Appendix M

Arborist Assessments

umwelt

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25 November 2025

Lachlan Smith
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RE: 013638 – Arboricultural Advice – Normanville Energy Park– Root sensitive electrical works

I advise the following in regard to installing electrical cabling adjacent to trees in relation to electrical works at the Normanville Energy Park.

Method – A desktop assessment was undertaken using Nearmap aerial imagery and files supplied by West Wind Energy, including GIS data, works methodology and site photos to provide a tree impact assessment of the existing trees in the works area. The following of the proposed works methodology were reviewed:

- 'NMEP_ExternalTransmissionline_V10-01_Option2': A provided GIS line layer which is a proposed route for electricity cabling that would run west of the roadside vegetation, along Denyer Road.
- A second external transmission line with a large component running under the centre of Denyer Road.
- 'HDD_LS': A provided GIS line layer showing 7 sites of electrical works for internal transmission line works.

The following features were added in GIS to assist with the determining tree impacts and providing recommendations:

- Example trees were plotted in the approximate centres of tree canopies identified off Nearmap aerial imagery (most of which was dated 01.11.2023). A single tree size was used to generate TPZs and SRZs to give an estimate of radial protection areas around typical trees in the area. A typical tree in the area, determined from site photos, was one with a combined trunk diameter equal to 50cm and basal diameter of 60cm. Subsequent TPZ and SRZ radial measurements were 6m and 2.7m, respectively. This is a conservative estimate for the mallee type of vegetation in the area, which, it is understood, comprises *Eucalyptus kochii, E. dumosa, E. oleosa, E. gracilis, Pittosporum angustifolium, Eremophila longifolia* and *Myoporum platycarpum.*
    - Projected TPZs and SRZs should be used as a guide for planning and design purposes. Any proposed open-cut excavation should be proof tested on site, i.e. excavations should be at least 6m from the nearest tree trunk and outside canopy driplines.
- Boring pits were plotted in locations that appeared to contain no vegetation impacts, i.e. were outside canopy driplines and outside projected TPZs. Boring pit sizes were 4x3m, as indicated by West Wind Energy (4m long x 3m wide x 3m deep maximum). The locations are provided as a guide and are not prescriptive in any way.

External Horizontal Drilling

Large sections of the transmission line will pass through open paddock, although some sections will cross or run parallel to roadside vegetation (Figures 1 & 2). The main sections of interest are:

- Along Denyer Rd (two routes under consideration)
  - Under the road
  - Parallel to the road (west)
- Crossing Kerang-Quambatook Rd
- Crossing Lalbert-Kerang Rd

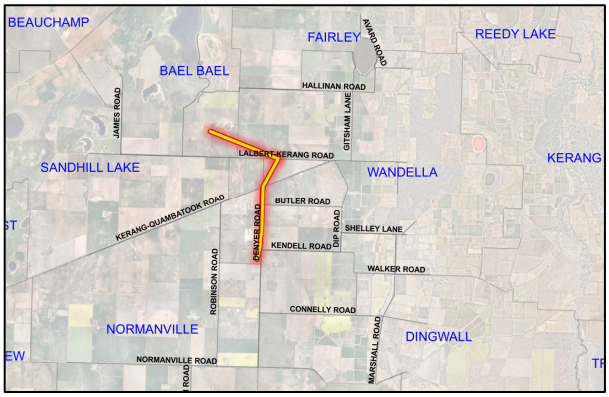

Figure 1. Site location with proposed route shown in Yellow.

Figure 2. Showing entire route of external transmission line.

Denyer Rd

Under road: This route is low risk to the vegetation. Roots from the roadside trees are not likely to be present under the compacted road surface, as this type of environment is not conducive to root growth. Any form of excavation under the road (open-cut or boring) is not likely to impact any of the roadside trees.

Western side of road: This route is also relatively low risk although the boring route will pass underneath some root zones and boring pits locations will need to be sited outside TPZs (see Figures 3-5). Boring depth guidelines are provided at Page 4.

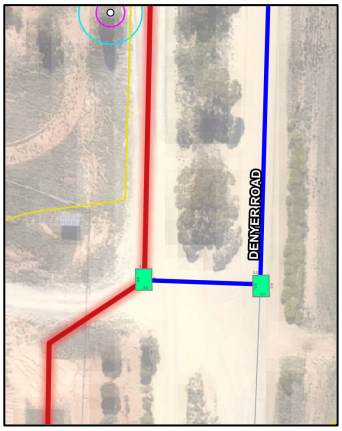

Figure 3. Showing southern part of Denyer Rd section of two proposed routes. Red line runs along western side of Denyer Rd, Blue line runs under Denyer Rd. Likely boring pit sites (4x3m) seen in green.

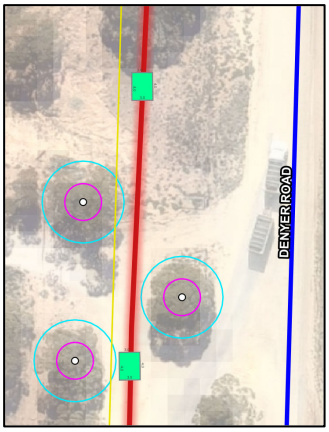

Figure 4. Approximately 150m north of Figure 3. Indicative trees (white points), TPZs (blue), SRZs (magenta). Suitable boring pit locations in green.

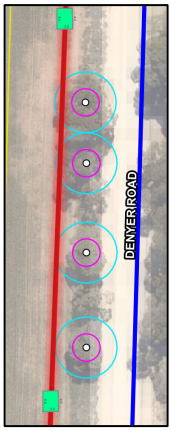

Figure 5. A section of Denyer Rd showing how rootzone disturbances can be avoided by placement of boring pits outside TPZs and canopy driplines.

Crossing Kerang-Quambatook Rd: As seen in Figure 6, the route of the external transmission line is likely to avoid the TPZs of the surrounding trees. Any form of excavation can be safely undertaken, assuming works can remain at least 6m from tree trunks and/or outside canopy driplines.

Crossing Lalbert-Kerang Rd: As seen in Figure 7, the route of the external transmission line is likely to avoid the TPZs of the surrounding trees, although the route could be moved slightly to the north to ensure this. Any form of excavation can be safely undertaken, assuming works can remain at least 6m from tree trunks and/or outside canopy driplines.

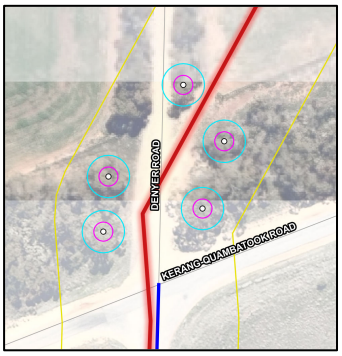

Figure 6. Section of external transmission line crossing Kerang-Quambatook Rd. The proposed route avoids TPZ incursion and is of low risk to existing trees.

Figure 7. Section of external transmission line crossing Lalbert-Kerang Rd. The proposed route is of low risk to surrounding trees in terms of projected TPZs and likely boring pit locations.

Internal Horizontal Directional Drilling

Seven (7) sections are proposed for HDD installation of the internal transmission line. As seen in Figures 8-14, the drilling will pass under the TPZs of trees in Sections 1, 2 & 7. It will pass relatively close to trees in Section 3, 4, 5 & 6. Boring pits can be safely excavated at either end of the HDD, although the pit may need to be moved slightly to ensure excavations are at least 6m back from tree trunks, and/or outside canopy driplines. Boring guidelines are provided on page 4.

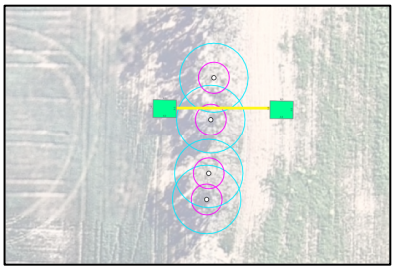

Figure 8. Section 1. Passes under trees.

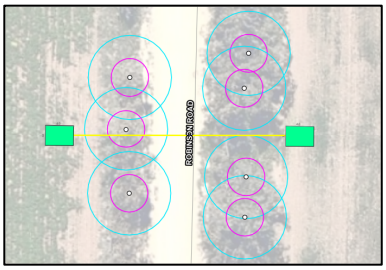

Figure 9. Section 2. Passes under trees.

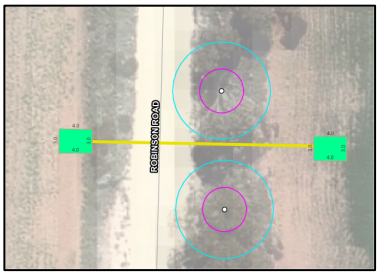

Figure 10. Section 3. Passes between trees.

Figure 11. Section 4. Passes between existing trees.

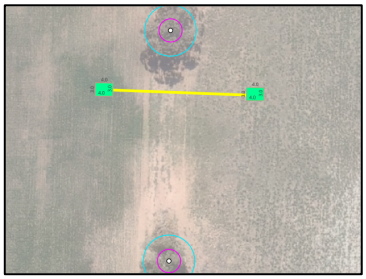

Figure 12. Section 5. Passes between trees.

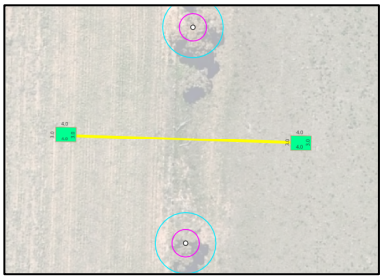

Figure 13. Section 6. Passes between trees.

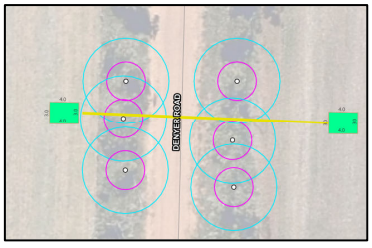

Figure 14. Section 7. Passes under trees. The pit has been shifted to the west to avoid the TPZ.

Boring guidelines

- Depth should be a minimum of 600mm to Top of Pipe (TOP), although ideally the depth to TOP would fall between 800-1100mm to ensure impacts are below the major zone of absorbing roots. There should be virtually no roots at depths >1500mm.
- More guidance on Horizontal Directional Drilling (HDD) is provided at Appendix 1.

I am available to answer any questions arising from this report.

Yours Sincerely,

Harry Webb
Consultant Arborist
MSc.(Bot.) Grad. Cert. Arb.

Appendix 1 - Horizontal directional drilling (HDD)

The following information pertains to tree root systems and recommendations regarding the installation of services in the vicinity of trees.

Root system, spread and depth

The morphology of a tree's root system is commonly thought to mirror that of the above ground visible parts. Rather than mirror the crown, the overall shape of a tree can be likened to that of the shape of a wine glass, with the cup as the crown and the base as the roots (Figure 1, overleaf). In an ideal situation, the root system spreads out in a flat, plate like manner with an emphasis on lateral rather than vertical spread.

Research indicates that in a typical situation, the depth and spread of a tree's root system typically extends a radial distance equal to that of the height of the tree, with the great majority of roots growing in the top meter of soil (Biddle, 1998). Harris, Clark and Matheny (2004) and the National Joint Utilities Group (1995) both state that most tree roots are found within the top 600 mm of soil. A detailed appraisal by Gasson and Cutler (1990) found that in 50% of cases, the root plate directly beneath the trunk was less than 1 m in depth, with it exceeding 2.0 m in less than 4% of cases. Based on the relevant literature, HDD at a depth of 1.5 m below grade is unlikely to encounter or damage any tree roots.

Recommended utility installation techniques

For the installation of services in the vicinity of trees, the service should be diverted or re-aligned to run beyond the tree protection zone (TPZ) (Refer Appendix 1 for information regarding establishing effective TPZs). Where this is not practical, trenchless excavation or root sympathetic hand excavation is recommended. A combination of these methods may be used where necessary.

Acceptable techniques in order of preference:

1. Diversion of service around the TPZ
2. Trenchless thrusting and directional boring at an appropriate depth beneath the TPZ.
3. Root sympathetic trench excavation within the TPZ.

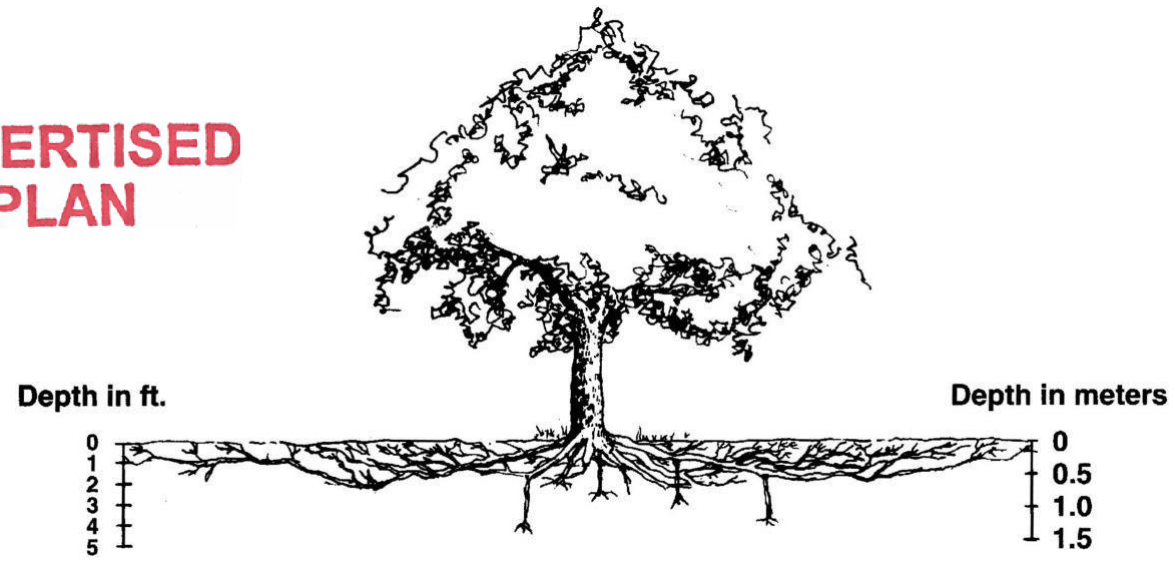

Figure 1: *An appropriate representation of a tree root system (Harris, Clark and Matheny, 2004).*

Horizontal directional drilling (HDD)

The action of 'directional boring' is the preferred method for service establishment within the area underneath the canopy. When this method is used, the overall impact to the tree is minimised.

All machinery associated with the action of directional boring must remain outside the tree's dripline. Entry and exit points should be located at a safe distance outside the dripline to ensure that machinery, slurry and work activities are kept clear of the area underneath the canopy. This will minimise any root loss or ground compaction that may arise from the works. If the directional drill-head becomes stuck within the area underneath the canopy, the arborist responsible for the trees on the site should be contacted prior to the retrieval process. Any retrieval of a directional drill-head from within the area underneath the canopy should be undertaken with hand tools unless otherwise stated by the responsible arborist (CA, 1999).

Techniques involving external lubrication of the mole with materials other than water (e.g. Oil, bentonite, etc.) should be avoided unless precautions are taken to ensure that there is no contamination of the soil within 600 mm of the surface within the area underneath the canopy.

Depth of boring

Depth specifications for boring in contemporary literature are variable, but consistently state that a tunnel under the root plate of a tree should be at least 600 mm deep (Harris et. al., 2004). Boring according to the Multinet directional boring standard EP-DD-4136 (2003) at a depth of 800-1100 mm to the top of the pipe (TOP) will ensure that the excavation is below the major zone of absorbing roots. A minimum boring depth of 600 mm from natural grade to the TOP should apply under existing trees.

Boring depth should also consider soil topography. Boring within the A soil horizon (topsoil) will impact on the root system of the tree as this area is the most conducive soil environment for root growth. Boring below this area in the B Horizon or sub-soil layer will reduce the impact on the root system of the tree by avoiding most of the absorbing roots as well as avoiding root damage to services.

Alignment of boring

Ideally, the line of boring or excavation should lie directly under the trunk of the tree. Mattheck and Breloer (1997) suggested that placing pipes directly beneath trees would effectively minimise the wind loading damage by the fact that the root lies in the neutral pivot of the swaying motion.

Conclusion

Impacts to the existing trees located along the alignment of the proposed pipeline are expected to be minimal providing the pipe is installed using HDD at a depth of greater than 1 metre to the TOP within the areas underneath the respective tree canopies and by ensuring the following controls are implemented:

1. Bore entry and exit pits must be located outside of the respective tree canopies.
2. Verification of the bore depth and offset readings must be undertaken outside the areas underneath the tree canopies.
3. Where possible, align the bore to pass directly under the trunk of the tree.
4. If the directional drill-head becomes stuck within the area underneath the canopy, the arborist responsible for the trees on the site should be contacted prior to the retrieval process. Any retrieval of a directional drill-head from within the area underneath the canopy should be undertaken with hand tools unless otherwise stated by the responsible arborist.

References:

Australian Standard (4970-2009) Protection of Trees on development sites. Standards Australia, Sydney NSW Australia

Biddle, P.G. (1998), Tree root damage to buildings, Willowmead Publishing, Wantage.

City of Auckland (1999), Annexure 5 – Guidelines for works within the vicinity of trees, City of Auckland – District plan isthmus section – operative 1999.

Mattheck, C & Breloer, H. (1997) *Body language of trees. A handbook for failure analysis*. The Stationary Office, London.

National Joint Utilities Group (1995). Guidelines for the planning, installation and maintenance of utility services in proximity to trees. National Joint Utilities Group, London.

Gasson, P.E. & D.F. Cutler (1990). Tree root plate morphology. Arbor. J. 14, (3), 193-264.

Harris, R.W, Clark, J.R. & Matheny, N.P. (2004), *Arboriculture: Integrated Management of Landscape trees, shrubs and vines*, Prentice Hall, New Jersey.

Clark, J.R. & Matheny, N.P (1998), *Trees and Development: A technical guide to preservation of trees during land development.* ISA , Champaign, Illinois.

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25 October 2024

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Normanville Energy Park Pty Ltd
Level 2, Tenancy 2, 15-17 Goode Street
Gisborne, 3437

RE: 013709 – Arboricultural Advice – Normanville Transport Vegetation Assessment

I advise the following in regard to native vegetation impacts from the proposed transportation route between Portland and Normanville Wind Energy Farm.

Method

Twelve (12) sites (Sites 3, 6, 8, 9, 10, 11, 12, 13, 14, 16, 20 & 22) were inspected on Monday 21 October 2024.The purpose of the arboricultural assessment was to review the existing tree population at each site and determine the level of impacts from the proposed transport route on roadside vegetation. Three potential outcomes were possible for each of the assessed tree or tree groups:

- Major impact (Lost)
- Tolerable levels of pruning required (retain)
- Minor to no pruning required (retain)

Transportation shp files (carriageway, swept path, front and rear wheel) were uploaded to GIS software over Google satellite imagery. A preliminary desktop assessment was undertaken to determine distances at selected locations between the edge of carriageway and edge of swept path, to assist with ground truthing (Figure 1).

Figure 1. Project set-up included importing transportation shp files (red=front wheel, blue=rear wheel, yellow=swept path, white = existing carriage way. Distances between existing carriage way and swept path (blue arrows) were determined at selected locations to assist with ground truthing.

Tree data was collected with a GPS enabled mobile computer. Individual tree data was captured in point shp files and tree groups were captured as polygons. Each individual tree/group was assigned a unique ID, commencing from #1. Tree locations were were approximated onto Google satellite aerial imagery with a combination of GPS and ground truthing. Ground truthing measurements were made with a measuring wheel or tape measure.

Observations were made of the trees and included:

- Tree species (botanical name) & common name
- Tree age (categorised)
- Diameter at breast height (DBH) was measured at 1.4 m from ground level and basal diameter just above the root flare. Measured with a diameter or builder's tape.
- Tree heights measured with a Nikon Pro Forestry device or estimated in metres when canopy was obscured.
- Canopy spread was paced and estimated in metres.
- Health and Structural condition (categorised).
- Useful life expectancy (categorised).
- Arboricultural rating (categorised).
- Distance from edge of road to tree trunk
- Distance from edge of road to edge of canopy
- Lower canopy height
- Pruning requirements (based on proximity of canopy to swept path and a height clearance requirement of 6.5m)
- Perceived impact level (based on pruning requirements and truck path relative to tree location)
- Habitat hollows
- Comments on tree or specific site characteristics.

The georeference system used is shown in the Tree Impact Plan at Appendix 1. Assessment details of individual trees and groups are listed in Appendix 2.

Results

Impacts for all trees and tree groups are contained in maps of each of the 12 assessed sites at Appendix 1. A summary of each site is listed in Table 1.

In total five (5) individual trees (1 wattle and 4 eucalypts) and 1 group (comprising 7 wattles) would be lost to the transport swept path.

Table 1. Summary of each of the assessed areas.

Area	Impacts
3	• 1x native tree lost (*Acacia melanoxlon*). Mod.C rated • 1x native group lost comprising 6 *Acacia mearnsii* and 1 *A. melanoxyon.* Low rated. • 1x non-native group lost. Low rated.
6	• No impacts on native trees. • 1x non-native group of Mod.B rated River Sheoaks (*Casuarina cunninghamiana*) lost.
8	• No major impacts on native trees. • One native tree (*Eucalyptus viminalis* subsp. *Cygnetensis*) would require 0-10% pruning.
9	• No major impacts on native trees. • 1x *E. largiflorens* may require minor clearance pruning.
10	• No impacts on native trees.
11	• 1x *E. largiflorens* would require major canopy reduction (>70%) and would be lost. The tree was of Low arboricultural having lost its main leader. It can be reduced to a habitat stump and retained in the landscape. • 1 *E. leucoxylon* may require minor clearance pruning.
12	• No major impacts on native trees. • 2x *Allocasuriana leuhmannii* may require <5% roadside reduction.
13	• No major impacts on native trees. • Several native trees (*E. largiflorens* & *Allocasuriana leuhmannii*) may require minor clearance or roadside reduction works.
14	• No major impacts on native trees. • 2x native trees (*E. largiflorens* & *Allocasuriana leuhmannii*) may require minor clearance pruning.
16	• No major impacts on native trees. • 1x *Allocasuriana leuhmannii* may require <10% canopy reduction. • 1x *Allocasuriana leuhmannii* will require 10-20% canopy reduction, which it is expected to tolerate.
20	• 1x Mod.B rated *E. dumosa* is within the truck swept path and would be lost. • 1x *E. dumosa* may require <5% roadside reduction.
22	• 2x *E. largiflorens* (1 Mod.A and 1 Mod.B) are within the truck swept path and would be lost. • 2x *E. largiflorens* will require 10-20% canopy reduction, which they are expected to tolerate. • 1x *E. largiflorens* may require minor canopy clearance.

Photographic catalogue

Image 1. Tree 37 at Site 3

Image 2. Group 2 at Site 3

Image 3. Tree 36 at Site 8 will require some minor reduction pruning. Measurement wheel at approximate location of edge of swept path.

Image 4. Tree 28 at Site 11 would require major pruning works and is considered lost.

Image 5. Tree 27 at Site 11 may require some minor clerance pruning.

Image 6. Tree 23 at Site 12 has a lower crown height of >7m so should not require clerance pruning.

Image 7. Tree 15 at Site 13 may require some minor clerance pruning.

Image 8. Tree 9 at Site 16 will require an estimated 10-20% reduction (marked in red). Approximate location of swept path shown by measurement wheel.

Image 9. Tree 6 at Site 20 is within the swept path and would be lost.

Image 10. Tree 2 at Site 22 will require 10-15% canopy reduction. Approximate location of swept path shown by measurement wheel.

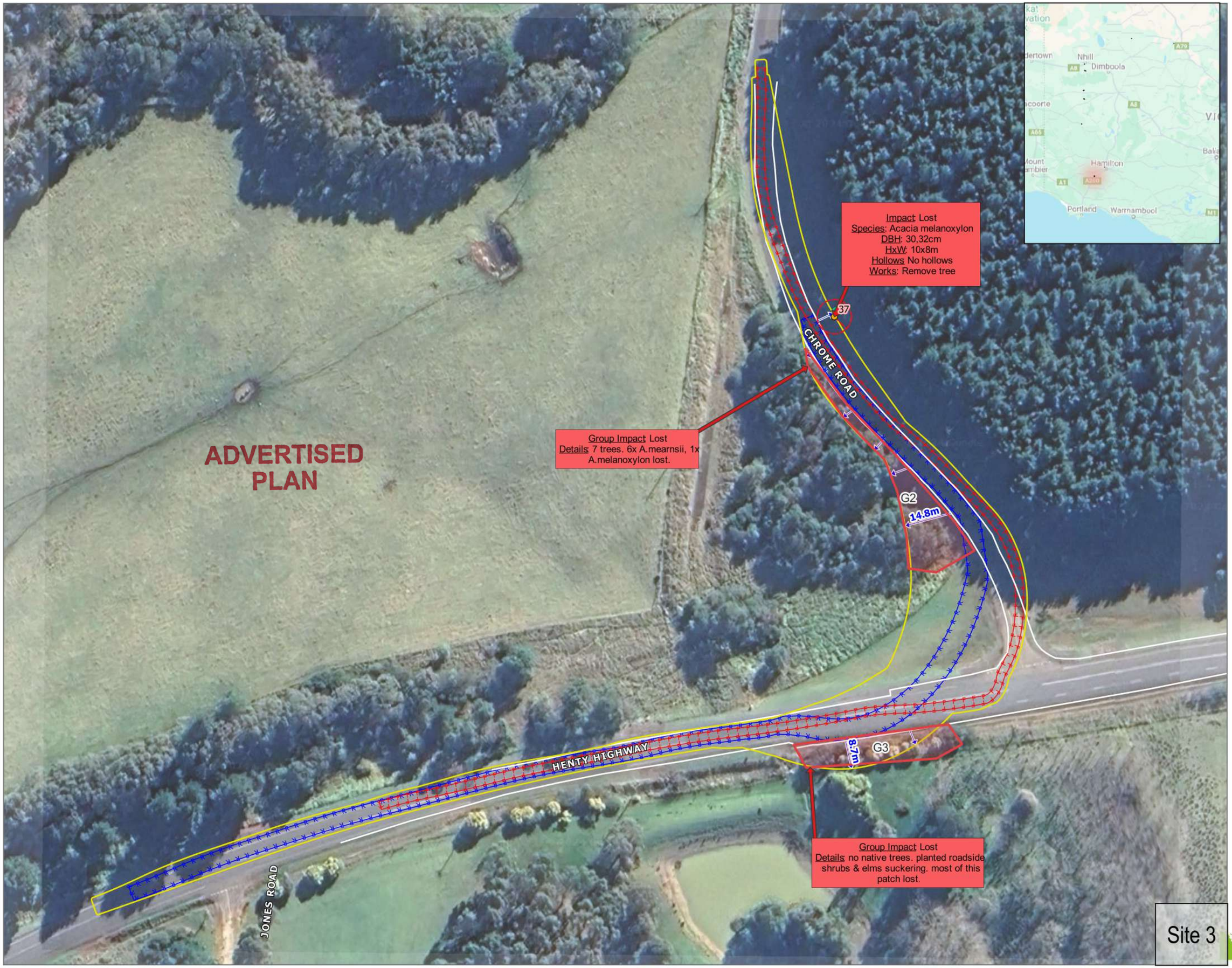
Image 11. Tree 5 at Site 22 is within the swept path and would be lost.

Image 12. Tree 4 at Site 22 is within the swept path and would be lost.

I am available to answer any questions arising from this report.

Yours Sincerely,

Harry Webb
Consultant Arborist
MSc.(Bot.) Grad. Cert. Arb.



LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 3
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 10 20m

TREELOGIC PTY LTD
ABN: 95 080 021 610
TEL: 1300 656 926
4 / 21 Eugene Tce
Ringwood, VIC
Australia 3134

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Plan, manage, protect

LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 6
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 10 20m

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Plan, manage, protect

LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 8
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 20 40m

TREELOGIC PTY LTD
ABN: 95 080 021 610
TEL: 1300 656 926
4 / 21 Eugene Tce
Ringwood, VIC
Australia 3134

Treelogic
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LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 9
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 20 40m

TREELOGIC PTY LTD
ABN: 95 080 021 610
TEL: 1300 656 926
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Ringwood, VIC
Australia 3134

Treelogic
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LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 10
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 30 60m

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Australia 3134

Treelogic
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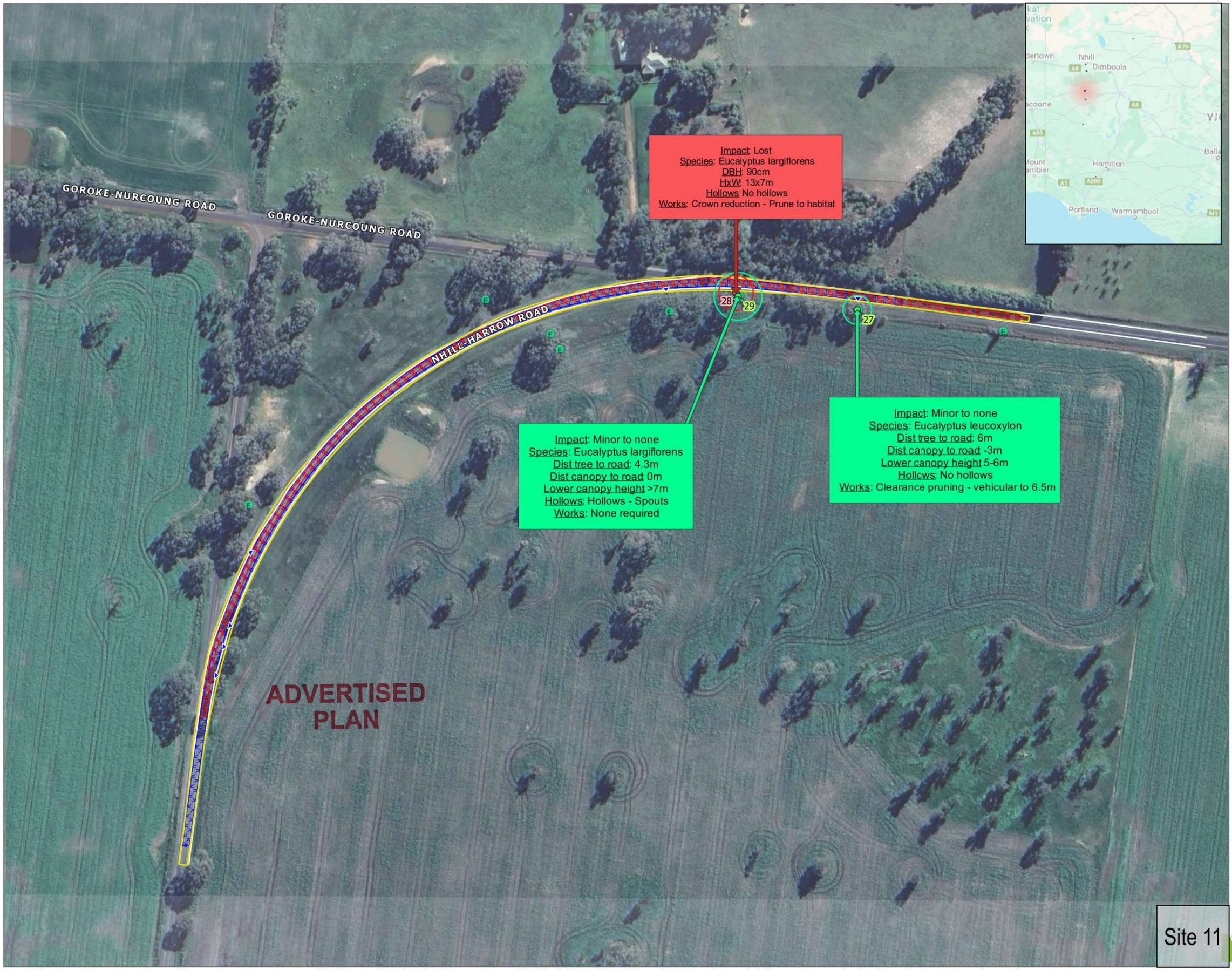

LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 11
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 30 60m

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Ringwood, VIC
Australia 3134

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LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 12
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 30 60m

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Australia 3134

Treelogic
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Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 2m
Dist canopy to road 0m
Lower canopy height 5-6m
Hollows: No hollows
Works: Clearance pruning - vehicular to 6.5m

Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 4m
Dist canopy to road 0m
Lower canopy height 4-5m
Hollows: No hollows
Works: Clearance pruning - vehicular to 6.5m

Impact: Minor to none
Species: Allocasuarina luehmannii
Dist tree to road: 3.6m
Dist canopy to road 0m
Lower canopy height 0-2m
Hollows: No hollows
Works: Roadside reduction (0-10%)

Impact: Minor to none
Species: Allocasuarina luehmannii
Dist tree to road: 3.8m
Dist canopy to road 0m
Lower canopy height 2-4m
Hollows: No hollows
Works: Roadside reduction (0-10%)

Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 7m
Dist canopy to road 1m
Lower canopy height 4-5m
Hollows: No hollows
Works: Roadside reduction (0-10%)
(+several other trees in grouping)

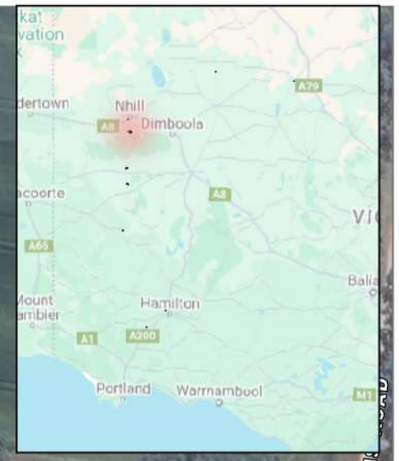
Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 8m
Dist canopy to road 0m
Lower canopy height 5-6m
Hollows: No hollows
Works: Roadside reduction (0-5%)

Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 9m
Dist canopy to road 0m
Lower canopy height 2-4m
Hollows: No hollows
Works: Roadside reduction (0-10%)

14 15 16 17 18 19 20

NHILL-HARROW ROAD

D MANNS ROAD



ADVERTISED PLAN

LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 13
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 20 40m

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TEL: 1300 656 926
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Australia 3134

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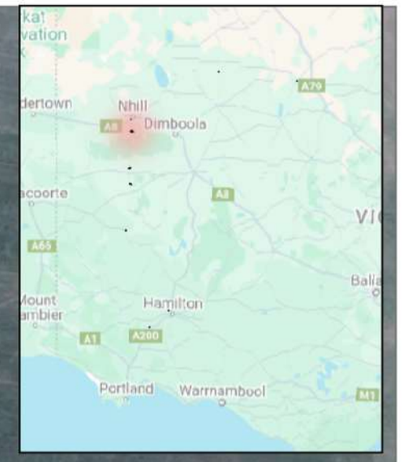
Site 13

Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 4m
Dist canopy to road 0m
Lower canopy height 4-5m
Hollows: No hollows
Works: Clearance pruning - vehicular to 6.5m

Impact: Minor to none
Species: Eucalyptus largiflorens
Dist tree to road: 4m
Dist canopy to road 0m
Lower canopy height >7m
Hollows: No hollows
Works: None required

Impact: Minor to none
Species: Allocasuarina luehmannii
Dist tree to road: 3m
Dist canopy to road 0m
Lower canopy height 5-6m
Hollows: No hollows
Works: Clearance pruning - vehicular to 6.5m

KINIMAKATKA ROAD
PILGRIMS ROAD
NHILL-HARROW ROAD



LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 14
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 30 60m

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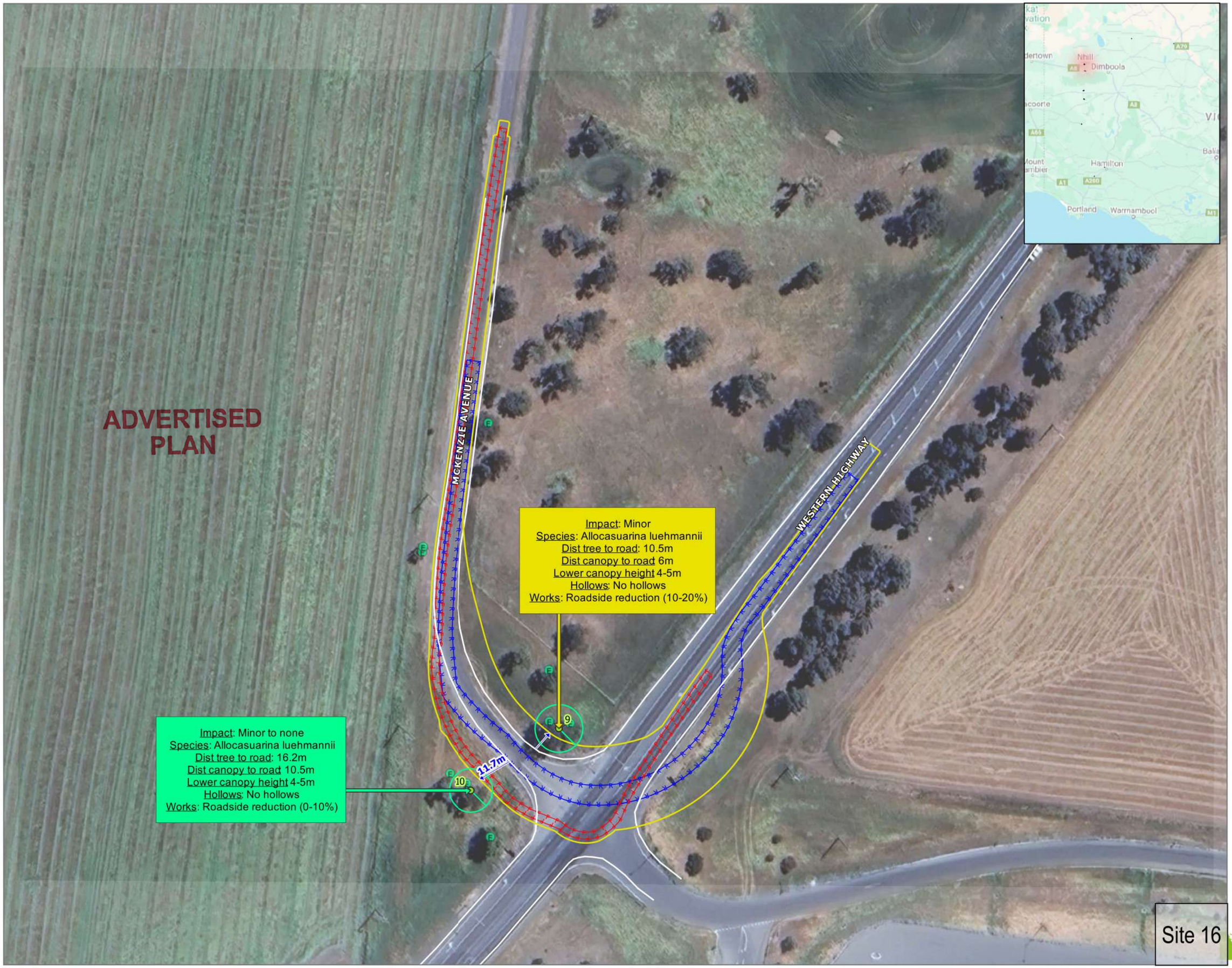
Site 14



LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 16
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 10 20m

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TEL: 1300 656 926
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Ringwood, VIC
Australia 3134

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LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 20
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 10 20m

TREELOGIC PTY LTD
ABN: 95 080 021 610
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Ringwood, VIC
Australia 3134

Treelogic
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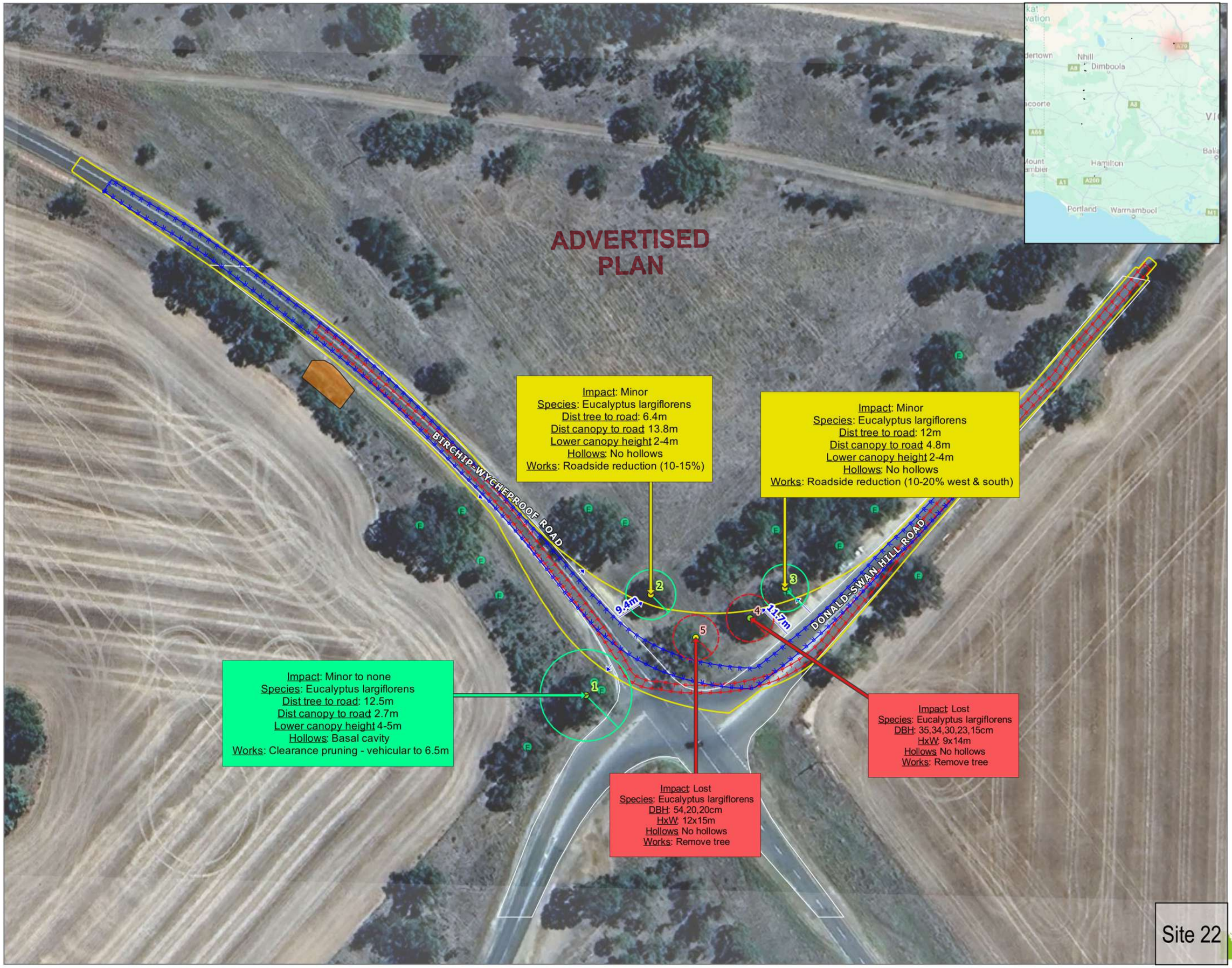

LEGEND

Trees (arb.rating)
- High
- Mod-A
- Mod-B
- Mod-C
- Low
- Very Low

TPZs
- TPZ (retain)
- TPZ (lost)

Tree groups
- Low

WAEP-NMEP
- rearwheel
- frontwheel
- sweptpath
- ExistingCarriageWay

Nature Advisory
- Trees_SweptPaths_COMBINED_240912

APPENDIX 1
TREE LOCATION & IMPACT PLAN

PROJECT
Normanville Transport Route

TL REF. 013709
SITE NO. Site 22
CLIENT West Wind Energy
DATE 2024-10-25

DATA SOURCES
1.DATASupply_241011_WAEP SweptPathRev (Traffix)
2. NMEP-WAEP Swept Paths (Traffix)
3.Trees_SweptPaths_Combined_ 240912 (Nature Advisory)

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 10 20m

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ABN: 95 080 021 610
TEL: 1300 656 926
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Australia 3134

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Tree ID	Species	Common Name	Age	Origin	DBH (cm)	Height x Width (m)	Health	Structure	Arb. Rating	ULE (years)	Comments	Tree works	Impact	Dist tree to road (m)	Dist road to canopy (m)	Lower crown height (m)	TPZ (m radius)	SRZ (m radius)
1	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	105,40,35	15x24	Fair	Fair	Mod.A	21 to 40	Minor canopy impact from impact zone, multi-stemmed. <5% canopy pruning. minor branches @ deadwood	Clearance pruning - vehicular to 6.5m	Minor to none	12.5	2.7	4-5	14.7	3.8
2	*Eucalyptus largiflorens*	Black Box	Early-mature	Indigenous	54,30,25	10x12	Fair	Fair to Poor	Mod.B	21 to 40	Past stem failure. Canopy 6.6m south.	Roadside reduction (10-15%)	Minor	6.4	13.8	2-4	8	3.4
3	*Eucalyptus largiflorens*	Black Box	Early-mature	Indigenous	53,35	9x12	Fair	Fair	Mod.B	21 to 40		Roadside reduction (10-20% west & south)	Minor	12	4.8	2-4	7.6	3.3
4	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	35,34,30,23,15	9x14	Fair	Fair	Mod.A	21 to 40	Tree within impact zone (lost).	Remove tree	Lost	12.9	7.2	0-2	7.6	3.1
5	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	54,20,20	12x15	Fair to Poor	Fair	Mod.B	11 to 20	Tree within impact zone (lost).	Remove tree	Lost	0	0	2-4	7.3	3.2
6	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	34,30	8x12	Fair to Poor	Fair	Mod.B	11 to 20	Tree within impact zone (lost).	Remove tree	Lost	11.2	0	2-4	5.4	2.8
7	*Eucalyptus dumosa*	White Mallee	Early-mature	Indigenous	25,12	8x6	Fair to Poor	Fair to Poor	Mod.C	11 to 20		None required	Minor to none	13	10.8	2-4	3.3	2.1
8	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	45,40,30,15,15	9x15	Fair	Fair	Mod.B	21 to 40	Pruning 0-5%. likely none.	Roadside reduction (0-5%)	Minor to none	12	3.7	4-5	8.5	3
9	*Allocasuarina luehmannii*	Bull Oak	Maturing	Indigenous	67	12x10	Fair	Fair	Mod.A	21 to 40	Minor canopy impact from impact zone.	Roadside reduction (10-20%)	Minor	10.5	6	4-5	8	3
10	*Allocasuarina luehmannii*	Bull Oak	Maturing	Indigenous	61	12x10	Fair	Fair	Mod.A	21 to 40	Minor canopy impact from impact zone.	Roadside reduction (0-10%)	Minor to none	16.2	10.5	4-5	7.3	2.8
11	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	45,40,35	13x14	Good	Fair	Mod.A	21 to 40		None required	Minor to none	4	0	>7	8.4	3.3
12	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	65,45	13x12	Good	Fair	Mod.A	21 to 40	Minor canopy impact from impact zone.	Clearance pruning - vehicular to 6.5m	Minor to none	4	0	4-5	9.5	3.2
13	*Allocasuarina luehmannii*	Bull Oak	Maturing	Indigenous	35,30	8x11	Fair	Fair to Poor	Mod.C	11 to 20	Leaning trunk, past stem failure.	Clearance pruning - vehicular to 6.5m	Minor to none	3	0	5-6	5.5	2.5
14	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	35,25,16	10x10	Good	Fair	Mod.B	21 to 40	Minor canopy impact from impact zone. No impacts to adjacent buloakes.	Clearance pruning - vehicular to 6.5m	Minor to none	2	0	5-6	5.5	2.8
15	*Eucalyptus largiflorens*	Black Box	Early-mature	Indigenous	40,30	10x13	Fair	Fair to Poor	Mod.C	11 to 20	<10% impact.	Clearance pruning - vehicular to 6.5m	Minor to none	4	0	4-5	6	2.8
16	*Allocasuarina luehmannii*	Bull Oak	Early-mature	Indigenous	25,25,25	8x6	Fair	Fair	Mod.B	21 to 40		Roadside reduction (0-10%)	Minor to none	3.8	0	2-4	5.2	2.4
17	*Allocasuarina luehmannii*	Bull Oak	Early-mature	Indigenous	25,23,18	8x6	Fair	Fair	Mod.B	21 to 40		Roadside reduction (0-10%)	Minor to none	3.6	0	0-2	4.6	2.3
18	*Eucalyptus largiflorens*	Black Box	Early-mature	Indigenous	30,30,25,25	12x12	Fair	Fair	Mod.B	21 to 40	Multi-stemmed.	Roadside reduction (0-5%)	Minor to none	8	0	5-6	6.6	2.8
19	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	40,30,35	12x15	Fair	Fair to Poor	Mod.B	21 to 40	Multi-stemmed.	Roadside reduction (0-10%)	Minor to none	9	0	2-4	7.3	3.2
20	*Eucalyptus largiflorens*	Black Box	Semi-mature	Indigenous	22,15	9x8	Fair	Fair	Mod.B	21 to 40	multiple trees in this grouping may require <10% reduction	Roadside reduction (0-10%)* (+several other trees in grouping)	Minor to none	7	1	4-5	3.2	2.1
21	*Eucalyptus largiflorens*	Black Box	Semi-mature	Indigenous	50,45	14x10	Fair	Fair	Mod.B	21 to 40		None required	Minor to none	4.3	0	>7	8.1	3
22	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	45,60	14x12	Fair	Fair	Mod.A	21 to 40	Bee hive, minor dieback. No impact to this or adjacent trees.	None required (same as adjacent trees)	Minor to none	2.2	-3	>7	9	3.3
23	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	55,50,40,40	15x19	Fair	Fair	High	>40	Multi-stemmed.	None required	Minor to none	5.5	-4	>7	11.2	3.6
24	*Allocasuarina luehmannii*	Bull Oak	Maturing	Indigenous	38	8x6	Fair	Fair	Mod.B	21 to 40	No impact. past pruning	None required	Minor to none	3.5	2.5	4-5	4.6	2.3
25	*Allocasuarina luehmannii*	Bull Oak	Maturing	Indigenous	40,20	8x6	Fair	Fair	Mod.B	21 to 40	Minor to no impact.	Roadside reduction (0-5%)	Minor to none	3.5	2	4-5	5.4	2.5
26	*Allocasuarina luehmannii*	Bull Oak	Maturing	Indigenous	30,25	8x7	Fair	Fair	Mod.B	21 to 40	Minor to no pruning. outer crown. image also 26	Roadside reduction (0-5%)	Minor to none	4	0.5	4-5	4.7	2.2
27	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Indigenous	75	13x17	Fair	Fair	High	>40	<5% reduction. minor branches.	Clearance pruning - vehicular to 6.5m	Minor to none	6	-3	5-6	9	3.1
28	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	90	13x7	Fair	Poor	Low	6 to 10	Major canopy impact from impact zone (lost), epicormic crown, bee hive, cavity, lost main leader, trunk wounds. Can retain trunk as habitat but will lose most (>70%) of canopy.	Crown reduction - Prune to habitat	Lost	2.8	-3.8	4-5	10.8	3.3
29	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	107,87	26x24	Fair	Fair	High	21 to 40	Bee hive, previous failures.	None required	Minor to none	4.3	0	>7	15	4.4
30	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	100,45	17x17	Fair	Fair to Poor	Mod.A	21 to 40	Bee hive, previous failures.	None required	Minor to none	6	-3	>7	13.2	4.1
31	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	100	15x10	Good	Fair	Mod.A	>40	Bee hive.	None required	Minor to none	6	0	>7	12	3.5
32	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	90,65,50,30	17x19	Fair	Fair	Mod.A	21 to 40	Bee hive, previous failures. Past roadside reduction. no works req'd any trees along this stretch of road	None required (same as adjacent trees)	Minor to none	6	-8	>7	15	4.4
33	*Eucalyptus largiflorens*	Black Box	Early-mature	Indigenous	50	9x7	Fair	Fair	Mod.A	21 to 40	Minor to no pruning	Clearance pruning - vehicular to 6.5m	Minor to none	5	-4	6-7	6	2.7
34	*Eucalyptus largiflorens*	Black Box	Semi-mature	Indigenous	35	9x7	Fair	Fair to Poor	Mod.B	11 to 20		None required	Minor to none	4.5	-3	>7	4.2	2.4
35	*Eucalyptus leucoxylon*	Yellow Gum	Maturing	Indigenous	90	19x13	Fair	Fair to Poor	Mod.B	11 to 20	Basal wounds, previous failures.	None required	Minor to none	3	-1	>7	10.8	3.6
36	*Eucalyptus viminalis* subsp. *cygnetensis*	Rough-barked Manna Gum	Semi-mature	Indigenous	27,26	4x9	Good	Fair	Mod.B	21 to 40	past roadside clearance	Roadside reduction (0-10%)	Minor to none	11	3.2	0-2	4.5	2.5
37	*Acacia melanoxylon*	Blackwood	Maturing	Indigenous	30,32	10x8	Fair	Fair to Poor	Mod.C	11 to 20	Tree within impact zone (lost), major canopy impact from impact zone (lost).	Remove tree	Lost	5.2	2.2	0-2	5.3	2.6
G1	Casuarina cunninghamiana	River She-oak	Early-mature	Australian native	30	12x7	Fair	Fair	Mod.B	21 to 40	planted non-native veg.		Lost					
G2	Acacia mearnsii;Acacia melanoxylon	Late Black Wattle;Blackwood	Maturing	Indigenous	20,20	8x7	Fair to Poor	Fair to Poor	Low	6 to 10	6x a.mearnsii, 1x a.melanoxylon lost.		Lost					

Tree ID	Species	Common Name	Age	Origin	DBH (cm)	Height x Width (m)	Health	Structure	Arb. Rating	ULE (years)	Comments	Tree works	Impact	Dist tree to road (m)	Dist road to canopy (m)	Lower crown height (m)	TPZ (m radius)	SRZ (m radius)
G3	Acacia paradoxa;Acacia sp.;Melaleuca sp.;Ulmus procera	Hedge Wattle;Wattle Tree;Paperbark;English Elm	Semi-mature	Victorian native;Australian native;Australian native;Exotic deciduous	4,4,4,4,4	4x3	Fair	Fair	Low	11 to 20	no native trees. planted roadside shrubs. elms suckering. most of this patch lost. row at top of embankment ~6m from edge of road.		Lost					

Arboricultural Descriptors (February 2019)

Note that not all of the described tree descriptors may be used in a tree assessment and report. The assessment is undertaken with regard to contemporary arboricultural practices and consists of a visual inspection of external and above-ground tree parts.

1. Tree Condition

The assessment of tree condition evaluates factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen to what could be considered typical for that species growing in its location under current climatic conditions. For example, some species can display inherently poor branching architecture, such as multiple acute branch attachments with included bark. Whilst these structural defects may technically be considered arboriculturally poor, they are typical for the species and may not constitute an increased risk of failure. These trees may be assigned a structural rating of fair-poor (rather than poor) at the discretion of the assessor.

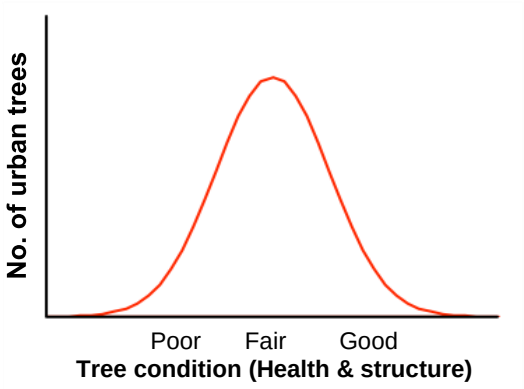


Diagram 1: Indicative normal distribution curve for tree condition

Diagram 1, provides an indicative distribution curve for tree condition to illustrate that within a normal tree population the majority of specimens are centrally located within the condition range (normal distribution curve). Furthermore, that those individual trees with an assessed condition approaching the outer ends of the spectrum occur less often.

2. Tree Name

Provides botanical name, (genus, species, variety and cultivar) according to accepted international code of taxonomic classification, and common name.

3. Tree Type

Describes the general geographic origin of the species and its type e.g. deciduous or evergreen.

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site. Remnant.
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous (component of EVC benchmark). Could be planted indigenous trees.
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Native Palm	Occurs naturally within Australia. Woody monocotyledon
Exotic Palm	Occurs outside of Australia. Woody monocotyledon

4. Height and Width

Indicates height and width of the individual tree; dimensions are expressed in metres. Crown heights are measured with a height meter where possible. Due to the topography of some sites and/or the density of vegetation it may not be possible to do this for every tree. Tree heights may be estimated in line with previous height meter readings in conjunction with assessor's experience. Crown widths are generally paced (estimated) at the widest axis or can be measured on two axes and averaged. In some instances the crown width can be

measured on the four cardinal direction points (North, South, East and West).

Crown height, crown spread are generally recorded to the nearest half metre (crown spread would be rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m. Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) shall be clearly identified in the assessment data.

5. Trunk diameters

The position where trunk diameters are captured may vary dependent on the requirements of the specific assessment and an individual trees specific characteristics. DBH is the typical trunk diameter captured as it relates to the allocation of tree protection distances. The basal trunk diameter assists in the allocation of a structural root zone. Some municipalities require trunk diameters be captured at different heights, with 1.0 m above grade being a common requirement. The specific planning schemes will be checked to ascertain requirements.

Stem diameters shall be recorded in centimetres, rounded to the nearest 1 cm (0.01 m).

Diameter at Breast Height (DBH)

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level or where otherwise indicated, multiple leaders are measured individually. Plants with multiple leader habit may be measured at the base. The range of methods to suit particular trunk shapes, configurations and site conditions can be seen in Appendix A of Australian Standard *AS 4970-2009 Protection of trees on development site*s. Measurements undertaken using foresters tape or builders tape.

Basal trunk diameter

The basal dimension is the trunk diameter measured at the base of the trunk or main stem(s) immediately above the root buttress. Used to ascertain the Structural Root Zone (SRZ) as outlined in AS4970.

6. Health

Assesses various attributes to describe the overall health and vitality of the tree.

Category	Vitality, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Good	Above typical. Excellent. Full canopy density	Negligible	Better than typical	Negligible
Fair	Typical vitality. >80% canopy density	Minor or expected. Little or no dead wood	Typical. Minor deficiencies or defects could be present.	Minor, within damage thresholds
Fair to Poor	Below typical - low vitality	More than typical. Small sub-branch dieback	Exhibiting deficiencies. Could be thinning, or smaller	Exceeds damage thresholds
Poor	Minimal - declining	Excessive, large and/or prominent amount & size of dead wood. Significant dieback	Exhibiting severe deficiencies. Thinning foliage, generally smaller or deformed	Extreme and contributing to decline
Dead	N/A	N/A	N/A	N/A

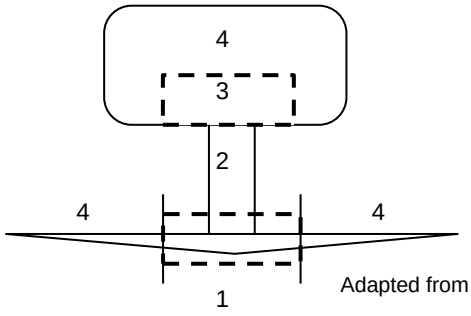
7. Structure

Assesses principal components of tree structure (Diagram 2).

Descriptor	Zone 1 - Root plate & lower stem	Zone 2 - Trunk	Zone 3 - Primary branch support	Zone 4 - Outer crown and roots
Good	No obvious damage, disease or decay; obvious basal flare / stable in ground	No obvious damage, disease or decay; well tapered	Well formed, attached, spaced and tapered. No history of failure.	No obvious damage, disease, decay or structural defect. No history of failure.
Fair	Minor damage or decay. Basal flare present.	Minor damage or decay	Generally, well attached, spaced and tapered branches. Minor structural deficiencies may be present or developing. No history of branch failure.	Minor damage, disease or decay; minor branch end-weight or over-extension. No history of branch failure.
Fair to Poor	Moderate damage or decay; minimal basal flare.	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previous branch failure evidence.	Moderate damage, disease or decay; moderate branch end-weight or over-extension. Minor branch failure evident.
Poor	Major damage, disease or decay; fungal fruiting bodies present. Excessive lean placing pressure on root plate	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present. Acute lean. Stump re-sprout	Decayed, cavities or has acute branch attachments with included bark; excessive compression flaring; failure likely. Evidence of major branch failure.	Major damage, disease or decay; fungal fruiting bodies present; major branch end-weight or over-extension. Branch failure evident.
Very Poor	Excessive damage, disease or decay; unstable / loose in ground; altered exposure; failure probable	Excessive damage, disease or decay; cavities. Excessive lean. Stump re-sprout	Decayed, cavities or branch attachments with active split; failure imminent. History of major branch failure.	Excessive damage, disease or decay; excessive branch end-weight or over-extension. History of branch failure.

Diagram 2: Tree structure zones

1. Root plate & lower stem
2. Trunk
3. Primary branch support
4. Outer crown & roots



Adapted from Coder (1996)

Structure ratings will also take into account general branching architecture, stem taper, live crown ratio, crown symmetry (bias or lean) and crown position such as tree being suppressed amongst more dominant trees.

The lowest or worst descriptor assigned to the tree in any column could generally be the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation. Trees are assessed and then given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments.

The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk. Risk potential will consider the combination of likelihood of failure and impact, including the perceived importance of the target(s).

8. Age class

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted. Approximately 5 or less years in location.
Semi-mature	Tree increasing in size and yet to achieve expected size in situation. Primary developmental stage.
Early-mature	Tree established, generally growing vigorously. > 50% of attainable age/size.
Mature	Specimen approaching expected size in situation, with reduced incremental growth.
Over-mature	Mature full-size with a retrenching crown. Tree is senescent and in decline. Significant decay generally present.

9. Useful life expectancy

Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community. It would enable tree managers to develop long-term plans for the eventual removal and replacement of existing trees in the public realm. It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the trees positive contribution to the urban landscape.

Within an urban landscape context, particularly in relation to street trees, it could be considered a point where the costs to maintain the asset (tree) outweigh the benefits the tree is returning.

The assessment is based on the site conditions not being significantly altered and that any prescribed maintenance works are carried out (site conditions are presumed to remain relatively constant and the tree would be maintained under scheduled maintenance programs).

Useful Life Expectancy	Typical characteristics
<1 year (No remaining ULE)	Tree may be dead or mostly dead. Tree may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high risk potential that cannot be remedied.
1-5 years (Transitory, Brief)	Tree is exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Major structural defects that cannot be remedied. Tree may be over-mature and senescing. Infrastructure conflicts with heightened risk potential. Tree has outgrown site constraints.
6-10 years (Short)	Tree is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to present. The crown may still be mostly entire, but some dieback is likely to be evident. Dieback may include large limbs. Structural defects present that influence the tree's risk rating, amenity or vitality. Over-mature and senescing or early decline symptoms in short-lived species. Early infrastructure conflicts with potential to increase regardless of management inputs.
11-20 years (Moderate)	Tree not showing symptoms of chronic decline, but growth characteristics are likely to be reduced (bud development, extension growth etc.). Developing structural defects that reduce viability with limited scope for management. Tree may be over-mature and beginning to senesce. Potential for infrastructure conflicts regardless of management inputs.
21-40 years (Moderately long)	Trees displaying normal growth characteristics, but vitality is likely to be reduced (bud development, extension growth etc.). Structural issues relatively minor and manageable with arboricultural input. Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity. Semi-mature and mature trees exhibiting normal growth characteristics. Juvenile trees in streetscapes.

>40 years (Long)	Generally juvenile and semi-mature trees exhibiting normal growth characteristics within adequate spaces to sustain growth, such as in parks or open space. Could also pertain to maturing, long-lived trees. No observable major structural defects. Tree well suited to the site with negligible potential for infrastructure conflicts.

Note that ULE may change for a tree dependent on the prevailing climatic conditions, sudden changes to a tree's growing environment creating an acute stress or impact by pathogens.

The ULE may not be applicable for trees that are manipulated, such as topiary, or grown for specific horticultural purposes, such as fruit trees.

There may be instances where remedial tree maintenance could extend a tree's ULE.

10. Arboricultural Rating

Relates to the combination of assigned tree condition factors, including health and structure (arboricultural merit) and ULE, and conveys an amenity value (An amenity tree can occupy a site that complements its surroundings in a useful manner which culminates in the aid, protection, comfort and emotional response of humans. Adapted from Coder, 2004). Amenity relates to the trees biological, functional and aesthetic characteristics (Hitchmough, 1994) within an urban landscape context. The presence of any serious disease or tree-related hazards that would impact risk potential are considered.

The arboricultural rating can be used by applying only the main category high, moderate, low or very low without using the sub categories. The sub-categories can assist in differentiating a trees value and/or characteristic in more detail within the specific tree assessment context, such as a development site.

<table>
<tr><td colspan="4">Arboricultural rating</td></tr>
<tr><td>Category</td><td colspan="3">Description</td></tr>
<tr><td>High</td><td colspan="3">Exemplary specimen due to multiple factors which could include; good condition and vitality, large size/canopy and prominence in the landscape. Likely to be a very long-term component in the landscape with a long ULE.
Other factors that could contribute to a high rating:
Particularly good example of the species; rare or uncommon.
Tree has visual importance as a landscape feature; provides substantial contribution to landscape character.
Tree may have significant ecological or conservation value.
*Tree has historical, commemorative or other distinct social/cultural significance.
Trees in this category must be considered for retention and/or incorporated within design proposals.</td></tr>
<tr><td>Category</td><td>Description</td><td>Sub category</td><td>Description</td></tr>
<tr><td rowspan="3">Moderate</td><td rowspan="3">Tree of moderate quality, in fair or typical condition. Tree may have a condition, and or structural problem that will respond to arboricultural treatment. These trees have the potential to be moderate- to long-term components of the landscape (moderate to long ULE) if managed appropriately.
The sub-categories relate predominately to age, size and amenity.
Trees in this category should be considered for retention and/or incorporated within design proposals.</td><td>A</td><td>Moderate to large, maturing tree. Suited to the site & contributes to the landscape character.
Tree may have conservation or other cultural/social value.</td></tr>
<tr><td>B</td><td>Moderate sized, established tree, > 50% of attainable age/size. Suited to the site & contributes to the landscape character (other attributes covered under 'Moderate' description)</td></tr>
<tr><td>C</td><td>Young to semi-mature, generally a smaller tree, established, >15 cm DBH, >5 years in the location. Not a dominant canopy. No significant qualities currently but has the potential to become a higher value tree & long-term component of the landscape. Replacement of tree is likely to take up to 6 - 10 years to attain similar attributes.
Semi- to mature tree with accumulating deficiencies and reducing ULE, trending towards Low arboricultural value.</td></tr>
<tr><td>Category</td><td colspan="3">Description</td></tr>
</table>

Low	Unremarkable tree of low quality or little amenity value. Tree in either poor health and/or with poor structure. Short to transitory useful life expectancy (<10 years). • Tree is not prominent in the landscape due to its size or age, such as young trees with a stem diameter below 15 cm. Tree < 5 years in location. These trees are easily replaceable or capable of being transplanted. • Tree (species) is functionally inappropriate to the specific location. Is causing excessive damage/nuisance to adjacent infrastructure or would be expected to be problematic if retained (i.e. palm tree under power lines). • Unremarkable tree of no material landscape, conservation or other cultural value. Not visible from surrounding landscapes. • Tree infected with pathogens that could lead to its decline. • Tree has potential to be an environmental woody weed (may be dependent on location of tree in an urban landscape). • Tree impacting or suppressing trees of better quality. Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.
Category	*Description*
Very low	Trees of low quality with a brief to no remaining ULE (<5 years). • Tree has either a severe structural defect or health problem or combination that cannot be sustained with practical arboricultural techniques and the loss of the tree or tree part would be expected in the short term. • Tree whose retention would not be viable after the removal of adjacent trees, such as trees that have developed in close spaced groups and would not be expected to adapt to severe and sudden alterations to environmental & site conditions, e.g. removal of adjacent shelter trees. • Small or young tree, <5m in height, <10cm DBH. Easily replaced in short-term or capable of being transplanted. • Acknowledged environmental woody weed species. Tree has a detrimental effect on the environment, for example, the tree has weed potential and is likely to spread into waterways or natural areas if nearby. • Tree infected with pathogens that will lead to decline and has potential to spread to adjacent trees. • Tree is dead (dead tree may offer habitat values) or is showing signs of significant, immediate, and irreversible overall decline. Tree cannot realistically be retained and should be considered for removal.

Other considerations - Even though a tree may be declining or dead, a tree could be retained for other purposes such as habitat or soil stabilisation. These trees would still need to be managed appropriately to reduce risk.

*A tree may have (attract) a high value by the community for historical, commemorative or other distinct social/cultural significance factors, albeit the tree may not be in good condition. In the context of an assessment, for multiple reasons, but more so for development, if it is a noted 'significant' tree it should receive higher consideration during the planning process.

Trees have many values, not all of which are considered when an arboricultural assessment is undertaken. However, individual trees or tree group features may be considered important community resources because of unique or noteworthy characteristics or values other than their age, dimensions, health or structural condition. Recognition of one or more of the following criteria is designed to highlight other considerations that may influence the future management of such trees.

Significance	**Description**
Horticultural Value/ Rarity	Outstanding horticultural or genetic value; could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure. Any tree of a species or variety that is rare.
Historic, Aboriginal Cultural or Heritage Value	Tree could have value as a remnant of a particular important historical period or a remnant of a site or activity no longer in action. Tree has a recognised association with historic aboriginal activities, including scar trees. Tree commemorates a particular occasion, including plantings by notable people, or having associations with an important event in local history.

Ecological Value	Tree could have value as habitat for indigenous wildlife, including providing breeding, foraging or roosting habitat, or is a component of a wildlife reserve. Remnant Indigenous vegetation that contribute to biological diversity

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15 November 2024

Sebastian Madden
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Gisborne, 3437

RE: 013815 – Arboricultural Advice – Normanville Energy Park, Tree Impacts

I advise the following in regard to native vegetation impacts from site upgrades associated with Normanville Energy Park (e.g. access roads, hardstands, facilities, substations & boring pits).

Method

Fourteen (14) investigation areas and the route of the external transmission line were inspected on Monday 11 November 2024. Investigation areas were locations that had proposed infrastructure in close proximity to native vegetation (which had been mapped by Nature Advisory). The purpose of the arboricultural assessment was to review the existing tree population at each site and determine the level of impacts from the proposed upgrades in terms of canopy and TPZ impacts. Three potential outcomes were possible for each of the assessed tree or tree groups:

- Major impacts (Lost)
- Tolerable levels of pruning required / minor TPZ incursions (retain)
- Minor to no pruning / TPZ incursion (retain)

Infrastructure and native vegetation shp files were uploaded to GIS software over Google satellite imagery. A preliminary desktop assessment was undertaken to determine areas of overlap between the mapped native vegetation and proposed infrastructure.

Tree data was collected with a GPS enabled mobile computer. Individual tree data was captured in point shp files and tree groups were captured as polygons. Each individual tree/group was assigned a unique ID, commencing from #1. Tree locations were approximated onto Google satellite aerial imagery with a combination of GPS and ground truthing. Ground truthing measurements were made with a measuring wheel or tape measure. Individually assessed trees were generally the largest trees within a tree group, and/or those with a greater likelihood of impact. Impacts to the broader group were deduced from the impacts to individuals.

Observations were made of the trees and included:

- Tree species (botanical name) & common name
- Tree age (categorised)
- Diameter at breast height (DBH) was measured at 1.4 m from ground level and basal diameter just above the root flare. Measured with a diameter or builder's tape.
- Tree heights measured with a Nikon Pro Forestry device or estimated in metres when canopy was obscured.

- Canopy spread was paced and estimated in metres.
- Health and Structural condition (categorised).
- Useful life expectancy (categorised).
- Arboricultural rating (categorised).
- Habitat hollows
- Comments on tree or specific site characteristics.

The georeference system used is shown in the Tree Impact Plan at Appendix 1. Assessment details of individual trees and groups are listed in Appendix 2. A photographic catalogue is provided a Appendix 3.

Results

Impacts for all trees and tree groups are contained in maps of each of the 14 assessed sites at Appendix 1. A summary of each site is listed in Table 1.

Table 1. Summary of each of the assessed areas. Area column is coloiur coded by impact level: red = major impacts, orange = tolerable incursion/pruning required, white=minor to no impacts.

Area	Impacts
1	• Fenced preservation area with several *Eucalyptus largiflorens* • Works not expected to impact area. • Dead tree (Tree 21) has branches over fence which may require pruning.
2	• Fenced preservation area with mostly shrubs and a few scattered tree. • Works not expected to impact area.
3	• Access road would result in loss of Trees 24 & 25 (both *E. dumosa*) • Alternative route possible between Trees 24 & 26 (25m of space between two trees).
4	• Access road would result in loss of Tree 22 (*E. dumosa*) • Alternative route possible between Tree 22 and fenced vegetation to south (approx. 23m of clear space).
5	• Access route passes between Trees 27 & 28. • Works not expected to impact either tree.
6	• Temp construction area, substation and access roads • Works not expected to impact TPZs or necessitate pruning.
7	• Access road to north of group of *E.dumosa* (G1) • Low risk of TPZ impacts (assuming canopy dripline of 5m can be preserved)
8	• Access road to north of group of *E.dumosa* (G2) • Low risk of TPZ impacts. Road over disturbed/cropped area. • Clearance of lower branches may be required on 1-5 trees.

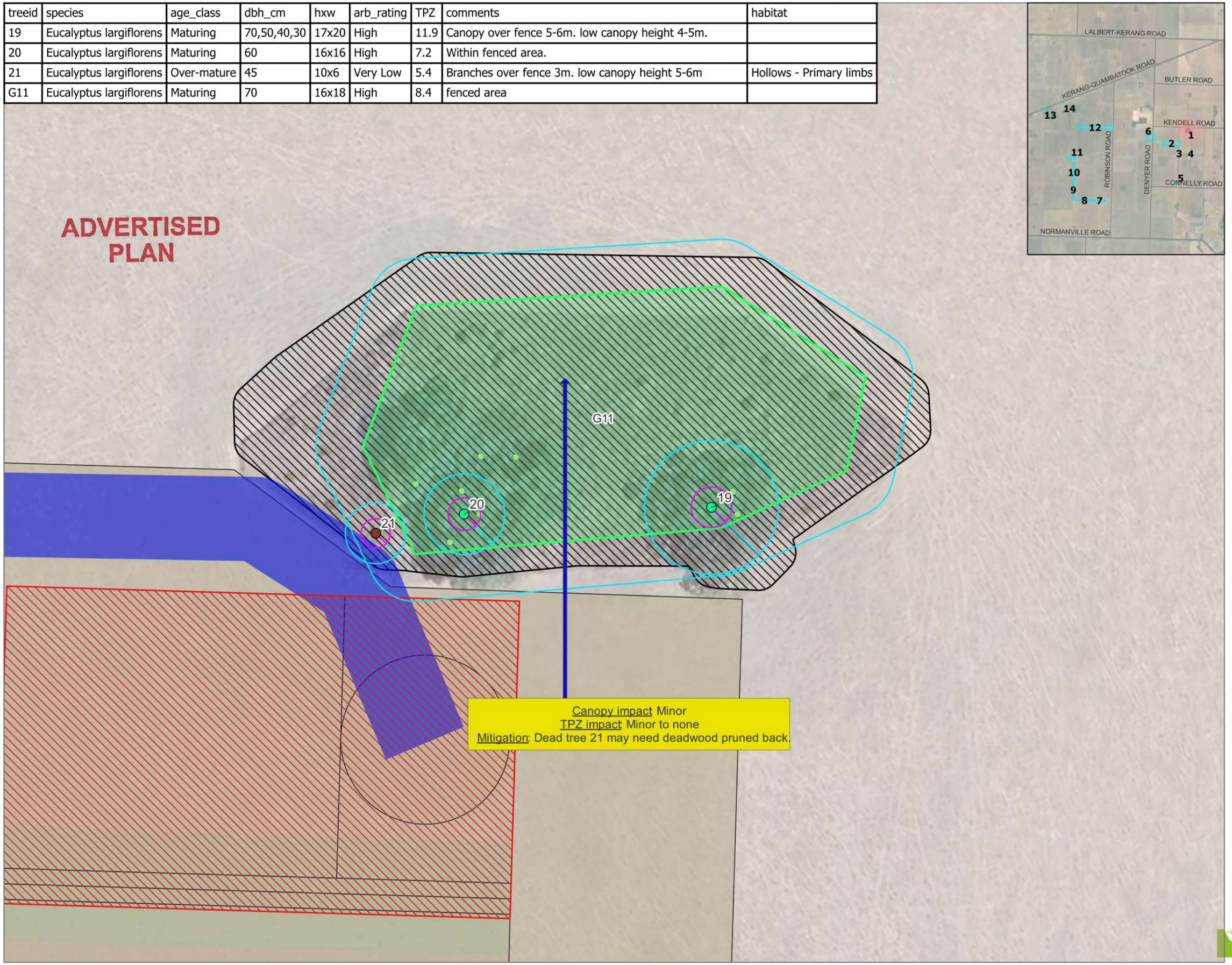
Area	Impacts
9	• Access road to east of group of *E.dumosa* & *E.oleosa* (G3) • Works not expected to impact TPZs or necessitate pruning. Road over disturbed/cropped area.
10	• Access road to east of group of *E.dumosa* & *E.leptophylla* (G4) • Low risk of TPZ impacts. Road over disturbed/cropped area. • Clearance of lower branches may be required on 1-5 trees.
11	• 2x Access Roads pass through group of *E. leptophylla* and 1 *Acacia salicina* (G5) • All trees in this group likely lost • Trees growing along fenceline, south of access road, not expected to be impacted.
12	• Access road to south of group of *E.dumosa* (G8) • Area of TPZ incursion is disturbed (used for cropping), although Minor TPZ impacts possible adjacent to large trees (Trees 13 &15). Recommend narrowing road adjacent to these trees.
13	• Access road would result in loss of Trees 29 & 30 (both *E. dumosa*) • Alternative route possible to west of Tree 30 (95m of clear land to next tree).
14	• Access road to south of group of *E.dumosa* (G12) • Low risk of TPZ impacts
Boring pits (external transmission line)	• 43 pit locations were reviewed for impacts to surrounding trees. • No trees will be impacted by the current pit locations (i.e. none need to be moved).  *Image 1. Southern end of transmission line, approximate locations of 2x boring pits marked.*  *Image 1. Location of Pit 21, approx. 50m north of the intersection of Kerang-Quambatook Rd and Denyer Road.*

I am available to answer any questions arising from this report.

Yours Sincerely,

Harry Webb
Consultant Arborist
MSc.(Bot.) Grad. Cert. Arb.

treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
19	Eucalyptus largiflorens	Maturing	70,50,40,30	17x20	High	11.9	Canopy over fence 5-6m. low canopy height 4-5m.	
20	Eucalyptus largiflorens	Maturing	60	16x16	High	7.2	Within fenced area.	
21	Eucalyptus largiflorens	Over-mature	45	10x6	Very Low	5.4	Branches over fence 3m. low canopy height 5-6m	Hollows - Primary limbs
G11	Eucalyptus largiflorens	Maturing	70	16x18	High	8.4	fenced area	



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 1

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 1 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 8 16m

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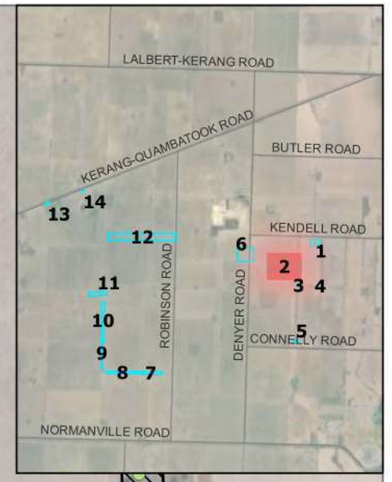
Australia 3134

Treelogic
Plan, manage, protect

treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat

Canopy impact NA
TPZ impact Minor to none
Mitigation: NA



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 2

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 2 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 30 60m

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Treelogic
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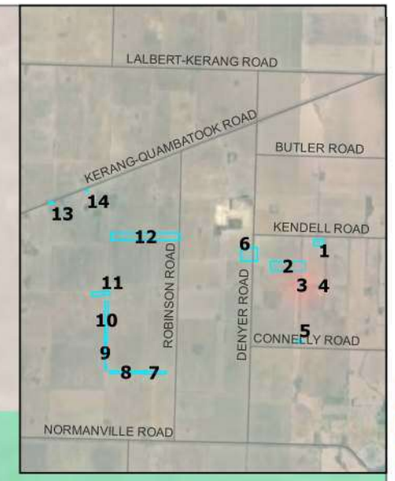
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
24	Eucalyptus dumosa	Maturing	35	9x6	Moderate	4.2		Hollows - Primary limbs
25	Eucalyptus dumosa	Early-mature	15,14,10,10	9x6	Low	3	Lost main leader.	Hollows - Main trunk
26	Eucalyptus dumosa	Early-mature	20	6x6	Low	2.4	Main leader dead. Deadwood over fence. approx 25m between 2 trees.	



Canopy impact Major
TPZ impact Major
Mitigation: Consider moving road between Trees 24 & 26

24

25

26

LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low
- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 3

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 3 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 4 8m

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Treelogic
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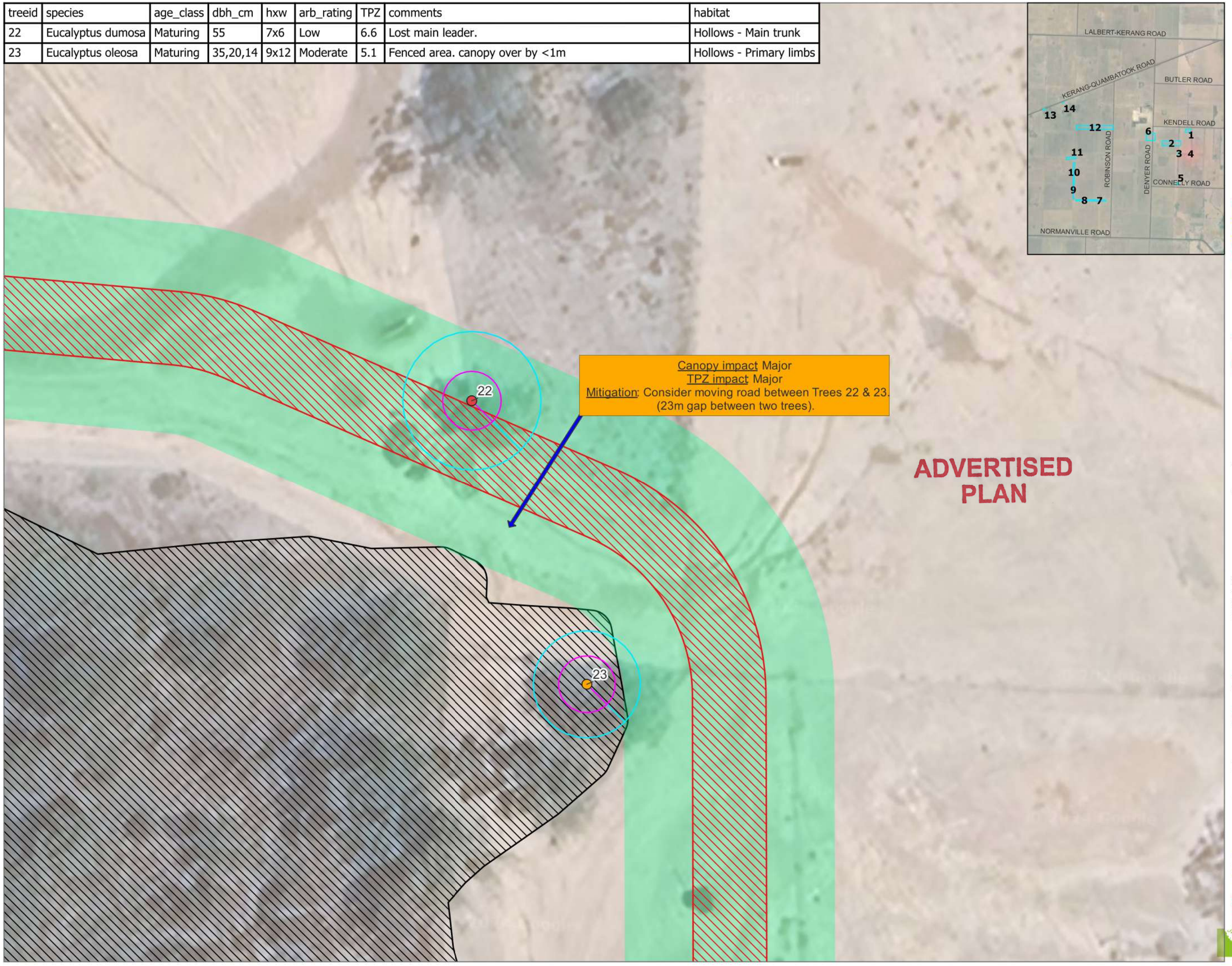
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
22	Eucalyptus dumosa	Maturing	55	7x6	Low	6.6	Lost main leader.	Hollows - Main trunk
23	Eucalyptus oleosa	Maturing	35,20,14	9x12	Moderate	5.1	Fenced area. canopy over by <1m	Hollows - Primary limbs



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 4

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 4 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 4 8m

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Treelogic
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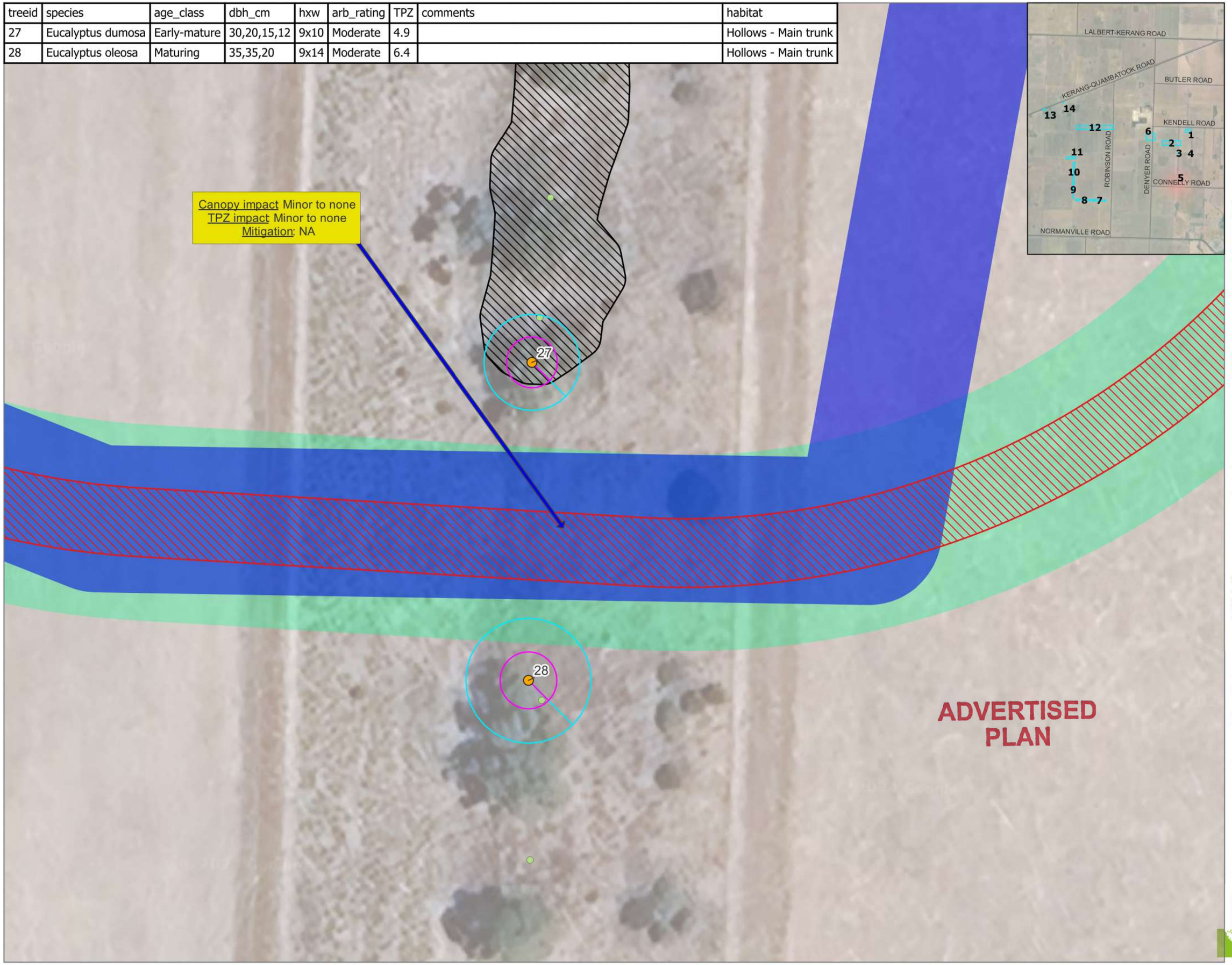
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
27	Eucalyptus dumosa	Early-mature	30,20,15,12	9x10	Moderate	4.9		Hollows - Main trunk
28	Eucalyptus oleosa	Maturing	35,35,20	9x14	Moderate	6.4		Hollows - Main trunk



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 5

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 5 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 5 10m

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Treelogic
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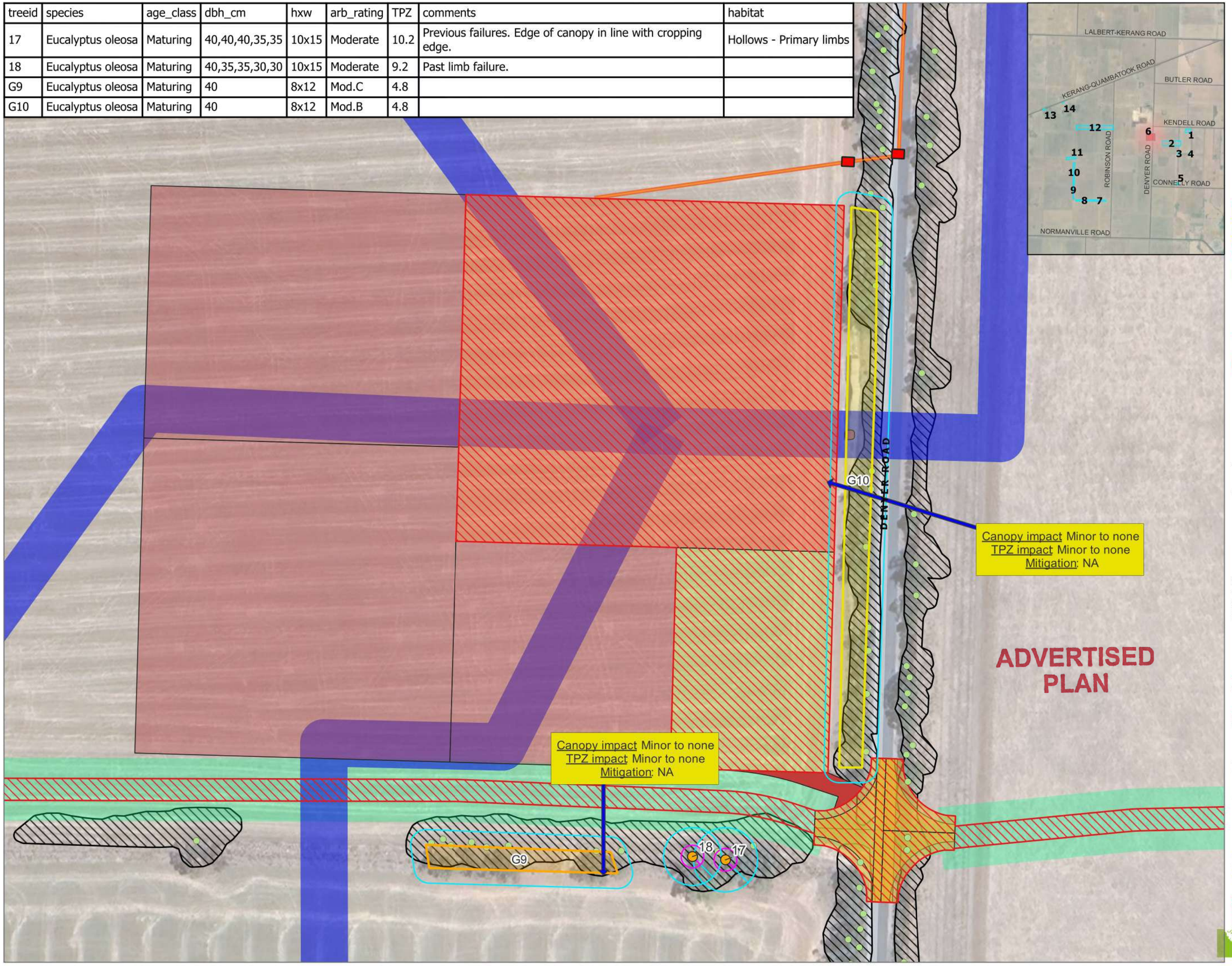
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
17	Eucalyptus oleosa	Maturing	40,40,40,35,35	10x15	Moderate	10.2	Previous failures. Edge of canopy in line with cropping edge.	Hollows - Primary limbs
18	Eucalyptus oleosa	Maturing	40,35,35,30,30	10x15	Moderate	9.2	Past limb failure.	
G9	Eucalyptus oleosa	Maturing	40	8x12	Mod.C	4.8		
G10	Eucalyptus oleosa	Maturing	40	8x12	Mod.B	4.8		



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low
- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 6

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 6 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 10 20m

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Treelogic
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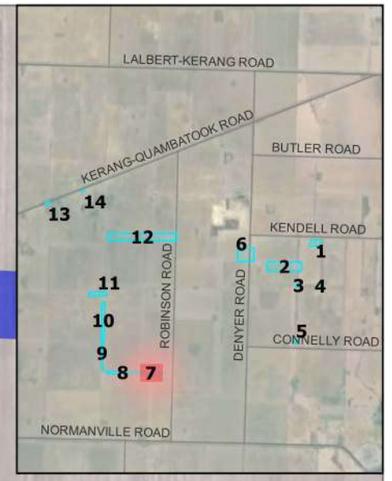
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
1	Eucalyptus dumosa	Maturing	30,25,25,20,18	6x10	Moderate	6.4	Preserve dripline (5m).	Hollows - Primary limbs
G1	Eucalyptus dumosa	Maturing	40	6x10	Mod.C	4.8	dam wall sloping down to trees	Habitat hollows



1

G1

Canopy impact Minor
TPZ impact Minor
Mitigation: Preserve canopy dripline (5m)

LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 7

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 7 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 20 40m

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Treelogic
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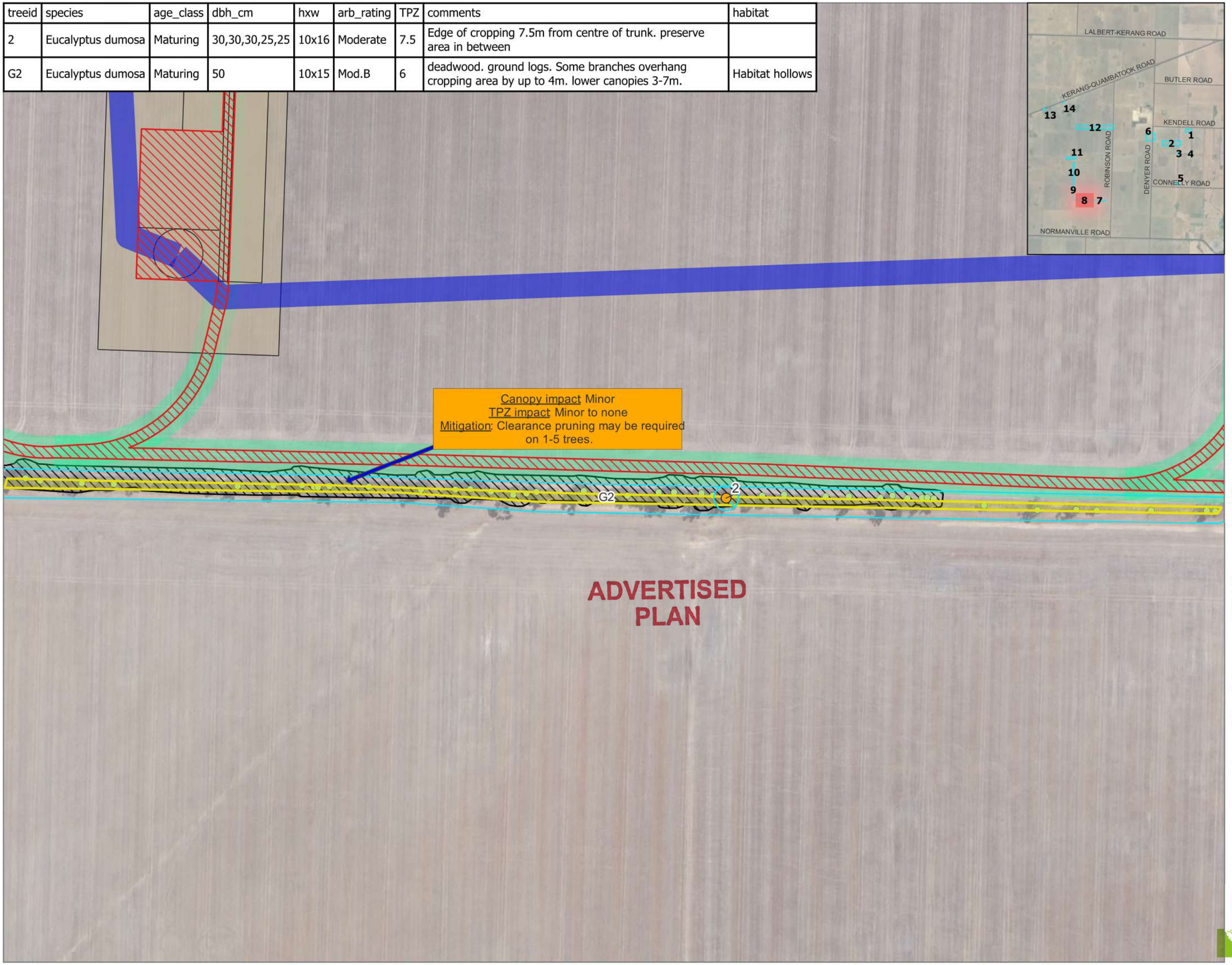
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
2	Eucalyptus dumosa	Maturing	30,30,30,25,25	10x16	Moderate	7.5	Edge of cropping 7.5m from centre of trunk. preserve area in between	
G2	Eucalyptus dumosa	Maturing	50	10x15	Mod.B	6	deadwood. ground logs. Some branches overhang cropping area by up to 4m. lower canopies 3-7m.	Habitat hollows



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low
- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 8

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 8 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
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0 30 60m

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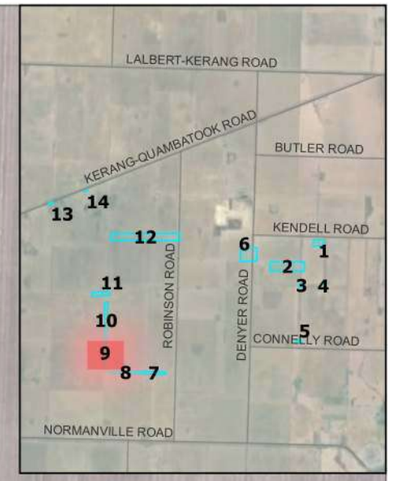
Treelogic
Plan, manage, protect

treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
3	Eucalyptus dumosa	Maturing	35,35,35,30,30	15x13	Moderate	8.9	5m from centre trunk to edge of cropping.	
G3	Eucalyptus dumosa;Eucalyptus oleosa	Maturing	40	9x9	Mod.C	4.8	oleosa dominant. coppicing. dead central leaders. some with hollows.	



G3

3

Canopy impact: Minor to none
TPZ impact: Minor to none
Mitigation: NA

LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 9

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 9 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

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0 30 60m

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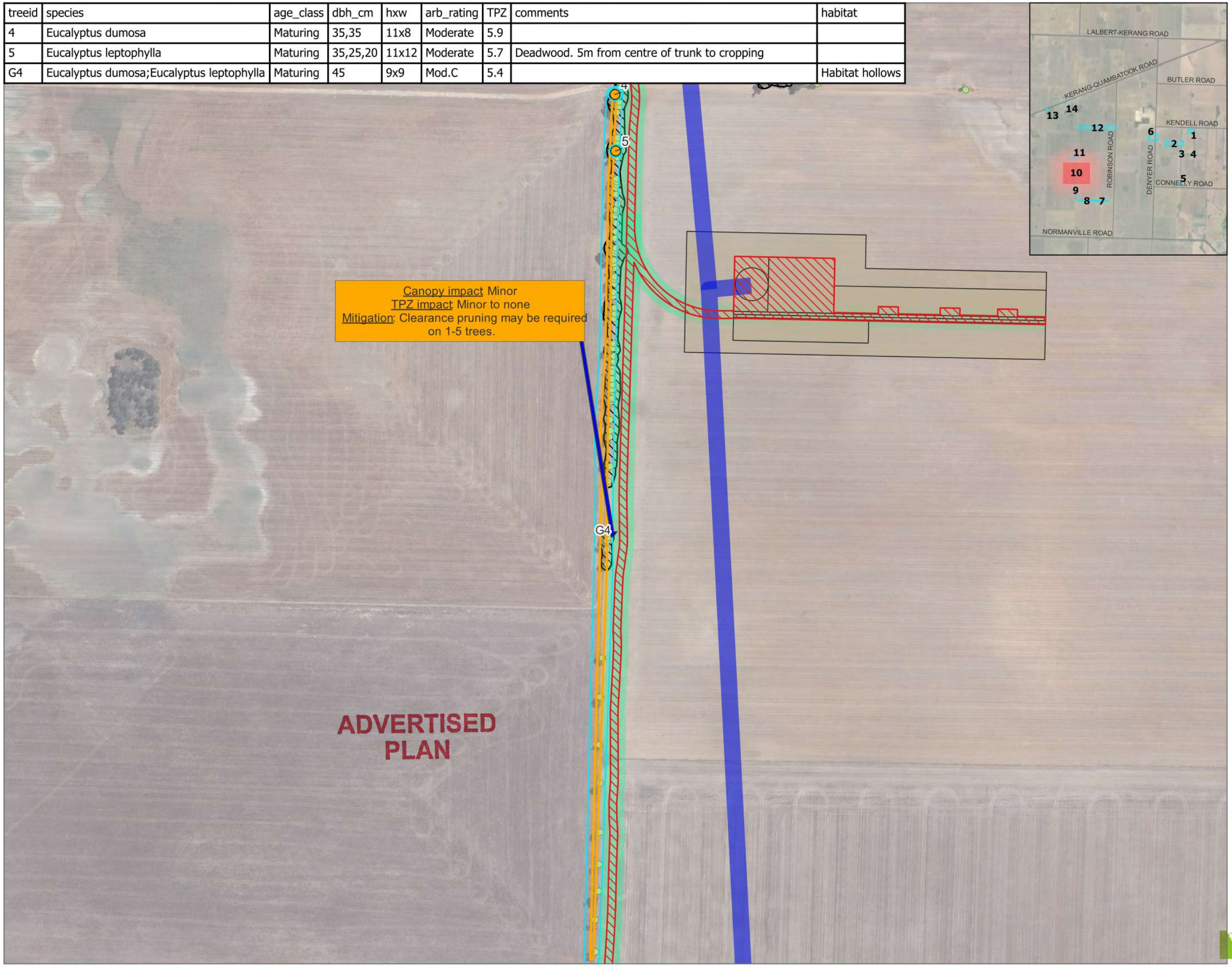
Treelogic
Plan, manage, protect

treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
4	Eucalyptus dumosa	Maturing	35,35	11x8	Moderate	5.9		
5	Eucalyptus leptophylla	Maturing	35,25,20	11x12	Moderate	5.7	Deadwood. 5m from centre of trunk to cropping	
G4	Eucalyptus dumosa;Eucalyptus leptophylla	Maturing	45	9x9	Mod.C	5.4		Habitat hollows



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 10

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 10 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

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0 40 80m

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Treelogic
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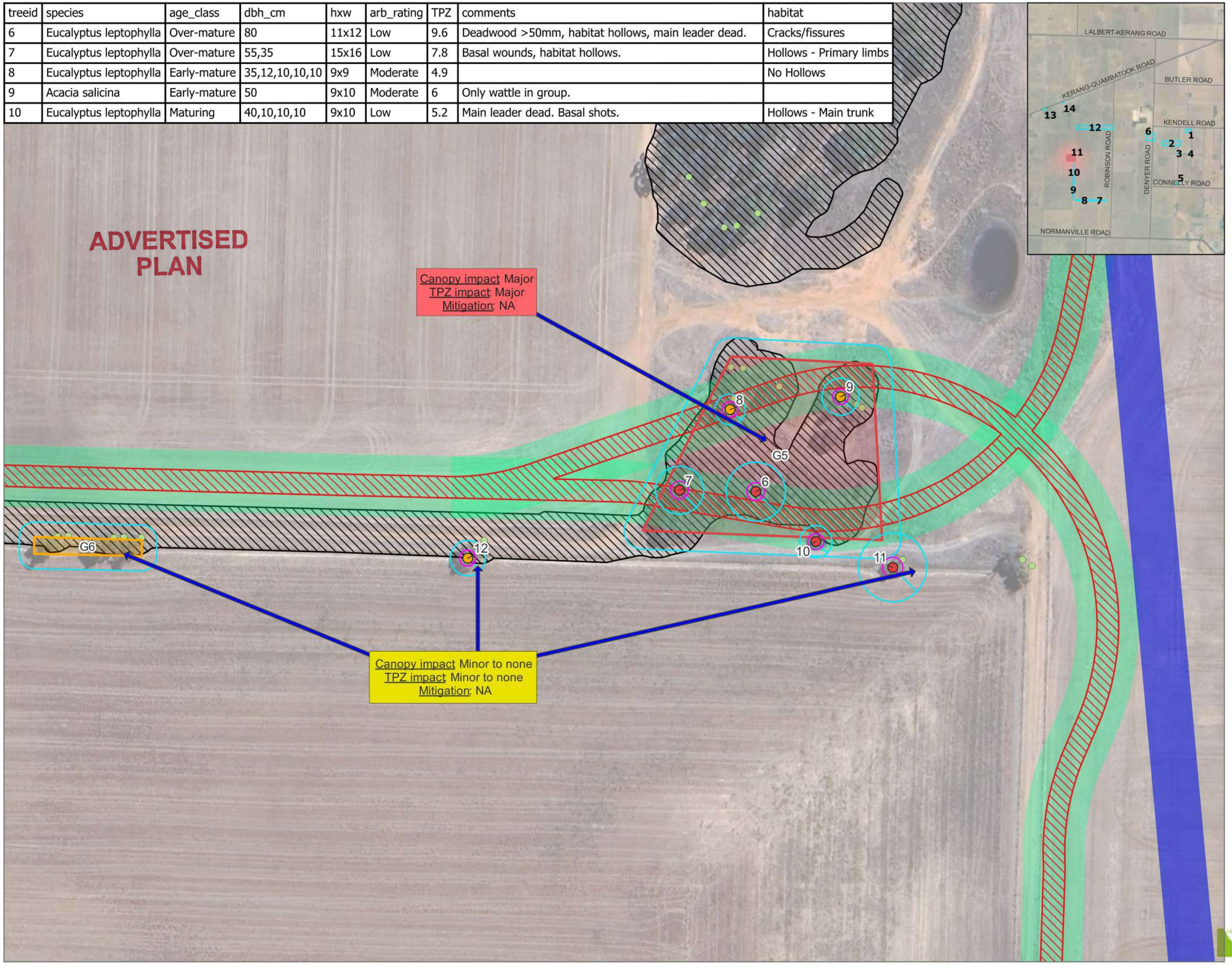
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
6	Eucalyptus leptophylla	Over-mature	80	11x12	Low	9.6	Deadwood >50mm, habitat hollows, main leader dead.	Cracks/fissures
7	Eucalyptus leptophylla	Over-mature	55,35	15x16	Low	7.8	Basal wounds, habitat hollows.	Hollows - Primary limbs
8	Eucalyptus leptophylla	Early-mature	35,12,10,10,10	9x9	Moderate	4.9		No Hollows
9	Acacia salicina	Early-mature	50	9x10	Moderate	6	Only wattle in group.	
10	Eucalyptus leptophylla	Maturing	40,10,10,10	9x10	Low	5.2	Main leader dead. Basal shots.	Hollows - Main trunk



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 11

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 11 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

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0 10 20m

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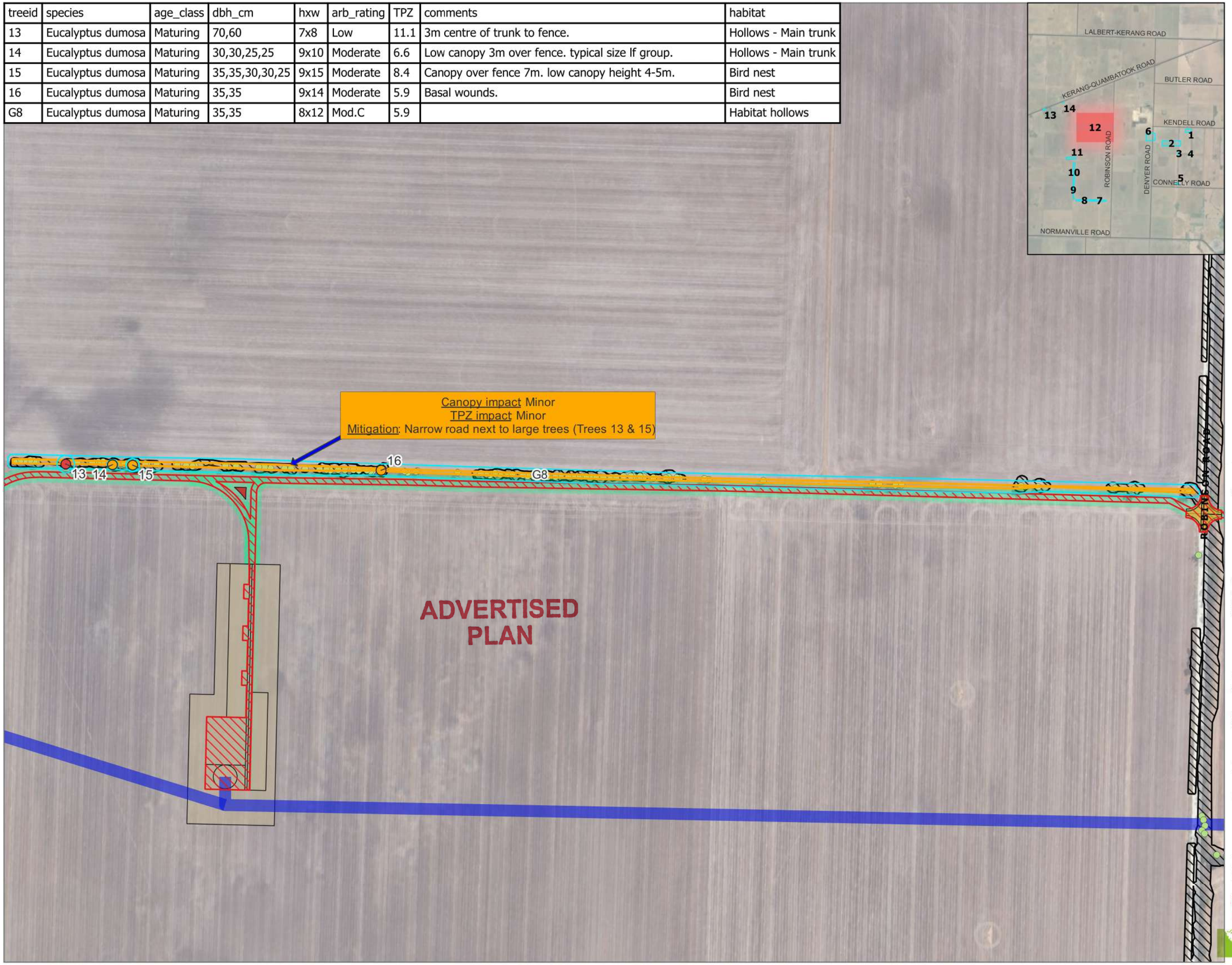
Treelogic
Plan, manage, protect

treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
13	Eucalyptus dumosa	Maturing	70,60	7x8	Low	11.1	3m centre of trunk to fence.	Hollows - Main trunk
14	Eucalyptus dumosa	Maturing	30,30,25,25	9x10	Moderate	6.6	Low canopy 3m over fence. typical size lf group.	Hollows - Main trunk
15	Eucalyptus dumosa	Maturing	35,35,30,30,25	9x15	Moderate	8.4	Canopy over fence 7m. low canopy height 4-5m.	Bird nest
16	Eucalyptus dumosa	Maturing	35,35	9x14	Moderate	5.9	Basal wounds.	Bird nest
G8	Eucalyptus dumosa	Maturing	35,35	8x12	Mod.C	5.9		Habitat hollows



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

NV_avoidance_buffers _241025_nov

NMEP_AccessTracks _v15-01_Current

NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp

Trees_ALL_240718 (Nature Advisory)

Investigation Area 12

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 12 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

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0 60 120m

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Treelogic
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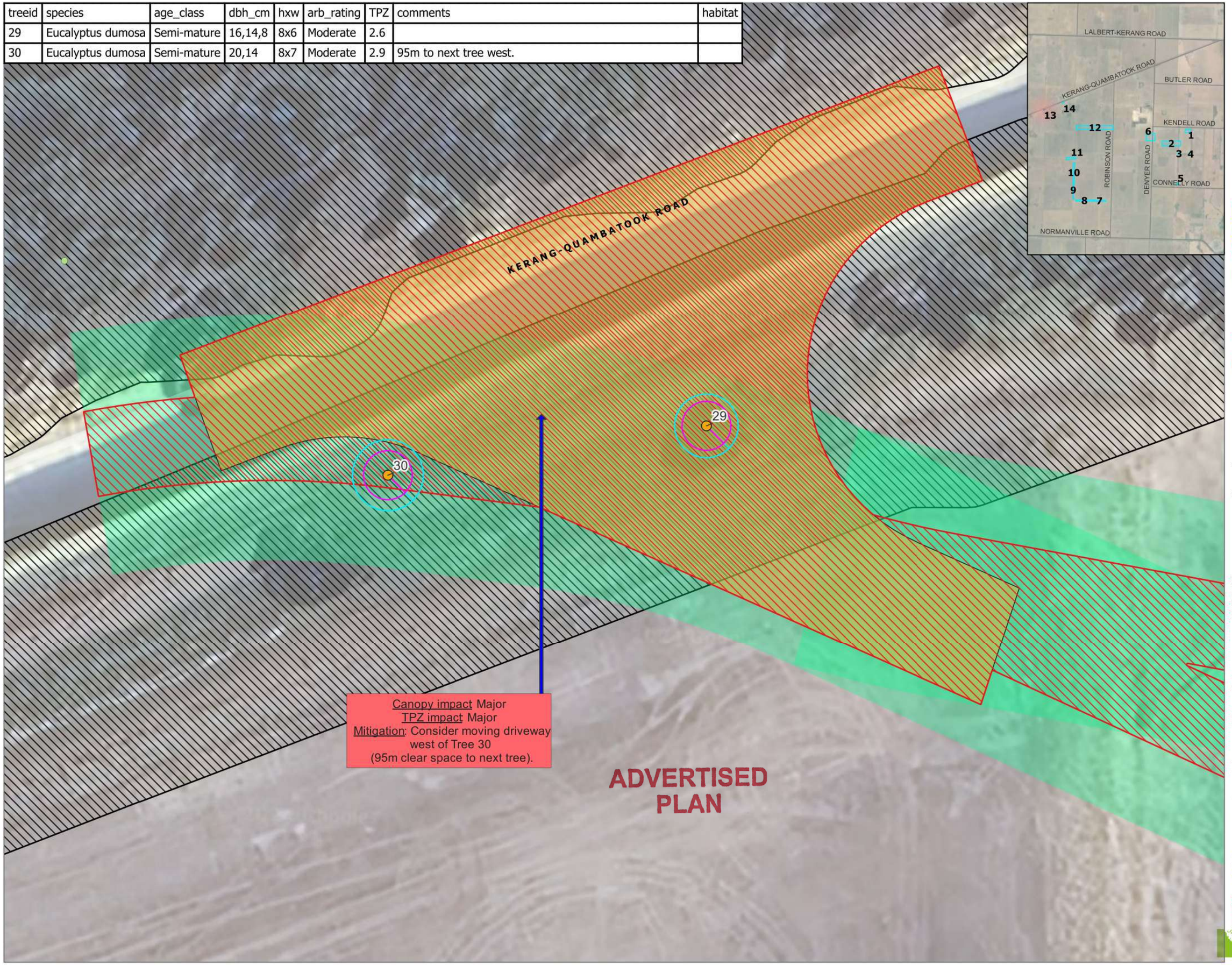
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
29	Eucalyptus dumosa	Semi-mature	16,14,8	8x6	Moderate	2.6		
30	Eucalyptus dumosa	Semi-mature	20,14	8x7	Moderate	2.9	95m to next tree west.	



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 13

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815
MAP NO. 13 / 14

CLIENT West Wind Energy
DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 4 8m

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Treelogic
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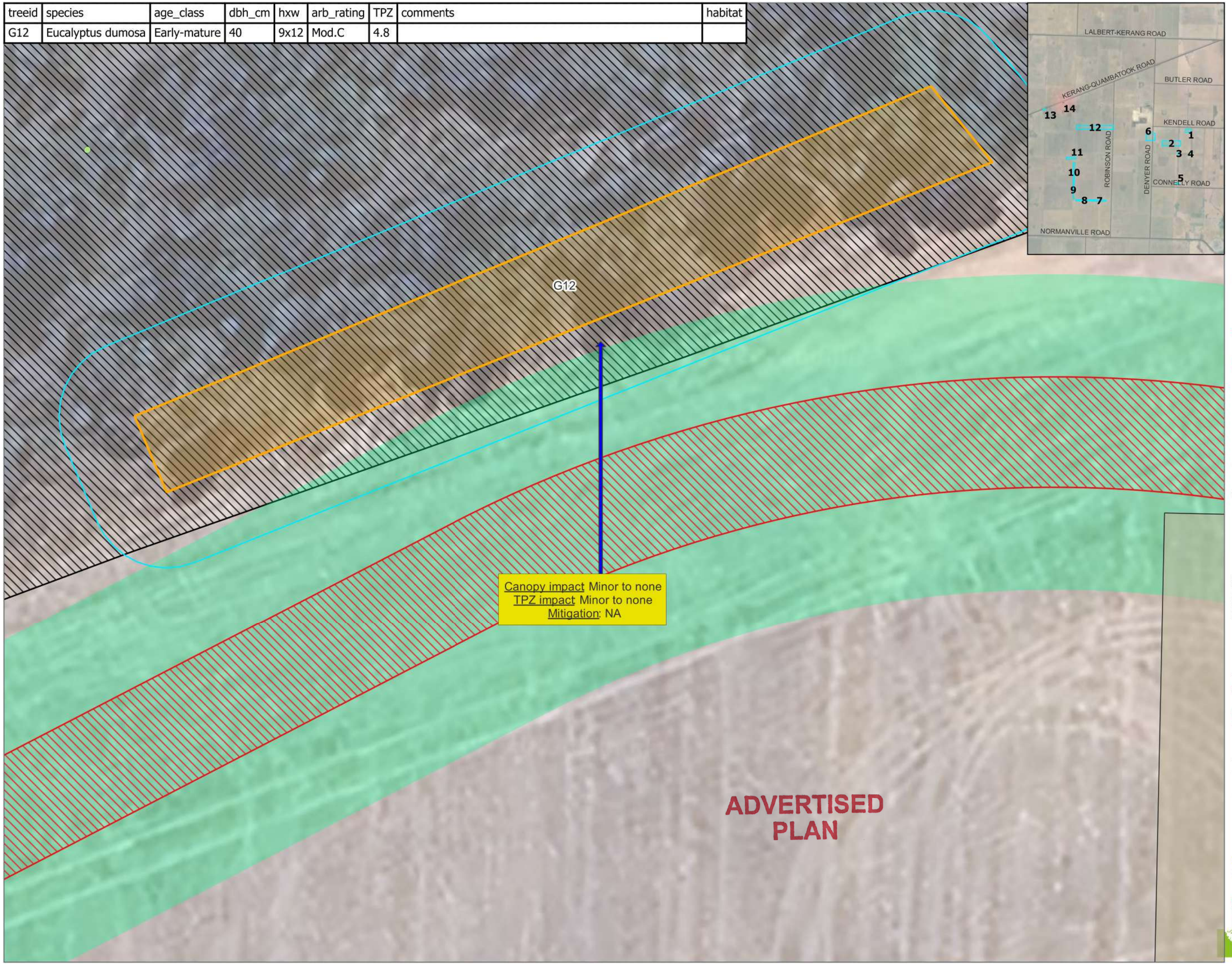
treeid	species	age_class	dbh_cm	hxw	arb_rating	TPZ	comments	habitat
G12	Eucalyptus dumosa	Early-mature	40	9x12	Mod.C	4.8		



LEGEND

Trees (arb. rating)
- High
- Moderate
- Low
- Very Low

Protection zones
- TPZ
- SRZ

Tree groups
- High
- Moderate
- Low
- Very Low

- NV_avoidance_buffers _241025_nov
- NMEP_AccessTracks _v15-01_Current
- NMEP_Worksfootprint -PermanentInfrastrucutres _v15-01shp
- Trees_ALL_240718 (Nature Advisory)

Investigation Area 14

Notes
- Group TPZs are indicative only and based on approximate group average DBHs.

TL REF. 013815

MAP NO. 14 / 14

CLIENT West Wind Energy

DATE 2024-11-22

TREE LOCATION DISCLAIMER
Tree locations are approximate

COORDINATE REFERENCE SYSTEM
EPSG:7854 | GDA 2020 MGA Zone 54

0 3 6m

TREELOGIC PTY LTD
ABN: 95 080 021 610
TEL: 1300 656 926
4 / 21 Eugene Tce
Ringwood, VIC
Australia 3134

Treelogic
Plan, manage, protect

Tree ID	Species	Common Name	Age	Origin	DBH (cm)	Height x Width (m)	Health	Structure	Arb. Rating	ULE (years)	Comments	Habitat	TPZ (m radius)	SRZ (m radius)	Area
1	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	30,25,25 ,20,18	6x10	Fair	Fair to Poor	Moderate	11 to 20	Preserve dripline (5m).	Hollows - Primary limbs	6.4	2.6	7
2	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	30,30,30 ,25,25	10x16	Fair to Poor	Fair to Poor	Moderate	<1	Edge of cropping 7.5m from centre of trunk. preserve area in between		7.5	2.9	8
3	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	35,35,35 ,30,30	15x13	Fair	Fair	Moderate	11 to 20	5m from centre trunk to edge of cropping.		8.9	3	9
4	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	35,35	11x8	Fair to Poor	Fair to Poor	Moderate	11 to 20			5.9	2.8	10
5	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Maturing	Indigenous	35,25,20	11x12	Fair to Poor	Fair	Moderate	11 to 20	Deadwood. 5m from centre of trunk to cropping		5.7	2.6	10
6	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Over-mature	Indigenous	80	11x12	Poor	Poor	Low	6 to 10	Deadwood >50mm, habitat hollows, main leader dead.	Cracks/fissures	9.6	2.9	11
7	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Over-mature	Indigenous	55,35	15x16	Poor	Poor	Low	6 to 10	Basal wounds, habitat hollows.	Hollows - Primary limbs	7.8	2.9	11
8	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Early-mature	Indigenous	35,12,10 ,10,10	9x9	Fair to Poor	Fair	Moderate	11 to 20		No Hollows	4.9	2.5	11
9	*Acacia salicina*	Willow Wattle	Early-mature	Indigenous	50	9x10	Fair	Fair	Moderate	11 to 20	Only wattle in group.		6	2.5	11
10	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Maturing	Indigenous	40,10,10 ,10	9x10	Poor	Fair to Poor	Low	6 to 10	Main leader dead. Basal shots.	Hollows - Main trunk	5.2	2.6	11
11	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Over-mature	Indigenous	55,55,50	15x15	Poor	Poor	Low	1 to 5	Main leader dead.	Hollows - Main trunk	11.1	3.3	11
12	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	40,15,15 ,12,10	7x6	Fair	Fair to Poor	Moderate	11 to 20	Trunk wounds. Existing track.	Hollows - Main trunk	5.7	2.6	11
13	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	70,60	7x8	Fair	Poor	Low	6 to 10	3m centre of trunk to fence.	Hollows - Main trunk	11.1	3.3	12
14	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	30,30,25 ,25	9x10	Fair to Poor	Fair to Poor	Moderate	11 to 20	Low canopy 3m over fence. typical size lf group.	Hollows - Main trunk	6.6	2.9	12
15	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	35,35,30 ,30,25	9x15	Fair to Poor	Fair to Poor	Moderate	11 to 20	Canopy over fence 7m. low canopy height 4-5m.	Bird nest	8.4	3.3	12
16	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	35,35	9x14	Fair	Fair to Poor	Moderate	11 to 20	Basal wounds.	Bird nest	5.9	2.9	12
17	*Eucalyptus oleosa*	Oil Mallee	Maturing	Indigenous	40,40,40 ,35,35	10x15	Fair	Fair to Poor	Moderate	11 to 20	Previous failures. Edge of canopy in line with cropping edge.	Hollows - Primary limbs	10.2	3.6	6
18	*Eucalyptus oleosa*	Oil Mallee	Maturing	Indigenous	40,35,35 ,30,30	10x15	Fair	Fair to Poor	Moderate	11 to 20	Past limb failure.		9.2	3.6	6
19	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	70,50,40 ,30	17x20	Fair	Fair	High	21 to 40	Canopy over fence 5-6m. low canopy height 4-5m.		11.9	3.6	1
20	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	60	16x16	Good	Fair	High	>40	Within fenced area.		7.2	2.9	1
21	*Eucalyptus largiflorens*	Black Box	Over-mature	Indigenous	45	10x6	Dead	Fair to Poor	Very Low	<1	Branches over fence 3m. low canopy height 5-6m	Hollows - Primary limbs	5.4	2.6	1
22	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	55	7x6	Fair to Poor	Poor	Low	6 to 10	Lost main leader.	Hollows - Main trunk	6.6	2.8	4
23	*Eucalyptus oleosa*	Oil Mallee	Maturing	Indigenous	35,20,14	9x12	Fair to Poor	Fair to Poor	Moderate	11 to 20	Fenced area. canopy over by <1m	Hollows - Primary limbs	5.1	2.7	4
24	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	35	9x6	Fair to Poor	Fair to Poor	Moderate	11 to 20		Hollows - Primary limbs	4.2	2.3	3
25	*Eucalyptus dumosa*	White Mallee	Early-mature	Indigenous	15,14,10 ,10	9x6	Fair to Poor	Fair to Poor	Low	6 to 10	Lost main leader.	Hollows - Main trunk	3	2.3	3
26	*Eucalyptus dumosa*	White Mallee	Early-mature	Indigenous	20	6x6	Fair to Poor	Fair to Poor	Low	6 to 10	Main leader dead. Deadwood over fence. approx 25m between 2 trees.		2.4	2.1	3
27	*Eucalyptus dumosa*	White Mallee	Early-mature	Indigenous	30,20,15 ,12	9x10	Fair to Poor	Fair to Poor	Moderate	11 to 20		Hollows - Main trunk	4.9	2.6	5
28	*Eucalyptus oleosa*	Oil Mallee	Maturing	Indigenous	35,35,20	9x14	Fair	Fair	Moderate	21 to 40		Hollows - Main trunk	6.4	2.9	5
29	*Eucalyptus dumosa*	White Mallee	Semi-mature	Indigenous	16,14,8	8x6	Fair	Fair	Moderate	>40			2.6	2	13
30	*Eucalyptus dumosa*	White Mallee	Semi-mature	Indigenous	20,14	8x7	Fair to Poor	Fair	Moderate	11 to 20	95m to next tree west.		2.9	2	13
G1	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	40	6x10	Fair to Poor	Fair to Poor	Mod.C	11 to 20	dam wall sloping down to trees	Habitat hollows	4.8	2.5	7

Tree ID	Species	Common Name	Age	Origin	DBH (cm)	Height x Width (m)	Health	Structure	Arb. Rating	ULE (years)	Comments	Habitat	TPZ (m radius)	SRZ (m radius)	Area
G2	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	50	10x15	Fair to Poor	Fair to Poor	Mod.B	11 to 20	deadwood. ground logs. Some branches overhang cropping area by up to 4m. lower canopies 3-7m.	Habitat hollows	6	2.7	8
G3	*Eucalyptus dumosa;Eucalyptus oleosa*	White Mallee;Oil Mallee	Maturing	Indigenous	40	9x9	Fair to Poor	Fair to Poor	Mod.C	11 to 20	oleosa dominant. coppicing. dead central leaders. some with hollows.		4.8	2.5	9
G4	*Eucalyptus dumosa;Eucalyptus leptophylla*	White Mallee;Narrow-leaved Red Mallee	Maturing	Indigenous	45	9x9	Fair to Poor	Fair	Mod.C	11 to 20		Habitat hollows	5.4	2.6	10
G5	*Eucalyptus leptophylla*	Narrow-leaved Red Mallee	Maturing	Indigenous	50	9x9	Poor	Fair to Poor	Low	6 to 10	coppicing. dead stems/deadwood. some dead. some dead trunks with basal shoots.	Habitat hollows	6	2.7	11
G6	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	40	7x7	Fair to Poor	Fair to Poor	Mod.C	11 to 20		Habitat hollows	4.8	2.5	11
G7	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	50	10x12	Fair to Poor	Fair	Mod.C	11 to 20			6	2.6	
G8	*Eucalyptus dumosa*	White Mallee	Maturing	Indigenous	35,35	8x12	Fair to Poor	Fair	Mod.C	11 to 20		Habitat hollows	5.9	2.8	12
G9	*Eucalyptus oleosa*	Oil Mallee	Maturing	Indigenous	40	8x12	Fair to Poor	Fair to Poor	Mod.C	11 to 20			4.8	2.5	6
G10	*Eucalyptus oleosa*	Oil Mallee	Maturing	Indigenous	40	8x12	Fair to Poor	Fair	Mod.B	11 to 20			4.8	2.5	6
G11	*Eucalyptus largiflorens*	Black Box	Maturing	Indigenous	70	16x18	Fair	Fair	High	>40	fenced area		8.4	3	1
G12	*Eucalyptus dumosa*	White Mallee	Early-mature	Indigenous	40	9x12	Fair	Fair to Poor	Mod.C	11 to 20			4.8	2.5	14

Appendix 3 – Photographic catalogue

Investigation area 1

Tree ID: 19
Species: *Eucalyptus largiflorens*

Investigation area 1

Tree ID: G11
Species: *Eucalyptus largiflorens*

Investigation area 1

Tree ID: 20
Species: *Eucalyptus largiflorens*

Investigation area 3

Tree ID: 24
Species: *Eucalyptus dumosa*

Investigation area 1

Tree ID: 21
Species: *Eucalyptus largiflorens*

Investigation area 3

Tree ID: 25
Species: *Eucalyptus dumosa*

Appendix 3 – Photographic catalogue

Investigation area 3

Tree ID: 26
Species: *Eucalyptus dumosa*

Investigation area 5

Tree ID: 27
Species: *Eucalyptus dumosa*

Investigation area 4

Tree ID: 22
Species: *Eucalyptus dumosa*

Investigation area 5

Tree ID: 28
Species: *Eucalyptus oleosa*

Investigation area 4

Tree ID: 23
Species: *Eucalyptus oleosa*

Investigation area 6

Tree ID: 17
Species: *Eucalyptus oleosa*

Appendix 3 – Photographic catalogue

Investigation area 6

Tree ID: 18
Species: *Eucalyptus oleosa*

Investigation area 7

Tree ID: 1
Species: *Eucalyptus dumosa*

Investigation area 6

Tree ID: G9
Species: *Eucalyptus oleosa*

Investigation area 7

Tree ID: G1
Species: *Eucalyptus dumosa*

Investigation area 6

Tree ID: G10
Species: *Eucalyptus oleosa*

Investigation area 8

Tree ID: 2
Species: *Eucalyptus dumosa*

Appendix 3 – Photographic catalogue

Investigation area 8

Tree ID: G2
Species: *Eucalyptus dumosa*

Investigation area 10

Tree ID: 4
Species: *Eucalyptus dumosa*

Investigation area 9

Tree ID: 3
Species: *Eucalyptus dumosa*

Investigation area 10

Tree ID: 5
Species: *Eucalyptus leptophylla*

Investigation area 9

Tree ID: G3
Species: *Eucalyptus dumosa;Eucalyptus oleosa*

Investigation area 10

Tree ID: G4
Species: *Eucalyptus dumosa;Eucalyptus leptophylla*

Appendix 3 – Photographic catalogue

Investigation area 11

Tree ID: 6
Species: *Eucalyptus leptophylla*

Investigation area 11

Tree ID: 9
Species: *Acacia salicina*

Investigation area 11

Tree ID: 7
Species: *Eucalyptus leptophylla*

Investigation area 11

Tree ID: 10
Species: *Eucalyptus leptophylla*

Investigation area 11

Tree ID: 8
Species: *Eucalyptus leptophylla*

Investigation area 11

Tree ID: 11
Species: *Eucalyptus leptophylla*

Appendix 3 – Photographic catalogue

Investigation area 11

Tree ID: 12
Species: *Eucalyptus dumosa*

Investigation area 12

Tree ID: 13
Species: *Eucalyptus dumosa*

Investigation area 11

Tree ID: G5
Species: *Eucalyptus leptophylla*

Investigation area 12

Tree ID: 14
Species: *Eucalyptus dumosa*

Investigation area 11

Tree ID: G6
Species: *Eucalyptus dumosa*

Investigation area 12

Tree ID: 15
Species: *Eucalyptus dumosa*

Appendix 3 – Photographic catalogue

Investigation area 12

Tree ID: 16
Species: *Eucalyptus dumosa*

Investigation area 13

Tree ID: 30
Species: *Eucalyptus dumosa*

Investigation area 12

Tree ID: G8
Species: *Eucalyptus dumosa*

Investigation area 14

Tree ID: G12
Species: *Eucalyptus dumosa*

Investigation area 13

Tree ID: 29
Species: *Eucalyptus dumosa*

Investigation area

Tree ID: G7
Species: *Eucalyptus dumosa*

Arboricultural Descriptors (February 2019)

Note that not all of the described tree descriptors may be used in a tree assessment and report. The assessment is undertaken with regard to contemporary arboricultural practices and consists of a visual inspection of external and above-ground tree parts.

1. Tree Condition

The assessment of tree condition evaluates factors of health and structure. The descriptors of health and structure attributed to a tree evaluate the individual specimen to what could be considered typical for that species growing in its location under current climatic conditions. For example, some species can display inherently poor branching architecture, such as multiple acute branch attachments with included bark. Whilst these structural defects may technically be considered arboriculturally poor, they are typical for the species and may not constitute an increased risk of failure. These trees may be assigned a structural rating of fair-poor (rather than poor) at the discretion of the assessor.

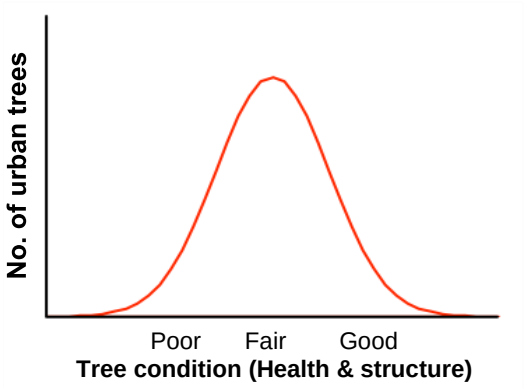


Diagram 1: Indicative normal distribution curve for tree condition

Diagram 1, provides an indicative distribution curve for tree condition to illustrate that within a normal tree population the majority of specimens are centrally located within the condition range (normal distribution curve). Furthermore, that those individual trees with an assessed condition approaching the outer ends of the spectrum occur less often.

2. Tree Name

Provides botanical name, (genus, species, variety and cultivar) according to accepted international code of taxonomic classification, and common name.

3. Tree Type

Describes the general geographic origin of the species and its type e.g. deciduous or evergreen.

Category	Description
Indigenous	Occurs naturally in the area or region of the subject site. Remnant.
Victorian native	Occurs naturally within some part of the State of Victoria (not exclusively) but is not indigenous (component of EVC benchmark). Could be planted indigenous trees.
Australian native	Occurs naturally within Australia but is not a Victorian native or indigenous
Exotic deciduous	Occurs outside of Australia and typically sheds its leaves during winter
Exotic evergreen	Occurs outside of Australia and typically holds its leaves all year round
Exotic conifer	Occurs outside of Australia and is classified as a gymnosperm
Native conifer	Occurs naturally within Australia and is classified as a gymnosperm
Native Palm	Occurs naturally within Australia. Woody monocotyledon
Exotic Palm	Occurs outside of Australia. Woody monocotyledon

4. Height and Width

Indicates height and width of the individual tree; dimensions are expressed in metres. Crown heights are measured with a height meter where possible. Due to the topography of some sites and/or the density of vegetation it may not be possible to do this for every tree. Tree heights may be estimated in line with previous height meter readings in conjunction with assessor's experience. Crown widths are generally paced (estimated) at the widest axis or can be measured on two axes and averaged. In some instances the crown width can be

measured on the four cardinal direction points (North, South, East and West).

Crown height, crown spread are generally recorded to the nearest half metre (crown spread would be rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m. Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) shall be clearly identified in the assessment data.

5. Trunk diameters

The position where trunk diameters are captured may vary dependent on the requirements of the specific assessment and an individual trees specific characteristics. DBH is the typical trunk diameter captured as it relates to the allocation of tree protection distances. The basal trunk diameter assists in the allocation of a structural root zone. Some municipalities require trunk diameters be captured at different heights, with 1.0 m above grade being a common requirement. The specific planning schemes will be checked to ascertain requirements.

Stem diameters shall be recorded in centimetres, rounded to the nearest 1 cm (0.01 m).

Diameter at Breast Height (DBH)

Indicates the trunk diameter (expressed in centimetres) of an individual tree measured at 1.4m above the existing ground level or where otherwise indicated, multiple leaders are measured individually. Plants with multiple leader habit may be measured at the base. The range of methods to suit particular trunk shapes, configurations and site conditions can be seen in Appendix A of Australian Standard *AS 4970-2009 Protection of trees on development site*s. Measurements undertaken using foresters tape or builders tape.

Basal trunk diameter

The basal dimension is the trunk diameter measured at the base of the trunk or main stem(s) immediately above the root buttress. Used to ascertain the Structural Root Zone (SRZ) as outlined in AS4970.

6. Health

Assesses various attributes to describe the overall health and vitality of the tree.

Category	Vitality, Extension growth	Decline symptoms, Deadwood, Dieback	Foliage density, colour, size, intactness	Pests and or disease
Good	Above typical. Excellent. Full canopy density	Negligible	Better than typical	Negligible
Fair	Typical vitality. >80% canopy density	Minor or expected. Little or no dead wood	Typical. Minor deficiencies or defects could be present.	Minor, within damage thresholds
Fair to Poor	Below typical - low vitality	More than typical. Small sub-branch dieback	Exhibiting deficiencies. Could be thinning, or smaller	Exceeds damage thresholds
Poor	Minimal - declining	Excessive, large and/or prominent amount & size of dead wood. Significant dieback	Exhibiting severe deficiencies. Thinning foliage, generally smaller or deformed	Extreme and contributing to decline
Dead	N/A	N/A	N/A	N/A

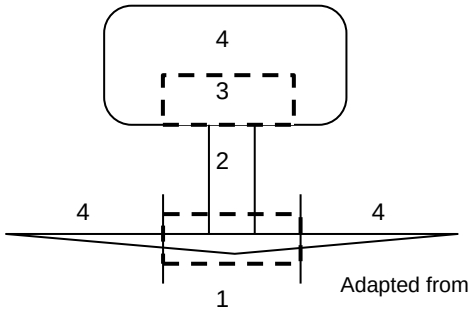
7. Structure

Assesses principal components of tree structure (Diagram 2).

Descriptor	Zone 1 - Root plate & lower stem	Zone 2 - Trunk	Zone 3 - Primary branch support	Zone 4 - Outer crown and roots
Good	No obvious damage, disease or decay; obvious basal flare / stable in ground	No obvious damage, disease or decay; well tapered	Well formed, attached, spaced and tapered. No history of failure.	No obvious damage, disease, decay or structural defect. No history of failure.
Fair	Minor damage or decay. Basal flare present.	Minor damage or decay	Generally, well attached, spaced and tapered branches. Minor structural deficiencies may be present or developing. No history of branch failure.	Minor damage, disease or decay; minor branch end-weight or over-extension. No history of branch failure.
Fair to Poor	Moderate damage or decay; minimal basal flare.	Moderate damage or decay; approaching recognised thresholds	Weak, decayed or with acute branch attachments; previous branch failure evidence.	Moderate damage, disease or decay; moderate branch end-weight or over-extension. Minor branch failure evident.
Poor	Major damage, disease or decay; fungal fruiting bodies present. Excessive lean placing pressure on root plate	Major damage, disease or decay; exceeds recognised thresholds; fungal fruiting bodies present. Acute lean. Stump re-sprout	Decayed, cavities or has acute branch attachments with included bark; excessive compression flaring; failure likely. Evidence of major branch failure.	Major damage, disease or decay; fungal fruiting bodies present; major branch end-weight or over-extension. Branch failure evident.
Very Poor	Excessive damage, disease or decay; unstable / loose in ground; altered exposure; failure probable	Excessive damage, disease or decay; cavities. Excessive lean. Stump re-sprout	Decayed, cavities or branch attachments with active split; failure imminent. History of major branch failure.	Excessive damage, disease or decay; excessive branch end-weight or over-extension. History of branch failure.

Diagram 2: Tree structure zones

1. Root plate & lower stem
2. Trunk
3. Primary branch support
4. Outer crown & roots



Adapted from Coder (1996)

Structure ratings will also take into account general branching architecture, stem taper, live crown ratio, crown symmetry (bias or lean) and crown position such as tree being suppressed amongst more dominant trees.

The lowest or worst descriptor assigned to the tree in any column could generally be the overall rating assigned to the tree. The assessment for structure is limited to observations of external and above ground tree parts. It does not include any exploratory assessment of underground or internal tree parts unless this is requested as part of the investigation. Trees are assessed and then given a rating for a point in time. Generally, trees with a poor or very poor structure are beyond the benefit of practical arboricultural treatments.

The management of trees in the urban environment requires appropriate arboricultural input and consideration of risk. Risk potential will consider the combination of likelihood of failure and impact, including the perceived importance of the target(s).

8. Age class

Relates to the physiological stage of the tree's life cycle.

Category	Description
Young	Sapling tree and/or recently planted. Approximately 5 or less years in location.
Semi-mature	Tree increasing in size and yet to achieve expected size in situation. Primary developmental stage.
Early-mature	Tree established, generally growing vigorously. > 50% of attainable age/size.
Mature	Specimen approaching expected size in situation, with reduced incremental growth.
Over-mature	Mature full-size with a retrenching crown. Tree is senescent and in decline. Significant decay generally present.

9. Useful life expectancy

Assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community. It would enable tree managers to develop long-term plans for the eventual removal and replacement of existing trees in the public realm. It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the trees positive contribution to the urban landscape.

Within an urban landscape context, particularly in relation to street trees, it could be considered a point where the costs to maintain the asset (tree) outweigh the benefits the tree is returning.

The assessment is based on the site conditions not being significantly altered and that any prescribed maintenance works are carried out (site conditions are presumed to remain relatively constant and the tree would be maintained under scheduled maintenance programs).

Useful Life Expectancy	Typical characteristics
<1 year (No remaining ULE)	Tree may be dead or mostly dead. Tree may exhibit major structural faults. Tree may be an imminent failure hazard. Excessive infrastructure damage with high risk potential that cannot be remedied.
1-5 years (Transitory, Brief)	Tree is exhibiting severe chronic decline. Crown is likely to be less than 50% typical density. Crown may be mostly epicormic growth. Dieback of large limbs is common (large deadwood may have been pruned out). Major structural defects that cannot be remedied. Tree may be over-mature and senescing. Infrastructure conflicts with heightened risk potential. Tree has outgrown site constraints.
6-10 years (Short)	Tree is exhibiting chronic decline. Crown density will be less than typical and epicormic growth is likely to present. The crown may still be mostly entire, but some dieback is likely to be evident. Dieback may include large limbs. Structural defects present that influence the tree's risk rating, amenity or vitality. Over-mature and senescing or early decline symptoms in short-lived species. Early infrastructure conflicts with potential to increase regardless of management inputs.
11-20 years (Moderate)	Tree not showing symptoms of chronic decline, but growth characteristics are likely to be reduced (bud development, extension growth etc.). Developing structural defects that reduce viability with limited scope for management. Tree may be over-mature and beginning to senesce. Potential for infrastructure conflicts regardless of management inputs.
21-40 years (Moderately long)	Trees displaying normal growth characteristics, but vitality is likely to be reduced (bud development, extension growth etc.). Structural issues relatively minor and manageable with arboricultural input. Tree may be growing in restricted environment (e.g. streetscapes) or may be in late maturity. Semi-mature and mature trees exhibiting normal growth characteristics. Juvenile trees in streetscapes.

>40 years (Long)	Generally juvenile and semi-mature trees exhibiting normal growth characteristics within adequate spaces to sustain growth, such as in parks or open space. Could also pertain to maturing, long-lived trees. No observable major structural defects. Tree well suited to the site with negligible potential for infrastructure conflicts.

Note that ULE may change for a tree dependent on the prevailing climatic conditions, sudden changes to a tree's growing environment creating an acute stress or impact by pathogens.

The ULE may not be applicable for trees that are manipulated, such as topiary, or grown for specific horticultural purposes, such as fruit trees.

There may be instances where remedial tree maintenance could extend a tree's ULE.

10. Arboricultural Rating

Relates to the combination of assigned tree condition factors, including health and structure (arboricultural merit) and ULE, and conveys an amenity value (An amenity tree can occupy a site that complements its surroundings in a useful manner which culminates in the aid, protection, comfort and emotional response of humans. Adapted from Coder, 2004). Amenity relates to the trees biological, functional and aesthetic characteristics (Hitchmough, 1994) within an urban landscape context. The presence of any serious disease or tree-related hazards that would impact risk potential are considered.

The arboricultural rating can be used by applying only the main category high, moderate, low or very low without using the sub categories. The sub-categories can assist in differentiating a trees value and/or characteristic in more detail within the specific tree assessment context, such as a development site.

<table>
<tr><td colspan="4">Arboricultural rating</td></tr>
<tr><td>Category</td><td colspan="3">Description</td></tr>
<tr><td>High</td><td colspan="3">Exemplary specimen due to multiple factors which could include; good condition and vitality, large size/canopy and prominence in the landscape. Likely to be a very long-term component in the landscape with a long ULE.
Other factors that could contribute to a high rating:
Particularly good example of the species; rare or uncommon.
Tree has visual importance as a landscape feature; provides substantial contribution to landscape character.
Tree may have significant ecological or conservation value.
*Tree has historical, commemorative or other distinct social/cultural significance.
Trees in this category must be considered for retention and/or incorporated within design proposals.</td></tr>
<tr><td>Category</td><td>Description</td><td>Sub category</td><td>Description</td></tr>
<tr><td rowspan="3">Moderate</td><td rowspan="3">Tree of moderate quality, in fair or typical condition. Tree may have a condition, and or structural problem that will respond to arboricultural treatment. These trees have the potential to be moderate- to long-term components of the landscape (moderate to long ULE) if managed appropriately.
The sub-categories relate predominately to age, size and amenity.
Trees in this category should be considered for retention and/or incorporated within design proposals.</td><td>A</td><td>Moderate to large, maturing tree. Suited to the site & contributes to the landscape character.
Tree may have conservation or other cultural/social value.</td></tr>
<tr><td>B</td><td>Moderate sized, established tree, > 50% of attainable age/size. Suited to the site & contributes to the landscape character (other attributes covered under 'Moderate' description)</td></tr>
<tr><td>C</td><td>Young to semi-mature, generally a smaller tree, established, >15 cm DBH, >5 years in the location. Not a dominant canopy. No significant qualities currently but has the potential to become a higher value tree & long-term component of the landscape. Replacement of tree is likely to take up to 6 - 10 years to attain similar attributes.
Semi- to mature tree with accumulating deficiencies and reducing ULE, trending towards Low arboricultural value.</td></tr>
<tr><td>Category</td><td colspan="3">Description</td></tr>
</table>

Low	Unremarkable tree of low quality or little amenity value. Tree in either poor health and/or with poor structure. Short to transitory useful life expectancy (<10 years). • Tree is not prominent in the landscape due to its size or age, such as young trees with a stem diameter below 15 cm. Tree < 5 years in location. These trees are easily replaceable or capable of being transplanted. • Tree (species) is functionally inappropriate to the specific location. Is causing excessive damage/nuisance to adjacent infrastructure or would be expected to be problematic if retained (i.e. palm tree under power lines). • Unremarkable tree of no material landscape, conservation or other cultural value. Not visible from surrounding landscapes. • Tree infected with pathogens that could lead to its decline. • Tree has potential to be an environmental woody weed (may be dependent on location of tree in an urban landscape). • Tree impacting or suppressing trees of better quality. Retention of such trees may be considered if not requiring a disproportionate expenditure of resources for a tree in its condition and location.
Category	*Description*
Very low	Trees of low quality with a brief to no remaining ULE (<5 years). • Tree has either a severe structural defect or health problem or combination that cannot be sustained with practical arboricultural techniques and the loss of the tree or tree part would be expected in the short term. • Tree whose retention would not be viable after the removal of adjacent trees, such as trees that have developed in close spaced groups and would not be expected to adapt to severe and sudden alterations to environmental & site conditions, e.g. removal of adjacent shelter trees. • Small or young tree, <5m in height, <10cm DBH. Easily replaced in short-term or capable of being transplanted. • Acknowledged environmental woody weed species. Tree has a detrimental effect on the environment, for example, the tree has weed potential and is likely to spread into waterways or natural areas if nearby. • Tree infected with pathogens that will lead to decline and has potential to spread to adjacent trees. • Tree is dead (dead tree may offer habitat values) or is showing signs of significant, immediate, and irreversible overall decline. Tree cannot realistically be retained and should be considered for removal.

Other considerations - Even though a tree may be declining or dead, a tree could be retained for other purposes such as habitat or soil stabilisation. These trees would still need to be managed appropriately to reduce risk.

*A tree may have (attract) a high value by the community for historical, commemorative or other distinct social/cultural significance factors, albeit the tree may not be in good condition. In the context of an assessment, for multiple reasons, but more so for development, if it is a noted 'significant' tree it should receive higher consideration during the planning process.

Trees have many values, not all of which are considered when an arboricultural assessment is undertaken. However, individual trees or tree group features may be considered important community resources because of unique or noteworthy characteristics or values other than their age, dimensions, health or structural condition. Recognition of one or more of the following criteria is designed to highlight other considerations that may influence the future management of such trees.

Significance	**Description**
Horticultural Value/ Rarity	Outstanding horticultural or genetic value; could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure. Any tree of a species or variety that is rare.
Historic, Aboriginal Cultural or Heritage Value	Tree could have value as a remnant of a particular important historical period or a remnant of a site or activity no longer in action. Tree has a recognised association with historic aboriginal activities, including scar trees. Tree commemorates a particular occasion, including plantings by notable people, or having associations with an important event in local history.

Ecological Value	Tree could have value as habitat for indigenous wildlife, including providing breeding, foraging or roosting habitat, or is a component of a wildlife reserve. Remnant Indigenous vegetation that contribute to biological diversity

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