuded in 1946.

The 2002 ecological survey of the site conducted for the first edition of this report noted that mowing appeared to have been curtailed in parts of the park with remnant groundcover. That appears to have been a temporary phase. Species such as the Chocolate Lilies and the crane's-bill, *Geranium* sp. 2, cannot survive indefinitely without being allowed to flower and set seed.

Outside the park, the parts of the site with tree cover have a higher density of eucalypts than in 1946 – particularly in the northeast corner, which was a cultivated field in 1946. The canopy density is not much different from a natural state but large, old trees are scarce and confined to the south-southwestern corner. From outside the fence, native understorey appears to be strongly concentrated on and just above the batter that runs parallel to the park's northern fence and to the east of the tank. These areas are not subject to the regular slashing that occurs elsewhere within the fence, where introduced grasses have come to dominate. The batter includes several plants of each of the sensitive indigenous species, Common Heath (*Epacris impressa*) and Hop Wattle (*Acacia stricta*). Unfortunately, the absence of slashing on and near the batter has allowed proliferation of the woody environmental weed species, Sallow Wattle (*Acacia longifolia* subsp. *longifolia*), Cotoneaster (*Cotoneaster glaucophylla*), blackberry (*Rubus anglocandicans*) and particularly Sweet Pittosporum (*Pittosporum undulatum*).

Relationship to other land

This site is quite isolated from other sites, the closest being Norvel Reserve (Site 35, 300 m north-northwest), Pickett Reserve (Site 37, 450 m southeast) and Clyde Street Reserve (Site 38, 570 m south-southwest). All those sites are small and contain rather basic habitat, suited to hardier native fauna species.

Movement of flying fauna between these sites is probably assisted by the intervening scattered remnant eucalypts and planted Australian native trees. Street trees represent a large fraction of those intervening trees – increasingly so as residential site coverage increases.

Bioregion: Gippsland Plain

Habitat type

Valley Heathy Forest (EVC 127, **regionally Endangered**). There is approximately 1.25 ha of native vegetation, of which it is estimated that 10% (1,200 m²) is in fair ecological condition (rating C) and 90% (1.13 ha) is in poor ecological condition (rating D) – no clear change since 2002.

Canopy trees: Dominated by *Eucalyptus melliodora* followed by *E. goniocalyx* in the public park and *E. cephalocarpa* within the reservoir enclosure. There are also a few *E. macrorhyncha*.

Sub-canopy trees: Confined to the reservoir enclosure; dominated by *Exocarpos cupressiformis* and a thicket of suckering *Acacia dealbata*.

Shrubs: Almost eliminated by the history of mowing; confined to very small numbers of *Acacia stricta, Bursaria spinosa* and *Epacris impressa*.

Vines and ferns: Absent.

Groundcover: Some areas are dominated by native grasses, particularly *Austrostipa rudis, Microlaena stipoides* and *Rytidosperma racemosum*. Forbs are represented by *Arthropodium strictum, Cotula australis, Crassula decumbens, Geranium* sp. 2, *Gonocarpus tetragynus* and *Oxalis exilis/perennans*. Additional indigenous groundcover species potentially occur within the least disturbed sections of the reservoir enclosure.

Plant species

Ticks in the list below indicate which indigenous plant species the author found in July 2024 in each of the two parts of the site, with the column headed 'A' for the public park and 'B' for the reservoir enclosure. Three species without a tick were recorded only in the May 2002 survey conducted for the first edition of this report. The column headed 'Risk' indicates each species' risk of dying out in Knox, with 'C'=Critically endangered, 'E'=Endangered and 'V'=Vulnerable. Additional species would be detectable in spring or early summer.

Risk	Wild indigenous species	A	B
	Acacia dealbata, Silver Wattle	✓	✓
E	*Acacia stricta*, Hop Wattle		✓
	Arthropodium strictum, Chocolate Lily	✓	
	Austrostipa rudis subsp. *rudis*, Veined Spear-grass	✓	✓
	Bursaria spinosa, Sweet Bursaria	✓	
	Cotula australis, Common Cotula	✓	
	Crassula decumbens, Spreading Crassula	✓	
C	*Epacris impressa*, Common Heath		✓
E	*Eucalyptus cephalocarpa*, Mealy Stringybark	✓	✓
V	*Eucalyptus goniocalyx*, Bundy	✓	✓
C	*Eucalyptus macrorhyncha*, Red Stringybark	✓	✓
E	*Eucalyptus melliodora*, Yellow Box	✓	✓
E	*Eucalyptus radiata*, Narrow-leaved Peppermint		✓
V	*Exocarpos cupressiformis*, Cherry Ballart		✓
V	*Geranium* sp. 2, Variable Crane's-bill	✓	
	Gonocarpus tetragynus, Common Raspwort	✓	
	Goodenia ovata, Hop Goodenia		
	Juncus sp., unidentified rush		
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush	✓	✓
	Microlaena stipoides, Weeping Grass		
	Oxalis exilis/perennans, Wood-sorrel	✓	
	Rytidosperma ?*fulvum*, Leafy Wallaby-grass	✓	✓
	Rytidosperma racemosum, Clustered Wallaby-grass	✓	
	Rytidosperma ?*setaceum*, Bristly Wallaby-grass		✓
	Themeda triandra, Kangaroo Grass		

Fauna of special significance

None recorded.

Fauna habitat features

The cover of remnant trees in the site and scattered throughout the neighbourhood provides habitat for urban-adapted flying fauna. The remnant Yellow Box trees are likely to provide an important nectar source for lorikeets and nomadic honeyeaters when in flower, supplemented by Red Ironbarks planted nearby as street trees.

Significance ratings

The following is an assessment of the site's biological significance against the Department of Energy, Environment & Climate Action's standard criteria (Amos 2004).

Regionally Endangered Ecological Vegetation Class

The site's native vegetation belongs to a regionally-endangered EVC – Valley Heathy Forest. An area spanning each side of the fence between the public park and the reservoir enclosure meets the definition of a 'remnant patch' adopted by the standard criteria, i.e. a continuous area of at least 0.25 ha with at least 10%

native understorey cover throughout. According to *'Victoria's Native Vegetation Management – A Framework for Action'* (NRE 2002a), a remnant patch belonging to a regionally-endangered EVC has a conservation significance rating of either High or Very High, depending on its ecological condition. In either case, any site containing a remnant patch of such vegetation is of **State** significance under standard criterion 3.2.3.

Regionally Threatened Plant Species

All of the locally-threatened plant species listed above have viable populations, thereby meeting criterion 3.1.5 for **Local** significance.

The large remnant Yellow Box (*Eucalyptus melliodora*) trees in the site are locally significant in view of their size and the habitat they provide for native birds, but this does not meet any of the standard criteria.

Threats

- Displacement of indigenous flora by environmental weeds, particularly Sweet Pittosporum, Sallow Wattle, Blackberry and Cotoneaster within the reservoir enclosure;
- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves and storms, as well as substantially lower rainfall (particularly in winter);
- Decline of eucalypt health. Eucalypts are quite vulnerable to the abovementioned droughts and storms;
- Continuation of mowing that is too low and/or too frequent for indefinite survival of indigenous flora;
- Loss or decline of plant species whose populations are so small that they are vulnerable to inbreeding, poor reproductive success or elimination by incidents such as being struck by a falling tree limb;
- Clearing or damage to remnant vegetation associated with potential further development or construction works within the fenced reservoir enclosure.

Management

- From the perspective of nature conservation, it would be desirable to resume the program of reduced mowing in the part of the public park that has a concentration of indigenous groundcover species that cannot indefinitely tolerate frequent mowing. The core area is between the middle half of the path through the park and the fence to the north. Mowing could continue during late December to the end of August, leaving species like the Chocolate Lilies to flower and set seed in the remaining 3–4 months;
- From the same perspective, it would be desirable to remove the abovementioned environmental weeds within the reservoir enclosure – particularly on and just above the batter.

Strategic planning

- This site is covered by Schedule 2 of the Environmental Significance Overlay (ESO2) as a result of the second edition of this report in 2010. That edition cited the presence of the regionally-endangered EVC. The ecological condition of the vegetation and the number of wild indigenous plant species remain almost unchanged. There is no apparent reason to change the application of ESO2 to the site;
- The property is larger than 0.4 ha and therefore does not qualify for the size-based exemption from the state-wide baseline planning controls over removal of native vegetation (clause 52.17);
- The site is zoned Public Park and Recreation Zone (PPRZ).

Information sources used in this assessment

- An ecological survey undertaken by Rik Brown on 8/5/02 for the first edition of this report. This included a description of the composition and condition of the vegetation, compilation of lists of indigenous and introduced plant species, incidental fauna observations, and checks for fauna habitat, ecological threats, management issues and populations of scarce or threatened plant species;
- A botanical survey of the site by Dr Lorimer on 24th July 2024 for this edition;
- Records of flora and fauna observations stored in the Atlas of Living Australia, except that the only observations found were lists of common bird species;
- The Victorian Government's 'NatureKit' website;
- Aerial and satellite imagery from between 1946 and 2025;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.