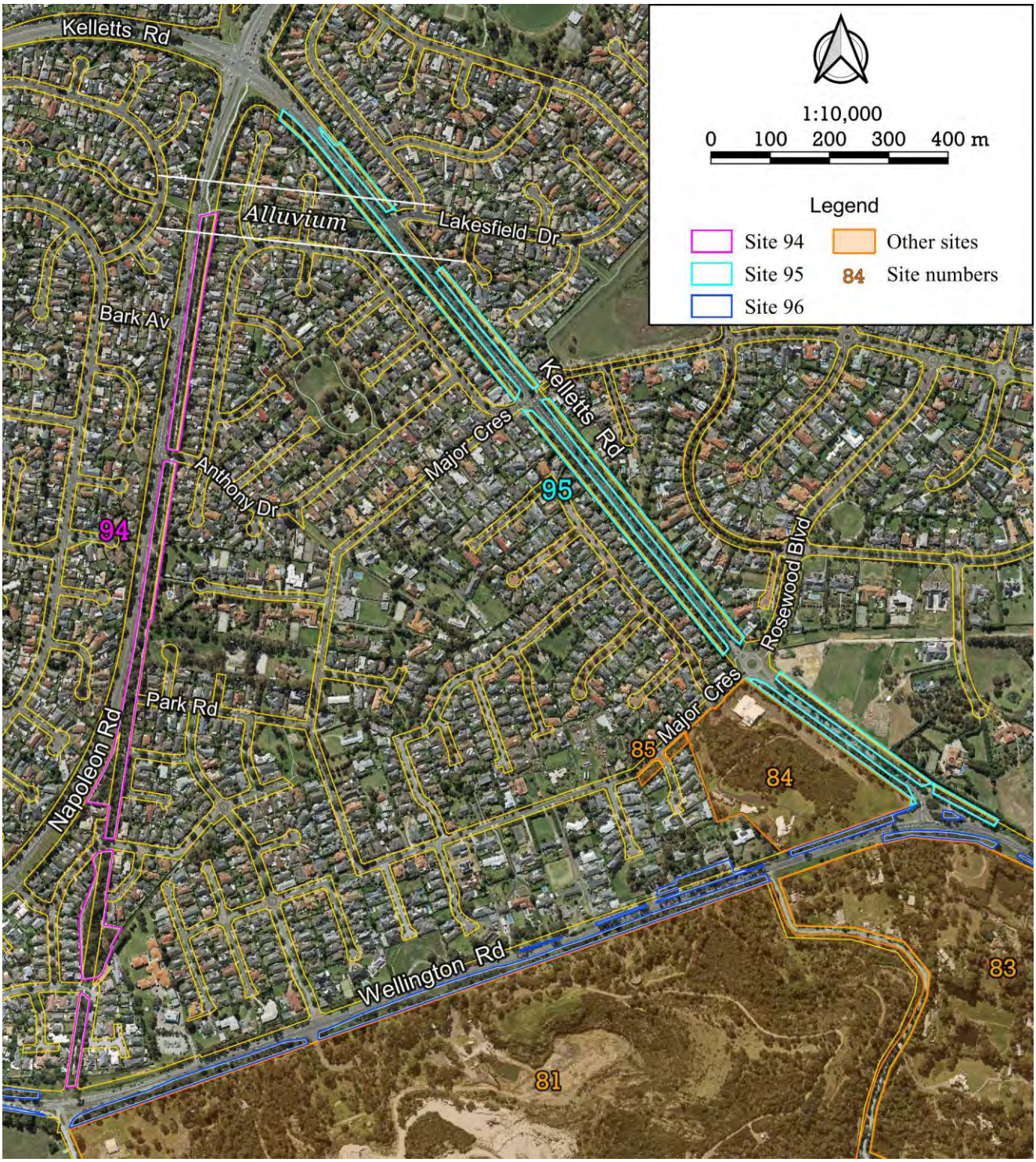
Site 94. Napoleon Rd Linear Reserve, Lysterfield

1.5 km of road verge and linear park along the original alignment of Napoleon Rd south of Kelletts Rd.

Summary of significant features:

- State significance: a population of at least thirty plants of the spear-grass, *Austrostipa rudis* subspecies *australis*, which is listed as Endangered in Victoria;
- Locally significant: viable populations of plant species that are threatened with dying out in Knox;
- Nearly all the native vegetation belongs to the endangered Ecological Vegetation Class, Valley Heathy Forest.



Boundaries

The four sections of this site are outlined in magenta on the aerial photograph, totalling 4.0 ha. Other sites are outlined in other colours. Where the edge of Site 94 follows the road's gutter, it is not intended to enclose any part of the gutter that is subject to periodic grading.

Compared with the previous (2010) edition of this report, the site has been slightly trimmed at the east end of The Terrace (due to construction of Straughan Close) and slightly expanded to accommodate vegetation with improved condition slightly northeast of the east end of The Terrace and at the site's northern tip.

Land use & tenure: Road verge and unused road reservation, used for nature conservation and a linear park with a shared path.

Site description

This linear site extends from the lower slope of the Lysterfield Hills at Wellington Rd in the south, almost to Corhanwarrabul Ck at the northern tip. (The creek has been converted to a pipe buried beneath a shallow swale.) The site follows the original alignment of Napoleon Rd, whose southern 700 m was re-routed in the 1990s.

The southern tip of the site, near Wellington Rd, has an elevation of approximately 115 m and a north-facing slope of 10% grade. North of there, the slope becomes shallow and faces northwest. The lowest point is at the northern end of the site, just south of the Corhanwarrabul Ck drain, at an elevation of 70 m. The site's soil is mostly colluvium, i.e. it has formed from material that has gravitated from further uphill. The exception is at the site's northernmost 60 m (approximately), where there is a floodplain with alluvial soil deposited by Corhanwarrabul Ck.

The vegetation type on the floodplain is the regionally-endangered Swampy Riparian Complex but the only remaining wild, indigenous plants are the canopy of Swamp Gums (*Eucalyptus ovata*) and one or two Blackwoods (*Acacia melanoxylon*). There is an artificial pond at the eastern end of The Terrace, heavily planted with wetland species but retaining some of the pre-existing rushes. The rest of the site's vegetation type is the regionally-endangered Valley Heathy Forest, dominated by Mealy Stringybark (*Eucalyptus cephalocarpa*) except for the southern end, where Yellow Box (*Eucalyptus melliodora*) dominates.

Aerial photographs show that until the mid-1990s, the segment of the site that is south of Park Rd contained a tree-lined road with pasture and horticultural fields beside it. Today, that segment functions as a linear park and an area of revegetation as an 'offset' to compensate for removal of native vegetation elsewhere in Knox. North of Park Rd, the site contained a fairly complete cover of remnant eucalypts and no road until the 1990s, when trees were progressively removed, a drainage ditch was dug and Napoleon Rd was constructed. A modest, patchy cover of native understorey persisted until early this century; It then reduced to scattered small patches and individual plants due to drought and the construction of the current shared path. Extensive revegetation with indigenous plants has compensated in some respects for the loss of wild plants. In many cases, one cannot tell whether an indigenous plant is wild, has been planted or is descended from planted plants.

Fortunately, the site's most significant plants have persisted throughout. They are a small patch of the spear-grass, *Austrostipa rudis* subspecies *australis*, and a cluster of three Matted Bush-peas (*Pultenaea pedunculata*) – all on and next to the road batter between 25 m and 60 m north of the Bark Av intersection.

Relationship to other land

Some species of birds and insects are likely to move between this site, Kelletts Rd (Site 95) and the more expansive habitat in the Lysterfield Hills (Sites 81 and 82). Some of these fauna would carry pollen, which would reduce the risk of inbreeding of some plants within the site.

Bioregion: Gippsland Plain.

Habitat types

Wetland (EVC 74, regionally endangered except that in this case, it is an artificial wetland): located at the eastern end of The Terrace, c. 500 m² in area. The ecological condition is fair (rating C).

Trees, vines, shrubs and ferns: A remnant *Melaleuca ericifolia* grows at the eastern edge.

Semi-aquatic flora: Remnant *Epilobium hirtigerum, Juncus amabilis, J. gregiflorus* and *J. sarophorus* are fairly abundant. The following species were not present in 2011 (before the pond's construction) and have

either been planted or arrived on the wind or waterbirds: *Alisma plantago-aquatica, Carex appressa, Crassula helmsii* and *Eleocharis acuta*. *Eleocharis gracilis* is abundant and has definitely been planted.

Valley Heathy Forest (EVC 127, **regionally Endangered**)

Canopy trees: Dominated by *Eucalyptus cephalocarpa* except at the site's southern end, where *E. melliodora* dominates. *Eucalyptus radiata* and *E. goniocalyx* are present in smaller numbers.

Sub-canopy trees: Dominated now by *Exocarpos cupressiformis*, formerly with *Acacia melanoxylon* co-dominant until the Millennium Drought. Wild *Allocasuarina littoralis* were moderately abundant in 2002 but have since become scarce except for planted individuals.

Shrubs: Wild shrubs are mostly sparse but there are patches of *Bursaria spinosa* and *Acacia paradoxa*. Many other indigenous shrubs have been planted, including locally-threatened species.

Vines: Small numbers of the light twiner, *Billardiera mutabilis*, were present in 2002 but none were found in 2024.

Ferns: None.

Groundcover: With the exception of some patches of mown, hardy grasses, indigenous groundcover plants are overwhelmingly represented by planted plants in mulched beds. Areas that retain a substantial amount of indigenous ground flora are dominated variously by *Gahnia radula, Microlaena stipoides, Austrostipa rudis* or *Rytidosperma racemosum*. *Poa morrisii* was also fairly abundant in 2002 but not now.

Swampy Riparian Complex (EVC 126, **regionally Endangered**): Within the area 0–60 m southward from the Corhanwarrabul Ck drain. Estimated as 0.06 ha of canopy (but with scant native understorey), all in very poor ecological condition (rating D). 3 indigenous plant species were found.

Canopy trees: A pure stand of *Eucalyptus ovata*.

Sub-canopy trees: *Acacia melanoxylon*.

Shrubs, vines and ferns: None.

Groundcover: Overwhelmingly introduced species, mown regularly. The only indigenous groundcover species found was the hardy grass, *Microlaena stipoides*.

Plant species

The following indigenous species have been recorded by the author as growing wild (or probably wild, not just planted) within Site 94 during surveys in June 2002, December 2011 or September 2024. Those seen only in 2002 are asterisked and those seen in 2011 but not 2024 are indicated by a dagger (†). The only other records of indigenous species in the site are of planted plants (though mostly not portrayed as such). The column headed 'Risk' indicates the indigenous species' risk of dying out in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; 'V'=Vulnerable; and 'N'=Near threatened. Those shown in bold are rare in the Melbourne area.

Risk	Wild indigenous vascular species
V	*Acacia implexa*, Lightwood†
V	*Acacia mearnsii*, Black Wattle
V	*Acacia melanoxylon*, Blackwood
	Acacia paradoxa, Hedge Wattle
V	*Acacia verticillata*, Prickly Moses*
V	*Acaena echinata*, Sheep's Burr
	Acaena novae-zelandiae, Bidgee-widgee (all planted?)
N	*Alisma plantago-aquatica*, Water Plantain
V	*Allocasuarina littoralis*, Black Sheoak
C	*Amyema pendula*, Drooping Mistletoe*
	Arthropodium strictum, Chocolate Lily
V	***Austrostipa rudis* subsp. *australis*, Veined Spear-grass**
	Austrostipa rudis subsp. *rudis*, Veined Spear-grass
	Billardiera mutabilis, Common Apple-berry†
	Bursaria spinosa, Sweet Bursaria
	Carex appressa, Tall Sedge (planted?)

Risk	Wild indigenous vascular species
E	*Centella cordifolia*, Centella
	Clematis decipiens, a small-leafed clematis
	Cotula australis, Common Cotula
	Crassula decumbens, Spreading Crassula
V	*Crassula helmsii*, Swamp Crassula (planted?)
	Dianella longifolia var. *longifolia*, Pale Flax-lily*
	Dianella revoluta, Black-anther Flax-lily
	Dichondra repens, Kidney-weed†
	Epilobium hirtigerum, Hairy Willow-herb
E	*Eucalyptus cephalocarpa*, Mealy Stringybark
V	*Eucalyptus goniocalyx*, Bundy
E	*Eucalyptus melliodora*, Yellow Box
V	*Eucalyptus ovata*, Swamp Gum
E	*Eucalyptus radiata*, Narrow-leaved Peppermint
C	*Eucalyptus* ?*viminalis* subsp. *pryoriana*, Coast Manna Gum†
	Eucalyptus hybrids*

Risk	Wild indigenous vascular species
V	*Exocarpos cupressiformis*, Cherry Ballart
C	*Gahnia radula*, Thatch Saw-sedge
	Geranium homeanum, Rainforest Crane's-bill
	Gonocarpus tetragynus, Common Raspwort*
	Goodenia ovata, Hop Goodenia (all planted?)
E	*Hypericum gramineum*, Small St John's Wort
	Juncus amabilis, Hollow Rush†
	Juncus gregiflorus, Green Rush
	Juncus pallidus, Pale Rush
	Juncus sarophorus, Broom Rush
E	*Juncus subsecundus*, Finger Rush
	Lachnagrostis filiformis, Common Blown-grass†
	Lomandra filiformis subsp. *coriacea*, Wattle Mat-rush
	Lomandra filiformis subsp. *filiformis*, Wattle Mat-rush*
	Lomandra longifolia subsp. *longifolia*, Spiny-headed Mat-rush
	Lythrum hyssopifolia, Lesser Loosestrife†
E	*Melaleuca ericifolia*, Swamp Paperbark
	Microlaena stipoides, Weeping Grass
	Oxalis exilis/perennans, Wood-sorrel
	Pandorea pandorana, Wonga Vine
	Poa morrisii, Soft Tussock-grass*
	Poranthera microphylla, Small Poranthera*
C	***Pultenaea pedunculata*, Matted Bush-pea**
	Rytidosperma geniculatum, Kneed Wallaby-grass†
	Rytidosperma racemosum, Clustered Wallaby-grass
E	*Rytidosperma semiannulare*, Tasmanian Wallaby-grass*
	Rytidosperma setaceum, Bristly Wallaby-grass
	Schoenus apogon, Common Bog-rush†
	Senecio quadridentatus, Cotton Fireweed
	Themeda triandra, Kangaroo Grass
	Tricoryne elatior, Yellow Rush-lily

Notes concerning significant plant species

Dianella ?*amoena* (Matted Flax-lily): mentioned in the previous edition of this report with uncertainty about the identity due to the plant having been damaged by a grader, but there is still a *Dianella* there and it is *D. revoluta* – a common species.

Listed as Endangered under Victorian law

Austrostipa rudis subsp. *australis* (a subspecies of Veined Spear-grass): 30 or more were found in 2024 growing on the road batter between 25 m and 60 m north of the Bark Av intersection.

Rare and threatened in metro Melbourne

Pultenaea pedunculata (Matted Bush-pea): 3 plants grow next to the road batter c. 60 m north of the Bark Av intersection, totalling approximately 4½ m². Only two plants were known in the 1990s and one of them died by 2001. It is possible that the population increase has resulted from planting of plants from the Ferntree Gully population, as recommended in the previous edition of this report.

Fauna of special significance

None recorded.

Fauna habitat features

- The larger Swamp Gums, Mealy Stringybarks and Bundies have hollows that would suit habitation by native birds, bats, possums or invertebrates;
- The prickly shrub layer in parts of the site could provide protection for small native birds but the proximity to pedestrian and vehicular traffic minimises the likelihood of visitation by those species.

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 Threatened Vegetation Types

Valley Heathy Forest and Swampy Riparian Complex are regionally endangered EVCs but their representations in site 94 are not significant under the standard criteria because none of the vegetation meets the definition of a 'remnant patch' adopted by Amos (2004), i.e. a continuous area of at least 0.25 ha in which the cover of native understorey is at least 10% throughout. (Roads and concrete paths dissect the site too much.)

Under the guidelines of the Department of Energy, Environment and Climate Action, the pond's wetland vegetation does not qualify as representing any EVC because the pond is an artificial feature.

Threatened Plants

Austrostipa rudis subsp. *australis* is listed as Endangered under Victorian law. It also occurs outside Victoria. Its population in this site appears quite viable. Any known habitat for such a species meets criterion 3.1.2 for **State** significance.

Some of the locally-threatened plant species seen in 2024 have viable populations, thereby meeting criterion 3.1.5 for **Local** significance.

Threats

- Possible grader damage to the endangered spear-grass, *Austrostipa rudis* subsp. *australis*, which grows on the batter next to the road's table drain;
- Human-induced climate change, which is predicted to cause more severe droughts, heatwaves and storms, as well as substantially lower rainfall (particularly in winter);
- Continuing decline of tree health, partly due to the abovementioned droughts and storms;
- Displacement of indigenous flora and fauna by environmental weeds, but that problem is being kept well under control at present;
- Loss or decline of plant species whose populations are so small and isolated that they are vulnerable to inbreeding, poor reproductive success or elimination by incidents such as disease or being struck by a falling tree limb. This applies to the three Matted Bush-pea plants and many of the surviving wild, indigenous species, e.g. only a single plant was seen in 2024 in each of these species: *Acaena echinata*, *Centella cordifolia* and *Tricoryne elatior*.

Strategic planning

The previous (2010) edition of this report led to its slightly smaller version of this site being covered by Schedule 2 of the Environmental Significance Overlay (ESO2). The reasons given for applying ESO2 were the presence of Valley Heathy Forest and the site's rare plant species. Since 2010, the main changes affecting ESO2's appropriateness for the site are: (a) the spear-grass *Austrostipa rudis* subsp. *australis* has been discovered in the site and (in 2021) listed as endangered under the *Flora and Fauna Guarantee Act*; (b) the site has been extensively planted with indigenous species, partly to provide enduring compensation ('offsets') for removal of native vegetation elsewhere in Knox; and (c) this edition has slightly revised the site boundary. The only recommended amendment to ESO2 arising from these changes is to adjust its boundary to match the site boundary adopted here.

Information sources used in this assessment

- An ecological survey by Dr Lorimer taking 2½ hours on 5/6/02 for the first edition of this report, including:
  - Compilation of lists of indigenous and introduced plants for each of five parts of the site;
  - A description of the vegetation's structural and floristic composition within each of the parts;
  - Documentation of the vegetation's ecological condition;
  - Documentation of rare species populations;
  - Incidental observations of fauna; and
  - Checks for fauna habitat, ecological threats and management issues.
- A botanical survey of ten plots ('quadrats') by Dr Lorimer in December 2011 to provide baseline data for monitoring the 'offset' revegetation that was about to occur as compensation for removal of native vegetation elsewhere in Knox;
- A botanical survey by Dr Lorimer on 27th September 2024, compiling lists of plant species (one list for the pond and two others for different sections of the Valley Heathy Forest), mapping and documenting significant plants, and checking for changes in features relevant to this report compared with pre-existing information;
- Records of flora and fauna observations stored in Knox City Council's biodiversity database;
- Records of flora and fauna observations stored in the Atlas of Living Australia, but note that the plant records are all of planted plants despite not being portrayed as such;
- Aerial and satellite imagery from between 1976 and 2024;
- The Victorian Government's 'NatureKit' website;
- Maps of geology, topography and strategic planning information produced by agencies of the Victorian Government.