

DRAFT REPORT:

Scattered Tree Assessment at 110 Smiths Lane, Clyde North, Victoria.

PREPARED FOR:

Mirvac
December 2012

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Ecology and Heritage Partners Pty Ltd

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Project Name	Scattered Tree Assessment at 110 Smiths Lane, Clyde North, Victoria.		
Project Number	4384		
Project Manager	Shannon LeBel - Botanist		
Report Author(s)	Shannon LeBel – Botanist, James Garden - Botanist		
Report Reviewer	Amanda Smith – Consultant Zoologist		
Other EHP Staff			
Mapping	Monique Elsley		
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EXECUTIVE SUMMARY

Ecology and Heritage Partners Pty Ltd was commissioned by Mirvac Victoria Pty Ltd to undertake a Scattered Tree assessment for the property at 110 Smiths Lane, Clyde, Victoria. This property is part of Precinct Structure Plan (PSP) 1055 'Clyde East'.

Methodology

A site assessment was undertaken on 27 November 2012 to identify scattered tree values within the study area. All scattered indigenous trees were mapped and the species, size class and the conservation significance of each tree was determined according to the relevant EVC benchmark. The health (i.e. percentage die-back) and fauna habitat values of the trees were also recorded.

Results

Fourteen scattered trees, including three LOTs, four MOTs and Seven STs, were recorded within the study area. These trees are likely remnants of the Swampy Riparian Woodland (EVC83) that would have occurred along Cardinia Creek prior to modification of the landscape for agricultural purposes.

In addition, two LOTs were identified in a small patch of remnant vegetation within the study area.

Implications

Given all trees are located within or near the easement associated with Cardinia Creek, their retention would be unlikely to significantly impact on the proposed development. It is therefore recommended that design of the proposed precinct provide adequate consideration of scattered trees and patches, to ensure these are not removed or adversely impacted.

However, assuming all indigenous trees within the study area were to be removed for the purposes of informing offset requirements, the following offsets would need to be secured:

- Protect 20 Large Old Trees, 8 MOTs and recruit 308 new plants from within the same EVC, within the Gippsland Plain bioregion, or a Very High conservation significance EVC within the Gippsland Plain bioregion;

OR

- Recruit 968 new plants from within the same EVC, within the Gippsland Plain bioregion, or a Very High conservation significance EVC within the Gippsland Plain bioregion.

If not previously undertaken, a Habitat Hectare assessment will be required for the remnant vegetation patch to further inform the NVPP for Precinct 1055.

1 INTRODUCTION

1.1 Background

Ecology and Heritage Partners Pty Ltd was commissioned by Mirvac Victoria Pty Ltd to undertake a Scattered Trees assessment at 110 Smiths Lane, Clyde North, Victoria (the study area) as part of the biodiversity assessments for Precinct Structure Plan (PSP) 1055 (Clyde East) on the urban fringe of south-east Melbourne (Figure 1). The purpose of this report is to identify scattered tree values within the property and to inform the Native Vegetation Precinct Plan (NVPP) as part of the PSP planning process.

1.2 Objectives

The objectives of the project were to:

- Identify, assess and map all scattered trees within the study area, including:
 - the level of conservation significance for each tree;
 - the size class;
 - percentage of dieback; and,
 - indicators of fauna habitat.
- Determine whether trees require offsetting, and calculate the offset score;
- Record incidental observations of threatened flora and/or fauna,
- Collect data at a sufficient detail and standard to inform the development of a Precinct Structure Plan (PSP) and Biodiversity Plan;

1.3 Study Area

The study area comprises a private property located at 110 Smiths Lane, Clyde North, Victoria, approximately 50 kilometres south-east of Melbourne CBD (Figure 1).

The area occurs within an agricultural landscape, with surrounding land-uses including livestock grazing. The majority of the area is cleared farming land dominated by introduced pasture grasses, and during the current assessment was grazed by cattle.

The property is approximately 200 hectares in area, bound to the east by Lower Cardinia Creek and to the west by Smiths Lane (Figure 1). A dwelling with a house and associated outbuildings is situated in the south-western corner of the property.

The study area lies within the boundaries of the Port Phillip and Westernport Catchment Management Authority (CMA). Under the City of Casey planning scheme the majority of the study area is Urban Growth Zone (UGZ), with areas of Farming Zone – Schedule 2 (FZ2), Rural Conservation Zone (RCZ) and Urban Floodway Zone (UFZ). The majority of the study area is subject to a Land Subject to Inundation Overlay (LSIO), while the area adjacent to

Cardinia Creek is subject to an Environmental Significance Overlay - Schedule 6 (ESO6). The study area lies within the Urban Growth Boundary (UGB) (DSE 2012a).

The study area lies within the Gippsland Plain bioregion (DSE 2012a). The Gippsland Plain bioregion extends from Port Phillip Bay in the west, to Bairnsdale in the east, between the southern slopes of the Great Dividing Range and Wilsons Promontory, excluding the Strzelecki Ranges.

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2 METHODS

2.1 Nomenclature

Common and scientific names of vascular plants follow the Victorian Biodiversity Atlas (DSE 2011a) and the Census of Vascular Plants of Victoria (Walsh and Stajsic 2007). Vegetation community names follow DSE's EVC Benchmarks (DSE 2012b).

2.2 Literature and Database Review

A desktop assessment was undertaken prior to field surveys. The following resources and databases were reviewed over the duration of the project:

- The Victorian Biodiversity Atlas (DSE 2011a), and Flora Information System (Viridans 2011a) databases;
- The DSE's Biodiversity Interactive Maps showing historic and current EVCs (DSE 2012a);
- Sites of Biological Significance (BioSites) (DSE 2012a).
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) Protected Matters Search Tool which identifies matters of National Environmental Significance (NES) (e.g. listed flora and fauna species and ecological communities, Ramsar wetlands) protected under the EPBC Act (SEWPaC 2012).
- Planning Schemes Online providing the current zone and overlays (DPCD 2012);
- Aerial photography of the study area, and,
- Relevant legislation and policies.

2.3 Field Surveys

All vegetation assessments were undertaken by experienced personnel who had a current Vegetation Quality Assessment Check Certificate (Habitat Hectares).

A site assessment was undertaken on 27 November 2012 to identify scattered tree values within the study area. All scattered indigenous trees (i.e. those not located within a remnant patch of vegetation) were mapped onto aerial photography and as a point file in the required software. The species, size class and the conservation significance of each tree was determined according to the relevant EVC benchmark. All incidental records of significant flora and fauna were noted.

2.3.1 Tree Assessment

The Framework recognises that old trees are important environmental assets and these can be found in habitat zones, or as relicts of vegetation that formerly occupied the site (scattered trees). The Framework includes minimum protection/replacement ratios for trees that are to

be removed as part of permitted clearing, based on the Diameter at Breast Height (DBH). Ratios apply to large old trees in 'habitat zones', and to scattered old trees where the indigenous understorey cover is less than 25% of the total understorey cover. Small scattered trees (i.e. not old trees) are also considered to be environmental assets, and any permitted clearance would require offset ratios for the loss of these trees.

As such, all scattered indigenous trees (i.e. those not located within a remnant patch of vegetation) were mapped and the species, size class (compared with the relevant EVC benchmark) and conservation significance of each tree was determined.

Scattered Trees

In relation to scattered old trees in parcels of land the Framework states:

For each medium or large old tree removed as part of permitted clearing an appropriate number of new trees must be recruited. The number of new trees that must be recruited will be specified in regional Native Vegetation Plans and may be graded according to conservation significance. However, where it better suits their circumstances, landholders may use the 'protect other trees and ensure supplementary recruitment' approach to meet this criteria (DNRE 2002, p. 55).

The Port Philip and Westernport Native Vegetation Plan (PPWCMA 2006) currently contains offset ratios for losses of scattered trees in patches of native vegetation. These offset ratios include:

- Protect and recruit options for Very Large, and Large Old Trees; or
- Recruit only options for Very Large, Large, Medium Old Trees and Small Trees.

3 RESULTS

3.1 Tree assessment

3.1.1 Scattered trees

The majority of the study area was highly modified as a result of agricultural practices and contained predominantly planted trees and shrubs in windrows. Common species included the exotic Cypress *Cupressus* spp., and planted natives Southern Blue Gum *Eucalyptus bicostata*, Gippsland Mallee *Eucalyptus kitsoniana*, and *Corymbia* sp.. Many of the windrows also included indigenous planted shrubs such as Silver Wattle *Acacia dealbata*, Giant Honey-myrtle *Melaleuca armillaris*, Totem-poles *Melaleuca decussata*, Prickly-leaved Paperbark *Melaleuca styphelioides* and Saw-Toothed Banksia *Banksia serrata*.

The only indigenous remnant trees found within the study area occurred in the north-eastern corner adjacent to Cardinia Creek (Figure 2). A total of 14 indigenous trees were identified within the property boundary (Table 1). All trees were Manna Gums *Eucalyptus viminalis*, representing remnants of the Swampy Riparian Woodland Ecological Vegetation Class (EVC 83; Gippsland Plain bioregion) that is still present along the margins of the creek.

The majority (11) of these trees are still relatively young, being classified as either a Small Tree (ST) or Medium Old Tree (MOT). These provided limited value as fauna habitat due to their lack of structural complexity, particularly with regard to hollows. Three large old trees were identified however these too showed few indicators of containing unique fauna habitat values.

The trees were all in moderate to good health. Whilst dieback was a common feature of all trees, it was not considered to be indicative of poor health. This is a common adaptation within *Eucalyptus* species to shed branches and limbs, as a way to mitigate the impacts associated with varied climatic conditions (particularly drought).

Table 1. Indigenous scattered trees within the 110 Smiths Lane study area

Tree No.	Latitude	Longitude	Species	DBH	Size class ¹	% dieback	Fauna habitat	Incidental obs. of threatened species
1	-38.09943	145.39629	<i>E. viminalis</i>	51	ST	90		
2	-38.09948	145.39635	<i>E. viminalis</i>	45	ST	70		
3	-38.09952	145.39642	<i>E. viminalis</i>	87	LOT	85		
4	-38.09946	145.39634	<i>E. viminalis</i>	20	ST	70		
5	-38.09944	145.39632	<i>E. viminalis</i>	31	ST	80		
6	-38.09943	145.39632	<i>E. viminalis</i>	12	ST	80		
7	-38.09952	145.39646	<i>E. viminalis</i>	48	ST	75		
11	-38.09962	145.39665	<i>E. viminalis</i>	59	MOT	85		
12	-38.09967	145.3968	<i>E. viminalis</i>	65	MOT	60		
13	-38.09967	145.39684	<i>E. viminalis</i>	58	MOT	60		
14	-38.09969	145.39689	<i>E. viminalis</i>	76	LOT	70		
15	-38.10009	145.39766	<i>E. viminalis</i>	74	LOT	85		
16	-38.10364	145.39832	<i>E. viminalis</i>	27	ST	70		
17	-38.10364	145.39832	<i>E. viminalis</i>	62	MOT	70		

¹ Based on the Large Old Tree benchmark for the Swampy Riparian Woodland EVC (83).

Scattered trees numbered 1 to 15 were located in a Melbourne Water Easement which runs adjacent to the north-eastern boundary of the study area, approximately 50 metres from the top of bank of Cardinia Creek. Scattered trees 16 and 17 were located on the outside edge of the property boundary. However, as more than 10% of the Tree Protection Zones (Section 3.2.3) encroach, they have been included in the assessment (Figure 2).

3.1.2 Trees in patches

In addition to the 14 scattered trees recorded in the north-east of the study area, a further eight indigenous trees were identified forming a small patch approximately 300 metres south along Cardinia Creek (Figure 2). The patch contained five STs, one MOT and three LOTs (Table 2). Whilst highly degraded the patch is considered to be representative of the Swampy Riparian Woodland (EVC 83).

One of the LOTs, a River Red Gum *Eucalyptus camaldulensis*, contained a small hollow providing potential habitat for small arboreal mammals and birds.

Table 2. Trees within patches in the 110 Smiths Lane study area

Tree No.	Latitude	Longitude	Species	DBH	Size class ¹	% dieback	Fauna habitat	Incidental obs. of threatened species
18	-38.10357	145.39814	<i>E. viminalis</i>	64	MOT	85		
19	-38.10355	145.39811	<i>E. viminalis</i>	73	LOT	70		
20	-38.10364	145.39808	<i>E. camaldulensis</i>	86	LOT	70	Small hollow	
21	-38.10369	145.39809	<i>E. viminalis</i>	40	ST	75		
22	-38.10369	145.3981	<i>E. viminalis</i>	45	ST	75		
23	-38.10373	145.39813	<i>E. viminalis</i>	35	ST	70		
24	-38.10375	145.39815	<i>E. camaldulensis</i>	50	ST	50		
25	-38.10379	145.39815	<i>E. camaldulensis</i>	25	ST	50		

¹ Based on the Large Old Tree benchmark for the Swampy Riparian Woodland EVC (83).

A habitat hectare assessment was not undertaken on this patch as it was outside the scope of this assessment. However, this area will require further assessment if not previously undertaken, to inform the preparation of the NVPP for the PSP, irrespective of its likely retention or removal for future development.

3.2 Net Gain Analysis

3.2.1 Scattered trees

Fourteen scattered indigenous trees were recorded within the study area (Table 1; Figure 2). These include:

- Seven STs;

- Four MOTs; and,
- Three LOTs.

3.2.2 *Trees within Patches*

Two LOTs were identified in patches within the study area that qualify for consideration under the Framework (STs and MOTs are not considered to be significant within a patch and therefore no special considerations are made under the Framework) (Table 2; Figure 2).

3.2.3 *Net Gain*

The three-step approach to applying Net Gain for applications to clear native vegetation involves demonstration of avoidance and minimisation measures as the first two steps, and only after these first two steps have been addressed should offsets be considered (DNRE 2002).

Avoidance (Step 1)

‘The Framework’ requires avoidance as the first step in considering the impacts of development on native vegetation. In light of this requirement, any proposed construction within the study area needs to demonstrate how native vegetation avoidance has been achieved in the design process. Avoidance may generally be interpreted as avoiding adverse impacts on trees or habitat patches, particularly through vegetation clearance, with the vegetation being retained post construction (DNRE 2002).

Given all scattered trees are located within the easement associated with Cardinia Creek, their retention would be unlikely to significantly impact on the proposed development. It is therefore recommended that design of the proposed precinct provide adequate consideration of scattered trees and patches to ensure these are not removed or adversely impacted.

Minimisation (Step 2)

This step is generally interpreted as minimising impacts on trees or remnant vegetation through appropriate consideration in planning processes and expert input to project design or management (DNRE 2002).

For all trees and patches being retained, precinct design and construction plans should ensure adequate protection measures are in place to mitigate any short and long term impacts to the vegetation retained. This should include consideration of Tree Protection Zones (TPZs), installing temporary fencing and informing contractors of values and sensitivities associated with the vegetation to be retained.

- Tree Protection Zones (TPZs) should be implemented to prevent indirect losses of native vegetation during construction activities (DSE 2010), and at a minimum standard of a TPZ should include:

- a TPZ applies to a tree and is a specific area above and below the ground, with a radius 12 x the DBH;
- A TPZ of trees should be no less than 2 metres or greater than 15 metres;
- Construction, construction related activities and encroachment (i.e. earthworks such as trenching that disturb the root zone) should be excluded from the TPZ;
- Where encroachment exceeds 10% of the total area of the TPZ, the tree should be considered as lost and offset accordingly; and,
- Subject to qualified arborist confirming that it is appropriate for the specific works, directional drilling may be used for works within the TPZ without being considered encroachment. The directional bore should be at least 600 millimetres deep. An arborist should also confirm that the radius of the bore will not significantly damage the tree causing it to be lost in the future.
- Where the minimum standard for a TPZ has not been met an offset may be required (DSE 2010).

Offset Calculations (Step 3)

Once steps 1 and 2 have been considered, then offsets or Net Gain targets can be calculated for any permitted vegetation clearance (DNRE 2002).

‘The Framework’ sets out responses, including like for like criteria and Net Gain ratios, to proposals to clear and offset native vegetation, based on the conservation significance of the vegetation.

The responsible authority’s responses to applications to clear native vegetation follow the guidelines in the Framework (DNRE 2002) and are dependent on the vegetation’s conservation significance and the Port Phillip and Western Port CMA Native Vegetation Plan (PPWCMA 2006). In general, clearing is not permitted for vegetation of very high, high or medium conservation significance.

For the purposes of informing offset requirements should they be required, the following presents the Net Gain targets for the removal of all scattered trees and Large Old Trees in patches within the study area (Table 3).

Table 3. Offset requirements for scattered trees and trees within patches within the study area

Tree size class	Conservation significance	Number of trees	Protect and Recruit ¹		Recruit Only Multiplier ^{1 2}	Net Gain targets
			Protect multiplier	Recruit multiplier		
VLOT (>105cm)	High	0	5	30	180	0
LOT (70 - 104 cm)	High	5	4	20	120	Protect 20 LOTs & Recruit 100 Or Recruit 600

Tree size class	Conservation significance	Number of trees	Protect and Recruit ¹		Recruit Only Multiplier ^{1 2}	Net Gain targets
			Protect multiplier	Recruit multiplier		
MOT (52 - 69cm)	High	4	2	20	60	Protect 8 MOTs & Recruit 80 Or Recruit 240
ST (11 – 20cm)	Low	1	NA	NA	2	Recruit 2
ST (21 – 30cm)	Low	2	NA	NA	8	Recruit 16
ST (31 – 40cm)	Low	1	NA	NA	20	Recruit 20
ST (41 – 52.5cm)	Low	3	NA	NA	30	Recruit 90

¹ Protect and recruit multipliers based on the Port Phillip and Western Port Native Vegetation Plan (2006).

² Recruitment multipliers for small trees (where the total to be removed does not exceed 50) are calculated for each tree specifically – see Figure 7 Port Phillip and Western Port Native Vegetation Plan (2006).

Therefore, assuming all indigenous trees within the study area were to be removed, the following offsets would need to be secured:

- Protect 20 Large Old Trees, 8 MOTs and recruit 308 new plants from within the same EVC within the Gippsland Plain bioregion, or a Very High conservation significance EVC within the Gippsland Plain bioregion;

OR

- Recruit 968 new plants from within the same EVC within the Gippsland Plain bioregion, or a Very High conservation significance EVC within the Gippsland Plain bioregion.

Offset calculations for the remnant patch of indigenous vegetation noted within the study area has not been provided.

4 LEGISLATION AND REGULATIONS

The following section provides a brief outline of the implications of the assessments findings under the major environmental legislation relevant to the study area and proposed development.

Environment Protection and Biodiversity Conservation Act 1999

No *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed species were recorded during the tree assessment. Targeted surveys for Matters of National Environmental Significance (MNES) were outside the scope of the current assessment.

Flora and Fauna Guarantee Act 1988

No *Flora and Fauna Guarantee Act 1988* (FFG Act) listed species were recorded during the tree assessment. Targeted surveys for species listed under the FFG Act was outside the scope of the current assessment.

Planning and Environment Act 1987

A planning permit from the City of Casey is required to remove or disturb any native vegetation within the study area.

Victoria's Native Vegetation Management - A Framework for Action (DNRE 2002)

Fourteen scattered trees and two LOTs within a remnant patch were recorded within the study area. If lost, these trees will likely require offsetting as per *Victoria's Native Vegetation Management - A Framework for Action* (the 'Framework') (DNRE 2002). A Net Gain analysis is presented in Section 3.2.

Biodiversity Conservation Strategy for Melbourne's Growth Areas

The draft Biodiversity Conservation Strategy (BCS) (DSE 2011) for Melbourne's Growth Areas has been prepared in response to obligations arising from a review of the Strategic Impact Assessment Report (SIAR) (DSE 2009) conducted under the Commonwealth *Environment Protection and Biodiversity Act 1999 (EPBC Act)*. The BCS covers Melbourne's four growth areas within the expanded 2010 Urban Growth Boundary, as well as the previous 28 precincts, except where a planning scheme amendment to introduce a Precinct Structure Plan has been approved prior to 1st March 2012.

Implications

This proposed PSP 1055 (Clyde East) is part of the Urban Growth Zone and thus will be subject to the requirements of the BCS once it is approved. A Habitat Hectare assessment will need to be conducted on the patch of remnant vegetation identified on-site, unless the study area has previously been 'time-stamped'. Table 3 lists all scattered trees and their Net Gain targets identified within the study area. The NVPP will be prepared from the combined 'Time-stamped' native vegetation and scattered tree information presented in this report.

Conclusion

Fourteen scattered trees, including three LOTs, four MOTs and Seven STs, were recorded within the study area. These trees are likely remnants of the Swampy Riparian Woodland (EVC83) that would have occurred along Cardinia Creek prior to modification of the landscape for agricultural purposes.

In addition, two LOTs were identified in a small patch of remnant vegetation within the study area.

Given the majority of scattered trees are located within the easement associated with Cardinia Creek, their retention would be unlikely to significantly impact on the proposed development. It is therefore recommended that design of the proposed precinct provide adequate consideration of scattered trees and patches to ensure these are not removed or adversely impacted.

However, assuming all indigenous trees within the study area were to be removed for the purposes of informing offset requirements, the following offsets would need to be secured:

- Protect 20 Large Old Trees, 8 MOTs and recruit 308 new plants from within the same EVC within the Gippsland Plain bioregion, or a Very High conservation significance EVC within the Gippsland Plain bioregion;

OR

- Recruit 968 new plants from within the same EVC within the Gippsland Plain bioregion, or a Very High conservation significance EVC within the Gippsland Plain bioregion.

If not previously undertaken, a Habitat Hectare assessment will be required for the remnant vegetation patch to further inform the NVPP for Precinct 1055.

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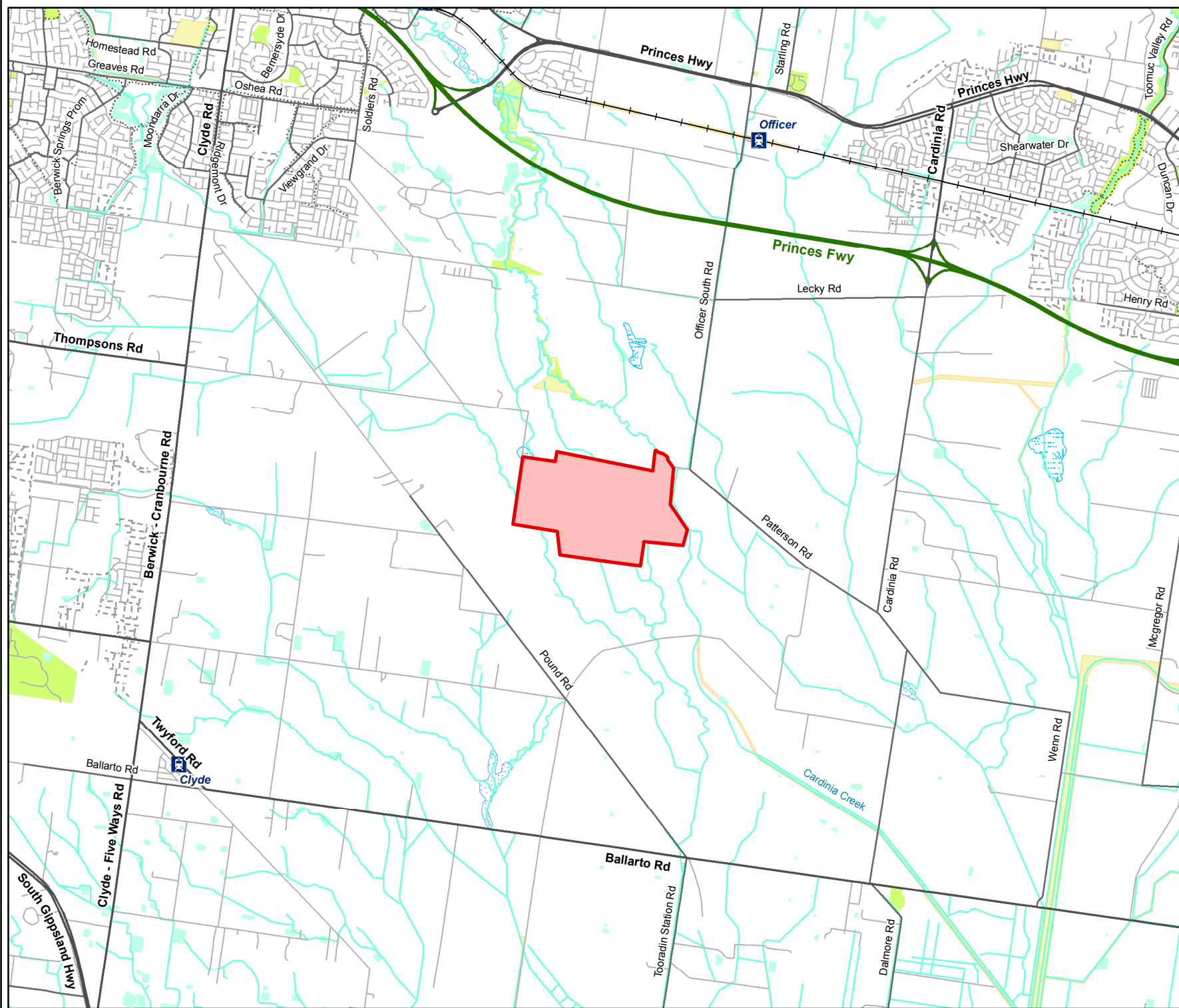
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FIGURES

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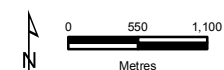


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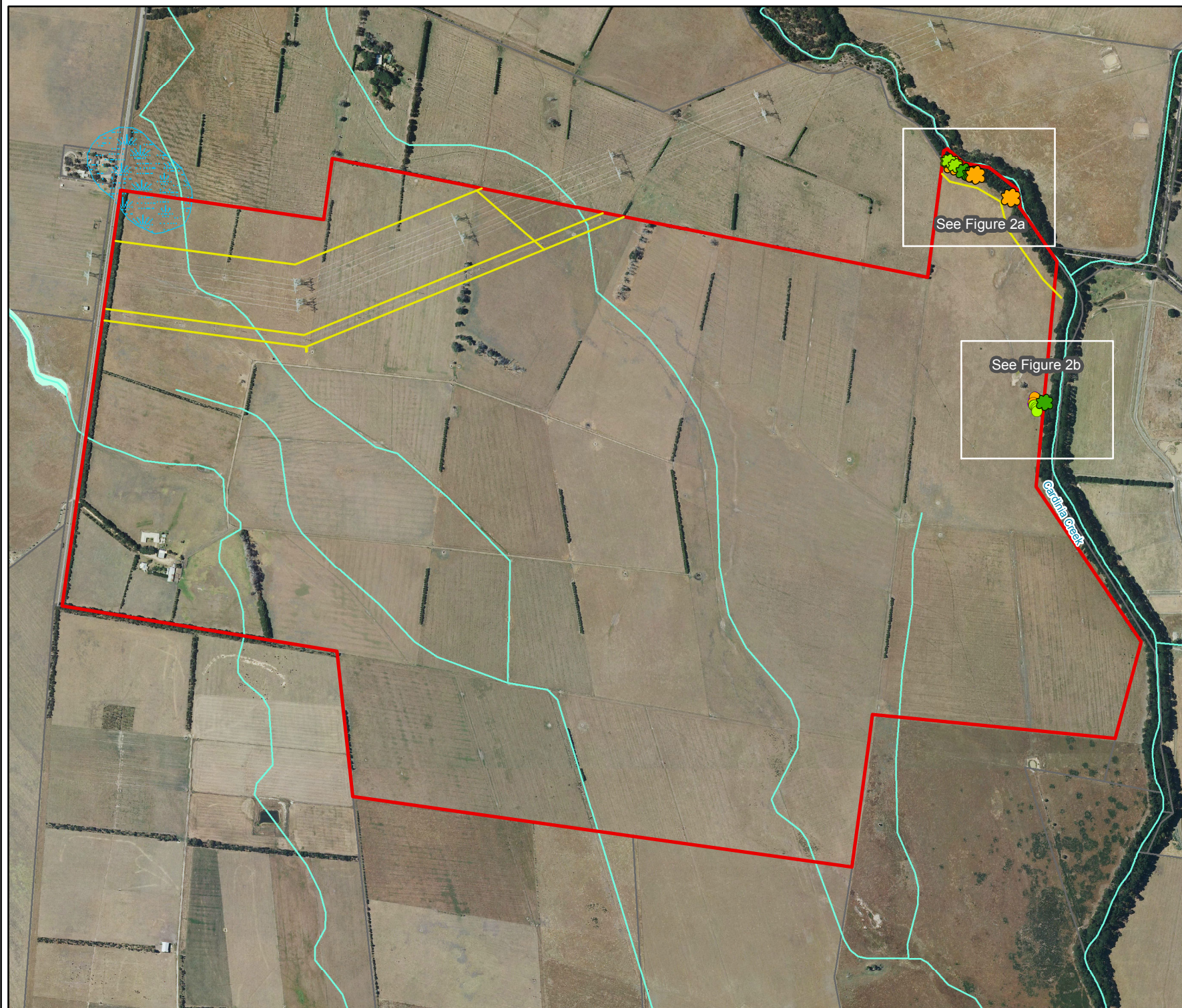
- Study Area
- Railway
- Freeway
- Major Road
- Collector Road
- Minor Road
- Proposed Road
- Walking Track
- Minor Watercourse
- Permanent Waterbody
- Land Subject to Inundation
- Wetland/Swamp
- Parks and Reserves
- Crown Land



Figure 1
Location of the study area
110 Smith's Lane, Clyde North



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Legend

- Study Area
- Easements
- Permanent Waterbody
- Wetland/Swamp
- Minor Watercourse

Scattered Indigenous Trees

- ✿ LOT
- ✿ MOT
- ✿ ST

Trees in remnant patch

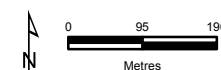
- LOT
- MOT
- ST

- Tree Protection Zone

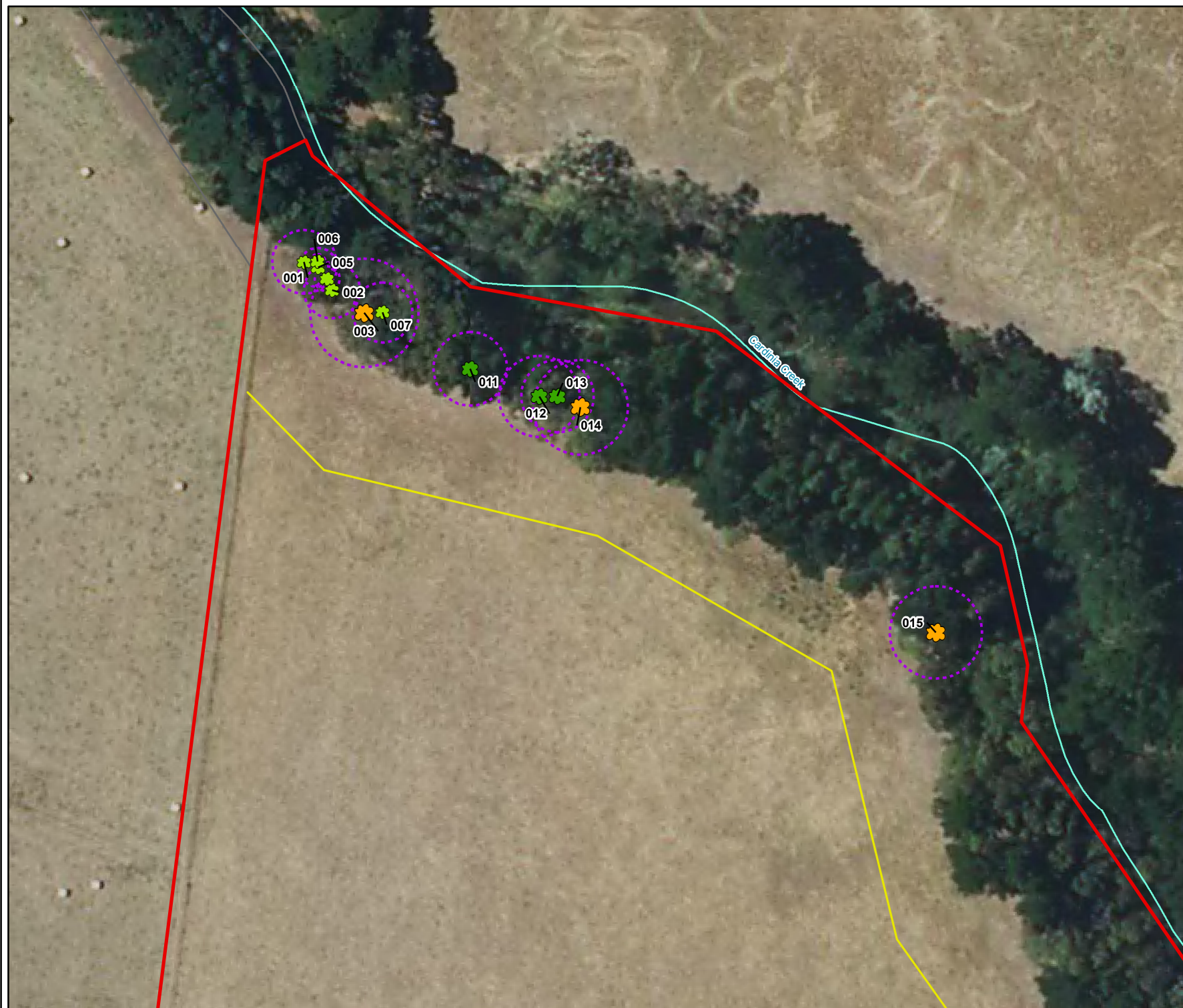


Figure 2 - Overview

Ecological features
110 Smith's Lane, Clyde North



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Legend

- Study Area
- Easements
- Minor Watercourse

Scattered Indigenous Trees

- ✿ LOT
- ✿ MOT
- ✿ ST

Trees in remnant patch

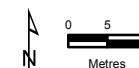
- LOT
- MOT
- ST

- Tree Protection Zone

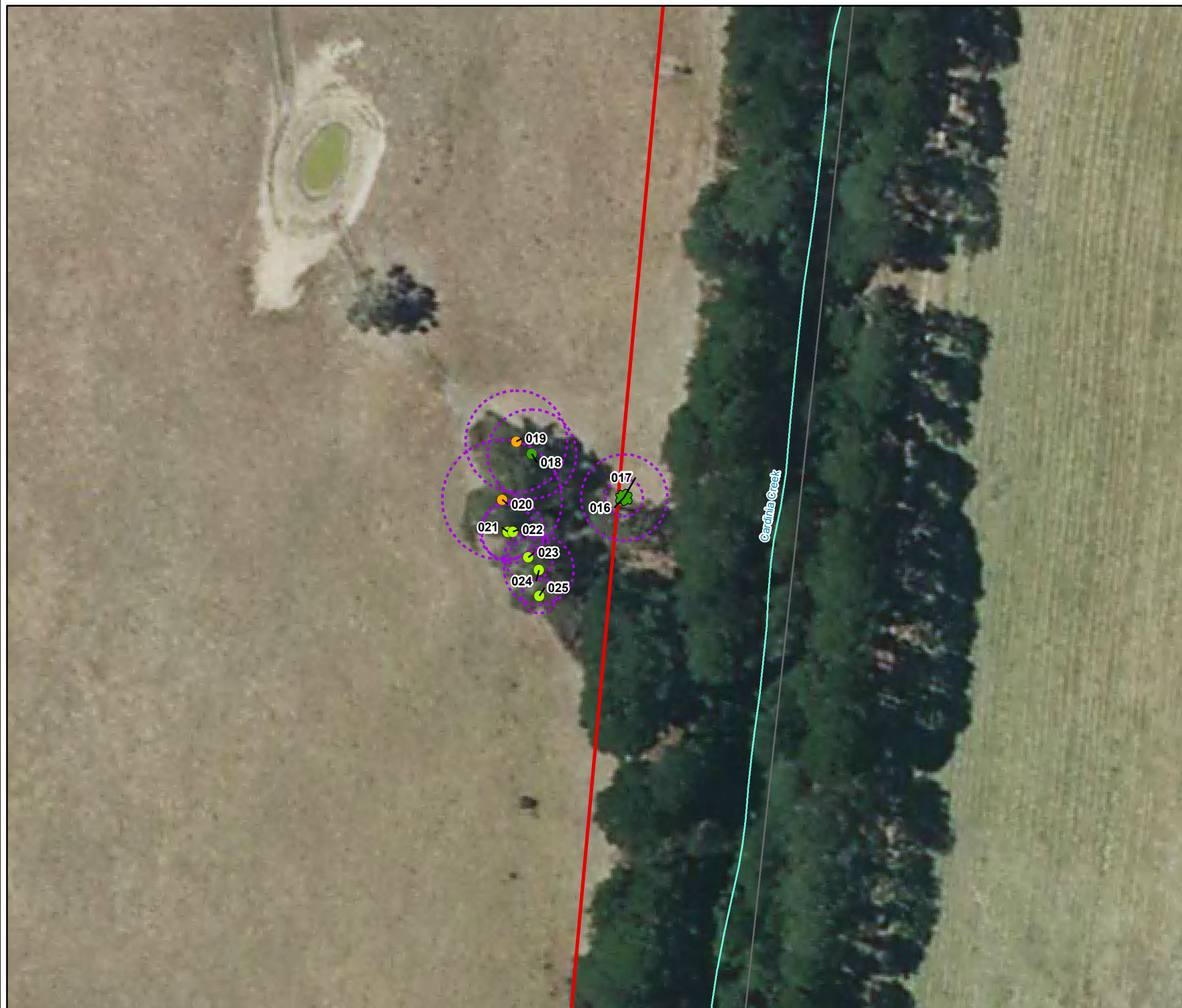


Figure 2a

Ecological features
110 Smith's Lane, Clyde North



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Legend

- Study Area
- Easements
- Minor Watercourse

Scattered Indigenous Trees

- LOT
- MOT
- ST

Trees in remnant patch

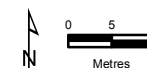
- LOT
- MOT
- ST

- Tree Protection Zone



Figure 2b

Ecological features
110 Smith's Lane, Clyde North



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