

Referral of proposed action

Project title: Western Highway Project: Beaufort to Ararat

1 Summary of proposed action

NOTE: You must also attach a map/plan(s) showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(j).

1.1 Short description

Use 2 or 3 sentences to uniquely identify the proposed action and its location.

The proposal is to duplicate the Western Highway, between Beaufort and Ararat, to create a four-lane, dual carriageway highway which will provide a safer and more efficient transport link for freight and other vehicles. The proposed action will also include two railway overpasses and five watercourse crossings, regardless of the eventual alignment.

1.2 Latitude and longitude

Latitude and longitude details are used to accurately map the boundary of the proposed action. If these coordinates are inaccurate or insufficient it may delay the processing of your referral.

location point	Latitude			Longitude		
	degrees	minutes	seconds	degrees	minutes	seconds
Old Shirley Road, Beaufort	37	25	42	143	21	59.5
Heath Street, Ararat	37	17	14.5	142	57	25.5

The Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

If area less than 5 hectares, provide the location as a single pair of latitude and longitude references. If area greater than 5 hectares, provide bounding location points.

If the proposed action is linear (eg. a road or pipeline), provide coordinates for each turning point.

Do not use AMG coordinates.

1.3 Locality and property description

Provide a brief physical description of the property on which the proposed action will take place and the project location (eg. proximity to major towns, or for off-shore projects, shortest distance to mainland).

The project area comprises of a 40 kilometre corridor between Old Shirley Road, Beaufort, and Heath Street, Ararat. The project area is shown in Attachment 1. The land is predominately rural with the township of Buangor located halfway between Beaufort and Ararat and east of the Langi-Ghiran State Park. A number of established residences have direct access to the highway, and there are areas of rural residential zoning west of Beaufort. The corridor crosses five named watercourses (identified in Section 2.1, below), which will all be crossed regardless of the preferred alignment.

1.4 Size of the development footprint or work area (hectares)

Up to an estimated 290ha may need to be acquired. (Depending on the final alignment option selected).

1.5 Street address of the site

Not applicable.

1.6 **Lot description**
Describe the lot numbers and title description, if known.

Not applicable. A range of route options have been developed however identification of these and the extent of impact has not yet been determined as a preferred alignment is yet to be identified. Depending on the current options, 60 – 74 allotments could be affected by the proposal.

1.7 **Local Government Area and Council contact (if known)**
If the project is subject to local government planning approval, provide the name of the relevant council contact officer.

Pyrenees Shire Council
Contact: Robert Ladd – (03) 5349 1100

Rural City of Ararat
Contact: Ian Stewart – (03) 5355 0216

1.8 **Time frame**
Specify the time frame in which the action will be taken including the estimated start date of construction/operation.

Approvals process: 2010-2012
Construction: 2012-2017
Operation: 2017 onward

1.9	Alternatives to proposed action Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?		No
		✓	Yes, you must also complete section 2.2 The upgrade of the Western Highway to a safer and more efficient four lane divided road between Ballarat and Stawell is a priority for the Australian and Victorian Governments, identified in the Nation Building Program and the Victorian Transport Plan. Funding of \$505 million has so far been committed to the project by the Australian and Victorian Governments. Ten route alignment options were originally developed for the upgrade of the Western Highway between Burrumbeet and Beaufort, of which four were selected for detailed investigation. VicRoads then adopted a preferred alignment (the proposed action of this referral) based on the investigation outcomes.
1.10	Alternative time frames etc Does the proposed action include alternative time frames, locations or activities?	✓	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.12	State assessment Is the action subject to a state or territory environmental impact assessment?		No
		✓	Yes, you must also complete Section 2.4 It has been determined by the Minister for Planning under the <i>Environment Effects Act 1978</i> (Vic) that an Environment Effects Statement (EES) is required.

1.12	<p>Component of larger action Is the proposed action a component of a larger action?</p>	<p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>	<p>No</p> <p>Yes, you must also complete Section 2.6</p> <p>VicRoads has split the project into four distinct sections for the purpose of EPBC referrals. Due to the length and extended timeframe for the overall project, planning has been divided into logical components based on corridor availability, environmental assessments and communities of interest. This approach was initiated with the EPBC referral for Section 1a, Ballarat to Burrumbeet, which was determined by the Department of the Environment, Water, Heritage and the Arts to not be a controlled action.</p>
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<p>1.13 Related actions/proposals Is the proposed action related to other actions or proposals in the region (if known)?</p>	<p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>	<p>No</p> <p>Yes, provide details:</p> <p>The Beaufort to Ararat section of the Western Highway is the second of three distinct project sections to upgrade the Highway between Ballarat and Stawell:</p> <p style="padding-left: 40px;">Section 1a - <i>Ballarat to Burrumbeet</i> (approved and under construction)</p> <p style="padding-left: 40px;">Section 1b - <i>Burrumbeet to Beaufort</i></p> <p style="padding-left: 40px;">Section 2 - <i>Beaufort to Ararat</i>; and</p> <p style="padding-left: 40px;">Section 3 - <i>Ararat to Stawell</i>.</p> <p>The project does not include bypasses of Beaufort, Ararat or Stawell. These may be proposed in the future subject to a needs assessment and procurement of funds.</p> <p>Additional projects are underway or proposed for upgrading the Western Highway in reflection of its national significance. Projects include the realignment at Anthony's Cutting and the Horsham bypass (currently in the early stages of planning and options evaluation).</p>
<p>1.14 Australian Government funding Has the person proposing to take the action received any Australian Government grant funding to undertake this project?</p>	<p><input type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>	<p>No</p> <p>Yes, provide details:</p> <p>The Australian Government made a commitment to fund the Ballarat to Stawell upgrades as described in Section 1.13 under its Nation Building Program with an initial contribution of \$404 million on the basis that the Victorian Government contributed 20 per cent of the total project cost.</p> <p>The Victorian Government included a funding commitment of \$101 million towards the Project in the Victorian Transport Plan, released in December 2008.</p>
<p>1.15 Great Barrier Reef Marine Park Is the proposed action inside the Great Barrier Reef Marine Park?</p>	<p><input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p>	<p>No</p> <p>Yes, you must also complete Section 3.1 (h), 3.2 (e)</p>

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.6.

2.1 Description of proposed action

This should be a detailed description outlining all activities and aspects of the proposed action and should reference figures and/or attachments, as appropriate.

VicRoads is proposing to duplicate the Western Highway between Beaufort and Ararat as part of a wider program for duplication between Ballarat and Stawell as discussed in Section 1.13, above.

The Beaufort to Ararat section is approximately 40 kilometres long, between Old Shirley Road, Beaufort and Heath Street, Ararat. While a preferred alignment has not yet been confirmed, it is likely to comprise a combination of:

- a single two lane carriageway duplication constructed adjacent to the existing Highway, thereby retaining the existing pavement as one of the two carriageways; or
- a four lane dual carriageway construction on a new alignment. The existing carriageway would likely be retained as a local access road.

An 'area of interest' has been identified within the Beaufort-Ararat corridor in which a preferred alignment option will be determined. This area of interest (shown in Attachment 1) includes the extent of a number of preliminary alignment options developed and evaluated to give an indication of the potential impacts associated with such an action in this corridor. A process is underway to review these options and identify a preferred alignment.

Subsidiary elements of the project, regardless of the eventual alignment, include:

- two railway crossings:
 - the first, 600m west of Old Shirley Road, would likely be a single carriageway overpass adjacent to the existing overpass.
 - the second crossing is likely to be a new dual carriageway approximately 1.2 kilometres east of the existing crossing next to the Langi-Ghiran State Park. Use of the existing crossing (with a new bridge constructed beside it) is constrained by the curvatures of the road either side of the bridge which are below standard for an M-class freeway designed for 110km/h travel. As such, a new crossing location is proposed to avoid impacting on vegetation contiguous with the State Park.
- five watercourses crossings (east to west):
 - Fiery Creek;
 - Middle Creek;
 - Charliecombe Creek;
 - Billy Billy Creek; and the
 - Hopkins River.
- the acquisition of land and potentially up to eight dwellings depending on the identification of a preferred alignment option.
- excavation and fill in locations however, the design for this stage has not progressed to a point where this can be quantified.

Construction will largely occur separate from the existing Highway and will therefore result in minimal disruption to the current use of the road. The western end of Zone 4 (refer Attachment 1) is constrained by the railway line to the north and existing land uses to the south.

2.2 Alternatives to taking the proposed action

This should be a detailed description outlining any feasible alternatives to taking the proposed action (including not taking the action) that were considered but are not proposed (note, this is distinct from any *proposed* alternatives relating to location, time frames, or activities – see section 2.3).

Defined options for further investigation are still being developed, however preliminary options have been developed to identify an 'area of interest' for the project, in which a preferred alignment option will be determined. The 'area of interest' is shown in Attachment 1.

Another option would be to take no action and leave the highway in its current state. However, taking no action would mean that the Melbourne – Adelaide Corridor would become increasingly congested over the medium term as a result of significant population growth at both ends of the corridor and forecast growth in freight volumes. The *Melbourne-Adelaide Corridor Strategy* (Commonwealth of Australia, 2007) identifies that the existing corridor will be unable to meet forecast growth (estimated at 2.6% per annum) within 25 years. The strategy highlights both increased capacity and safety of passenger and freight movements as short-term priorities.

The strategy also identifies that the corridor currently has:

- mixed traffic conditions with a high percentage of heavy vehicles sharing the road;
- a high proportion of run-off road casualty crashes; and
- limited overtaking opportunities.

The Australian Government has granted \$404 million under the Nation Building Program, subject to a 20 per cent contribution from the Victorian Government, which has been committed as part of the Victorian Transport Plan, to fund the upgrade of this part of the national freight corridor.

2.3 Alternative locations, time frames or activities that form part of the referred action

If you have identified that the proposed action includes alternative time frames, locations or activities (in section 1.9) you must complete this section. Describe any alternatives related to the physical location of the action, time frames within which the action is to be taken and alternative methods or activities for undertaking the action. For each alternative location, time frame or activity identified, you must also complete (where relevant) the details in sections 1.2-1.9, 2.4-2.7, 4 and 3.3. Please note, if the action that you propose to take is determined to be a controlled action, any alternative locations, time frames or activities that are identified here may be subject to environmental assessment and a decision on whether to approve the alternative.

As stated in Section 2.1, the 'area of interest' encompasses all preliminary potential alignment options under consideration by VicRoads. This is based on preliminary identification of potential options, and as design progresses it may be necessary to amend these options within the area of interest. The project is subject to an Environment Effects Statement (EES) under the Victorian *Environment Effects Act 1978*. The EES process will determine a preferred option through the engagement of a Technical Reference Group.

There are no alternatives for project time frames. Due to the funding commitment made by the Australian and Victorian Governments, the project is required to proceed when the necessary approvals are obtained.

2.4 Context, planning framework and state/local government requirements

Explain the context in which the action is proposed, including any relevant planning framework at the state and/or local government level (e.g. within scope of a management plan, planning initiative or policy framework). Describe any Commonwealth or state legislation or policies under which approvals are required or will be considered against.

It has been determined by the Victorian Minister for Planning under the *Environment Effects Act 1978* that an Environment Effects Statement (EES) is required.

A planning scheme amendment process (in accordance with the *Planning and Environment Act 1987*) will need to occur (or run concurrently) with any approvals process, as the planning schemes do not currently contain applicable zones or overlays necessary for the construction of the project. The relevant planning schemes are those of the Pyrenees Shire Council and the Rural City of Ararat. Both municipalities have supported VicRoads formal request to the Victorian Minister for Planning to act as the planning authority, thereby preparing the necessary amendment documentation.

Further approvals may be required. The following list is not exhaustive:

- *Aboriginal Heritage Act 2006* (Vic)
- *Flora and Fauna Guarantee Act 1995* (Vic)
- *Heritage Act 1995* (Vic)
- *Water Act 1989* (Vic)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth)

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

If you have identified that the proposed action will be or has been subject to a state or territory environmental impact statement (in section 1.10) you must complete this section. Describe any environmental assessment of the relevant impacts of the project that has been, is being, or will be carried out under state or territory legislation. Specify the type and nature of the assessment, the relevant legislation and the current status of any assessments or approvals. Where possible, provide contact details for the state/territory assessment contact officer.

Describe or summarise any public consultation undertaken, or to be undertaken, during the assessment. Attach copies of relevant assessment documentation and outcomes of public consultations (if available).

Assessments undertaken to date include:

- Desktop flora and fauna assessment (Ecology Partners 2008);
- Cultural Heritage desktop study (Dr Vincent Clark & Associates 2008);
- Traffic analysis (CPG 2009).

No further studies have been programmed to date, pending confirmation of the assessment required at a state level. However it is envisaged that the following detailed assessments, as a minimum will be undertaken during 2010 and 2011 to assist in the design development.

- flora and fauna;
- cultural heritage (both Aboriginal and European);
- social;
- economic;
- agriculture;
- amenity (visual, noise).

A series of public consultation sessions have been conducted. The project was introduced to local communities on 7 December 2009, and preliminary options were presented for discussion with local residents on 30 June 2010. Feedback from the December 2009 public consultation is provided in Attachment 2.

2.6 Public consultation (including with Indigenous stakeholders)

Your referral must include a description of any public consultation that has been, or is being, undertaken. Where Indigenous stakeholders are likely to be affected by your proposed action, your referral should describe any consultations undertaken with Indigenous stakeholders. Identify the relevant stakeholders and the status of consultations at the time of the referral. Where appropriate include copies of documents recording the outcomes of any consultations.

Public consultation has occurred as referred to in Section 2.5, above.

VicRoads has consulted with the following Government departments in regard to the development of the proposed action:

- Department of Planning and Community Development
- Department of Sustainability and Environment
- Parks Victoria
- Ararat Rural City Council
- Pyrenees Shire Council

- Department of Environment, Water, Heritage and the Arts (Cwlth)
- Glenelg Hopkins Catchment Management Authority

In addition, VicRoads has consulted with the Wathaurong Aboriginal Corporation and Martang Pty Ltd as the Registered Aboriginal Parties (RAPs) within the study corridor. These discussions were conducted prior to and in the early stages of identifying and evaluating initial alignment options, and were intended to keep the RAPs informed of the progress and to incorporate any initial feedback in the development of alignment options.

2.7 A staged development or component of a larger project

If you have identified that the proposed action is a component of a larger action (in section 1.11) you must complete this section. Provide information about the larger action and details of any interdependency between the stages/components and the larger action. You may also provide justification as to why you believe it is reasonable for the referred action to be considered separately from the larger proposal (eg. the referred action is 'stand-alone' and viable in its own right, there are separate responsibilities for component actions or approvals have been split in a similar way at the state or local government levels).

The Western Highway Project is divided into three sections:

- Ballarat to Burrumbeet - Section 1a;
- Burrumbeet to Beaufort - Section 1b;
- Beaufort to Ararat - Section 2; and
- Ararat to Stawell - Section 3.

Section 1a is under construction following a Planning Scheme Amendment. The other sections are still in the design phase and are now entering the statutory approvals processes.

Referrals for sections 1b and 3 have been prepared concurrently with this referral.

The project has been divided into sections to reflect the differing environmental and social opportunities and constraints within each one. Furthermore, it will enable VicRoads to streamline the delivery of the project so that construction can commence section-by-section as the relevant approvals are obtained. Current time frames seek approvals to be obtained through 2012, with construction completed by 2017.

Initial discussions with Department of Planning and Community Development (DPCD) and Department of the Environment Water Heritage and the Arts (DEWHA) have indicated support for the division of the project into separate stages for these reasons.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- associated sectoral and species policy statements available on the web site, as relevant.

Note that even if your proposal will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

No World Heritage Properties will be affected by the proposed action.

Nature and extent of likely impact

Address any impacts on the World Heritage values of any World Heritage property.

Not applicable.

3.1 (b) National Heritage Places

Description

There are no National Heritage Places within the project area or which may potentially be affected by the proposed action.

One site – Cobb and Co Staging Stables in Buangor – is listed on the Register of the National Estate (Place ID 3986).

Nature and extent of likely impact

Address any impacts on the National Heritage values of any National Heritage place.

The Cobb and Co Staging Stables would only be affected if the duplicated highway is to be constructed through the town of Buangor. VicRoads initially developed an option that ran through the township of Buangor but following stakeholder consultation, that option was removed from consideration in favour of a small highway deviation around the town of Buangor. Therefore, VicRoads will not be impacting on the Cobb and Co Staging Stables as part of these works.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

The EPBC Act Protected Search Tool indicates that the proposed action may impact on the following wetlands of international importance:

- Gunbower Forest;
- Kerang Wetlands;
- Port Phillip Bay (western shoreline) and Bellarine Peninsula; and
- Western District Lakes.

The study area does not drain directly into any Ramsar wetlands and the development is unlikely to result in a significant impact to a Ramsar wetland. The Fiery Creek comes within approximately 50 kilometres of the Western District Lakes (specifically Lake Bookar) at the closest point, but does not outlet into the lakes, instead continuing to flow south-west before entering Lake Bolac. When Lake Bolac fills, the overflow enters Salt Creek and continues southwest before joining the Hopkins River and flowing into the ocean near Warrnambool.

Nature and extent of likely impact

Address any impacts on the ecological character of any Ramsar wetlands.

The ecological character of Ramsar wetlands will not be impacted by the project proposal.

3.1 (d) Listed threatened species and ecological communities

Description

Based on a linear project area between Old Shirley Road, Beaufort and Heath Street, Ararat with a 10 kilometre buffer distance for consistency with the Ecology Partners (2008) report, the EPBC online Projected Matters Search Tool indicates the following species and communities may be present, with their status under the Act and type of presence.

Those communities and species marked with ** are identified in the Ecology Partners (2008) report as having previously been recorded in the vicinity of the Beaufort to Ararat corridor.

Ecology Partners (2008) has recommended targeted surveys of remnant vegetation condition and protected species to determine the status within the project area of those species and communities listed below.

Ecological Communities

Community	Status	Type of Presence
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Community known to occur within area
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Community likely to occur within area
Grey Box (<i>Eucalyptus microcarpa</i>) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community may occur within area

Threatened Fauna Species

Species	Status	Type of Presence	
Birds			
Regent Honeyeater	<i>Anthochaera phrygia</i>	Endangered	Species or species habitat may occur within area
Swift Parrot	<i>Lathamus discolor</i>	Endangered	Species or species habitat likely to occur within area
Australian Painted Snipe	<i>Rostratula australis</i>	Vulnerable	Species or species habitat may occur within area

Species	Status	Type of Presence	
Frogs			
**Warty Bell-Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog	<i>Litoria raniformis</i>	Vulnerable	Species or species habitat known to occur within area
Insects			
**Golden Sun Moth	<i>Synemon plana</i>	Critically Endangered	Species or species habitat known to occur within area
Mammals			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	<i>Dasyurus maculatus maculatus (SE mainland population)</i>	Endangered	Species or species habitat may occur within area
Southern Brown Bandicoot	<i>Isodon obesulus obesulus</i>	Endangered	Species or species habitat likely to occur within area
Konoom, Smoky Mouse	<i>Pseudomys fumeus</i>	Endangered	Species or species habitat may occur within area
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable	Species or species habitat may occur within area
Ray-finned fishes			
Eastern Dwarf Galaxias, Dwarf Galaxias	<i>Galaxiella pusilla</i>	Vulnerable	Species or species habitat likely to occur within area
Murray Cod, Cod, Goodoo	<i>Maccullochella peelii peelii</i>	Vulnerable	Species or species habitat may occur within area
Australian Grayling	<i>Prototroctes maraena</i>	Vulnerable	Species or species habitat known to occur within area
Reptiles			
**Striped Legless Lizard	<i>Delma impar</i>	Vulnerable	Species or species habitat likely to occur within area

In addition to these species, figure 5c in the Ecology Partners (2008) report refers to one recorded sighting of the Eastern Barred Bandicoot (*Perameles gunnii unnamed subsp.*), which is listed as Endangered, from north west of Beaufort. This is the only sighting in the vicinity of the study corridor and dates from 1918.

Threatened Flora Species

Species	Status	Type of Presence	
**Plains Rice-flower, Spiny Rice-flower, Prickly Pimelea	<i>Pimelea spinescens subsp. spinescens</i>	Critically Endangered	Species or species habitat known to occur within area
Hoary Sunray	<i>Leucochrysum albicans var. tricolor</i>	Endangered	Species or species habitat likely to occur within area
**Button Wrinklewort	<i>Rutidosia leptorrhynchoides</i>		
River Swamp Wallaby-grass	<i>Amphibromus fluitans</i>	Vulnerable	Species or species habitat may occur within area
Curly Sedge	<i>Carex tasmanica</i>	Vulnerable	Species or species habitat likely to occur within area
Grampians Bitter-pea	<i>Daviesia laevis</i>		
Trailing Hop-bush	<i>Dodonaea procumbens</i>		
Clover Glycine, Purple Clover	<i>Glycine latrobeana</i>		
Drooping Grevillea, Ben Major Grevillea	<i>Grevillea floripendula</i>		
Langi Ghiran Grevillea	<i>Grevillea montis-cole subsp. brevistyla</i>		
Salt-lake Tussock-grass	<i>Poa sallacustris</i>		
**Large-fruit Fireweed, Large-fruit Groundsel	<i>Senecio macrocarpus</i>		
Swamp Fireweed, Smooth-fruited Groundsel	<i>Senecio psilocarpus</i>		
Spiral Sun-orchid	<i>Thelymitra matthewsii</i>		
Swamp Everlasting	<i>Xerochrysum palustre</i>		

Nature and extent of likely impact

Address any impacts on the members of any listed threatened species or any threatened ecological community, or their habitat.

Targeted surveys at the appropriate times of year have been recommended by Ecology Partners (2008) for the significant species and species previously recorded in the study area to identify their presence and determine any potential impacts on these species. These targeted surveys are scheduled to be undertaken during spring 2010.

Ecological communities

The location and extent of listed ecological communities within the 'area of interest' has not been confirmed.

Fauna species

Figure 5 within the Ecology Partners (2008) shows the locations of sightings of a single Eastern Barred Bandicoot (dated 1918) and a Golden Sun Moth (undated). Both sightings are outside the 'area of interest'. Other species listed by Ecology Partners (2008) as previously recorded in the study area are not mapped in the Beaufort to Ararat study area. A survey of the 'area of interest' will be undertaken to determine whether these species or potential habitat occur within the study area.

A Construction Environment Management Plan and appropriate Conservation Management Plans (if necessary) will be developed for implementing the proposed action.

Flora species

Figure 4 within the Ecology Partners (2008) identifies the location of previously recorded species of significance within the study area. Flora species are not specifically identified, however eight sightings of nationally significant species (two Critically Endangered, five Endangered, and one Vulnerable) have been recorded west of Hopkins River, mostly within the Ararat Airport or riparian strip, with one of these (Endangered) at the intersection of the existing Highway and Woodnaggerak Road. Adjacent to the Airport, the 'area of interest' is within the existing road reserve. The specimen sighted at Woodnaggerak Road dates from 1990 and should be subject to a targeted survey.

Targeted field surveys will be undertaken within the 'area of interest' to identify whether nationally significant species are present. Until this is undertaken, the extent of potential impact cannot currently be identified.

As mentioned above, a construction Environment Management Plan will be developed for implementing the proposed action.

3.1 (e) Listed migratory species

Description

Based on a linear project area between Old Shirley Road, Beaufort, and Heath Street, Ararat, with a 10 kilometre buffer distance for consistency with the Ecology Partners (2008) report, the EPBC online Projected Matters Search Tool indicates the following species and communities may be present, with their status and type of presence.

The desktop assessment undertaken by Ecology Partners (2008) identified a list of species which have been previously recorded in the study area, which did not include any of the migratory terrestrial, wetland or marine species listed below.

Migratory Terrestrial Species

Species		Status	Type of Presence
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	Migratory	Species or species habitat likely to occur within area
White-throated Needletail	<i>Hirundapus caudacutus</i>	Migratory	Species or species habitat may occur within area
Rainbow Bee-eater	<i>Merops ornatus</i>		
Regent Honeyeater	<i>Xanthomyza phrygia</i>		
Satin Flycatcher	<i>Myiagra cyanoleuca</i>	Migratory	Breeding likely to occur within area

Migratory Wetland Species

Species		Status	Type of Presence
Great Egret, White Egret	<i>Ardea alba</i>	Migratory	Species or species habitat may occur within area
Cattle Egret	<i>Ardea ibis</i>		
Latham's Snipe, Japanese Snipe	<i>Gallinago hardwickii</i>		
Painted Snipe	<i>Rostratula benghalensis s. lat.</i>		

Migratory Marine Birds

Species		Status	Type of Presence
Fork-tailed Swift	<i>Apus pacificus</i>	Migratory	Species or species habitat may occur within area
Great Egret, White Egret	<i>Ardea alba</i>		
Cattle Egret	<i>Ardea ibis</i>		

Nature and extent of likely impact

Address any impacts on the members of any listed migratory species, or their habitat.

The migratory species listed above are all highly mobile species and are unlikely to be dependent on habitat within the 'area of interest'. As none of these species have previously been recorded in the area, it is unlikely that any of these species, or their dependant habitat, will be affected by the proposal.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

The project area is not within a Commonwealth marine area.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth marine area.

Not applicable.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

If the action will affect Commonwealth land also describe the more general environment. The Policy Statement titled *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* provides further details on the type of information needed. If applicable, identify any potential impacts from actions taken outside the Australian jurisdiction on the environment in a Commonwealth Heritage Place overseas.

The proposed action is located approximately 2km south of HM Ararat Prison on Warrak Road, Ararat.

Nature and extent of likely impact

Address any impacts on any part of the environment in the Commonwealth land. Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

HM Prison Ararat will not be impacted by the proposed action. Access to Warrak Road will remain via the Pyrenees Highway and via Warrayadin Road off the Western Highway.

3.1 (h) The Great Barrier Reef Marine Park

Description

The project area does not interact with the Great Barrier Reef Marine Park.

Nature and extent of likely impact

Address any impacts on any part of the environment of the Great Barrier Reef Marine Park

Note: If your action occurs in the Great Barrier Reef Marine Park you may also require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If so, section 37AB of the GBRMP Act provides that your referral under the EPBC Act is deemed to be an application under the GBRMP Act and Regulations for necessary permissions and a single integrated process will generally apply. Further information is available at www.gbrmpa.gov.au

Not applicable.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	Is the proposed action a nuclear action?	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment
Not applicable

3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment
Not applicable

3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	<input checked="" type="checkbox"/>	No
		<input type="checkbox"/>	Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))
Not applicable

3.2 (d)	Is the proposed action to be taken on Commonwealth land?	<input checked="" type="checkbox"/>	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	<input checked="" type="checkbox"/>	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))
Not applicable

3.3 Other important features of the environment

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed above). If at Section 2.3 you identified any alternative locations, time frames or activities for your proposed action, you must complete each of the details below (where relevant) for each alternative identified.

3.3 (a) Flora and fauna

A list of the nationally significant communities of flora and fauna species which may potentially be present, as well as those previously recorded in the study area are identified in Sections 3.1(d) and (e), above.

State significant species previously recorded in the study area are as follows:

Flora species (date of sighting)	Fauna species (date of sighting)
State	Musk Duck ⁴ (2001)
Small Milkwort ¹ (2003)	Australasian Shoveler ⁴ (2001)
Emerald Lip-greenhood ² (1993)	Elegant Parrot ⁴ (1999)
Golden Cowslips ³ (2003)	Square-tailed Kite ⁴ (1984)
	Brush-tailed Phascogale ⁴ (2001)
	Eastern Great Egret ⁵ (2001)
Notes	
1) Listed, not classified under FFG Act	
2) Listed as Rare on the Advisory List of Threatened Flora (2007)	
3) Listed as Vulnerable on the Advisory List of Threatened Flora (2007)	
4) Listed as Vulnerable on the Advisory List of Threatened Fauna (2007)	
5) Identified by Ecology Partners (2008) as being of state significance, however species not listed under FFG Act or on DSE Advisory List	

A number of forested areas are present within the vicinity of the study area, in particular the Langi-Ghiran State Park. This area is intentionally outside the 'area of interest' and is likely to provide the most beneficial habitat values for significant species in the wider area. The remainder of the corridor has largely been cleared for agricultural purposes. However, remnant roadside vegetation and areas of significant vegetation exist. The Victorian Department of Sustainability and Environment has produced mapping of Ecological Vegetation Classes (EVCs) which indicates areas of significant native vegetation throughout the 'area of interest'. This mapping data has not been ground-truthed in relation to the proposed action and therefore the actual extent, designation and significance of EVCs has not yet been determined.

3.3 (b) Hydrology, including water flows

The 'area of interest' crosses five named watercourses as identified above in Section 2.1. The four creeks converge and drain into Lake Bolac whereas the Hopkins Rivers flows into the ocean at Warrnambool.

3.3 (c) Outstanding natural features

The Langi-Ghiran State Park is adjacent to the 'area of interest', to the north of the existing Western Highway and west of the township of Buangor. The State Park has intentionally been excluded from the project area due to its significance within the local area and designation under the *National Parks Act 1975*.

Although the surrounding land is largely cleared for agricultural purposes with introduced vegetation, there is remnant roadside vegetation along a significant portion of the existing highway road reserve. Scattered red gums are present across farmland on the southern side of the highway, particularly west of Buangor. DSE mapping of Ecological Vegetation Classes (EVCs) indicates areas of significant native vegetation throughout the 'area of interest', however this has not been ground-truthed and therefore the actual extent, designation and significance of EVCs has not yet been determined.

VicRoads is about to commence concept design work on the route alignment options that have been developed. The concept design will focus on determining what area of land will be required as well as applying the avoiding, minimising and offsetting principals to the native vegetation. For example, our design would ensure that remnant roadside vegetation would remain untouched in the centre median where possible.

There is a nationally significant biosite (No. 3915) located adjacent to the existing Hopkins River. It is on the northern side of the highway, and due to this, VicRoads is only considering options which duplicate to the south of the existing carriageway. The 'area of interest' encompasses potential to avoid this location altogether and cross the river up to 1.2 kilometres south of this location.

3.3 (d) Remnant native vegetation

Remnant native vegetation forms the basis of the outstanding natural features as discussed above in Section 3.3(c).

3.3 (e) Current state of the environment

Include information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

Ecology Partners (2008) identify that the remnant vegetation varies in overall conservation significance, and that large areas are devoid of remnant vegetation due to the agricultural use of the land. DSE mapping of EVCs indicates the presence of significant vegetation classes ranging in State significance from Least Concern to Critically Endangered. Therefore, overall the current state of the environment ranges from devoid of ecological value to high significance.

In addition, ten weeds of national significance and at least 50 noxious weeds from the Glenelg Hopkins Catchment area have been recorded in the local area (relative to the scope of the study between Burrumbeet and Stawell).

3.3 (f) Commonwealth Heritage Places or other places recognised as having heritage values

The only heritage listed site within the 'area of interest' is the Cobb and Co Staging Stables in Buangor, which is listed as follows:

- Victorian Heritage Register: Site H0259
- Register of the National Estate: Place ID 3986

This site will not be impacted by the proposed works as all the current route alignment options bypass Buangor, therefore bypass the Cobb and Co Staging Stables.

3.3 (g) Indigenous heritage values

VicRoads has consulted with Aboriginal Affairs Victoria and the relevant Registered Aboriginal Parties (Wathaurong Aboriginal Corporation and Martang Pty Ltd). As yet, no known sites have been identified within the study area, however there is potential for sites, particularly within defined areas of potential Aboriginal heritage significance. A dataset has been provided by AAV identifying such

areas as within 200 metres of waterbodies. Detailed field investigations have not yet been undertaken.

3.3 (h) Other important or unique values of the environment

Describe any other key features of the environment affected by, or in proximity to the proposed action (for example, any national parks, conservation reserves, wetlands of national significance etc).

All important features of the landscape are discussed above.

3.3 (i) Tenure of the action area (eg freehold, leasehold)

The existing road reservation is public land. The majority of land within the 'area of interest' is private freehold, with some Crown land beside the Hopkins River. The rail reserve is owned and managed by VicTrack.

3.3 (j) Existing land/marine uses of area

Land within the 'area of interest' is either public land, residential (including rural residential) or agricultural. There is a small area of commercial land within Buangor, and industrial beside the existing highway near Ararat. The rail corridor provides for the active rail link between Melbourne and Adelaide.

3.3 (k) Any proposed land/marine uses of area

The land to be acquired for the proposed action will be converted to public land for designation as a road reserve.

4 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities for the proposed action at Section 2.3 you will need to complete this section in relation to each of the alternatives identified.

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

For any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:

- what the measure is,
- how the measure is expected to be effective, and
- the time frame or workplan for the measure.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

Provide information about the level of commitment by the person proposing to take the action to implement the proposed mitigation measures. For example, if the measures are preliminary suggestions only that have not been fully researched, or are dependent on a third party's agreement (e.g. council or landowner), you should state that, that is the case.

Note, the Australian Government Environment Minister may decide that a proposed action is not likely to have significant impacts on a protected matter, as long as the action is taken in a particular manner (section 77A of the EPBC Act). The particular manner of taking the action may avoid or reduce certain impacts, in such a way that those impacts will not be 'significant'. More detail is provided in the *Guideline on Particular Manner Decisions under the EPBC Act* available at the Department's web site.

For the Minister to make such a decision (under section 77A), the proposed measures to avoid or reduce impacts must:

- clearly form part of the referred action (eg be identified in the referral and fall within the responsibility of the person proposing to take the action),
- be must be clear, unambiguous, and provide certainty in relation to reducing or avoiding impacts on the matters protected, and
- must be realistic and practical in terms of reporting, auditing and enforcement.

More general commitments (eg preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making the initial decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act. (But those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, if your proposal proceeds to these stages). Refer to the *Guideline on Particular Manner Decisions under the EPBC Act* available at the Department's web site.

VicRoads is undertaking a process to identify a preferred option with the involvement of a Technical Reference Group. This process is based on initial preliminary option identification which takes into consideration significant environmental, social and cultural assets and sensitivities, and further ongoing detailed assessments within the 'area of interest'.

As is standard practice for the development of VicRoads projects, VicRoads will seek at the design stage to avoid significant assets and sensitivities where possible, subject to other constraints (such as technical feasibility, other environmental assets and costs associated with alternatives).

Despite this, residual impacts are inevitable and in order to manage these, VicRoads will:

- adopt engineering design solutions to avoid impacts, for example spanning watercourses to avoid placing bridge piles within the stream bed;
- develop and implement a construction Environment Management Plan, Conservation Management Plans (including measures and procedures for translocation of protected species if necessary) and a Project Environment Protection Strategy to reduce the risk of impacting on environmental and social sensitivities; and
- adopt the recommended strategies identified by specialists to mitigate potential impacts.

5 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (ie. whether you think that significant impacts on the matters protected under Part 3 of the EPBC Act are likely) and the reasons why.

5.1 Do you THINK your proposed action is a controlled action?

- | | |
|-------------------------------------|---------------------------|
| <input type="checkbox"/> | No, complete section 5.2 |
| <input checked="" type="checkbox"/> | Yes, complete section 5.3 |

5.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is NOT LIKELY to have significant impacts on a matter protected under the EPBC Act.

Not applicable.

5.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) protected under the EPBC Act that you think are likely to be significantly impacted. (The 'sections' identified below are the relevant sections of the EPBC Act.)

Matters likely to be impacted

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | World Heritage values (sections 12 and 15A) |
| <input type="checkbox"/> | National Heritage places (sections 15B and 15C) |
| <input type="checkbox"/> | Wetlands of international importance (sections 16 and 17B) |
| <input checked="" type="checkbox"/> | Listed threatened species and communities (sections 18 and 18A) |
| <input type="checkbox"/> | Listed migratory species (sections 20 and 20A) |
| <input type="checkbox"/> | Protection of the environment from nuclear actions (sections 21 and 22A) |
| <input type="checkbox"/> | Commonwealth marine environment (sections 23 and 24A) |
| <input type="checkbox"/> | Great Barrier Reef Marine Park (sections 24B and 24C) |
| <input type="checkbox"/> | Protection of the environment from actions involving Commonwealth land (sections 26 and 27A) |
| <input type="checkbox"/> | Protection of the environment from Commonwealth actions (section 28) |
| <input type="checkbox"/> | Commonwealth Heritage places overseas (sections 27B and 27C) |

Specify the key reasons why you think the proposed action is likely to have a significant adverse impact on the matters identified above.

Listed threatened species and communities (sections 18 and 18A)

Nationally significant species and communities are known to occur in the project area. Information presented in the Protected Matters Search Tool (PMST) indicates that there is potential for species in addition to those previously sighted to occur. The project may result in the fragmentation of some habitat and wildlife corridors, however it is not yet known whether these corridors are important for nationally significant species. It is unlikely these corridors will be critical habitat. VicRoads will design the upgraded road such that it includes wildlife crossings and revegetation where wildlife corridors can not be retained.

Four EPBC listed fauna species and three flora species have been previously recorded in the Beaufort-Ararat area despite the PMST indicating more species may potentially occur:

- Fauna
 - Warty Bell-Frog (*Litoria raniformis*): listed as Vulnerable;

- Golden Sun Moth (*Synemon plana*): listed as Critically Endangered;
 - Striped Legless Lizard (*Delma impar*): listed as Vulnerable;
 - Eastern Barred Bandicoot (*Perameles gunnii unnamed subsp.*): listed as Endangered.
- Flora
 - Plains Rice-flower (*Pimelea spinescens subsp. spinescens*): listed as Critically Endangered;
 - Button Wrinklewort (*Rutidosia leptorrhynchoides*): listed as Endangered;
 - Large-fruit Fireweed (*Senecio macrocarpus*): listed as Vulnerable.

With regard to fauna, the Ecology Partners (2008) report identifies the location of the recorded sightings of nationally significant species. As shown in Figures 5b and 5c of that report, the sightings are distant from the existing Highway. As the fauna species are mobile and may utilise wildlife corridors particularly along streams there is potential for the project to impact on these species or their habitat.

For flora species, there are a number of recorded sightings, mostly west of the Hopkins River where the proposed duplication is constrained to the existing road reserve. Due to the constraints present west of the Hopkins River, the Project will finish 3.4km east of the 80km/h post at Ararat (2.3km west of the Hopkins River). Section 1.2 of this referral notes the western boundary of the project as ending at Heath St, Ararat. This has been done to make it consistent with the referral submitted under the Victorian Environmental Effects Act. Targeted surveys are yet to be undertaken to confirm whether these species persist and confirm more precisely whether individuals are present within the 'area of interest' and may therefore be impacted by the proposed action.

One of the three ecological communities identified by the PMST is known to occur within the study area, defined for the PMST search as having a 10 kilometre buffer. This is the Grassy Eucalypt Woodland of the Victorian Volcanic Plain, which is classified under the EPBC Act as Critically Endangered. Targeted surveys have yet to be undertaken, however there are areas of eucalypt that may need to be cleared which might form part of this community. VicRoads route selection and design process intends to avoid significant environmental assets such as these.

6 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

	Yes	No
<p>6.1 Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details</p> <p>In managing projects, VicRoads exercises high standards of environmental diligence in the contract preparation and administration. Construction contractors are held to the same high standards and are required to have in place an Environmental Management Plan.</p> <p>In line with the VicRoads Environmental Management Guidelines 2006, a Project Environmental Protection Strategy is completed for all projects, which identifies the key environmental risks. This forms a framework for future documentation and will be reflected upon within the contract specifications and Environmental Management Plan.</p>	✓	
<p>6.2 Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</p> <p>If yes, provide details</p>		✓
<p>6.3 If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</p> <p>If yes, provide details of environmental policy and planning framework</p> <p>The VicRoads Environment Strategy 2005-2015 guides all VicRoads activities and is available online via the VicRoads Environment Strategy website¹.</p> <p>VicRoads has also developed and regularly implemented Environmental Management Guidelines and an Environmental Sustainability Policy, also available at the above website.</p> <p>Through these documents, VicRoads aims to:</p> <ul style="list-style-type: none"> • improve the liveability of communities; • protect and enhance the natural and cultural environment; and • be an environmentally responsible organisation. 	✓	

¹ <http://www.vicroads.vic.gov.au/Home/Moreinfoandservices/Environment/EnvironmentStrategy.htm>

<p>6.4 Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?</p> <p>Yes, numerous road projects</p> <p>Provide name of proposal and EPBC reference number (if known)</p> <p>VicRoads has undertaken many actions which have been referred under the EPBC Act. A selection of recently lodged referrals include:</p> <ul style="list-style-type: none"> • 2010/5314: Western Highway Project, Section 1A • 2010/5705: Western Highway Project, Section 1B • 2010/5509: M80 upgrade, part 2 • 2010/5369: Calder Freeway-Kings Road interchange • 2010/5332: East Princes Highway Duplication (Fulham to Sale) • 2009/4867: Palmers Road Corridor Duplication • 2009/4856: Anthony's Cutting, Western Highway • 2009/4769: Yarra Glen Truck Bypass, Melba Highway 	✓	
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7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
 - Highlight documents that are available to the public, including web references if relevant.
- Commonwealth of Australia (2007). *Melbourne-Adelaide Corridor Strategy – Building our National Transport Future*. Published by Department of Transport and Regional Services, June 2007.
 - Ecology Partners (2008). *Desktop Flora and Fauna Assessment of the Western highway, Burrumbeet to Stawell, Victoria*. Final Report, prepared for VicRoads, September 2008.

7.2 Reliability and date of information

For information in section 3 specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.

The ecological information presented in Section 3 of this referral is based on the Ecology Partners report identified above in Section 7.1, and a search of the online EPBC Protected Matters Search Tool at the time of preparing the referral.

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than two megabytes (2mb) so they can be published on the Department's website. Attachments larger than two megabytes (2mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Refer Attachment 1
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Refer Attachment 1
If relevant, attach	copies of any Victorian or local government approvals and consent conditions (section 2.3)		
	copies of any completed assessments to meet Victorian or local government approvals and outcomes of public consultations, if available (section 2.4)	✓	Ecology Partners (2008). Refer reference list above.
	copies of any flora and fauna investigations and surveys (section 3)	✓	Ecology Partners (2008). Refer reference list above.
	technical reports relevant to the assessment of impacts on protected matters and that support the arguments and conclusions in the referral (section 3)		

and 4)		
report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action².

Project title: Western Highway Project Section 2 - Beaufort to Ararat

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act³, this is the person requiring the grant of a GBRMP permission.

The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action⁴.

Name	Ewen Nevett
Title	Project Director – Western Highway Project
Organisation	VicRoads
ACN / ABN (if applicable)	61 760 960 480
Postal address	PO Box 148, Wendouree, VIC 3355
Telephone	(03) 5309 1050
Email	ewen.nevett@roads.vic.gov.au
Declaration	I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be the proponent for this action.

Signature



Date 15/11/2010

² If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.

³ If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A, EPBC Act). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.

⁴ If a person other than the person proposing to take action is to be nominated as the proponent, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.

8.2 Person preparing the referral information (if different from 8.1)

Individual or organisation who has prepared the information contained in this referral form.

Name Grant Deeble

Title Team Leader Planning

ACN / ABN (if applicable) 61 760 960 480

Postal address PO Box 148, Wendouree VIC 3355

Telephone (03) 5309 1071

Email grant.deeble@roads.vic.gov.au

Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading.

Signature



Date 15/11/2010

REFERRAL CHECKLIST

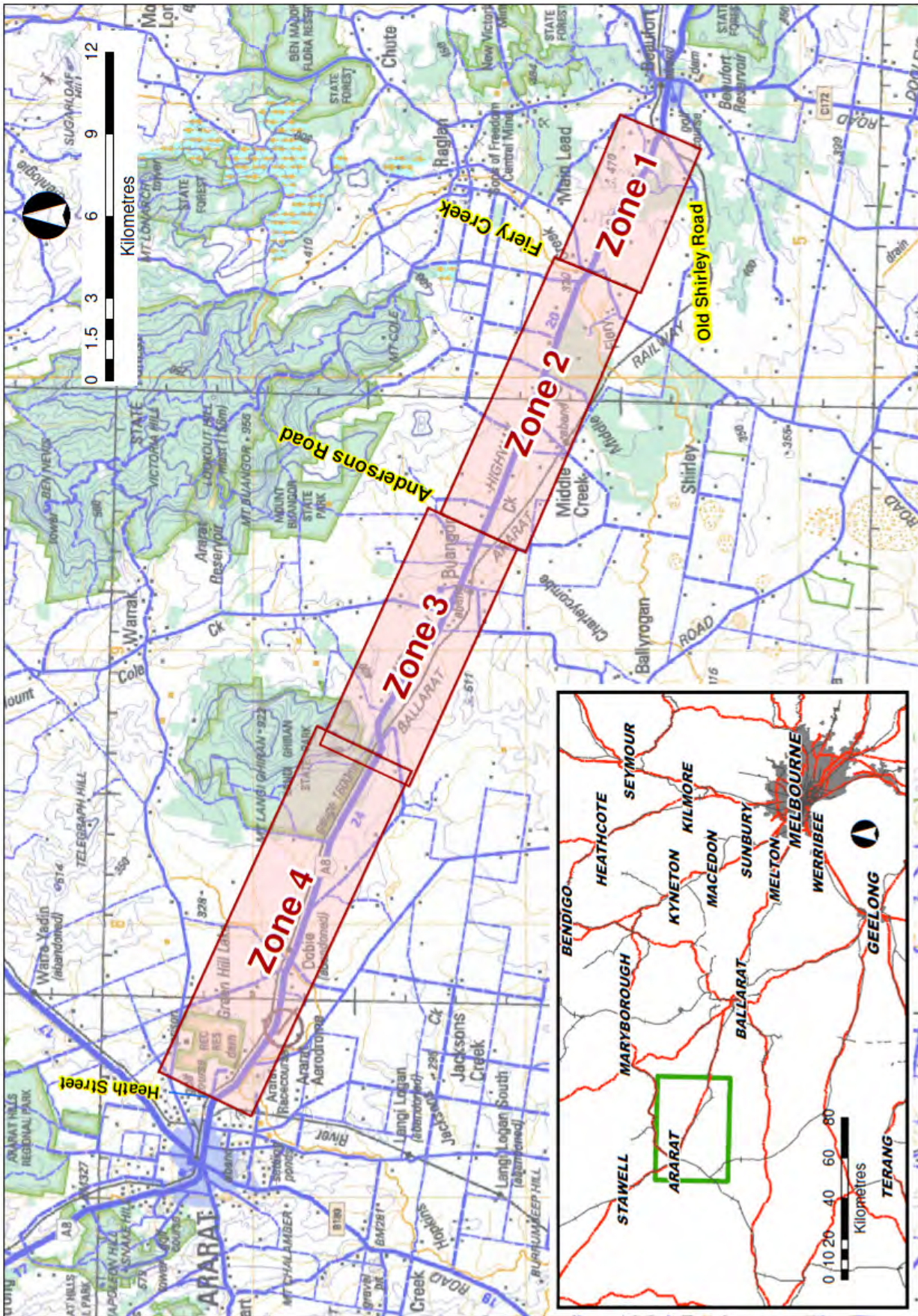
NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

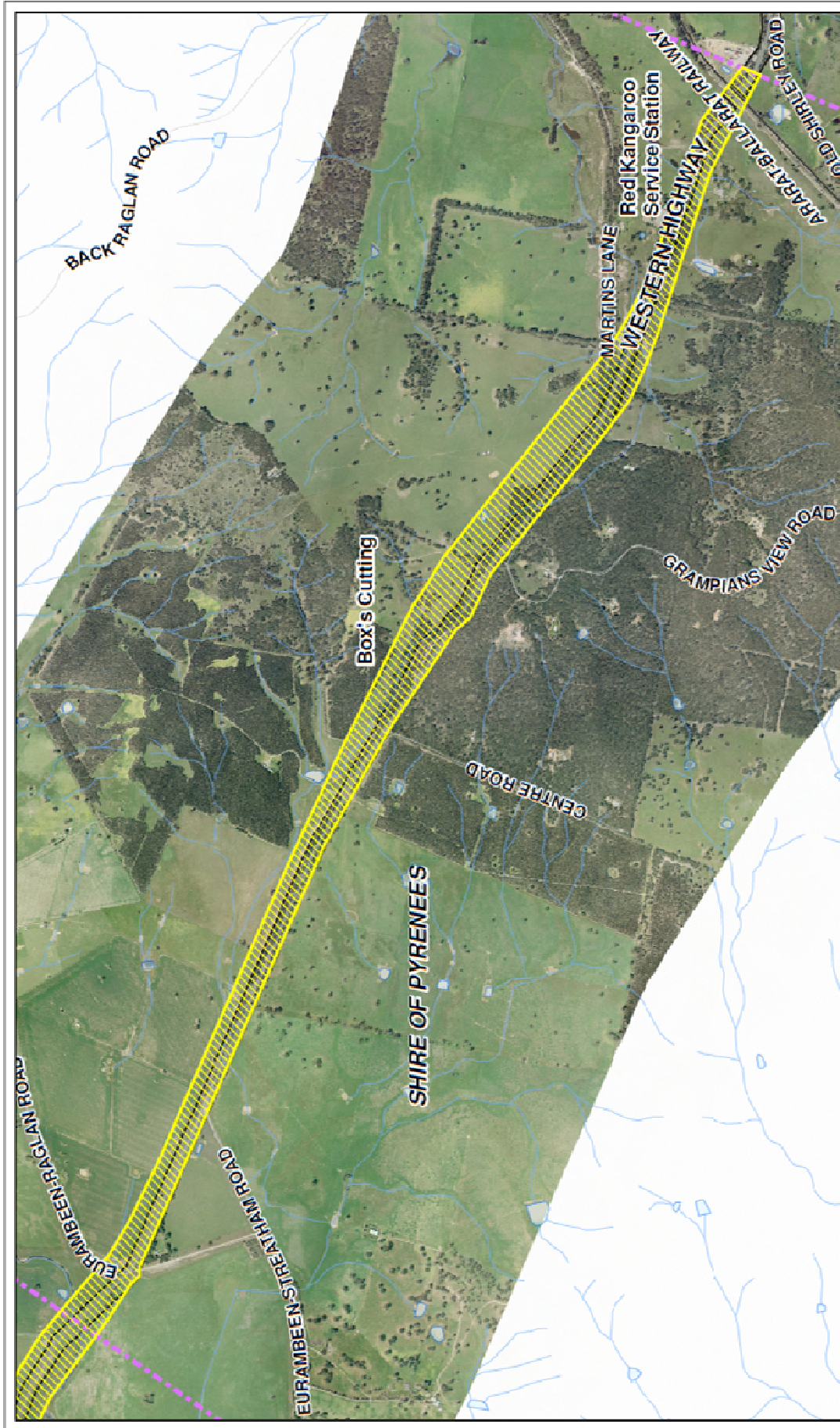
HAVE YOU:

- Completed all required sections of the referral form?
- Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- Provided a map showing the location and approximate boundaries of the project area?
- Provided a map/plan showing the location of the action in relation to any matters of NES?
- Provided complete contact details and signed the form?
- Provided copies of any documents referenced in the referral form?
- Ensured that all attachments are less than two megabytes (2mb)?
- Sent the referral to the Department (electronic and hard copy preferred)?

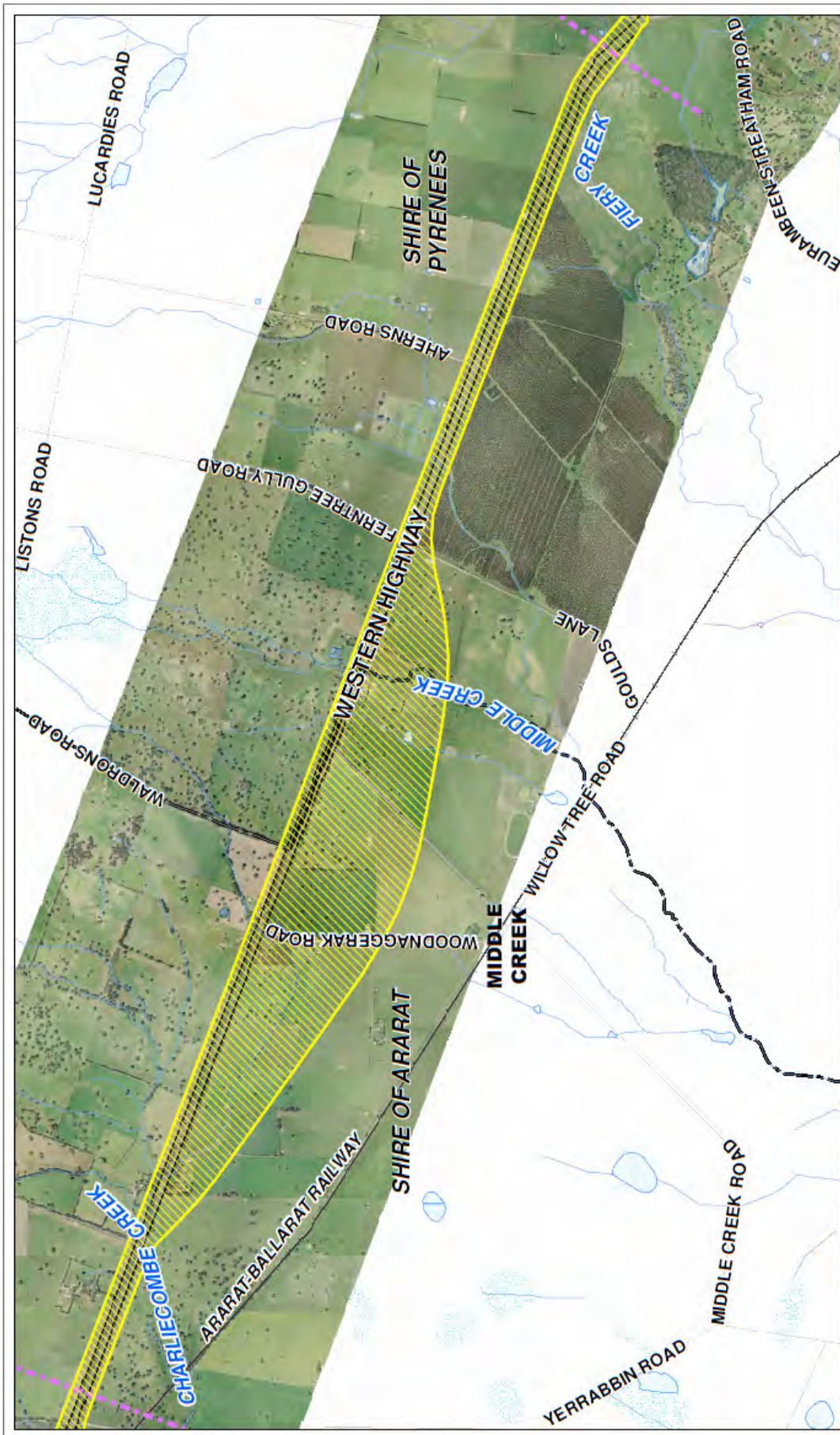
ATTACHMENT 1 : FIGURES

Figure 1 Project area overview

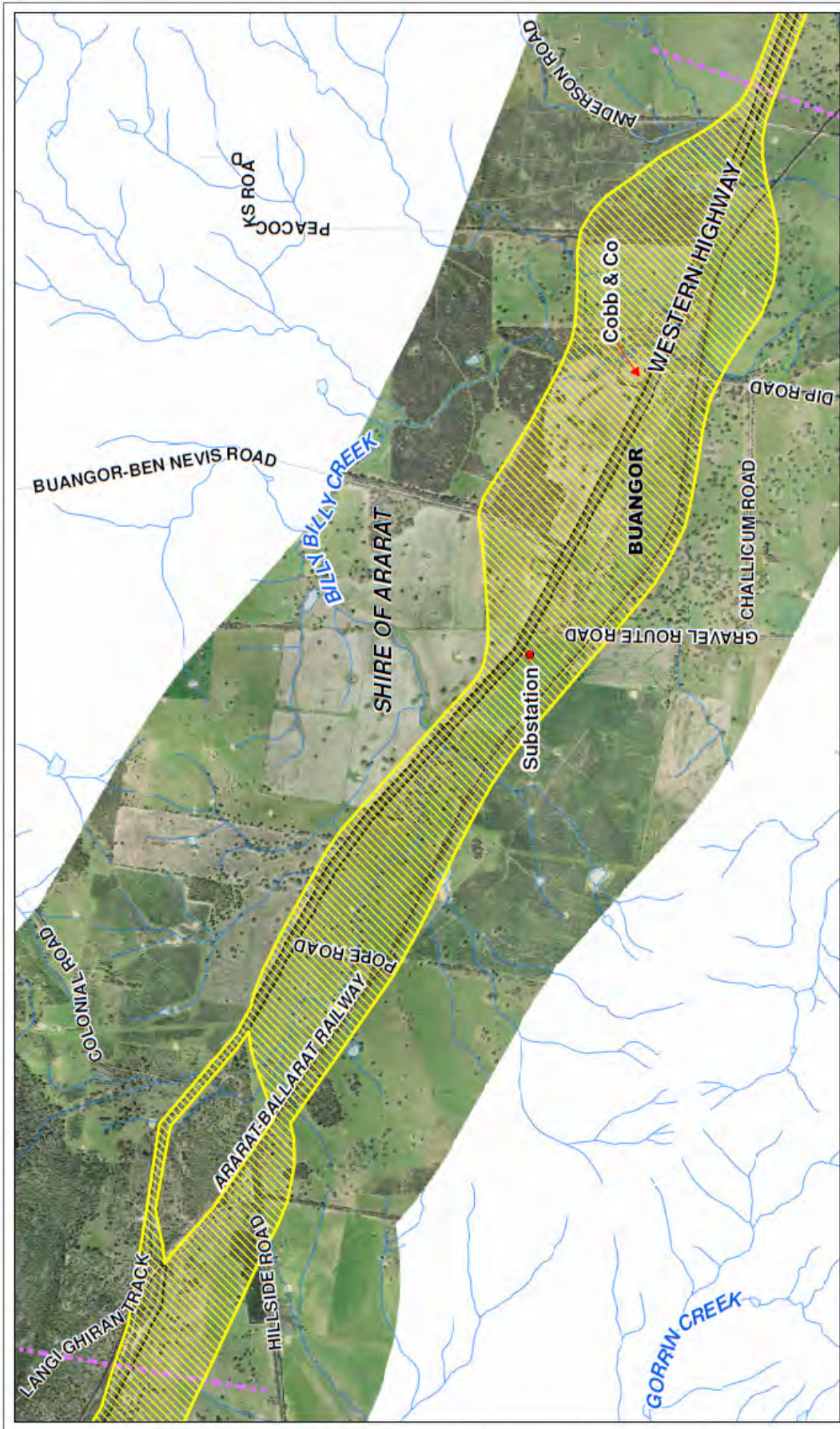




<p>PROJECT INFO</p> <p>PROJECT: BEAUFORT TO ARARAT WESTERN HWY DUPLICATION CREATED BY: IJK LAST MODIFIED: 11/10/2010</p>	<p>LEGEND</p> <p>Zone Brooks ALIGNMENT EXTENT Referral Area</p>	<p>HYDROGRAPHY</p> <p>Lake / Dam Wetland Subject to Inundation Watercourse</p>	<p>BEAUFORT TO ARARAT WESTERN HWY DUPLICATION</p> <p>DRAFT</p> <p>Zone 1 Figure Z1_1</p> <p>Client: VicRoads</p>
<p>AECOM www.aecom.com</p> <p>DATE PLOTTED: 11/10/2010 11:56:00 METERS 1:115,000 (Refer to plan sheet 4143)</p>	<p>DATE PLOTTED: 11/10/2010 11:56:00 METERS 1:115,000 (Refer to plan sheet 4143)</p>	<p>DATE PLOTTED: 11/10/2010 11:56:00 METERS 1:115,000 (Refer to plan sheet 4143)</p>	<p>DATE PLOTTED: 11/10/2010 11:56:00 METERS 1:115,000 (Refer to plan sheet 4143)</p>



<p>PROJECT ID 401-8435 CREATED BY LH LAST MODIFIED 14 JUN 2010 www.aecom.com</p>		<p>LEGEND</p> <ul style="list-style-type: none"> Zone Breaks ALIGNMENT EXTENT Referential Area 	
<p>HYDROGRAPHY</p> <ul style="list-style-type: none"> Lake / Dam Wetland Subject to Inundation Watercourse 		<p>CLIENT VicRoads</p>	
<p>PROJECT TITLE BEAUFORT TO ARARAT WESTERN HWY DUPLICATION</p>		<p>ZONE Zone 2</p>	
<p>FIGURE Figure 1</p>		<p>DATE 14 JUN 2010</p>	



PROJECT ID: 8016430
CREATED BY: LH
LAST MODIFIED: 14 AUG 2010
Map Document: 8016430_101102_23_1.mxd 5/20/10 - 14:03 PM

LEGEND

- Zone Breaks
- ALIGNMENT EXTENT
- Reference Area

HYDROGRAPHY

- Lake / Dam
- Wetland
- Subject to Inundation
- Watercourse

SCALE

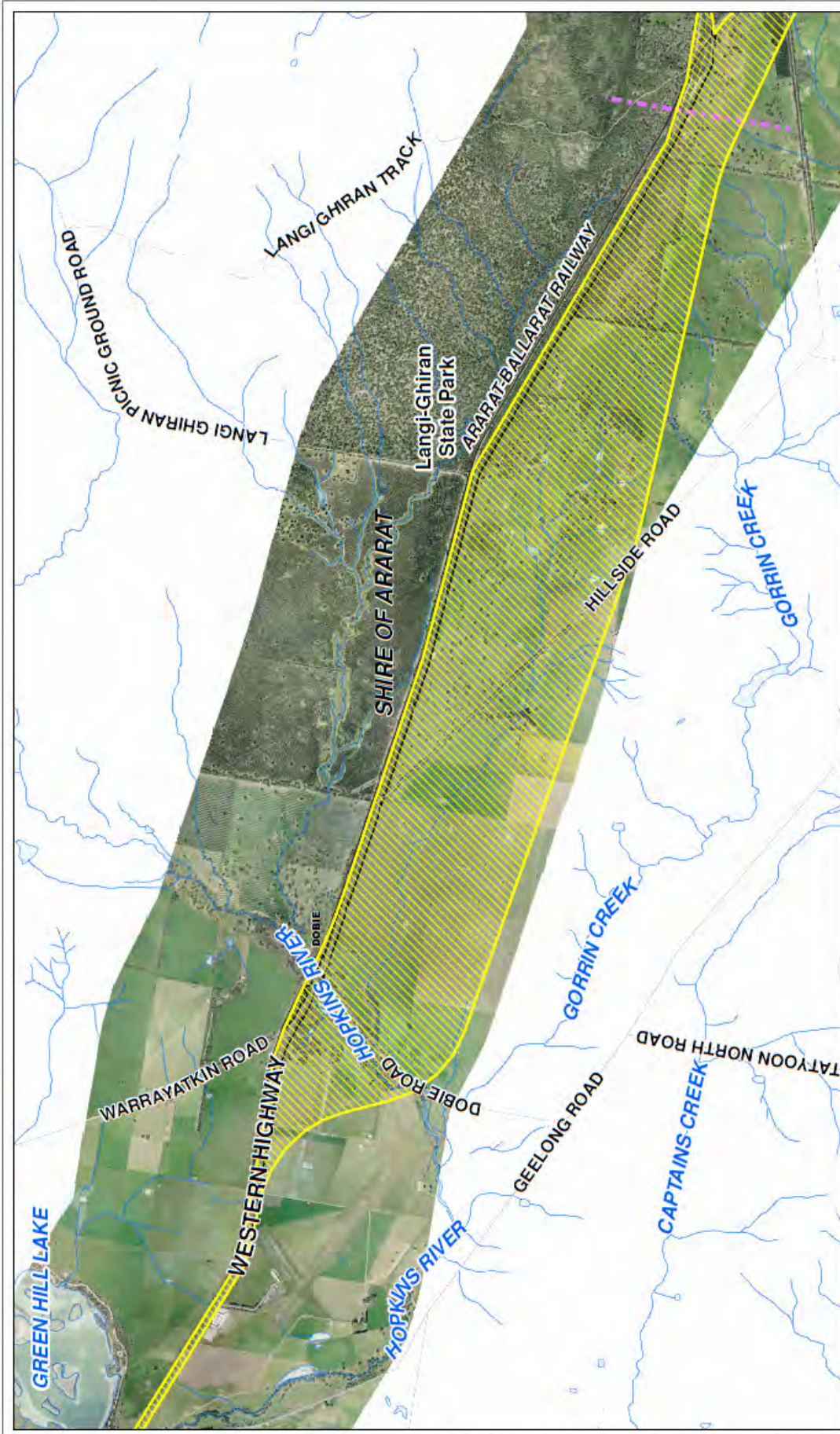
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BEAUFORT TO ARARAT WESTERN HWY DUPLICATION
DRAFT

Beaufort to Ararat Western Hwy Duplication
 Client: VicRoads
 vic roads

Zone 3
 Figure 1

8/2/2010



<p>PROJECT ID: 814620 CREATED BY: LK LAST MODIFIED: 11/26 JUN 2010 www.ascom.com</p>	<p>LEGEND</p> <ul style="list-style-type: none"> Zone Breaks ALIGNMENT EXTENT Referal Area 	<p>HYDROGRAPHY</p> <ul style="list-style-type: none"> Lake / Dam Welland Subject to Inundation Watercourse 	<p>BEAUFORT TO ARARAT WESTERN HWY DUPLICATION</p> <p>DRAFT</p> <p>Beaufort to Ararat Western Hwy Duplication</p> <p>Client: VicRoads</p> <p>Zone 4 Figure 1</p>
<p>AECOM</p> <p>Scale: 1:20,000 Datum: GDA 1984, Projection: MGA Zone 54 0 200 400 600 800 1000 1200 Meters</p> <p>Map Date: 10/2/10 Layer: Victoria</p>		<p>Map Document: 814620 M10_24_1.mxd 20/06/2010 8:53 AM</p>	



<p>PROJECT ID 8218458 CREATED BY LH LAST MODIFIED 14 JUN 2010 www.aecom.com</p>		<p>LEGEND Zone Breaks ALIGNMENT EXTENT Referral Area</p>		<p>HYDROGRAPHY Lake / Dam Wetland Subject to Inundation Watercourse</p>		<p>BEAUFORT TO ARARAT WESTERN HWY DUPLICATION DRAFT</p>		<p>Zone 4 Figure 2</p>	
<p>AECOM 1115,000 Metres (where permitted at A3)</p>		<p>Client: VicRoads </p>		<p>Beaufort to Ararat Western Hwy Duplication</p>		<p>Client: VicRoads </p>		<p>Map Document: 8218458_M1130_26_2.mxd 20/02/10 - 4:04 AM</p>	

ATTACHMENT 2: CONSULTATION FEEDBACK

Western Highway Project Beaufort to Armstrong Community Group Discussion Sessions

Time

Monday 7 December 2009 at Ararat and Tuesday 8 December 2009 at Buangor Coach House.

Brief

Attendees were divided into groups according to their geographic area of interest. The breakdown of locations included:

- Beaufort to Buangor;
- Buangor only;
- Buangor to Ararat;
- Ararat to Armstrong.

Each group was given a set of plans displaying aerial images of the existing Western Highway area covering Beaufort to Armstrong. Alignment options were not displayed on these documents.

A set of plans was shared amongst groups. Plans were reviewed by members of each group. A facilitator oversaw proceedings. Opportunities, issues and constraints relating to the duplication between Beaufort and Ararat were identified by various community members at each of the community group discussion sessions. All attendees were given a chance to raise their concerns in relation to the alignment options presented.

Buangor only section (bypass and through township options)

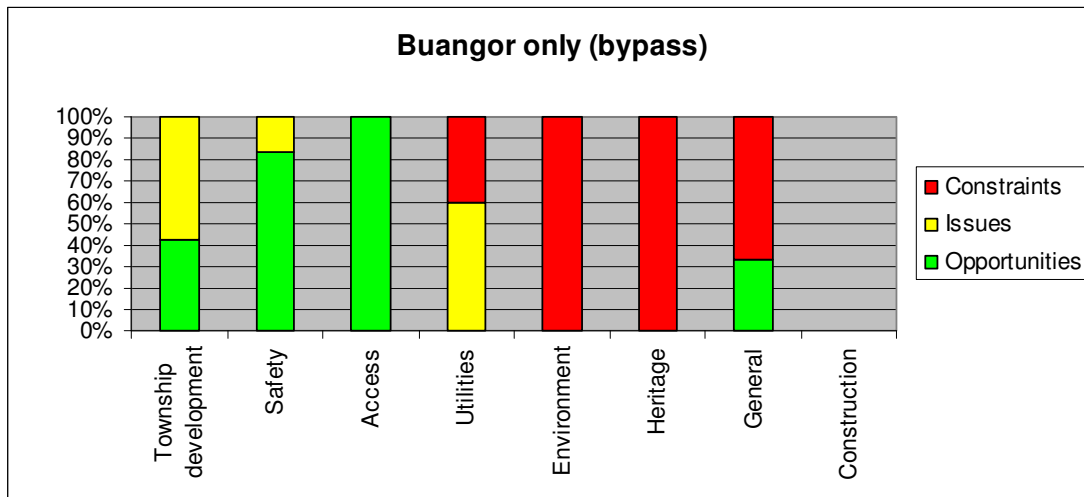


Figure 1. Community comments about project for Buangor only section – bypass

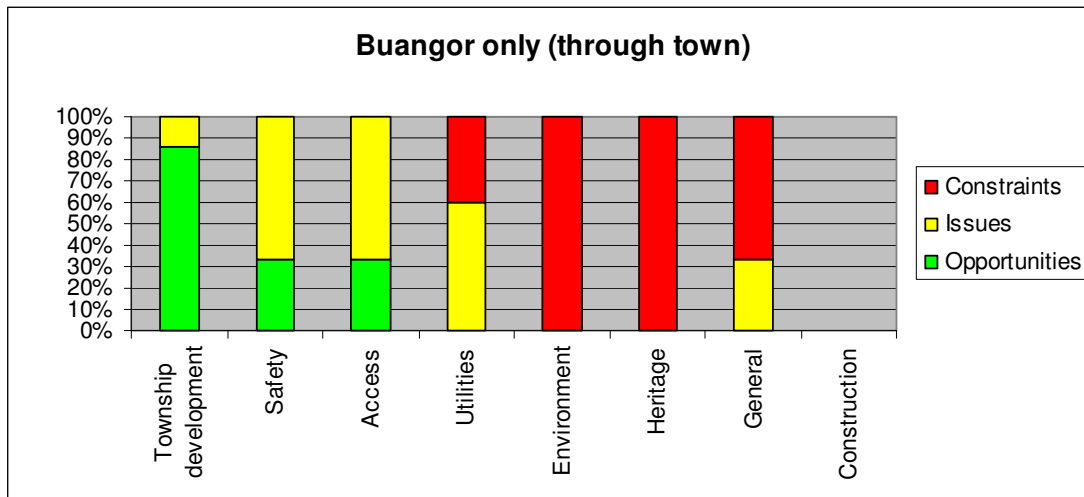


Figure 2. Community comments for Buangor only section – through town

Township development

Various alignment options were presented to the attendees. Discussions included consideration given to the future growth of the Buangor encompassing the possibility of a bypass.

Safety

Safety issues were raised at the group discussion sessions. The alignment option running through the Buangor township was flagged as a significant risk from a safety perspective.

Access

The topic of accessibility was raised in relation to the alignment options. It was noted that easy accessibility for school bus runs and CFA emergency call-outs had an important bearing on the project.

Utilities

Utility services such as existing high voltage power lines and water pipelines were discussed amongst community members. Alignment planning will need to factor in changes, if any, required for utility services.

Environment

Possible impacts on the environment were raised as an issue with some of the community members. The preservation of native vegetation, especially old Red Gums, rated as a matter of great concern.

Heritage

The former Cobb & Co. Staging Stables at Buangor built in 1860 are listed on the Victorian Heritage Database. According to feedback from attendees, this site holds significant heritage value amongst those in the township.

General

The location of the cemetery needs to be confirmed so that alignment planning respects this important site. Noise factors during construction have been raised as an issue. Post-construction noise barriers have also been raised as a matter to be addressed.

Beaufort to Buangor section

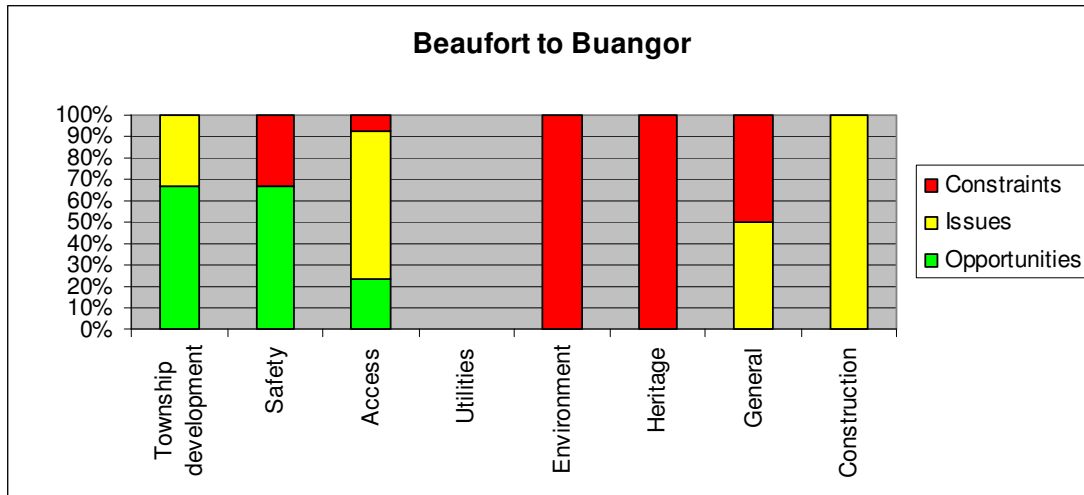


Figure 3. Community comments on the Beaufort to Buangor section

Township development

As a result of increased traffic volume using enhanced road conditions, there may be increased opportunities for local businesses to increase trade. There is the possibility that rest stops may be constructed between Beaufort and Buangor.

Safety

Mention was made of the opportunity to improve the safety aspect of intersections between Beaufort and Buangor.

Access

Accessibility for school buses and public transport were discussed as a point for further review. Future highway access was also cited by some members of the local community as a matter for consideration.

Utilities

Not applicable.

Environment

Of significant concern to community members is the future of established Red Gum trees. Environmental factors were rated as being of special concern to many of the attendees.

Heritage

The heritage aspect of the project has been flagged as matter for concern.

General

The loss of productive farming land was raised as an issue.

Construction

Accessibility issues during the construction phase were cited as a point to be addressed.

Buangor to Ararat section

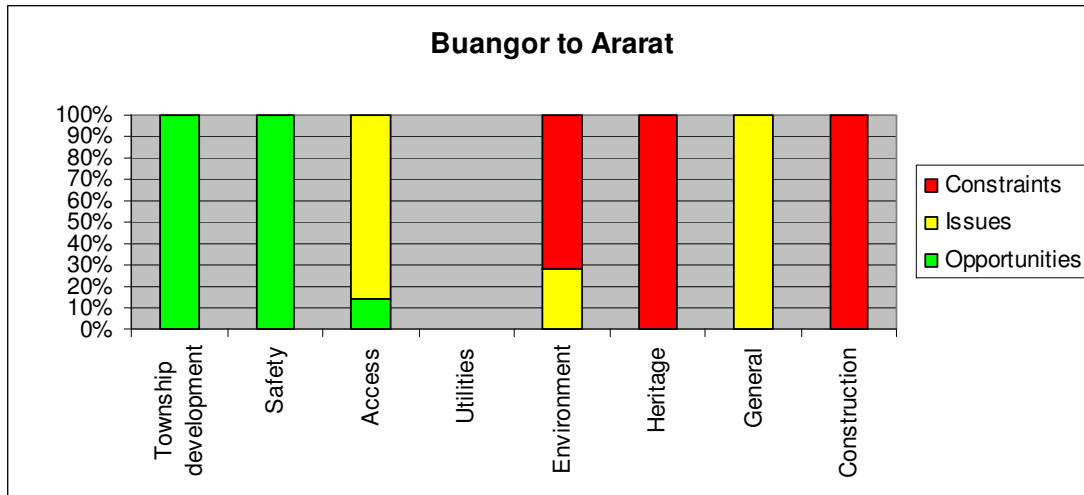


Figure 4. Community comments on the Buangor to Ararat section

Township development

Along with an expected increase in traffic volume travelling along the improved road conditions, there may be better opportunities for local businesses to increase trade. There are possibilities for rest stops to be constructed.

Safety

No major safety concerns were raised during discussions. There was an expectation that safer intersections would be incorporated into the project.

Access

School bus and public transport access have been flagged as a matter for discussion. Future highway access was also raised.

Utilities

Not applicable.

Environment

The majority of attendees felt that the protection of native vegetation was paramount as an issue for this project.

Heritage

Previously recorded Aboriginal and European cultural heritage sites were identified during discussions and given high precedence.

General

The quality of the construction works rated as a point for discussion during the course of the workshop.

Construction

Construction noise was a problem identified by members of the discussion group.

FINAL REPORT:

Desktop Flora and Fauna Assessment of the Western Highway, Burrumbeet to Stawell, Victoria

ON BEHALF OF:

VicRoads
September 2008



Ecology Partners Pty Ltd

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Cover photo: Remnant Heathy Dry Forest, Trawalla State Forest.

The following Ecology Partners Pty. Ltd. employees were involved in the project and contributed to the report: Aaron Organ, Anna Foley, Clio Gates-Foale and Zed Senbergs

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SUMMARY

Introduction

Ecology Partners Pty. Ltd. was commissioned by VicRoads to undertake a desktop flora and fauna assessment for the potential duplication of the Western Highway between Burrumbeet and Stawell.

The current assessment is required to identify any species and vegetation communities of conservation significance, and to provide advice regarding the relative quality of vegetation and habitat on each side of the road.

Methodology

Biological databases maintained by the Department of Sustainability and Environment (DSE) were reviewed, including the Atlas of Victorian Wildlife (AVW) and Flora Information System (FIS). The presence of Ecological Vegetation Classes (EVCs) within the wider study area was reviewed using DSE's Biodiversity Interactive Map, while information referring to matters (such as listed taxa and ecological communities, Ramsar wetlands, etc) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) was obtained from the Department of the Environment, Water, Heritage and the Arts Protected Matters Search Tool.

The rapid landscape field investigation was undertaken on 26 and 27 June 2008, with the aim of documenting the vegetation types within the study area. The entire study area was visually assessed by car, with all vegetation communities noted and the overall condition of vegetation noted.

Results

The local area (10 kilometres surrounding of the study area) has previous records for 1457 plant taxa (1095 indigenous and 362 exotic). Planted trees and shrubs are not included in this total unless they were seen to be naturally spreading within study area.

The study area consists predominantly of a roadside reserve for the Western Highway. This buffer generally comprises mixed exotic and native grassland, and between Deep Lead and Trawalla is generally covered by a canopy of remnant or planted trees.

Remnant vegetation within the study area varies in overall conservation significance, given the presence of eighteen endangered EVCs from four Bioregions, five nationally significant flora species and 13 state significant flora species recorded within the study area. If additional flora and fauna species of significance (e.g. Southern Brown Bandicoot) are detected within the study in the future then the overall conservation significance of the study area may be elevated accordingly.

Areas devoid of remnant native vegetation and which support few, if any ecological values (e.g. agricultural pasture) are of negligible significance for flora and fauna.

A field assessment for fauna was not undertaken for the present assessment. Fauna species records were obtained from the AVW and a fauna habitat assessment was conducted in consultation with information obtained from the rapid landscape field investigation.

Over 350 individual fauna species have been documented within a 10 kilometre radius of the study area. An additional ten fauna species have been identified as potentially occurring, or their habitats as potentially occurring within the study area. Three nationally significant, ten state significant and four regionally significant fauna species have previously been recorded within the study area.

Seventeen flora species listed under the EPBC Act have been previously recorded within the local area, including five within the study area, and an additional ten species are listed as having habitat likely to occur within the local area and one as having habitat that may occur within the local area.

Eight nationally significant fauna species listed as threatened under the EPBC Act have previously been recorded in the local area (within 10 kilometres of the study area). Three nationally significant fauna species (Southern Brown Bandicoot, Plains Wanderer and Growling Grass Frog) have previously been recorded within the study area (AVW). Habitat for an additional ten species is also predicted to occur, either in, or within a 10 kilometre radius of, the study area (DEWHA Protected Matters Search Tool). There is potential habitat for a small number of EPBC Act listed fauna within the study area.

The critically endangered 'Natural Temperate Grasslands of the Victorian Volcanic Plain' and endangered 'Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions' are listed as potentially occurring within the local area (10 kilometre radius). Detailed surveys of remnant native vegetation condition during spring will determine whether any remnant native vegetation within the study area qualifies as either of these ecological communities under the criteria for the EPBC Act.

Prior to assessing potential implications under the EPBC Act and to determine whether a referral is required, further, targeted surveys for threatened species and communities are recommended.

Five flora species listed under the FFG Act have been previously recorded within the study area, and a further 31 species have previously been recorded within the local area (i.e. in a 10 kilometre radius of the study area). Due to the modified nature of the majority of the study area, few of these species are likely to occur within the study area.

Forty-two fauna species listed under the FFG Act have previously been documented from within 10 kilometres of the study area (AVW). Nine of these have been recorded from within the study area.

There are three FFG Act listed flora communities with potential to occur within the study area - Western Basalt Plains (River Red-gum) Grassy Woodland Floristic Community, Creekline Grassy Woodland (Goldfields) Community and Grey Box – Buloke Grassy Woodland Community. Due to the highly modified nature of the study area, it is unlikely that these communities occur within the study area. The FFG Act listed Victorian temperate-woodland bird community is likely to occur in the study area, given that majority of the species that are included in the community have been recorded within 10 kilometres of the study area.

If any species or communities listed under the FFG Act are likely to be disturbed or removed, a permit under the Act will be required.

At least fifty noxious weeds listed within the Glenelg Hopkins Catchment area (DPI 2008) and ten Weeds of National Significance (WONS) have been previously recorded within the local area. VicRoads is responsible for controlling any infestation of noxious or environmental weeds that may become established within the study area due to ground disturbance during future works, to minimise their spread and overall impact on ecological values.

At this stage permits to remove vegetation or fauna habitat are likely to be required under the *Planning and Environment Act 1987*. In addition, VicRoads will be required to demonstrate how they meet the ‘avoid’, ‘minimise’ and ‘offset’ principles of the Victoria’s Native Vegetation Management Framework.

Further Requirements

Five national and thirteen state significant flora species as well as three nationally significant, ten state significant and four regionally significant fauna species have previously been recorded within the study area. As such, targeted surveys for these species are recommended to determine their status within the study area.

Two nationally significant and three state significant ecological communities are likely to exist within the study area. Detailed flora assessment will determine their presence within the study area. Under the FFG Act, VicRoads is required to manage the threatening processes listed as present within the study area.

Under *Victoria’s Native Vegetation Management Framework*, a permit to remove native vegetation and provision of an offset package is likely to be required for native vegetation removal associated with future road works. Eighteen endangered EVCs from four bioregions lie within the study area. There are large amounts of remnant native vegetation on freehold land adjacent to the study area that may be able to be utilised for the vegetation removal offset package.

1 INTRODUCTION

1.1 Background

Ecology Partners Pty. Ltd. was commissioned by VicRoads to undertake a desktop flora and fauna assessment of the Western Highway, between Burrumbeet and Stawell, Victoria.

The current assessment is required to identify any species and communities of conservation significance, and to provide advice regarding the relative quality of vegetation and habitat on each side of the road. Additionally, the current assessment is required to provide advice in relation to the potential value of the study area to be used as an offset under ‘*Victoria’s Native Vegetation Management Framework – A Framework for Action*’ (‘The Framework’) (NRE 2002) as part of the proposed vegetation removal (by a third party) at another study area (if permitted by DSE).

1.2 Scope of Assessment

Specifically, the objectives of the flora and fauna assessment were to:

- Describe the ecological values and biodiversity of the study area, based on collated existing data;
- Assess the potential impacts of the proposed works on these values and on regional biodiversity, ecosystem biodiversity and (where assessable) genetic diversity;
- Appraise any implications for the project arising from biodiversity legislation or policy;
- Describe any opportunities to avoid or mitigate these potential impacts through design or management;
- Assess the likely resultant level of impacts if mitigation measures are adopted;
- Provide advice on the need to prepare an EPBC referral; and,
- Provide any other information on ecological or biodiversity matters relevant to the project.

1.3 Study Area

The study area (~5250 ha) is approximately 250 metres either side of the Western Highway between Burrumbeet and Stawell, Victoria, approximately 100-200 kilometres west of Melbourne (VicRoads Ref: 58 C9 to 56 D2). The study area lies within the Northern Grampians Shire, Pyrenees Shire, the Rural City of Ararat, and the city of Ballarat. The majority of the area is zoned as Road Zone, bordered by a mix of Public Use Zone, Rural Living Zone, Farming Zone, and Public Conservation and Resource Zone.

Other zones that occur within the study area include Industrial Zones, Township Zones, other Public Use Zones, Public Park and Recreation Zones and Business Zones.

Currently the study area supports several waterways including the Hopkins River, Concongella Creek, Charleycombe Creek, Middle Creek, Fiery Creek, Mount Emu Creek, Spring Hill Creek and Lake Burrumbeet and public conservation reserves including Langi Ghiran State Park, Trawalla State Forest, Timmins Hill Bushland Reserve, Reeves Hill Bushland Reserve. A railway line follows the Western Highway in some sections of the study area. These conservation reserves and linear remnants support varying ecological values. They act as linkages between the remnant vegetation along the Western Highway and larger remnants in the region such as Grampians National Park, Ararat Hills Regional Park and Mount Buangor State Park.

According to the Department of Sustainability and Environment's (DSE's) Biodiversity Interactive Map (www.dse.vic.gov.au) the study area is within the Glenelg-Hopkins and Wimmera Catchment Management Authority boundaries and in the Victorian Volcanic Plain Central Victorian Uplands and Goldfields Bioregions. Victorian Volcanic Plain Bioregion extends from Portland in the west to Craigieburn in the east and from Clunes in the north to Colac in the south. The Victorian Volcanic Plain landscape has been radically altered within the last 150 years; approximately 4.5% of the land area still has a cover of native vegetation. Central Victorian Uplands Bioregion extends from Stawell in the west to Bright in the east and from Glenrowan in the north-east to Meredith in the south. The Goldfields Bioregion extends from Stawell in the west to Nagambie in the east, and from Charlton in the north to Daylesford in the south.

2 METHODS

2.1 Nomenclature

Common and scientific names of vascular plants follow the FIS (2007) and the Census of Vascular Plants of Victoria (Walsh and Stajsic 2007). Vegetation community names follow the DSE Ecological Vegetation Class (EVC) benchmarks (www.dse.vic.gov.au) and CVRFASC (2000).

Terrestrial and aquatic vertebrate fauna (mammals, birds, reptiles, amphibians and fish) follow the AVW (2007).

2.2 Literature Review

Information relating to EVC benchmarks for the study area was reviewed, and other relevant literature, such as CVRFASC (2000) was also referred to.

Aerial photographs were also reviewed and referred to.

2.3 Database Searches

Both the FIS (2007) and AVW (2007), biological databases maintained by DSE, were reviewed to obtain a list of species previously recorded within 10 kilometres of the study area. The presence of EVCs within the study area was reviewed using DSE's Biodiversity Interactive Map (www.dse.vic.gov.au).

Information referring to matters (listed taxa and ecological communities, Ramsar wetlands, etc.) protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* was obtained from the Australian Government's Department of the Environment, Water, Heritage and the Arts (DEWHA) Protected Matters Search Tool: <http://www.environment.gov.au/erin/ert/epbc/index.html>.

2.4 Flora Assessment

The broad botanical field investigation was undertaken on 25 and 26 June 2008, with the aim of documenting the vegetation types within the study area.

The entire study area was visually assessed from a car, and vegetation communities and the general condition of vegetation were noted.

Remnant vegetation in the local area was also reviewed to assist in determining the original vegetation within the study area. The presence and EVC types were verified and determined by reference to DSE pre-1750 and extant EVC mapping (www.dse.vic.gov.au). The significance assessment criteria of taxa and vegetation communities are presented in Appendix 1.

2.5 Fauna Assessment

A field assessment for fauna was not undertaken for the present assessment. Fauna species records were obtained from the AVW and a fauna habitat assessment was conducted in consultation with information obtained from the rapid landscape field investigation. Aerial photographs were used to assess habitat connectivity.

2.6 Assessment Qualifications and Limitations

Terrestrial flora and fauna data collected during the field survey and information obtained from relevant sources (e.g. biological databases and relevant literature) were reviewed. This information was considered sufficient to provide an assessment of the ecological values within the study area, to determine the likely presence of significant taxa and communities.

Nevertheless, due to the nature of the current desktop assessment, detailed field flora and fauna surveys were not undertaken. Data from the FIS and AVW is dated from 2007 and therefore does not include records from more recent surveys, nor does it necessarily cover all areas of the study area. Further, an assessment of the interaction of species over a longer survey period was beyond the scope of this study. Therefore migratory, transitory or uncommon fauna species may have been missed. Thus, it is possible that a small number of additional significant flora and fauna may be detected during future detailed flora and fauna assessments, conducted over an extended period of time.

The flora assessment was conducted outside of the flowering season for many significant flora species, and the assessment undertaken was a rapid visual assessment of vegetation cover. The assessment used the DSE extant mapping to verify the presence of native vegetation within the study area. The DSE extant mapping is not always accurate and plant species cover and diversity varies with each season and across years, depending on the amount and timing of rainfall and fire events. For example, wetland EVCs could not be detected during the current assessment due to extended drought conditions, and grassland EVCs were difficult to identify due to the extended drought conditions and time of assessment before peak flowering season (many native grass species are difficult to identify if reproductive structures are not present). A detailed vegetation assessment will be required to verify the presence of specific EVCs.

3 RESULTS

3.1 Flora Species

Previous records

The local area (10 kilometres surrounding of the study area) has previous records for 1457 plant taxa (1095 indigenous and 362 exotic). Planted trees and shrubs are not included in this tally unless they were seen to be naturally spreading within study area.

Database searches and other information

Additional significant flora species that have been recorded within a 10 kilometre radius of the study area or their habitats as potentially occurring as derived from respective Commonwealth and State databases are listed in Appendix 2.1.

3.2 Ecological Vegetation Classes and Vegetation Types

Thirty-two EVCs from four Bioregions were identified from the extant DSE vegetation mapping for the region (www.dse.vic.gov.au), and CVRFASC (2000) (Table 1, Figure 2). Bioregional conservation status is also shown in Figure 3.

Table 1: Ecological Vegetation Classes within the study area.

EVC #	Bioregional Conservation Status	EVC Name
Victorian Volcanic Plain Bioregion		
67	Endangered	Alluvial Terraces Herb-rich Woodland
68	Endangered	Creekline Grassy Woodland
132	Endangered	Plains Grassland
55_61	Endangered	Plains Grassy Woodland
647	Endangered	Plains Sedgy Wetland
Central Victorian Uplands Bioregion		
67	Endangered	Alluvial Terraces Herb-rich Woodland
152	Endangered	Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex
3	Endangered	Damp Sands Herb-rich Woodland
896	Endangered	Grassy Woodland/Heathy Dry Forest Complex
175_61	Endangered	Grassy Woodland
20	Least Concern	Heathy Dry Forest
48	Depleted	Heathy Woodland
71	Vulnerable	Hills Herb-rich Woodland
125	Endangered	Plains Grassy Wetland
55	Endangered	Plains Grassy Woodland

EVC #	Bioregional Conservation Status	EVC Name
47	Vulnerable	Valley Grassy Forest
Goldfields Bioregion		
67	Endangered	Alluvial Terraces Herb-rich Woodland
61	Depleted	Box Ironbark Forest
68	Endangered	Creekline Grassy Woodland
22	Depleted	Grassy Dry Forest
175	Vulnerable	Grassy Woodland
20	Least Concern	Heathy Dry Forest
48	Depleted	Heathy Woodland
55	Endangered	Plains Grassy Woodland
711	Endangered	Shallow Sands Woodland/Plains Sedgy Woodland Mosaic
Wimmera Bioregion		
61	Depleted	Box Ironbark Forest
802	Depleted	Grassy Woodland/Heathy Woodland Mosaic
48	Least Concern	Heathy Woodland
132	Endangered	Plains Grassland
55	Endangered	Plains Grassy Woodland
283	Depleted	Plains Sedgy Woodland
882	Vulnerable	Shallow Sands Woodland

During the assessment of the study area, several areas of wetland were not detected due to extended drought conditions prevailing in the region. Some small areas of Plains Grassy Woodland and Heathy Dry Forest were ascertained, during the rapid landscape assessment of the study area, as incorrectly mapped on the DSE extant mapping (DSE 2007b).

3.3 Current Vegetation Condition

The study area predominately consists of the Western Highway roadside reserve. This buffer largely consists of mixed exotic and native grassland, and between Deep Lead and Trawalla is generally covered by a canopy of remnant or planted trees. The road reserve is bordered by freehold land used for agricultural purposes along the majority of the study area. Much of the agricultural land is used as pasture for cattle and sheep, and smaller areas are devoted to cropping and hardwood forestry plantations. Several towns lie within the study area, including Trawalla, Beaufort, Buangor, Ararat, Great Western and Stawell.

Conservation reserves within the study area include Langi Ghiran State Park, Trawalla State Forest, Ararat Hills Regional Park, Deep Lead (No. 1) Nature Conservation Reserve, Woodnaggerak Bushland Reserve, Hospital Hill Bushland Reserve, Sisters Rocks Bushland Reserve, Great Western H24 Bushland Reserve, Timmins Hill Bushland Reserve, Nuggety Hill Bushland Reserve, Reeves Hill Bushland Reserve, Dobie Highway Park, Great Western (Main St.) Natural Features Reserve, and several Box-Ironbark Forest and Woodland Investigation Areas and Public Land Water Frontage that are managed by DSE.

Vegetation comprises a mix of exotic and indigenous species, and vegetation condition varies greatly between areas reserved for conservation, and land used for agricultural purposes. Dominant exotic species include Toowoomba Canary Grass *Phalaris aquatica*, Prairie Grass *Bromus catharticus* and Sweet Vernal Grass *Anthoxanthum odoratum*.

Common indigenous understorey species present include wallaby-grasses *Austrodanthonia* spp., spear-grasses *Austrostipa* spp., Common Wheat-grass *Elymus scaber* var. *scaber*, Wattle Mat-rush *Lomandra filiformis*, Black-anther Flax-lily *Dianella revoluta*, and shrubs dominated by wattles *Acacia* spp. and she-oak *Allocasuarina* spp. Common canopy species include River Red-gum *Eucalyptus camaldulensis*, Long-leaved Box *Eucalyptus goniocalyx*, Red Stringybark *Eucalyptus macrorhyncha*, Yellow Box *Eucalyptus melliodora*, Candlebark *Eucalyptus rubida* and Red Ironbark *Eucalyptus sideroxylon*.

3.4 Significant Flora Species and Communities

No significant flora species were recorded during the current assessment. Significant flora species documented as occurring within the local area (i.e. 10 kilometres surrounding the study area), and their likely occurrence within the study area are listed in Appendix 2.1 (Figure 4).

3.4.1 National

Seventeen EPBC Act listed species have been previously recorded within the local area, including five within the study area, and an additional ten species are listed as having habitat likely to occur within the local area and one as having habitat that may occur within the local area (Appendix 2.1) (DEWHA – EPBC Protected Matters Search Tool) (Appendix 2.1). Given the highly modified nature of much of the local area, and lack of suitable habitat within the study area, there is a low likelihood that any additional flora species of national conservation significance would occur within the study area.

Nationally significant species recorded previously within the study area include one critically endangered species (Spiny Rice-flower *Pimelea spinescens* subsp. *spinescens*), two endangered species (Tawny Spider-orchid *Caladenia fulva* and Button Wrinklewort *Rutidosis leptorhynchoides*) and two vulnerable species (Large-headed Fireweed *Senecio macrocarpus* and Trailing Hop-bush *Dodonaea procumbens*). It is likely that Spiny Rice-flower, Button Wrinklewort and Large-headed Fireweed persist within the study area, as the most recent records of these species were from 2003 (FIS).

Tawny Spider-orchid and Trailing Hop-bush were last recorded in 1991, and are considered less likely to persist within the study area. Targeted surveys are recommended during the appropriate flowering seasons to determine the persistence of these populations.

3.4.2 State

Thirteen state significant flora species have been previously recorded within the study area. Sixty-eight state significant flora species have been recorded within ten kilometres of the study area (Appendix 2.1).

State significant species recorded previously within the study area include seven rare species (Half-bearded Spear-grass *Austrostipa hemipogon*, Spear-grass *Austrostipa trichophylla*, Flame Grevillea *Grevillea dimorpha*, Rosemary Grevillea *Grevillea rosmarinifolia* subsp. *rosmarinifolia*, Rising Star Guinea-flower *Hibbertia humifusa* subsp. *humifusa*, Emerald-lip Greenhood *Pterostylis smaragdyna*, Fringed Sun-orchid *Thelymitra luteocilium*) and five vulnerable species (Small Milkwort *Comesperma polygaloides*, Golden Cowslips *Diuris behrii*, Swamp Diuris *Diuris palustris*, Globe-hood Sun-orchid *Thelymitra X chasmogama*, Crimson Sun-orchid *Thelymitra X macmillanii*). All species are expected to persist within the study area, particularly Small Milkwort and Golden Cowslips which were last recorded in 2003. The sun-orchid species were last recorded in 1981, and are considered less likely to persist within the study area. Targeted surveys are recommended during the appropriate flowering seasons to determine the persistence of these populations.

3.4.3 Significant communities

The DSE extant EVC mapping suggests that there are several significant vegetation communities within the study area. Plains Grassland EVC has a Bioregional conservation status of endangered (www.dse.vic.gov.au), and is listed under the FFG Act as ‘Western (Basalt) Plains Grasslands Communities’ and future detailed assessment will determine if it could meet the criteria for listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as ‘Natural Temperate Grasslands of the Victorian Volcanic Plain’, which has recently been listed as critically endangered. Under the FFG Act, two of the EVCs present are listed as threatened communities. Within the Victorian Volcanic Plain Bioregion, Plains Grassy Woodland is listed as ‘Western Basalt Plains (River Red Gum) Grassy Woodland Floristic Community 55-04’. Within the Goldfields Bioregion, Creekline Grassy Woodland is listed as ‘Creekline Grassy Woodland (Goldfields) Community’. Other vegetation communities listed under the FFG Act include ‘Grey Box – Buloke Grassy Woodland Community’.

3.5 Fauna Habitat

The study area supports several habitat types: remnant woodland, drainage lines/depressions, and native and introduced grassland. The overall habitat value in the study area ranges from low for exotic grasses to moderate for remnant woodland (Appendix 1.5).

Remnant Woodland

Remnant woodland is present in scattered patches along the length of the Western Highway between Burrumbeet and Stawell. Clearing for farmland has left much of this woodland quite disturbed with a modified understorey of weeds and pasture grasses. Areas adjoining state or national parks have retained higher quality habitat values such as a native understorey and ground debris.

Remnant vegetation along the Western Highway is likely to contribute to a wildlife corridor (see below for more information), and provides potential habitat for a small number of threatened or near-threatened fauna species. This area provides important habitat for a diversity of fauna (principally for woodland birds), particularly in areas that have been extensively cleared for agriculture, and is considered to be of low to moderate habitat quality for fauna.

Remnant woodland, albeit quite modified, provides habitat for a small number of ground dwelling mammals (e.g. Eastern Grey Kangaroo) and introduced species (e.g. Red Fox, European Rabbit, Brown Hare).

This habitat type also provides a resource for a range of fauna including diurnal raptors (e.g. Brown Falcon, Nankeen Kestrel, Black-shouldered Kite) and nocturnal raptors (e.g. Southern Boobook, Tawny Frogmouth), which would use this area periodically in search of prey or potentially for breeding. Avian raptors are also likely to utilise modified forest remnants and scattered trees for perching, roosting and foraging activities.

Remnant woodland also provides a diversity of niches for other woodland dependent birds. For example, insectivorous species can forage on tree trunks and underneath bark, on leaves and flowers, and in ground debris at ground level. Eucalypts also provide an important source of food for nectar-feeding woodland birds (e.g. honeyeaters, lorikeets), and tree hollows provide nesting and denning sites for hollow-dependent mammals (see below for more information) and birds, such as Common Ringtail Possum, Common Brush-tail Possum, Galah, Sulphur-crested Cockatoo and insectivorous bats. Threatened woodland birds such as Black-chinned Honeyeater and Brown Treecreeper (regionally significant) and some mammals including Southern Brown Bandicoot (nationally significant) and Squirrel Glider (state significant) may also utilise woodland remnants within the study area on occasion.

Drainage lines/depressions

Green Hill Lake, Lake Burrumbeet and Allenvale Creek are within the study area. These wetland areas provide habitat for breeding, foraging, dispersal and cover to a diversity of common native waterbirds (e.g. Pacific Black Duck, Australian Wood Duck), frogs (e.g. Common Froglet) and reptiles. These areas may support fauna of conservation significance including the Growling Grass Frog (nationally significant) and Musk Duck, Eastern Great Egret, Hardhead and Brolga (state significant).

Native Grassland

Small patches of remnant native grassland remain in the study area. Several species are likely to use this area, principally birds adapted to modified habitats such as Magpie-lark, Australian Magpie, Galah and Sulphur-crested Cockatoo. Raptors (e.g. Brown Falcon, Nankeen Kestrel, Black-shouldered Kite) and introduced species (e.g. Common Starling, House Sparrow) are common in these areas. Grasslands may also provide habitat to species of conservation significance including Plains Wanderer (nationally significant) and Brolga (state significant).

Introduced Grassland

Introduced pasture/grassland predominantly consists of pasture grasses and occurs throughout the study area where remnant native vegetation has been removed, and/or where the soil has previously been disturbed. Much of the land within the study area has previously been cleared for agriculture, and is currently or has recently been used for livestock grazing, cropping activities or other industry. This habitat type is considered to be of low habitat value for fauna.

Few native species are known to use this habitat, principally birds adapted to modified habitats such as Magpie-lark, Australian Magpie and Galah, as well as introduced bird species (e.g. Common Myna), and native and introduced ground-dwelling mammals (e.g. Eastern Grey Kangaroo, European Red Fox, Rabbit).

3.5.1 Notable fauna habitat values

Tree hollows

Many of the trees within the study area are likely to support hollows. A large number of Australia's fauna use hollows (Ambrose 1982) with approximately 13% of amphibians, 10% of reptiles, 15% of birds and 31% of mammals estimated to, at some time, use hollows (Gibbons and Lindenmayer 2002). Many of these species are considered rare or threatened in Australia and ongoing loss of hollows due to firewood collection, logging, grazing pressures, and land clearing places pressure on fauna populations to a point where they may not, in many areas, be viable in the long-term.

Fauna that use hollows are either considered 'obligate' or 'opportunistic' hollow-users. Obligate hollow-users (e.g. parrots, cockatoos) are totally dependent upon hollows for breeding and/or roosting activities for at least part of the life-cycle, while opportunistic hollow-users (e.g. Ring-tailed Possum) do not necessarily require hollows for survival, as they are able to utilise other forms of shelter or nesting sites.

The presence of a range of different hollow types (i.e. opening size, shape, depth and height from the ground) is an important habitat feature, as individual fauna species are likely to be dependent upon a particular hollow type.

Due to the extensive clearing of woodland habitat in the study area and across the landscape tree hollows are important for many woodland bird and mammal species and they are likely to be a scarce resource.

Wildlife Corridors

Remnant woodland within the study area provides habitat and facilitates the movement of fauna species throughout a landscape dominated by cleared farmland. Wildlife corridors and ‘stepping stones’ of vegetation have numerous benefits to native fauna populations, particularly in modified landscapes where much of the surrounding vegetation is restricted to linear strips along roadsides or streams. They can constitute important habitat and some of the key benefits of wildlife corridors associated with the maintenance of biodiversity on a local, and at a landscape level, include:

- Protection and ongoing maintenance of ecosystem functionality through the reduction of threatening processes (erosion, weed spread, hydrological alterations);
- Provision of habitat (refuge, shelter, breeding opportunities) for a range of fauna either residing within corridors, or moving through the landscape;
- The maintenance of species richness and diversity;
- The immigration of animals to supplement declining populations, thus reducing the likelihood of local extinctions;
- The availability of habitat for reintroduction following extinction events;
- The ability to prevent demographic changes occurring in populations that may result from prolonged isolation from other populations of the same species by aiding gene flow, thus enhancement of genetic variation and prevention of inbreeding; and,
- Facilitation of fauna movement through modified landscapes to more optimal habitats.

3.6 Fauna Species

Database searches (AVW and DEWHA Protected Matters Search Tool)

Terrestrial fauna species derived from respective Commonwealth and State databases as occurring, or having the potential to occur within the study area are provided in Appendix 3.1.

There are over 3030 fauna records documenting over 350 individual species within a 10 kilometre radius of the study area (AVW), with a high number of records for all fauna groups. Several of these species (primarily common birds and grassland fauna specialists) are likely to use habitats within the study area.

An additional ten fauna species have been identified as potentially occurring, or their habitats as potentially occurring within the study area (EPBC Act Protected Matters Search Tool) (Appendix 3.1).

3.6.1 National

Eight nationally significant fauna species listed under the EPBC Act have previously been recorded from within 10 kilometres of the study area (AVW 2007) (Appendix 3.1., Figure 5).

Nationally listed fauna species include:

- Two mammal species: Eastern Barred Bandicoot, Southern Brown Bandicoot;
- Two woodland-dependent birds: Regent Honeyeater and Swift Parrot;
- One grassland bird species: Plains-wanderer;
- One reptile: Striped Legless Lizard;
- One frog species: Growling Grass Frog; and,
- One invertebrate species: Golden Sun Moth.

Ten additional species not previously documented on the AVW, or habitat for these species, are identified as potentially occurring within a 10 kilometre radius of the study area (DEWHA Protected Matters Search Tool) (Appendix 3.1).

Three species have previously been recorded within the study area, the Southern Brown Bandicoot, Plains Wanderer and Growling Grass Frog. A summary of these species and their use of particular sections of the study area is provided in Table 2. The likely use of the study area by nationally significant species is provided in Appendix 3.1.

Targeted surveys, at appropriate times of year for each species, are recommended to ascertain the presence of these species within the study area.

3.6.2 State

Forty two state significant fauna species have previously been documented from within 10 kilometres of the study area (AVW 2007, Figure 6). These comprise:

- Two mammal species : Squirrel Glider, Brush-tailed Phascogale;
- Seven woodland-dependent birds: Painted Honeyeater, Diamond Firetail, Elegant Parrot, Grey-crowned Babbler, Bush Stone-curlew, Hooded Robin and Speckled Warbler;
- Two owl species: Barking Owl and Powerful Owl;

- One grassland-dependent species: Brolga;
- Twelve wetland-dependent birds: Australasian Shoveler, Blue-billed Duck, Intermediate Egret, Eastern Great Egret, Hardhead, Musk Duck, Magpie Goose, Australasian Bustard, Caspian Tern, Freckled Duck, Gull-billed Tern and Royal Spoonbill;
- Two diurnal raptor species: Black Falcon and Square-tailed Kite;
- Two frogs: Brown Toadlet and Southern Toadlet;
- One reptile: Lace Goanna;
- Two fish: Flat-headed Galaxias and Golden Perch; and,
- Three invertebrates: Glenelg Spiny Cray, Altona Skipper, Water beetle species

Ten species have been previously recorded within the study area, the Squirrel Glider, Hardhead, Eastern Great Egret, Australasian Shoveler, Elegant Parrot, Square-tailed Kite, Musk Duck, Brush-tailed Phascogale, Powerful Owl and Brolga. A summary of fauna species and their use of particular sections of the study area is provided in Table 2. The likely use of the study area by nationally significant species is provided in Appendix 3.1.

Targeted surveys, at appropriate times of year for each species, are recommended to ascertain the presence of these species within the study area.

3.6.3 Regional and local

Seventeen regionally significant fauna species have previously been documented from the local area (AVW 2007, Figure 7). These comprise:

- One mammal species: Fat-tailed Dunnart;
- One diurnal raptor: Spotted Harrier;
- Seven woodland-dependent birds: Black-chinned Honeyeater, Black-eared Cuckoo, Brown Treecreeper, Eastern Curlew, Cape Barren Goose, Glossy Ibis, Red-backed Kingfisher;
- One grassland-dependent species: Brown Quail;
- Four wetland-dependent birds: Latham's Snipe, Nankeen Night Heron, Pied Cormorant and Whiskered Tern; and,
- Two reptiles: Bearded Dragon and Woodland Blind Snake.

Bearded Dragon, Black-chinned Honeyeater, Brown Treecreeper and Eastern Curlew have previously been recorded within the study area. A summary of these species and their use of particular sections of the study area is provided in Table 2. The likely use of the study area by nationally significant species is provided in Appendix 3.1.

Targeted surveys, at appropriate times of year for each species, are recommended to ascertain the presence of these species within the study area.

All other native fauna (primarily birds) are of local significance, as they are not listed as rare or threatened on a national, state or regional level.

3.7 Significant ecological values within the study area

Table 2: Significant ecological values within the study area (Biosites are mapped in Figure 8).

Location	EVCs	Significant Flora [^]	Significant Fauna*	Biosites #	Adjacent Key Areas
Burrumbeet - Trawalla	- Plains Grassland	No significant flora recorded	<i>National:</i> Growling Grass Frog – 2001 <i>State:</i> Brolga – 1994 <i>Regional:</i> Eastern Curlew - 1976	No BioSites recorded	- Roadside remnant woodland - Lake Burrumbeet
Trawalla - Beaufort	- Heathy Dry Forest - Grassy Woodland/Heathy Dry Forest Complex - Valley Grassy Forest - Creekline Grassy Woodland	No significant flora recorded	<i>State:</i> Powerful Owl – 1998 <i>Regional:</i> Black-chinned Honeyeater – 2001 Brown Treecreeper – 1985	<i>Local:</i> 824 – Western Highway 828 – Highway Track 913 – Church Road	- Trawalla State Forest - Roadside remnant woodland - Mount Emu Creek
Beaufort - Ararat	- Grassy Woodland/Heathy Dry Forest Complex - Heathy Dry Forest - Plains Grassland - Creekline Grassy Woodland - Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex - Plains Grassy Woodland - Heathy Woodland - Damp Sands Herb-rich	<i>National:</i> Button Wrinklewort – 1990 Spiny Rice-flower – 2003 Button Wrinklewort – 2003 Large-headed Fireweed – 2003 <i>State:</i> Small Milkwort – 2003 Emerald Lip-Greenhood – 1993 Golden Cowslips – 2003	<i>State:</i> Musk Duck – 2001 Eastern Great Egret – 2001 Australasian Shoveler- 2001 Elegant Parrot – 1999 Square-tailed Kite – 1984 Brush-tailed Phascogale – 2001 <i>Regional:</i> Bearded Dragon – 1994	<i>National:</i> 3915 – Dobies Bridge Rail Reserve <i>State:</i> 3914 – Dobie Rail Reserve <i>Local:</i> 866 – Ferntree Gully Rd 914, 915, 921 – Un-named Roads 850 – Western Highway Region	- Roadside remnant woodland and grassland - Langi Ghiran State Park - Woodnaggerak Bushland Reserve - Dobie Highway Park - Green Hill Lake - Hopkins River - Charleycombe Creek

Location	EVCs	Significant Flora [^]	Significant Fauna [*]	Biosites #	Adjacent Key Areas
	Woodland			851 – Back Raglan Road <i>Yet to be determined:</i> 6973 – Ararat - Western Highway, near airfield and railway 3920 – Middle Creek (Woodnaggerak) Bushland Reserve <i>Not significant:</i> 3917 – Buangor Rail Reserve	
Ararat - Great Western	- Heathy Woodland - Heathy Dry Forest - Grassy Woodland - Alluvial Terraces Herb-rich Woodland - Creekline Grassy Woodland - Plains Grassy Woodland	<i>State:</i> Flame Grevillea – 1999	<i>National:</i> Southern Brown Bandicoot – 1985 <i>State:</i> Hardhead – 1999 <i>Regional:</i> Black-chinned Honeyeater – 2001 Brown Treecreeper – 2001	<i>Regional:</i> 4402 – Ararat Rail Reserve <i>Local:</i> 4354 – Armstrong North Rail Reserve 4432 – Armstrong South Rail Reserve 981 – Ararat Rail Reserve <i>Yet to be determined:</i> 3913 – Ararat Rail Reserve	- Roadside remnant woodland - Ararat Hills Regional Park - Hospital Hill Bushland Reserve
Great Western - Stawell	- Plains Grassy Woodland - Creekline Grassy Woodland - Heathy Woodland - Box-Ironbark Forest	<i>National:</i> Trailing Hop-bush – 1991 <i>State:</i> Fringed Sun-orchid – 1965 Rosemary Grevillea – 1998 Half-bearded Spear-grass – 1998 Spear-grass – 1998 Rising Star Guinea-flower – 2000	<i>National:</i> Southern Brown Bandicoot – 2001 Plains Wanderer – 1975 Growling Grass Frog – 1961 <i>State:</i> Squirrel Glider – 1988 <i>Regional:</i> Bearded Dragon – 2001	<i>Regional:</i> 4352 – Great Western (St Georges Rd) Rail Reserve <i>Local:</i> 4353 – Great Western Loop Rail Reserve <i>Yet to be determined:</i> 8045 – Western Highway, 2km south of Stawell	- Roadside remnant woodland - Concongella Creek - Allenvale Creek, 1.6km NW of Great Western - Great Western (H24) Bushland Reserve - Sisters Rocks Bushland Reserve

Location	EVCs	Significant Flora [^]	Significant Fauna [*]	Biosites #	Adjacent Key Areas
			Black-chinned Honeyeater – 2001		
Stawell – Deep Lead	- Plains Grassy Woodland Box-Ironbark Forest - Heathy Woodland - Grassy Woodland/Heathy Woodland Mosaic - Shallow Sands Woodland/Plains Sedgy Woodland Mosaic	<i>National:</i> Tawny Spider-orchid – 2000 <i>State:</i> Fringed Sun-orchid – 1993 Rising Star Guinea-flower – 1993 Crimson Sun-orchid – 1993 Globehood Sun-orchid – 1993 Swamp Diuris – 2000	No significant fauna recorded.	<i>Regional:</i> 4385 – Deep Lead Station Rail Reserve 8136 – Deep Lead – Stawell FNC <i>Comesperma</i> site	- Roadside remnant woodland - Reeves Hill Bushland Reserve - Nuggety Hill Bushland Reserve - Timmins Hill Bushland Reserve - Deep Lead (No.1) Natural Conservation Reserve - Lake Lonsdale

Notes: * Significant fauna sourced from AVW records which do not necessarily encompass the full study area (includes year last recorded).

[^] Significant flora records sourced from FIS, and does not reflect survey of the entire study area (includes year last recorded).

BioSite data sourced from DSE as point data, and extent of BioSite area is not known.

3.8 Ecological Significance of Study Area

Remnant vegetation within the study area varies in overall conservation significance (Appendix 1.3), given the presence of eighteen endangered EVCs from four Bioregions, five nationally significant flora species and 13 state significant flora species recorded within the study area. If additional flora and fauna species of significance (e.g. Southern Brown Bandicoot) are detected within the study in the future then the overall conservation significance of the study area may be elevated accordingly.

Areas devoid of remnant native vegetation and which support few, if any ecological values (e.g. cleared pasture) are of negligible significance for flora and fauna.

3.8.1 Reasons for significance

Sections of the study area are likely to be of **national**, **state**, **regional** or **local** conservation significance. Further, detailed investigations, will aid in determining the actual conservation significance. The conservation significance along sections of the study area are likely to be of at least local, regional, state, and potentially of national, significance for the following reasons:

- Presence of seven EVCs currently listed as endangered in the Central Victorian Uplands Bioregion, five EVCs currently listed as endangered in the Victorian Victorian Volcanic Plain Bioregion, four EVCs currently listed as endangered in the Goldfields Bioregion and two EVCs currently listed as endangered in the Wimmera Bioregion;
- Previous records of at least five nationally significant flora species (Spiny Rice-flower, Tawny Spider-orchid, Button Wrinklewort, Large-headed Fireweed, Trailing Hop-bush) within the study area, and additional nationally significant flora species with the local area (FIS 2007);
- Previous records of twelve state significant flora species within the study area (FIS 2007);
- The presence of several Biosites;
- Previous records of at least three nationally significant fauna species (Southern Brown Bandicoot, Plains Wanderer and Growling Grass Frog) (AVW);
- Previous records of at least ten state significant fauna species (Squirrel Glider, Hardhead, Musk Duck, Eastern Great Egret, Australasian Shoveler, Elegant Parrot, Square-tailed Kite, Brush-tailed Phascogale, Powerful Owl and Brolga) (AVW); and,
- Previous records of at least four regionally significant fauna species (Bearded Dragon, Black-chinned Honeyeater, Brown Treecreeper and Eastern Curlew) (AVW).

4 ENVIRONMENTAL POLICY AND LEGISLATION

This section identifies biodiversity policy and legislation relevant to the management of the study area and principally addresses:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act; Commonwealth);
- *Flora and Fauna Guarantee Act 1988* (FFG Act; Victoria);
- *Planning and Environment Act 1987* (Victoria);
- *Wildlife Act 1975* and Wildlife Regulations 2002;
- *Catchment and Land Protection Act 1994* (CALP Act; Victoria);
- Victoria's Biodiversity Strategy 1997;
- Hume City Council;
- Draft Glenelg Hopkins Native Vegetation Plan¹; and,
- Victoria's *Native Vegetation Management - A Framework for Action* (Net Gain Policy).

4.1 *Environment Protection and Biodiversity Conservation Act 1999*

The EPBC Act establishes a Commonwealth process for assessment of proposed actions that are likely to have a significant impact on matters of national environmental significance, or on Commonwealth land. An action (i.e. project, development, undertaking, activity, or series of activities), unless otherwise exempt, requires approval from the Commonwealth Environment Minister if they are likely to have an impact on any matters of national environmental significance. A referral under the EPBC Act is required if a proposed action is likely to have a 'significant impact' on any of the following seven matters of national conservation significance:

- World Heritage properties
- National heritage places
- Ramsar wetlands of international significance
- Threatened species and ecological communities
- Migratory and marine species
- Commonwealth marine area
- Nuclear actions (including uranium mining)

¹ The western portion of the study area will also be subject to the Wimmera Native Vegetation Plan, which is currently in preparation.

4.1.1 Matters of National Environmental Significance

World Heritage properties and national heritage places

The study area is not located within or near a World heritage property or national heritage property.

Ramsar wetlands of international significance

The DEWHA Protected Matters Search Tool (<http://www.environment.gov.au/erin/ert/epbc/index.html>) lists four wetlands of international significance as occurring within the same catchment as the study area: Gunbower Forest, Kerang Wetlands, Lake Albacutya and the Western District Lakes. However, given the nature of the current survey, any works within the study area are unlikely to impact upon any Ramsar values.

Listed flora and fauna species, and ecological communities

An action requires approval from the Commonwealth Environment Minister if it will, or if it is likely to, have a significant impact on an endangered or critically endangered species, or on an 'important population' or critical habitat of a listed vulnerable species.

Flora: No EPBC Act listed flora species or vegetation communities were recorded during the present rapid landscape assessment. Seventeen EPBC Act listed species have been previously recorded within the local area, including five within the study area, and an additional ten species are listed as having habitat likely to occur within the local area and one as having habitat that may occur within the local area (Appendix 2.1).

Fauna: Eight nationally significant fauna species listed as threatened under the EPBC Act have previously been recorded in the local area (within 10 kilometres of the study area) (AVW). Three nationally significant fauna species (Southern Brown Bandicoot, Plains Wanderer and Growling Grass Frog) have previously been recorded within the study area (AVW). Habitat for an additional ten species is also predicted to occur, either in, or within a 10 kilometre radius of, the study area (DEWHA Protected Matters Search Tool) (Appendix 3.1). There is potential habitat for a small number of EPBC Act listed fauna within the study area (Appendix 3.1).

Communities: The critically endangered 'Natural Temperate Grasslands of the Victorian Volcanic Plain' and endangered 'Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions' are listed as potentially occurring within the local area (within 10 kilometres of the study area). Detailed surveys of remnant native vegetation condition during spring will determine whether any remnant native vegetation within the study area qualifies as either of these ecological communities under the criteria for the EPBC Act.

Listed migratory and marine species

A small number of common migratory and marine species have previously been recorded within the local area (AVW).

While several migratory and marine species may occupy habitats within the study area on occasions, the study area does not provide habitat for an ecologically significant proportion of any of these species.

Commonwealth marine area and nuclear actions

The study area is not within a marine area, nor are the proposed management works related to nuclear actions.

Implications for the management of the study area

Five EPBC Act listed flora and three fauna species have been previously recorded, within the study area. Additionally, two significant ecological communities are likely to occur within the study area. Seventeen significant flora species have been recorded in the local area, and habitat for some of these flora species is likely to occur within the study area (Appendix 2.1). Depending on the outcome of targeted surveys an EPBC Act referral may be required for the proposed development.

4.2 Flora and Fauna Guarantee Act 1988

The primary legislation for the protection of flora and fauna in Victoria is the FFG Act. The Act builds on broader national and international policy in the conservation of biodiversity.

The broad objectives of the FFG Act are to: 1) ensure native flora and fauna survive, flourish and maintain in situ evolutionary potential; 2) manage threatening processes; 3) encourage the conserving of flora and fauna through cooperative community endeavours; and 4) establish a regulatory structure for the conservation of flora and fauna in Victoria.

The Act contains protection procedures such as the listing of threatened species and/or communities of flora and fauna, and the preparation of action statements to protect the long-term viability of these values.

Flora: Five FFG Act listed species have been previously recorded within the study area, and a further 31 species have previously been recorded within the local area (within 10 kilometres of the study area) (Appendix 2.1). Due to the modified nature of the majority of the study area, few of these species are likely to occur within the study area. However, it is possible that some species such as Button Wrinklewort, Large-headed Fireweed and Small Milkwort may persist within the study area.

Fauna: Forty-two fauna species listed under the FFG Act have previously been documented from within 10 kilometres of the study area (AVW). Nine of these have been recorded from within the study area (Appendix 3.1).

Vegetation Communities: There are three FFG Act listed flora communities with potential to occur within the study area - Western Basalt Plains (River Red-gum) Grassy Woodland Floristic Community, Creekline Grassy Woodland (Goldfields) Community and Grey Box – Buloke Grassy Woodland Community. Due to the highly modified nature of the study area, it is unlikely that these communities occur within the study area. However, detailed spring surveys of areas proposed for removal will determine whether the EVCs present qualify under the FFG Act vegetation community criteria.

Other Communities: The FFG Act listed Victorian temperate-woodland bird community is likely to occur in the study area, given that majority of the species that are included in the community have been recorded within 10 kilometres of the study area.

Threatening processes: Several threatening processes listed under the FFG Act are present within the study area (e.g. the invasion of native vegetation by environmental weeds).

Implications

No listed threatened species under the FFG Act were recorded in the study area during the present assessment. However, a number of FFG Act listed flora and fauna species and three FFG Act listed communities may occur within the study area as they have been recorded previously. If any species or communities listed under the FFG Act are likely to be disturbed or removed, a permit under the Act will be required.

Under the FFG Act, VicRoads is required to manage the threatening processes present within the area. The threatening processes identified during the current survey include:

- Collection of native orchids
- Degradation of native riparian vegetation along Victorian rivers and streams
- Habitat fragmentation as a threatening process for fauna in Victoria
- Increase in sediment input into Victorian rivers and streams due to human activities
- Invasion of native vegetation by Blackberry *Rubus fruticosus* L. agg.
- Invasion of native vegetation by ‘environmental weeds’
- Loss of coarse woody debris from Victorian native forests and woodlands
- Loss of hollow-bearing trees from Victorian native forests

- Loss of terrestrial climatic habitat caused by anthropogenic emission of greenhouse gases
- Predation of native wildlife by the cat *Felix catus*
- Predation of native wildlife by the introduced Red Fox *Vulpes vulpes*
- Reduction in biomass and biodiversity of native vegetation through grazing by the Rabbit *Oryctolagus cuniculus*
- Removal of wood debris from Victorian streams
- Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing

4.3 Planning and Environment Act 1987

All planning schemes contain native vegetation provisions at Clause 52.17. A planning permit is required under the *Planning and Environment Act 1987* to remove, destroy or lop native vegetation on a site of more than 0.4 hectares, unless:

- The application is exempt under the schedule to Clause 52.17
- A Native Vegetation Precinct Plan applies.

Planning schemes may contain other provisions in relation to the removal of native vegetation.

Recent changes to the planning provisions (DSE 2006) have altered the criteria for when DSE is the mandatory referral authority. A permit must be referred to DSE if there is one or more of the following:

Scattered Trees (may include trees from patches of vegetation)

- Greater than 15 trees with a diameter less than 40 centimetres at 1.3 metres above ground.
- Greater than 5 trees with a diameter more than 40 centimetres at 1.3 metres above ground.

Areas of vegetation (may include trees)

- Greater than 0.5 hectares of vegetation in an Ecological Vegetation Class with Bioregional Conservation Status of Endangered, Vulnerable or Rare.
- Greater than 1 hectare of vegetation in an Ecological Vegetation Class with Bioregional Conservation Status of Depleted or Least Concern.

Other circumstances

- On Crown land managed by the responsible authority.
- Where a property vegetation plan applies to the study area.

Implications for the management of the study area

As vegetation removal is likely to be required in light of the proposed duplication of the Western Highway, a planning permit to remove remnant vegetation from Northern Grampians Shire, Rural City of Ararat, Pyrenees Shire and/or City of Ballarat will be required. The presence of 18 EVCs with a Bioregional conservation status of endangered will result in patches of remnant native vegetation of High and Very High conservation significance. Little remains of these EVCs and therefore suitable offsets of the same EVC are in high demand and can be difficult to obtain. Further, it is likely that DSE would be a referral authority for any proposed work.

4.4 Wildlife Act 1975 and Wildlife Regulations 2002

Wildlife Act 1975

The *Wildlife Act 1975* is the primary legislation in Victoria providing for protection and management of wildlife. The Act requires people engaged in wildlife research (e.g. fauna surveys, salvage and translocation activities) to obtain a permit under the Act to ensure that these activities are undertaken in a manner consistent with the appropriate controls.

The *Wildlife Act 1975* has the following objectives:

- To establish procedures for the promotion of protection and conservation of wildlife, the prevention of species extinctions, and the sustainable use and access to wildlife; and,
- To prohibit and regulate the conduct of those involved in wildlife related activities.

Wildlife Regulations 2002

The objectives of the Wildlife Regulations are:

- To make further provision in relation to the licensing system established by section 22 of the *Wildlife Act 1975*;
- To prescribe fees, offences, royalties and various other matters for the purposes of the *Wildlife Act 1975*; and,
- To provide for exemptions from certain provisions of the *Wildlife Act 1975*.

Authorisation for habitat removal may be obtained under the Wildlife Act; through a licence granted under the *Forests Act 1958*, or under any other Act such as the *Planning and Environment Act 1987*.

Implications for the management of the study area

While a permit will be required for any proposed removal of habitat within the study area, this could be in the form of a permit to remove native vegetation under the *Planning and Environment Act 1987*. Consequently, a separate permit to remove any fauna under either the *Wildlife Act 1975* or the *Wildlife Regulations 2002* is unlikely to be required if a permit under the *Planning and Environment Act* is obtained.

4.5 Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act* (CALP Act) contains provisions relating to catchment planning, land management, noxious weeds and pest animals. This Act also provides a legislative framework for the management of private and public land and sets out the responsibilities of land managers, stating that they must take all reasonable steps to:

- Avoid causing or contributing to land degradation which causes or may cause damage to land of another land owner;
- Protect water resources;
- Conserve soil;
- Eradicate regionally prohibited weeds;
- Prevent the growth and spread of regionally controlled weeds; and,
- Prevent the spread of, and as far as possible eradicate, established pest animals.

Essentially the Act establishes a framework for the integrated management and protection of catchments, and provides a framework for the integrated and coordinated management, which aims to ensure that the quality of the State's land and water resources and their associated plant and animal life are maintained and enhanced.

Implications for the management of the study area

At least fifty noxious weeds listed within the Glenelg Hopkins catchment (DPI 2008) and have been previously recorded in the local area. Of these species, ten were listed as Weeds of National Significance (www.weeds.org.au).

VicRoads is responsible for controlling any infestation of noxious or environmental weeds that may become established within the study area due to ground disturbance during future works, to minimise their spread and overall impact on ecological values. As such, weeds should be appropriately controlled to minimise their spread and overall impact on ecological values. For example, workers and machinery involved in future construction within the study area should be checked for weed material to avoid further spread of noxious weeds.

4.6 Victoria's Biodiversity Strategy

The Victorian Government endorses this strategy titled 'Victoria's Biodiversity – Directions in Management' (NRE 1997), which represents a benchmark for biodiversity conservation and management throughout the state.

The Biodiversity Strategy encourages Victorians to better understand and appreciate flora and fauna and ecosystems throughout the state, and to take an active part in conservation and management to ensure biodiversity is managed in an ecologically sound and sustainable manner.

4.7 Glenelg Hopkins Native Vegetation Plan

The *Draft Glenelg Hopkins Native Vegetation Plan* (GHCMA 2000) is a guide for local government in assessing planning applications for vegetation removal and determining permit conditions (Net Gain requirements) to ensure that ecological values across the region are not compromised.

The Plan provides information on biodiversity values across the Region and gives guidance to local municipalities on how clearing applications should be assessed. The document also outlines actions to ensure there is more strategic and coordinated approach to address ongoing degradation in quantity and quality of native vegetation across the south-west region.

Implications for the study area

Any proposed offset management should address the key recommendations outlined under the *Draft Glenelg Hopkins Native Vegetation Plan* (GHCMA 2000). These include the protection and enhancement of native vegetation, the promotion of awareness of native vegetation, the sustainable management of native vegetation and the promotion of land uses that lead to long-term protection of native vegetation.

4.8 The Native Vegetation Framework

Since 1989, most proposals to clear native vegetation have required a planning permit from the local Council (Responsible Authority), under the native vegetation provisions of Clause 52.17 of the Victoria Planning Provisions ('VPPs'). In 2002, the Victorian Government released *Victoria's Native Vegetation Management – A Framework for Action* (NRE 2002) ('the Framework'), which establishes a "strategic direction for the protection, enhancement and revegetation of native vegetation across the State".

Amendment (VC19) to Victoria's Planning Provisions introduced the Framework in July 2003 as an incorporated document for all Victorian Planning Schemes. Clauses 11 and 15.09 in the State Planning Policy Framework provide the framework for considering native vegetation issues in the planning system.

These clauses require planning and responsible authorities to have regard to the Framework, which establishes the strategic direction for the protection, enhancement and revegetation of native vegetation across Victoria.

4.8.1 Net Gain

The Framework states that the primary goal is to achieve:

“a reversal, across the entire landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain” (NRE 2002).

Net Gain is the overall outcome where native vegetation and habitat gains are greater than the losses and where losses are avoided, where possible.

4.8.2 Applying Net Gain – the three step approach

When Net Gain is considered for potential impacts on native vegetation within all planning schemes, the Framework has defined a three-step approach for applying Net Gain to protection and clearance decisions.

The three-step approach is:

1. To avoid adverse impacts, particularly through vegetation clearance.
2. If impacts cannot be avoided, to minimise impacts through appropriate consideration in planning processes and expert input to project design or management.
3. Identify appropriate offset options.

The three-step approach to Net Gain is the first consideration for all planning permit applications and planning scheme amendments, with emphasis placed on the first two steps of avoidance and minimisation. Only after these two steps have been taken should offsets (actions undertaken to achieve commensurate gains in vegetation loss) be considered (NRE 2002).

4.8.3 Measurement of Net Gain outcomes

The Framework introduces a combined quality-quantity measuring system called the ‘Habitat Hectare’, which can assist with applying Net Gain outcomes for native vegetation (DSE 2004, Parkes *et al.* 2003).

Generally this system can ‘measure’ the native vegetation and be used to calculate potential losses and gains over a specified area and period of time, of both vegetation patches (where the understorey *vegetative* cover has a greater than 25% cover of indigenous species) and trees (in patches or parcels).

Once the overall losses are known, then offset objectives can be calculated according to Table 6 of the Framework (NRE 2002) and considering the regional Native Vegetation Plans. Offsets for any permitted vegetation loss can be achieved by improvements in the quality or extent of native vegetation in a selected ‘offset area’.

Future management of the study area

A detailed habitat hectare assessment will be required to determine offset requirements for vegetation removal under the Framework. Endangered EVCs such as Plains Grassy Woodland and Plains Grassland are scarce within the Central Victorian Uplands and Victorian Volcanic Plains Bioregion and little remains in remnant patches available for offsets. However, there are several areas of remnant vegetation on private land along the Western Highway that could potentially provide potential offset sites. The DSE BushBroker system may be utilised to source suitable offset sites. An offset management plan will need to be prepared for any offset sites.

5 CONCLUSION

Remnants of 32 EVCs from four Bioregions are mapped within the study area (DSE). Remnant native vegetation within the study area is of at least **local** or **regional** conservation significance (Appendix 1.3), and potentially of state or national significance, given that 18 endangered EVCs from four Bioregions, five nationally significant and thirteen state significant flora species, and three nationally significant, ten state significant and four regionally significant fauna species have previously been recorded within the study area (FIS 2007; AVW 2007). According to the criteria under Victoria's *Native Vegetation Framework* (NRE 2002), remnant patches of endangered EVCs within the study area will have at least **high** conservation significance.

Areas devoid of remnant native vegetation and which support few, if any ecological values (e.g. agricultural pasture) are of negligible significance for flora and fauna.

A referral under the EPBC Act is likely to be required as future works may have a 'significant impact' on matters of national conservation significance outlined under the EPBC Act, namely five nationally significant flora species, three nationally significant fauna species and two nationally significant ecological communities.

Two nationally significant communities and four state significant ecological communities have the potential to occur within the study area. Their status will need to be determined by further detailed flora and fauna surveys within the study area. Under the FFG Act, VicRoads is required to manage the threatening processes listed as present within the study area.

At least 50 noxious weeds listed within the Glenelg Hopkins Catchment area (DPI 2008) and ten Weeds of National Significance (WONS) have been previously recorded within the local area. VicRoads is responsible for controlling any infestation of noxious or environmental weeds that may become established within the study area due to ground disturbance during future works, to minimise their spread and overall impact on ecological values.

Under the *Planning and Environment Act 1987* a permit will be required to remove any native vegetation.

VicRoads will also need to demonstrate how any proposed development addresses the 'avoid', 'minimise' and 'offset' principles of *Victoria's Native Vegetation Management Framework* (NRE 2002), while Net Gain Offset Management Plans will also need to be prepared for any proposed offset sites.

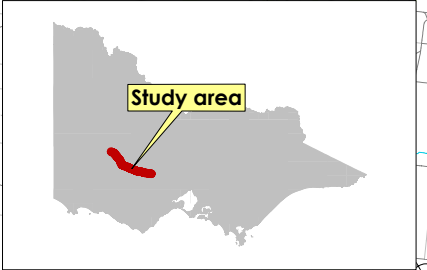
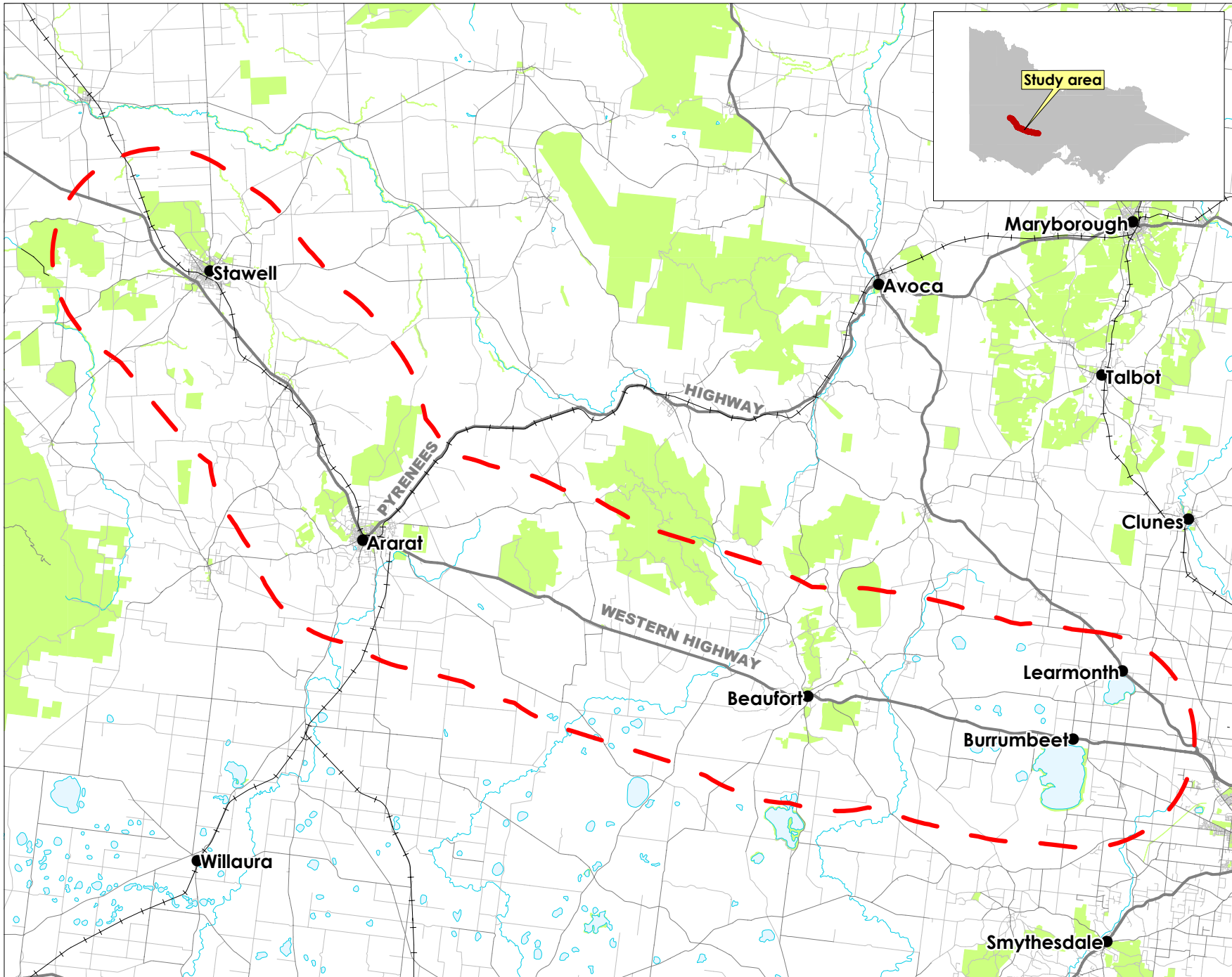
Eighteen endangered EVCs from four Bioregions lie within the study area. As such, areas of these endangered EVCs will be of High or Very High conservation significance. Condition of native vegetation of vulnerable, depleted and least concern EVCs varies greatly within the study area, and these patches are likely to range from Low to Very High conservation significance. There are large amounts of remnant native vegetation on freehold land adjacent to the study area that may potentially be able to be utilised for the vegetation removal offset package.

A detailed flora and fauna assessment and habitat hectare analysis, where losses and offset targets are calculated should be developed for sections of the study area likely to be subject to native vegetation removal. Following this, an Environmental Management Plan will be required to address environmental risks associated with the future road works and a Net Gain Offset Management Plan will be required to source offsets for the vegetation removal. Any proposed offset management should address the key recommendations outlined under the *Draft Glenelg Hopkins Native Vegetation Plan* (GHCMA 2000). These include the protection and enhancement of native vegetation, the promotion of awareness of native vegetation, the sustainable management of native vegetation and the promotion of land uses that lead to long-term protection of native vegetation.

Given that five nationally significant flora species have been recorded within the study area, and a further 11 nationally significant flora species are predicted to have suitable habitat within the local area, targeted surveys for these species during appropriate flowering seasons are recommended to determine their status within the study area. Similarly given that eight nationally significant fauna species have been recorded within the study area and an additional ten nationally significant fauna species are predicted to have suitable habitat within the local area, targeted surveys for these species are recommended to determine their status within the study area.

Finally, significant flora and fauna species Conservation Management Plans will be required for species either known or likely to occur within the study area.

FIGURES



Local area

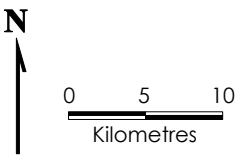
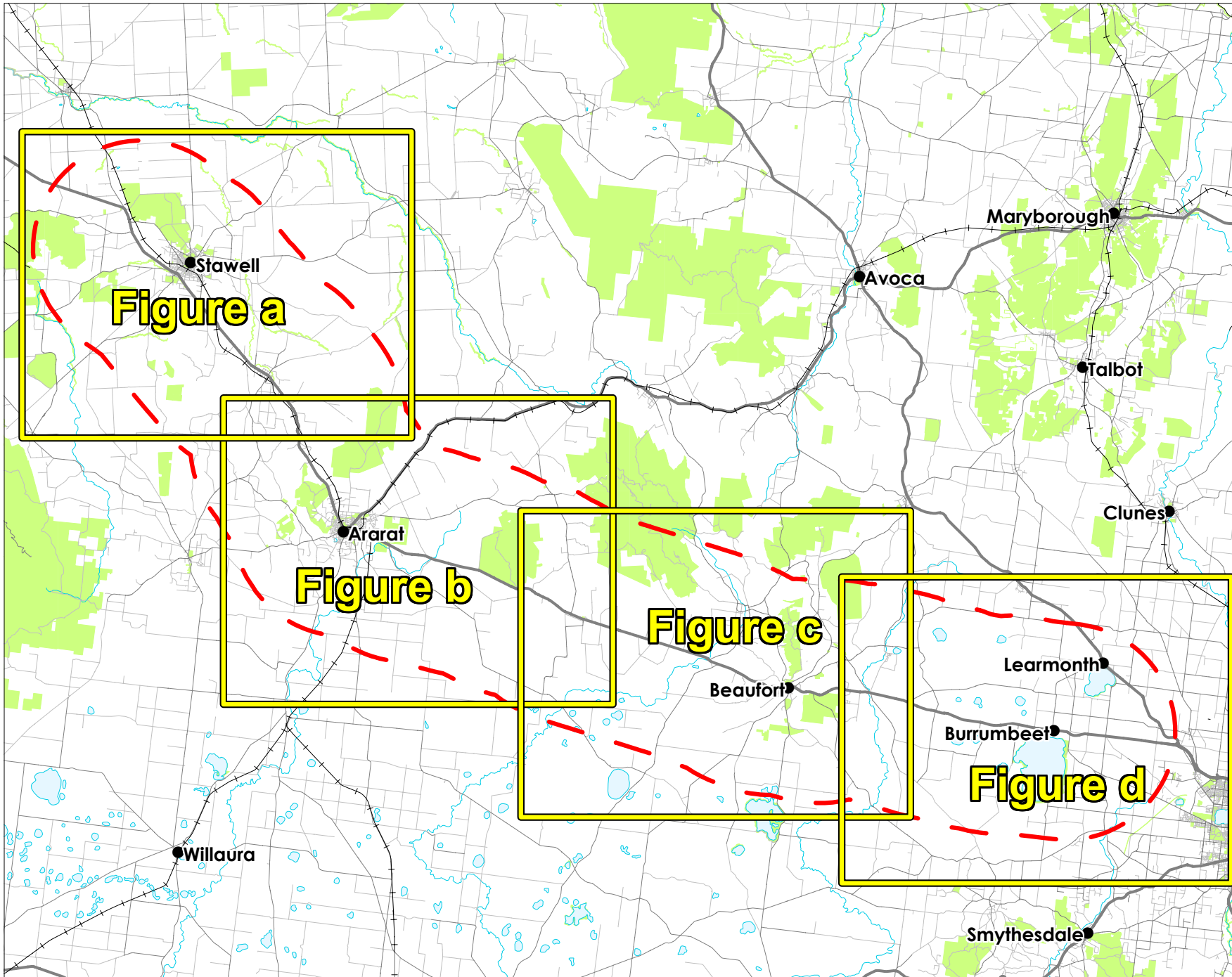


Figure 1
 Location of study area,
 Western Hwy,
 Burrumbeet to Stawell



EP Map Num: 1006 Fig 1
 Issue Date: 4/7/2008



Local area

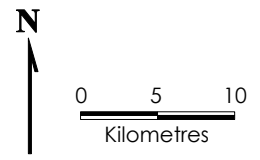
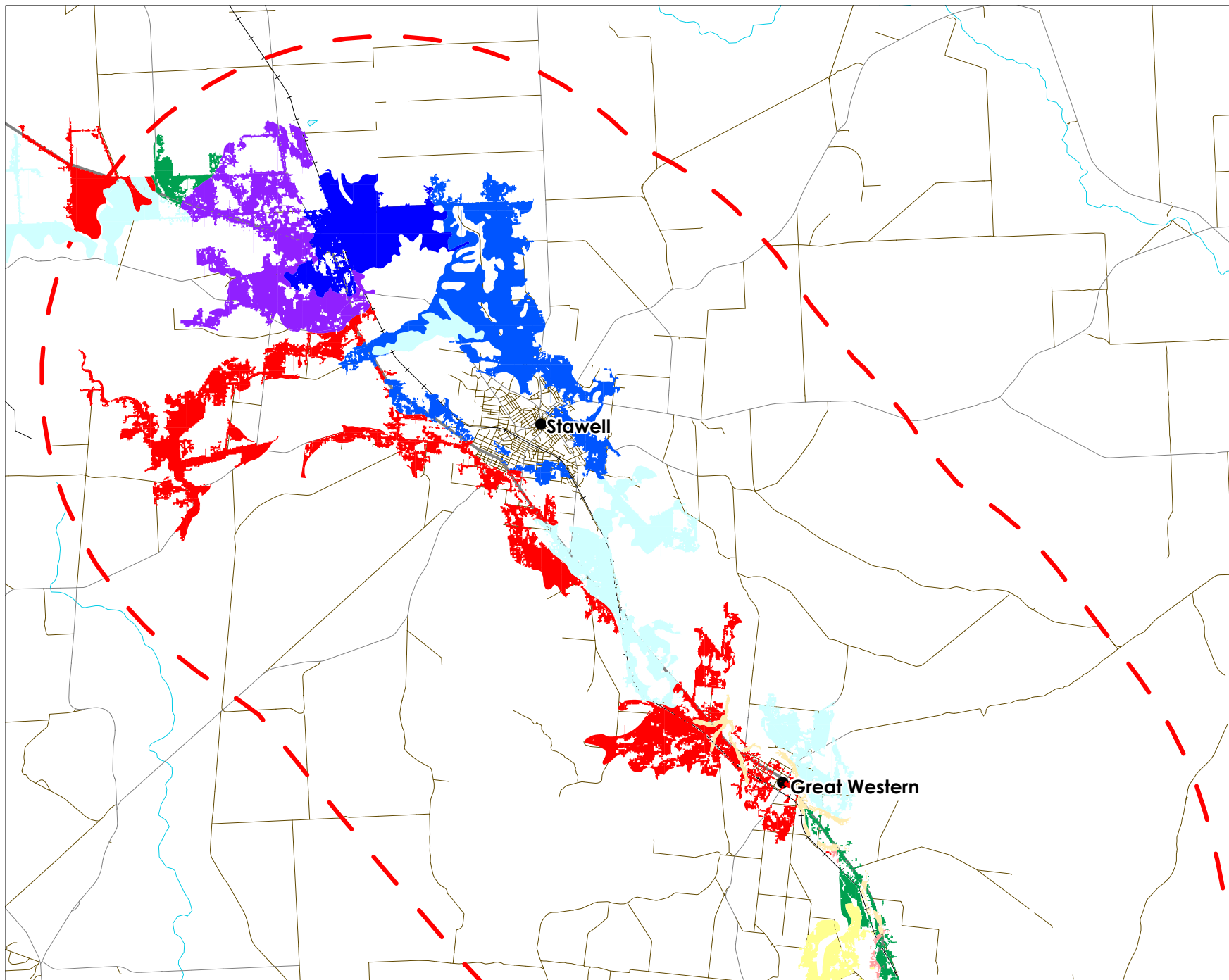


Figure Key
 Location of study area,
 Western Hwy,
 Burrumbeet to Stawell



EP Map Num: 1006 Fig Key
 Issue Date: 4/7/2008

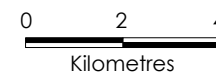


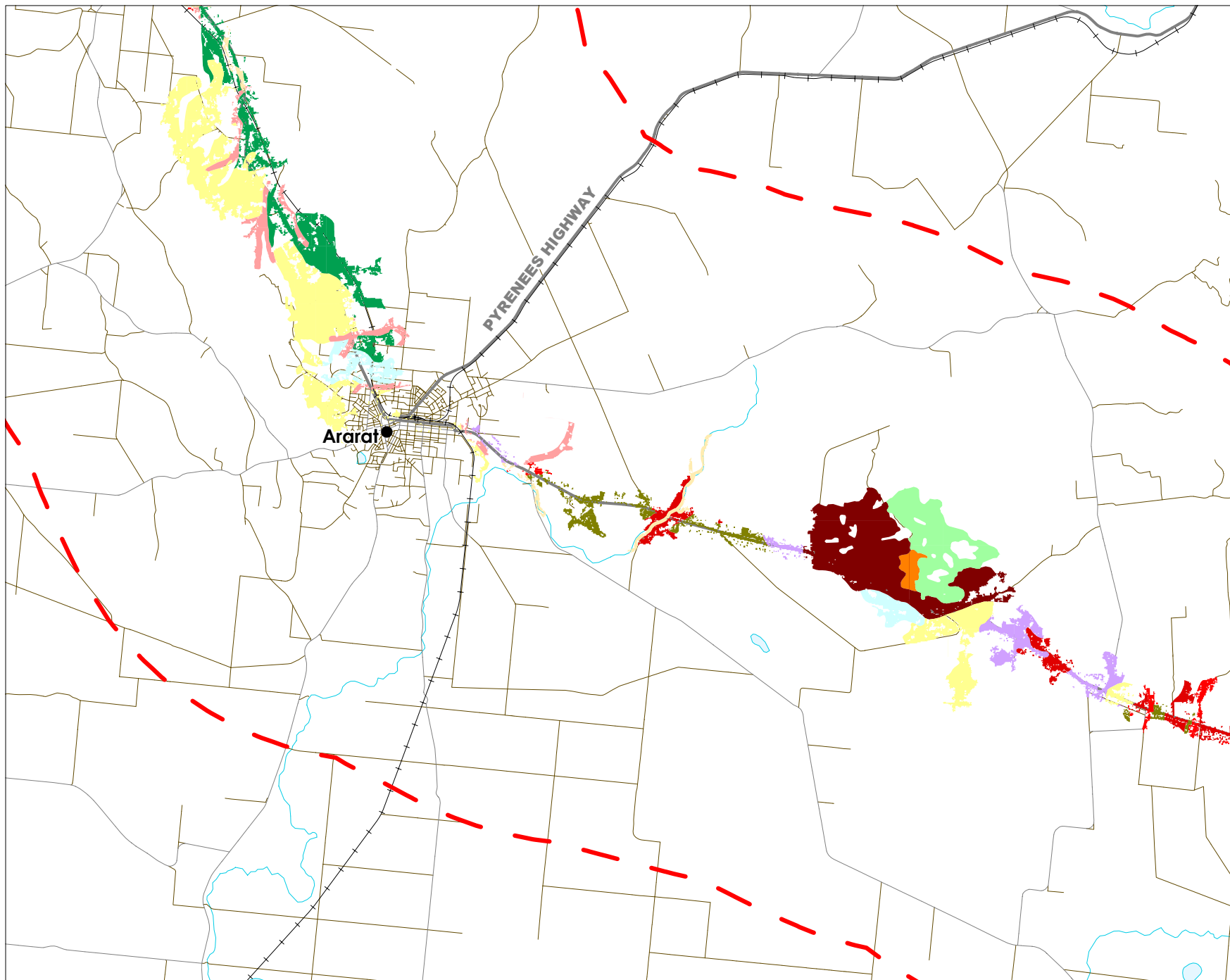
Ecological Vegetation Classes

within 250m of the study area

- Alluvial Terraces Herb-rich Woodland
- Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex
- Aquatic Herbland/Plains Sedgy Wetland Mosaic
- Box Ironbark Forest
- Creekline Grassy Woodland
- Damp Sands Herb-rich Woodland
- Grassy Dry Forest
- Grassy Woodland
- Grassy Woodland/Heathy Dry Forest Complex
- Grassy Woodland/Heathy Woodland Mosaic
- Heathy Dry Forest
- Heathy Woodland
- Hills Herb-rich Woodland
- Plains Grassland
- Plains Grassland/Plains Grassy Woodland Mosaic
- Plains Grassy Wetland
- Plains Grassy Woodland
- Plains Sedgy Wetland
- Riparian Woodland
- Shallow Sands Woodland/Plains Sedgy Woodland Mosaic
- Valley Grassy Forest
- Water Body - Fresh
- Local area

Figure 2a
Location of EVCs within
250m of the study area



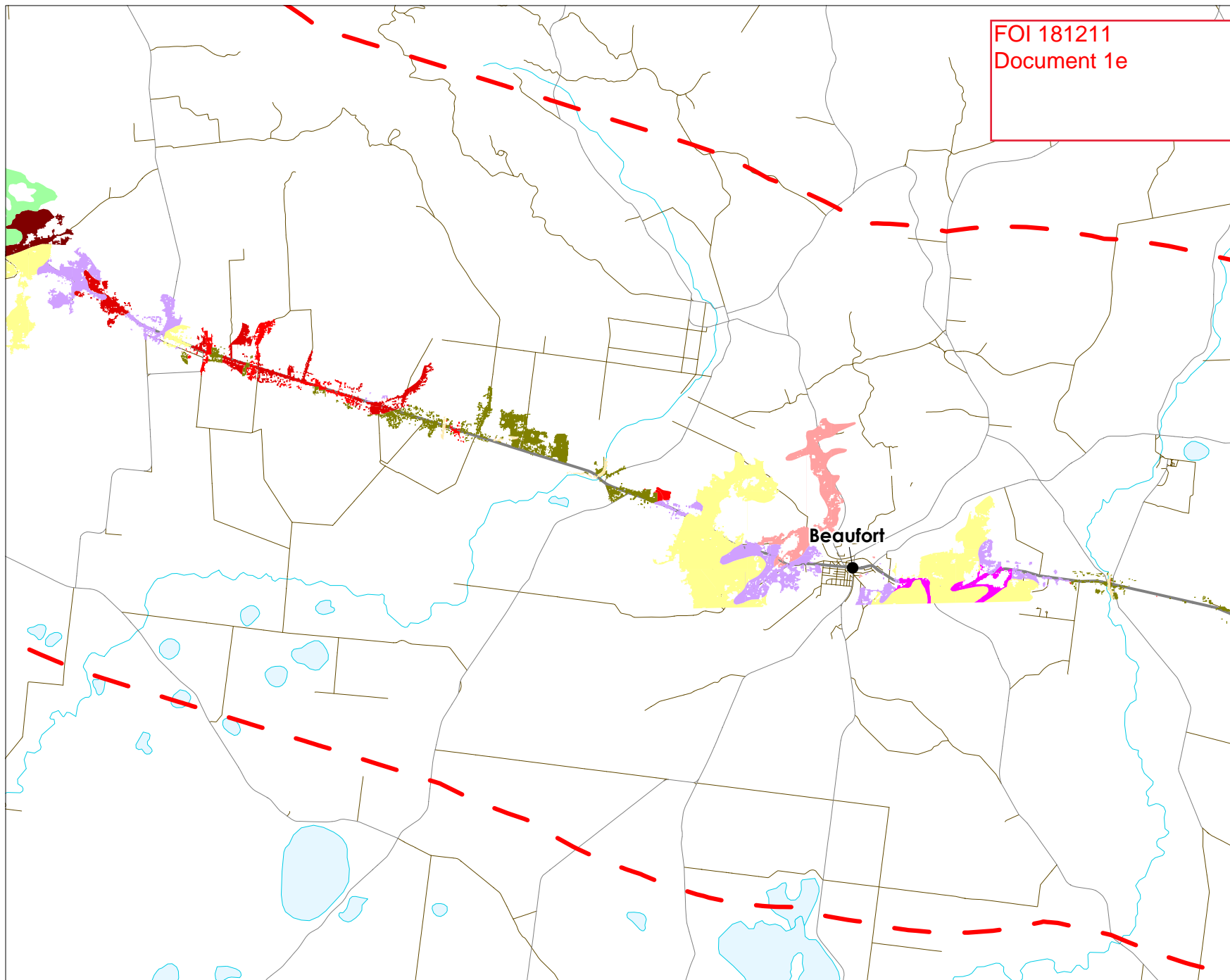


**Ecological Vegetation Classes
within 250m of the study area**

- Alluvial Terraces Herb-rich Woodland
- Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex
- Aquatic Herbland/Plains Sedy Wetland Mosaic
- Box Ironbark Forest
- Creekline Grassy Woodland
- Damp Sands Herb-rich Woodland
- Grassy Dry Forest
- Grassy Woodland
- Grassy Woodland/Heathy Dry Forest Complex
- Grassy Woodland/Heathy Woodland Mosaic
- Heathy Dry Forest
- Heathy Woodland
- Hills Herb-rich Woodland
- Plains Grassland
- Plains Grassland/Plains Grassy Woodland Mosaic
- Plains Grassy Wetland
- Plains Grassy Woodland
- Plains Sedy Wetland
- Riparian Woodland
- Shallow Sands Woodland/Plains Sedy Woodland Mosaic
- Valley Grassy Forest
- Water Body - Fresh
- Local area

Figure 2b
Location of EVCs within
250m of the study area





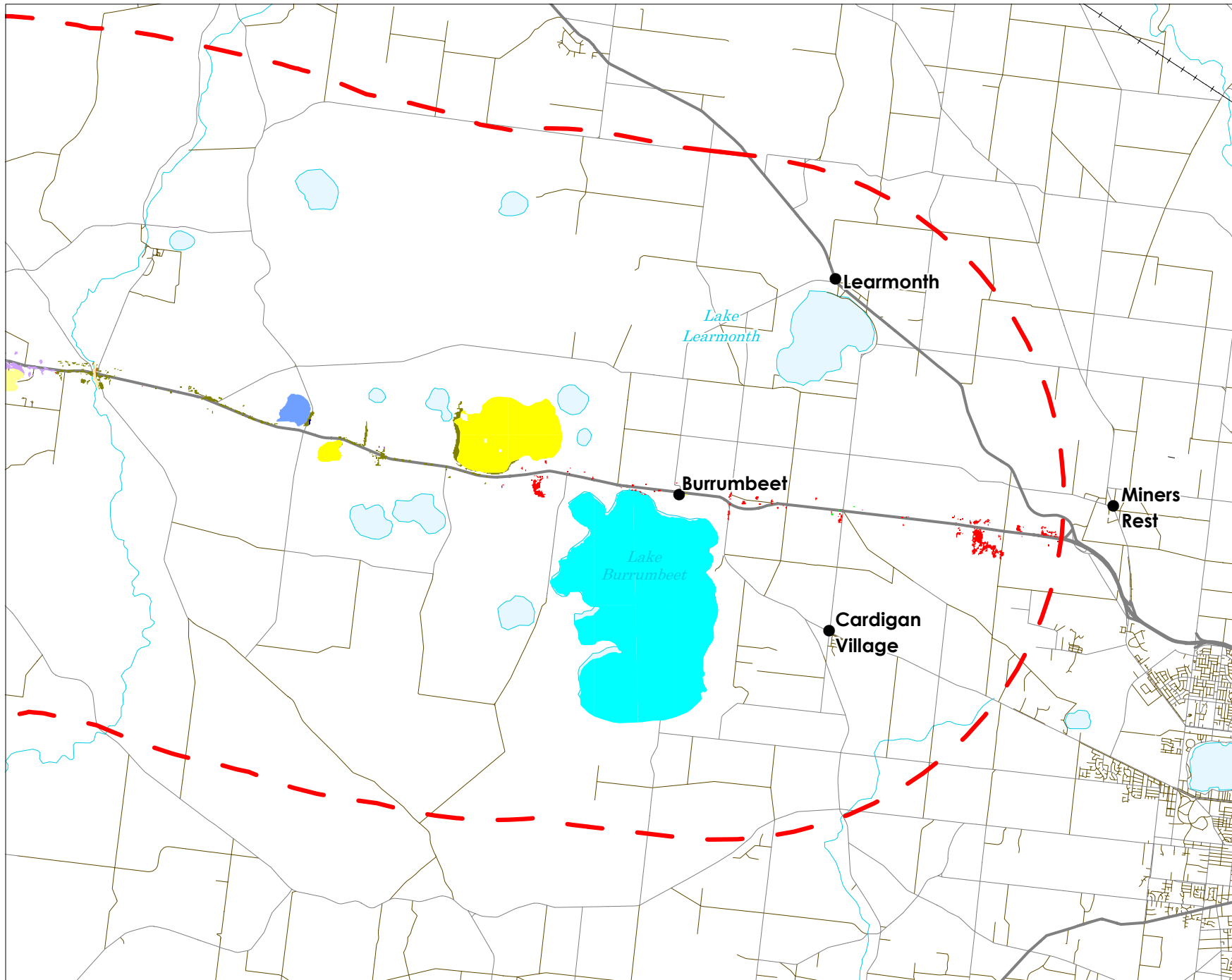
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**Ecological Vegetation Classes
within 250m of the study area**

- Alluvial Terraces Herb-rich Woodland
- Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex
- Aquatic Hermland/Plains Sedy Wetland Mosaic
- Box Ironbark Forest
- Creekline Grassy Woodland
- Damp Sands Herb-rich Woodland
- Grassy Dry Forest
- Grassy Woodland
- Grassy Woodland/Heathy Dry Forest Complex
- Grassy Woodland/Heathy Woodland Mosaic
- Heathy Dry Forest
- Heathy Woodland
- Hills Herb-rich Woodland
- Plains Grassland
- Plains Grassland/Plains Grassy Woodland Mosaic
- Plains Grassy Wetland
- Plains Grassy Woodland
- Plains Sedy Wetland
- Riparian Woodland
- Shallow Sands Woodland/Plains Sedy Woodland Mosaic
- Valley Grassy Forest
- Water Body - Fresh
- Local area

Figure 2c
Location of EVCs within
250m of the study area



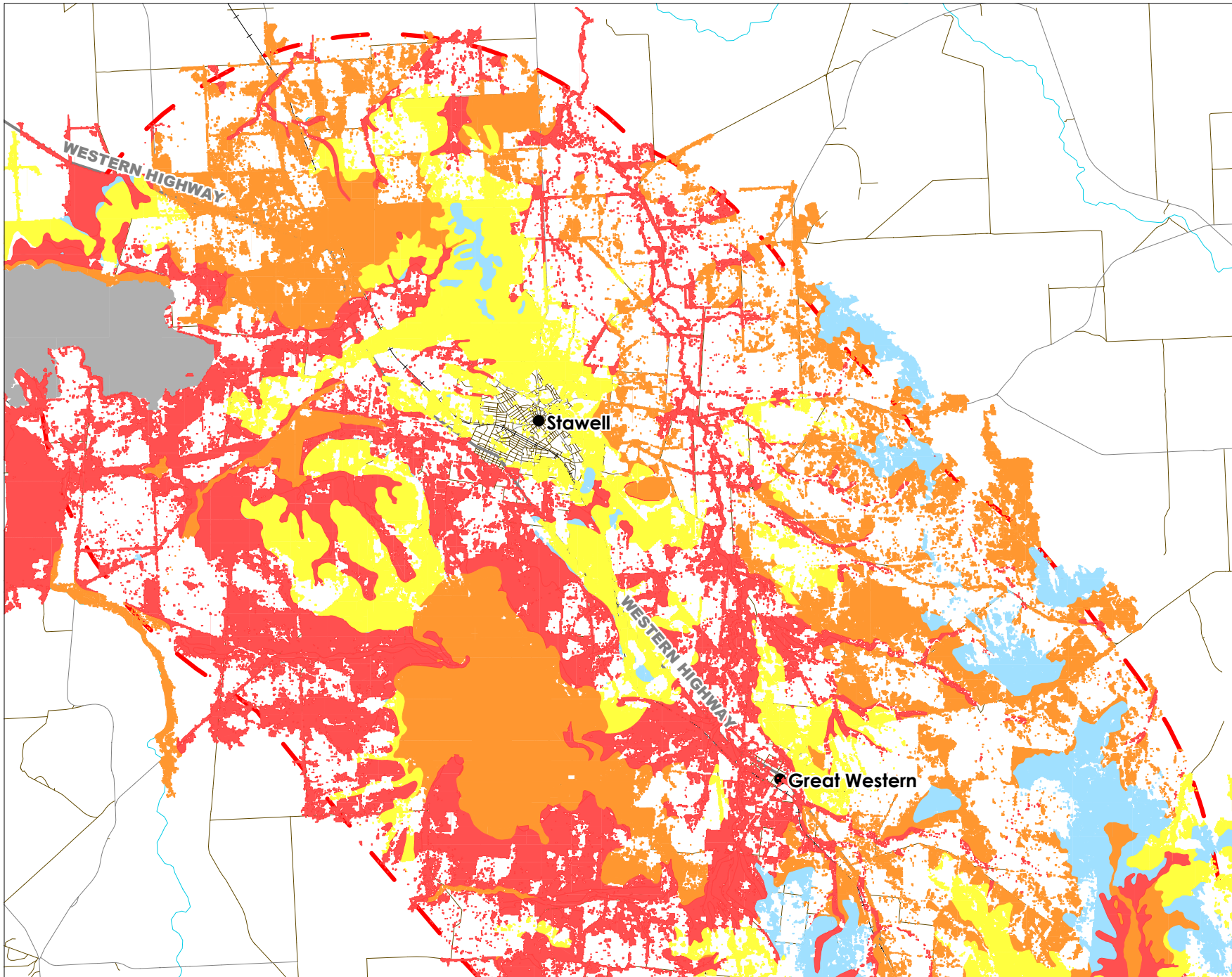


**Ecological Vegetation Classes
within 250m of the study area**

- Alluvial Terraces Herb-rich Woodland
- Alluvial Terraces Herb-rich Woodland/Plains Grassy Woodland Complex
- Aquatic Herbland/Plains Sedy Wetland Mosaic
- Box Ironbark Forest
- Creekline Grassy Woodland
- Damp Sands Herb-rich Woodland
- Grassy Dry Forest
- Grassy Woodland
- Grassy Woodland/Heathy Dry Forest Complex
- Grassy Woodland/Heathy Woodland Mosaic
- Heathy Dry Forest
- Heathy Woodland
- Hills Herb-rich Woodland
- Plains Grassland
- Plains Grassland/Plains Grassy Woodland Mosaic
- Plains Grassy Wetland
- Plains Grassy Woodland
- Plains Sedy Wetland
- Riparian Woodland
- Shallow Sands Woodland/Plains Sedy Woodland Mosaic
- Valley Grassy Forest
- Water Body - Fresh
- Local area

Figure 2d
Location of EVCs within
250m of the study area





Bioregional Conservation Status of EVCs

- Endangered
- Vulnerable
- Depleted
- Least Concern
- Not Applicable

Local area

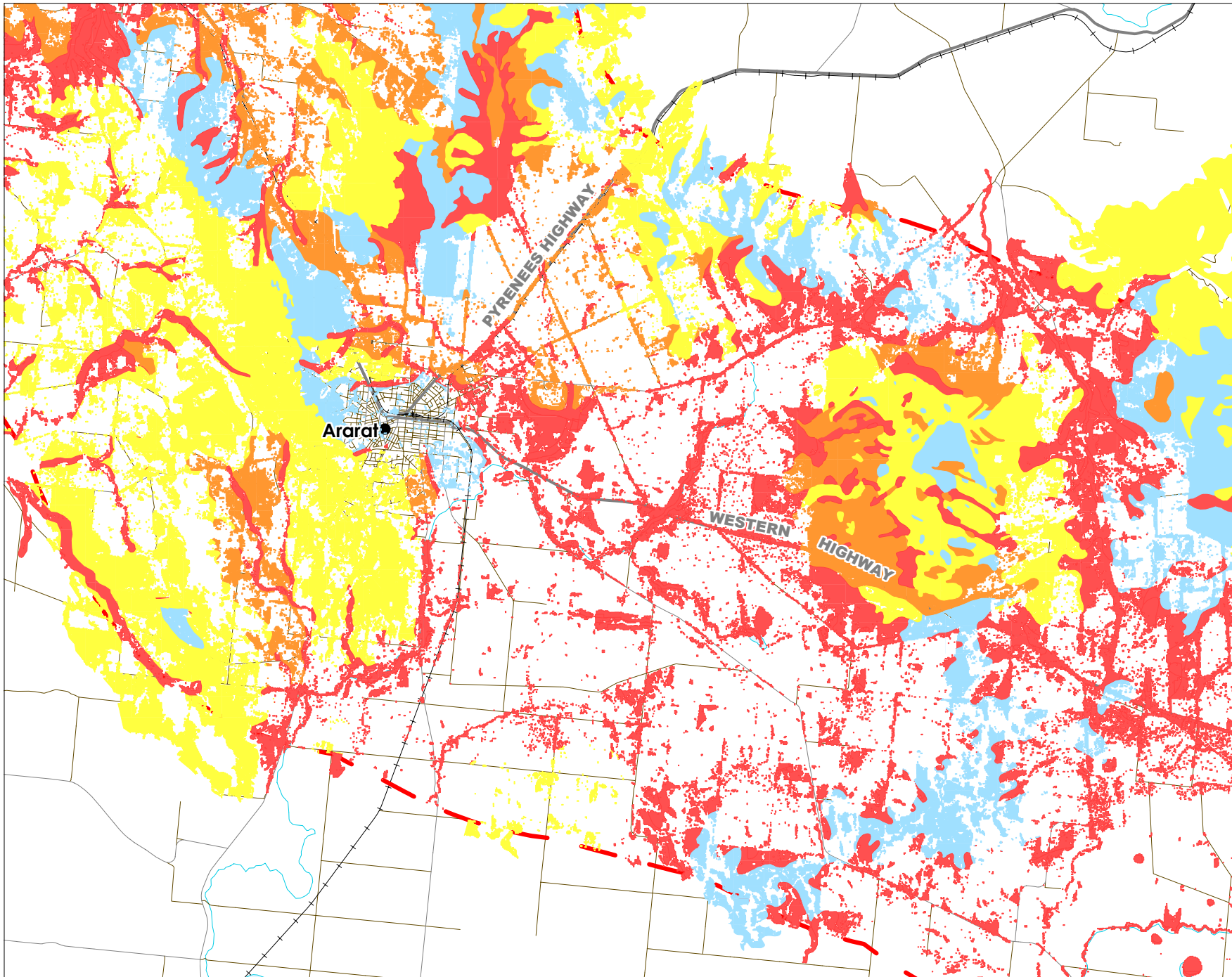
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Kilometres

Figure 3a
Bioregional Conservation Status of EVCs within the study area



EP Map Num: 1006 Fig 3
 Issue Date: 4/7/2008



Bioregional Conservation

Status of EVCs

- Endangered
- Vulnerable
- Depleted
- Least Concern
- Not Applicable

Local area

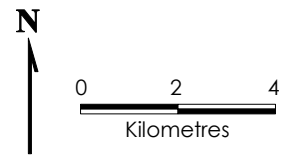
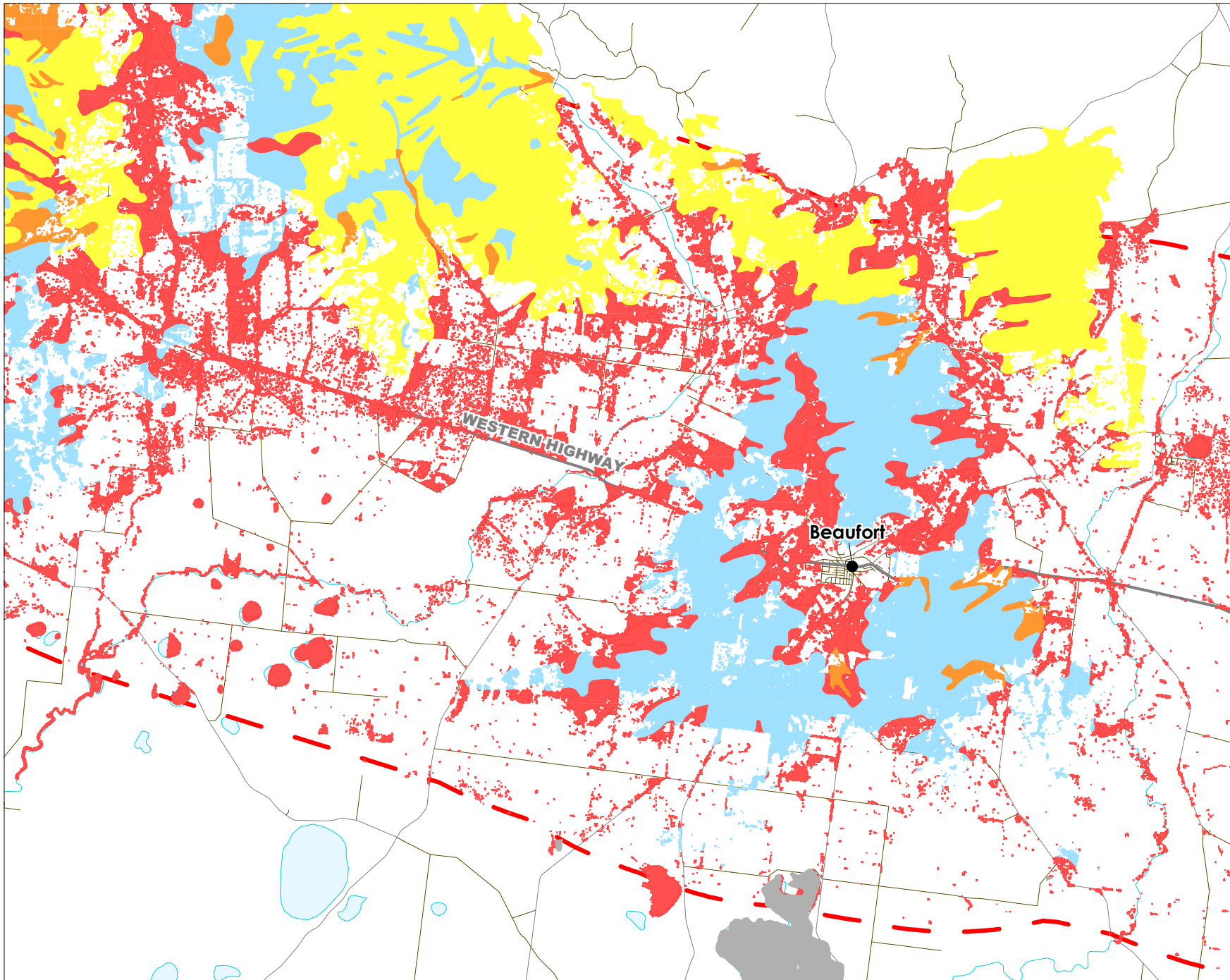


Figure 3b
Bioregional Conservation
Status of EVCs within
the study area





Bioregional Conservation

Status of EVCs

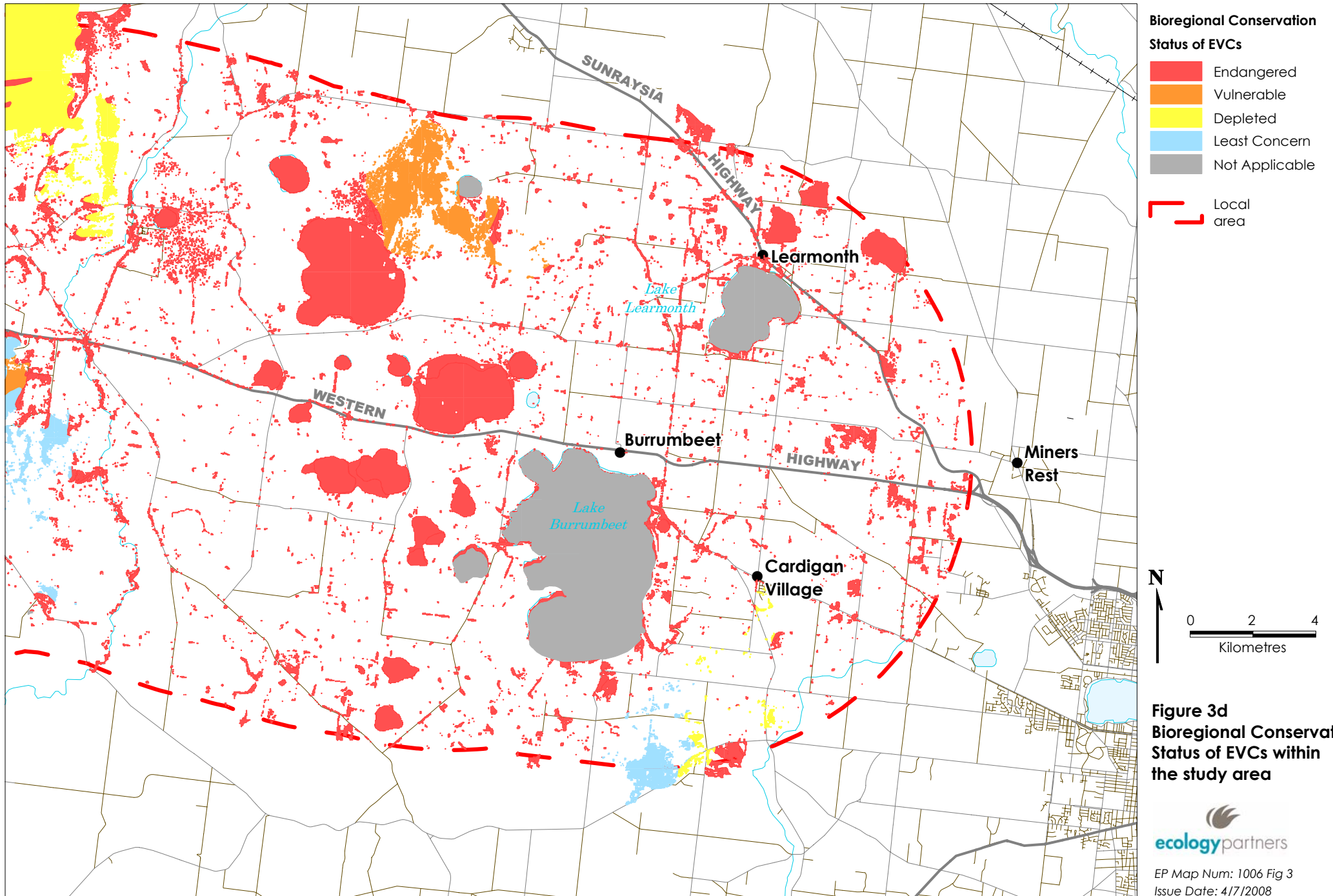
- Endangered
- Vulnerable
- Depleted
- Least Concern
- Not Applicable

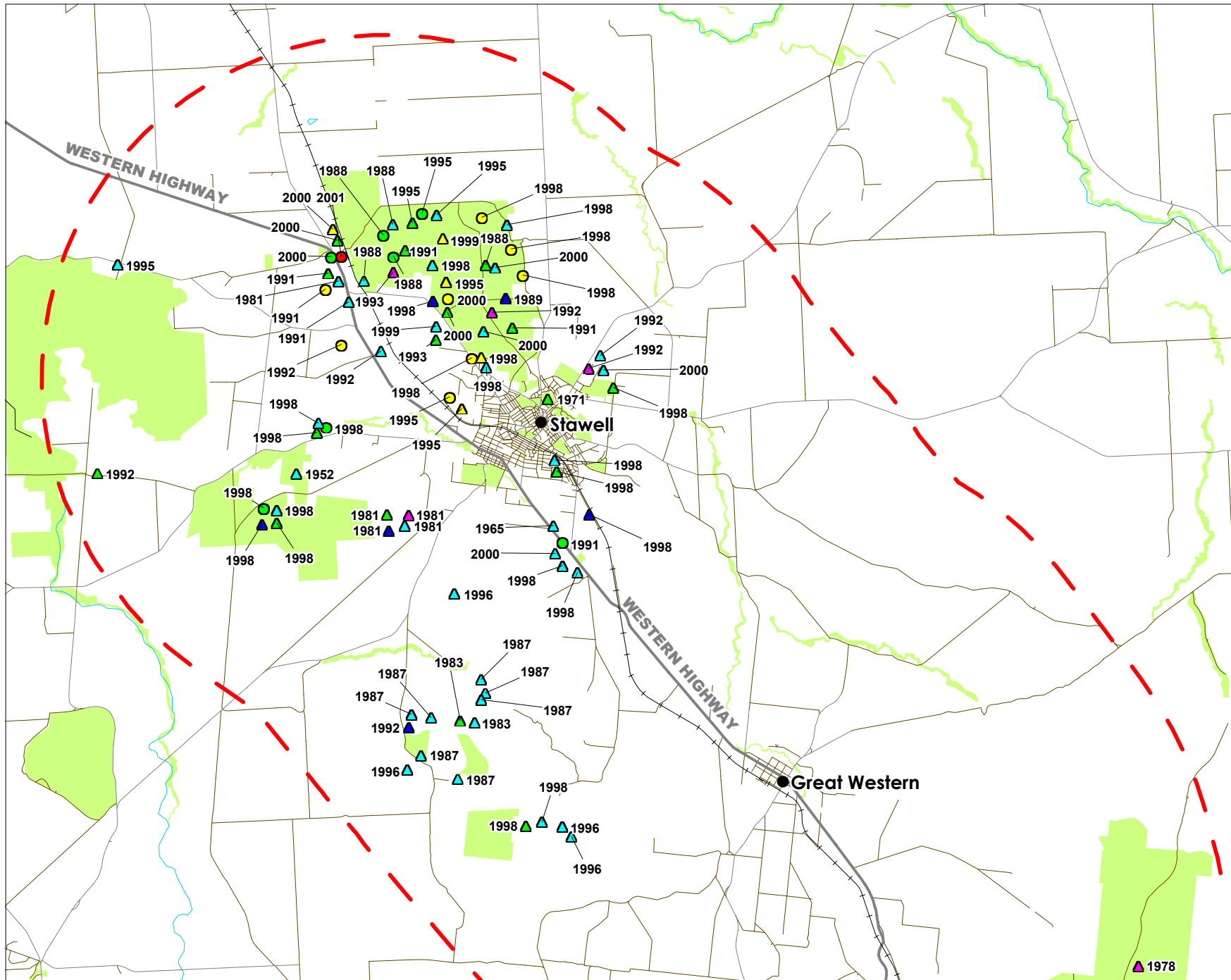
- Local area



Figure 3c
Bioregional Conservation
Status of EVCs within
the study area







Significant flora records

- NATIONAL significance, Critically endangered
- NATIONAL significance, Endangered
- NATIONAL significance, Vulnerable
- ▲ STATE significance, Endangered
- ▲ STATE significance, Listed on FFG Act
- ▲ STATE significance, Poorly known
- ▲ STATE significance, Rare
- ▲ STATE significance, Vulnerable

┌ Local area

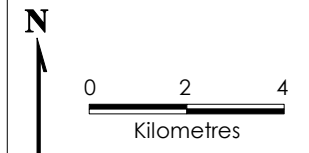
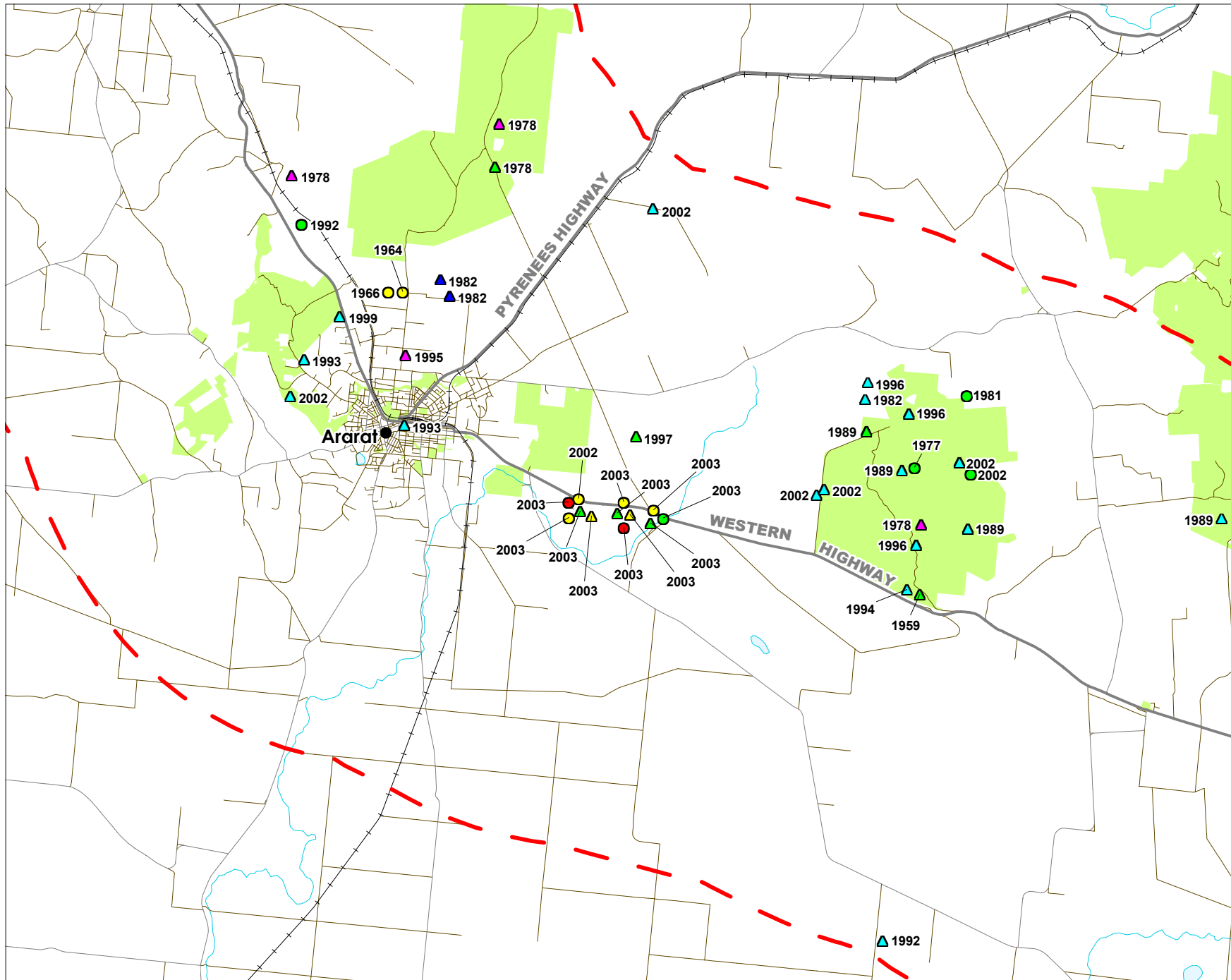


Figure 4a
Significant flora records (post-1950) for the local area



Significant flora records

- NATIONAL significance, Critically endangered
- NATIONAL significance, Endangered
- NATIONAL significance, Vulnerable
- ▲ STATE significance, Endangered
- ▲ STATE significance, Listed on FFG Act
- ▲ STATE significance, Poorly known
- ▲ STATE significance, Rare
- ▲ STATE significance, Vulnerable

- - - Local area

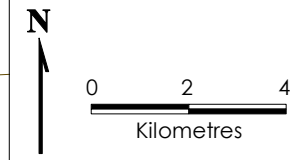
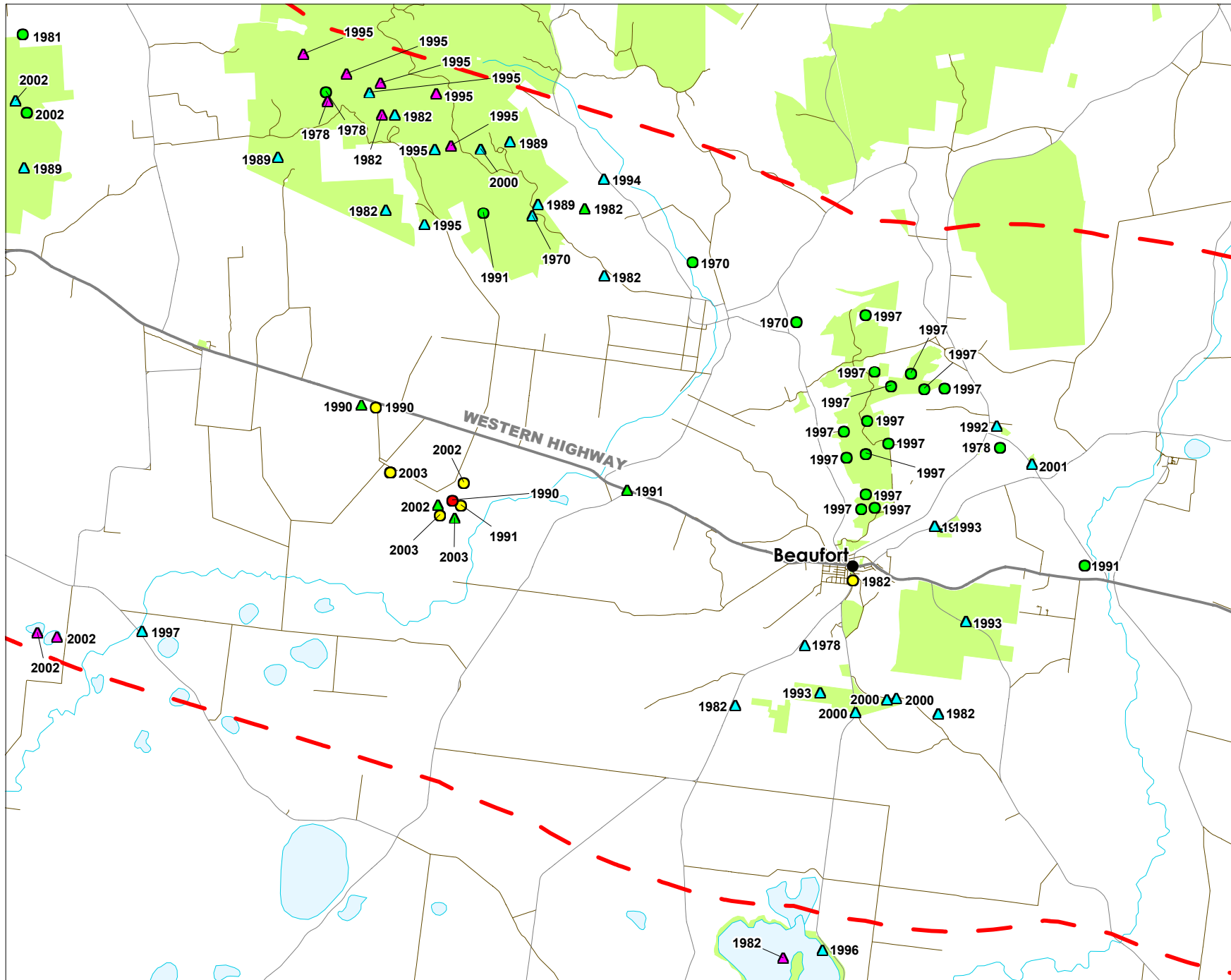


Figure 4b
Significant flora records (post-1950) for the local area





Significant flora records

- NATIONAL significance, Critically endangered
- NATIONAL significance, Endangered
- NATIONAL significance, Vulnerable
- ▲ STATE significance, Endangered
- ▲ STATE significance, Listed on FFG Act
- ▲ STATE significance, Poorly known
- ▲ STATE significance, Rare
- ▲ STATE significance, Vulnerable

┌┐└└┘┘ Local area

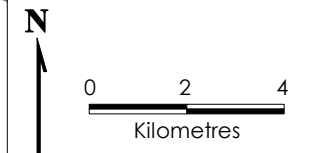
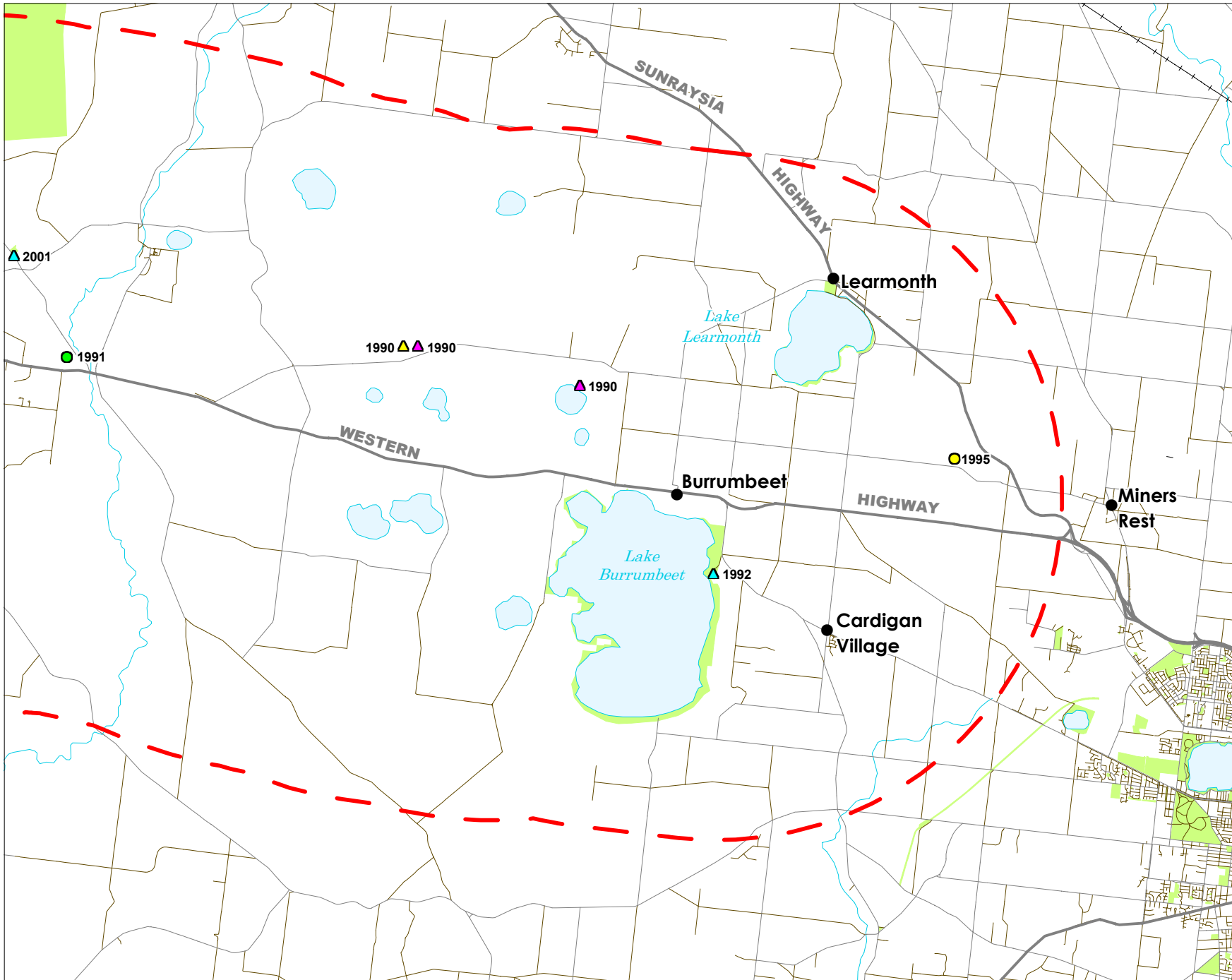


Figure 4c
Significant flora records
(post-1950) for the local area



Significant flora records

- NATIONAL significance, Critically endangered
- NATIONAL significance, Endangered
- NATIONAL significance, Vulnerable
- ▲ STATE significance, Endangered
- ▲ STATE significance, Listed on FFG Act
- ▲ STATE significance, Poorly known
- ▲ STATE significance, Rare
- ▲ STATE significance, Vulnerable

┌ Local area

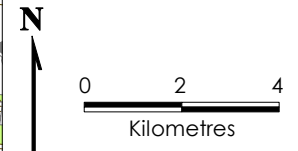
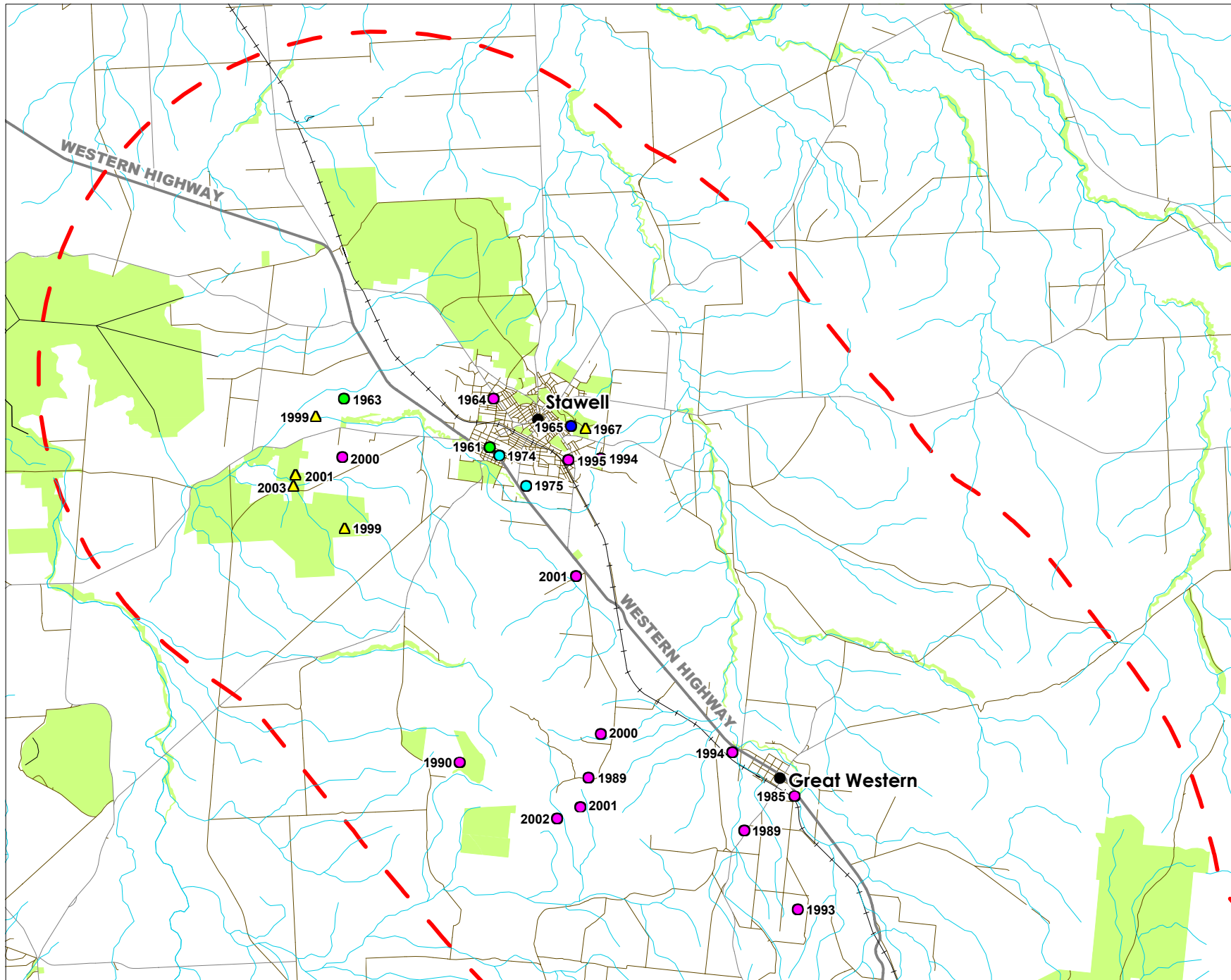


Figure 4d
Significant flora records
(post-1950) for the local area



Nationally significant records

- Eastern Barred Bandicoot
- Golden Sun Moth
- Growling Grass Frog
- Plains-wanderer
- Regent Honeyeater
- Southern Brown Bandicoot
- ▲ Striped Legless Lizard
- ▲ Swift Parrot

Local area

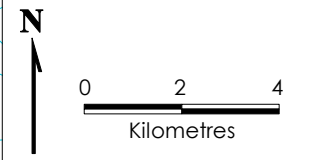
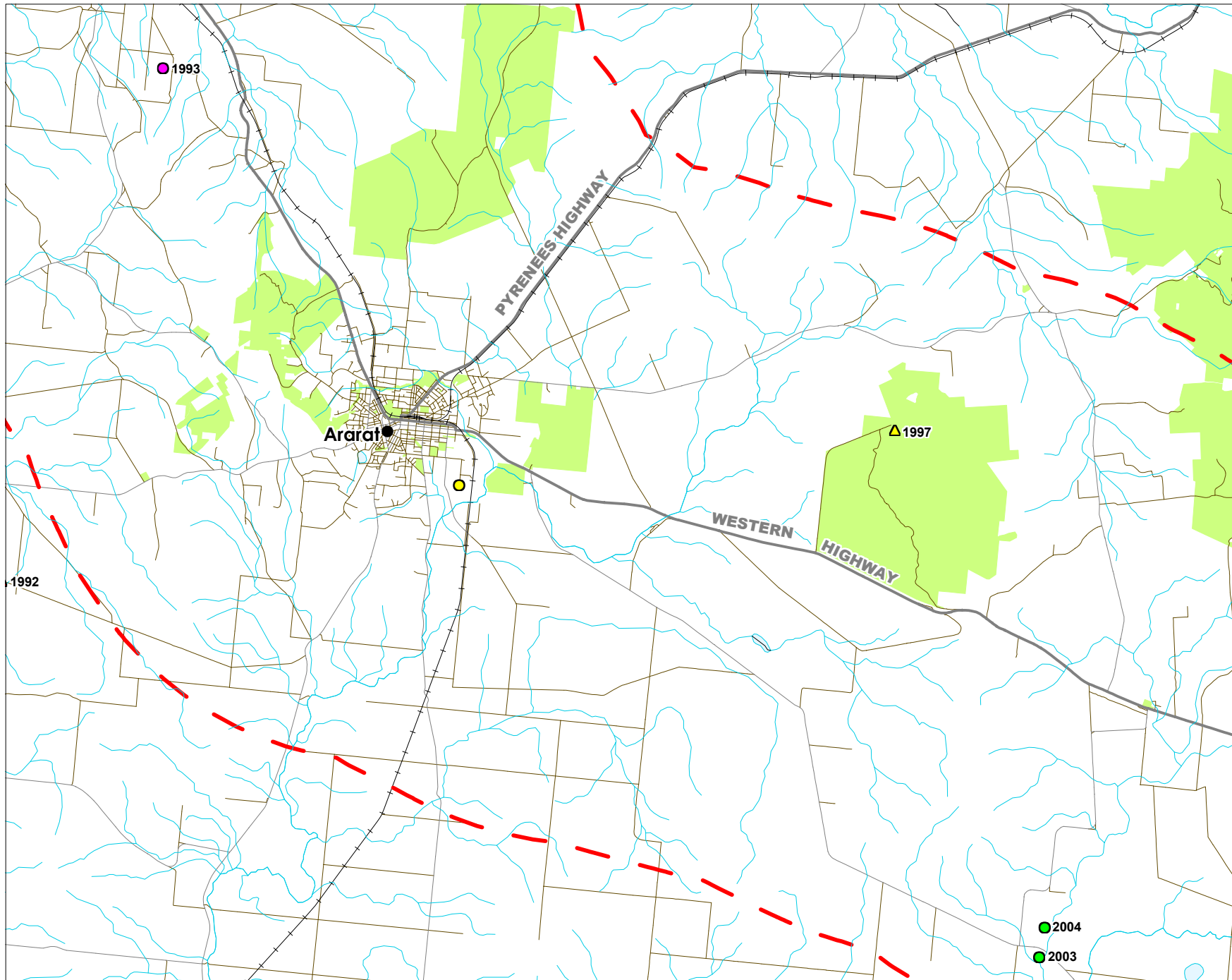


Figure 5a
Significant fauna records
(post-1950) for the local area
(National)





Nationally significant records

- Eastern Barred Bandicoot
- Golden Sun Moth
- Growling Grass Frog
- Plains-wanderer
- Regent Honeyeater
- Southern Brown Bandicoot
- ▲ Striped Legless Lizard
- ▲ Swift Parrot

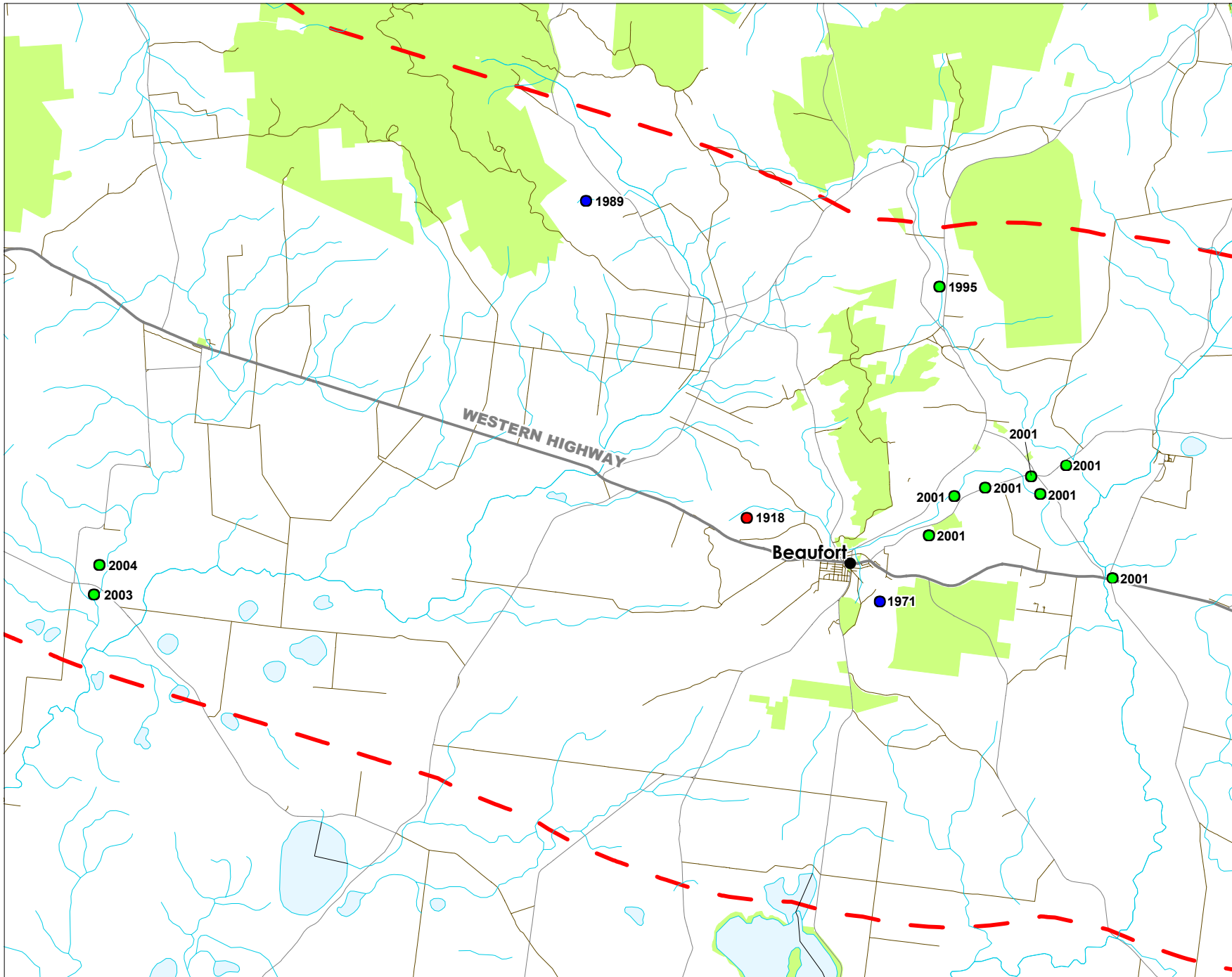
┌ ┐
Local area



0 2 4
Kilometres

Figure 5b
Significant fauna records
(post-1950) for the local area
(National)





Nationally significant records

- Eastern Barred Bandicoot
- Golden Sun Moth
- Growing Grass Frog
- Plains-wanderer
- Regent Honeyeater
- Southern Brown Bandicoot
- ▲ Striped Legless Lizard
- ▲ Swift Parrot
- ┌ Local area

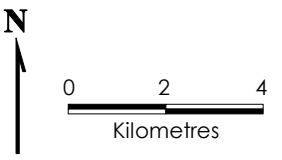
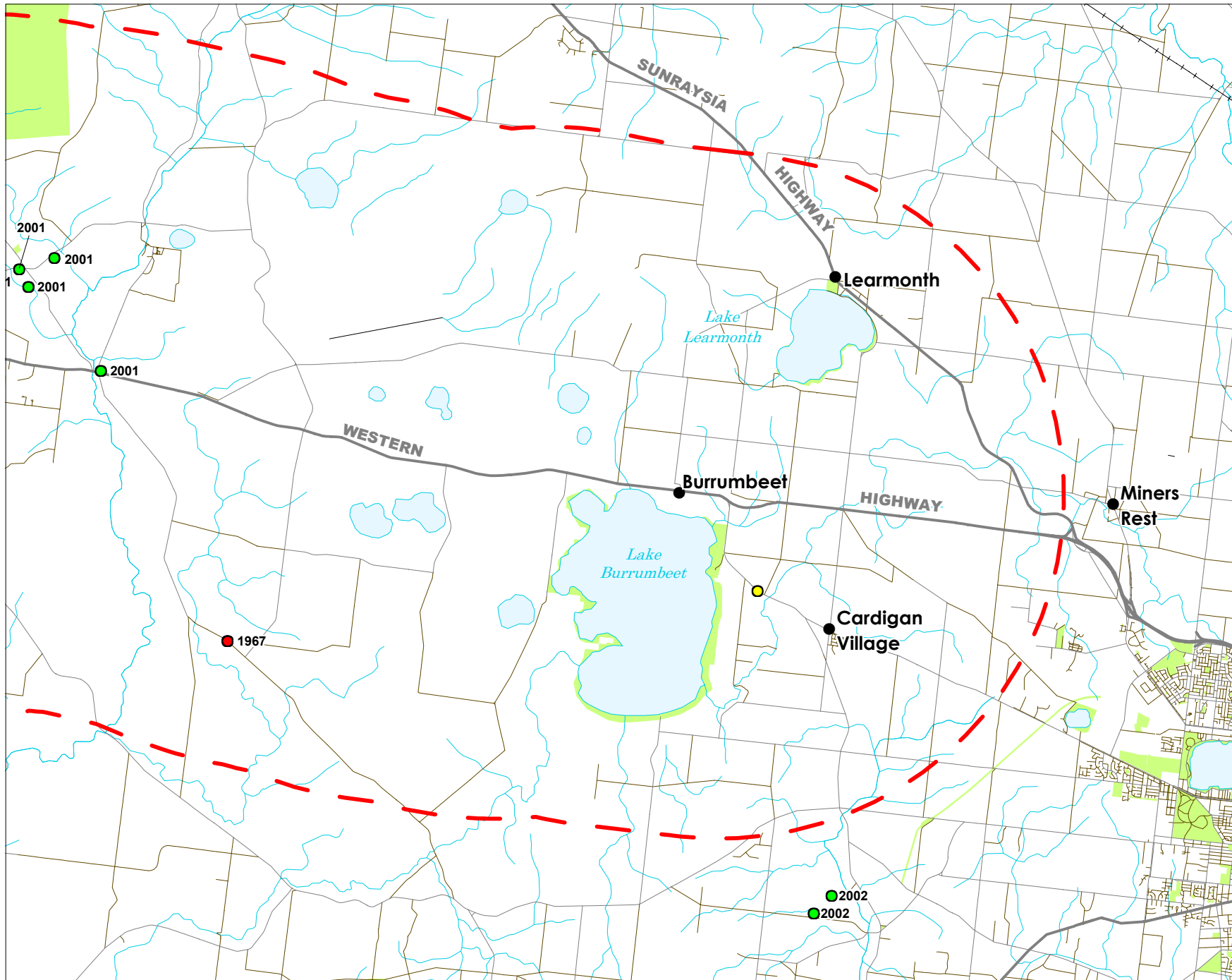


Figure 5c
Significant fauna records
(post-1950) for the local area
(National)





Nationally significant records

- Eastern Barred Bandicoot
- Golden Sun Moth
- Growling Grass Frog
- Plains-wanderer
- Regent Honeyeater
- Southern Brown Bandicoot
- ▲ Striped Legless Lizard
- ▲ Swift Parrot

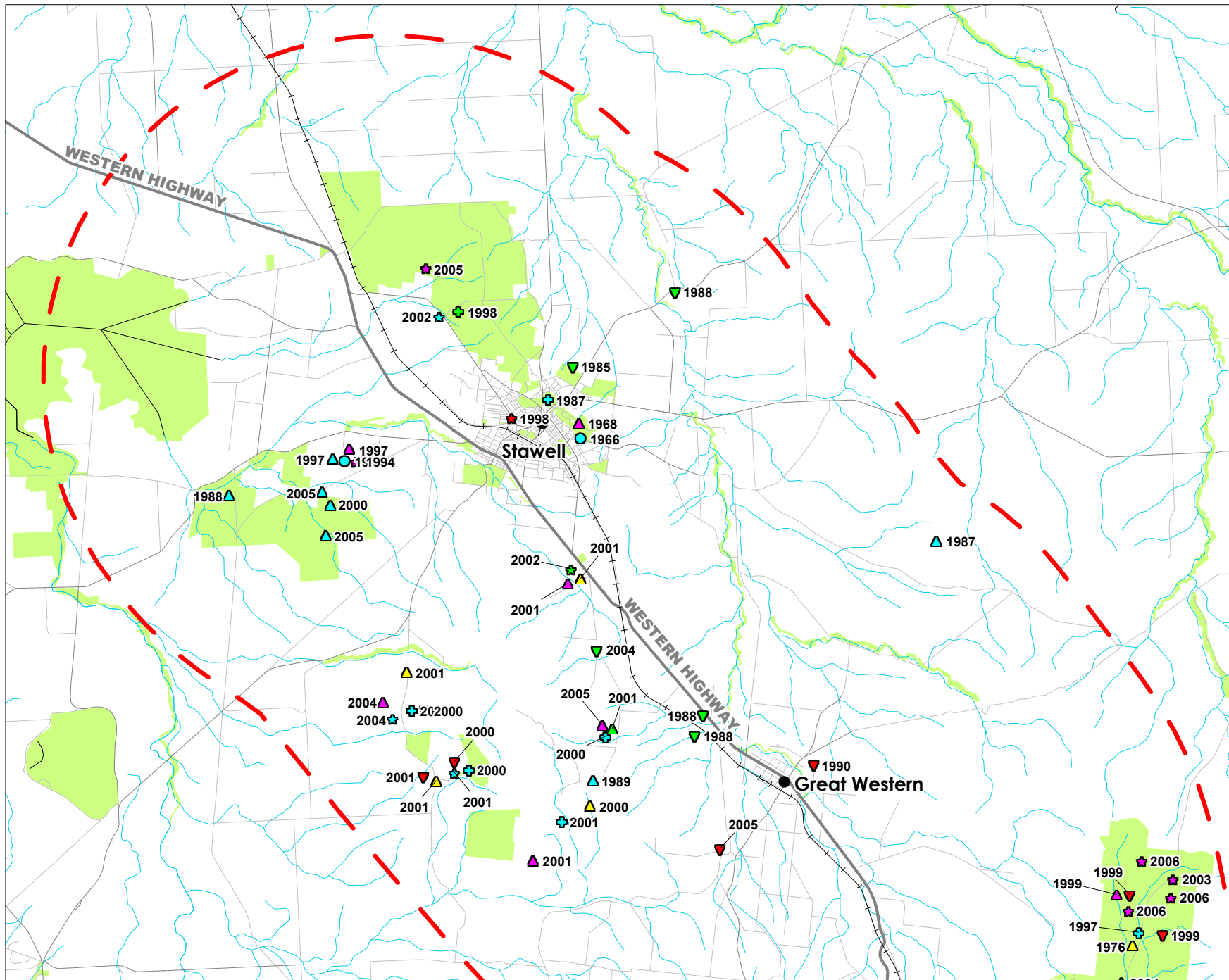
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Local area



0 2 4
Kilometres

Figure 5d
Significant fauna records
(post-1950) for the local area
(National)

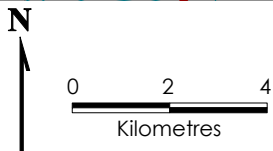


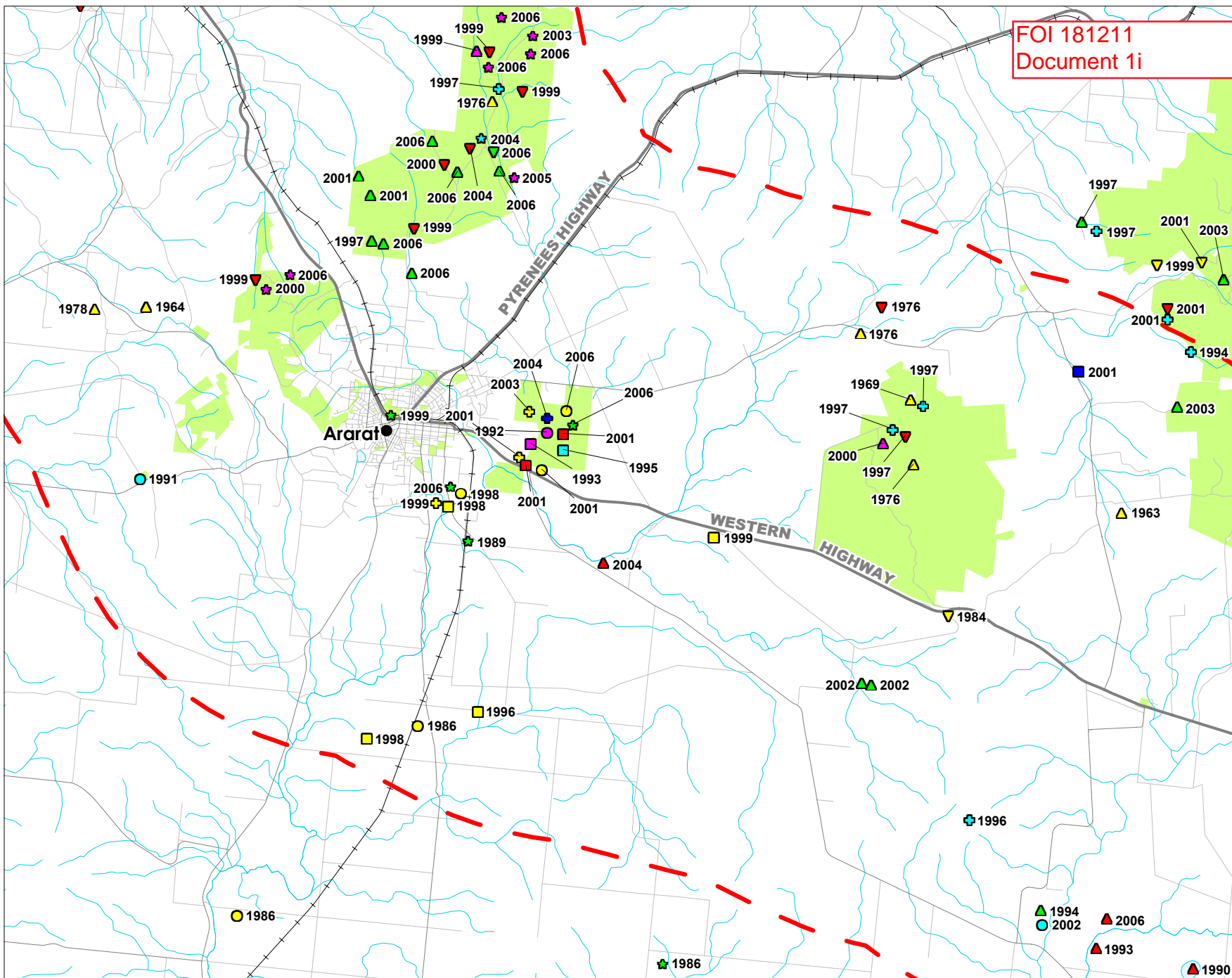


State significant records

- Australasian Shoveler
 - Australian Bustard
 - Barking Owl
 - Black Falcon
 - Blue-billed Duck
 - ▲ Brolga
 - ▲ Brown Toadlet
 - ▲ Brush-tailed Phascogale
 - ▲ Bush Stone-curlew
 - ▲ Caspian Tern
 - ▲ Diamond Firetail
 - Eastern Great Egret
 - Elegant Parrot
 - Flat-headed Galaxias
 - Freckled Duck
 - Glenelg Spiny Cray
 - Golden Perch
 - ★ Grey-crowned Babbler
 - ★ Gull-billed Tern
 - ★ Hardhead
 - ★ Hooded Robin
 - ★ Intermediate Egret
 - ★ Lace Goanna
 - ★ Magpie Goose
 - ★ Musk Duck
 - ★ Painted Honeyeater
 - ★ Powerful Owl
 - ★ Royal Spoonbill
 - ★ Southern Toadlet
 - ▼ Speckled Warbler
 - ▼ Square-tailed Kite
 - ▼ Squirrel Glider
 - ▼ Water beetle species
- ┌ Local area

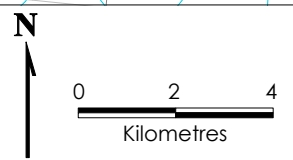
Figure 6a
Significant fauna records
 (post-1950) for the local area
 (State)

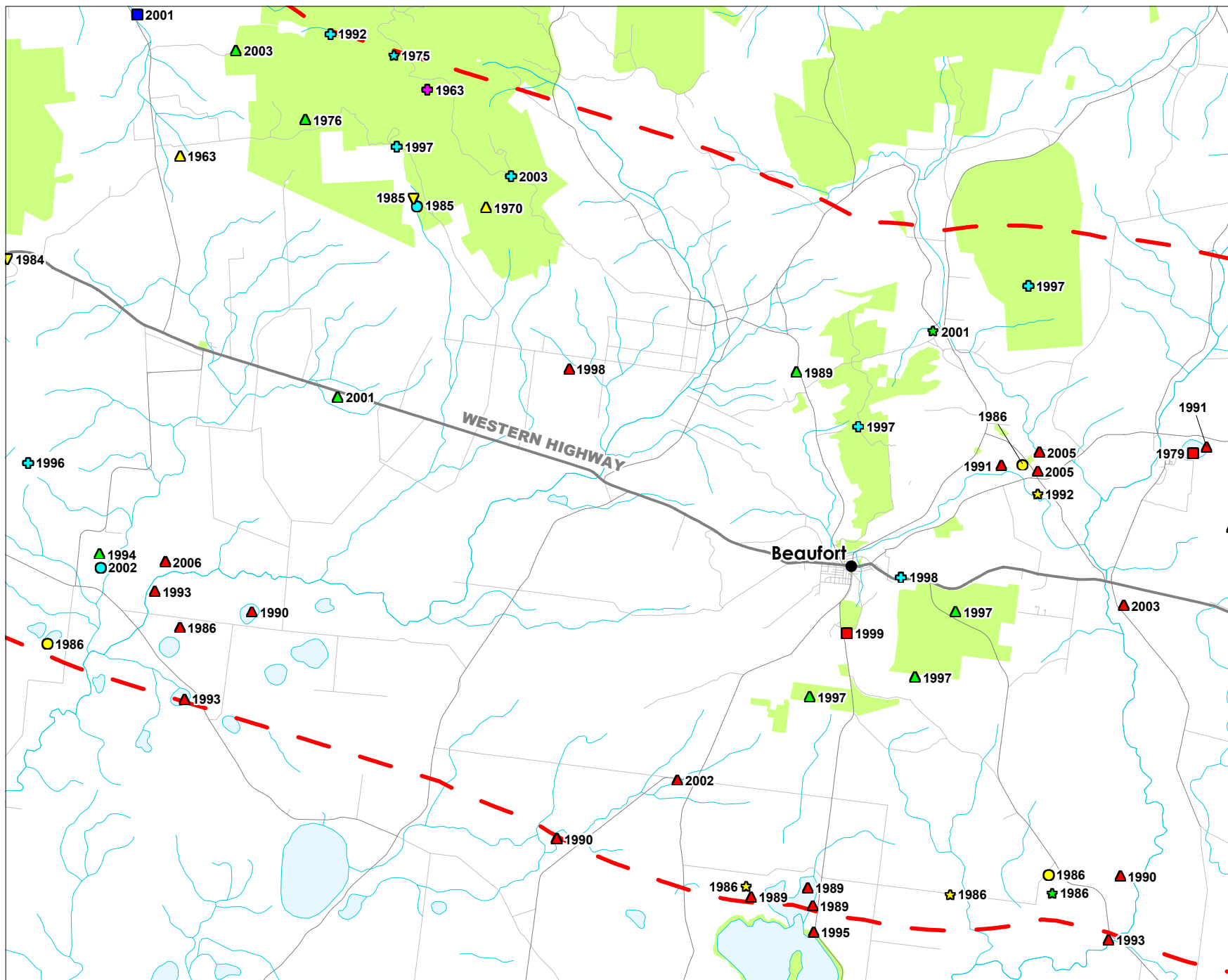




- State significant records**
- Australasian Shoveler
 - Australian Bustard
 - Barking Owl
 - Black Falcon
 - Blue-billed Duck
 - ▲ Brolga
 - ▲ Brown Toadlet
 - ▲ Brush-tailed Phascogale
 - ▲ Bush Stone-curlew
 - ▲ Caspian Tern
 - ▲ Diamond Firetail
 - Eastern Great Egret
 - Elegant Parrot
 - Flat-headed Galaxias
 - Freckled Duck
 - Glenelg Spiny Cray
 - Golden Perch
 - ★ Grey-crowned Babbler
 - ★ Gull-billed Tern
 - ★ Hardhead
 - ★ Hooded Robin
 - ★ Intermediate Egret
 - ★ Lace Goanna
 - + Magpie Goose
 - + Musk Duck
 - + Painted Honeyeater
 - + Powerful Owl
 - + Royal Spoonbill
 - + Southern Toadlet
 - ▼ Speckled Warbler
 - ▼ Square-tailed Kite
 - ▼ Squirrel Glider
 - ▼ Water beetle species
- ┌ Local area

Figure 6b
Significant fauna records
(post-1950) for the local area
(State)



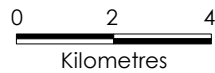


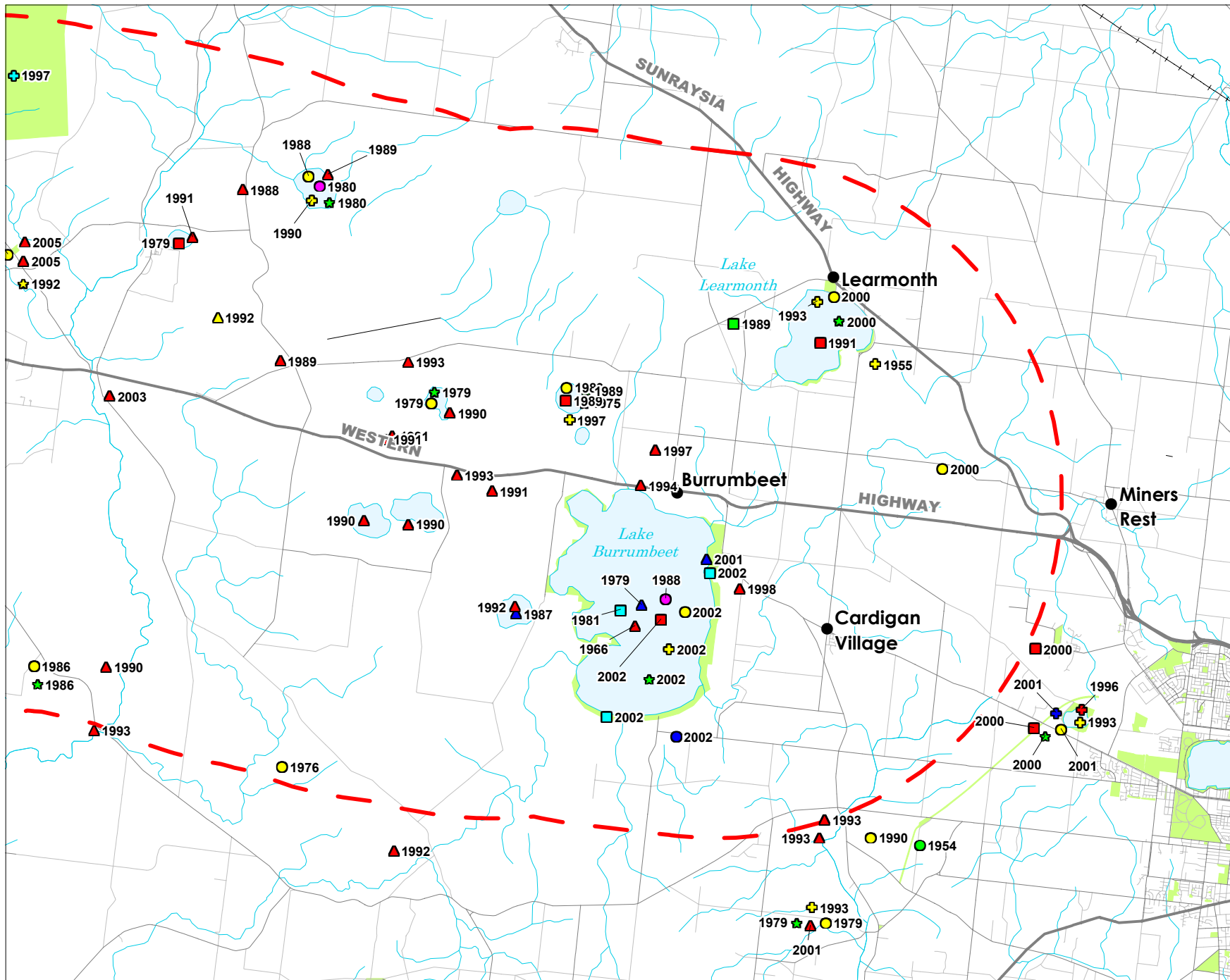
State significant records

- Australasian Shoveler
- Australian Bustard
- Barking Owl
- Black Falcon
- Blue-billed Duck
- ▲ Brolga
- ▲ Brown Toadlet
- ▲ Brush-tailed Phascogale
- ▲ Bush Stone-curlew
- ▲ Caspian Tern
- ▲ Diamond Firetail
- Eastern Great Egret
- Elegant Parrot
- Flat-headed Galaxias
- Freckled Duck
- Glenelg Spiny Cray
- Golden Perch
- ★ Grey-crowned Babbler
- ★ Gull-billed Tern
- ★ Hardhead
- ★ Hooded Robin
- ★ Intermediate Egret
- ★ Lace Goanna
- + Magpie Goose
- + Musk Duck
- + Painted Honeyeater
- + Powerful Owl
- + Royal Spoonbill
- + Southern Toadlet
- ▼ Speckled Warbler
- ▼ Square-tailed Kite
- ▼ Squirrel Glider
- ▼ Water beetle species

┌ Local area

Figure 6c
Significant fauna records
(post-1950) for the local area
(State)



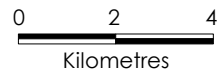


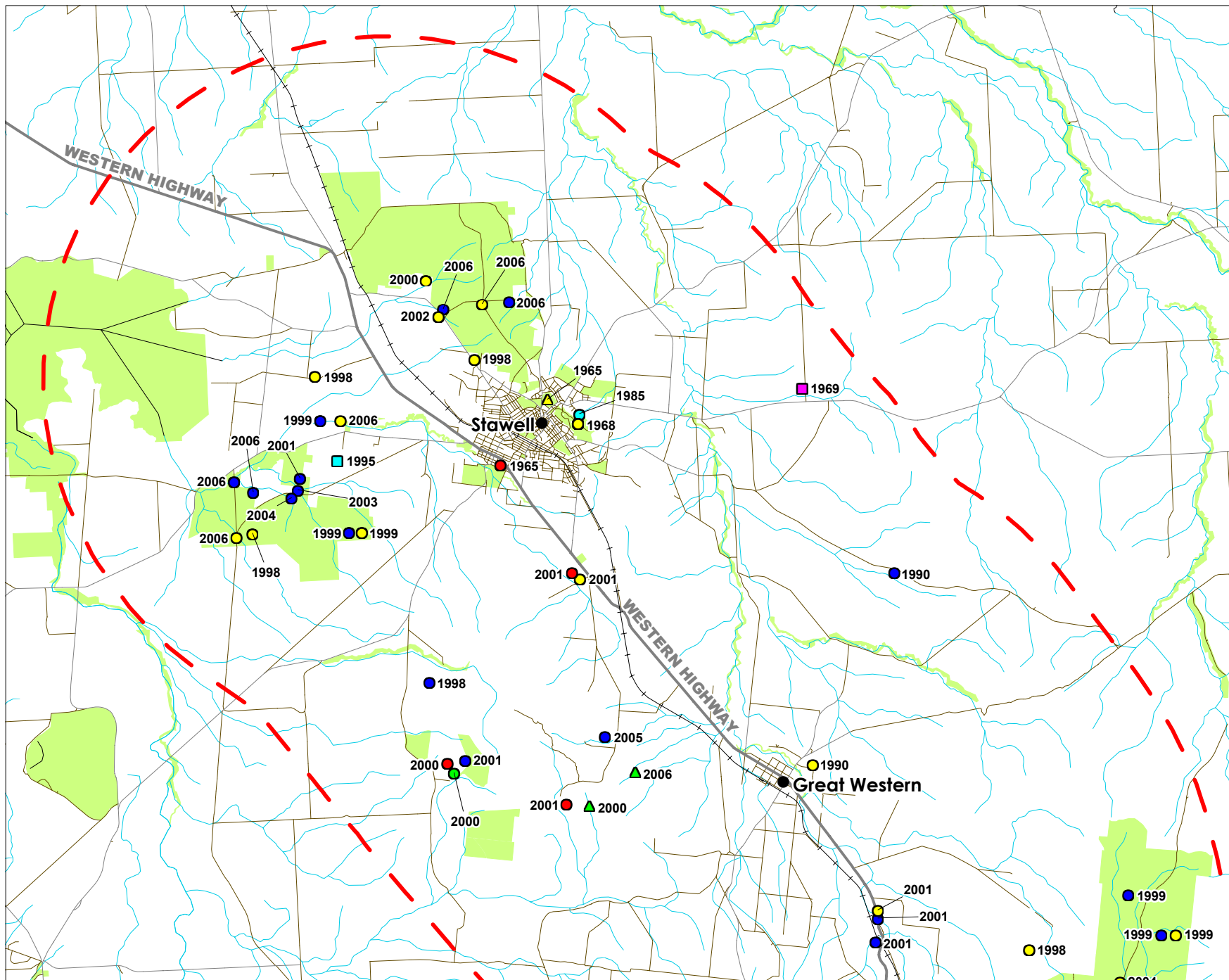
State significant records

- Australasian Shoveler
- Australian Bustard
- Barking Owl
- Black Falcon
- Blue-billed Duck
- ▲ Brolga
- ▲ Brown Toadlet
- ▲ Brush-tailed Phascogale
- ▲ Bush Stone-curlew
- ▲ Caspian Tern
- ▲ Diamond Firetail
- Eastern Great Egret
- Elegant Parrot
- Flat-headed Galaxias
- Freckled Duck
- Glenelg Spiny Cray
- Golden Perch
- ★ Grey-crowned Babbler
- ★ Gull-billed Tern
- ★ Hardhead
- ★ Hooded Robin
- ★ Intermediate Egret
- ★ Lace Goanna
- ★ Magpie Goose
- ★ Musk Duck
- ★ Painted Honeyeater
- ★ Powerful Owl
- ★ Royal Spoonbill
- ★ Southern Toadlet
- ▼ Speckled Warbler
- ▼ Square-tailed Kite
- ▼ Squirrel Glider
- ▼ Water beetle species

┌ ┐ Local area

Figure 6d
Significant fauna records
 (post-1950) for the local area
 (State)





- Regional significant records**
- Bearded Dragon
 - Black-chinned Honeyeater
 - Black-eared Cuckoo
 - Brown Quail
 - Brown Treecreeper
 - Cape Barren Goose
 - ▲ Eastern Curlew
 - ▲ Eastern Pygmy-possum
 - ▲ Fat-tailed Dunnart
 - ▲ Glossy Ibis
 - ▲ Latham's Snipe
 - ▲ Nankeen Night Heron
 - Pied Cormorant
 - Red-backed Kingfisher
 - River Blackfish
 - Spotted Harrier
 - Whiskered Tern
 - Woodland Blind Snake
- ┌└ Local area

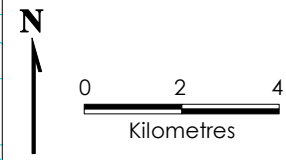
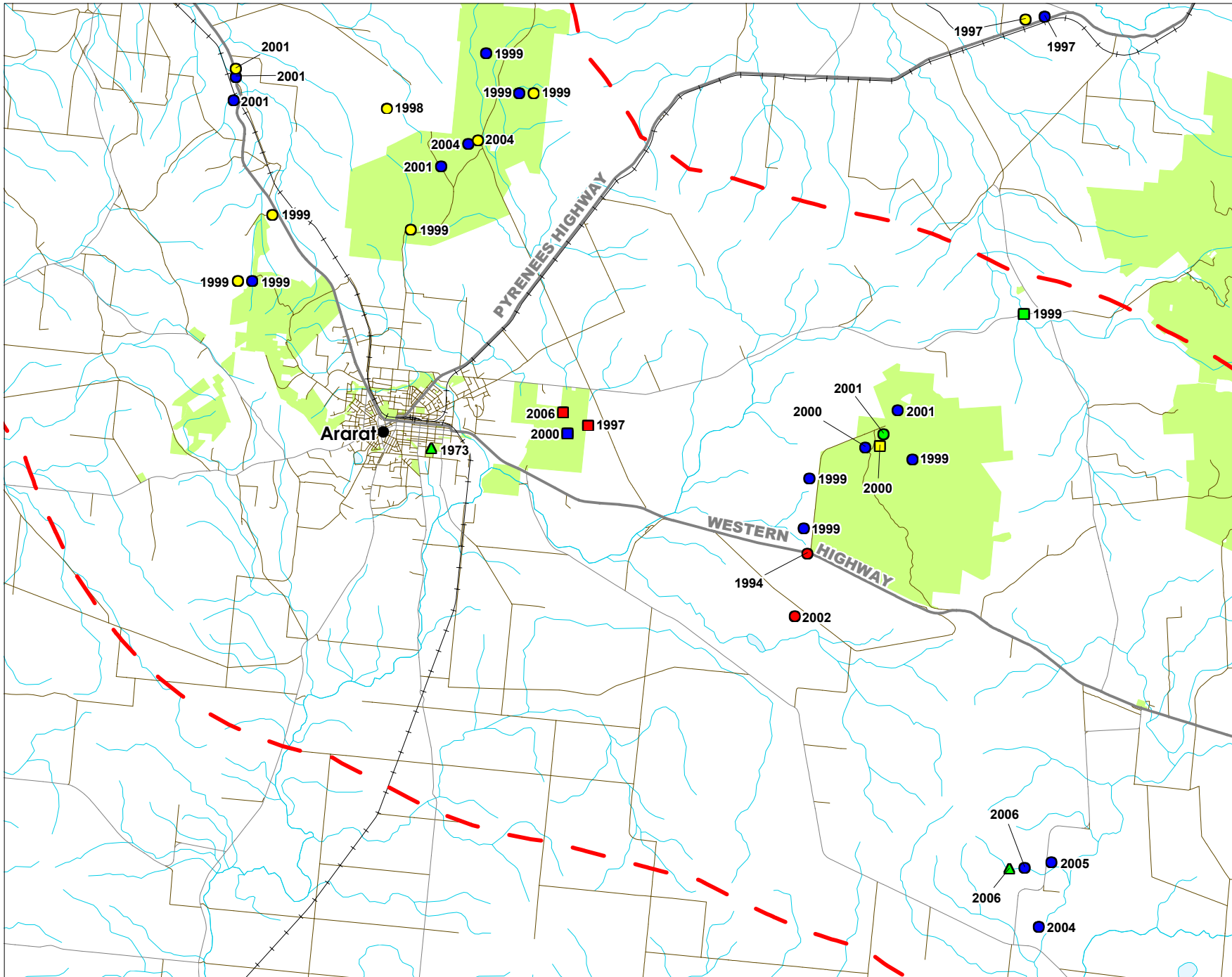


Figure 7a
Significant fauna records
(post-1950) for the local area
(Regional)





Regional significant records

- Bearded Dragon
- Black-chinned Honeyeater
- Black-eared Cuckoo
- Brown Quail
- Brown Treecreeper
- Cape Barren Goose
- ▲ Eastern Curlew
- ▲ Eastern Pygmy-possum
- ▲ Fat-tailed Dunnart
- ▲ Glossy Ibis
- ▲ Latham's Snipe
- ▲ Nankeen Night Heron
- Pied Cormorant
- Red-backed Kingfisher
- River Blackfish
- Spotted Harrier
- Whiskered Tern
- Woodland Blind Snake

┌┐ Local area

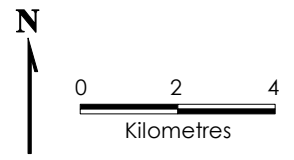
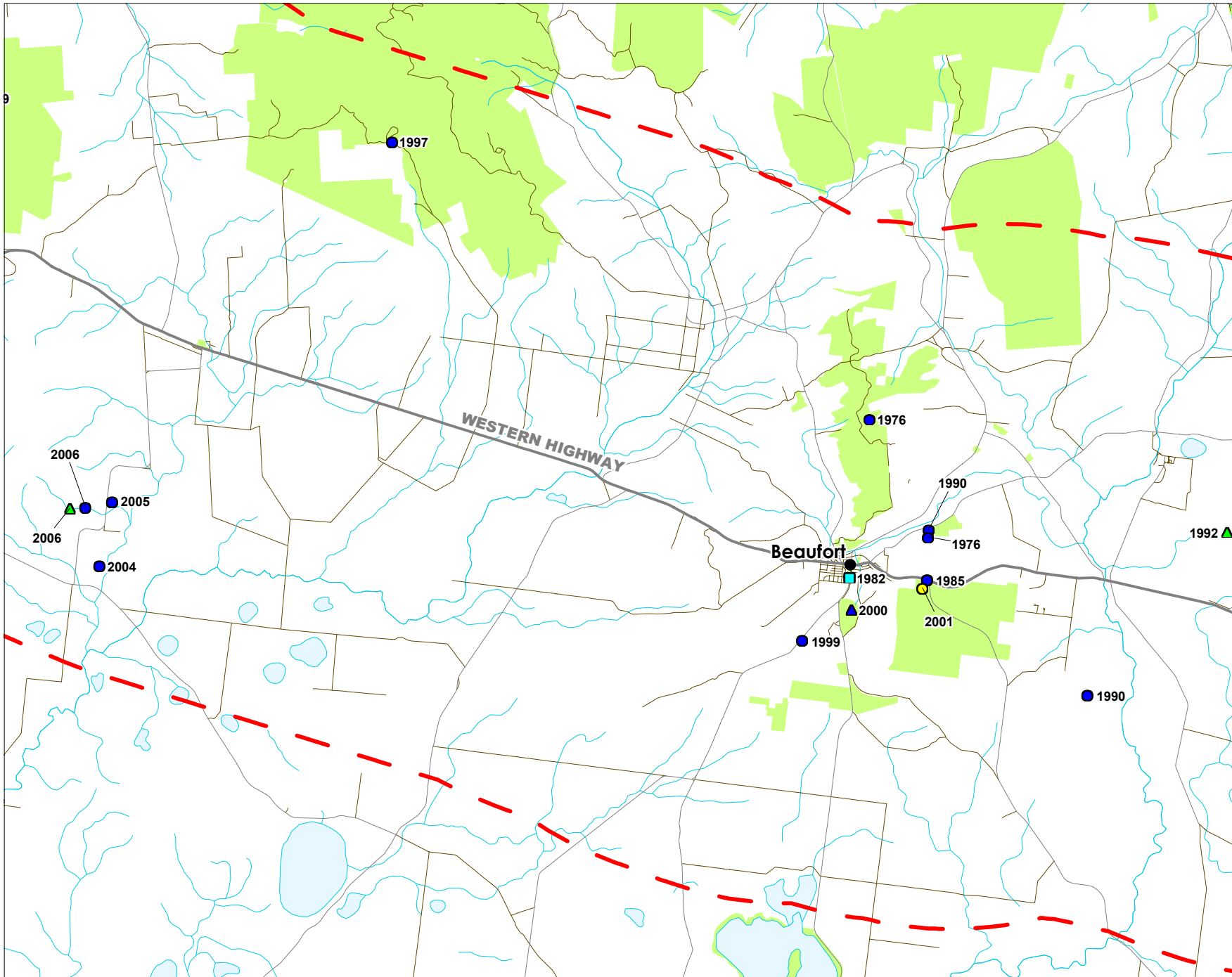


Figure 7b
Significant fauna records
(post-1950) for the local area
(Regional)





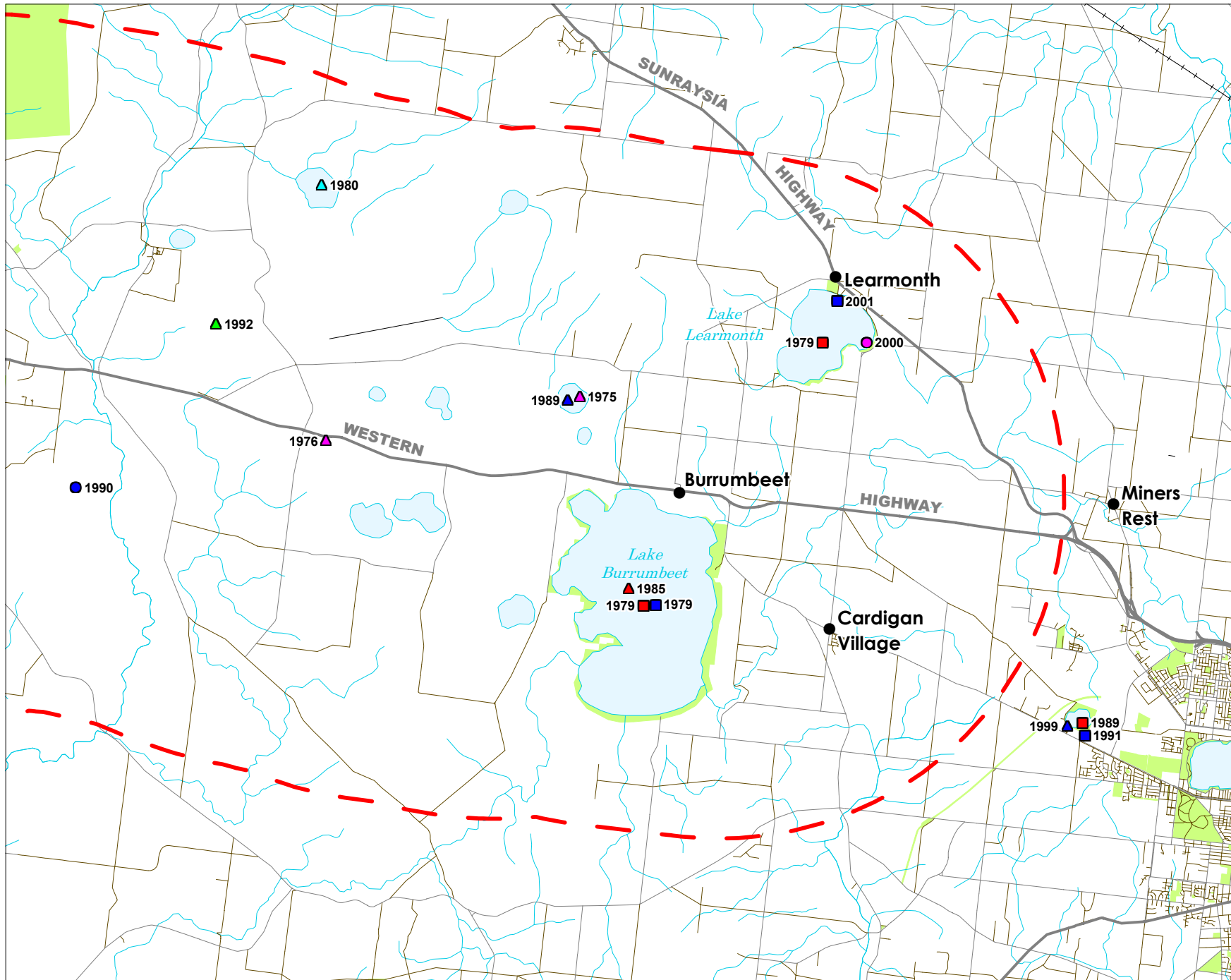
- Regional significant records**
- Bearded Dragon
 - Black-chinned Honeyeater
 - Black-eared Cuckoo
 - Brown Quail
 - Brown Treecreeper
 - Cape Barren Goose
 - ▲ Eastern Curlew
 - ▲ Eastern Pygmy-possum
 - ▲ Fat-tailed Dunnart
 - ▲ Glossy Ibis
 - ▲ Latham's Snipe
 - ▲ Nankeen Night Heron
 - Pied Cormorant
 - Red-backed Kingfisher
 - River Blackfish
 - Spotted Harrier
 - Whiskered Tern
 - Woodland Blind Snake

Local area

N

0 2 4
Kilometres

Figure 7c
Significant fauna records
(post-1950) for the local area
(Regional)



- Regional significant records**
- Bearded Dragon
 - Black-chinned Honeyeater
 - Black-eared Cuckoo
 - Brown Quail
 - Brown Treecreeper
 - Cape Barren Goose
 - ▲ Eastern Curlew
 - ▲ Eastern Pygmy-possum
 - ▲ Fat-tailed Dunnart
 - ▲ Glossy Ibis
 - ▲ Latham's Snipe
 - ▲ Nankeen Night Heron
 - Pied Cormorant
 - Red-backed Kingfisher
 - River Blackfish
 - Spotted Harrier
 - Whiskered Tern
 - Woodland Blind Snake
- ┌┐ Local area

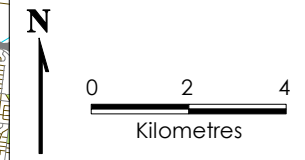
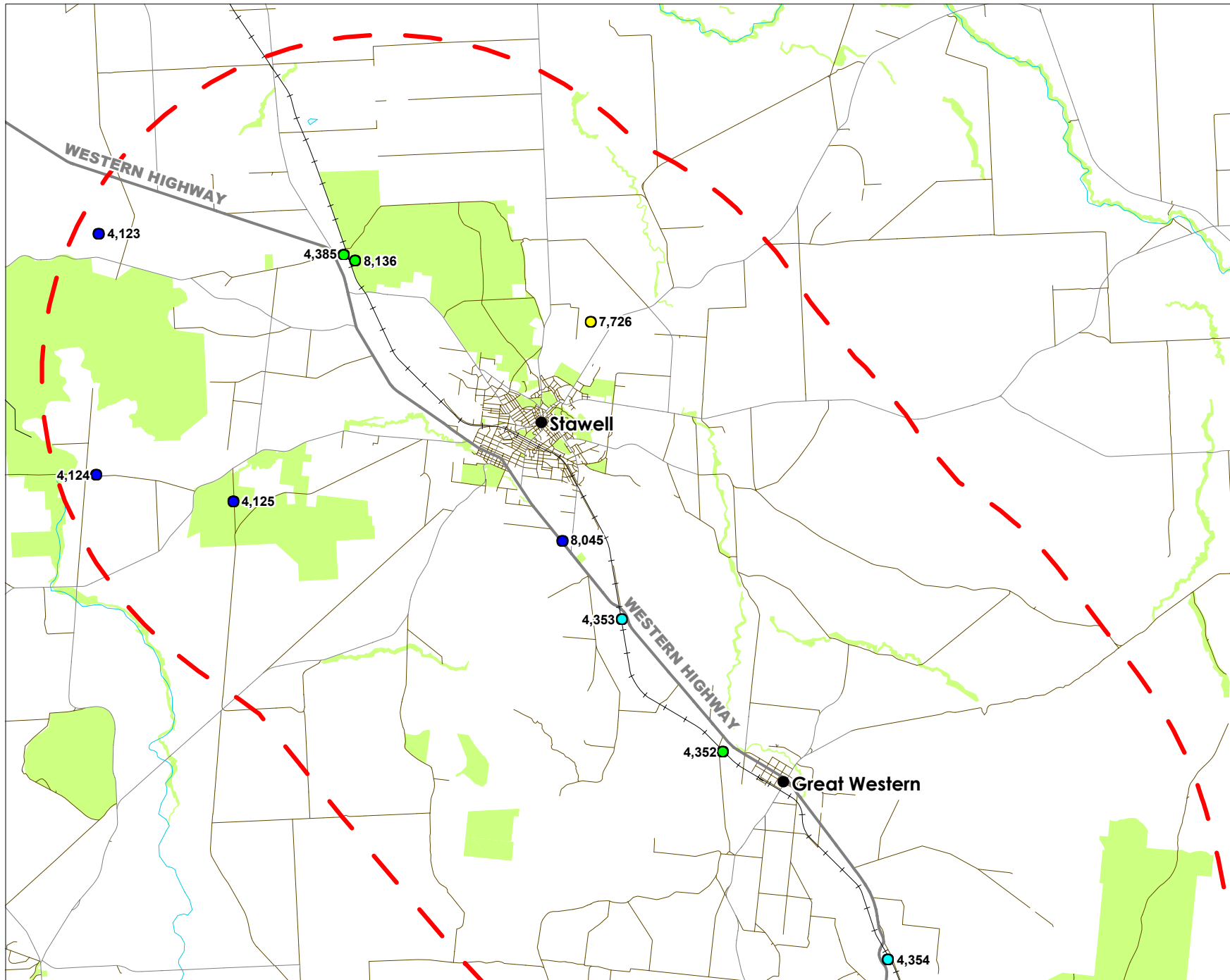


Figure 7d
Significant fauna records
(post-1950) for the local area
(Regional)



- Biosites significance level**
- National
 - State
 - Regional
 - Local
 - Yet to be determined
 - Not significant
- ┌ Local area

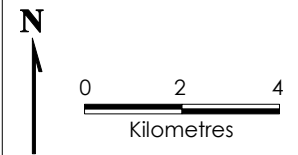
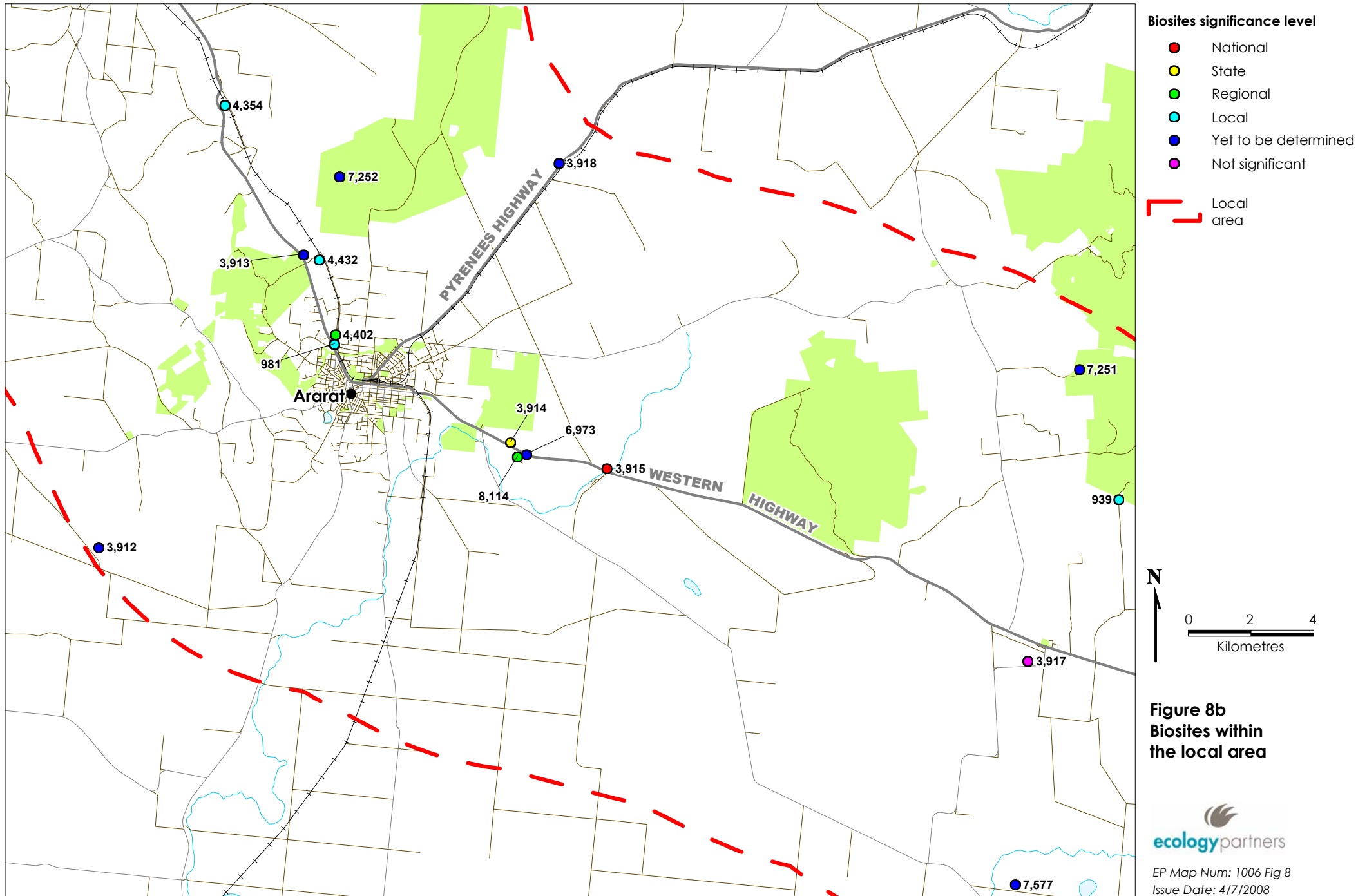
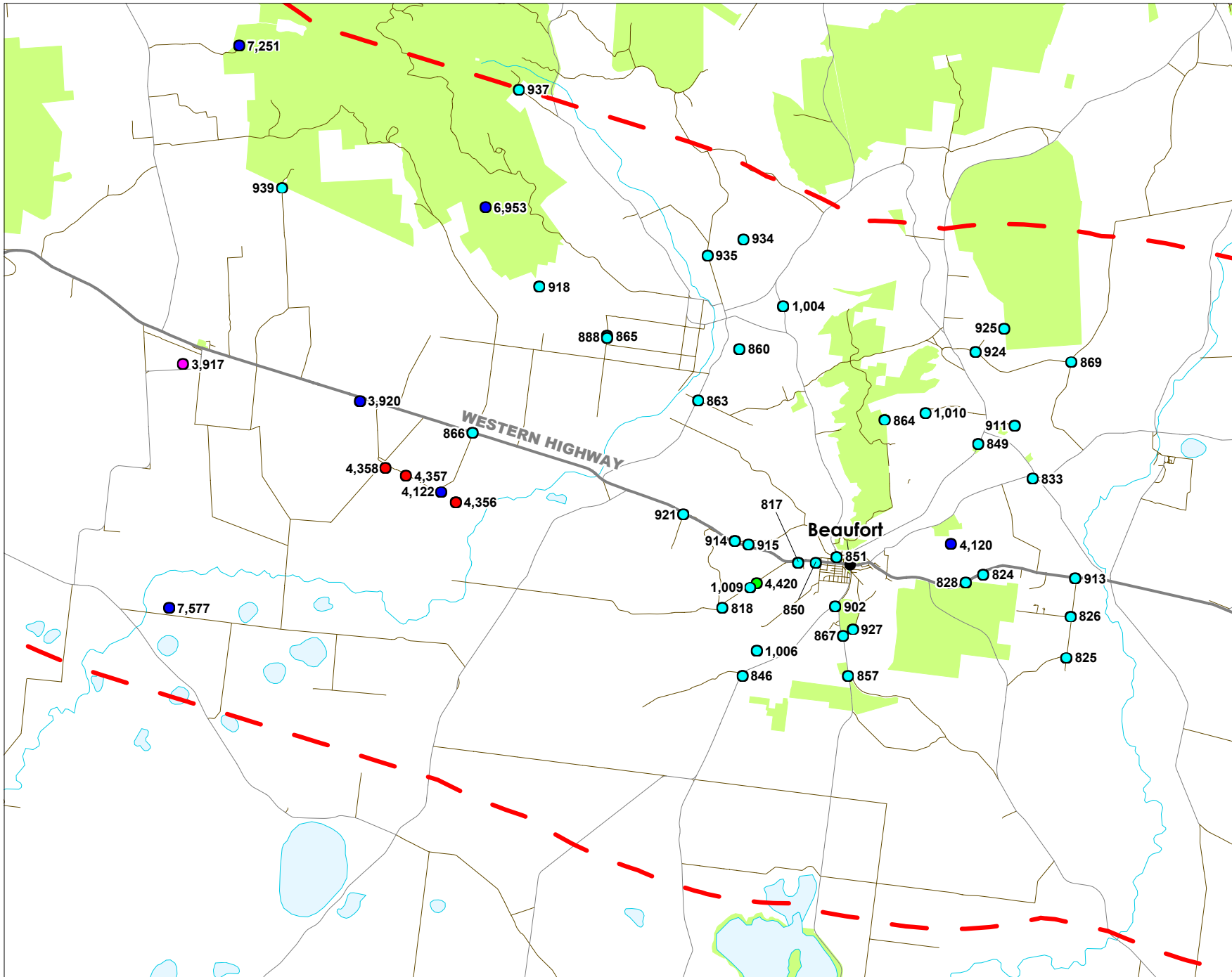


Figure 8a
Biosites within
the local area







Biosites significance level

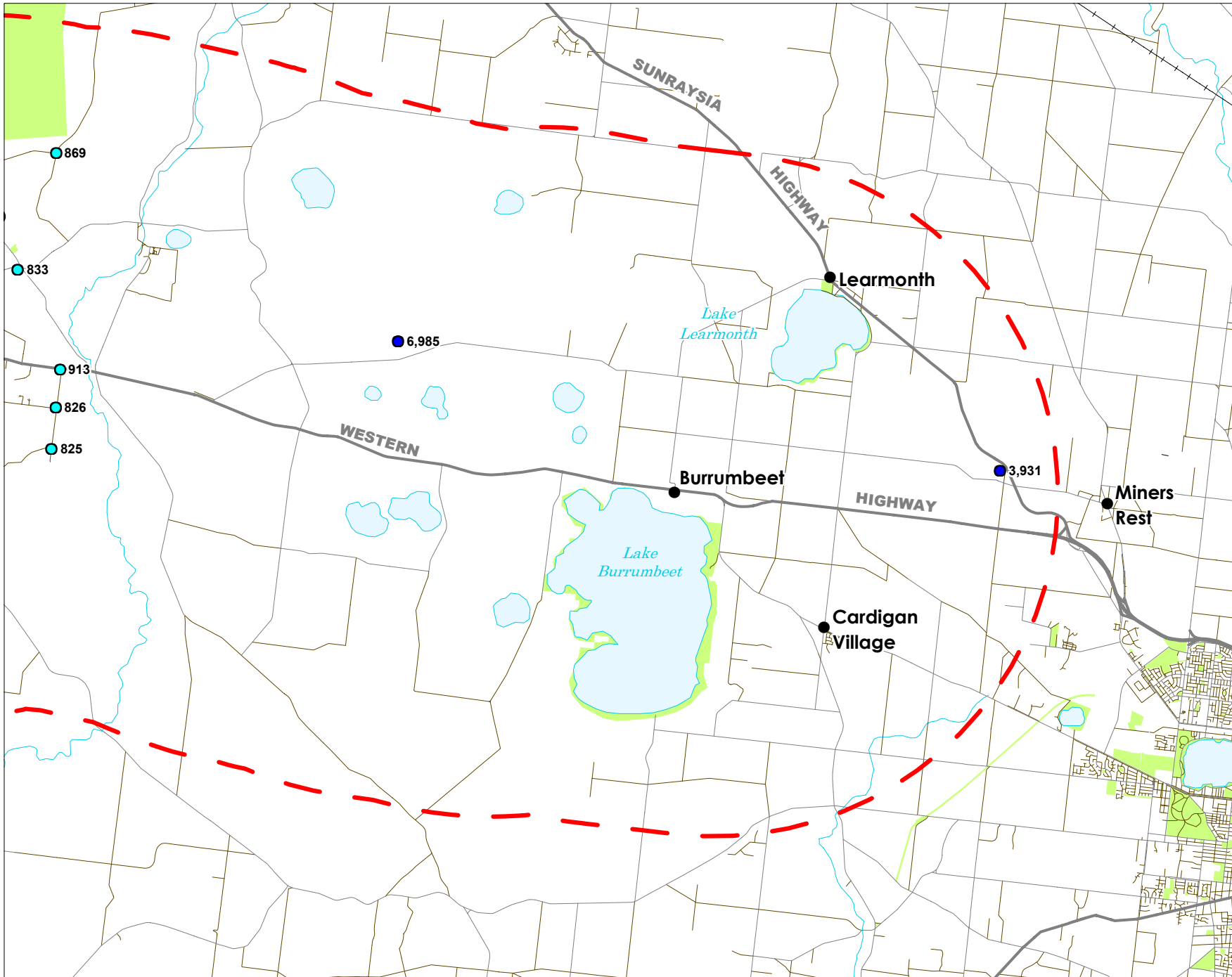
- National
- State
- Regional
- Local
- Yet to be determined
- Not significant

- - - Local area

N

0 2 4
Kilometres

Figure 8c
Biosites within
the local area



- Biosites significance level**
- National
 - State
 - Regional
 - Local
 - Yet to be determined
 - Not significant
- ┌───┐ Local area

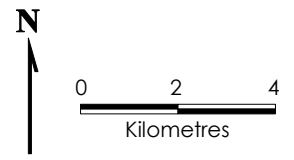


Figure 8d
Biosites within
the local area



APPENDICES

Appendix 1 – Significance Assessment

Criteria used by Ecology Partners Pty. Ltd. to define conservation significance, vegetation condition and habitat quality is provided below.

A1.1. Rare or Threatened Categories for Listed Victorian Taxa

Table A1.1. Rare or Threatened categories for listed Victorian taxa.

Rare or Threatened Categories
CONSERVATION STATUS IN AUSTRALIA (Based on the EPBC Act 1999, Briggs and Leigh 1996)
EX - Extinct: Extinct is when there is no reasonable doubt that the last individual of the species has died.
CR - Critically Endangered: A species is critically endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.
EN - Endangered: A species is endangered when it is not critically endangered but is facing a very high risk of extinction in the wild in the near future.
VU - Vulnerable: A species is vulnerable when it is not critically endangered or endangered but is facing a high risk of extinction in the wild in the medium-term future.
R* - Rare: A species is rare but overall is not currently considered critically endangered, endangered or vulnerable.
K* - Poorly Known: A species is suspected, but not definitely known, to belong to any of the categories extinct, critically endangered, endangered, vulnerable or rare.
CONSERVATION STATUS IN VICTORIA (Based on DSE 2005, DSE 2007a, FIS 2007)
x - Presumed Extinct in Victoria: not recorded from Victoria during the past 50 years despite field searches specifically for the plant, or, alternatively, intensive field searches (since 1950) at all previously known sites have failed to record the plant.
e - Endangered in Victoria: at risk of disappearing from the wild state if present land use and other causal factors continue to operate.
v - Vulnerable in Victoria: not presently endangered but likely to become so soon due to continued depletion; occurring mainly on sites likely to experience changes in land-use which would threaten the survival of the plant in the wild; or, taxa whose total population is so small that the likelihood of recovery from disturbance, including localised natural events such as drought, fire or landslip, is doubtful.
r - Rare in Victoria: rare but not considered otherwise threatened - there are relatively few known populations or the taxon is restricted to a relatively small area.
k - Poorly Known in Victoria: poorly known and suspected, but not definitely known, to belong to one of the above categories (x, e, v or r) within Victoria. At present, accurate distribution information is inadequate.

A1.2. Defining Ecological Significance

Table A1.2. Defining Ecological Significance.

Criteria for defining Ecological Significance	
NATIONAL SIGNIFICANCE	
Flora	National conservation status is based on the EPBC Act list of taxa considered Threatened in Australia (i.e. Extinct, Critically Endangered, Endangered, Vulnerable).
	Flora listed as Rare in Australia in <i>Rare or Threatened Australian Plants</i> (Briggs and Leigh 1996).
Fauna	National conservation status is based on the EPBC Act list of taxa considered threatened in Australia (i.e. Extinct, Critically Endangered, Endangered, Vulnerable).
	Fauna listed as Extinct, Critically Endangered, Endangered, Vulnerable, or Rare under National Action Plans for terrestrial taxon prepared for the Department of the Environment, Heritage, Water and the Arts: threatened marsupials and monotremes (Maxwell <i>et al.</i> 1996), rodents (Lee 1995), bats (Duncan <i>et al.</i> 1999), birds (Garrett and Crowley 2000), reptiles (Cogger <i>et al.</i> 1993), amphibians (Tyler 1997) and butterflies (Sands and New 2002).
	Species that have not been included on the EPBC Act but listed as significance according to the <i>IUCN 2006 Red List of Threatened Species</i> (IUCN 2006).
Communities	Vegetation communities considered Critically Endangered, Endangered or Vulnerable under the EPBC Act and considering vegetation condition.
STATE SIGNIFICANCE	
Flora	Threatened taxa listed under the provisions of the FFG Act.
	Flora listed as Extinct, Endangered, Vulnerable or Rare in Victoria in the DSE Flora Information System (most recent version).
	Flora listed in the State Government's <i>Advisory List of Rare or Threatened Plants in Victoria, 2005</i> (DSE 2005).
	Flora listed as Poorly Known in Australia in <i>Rare or Threatened Australian Plants</i> (Briggs and Leigh 1996).
Fauna	Threatened taxon listed under Schedule 2 of the FFG Act.
	Fauna listed as Extinct, Critically Endangered, Endangered and Vulnerable on the State Government's <i>Advisory List of Threatened Vertebrate Fauna in Victoria - 2007</i> (DSE 2007a).
	Listed as Lower Risk (Near Threatened, Conservation Dependent or Least concern) or Data Deficient under National Action Plans for terrestrial species prepared for the Department of the Environment, Heritage, Water and the Arts: threatened marsupials and monotremes (Maxwell <i>et al.</i> 1996), rodents (Lee 1995), bats (Duncan <i>et al.</i> 1999), birds (Garrett and Crowley 2000), reptiles (Cogger <i>et al.</i> 1993), amphibians (Tyler 1997) and butterflies (Sands and New 2002).

Criteria for defining Ecological Significance	
Communities	Ecological communities listed as Threatened under the FFG Act.
	Ecological vegetation class listed as Threatened (i.e. Endangered, Vulnerable) or Rare in a Native Vegetation Plan for a particular bioregion (www.dse.vic.gov.au) and considering vegetation condition.
REGIONAL SIGNIFICANCE	
Flora	Flora considered Rare in any regional native vegetation plan for a particular bioregion.
	Flora considered Rare by the author for a particular bioregion.
Fauna	Fauna with a disjunct distribution, or a small number of documented recorded or naturally rare in the particular bioregion in which the study area occurs in.
	A particular taxon that is has an unusual ecological or biogeographical occurrence or listed as Lower Risk – Near Threatened, Data Deficient or Insufficiently Known on the State Government’s <i>Advisory List of Threatened Vertebrate Fauna in Victoria – 2007</i> (DSE 2007a).
Communities	Ecological vegetation class listed as Depleted or Least Concern in a Native Vegetation Plan for a particular bioregion (www.dse.vic.gov.au) and considering vegetation condition.
	Ecological vegetation class considered Rare by the author for a particular bioregion.
LOCAL SIGNIFICANCE	
Local significance is defined as flora, fauna and ecological communities indigenous to a particular area, which are not considered rare or threatened on a national, state or regional level.	

A1.3 Defining Site Significance

The following geographical areas apply to the overall level of significance with respect to the current survey.

National: Australia

State: Victoria

Regional: Victorian Volcanic Plain Bioregion

Local: Within 10 kilometres surrounding the study area

Table A1.3. Defining Site Significance.

Criteria for defining Site Significance
NATIONAL SIGNIFICANCE
<p>A site is of National significance if:</p> <ul style="list-style-type: none"> - It regularly supports, or has a high probability of regularly supporting individuals of a taxon listed as 'Critically Endangered' or 'Endangered' under the EPBC Act and/or under National Action Plans for terrestrial taxon prepared for the Department of the Environment, Water, Heritage and the Arts. - It regularly supports, or has a high probability of supporting, an 'important population' as defined under the EPBC Act of one or more nationally 'Vulnerable' flora and fauna taxon. - It is known to support, or has a high probability of supporting taxon listed as 'Vulnerable' under National Action Plans. - It is known to regularly support a large proportion (i.e. greater than 1%) of a population of a taxon listed as 'Conservation Dependent' under the EPBC Act and/or listed as Rare or Lower Risk (Near Threatened, Conservation Dependent or Least Concern) under National Action Plans. - It contains an area, or part thereof designated as 'critical habitat' under the EPBC Act, or if the site is listed under the Register of National Estate compiled by the Australian Heritage Commission. - It is a site which forms part of, or is connected to a larger area(s) of remnant native vegetation or habitat of national conservation significance such as most National Park, and/or a Ramsar Wetland(s).
STATE SIGNIFICANCE
<p>A site is of State significance if:</p> <ul style="list-style-type: none"> - It occasionally (i.e. every 1 to 5 years) supports, or has suitable habitat to support taxon listed as 'Critically Endangered' or 'Endangered' under the EPBC Act and/or under National Action Plans. - It regularly supports, or has a high probability of regularly supporting (i.e. high habitat quality) taxon listed as 'Vulnerable', 'Near threatened', 'Data Deficient' or 'Insufficiently Known' in Victoria (DSE 2005, 2007a), or species listed as 'Data Deficient' or 'Insufficiently Known' under National Action Plans. - It contains an area, or part thereof designated as 'critical habitat' under the FFG Act. - It supports, or likely to support a high proportion of any Victorian flora and fauna taxa. - It contains high quality, intact vegetation/habitat supporting a high species richness and diversity in a particular bioregion. - It is a site which forms part of, or connected to a larger area(s) of remnant native vegetation or habitat of state conservation significance such as most State Parks and/or Flora and Fauna Reserves.

Criteria for defining Site Significance
REGIONAL SIGNIFICANCE
<p>A site is of Regional significance if:</p> <ul style="list-style-type: none"> - It regularly supports, or has a high probability of regularly supporting regionally significant fauna as defined in Table 1.2. - It contains a large population (i.e. greater than 1% or 5%) of flora considered rare in any regional native vegetation plan for a particular bioregion. - It supports a fauna population with a disjunct distribution, or a particular taxon that has an unusual ecological or biogeographical occurrence. - It is a site which forms part of, or is connected to a larger area(s) of remnant native vegetation or habitat of regional conservation significance such as most Regional Parks and/or Flora and Fauna Reserves.
LOCAL SIGNIFICANCE
<p>Most sites are considered to be of at least local significance for conservation purposes and, in general, a site of local significance can be defined as:</p> <ul style="list-style-type: none"> - An area which supports indigenous flora species and/or a remnant Ecological Vegetation Class, and habitats used by locally significant fauna species. - An area which currently acts, or has the potential to act as a wildlife corridor linking other areas of higher conservation significance and facilitating fauna movement throughout the landscape.

A1.4. Defining Vegetation Condition

Table A1.4. Defining Vegetation Condition.

Criteria for defining Vegetation Condition
<p>Good condition - Vegetation dominated by a diversity of indigenous species, with defined structures (where appropriate), such as canopy layer, shrub layer, and ground cover, with little or few introduced species present.</p>
<p>Moderate condition - Vegetation dominated by a diversity of indigenous species, but is lacking some structures, such as canopy layer, shrub layer or ground cover, and/or there is a greater level of introduced flora species present.</p>
<p>Poor condition - Vegetation dominated by introduced species, but supports low levels of indigenous species present, in the canopy, shrub layer or ground cover.</p>

A1.5. Defining Habitat Quality

Several factors are taken into account when determining the value of habitat. Habitat quality varies on both spatial and temporal scales, with the habitat value varying depending upon a particular fauna species.

Table A1.5. Defining Habitat Quality.

Criteria for defining Habitat Quality
HIGH QUALITY
High degree of intactness (i.e. floristically and structurally diverse), containing several important habitat features such as ground debris (logs, rocks, vegetation), mature hollow-bearing trees, and a dense understorey component.
High species richness and diversity (i.e. represented by a large number of species from a range of fauna groups).
High level of foraging and breeding activity, with the site regularly used by native fauna for refuge and cover.
Habitat that has experienced, or is experiencing low levels of disturbance and/or threatening processes (i.e. weed invasion, introduced animals, soil erosion, salinity).
High contribution to a wildlife corridor, and/or connected to a larger area(s) of high quality habitat.
Provides known, or likely habitat for one or more rare or threatened species listed under the EPBC Act, FFG Act, or species considered rare or threatened according to DSE 2007a.
MODERATE QUALITY
Moderate degree of intactness, containing one or more important habitat features such as ground debris (logs, rocks, vegetation), mature hollow-bearing trees, and a dense understorey component.
Moderate species richness and diversity - represented by a moderate number of species from a range of fauna groups.
Moderate levels of foraging and breeding activity, with the site used by native fauna for refuge and cover.
Habitat that has experienced, or is experiencing moderate levels of disturbance and/or threatening processes.
Moderate contribution to a wildlife corridor, or is connected to area(s) of moderate quality habitat.
Provides potential habitat for a small number of threatened species listed under the EPBC Act, FFG Act, or species considered rare or threatened according to DSE 2007a.
LOW QUALITY
Low degree of intactness, containing few important habitat features such as ground debris (logs, rocks, vegetation), mature hollow-bearing trees, and a dense understorey component.
Low species richness and diversity (i.e. represented by a small number of species from a range of fauna groups).
Low levels of foraging and breeding activity, with the site used by native fauna for refuge and cover.
Habitat that has experienced, or is experiencing high levels of disturbance and/or threatening processes.
Unlikely to form part of a wildlife corridor, and is not connected to another area(s) of habitat.
Unlikely to provide habitat for rare or threatened species listed under the EPBC Act, FFG Act, or considered rare or threatened according to DSE 2007a.

Appendix 2.1 – Significant flora species

Table A2.1. Significant flora within a 10 kilometre radius of the study area.

Sources used to determine species status:

EPBC	<i>Environment Protection and biodiversity Conservation Act 1999</i> (Commonwealth)
DSE	Advisory List of Threatened Flora in Victoria (DSE 2005)
FFG	<i>Flora and Fauna Guarantee Act 1988</i> (Victoria)

National status of species is designated by:

EX	Extinct
CE	Critically Endangered
EN	Endangered
VU	Vulnerable
K	Poorly Known
#	EPBC Act Protected Matters Search Tool.
^	Naturalised species

State status of species is designated by:

e	Endangered
v	Vulnerable
r	Rare
k	Poorly Known
L	Listed on FFG Act

Likelihood of occurrence:

1	Known occurrence
2	Possible occurrence
3	Low likelihood
4	Unlikely
5	No suitable habitat

Scientific Name	Common Name	Number of records	EPBC Act 1999	DSE 2005	FFG Act 1988	Likelihood of occurrence
NATIONAL SIGNIFICANCE						
# <i>Amphibromus fluitans</i>	River Swamp Wallaby-grass	-	VU	-	-	4
# <i>Caladenia audasii</i>	Mclvor Spider-orchid	3	EN	e	L	3
# <i>Caladenia fulva</i>	Tawny Spider-orchid	27	EN	e	L	2
<i>Caladenia ornata</i>	Ornate Pink-fingers	1	VU	v	-	4
# <i>Caladenia rosella</i>	Little Pink Spider-orchid	-	EN	e	L	4
# <i>Caladenia tensa</i>	Rigid Spider-orchid	-	EN	v	-	4
# <i>Caladenia versicolor</i>	Candy Spider-orchid	-	VU	e	L	4
# <i>Carex tasmanica</i>	Curly Sedge	-	VU	e	L	4
# <i>Daviesia laevis</i>	Grampians Bitter-pea	6	VU	v	L	3
# <i>Dodonaea procumbens</i>	Trailing Hop-bush	4	VU	v	-	3
^ <i>Eucalyptus crenulata</i>	Buxton Gum	1	EN	e	L	4
# <i>Euphrasia collina</i> subsp. <i>muelleri</i>	Purple Eyebright	5	EN	e	L	3
# <i>Glycine latrobeana</i>	Clover Glycine	-	VU	v	L	4
# <i>Grevillea floripendula</i>	Ben Major Grevillea	67	VU	v	L	2
# <i>Grevillea montis-cole</i> subsp. <i>brevistyla</i>	Langi Ghiran Grevillea	6	VU	v	L	3
# <i>Leucochrysum albicans</i> subsp. <i>albicans</i> var. <i>tricolor</i>	White Sunray	1	EN	e	-	4
# <i>Pimelea spinescens</i> subsp. <i>spinescens</i>	Spiny Rice-flower	11	CR	e	-	3
# <i>Poa sallacustris</i>	Salt-lake Tussock-grass	-	VU	v	-	4
# <i>Prasophyllum pallidum</i>	Pale Leek-orchid	-	VU	-	L	4
# <i>Prasophyllum suaveolens</i>	Fragrant Leek-orchid	1	EN	e	L	4
# <i>Prasophyllum subbisectum</i>	Pomonal Leek-orchid	9	EN	e	L	3
# <i>Rutidosis leptorhynchoides</i>	Button Wrinklewort	45	EN	e	L	2
# <i>Senecio macrocarpus</i>	Large-headed Fireweed	20	VU	e	L	2
# <i>Senecio psilocarpus</i>	Swamp Fireweed	-	VU	v	-	4
# <i>Thelymitra epipactoides</i>	Metallic Sun-orchid	3	EN	e	L	3
# <i>Thelymitra mackibbinii</i>	Brilliant Sun-orchid	-	VU	e	L	4

Scientific Name	Common Name	Number of records	EPBC Act 1999	DSE 2005	FFG Act 1988	Likelihood of occurrence
# <i>Theymitra matthewsii</i>	Spiral Sun-orchid	-	VU	v	L	4
# <i>Xerochrysum palustre</i>	Swamp Everlasting	1	VU	v	L	4
STATE SIGNIFICANCE						
<i>Acacia aspera</i> subsp. <i>parviceps</i>	Rough Wattle	10	-	r	-	3
<i>Allocasuarina luehmannii</i>	Buloke	11	-		L	3
<i>Alternanthera</i> sp. 1 (Plains)	Plains Joyweed	2	-	k	-	4
<i>Amphibromus pithogastrus</i>	Plump Swamp Wallaby-grass	2	-	e	L	4
<i>Austrodanthonia monticola</i>	Small-flower Wallaby-grass	3	-	r	-	3
<i>Austrostipa exilis</i>	Heath Spear-grass	2	-	r	-	4
<i>Austrostipa hemipogon</i>	Half-bearded Spear-grass	16	-	r	-	2
<i>Austrostipa trichophylla</i>	Spear-grass	3	-	r	-	3
<i>Bartramia nothostricta</i>	Apple Moss	1	-	k	-	4
<i>Bossiaea cordigera</i>	Wiry Bossiaea	4	-	r	-	3
<i>Caladenia oenochila</i>	Wine-lipped Spider-orchid	1	-	v	-	4
<i>Caladenia reticulata</i> s.s.	Veined Spider-orchid	12	-	v	-	3
<i>Caladenia venusta</i>	Large White Spider-orchid	2	-	r	-	4
<i>Cardamine gunnii</i> s.s.	Tuberous Bitter-cress	1	-	x	L	4
<i>Comesperma polygaloides</i>	Small Milkwort	29	-	v	L	2
<i>Correa aemula</i>	Hairy Correa	7	-	r	-	3
<i>Correa lawrenceana</i> var. <i>grampiana</i>	Grampians Mountain-correa	1	-	r	-	4
<i>Correa reflexa</i> var. <i>angustifolia</i>	Grampians Correa	1	-	r	-	4
<i>Corunastylis ciliate</i>	Fringed Midge-orchid	2	-	k	-	4
<i>Deyeuxia imbricata</i>	Bent-grass	3	-	v	-	3
<i>Digitaria divaricatissima</i>	Umbrella Grass	1	-	v	-	4
<i>Diuris behrii</i>	Golden Cowslips	12	-	v	-	2
<i>Diuris palustris</i>	Swamp Diuris	10	-	v	L	2
<i>Dodonaea boroniifolia</i>	Hairy Hop-bush	1	-	r	-	4
<i>Dodonaea heteromorpha</i>	Maple-fruited Hop-bush	1	-	x	-	4
<i>Eucalyptus froggattii</i>	Kamarooka Mallee	1	-	r	L	4
<i>Eucalyptus yarraensis</i>	Yarra Gum	16	-	r	-	3
<i>Geranium</i> sp. 3	Pale-flower Crane's-bill	1	-	r	-	4
<i>Grevillea dimorpha</i>	Flame Grevillea	2	-	r	-	4
<i>Grevillea dryophylla</i>	Goldfields Grevillea	4	-	r	-	3
<i>Grevillea montis-cole</i>	Mount Cole Grevillea	2	-	r	-	4
<i>Grevillea montis-cole</i> subsp. <i>montis-cole</i>	Mount Cole Grevillea	11	-	r	-	4
<i>Grevillea rosmarinifolia</i> subsp. <i>rosmarinifolia</i>	Rosemary Grevillea	1	-	r	-	4
<i>Helichrysum</i> aff. <i>rutidolepis</i> (Lowland Swamps)	Pale Swamp Everlasting	1	-	v	-	4
<i>Hibbertia humifusa</i>	Rising Star Guinea-flower	9	-	r	-	3
<i>Hibbertia humifusa</i> subsp. <i>humifusa</i>	Rising Star Guinea-flower	37	-	r	-	2
<i>Isolepis congrua</i>	Slender Club-sedge	5	-	v	L	3
<i>Lachnagrostis filiformis</i> var. 2	Wetland Blown-grass	1	-	k	-	4
<i>Lachnagrostis punicea</i> subsp. <i>filifolia</i>	Purple Blown-grass	1	-	r	L	4
<i>Lachnagrostis robusta</i>	Salt Blown-grass	1	-	r	-	4
<i>Lemna trisulca</i>	Ivy-leaf Duckweed	1	-	k	-	4
<i>Lepidosperma canescens</i>	Hoary Rapier-sedge	1	-	r	-	4
<i>Leptorhynchos elongatus</i>	Lanky Buttons	2	-	e	-	4
<i>Leptorhynchos orientalis</i>	Annual Buttons	1	-	e	L	4

Scientific Name	Common Name	Number of records	EPBC Act 1999	DSE 2005	FFG Act 1988	Likelihood of occurrence
<i>Leptospermum turbinatum</i>	Shiny Tea-tree	6	-	r	-	3
<i>Lepyrodia flexuosa</i>	Twisting Scale-rush	1	-	r	-	4
<i>Leucopogon neurophyllus</i>	Veined Beard-heath	3	-	r	-	3
<i>Olearia asterotricha</i>	Rough Daisy-bush	2	-	r	-	4
<i>Olearia speciosa</i>	Netted Daisy-bush	17	-	k	-	2
<i>Podolepis</i> sp. 1	Basalt Podolepis	1	-	e	-	4
<i>Prasophyllum</i> aff. <i>fitzgeraldii</i> B	Elfin Leek-orchid	3	-	e	-	3
<i>Prasophyllum lindleyanum</i>	Green Leek-orchid	4	-	v	-	3
<i>Prasophyllum pyriforme</i> s.s.	Silurian Leek-orchid	4	-	e	-	3
<i>Prasophyllum</i> sp. aff. <i>fitzgeraldii</i> A	Pink-lip Leek-orchid	5	-	e	L	3
<i>Pterostylis aciculiformis</i>	Slender Ruddyhood	1	-	k	-	4
<i>Pterostylis diminuta</i>	Crowded Greenhood	2	-	k	-	4
<i>Pterostylis smaragdina</i>	Emerald-lip Greenhood	2	-	r	-	3
<i>Pultenaea juniperina</i> s.s.	Prickly Beauty	1	-	r	-	4
<i>Ranunculus papulentus</i>	Large River Buttercup	1	-	k	-	4
<i>Schoenus nanus</i>	Tiny Bog-sedge	4	-	r	-	3
<i>Stylidium calcaratum</i> var. <i>ecorne</i>	Foot Triggerplant	4	-	k	-	3
<i>Swainsona behriana</i>	Southern Swainson-pea	1	-	r	-	4
<i>Swainsona swainsonioides</i>	Downy Swainson-pea	2	-	e	L	3
<i>Thelymitra luteociliium</i>	Fringed Sun-orchid	19	-	r	-	2
<i>Thelymitra</i> X <i>chasmogama</i>	Globe-hood Sun-orchid	2	-	v	-	4
<i>Thelymitra</i> X <i>macmillanii</i>	Crimson Sun-orchid	9	-	v	-	3
<i>Utricularia uniflora</i>	Single Bladderwort	2	-	k	-	4
<i>Wurmbea uniflora</i>	One-flower Early Nancy	2	-	r	-	4

Sources: Flora Information System (DSE) and Protected Matters Search Tool (DEWHA)

Appendix 3.1 – Significant fauna species

Table A3.2. Significant fauna within 10 kilometres of the study area.

Sources used to determine species status:

EPBC *Environment Protection and biodiversity Conservation Act 1999* (Commonwealth)

DSE *Advisory List of Threatened Vertebrate Fauna in Victoria* (DSE 2007a)

FFG *Flora and Fauna Guarantee Act 1988* (Victoria)

Species status:

EX	Extinct
RX	Regionally extinct
CR	Critically endangered
EN	Endangered
VU	Vulnerable
RA	Rare
NT	Near threatened
CD	Conservation dependent
LR	Lower risk (least concern)
DD	Data deficient (insufficiently or poorly known)
L	Listed as threatened under FFG Act
#	Protected Matters Search Tool (DEWHA)

Use of the study area:

1	Known resident
2	Possible resident
3	Frequent visitor
4	Occasional visitor
5	Rare visitor
6	Vagrant visitor
7	Unlikely/no suitable habitat

S - Stawell
GW – Great Western
A - Ararat
B - Beaufort
T - Trawalla
Bu - Burrumbeet

Common Name	Scientific Name	Last documented record	Total # of records	EPBC Act	DSE (2007)	FFG ACT	National Action Plan	Likely use of study area	Previous records within study area (AVW)						
									S-GW	GW-A	A-B	B-T	T-Bu		
NATIONAL SIGNIFICANCE															
#Australian Grayling	<i>Prototroctes maraena</i>	-	-	VU	VU	L	VU	7	-	-	-	-	-		

Common Name	Scientific Name	Last documented record	Total # of records	EPBC Act	DSE (2007)	FFG ACT	National Action Plan	Likely use of study area	Previous records within study area (AVW)				
									S-GW	GW-A	A-B	B-T	T-Bu
#Australian Painted Snipe	<i>Rostratula australis</i>	-	-	VU	CR	L	VU	6	-	-	-	-	-
#Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	-	-	VU	CR	L	VU	7	-	-	-	-	-
#Dwarf Galaxias	<i>Galaxiella pusilla</i>	-	-	VU	VU	L	VU	7	-	-	-	-	-
#Golden Sun Moth	<i>Synemon plana</i>	1906	7	CR	EN	L	-	6	-	-	-	-	-
#Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	-	-	VU	VU	L	VU	6	-	-	-	-	-
#Growling Grass Frog	<i>Litoria raniformis</i>	2004	20	VU	EN	L	VU	2	Yes	-	-	-	Yes
#Heath Rat	<i>Pseudomys shortridgei</i>	-	-	VU	NT	L	EN	7	-	-	-	-	-
#Macquarie Perch	<i>Macquaria australasica</i>	-	-	EN	EN	L	DD	7	-	-	-	-	-
#Murray Cod	<i>Maccullochella peelii peelii</i>	-	-	VU	EN	L	-	7	-	-	-	-	-
#Regent Honeyeater	<i>Anthochaera phrygia</i>	1989	4	EN	CR	L	EN	5	-	-	-	-	-
#Smoky Mouse	<i>Pseudomys fumeus</i>	-	-	EN	CR	L	RA	7	-	-	-	-	-
#Southern Brown Bandicoot	<i>Isoodon obesulus obesulus</i>	2002	38	EN	NT	L	NT	2	Yes	Yes	-	-	-
#Spot-tailed Quoll	<i>Dasyurus maculatus maculatus</i>	-	-	EN	EN	L	VU	6	-	-	-	-	-
#Striped Legless Lizard	<i>Delma impar</i>	1992	1	VU	EN	L	VU	6	-	-	-	-	-
#Swift Parrot	<i>Lathamus discolor</i>	2003	6	EN	EN	L	EN	2	-	-	-	-	-
Eastern Barred Bandicoot	<i>Perameles gunnii</i>	1967	6	EN	CR	L	CR	6	-	-	-	-	-
Plains-wanderer	<i>Pedionomus torquatus</i>	1975	2	VU	CR	L	EN	6	Yes	-	-	-	-
STATE SIGNIFICANCE													
Australian Bustard	<i>Ardeotis australis</i>	1954	2	-	CR	L	-	7	-	-	-	-	-
Intermediate Egret	<i>Ardea intermedia</i>	1975	1	-	CR	L	-	6	-	-	-	-	-
Glennelg Spiny Cray	<i>Euastacus bispinosus</i>	2001	1	-	DD	L	-	7	-	-	-	-	-
Gull-billed Tern	<i>Gelochelidon nilotica</i>	1992	3	-	EN	L	-	6	-	-	-	-	-
Bush Stone-curlew	<i>Burhinus grallarius</i>	2005	9	-	EN	L	-	4	-	-	-	-	-
Freckled Duck	<i>Stictonetta naevosa</i>	2002	4	-	EN	L	-	5	-	-	-	-	-
Blue-billed Duck	<i>Oxyura australis</i>	1992	4	-	EN	L	-	5	-	-	-	-	-
Barking Owl	<i>Ninox connivens</i>	2002	5	-	EN	L	-	4	-	-	-	-	-

Common Name	Scientific Name	Last documented record	Total # of records	EPBC Act	DSE (2007)	FFG ACT	National Action Plan	Likely use of study area	Previous records within study area (AVW)				
									S-GW	GW-A	A-B	B-T	T-Bu
Grey-crowned Babbler	<i>Pomatostomus temporalis</i>	1998	1	-	EN	L	-	5	-	-	-	-	-
Squirrel Glider	<i>Petaurus norfolcensis</i>	2006	6	-	EN	L	-	3	Yes	-	-	-	-
Brown Toadlet	<i>Pseudophryne bibronii</i>	2001	41	-	EN	L	-	2	-	-	-	-	-
Caspian Tern	<i>Hydroprogne caspia</i>	2001	3	-	NT	L	-	4	-	-	-	-	-
Magpie Goose	<i>Anseranas semipalmata</i>	1996	1	-	NT	L	-	5	-	-	-	-	-
Hooded Robin	<i>Melanodryas cucullata</i>	2004	8	-	NT	L	-	4	-	-	-	-	-
Brolga	<i>Grus rubicunda</i>	2006	105	-	VU	L	-	3	-	-	-	-	Yes
Eastern Great Egret	<i>Ardea modesta</i>	2002	18	-	VU	L	-	4	-	-	Yes	-	-
Square-tailed Kite	<i>Lophoictinia isura</i>	2001	8	-	VU	L	-	4	-	-	Yes	-	-
Powerful Owl	<i>Ninox strenua</i>	2003	40	-	VU	L	-	3	-	-	-	Yes	-
Speckled Warbler	<i>Pyrrholaemus sagittatus</i>	2005	16	-	VU	L	-	4	-	-	-	-	-
Painted Honeyeater	<i>Grantiella picta</i>	1998	2	-	VU	L	-	5	-	-	-	-	-
Diamond Firetail	<i>Stagonopleura guttata</i>	2005	20	-	VU	L	-	4	-	-	-	-	-
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	2006	37	-	VU	L	-	2	-	-	Yes	-	-
Altona Skipper	<i>Hesperilla flavescens flavescens</i>	1947	3	-	-	L	-	7	-	-	-	-	-
Water beetle species	<i>Hygrobia australasiae</i>	1969	1	-	-	L	-	6	-	-	-	-	-
Royal Spoonbill	<i>Platalea regia</i>	2004	3	-	VU	-	-	4	-	-	-	-	-
Australasian Shoveler	<i>Anas rhynchotis</i>	2006	56	-	VU	-	-	3	-	-	Yes	-	-
Hardhead	<i>Aythya australis</i>	2006	57	-	VU	-	-	3	-	Yes	-	-	-
Musk Duck	<i>Biziura lobata</i>	2003	42	-	VU	-	-	3	-	-	Yes	-	-
Black Falcon	<i>Falco subniger</i>	2002	1	-	VU	-	-	4	-	-	-	-	-
Elegant Parrot	<i>Neophema elegans</i>	1999	4	-	VU	-	-	5	-	-	Yes	-	-
Lace Goanna	<i>Varanus varius</i>	2006	19	-	VU	-	-	3	-	-	-	-	-
Southern Toadlet	<i>Pseudophryne semimarmorata</i>	1963	5	-	VU	-	-	5	-	-	-	-	-
Flat-headed Galaxias	<i>Galaxias rostratus</i>	1989	1	-	VU	-	-	7	-	-	-	-	-
Golden Perch	<i>Macquaria ambigua</i>	1993	2	-	VU	-	-	7	-	-	-	-	-

Common Name	Scientific Name	Last documented record	Total # of records	EPBC Act	DSE (2007)	FFG ACT	National Action Plan	Likely use of study area	Previous records within study area (AVW)				
									S-GW	GW-A	A-B	B-T	T-Bu
REGIONAL SIGNIFICANCE													
Brown Quail	<i>Coturnix ypsilophora</i>	1985	1	-	NT	-	-	6	-	-	-	-	
Pied Cormorant	<i>Phalacrocorax varius</i>	2006	6	-	NT	-	-	3	-	-	-	-	
Whiskered Tern	<i>Chlidonias hybridus</i>	2001	5	-	NT	-	-	4	-	-	-	-	
Eastern Curlew	<i>Numenius madagascariensis</i>	1985	1	-	NT	-	-	6	-	-	-	Yes	
Latham's Snipe	<i>Gallinago hardwickii</i>	2000	5	-	NT	-	-	4	-	-	-	-	
Glossy Ibis	<i>Plegadis falcinellus</i>	1980	1	-	NT	-	-	6	-	-	-	-	
Nankeen Night Heron	<i>Nycticorax caledonicus</i>	1976	2	-	NT	-	-	6	-	-	-	-	
Cape Barren Goose	<i>Cereopsis novaehollandiae</i>	2000	1	-	NT	-	-	5	-	-	-	-	
Spotted Harrier	<i>Circus assimilis</i>	1995	2	-	NT	-	-	5	-	-	-	-	
Red-backed Kingfisher	<i>Todiramphus pyrrhopygia</i>	2000	1	-	NT	-	-	5	-	-	-	-	
Black-eared Cuckoo	<i>Chrysococcyx osculans</i>	2001	3	-	NT	-	-	5	-	-	-	-	
Brown Treecreeper	<i>Climacteris picumnus victoriae</i>	2006	65	-	NT	-	-	2	-	Yes	-	Yes	
Black-chinned Honeyeater	<i>Melithreptus gularis</i>	2006	28	-	NT	-	-	2	Yes	Yes	-	Yes	
Fat-tailed Dunnart	<i>Sminthopsis crassicaudata</i>	2006	12	-	NT	-	-	2	-	-	-	-	
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	1965	1	-	NT	-	-	6	-	-	-	-	
Bearded Dragon	<i>Pogona barbata</i>	2002	9	-	NT	-	-	4	Yes	-	Yes	-	
Woodland Blind Snake	<i>Ramphotyphlops proximus</i>	1969	1	-	NT	-	-	6	-	-	-	-	

Source: DSE Atlas of Victorian Wildlife (2007); DEWHA Protected Matters Search Tool (DEWHA)

Appendix 4 – Project Brief

Extract from VicRoads Planning Investigations “Quotation Contract for a Desktop Flora and Fauna Study, for the Western Highway, Burrumbeet to Stawell”:

3.02.1 Purpose

This investigation is to provide a review of the flora and fauna values for the Western Highway, from Burrumbeet to Stawell, with a view to making recommendations for managing identified flora and fauna issues that may be affected by the proposed project. This will assist VicRoads to ensure that the project is undertaken in a manner consistent with the principles of Ecologically Sustainable Development and relevant State and Commonwealth legislation.

3.02.2 Background

The Western Freeway is part of the AusLink National Network between Melbourne and Adelaide. The project involves duplicating the existing Western Highway between Burrumbeet (Western Freeway/Old Western Highway/Avenue of Honour intersection) and Stawell.

The document *Western Highway M8/A8 Corridor Strategy, Deer Park to the Australian Border*, reiterates the following *Linking Victoria (1996)* strategy aim:-

Development of the highway between Ballarat and Stawell as an ‘M’ road in the long term.

It clarifies a distinction between a full freeway and divided carriageway ‘M’ Road clearly stating that the Western Highway will be developed to the following standards:-

- *Full freeway standard between the Western Ring Road, Melbourne and the Sunraysia Highway, Ballarat.....*
- *Divided carriageways (‘M’ road) between Ballarat and Stawell*
- *A single carriageway with overtaking lanes (‘A’ road) from Stawell to the South Australian border*

The upgrading to an ‘M’ road requires the removal of direct property access to the highway, with access to abutting properties being restored where required, by service roads directing local traffic to intersections spaced in accordance with the relevant Access Management Policy (AMP).

The scope of the works to bring the Western Highway between Burrumbeet and Stawell up to ‘M’ road standard include:-

- Providing a second two lane carriageway and median, located, where possible, within the existing reservation. If the reservation is inadequate or environmentally restricted, providing a second carriageway in acquired adjacent land ;
- Providing alternative access to properties which currently abut the highway. Alternative access includes relocating driveways and gates to other roads along the property boundary, or providing service roads to properties otherwise land-locked after losing direct access to the highway.
- Upgrading intersections into controlled access points, in accordance with the appropriate Access Management Policy and required technical and safety standards.

3.02.3 Consultancy Objectives

The survey outcomes (Desktop assessment only) by which the performance of this contract will be assessed are:

- a clear description of the ecological values and biodiversity of the study area, based on collated

existing data;

- an objective assessment of the potential impacts of the proposed works on these values and on regional biodiversity, ecosystem biodiversity and (where assessable) genetic diversity;
- an appraisal of any implications for the project arising from biodiversity legislation or policy;
- a description of any opportunities to avoid or mitigate these potential impacts through design or management;
- an assessment of the likely resultant level of impacts if mitigation measures are adopted;
- advice on the need to prepare an EPBC referral; and
- any other information on ecological or biodiversity matters relevant to the project.

3.02.4 Services to be Provided by the Consultant

Standard Requirements

a) VicRoads' Environmental Documents.

Environmental Protection Policy (1999), Project Management Guidelines – Environmental Protection (2000), Guidelines for the Conduct of Biological Surveys (2000), Environmental Management Guidelines (2006) set the environmental policy framework within which VicRoads operates and consultants should be familiar with these documents. Copies are available on the VicRoads' Website – see www.vicroads.vic.gov.au.

b) Databases

The Department of Sustainability and Environment maintains the following ecological databases:

- Atlas of Victorian Wildlife;
- Flora Information System;
- Victorian Fish Database;

Searches of these databases should be made for the study area. Other databases, such as the EPBC lists, managed by the Australian Government Department of Environment and Heritage, may be relevant to specific surveys and the Consultant should search these where appropriate.

c) Legislation

The implications of the following legislation and policy should be specifically addressed by the consultant:

- Commonwealth *Environmental Protection and Biodiversity Conservation Act, 1999*;
- Victorian *Flora and Fauna Guarantee Act 1988* (including protected flora);
- Victorian *Catchment and Land Protection Act 1994*;
- the Native Vegetation Clearance Controls in the Victoria Planning Provisions of the *Planning and Environment Act 1987*;
- the Planning Schemes of the City of Ballarat, Pyrenees Shire, Rural City of Ararat and Northern Grampians Shire (i.e. objectives in the SPPF, MSS and LPPs)
- the Victorian Biodiversity Strategy;
- the Victorian Native Vegetation Management, A Framework for Action

e) Meeting Attendance.

The Consultant shall attend all meetings, as instructed by the Superintendent.

It is expected that all meetings will be held at Planning Investigations Department, Level 1 / 3 Prospect Hill Road, Camberwell and be less than two hours duration.

Study Tasks

The Assignment shall be undertaken primarily as a desktop assessment, with field inspections being undertaken where necessary to meet the objectives of the Assignment.

The corridor for investigation is shown in Figure 1.

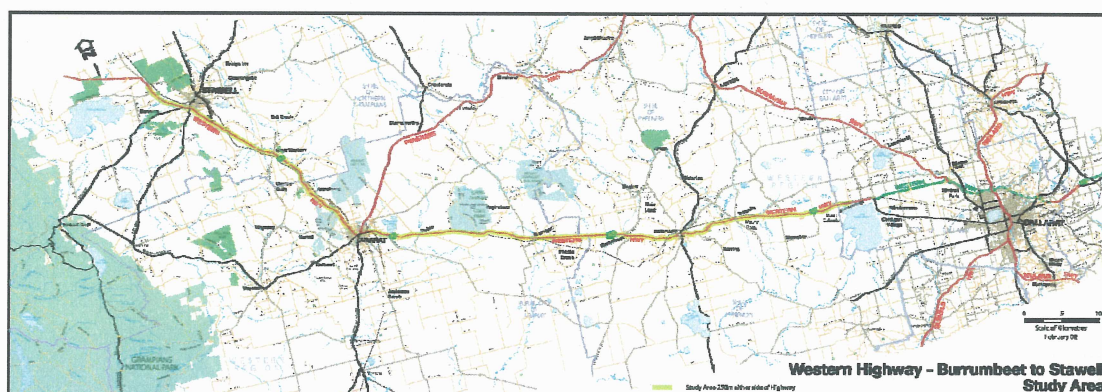


Figure 1 - Western Highway - Burrumbeet to Stawell Study Area. The study area is a 250m wide band either side of the highway.

The consultant shall :

- a) access the relevant databases and undertake research including a review of reports or other literature relating to the study areas;
- b) develop, in conjunction with VicRoads, a list of people and organisations that should be contacted;
- c) liaise with key contacts, as agreed with VicRoads;
- d) on the basis of the information obtained, describe:
 - general condition of the study area
 - flora and fauna species present, or potentially present in the study area
 - ecological vegetation classes present in the study area and conservation status
 - general condition of the vegetation, including major weed species or other degrading factors
 - fauna habitats present or potential to provide fauna habitat in the study area
 - potential as a wildlife corridor
 - potential significance of the study area and significance of flora and fauna species present or potentially present in the study area
 - potential impacts of the proposed works on ecological values and on regional biodiversity, ecosystem biodiversity and (where assessable) genetic diversity
 - potential for mitigation of impacts through either design or management to be agreed by VicRoads prior to inclusion in final draft
 - implications for the project arising from biodiversity legislation or policy

- any recommendations for further or more detailed survey; and
 - limitations of survey
- f) Produce a final report based on the results of tasks a) – e). In addition, the report shall:
- Include an executive summary;
 - Include the project brief as an appendix;
 - Be presented to VicRoads in both hard copy and an electronic format (as agreed with VicRoads), with maps showing the study area; distribution of significant and potentially significant flora and fauna sites within the study area, existing and potential habitat and wildlife corridors, location of EVC's and areas where further investigations are recommended;
 - Note that, colour plans should also be capable of being reproduced in black and white.

3.02.5 Information to be supplied by Corporation to Consultant

To assist the Consultant in the assignment, the following information will be provided by VicRoads:

- Map showing the study area

VicRoads will co-ordinate liaison with other specialist consultants as required.

3.02.6 Information to be Provided by the Consultant to the Corporation

The consultant shall supply VicRoads with the deliverables, as set out in 3.02.9, Deliverables.

The Consultant shall provide the following information when requested by VicRoads:

- evidence that the Consultant has the insurance policies specified in the Annexure; and
- evidence that all necessary permits have been obtained.

3.02.7 Methodology

a) General

The Consultant shall conduct the assignment in accordance with the methodology submitted to and approved by VicRoads, prior to the commencement of the study.

b) Access to Properties

N/A

c) Liaison with VicRoads

On all other matters, the Consultant shall liaise only with the Superintendent or the Superintendent's Representative.

3.02.8 Reporting

HP A draft report will be completed within 4 (four): weeks of awarding the contract. VicRoads will review the report and within 1 (one): week and will accept, reject or suggest amendments to it for inclusion into the final report. A final report shall then be submitted within 1 (one) week from the date of receipt of VicRoads response to the draft report.

The Consultant shall notify VicRoads immediately on completion of field work or discovery of any significant issues which arise as a result of the investigations and to notify VicRoads immediately of any other issues that VicRoads should be made aware of.

3.02.9 Deliverables

Draft and Final Reports

- One bound copy and one unbound copy of the draft Report should be presented to VicRoads.
- Three bound copies and one unbound copy of final Report should be presented to VicRoads, including colour plans as deemed required.
- An electronic copy of the Final Report should be provided to VicRoads on a disc in Microsoft Word format and, for the Final Study Report only, in Adobe Portable Document File (pdf) format.
- Drawings should be provided in a cadd file microstation version 8 or dxf.
- All reports shall contain an executive summary.
- All reports shall contain a copy of the Consultant Task Brief as an Appendix (ie Section 3.02 of this contract).
- All reports shall conform to the following requirements:
 - Binding margin : 25mm.
 - Open margin : 10mm.
 - In practical terms, provide the 25mm margin on both sides of each page so that VicRoads can produce double-sided documents.
 - Top margin : 10mm.
 - Bottom margin : 10mm.
 - Start each section on the right hand page.
 - Generally fonts to be no smaller than 12 point.
 - Start Chapter 1 on the right hand page. Start all other chapters as they occur.
 - First page of Chapter 1 is Page 1.
 - All preceding pages to be in Roman numerals.
 - Odd numbered pages to be right hand pages.
 - Be consistent with style. Use Commonwealth Style manual or similar.
 - Minimise use of colour figures and photographs. Colour figures should be capable of being reproduced in black and white.
 - Supply clean artwork (not photography).
 - Supply unfolded plans if greater than A4 size.
 - Supply loose photographic prints.
 - Where continuous alignment drawings are broken down to A3 size drawings, all annotation and text shown on the continuous alignment drawings must be self-contained within each A3 drawing.

REFERENCES

References

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WESTERN HIGHWAY PROJECT

McKINNON LANE TO ANDERSONS ROAD

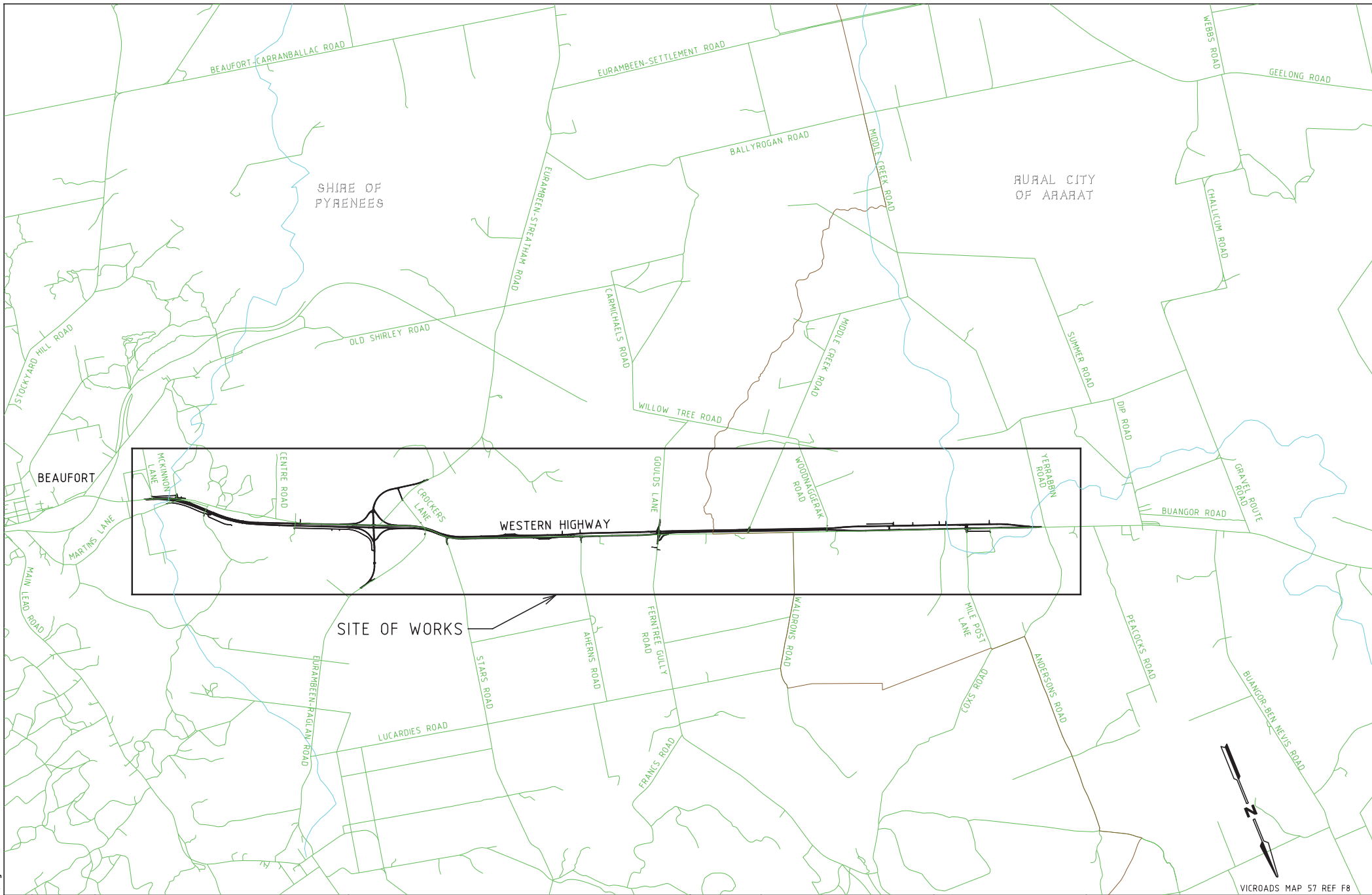
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VOLUME 2 of 4

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GENERAL NOTES

TECHNICAL CONSULTING

DESIGNED PROJECT DESIGN

APPROVED

3 PROSPECT HILL ROAD,
CAMBERWELL,
VICTORIA, 3124
PHONE (03) 9811 8355
FAX (03) 9811 8329

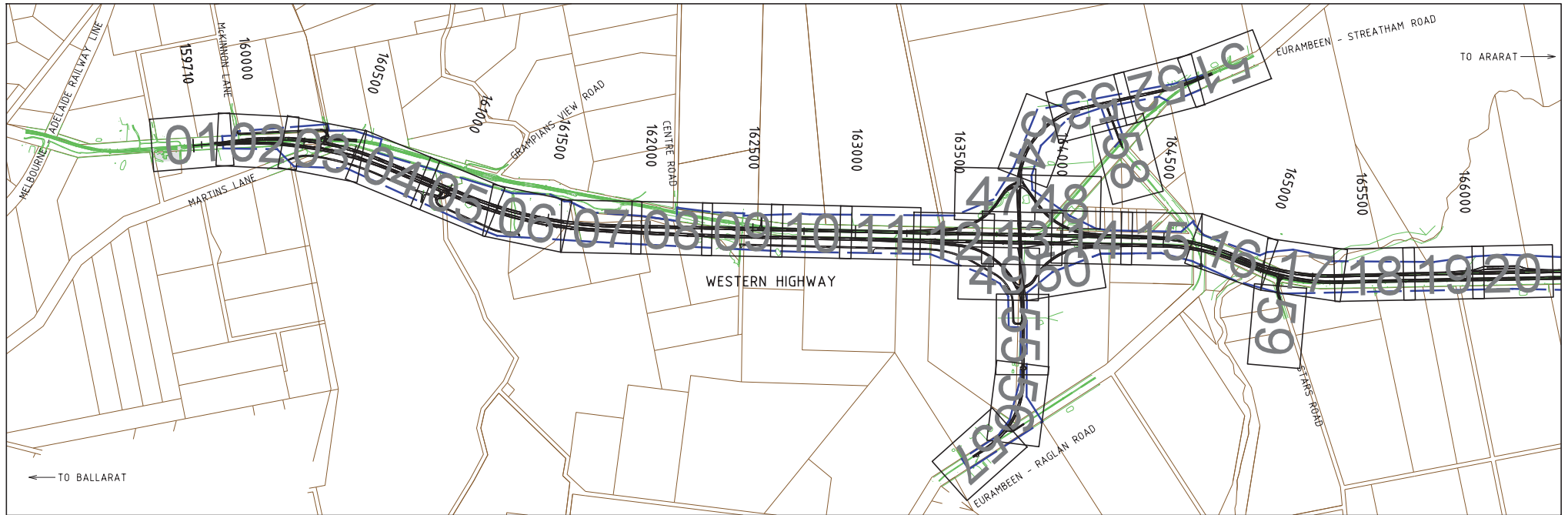
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WESTERN HIGHWAY - BEAUFORT TO ARARAT
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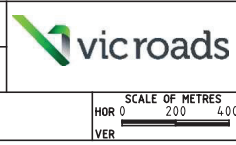


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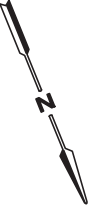
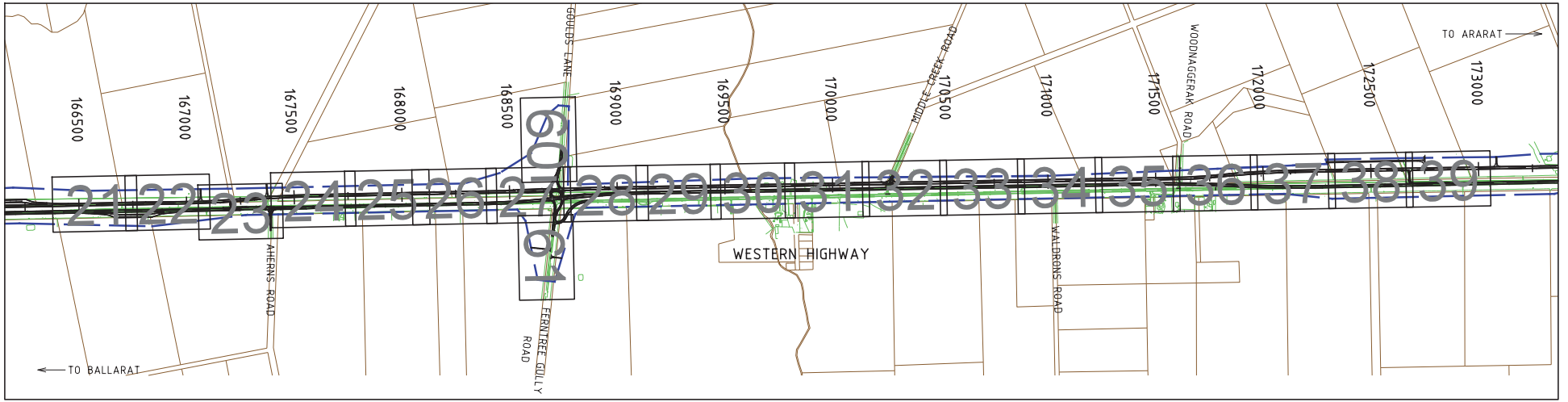
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD KEY PLAN SHEET 1 OF 3			
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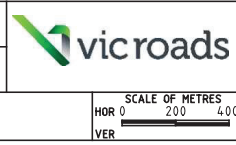


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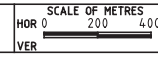
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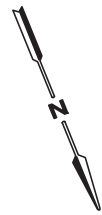
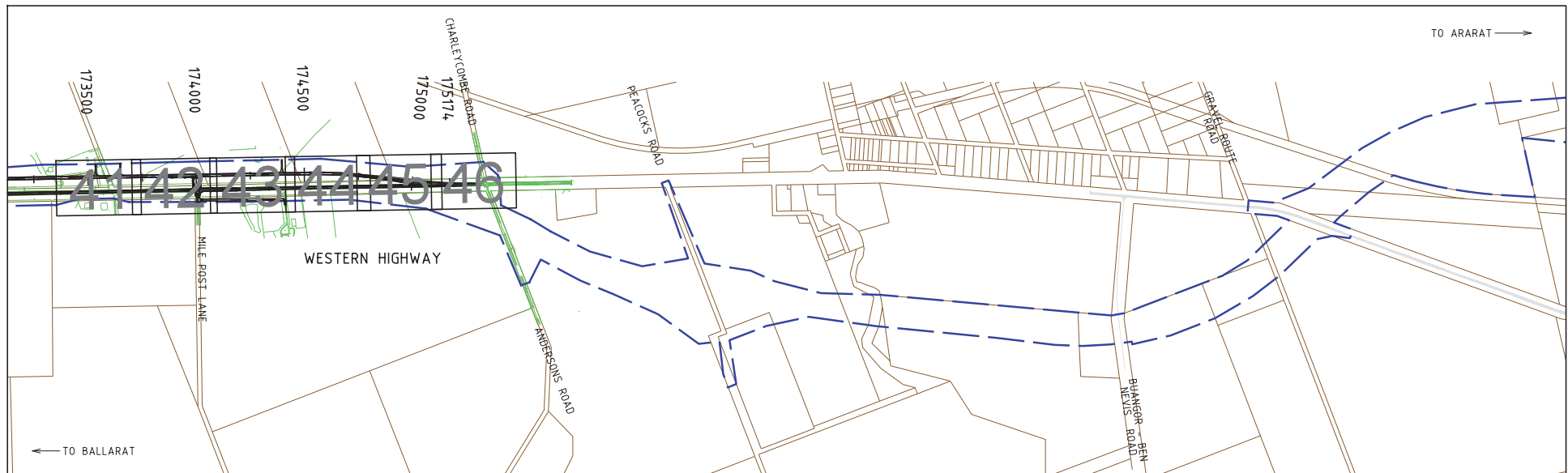
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WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
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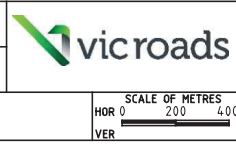


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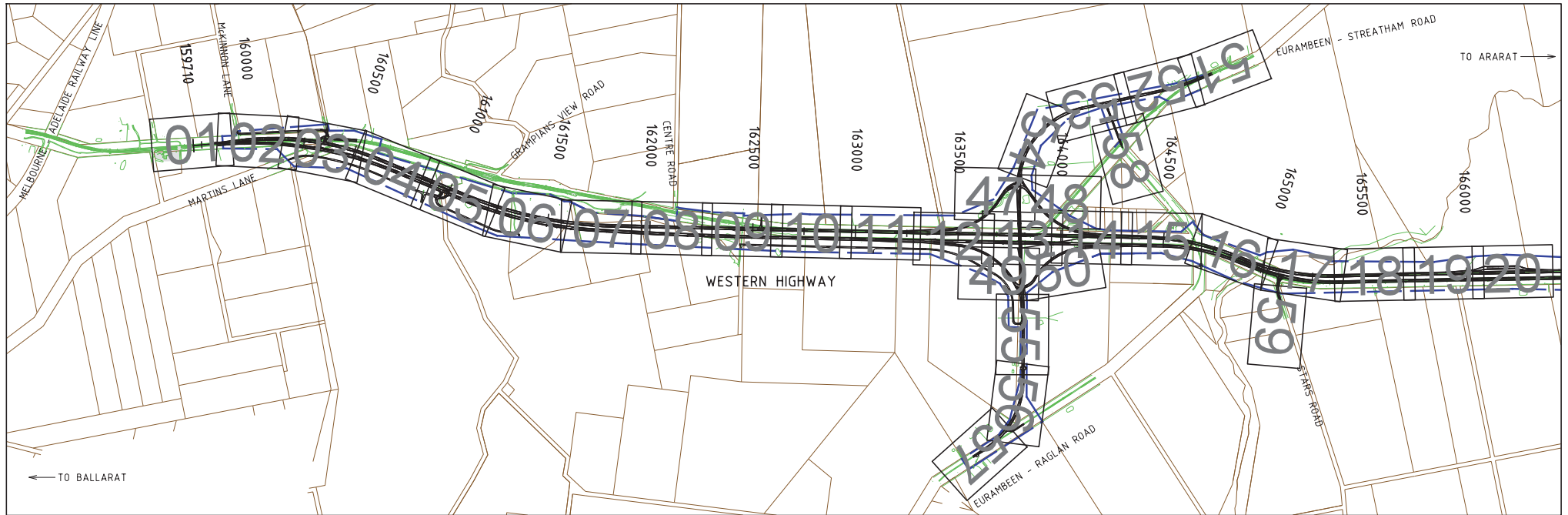
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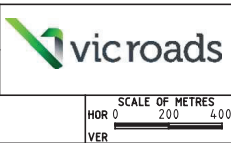


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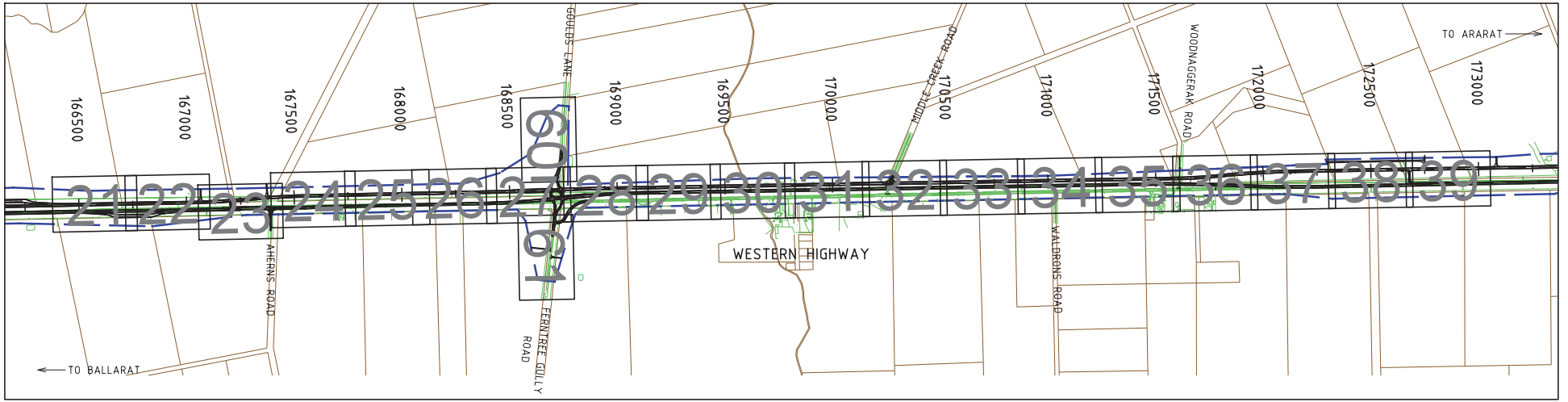


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 MCKINNON LANE TO ANDERSONS ROAD
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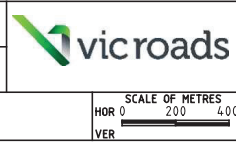


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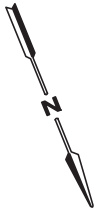
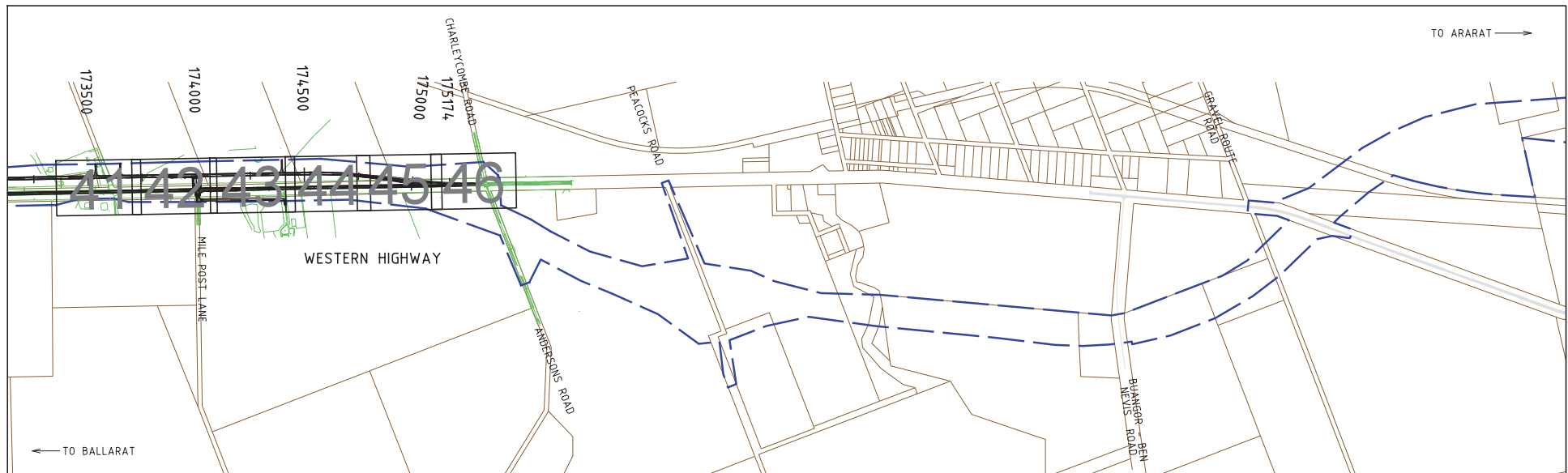
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GENERAL NOTES

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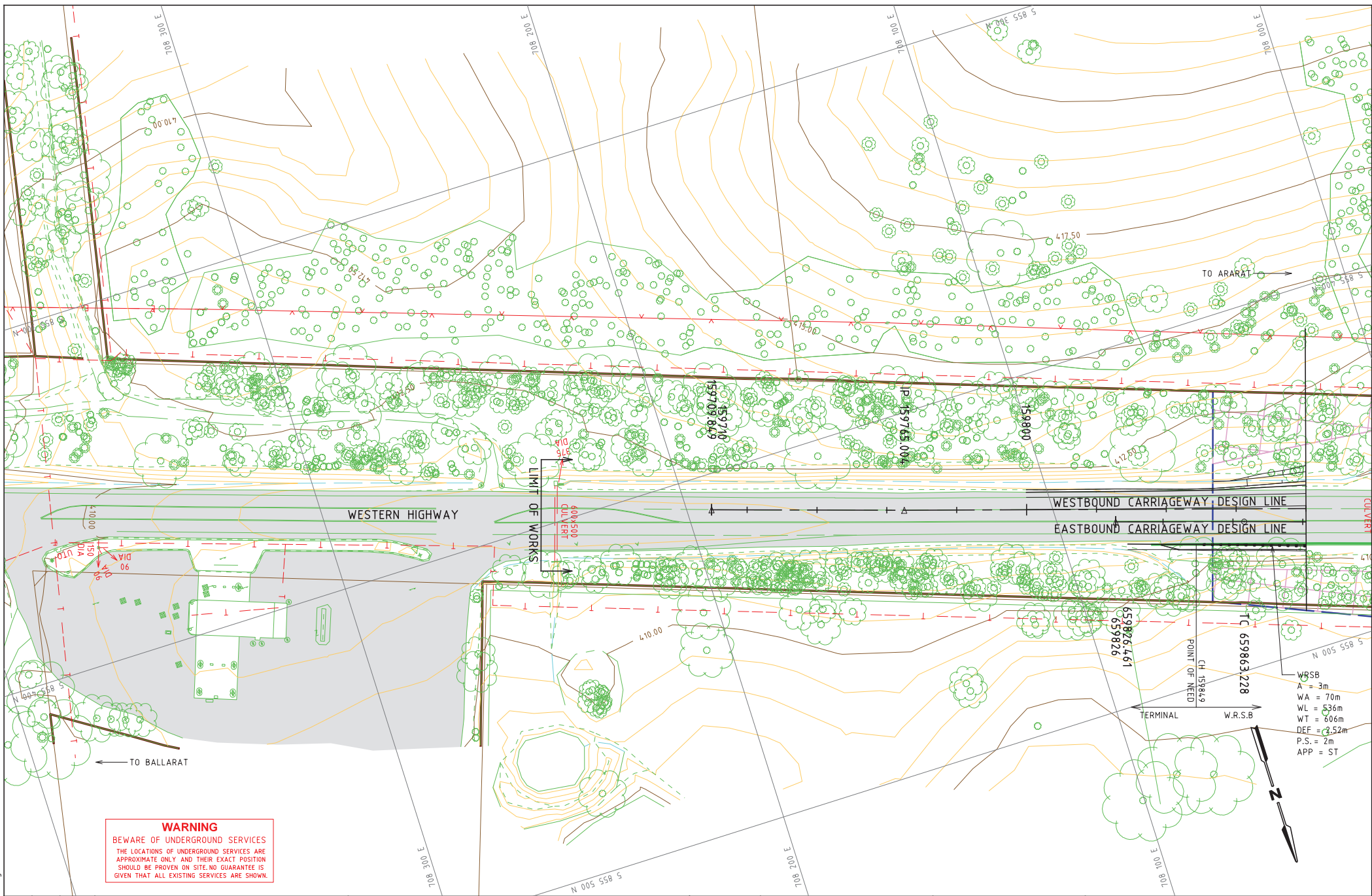
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WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
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WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

WRSB
 A = 3m
 WA = 70m
 WL = 536m
 WT = 606m
 DEF = 2.52m
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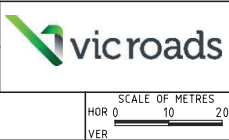
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 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
- - - EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

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 3 PROSPECT HILL ROAD,
 CARBISWELL,
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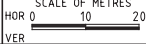
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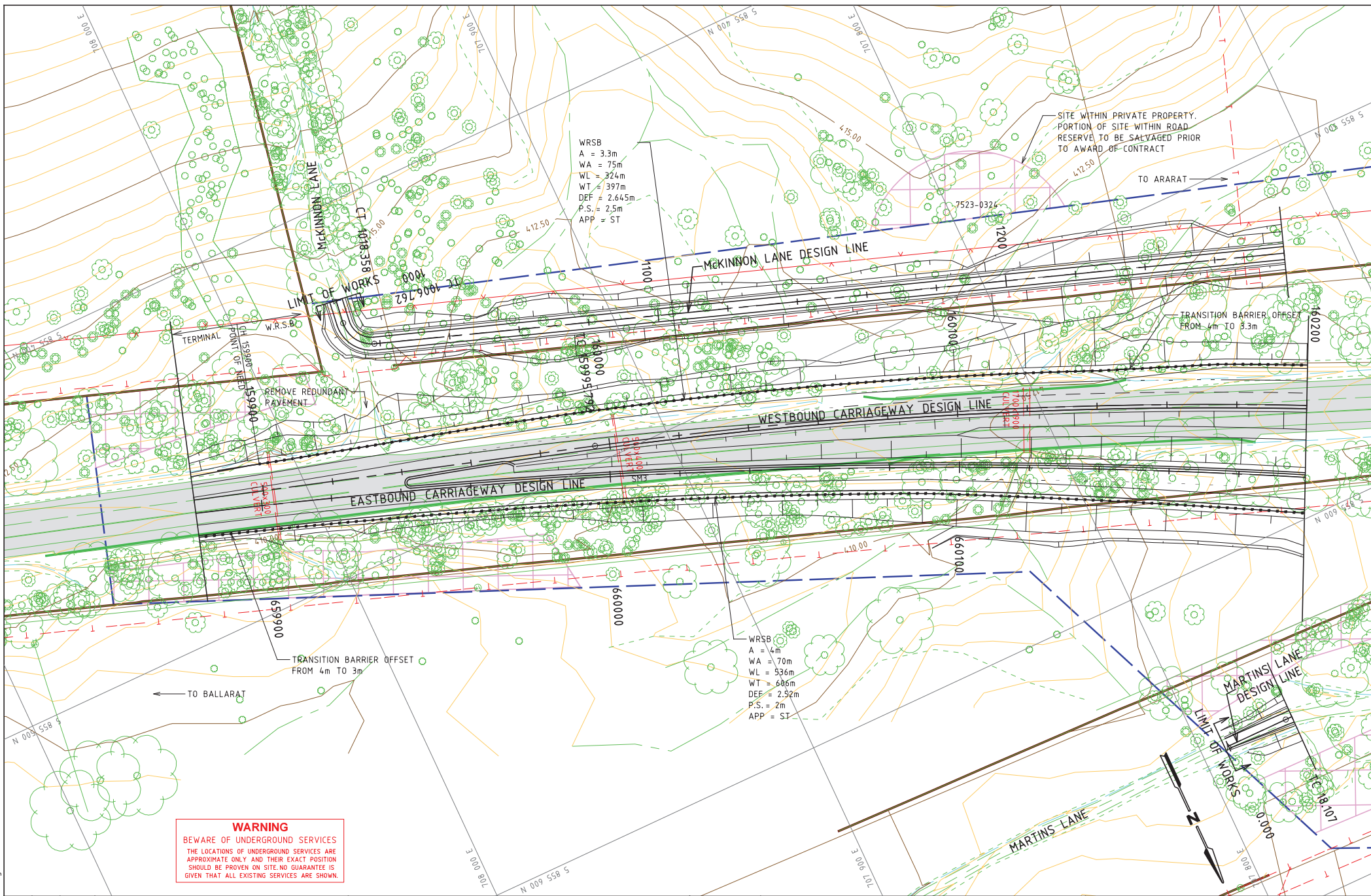
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WESTERN HWY/FWY
 WESTERN HIGHWAY - BEAUFORT TO ARARAT
 MCKINNON LANE TO ANDERSONS ROAD
 CH 159709.849 - CH 159880
ALIGNMENT PLAN

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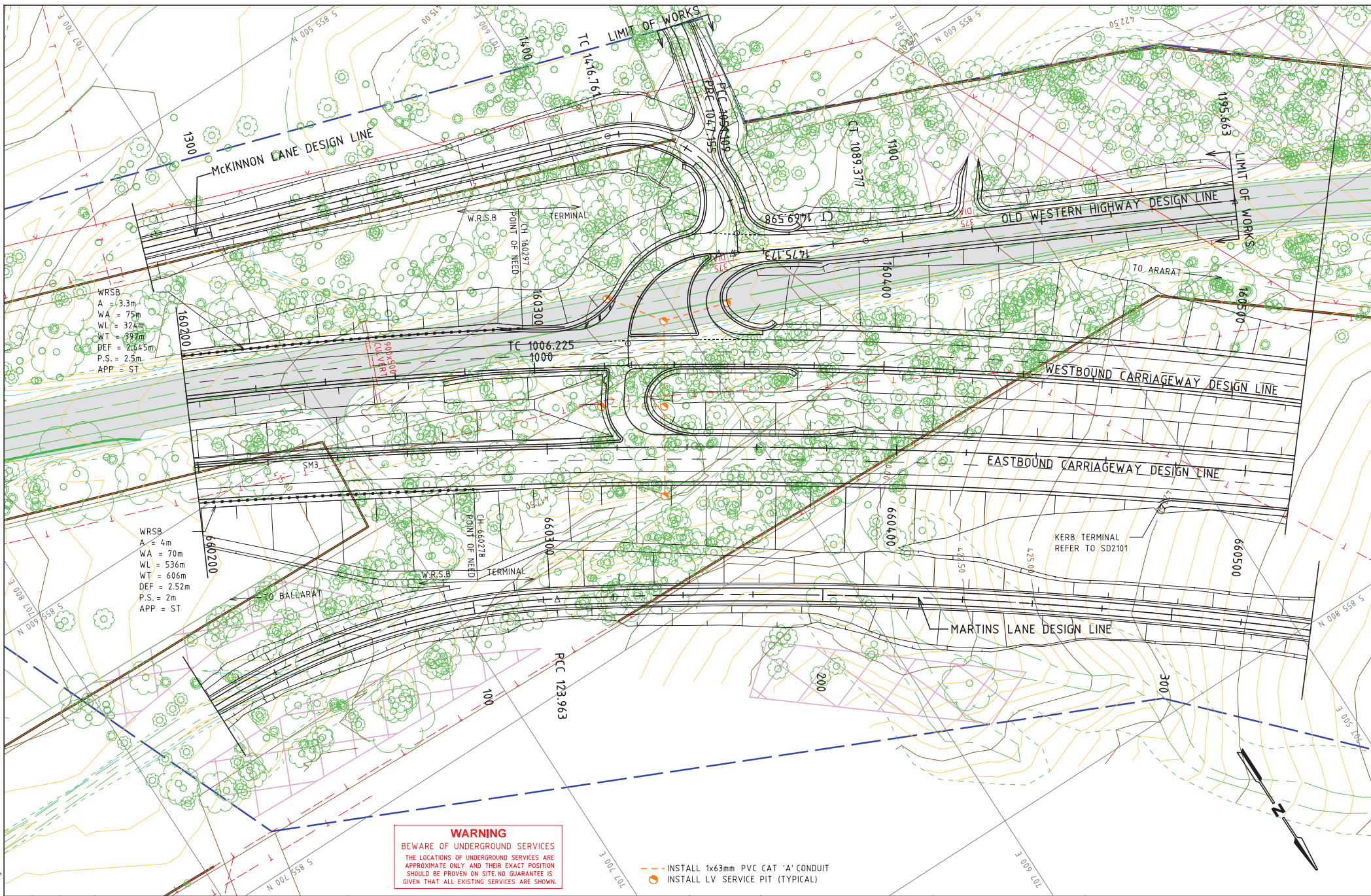
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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES	
1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54	
2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.	
3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.	
—	PROPOSED ROW BOUNDARY
—	EXISTING FENCE
—	PROPOSED POWER LINE RELOCATION
—	EXISTING SAFETY BARRIER
—	NO GO ZONES

TECHNICAL CONSULTING	DESIGNED PROJECT DESIGN
3 PROSPECT HILL ROAD, CAMBERWELL, VICTORIA, 3124 PHONE (03) 9811 8355 FAX (03) 9811 8329	APPROVED J. MIKITCZUK 18/10/13 CAT: Road_Design PROJ: (a) Section 2A FILE: 716-pd-a-ap-02.dgn

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WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 159880 - CH 160200 ALIGNMENT PLAN			
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WRSB
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 WA = 75m
 WL = 324m
 WT = 333m
 DEF = 2.645m
 P.S. = 2.5m
 APP = ST

WRSB
 A = 4m
 WA = 70m
 WL = 536m
 WT = 606m
 DEF = 2.52m
 P.S. = 2m
 APP = ST

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- INSTALL 1x63mm PVC CAT 'A' CONDUIT
- INSTALL LV SERVICE PIT (TYPICAL)

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A	J.M.	29/10/2013	WRSB OFFSETS INCREASED	
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GENERAL NOTES

1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
 NO GO ZONES
— EXISTING SAFETY BARRIER

TECHNICAL CONSULTING

3 PROSPECT HILL ROAD,
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 VICTORIA, 3124
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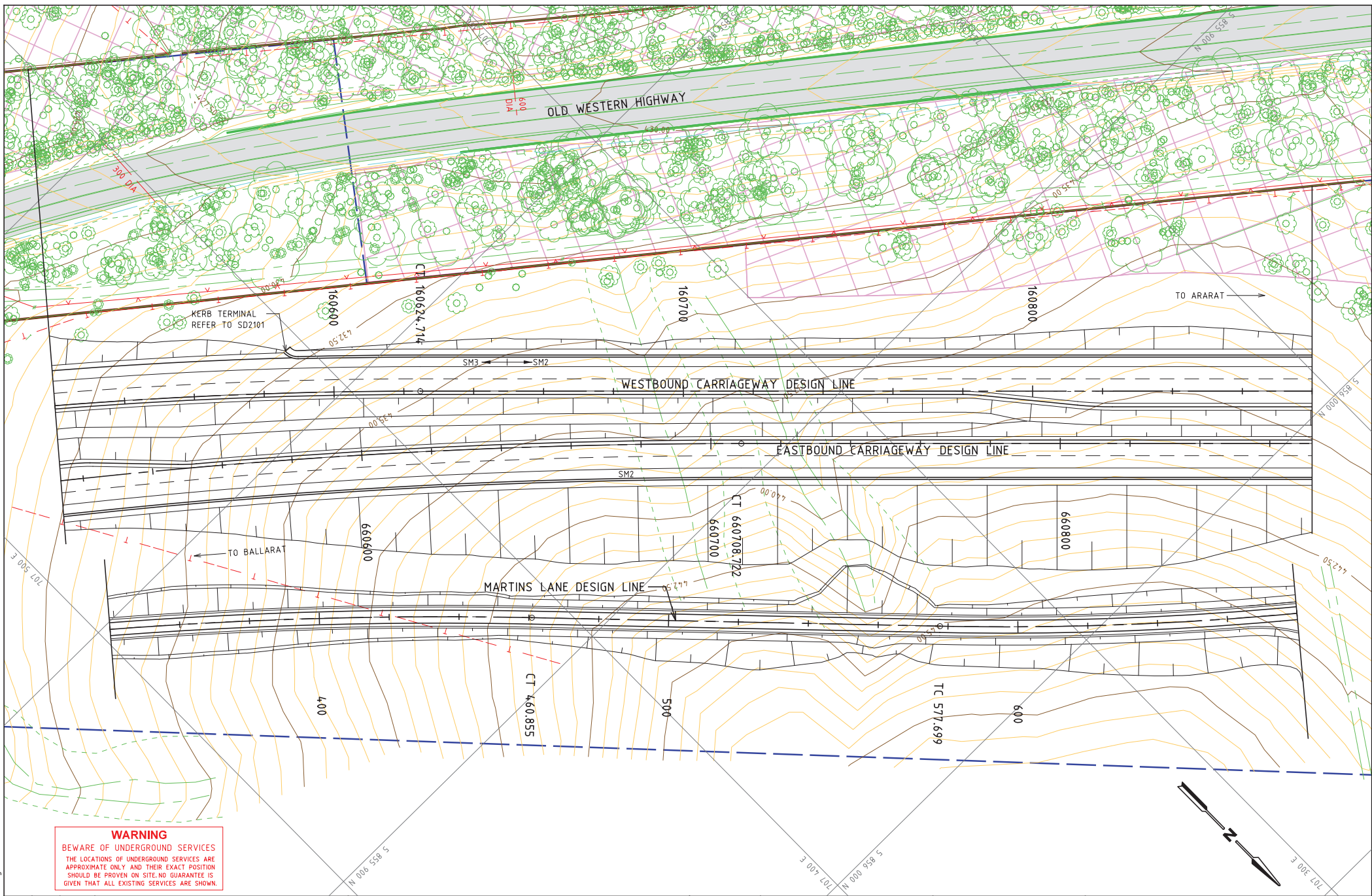
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APPROVED
 J. MIKITCZUK
 18/10/13

CAT: Road_Design
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— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

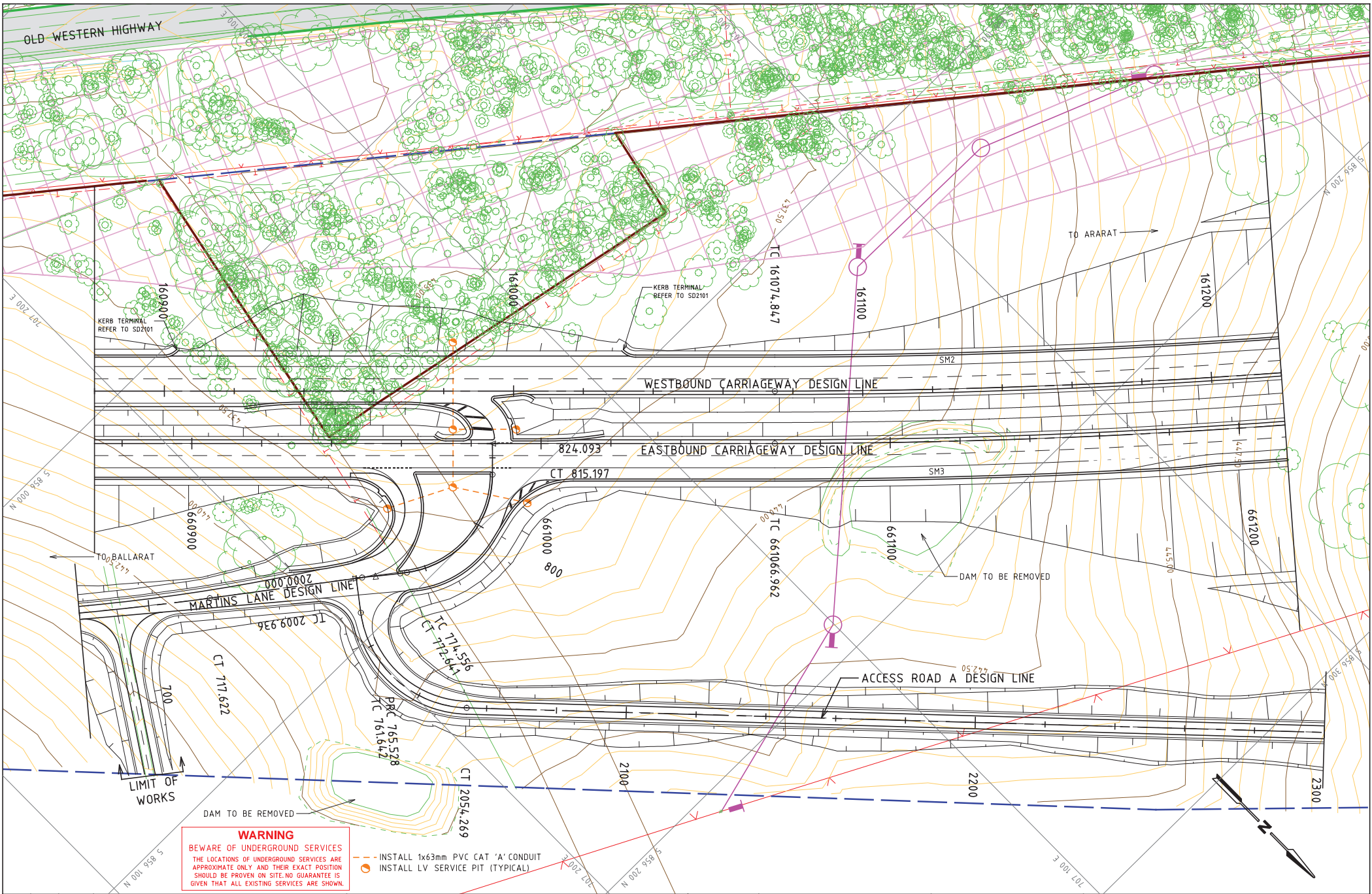
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-04.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 160520 - CH 160880 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 131	DRAWING NO. 728632

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WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

- INSTALL 1x63mm PVC CAT 'A' CONDUIT
- INSTALL LV SERVICE PIT (TYPICAL)

GENERAL NOTES	
1.	SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
2.	FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
3.	REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.
---	PROPOSED ROW BOUNDARY
---	EXISTING FENCE
○	PROPOSED POWER LINE RELOCATION
---	EXISTING SAFETY BARRIER
---	NO GO ZONES

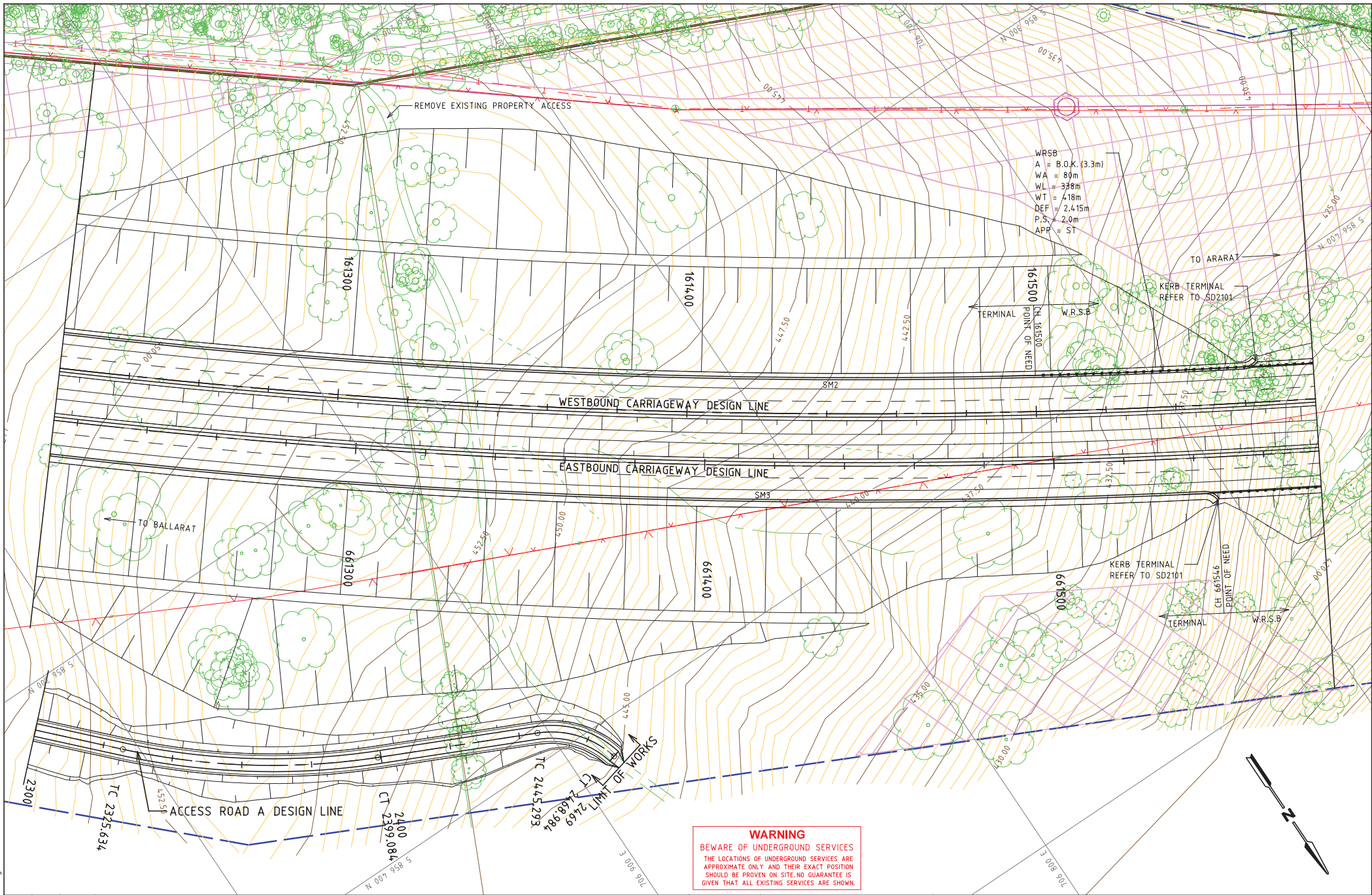
TECHNICAL CONSULTING	
3 PROSPECT HILL ROAD, CAMBERWELL, VICTORIA, 3124 PHONE (03) 9811 8355 FAX (03) 9811 8329	
DESIGNED PROJECT DESIGN	
APPROVED J. MIKITCZUK 18/10/13	
CAT: Road_Design PROJ: (a) Section 2A FILE: 716-pd-a-ap-05.dgn	

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 160880 - CH 161220 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	132	728633

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ISSUE	APP'D	DATE	AMENDMENT
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C			
B			
A			



WRSB
 A = B.O.K. (3.3m)
 WA = 80m
 WL = 388m
 WT = 4.18m
 DEF = 2.415m
 P.S. = 2.0m
 APP = ST

WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

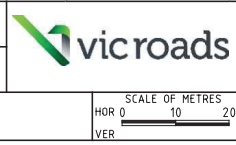
GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

PROPOSED ROW BOUNDARY
 EXISTING FENCE
 PROPOSED POWER LINE RELOCATION
 EXISTING SAFETY BARRIER
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED

CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-06.dgn



SCALE OF METRES HOR 0 10 20 VER		FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 133	DRAWING NO. 728634	ISSUE
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WESTERN HWY/FWY
 WESTERN HIGHWAY - BEAUFORT TO ARARAT
 MCKINNON LANE TO ANDERSONS ROAD
 CH 161220 - CH 161580
 ALIGNMENT PLAN

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ISSUE	APP'D	DATE	AMENDMENT	

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WRSB
 A = 3.3m
 WA = 80m
 WL = 138m
 WT = 419m
 DEF = 2.415m
 P.S. = 2.0m
 APP = ST

WRSB
 A = B.O.K. (3.3m)
 WA = 80m
 WL = 56m
 WT = 136m
 DEF = 2.1m
 P.S. = 2.0m
 APP = ST

WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

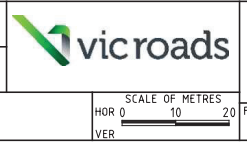
E				
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C				
B				
A	J.M.	29/10/2018	WRSB OFFSETS INCREASED	
ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

PROPOSED ROW BOUNDARY
 EXISTING FENCE
 PROPOSED POWER LINE RELOCATION
 EXISTING SAFETY BARRIER
 NO GO ZONES

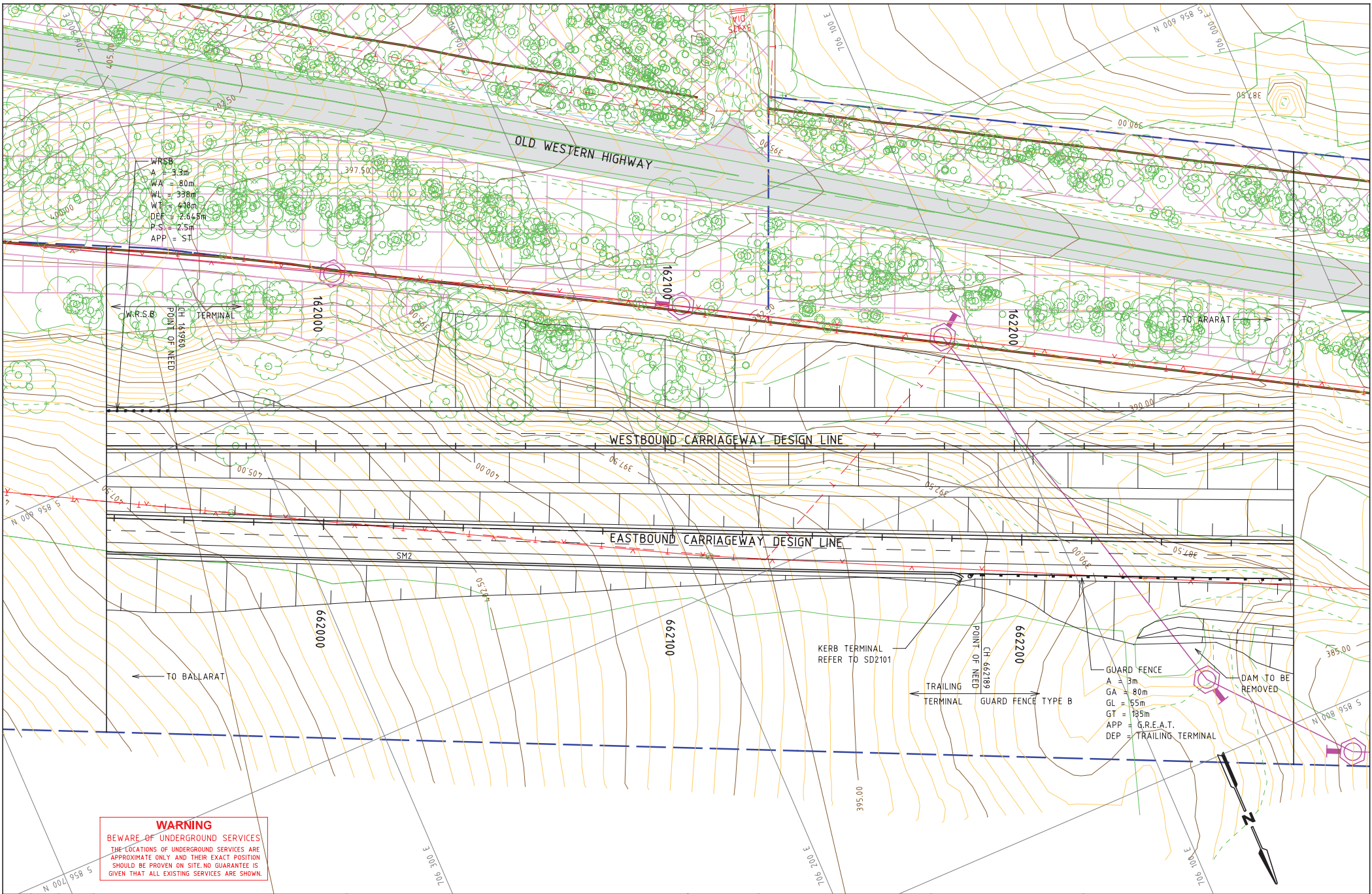
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-07.dgn



WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 161580 - CH 161940 ALIGNMENT PLAN					
SCALE OF METRES HOR 0 10 20 VER	FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 134	DRAWING NO. 728635	ISSUE A

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WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

WRSB
 A = 3m
 WA = 80m
 WL = 95m
 WT = 13m
 DEP = 2.645m
 P.S. = 2.5m
 APP = ST

GUARD FENCE
 A = 3m
 GA = 80m
 GL = 55m
 GT = 135m
 APP = G.R.E.A.T.
 DEP = TRAILING TERMINAL

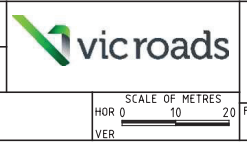
E				
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A	J.M.	29/10/2018	WRSB OFFSETS INCREASED	
ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— EXISTING SAFETY BARRIER
 PROPOSED POWER LINE RELOCATION
 NO GO ZONES

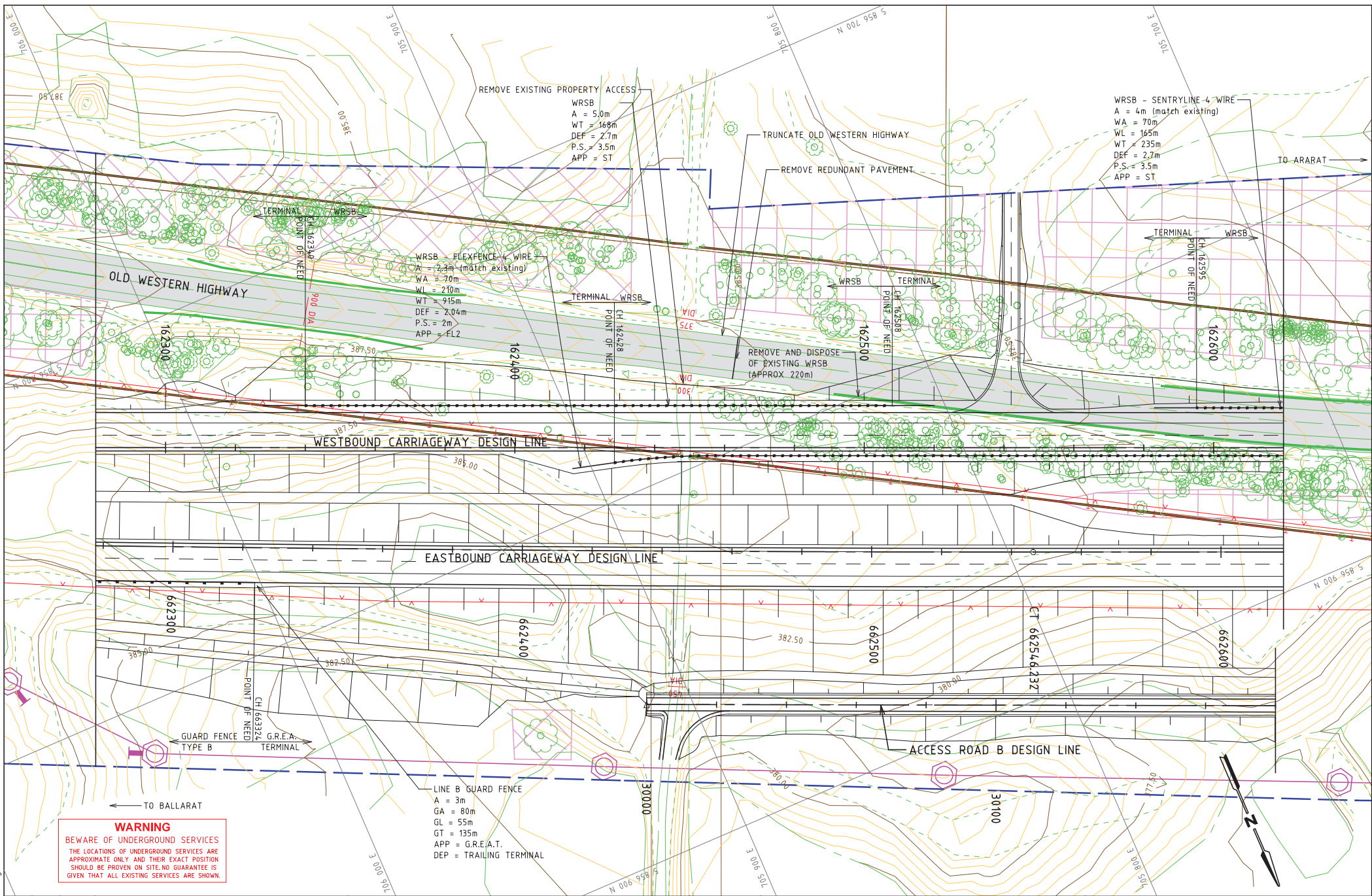
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-08.dgn



WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 161940 - CH 162280 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	135	728636
ISSUE	A		

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716-pd-a-ap-08.dgn



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ISSUE	APP'D	DATE		AMENDMENT

GENERAL NOTES

1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
 NO GO ZONES
— EXISTING SAFETY BARRIER

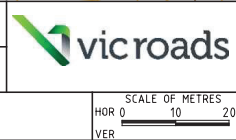
TECHNICAL CONSULTING

3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

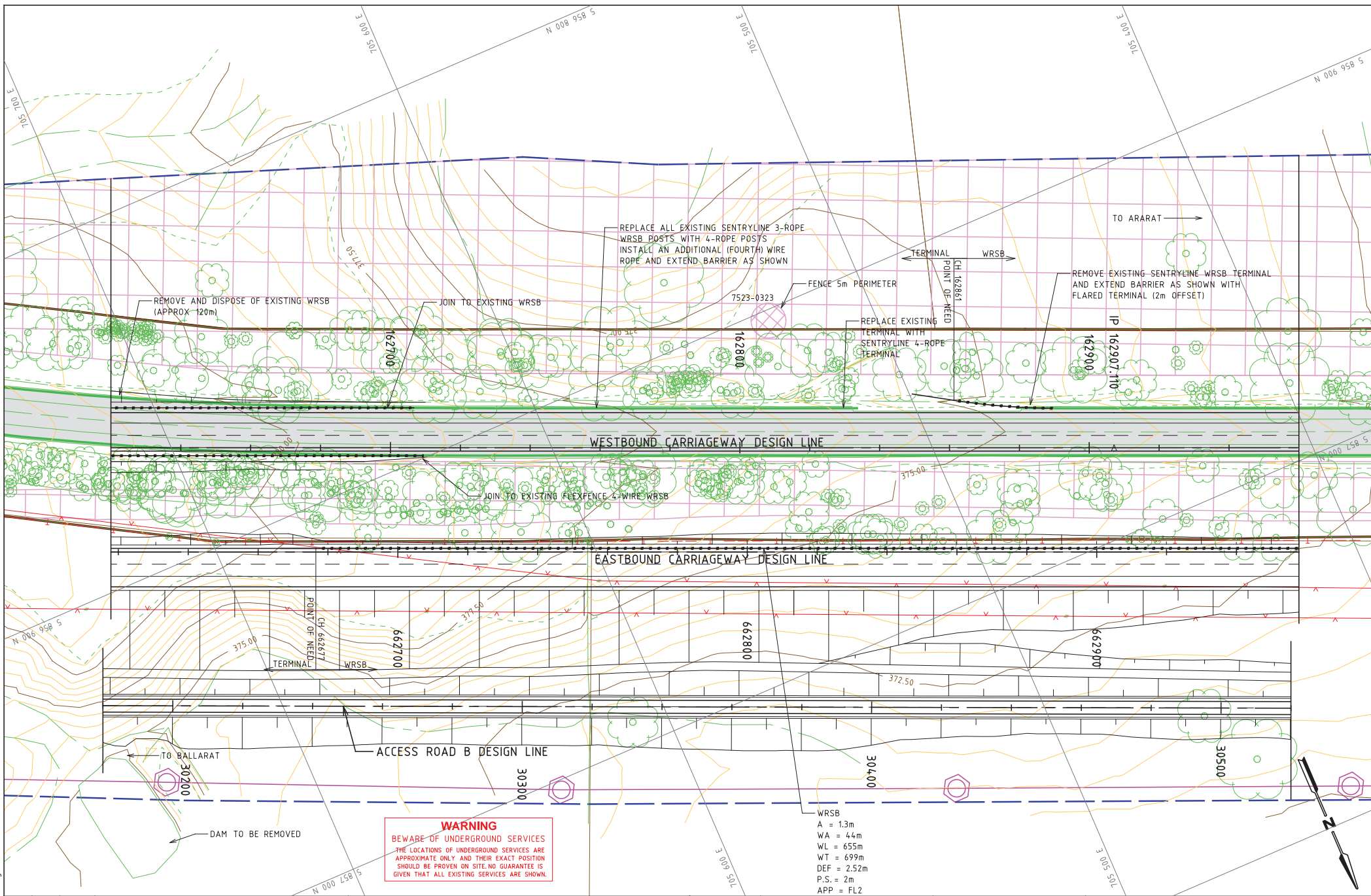
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APPROVED

CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-09.dgn



WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 162280 - CH 162620 ALIGNMENT PLAN		FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
		716	8612	136	728637	



WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

WRSB
 A = 1.3m
 WA = 4.4m
 WL = 655m
 WT = 699m
 DEF = 2.52m
 P.S. = 2m
 APP = FL2

E				
D				
C				
B				
A	J.M.	29/10/2018	WRSB OFFSETS INCREASED	
ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

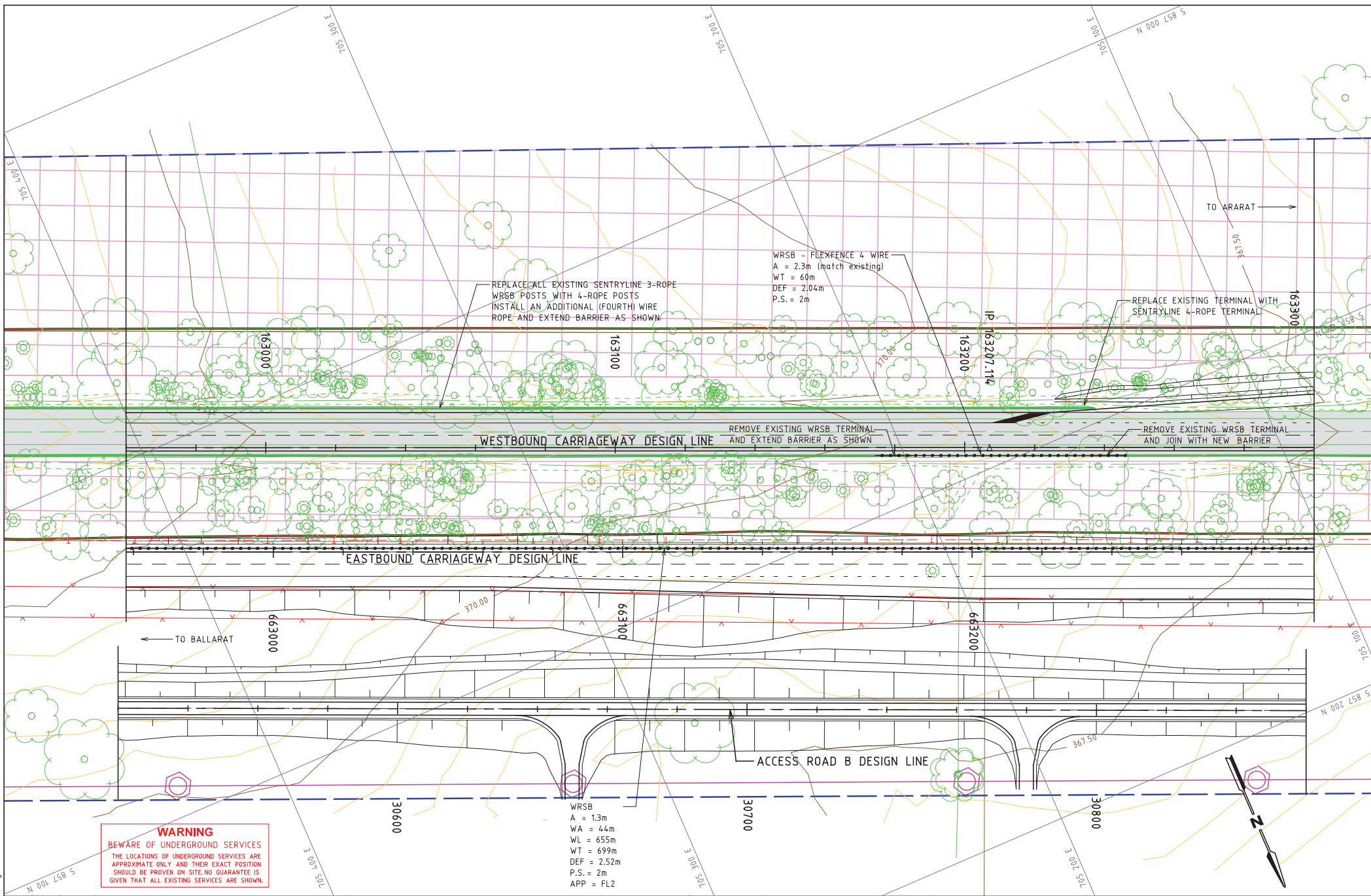
PROPOSED ROW BOUNDARY
 EXISTING FENCE
 PROPOSED POWER LINE RELOCATION
 NO GO ZONES
 EXISTING SAFETY BARRIER

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-10.dgn

WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 162620 - CH 162960 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 137	DRAWING NO. 728638
ISSUE A			

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REPLACE ALL EXISTING SENTRYLINE 3-ROPE WRSB POSTS WITH 4-ROPE POSTS
 INSTALL AN ADDITIONAL (FOURTH) WIRE ROPE AND EXTEND BARRIER AS SHOWN

WRSB - FLEXFENCE 4 WIRE
 A = 2.3m (match existing)
 WT = 60m
 DEF = 2.04m
 P.S. = 2m

REPLACE EXISTING TERMINAL WITH SENTRYLINE 4-ROPE TERMINAL

WESTBOUND CARRIAGEWAY DESIGN LINE
 REMOVE EXISTING WRSB TERMINAL AND EXTEND BARRIER AS SHOWN

REMOVE EXISTING WRSB TERMINAL AND JOIN WITH NEW BARRIER

EASTBOUND CARRIAGEWAY DESIGN LINE

ACCESS ROAD B DESIGN LINE

WARNING
 BEWARE OF UNDERGROUND SERVICES
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WRSB
 A = 1.3m
 WA = 4.4m
 WL = 655m
 WT = 699m
 DEF = 2.52m
 P.S. = 2m
 APP = FL2

GENERAL NOTES

1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

	PROPOSED ROW BOUNDARY
	EXISTING FENCE
	PROPOSED POWER LINE RELOCATION
	EXISTING SAFETY BARRIER
	NO GO ZONES

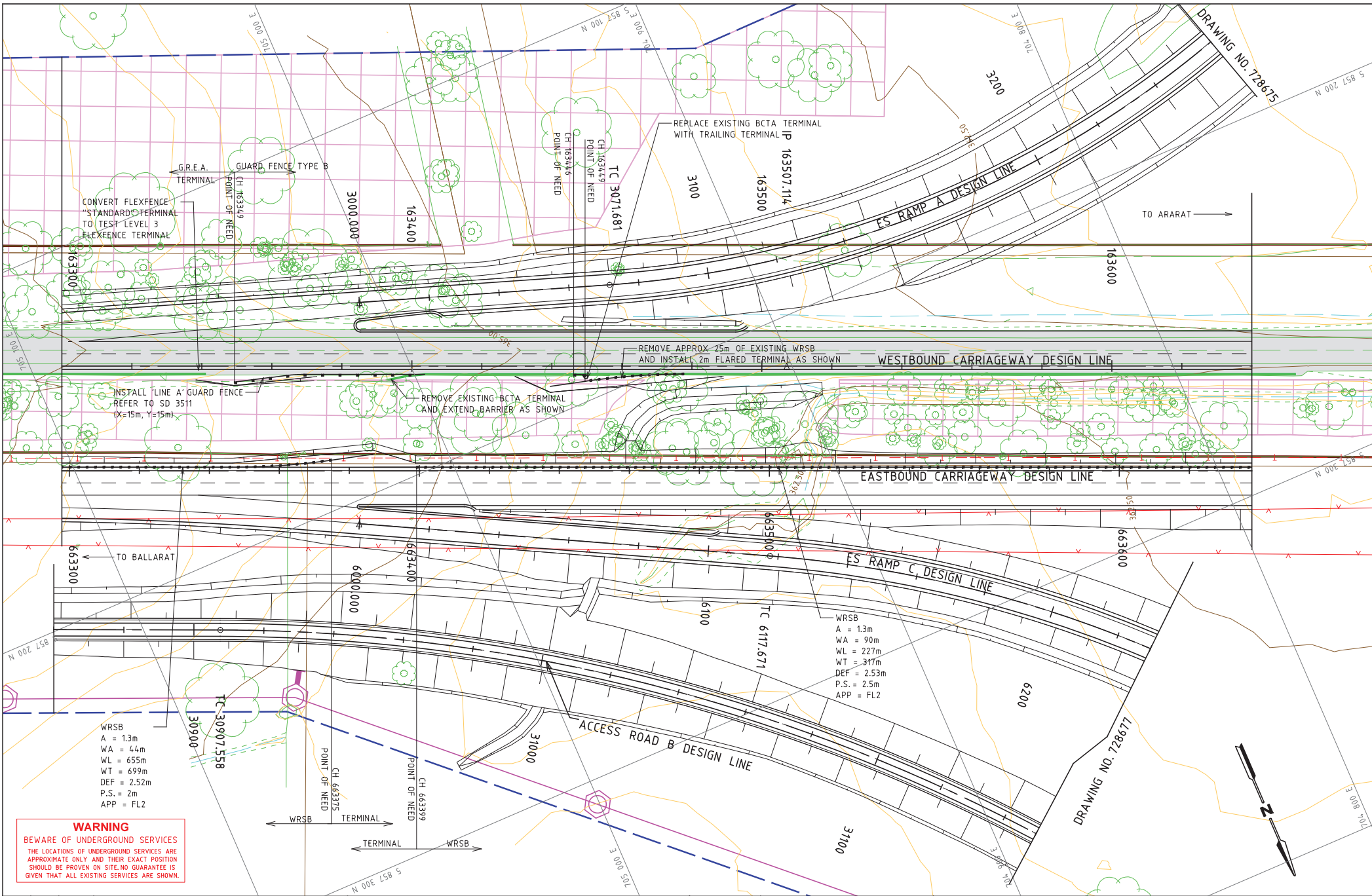
TECHNICAL CONSULTING 3 PROSPECT HILL ROAD, CARBISWELL, VICTORIA, 3124 PHONE (03) 9811 8355 FAX (03) 9811 8329	DESIGNED PROJECT DESIGN APPROVED J. MIKITCZUK 18/10/13 CAT: Road_Design PROJ: (a) Section 2A FILE: 716-pd-a-ap-11.dgn
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SCALE OF METRES
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 162960 - CH 163300 ALIGNMENT PLAN				
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 138	DRAWING NO. 728639	ISSUE A

14/11/2013 Default
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A	J.M.	29/10/2013	WRSB OFFSETS INCREASED	
ISSUE	APP'D	DATE	AMENDMENT	



DRAWING NO. 728675

DRAWING NO. 728674

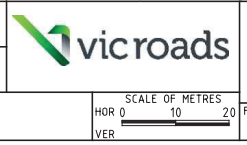
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A	J.M.	29/10/2018	WRSB OFFSETS INCREASED	
ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

LEGEND
 - PROPOSED ROW BOUNDARY
 - EXISTING FENCE
 - PROPOSED POWER LINE RELOCATION
 - NO GO ZONES
 - EXISTING SAFETY BARRIER

TECHNICAL CONSULTING
3 PROSPECT HILL ROAD,
CARBISWELL,
VICTORIA, 3124
PHONE (03) 9811 8355
FAX (03) 9811 8329

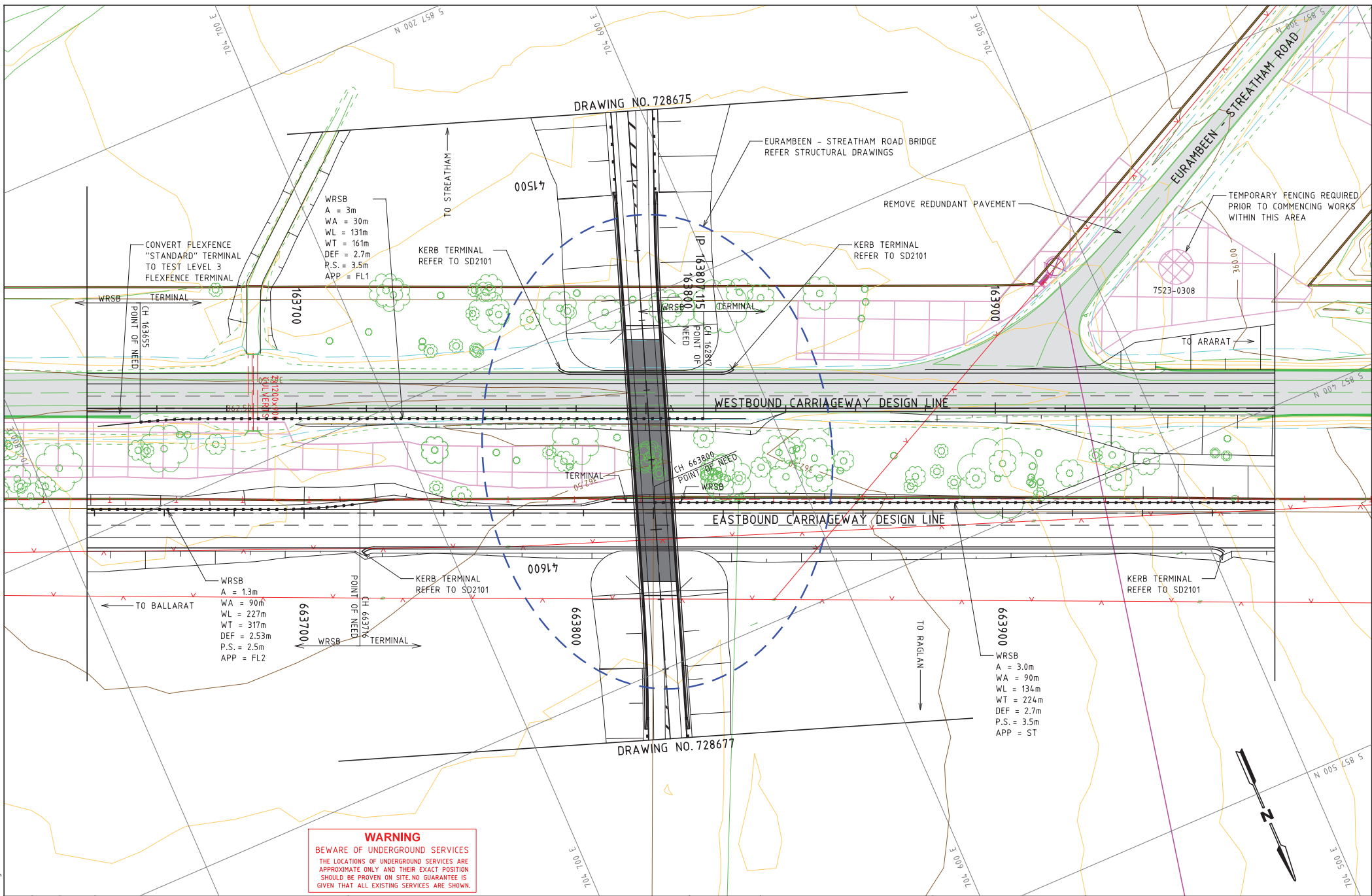
DESIGNED PROJECT DESIGN
APPROVED
J. MIKITCZUK
18/10/13
CAT: Road_Design
PROJ: (a) Section 2A
FILE: 716-pd-a-ap-12.dgn



WESTERN HWY/FWY
WESTERN HIGHWAY - BEAUFORT TO ARARAT
MCKINNON LANE TO ANDERSONS ROAD
CH 163300 - CH 163640
ALIGNMENT PLAN

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	139	728640	A

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716-pd-a-ap-12.dgn



WARNING
 BEWARE OF UNDERGROUND SERVICES
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GENERAL NOTES

1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
X NO GO ZONES
— EXISTING SAFETY BARRIER

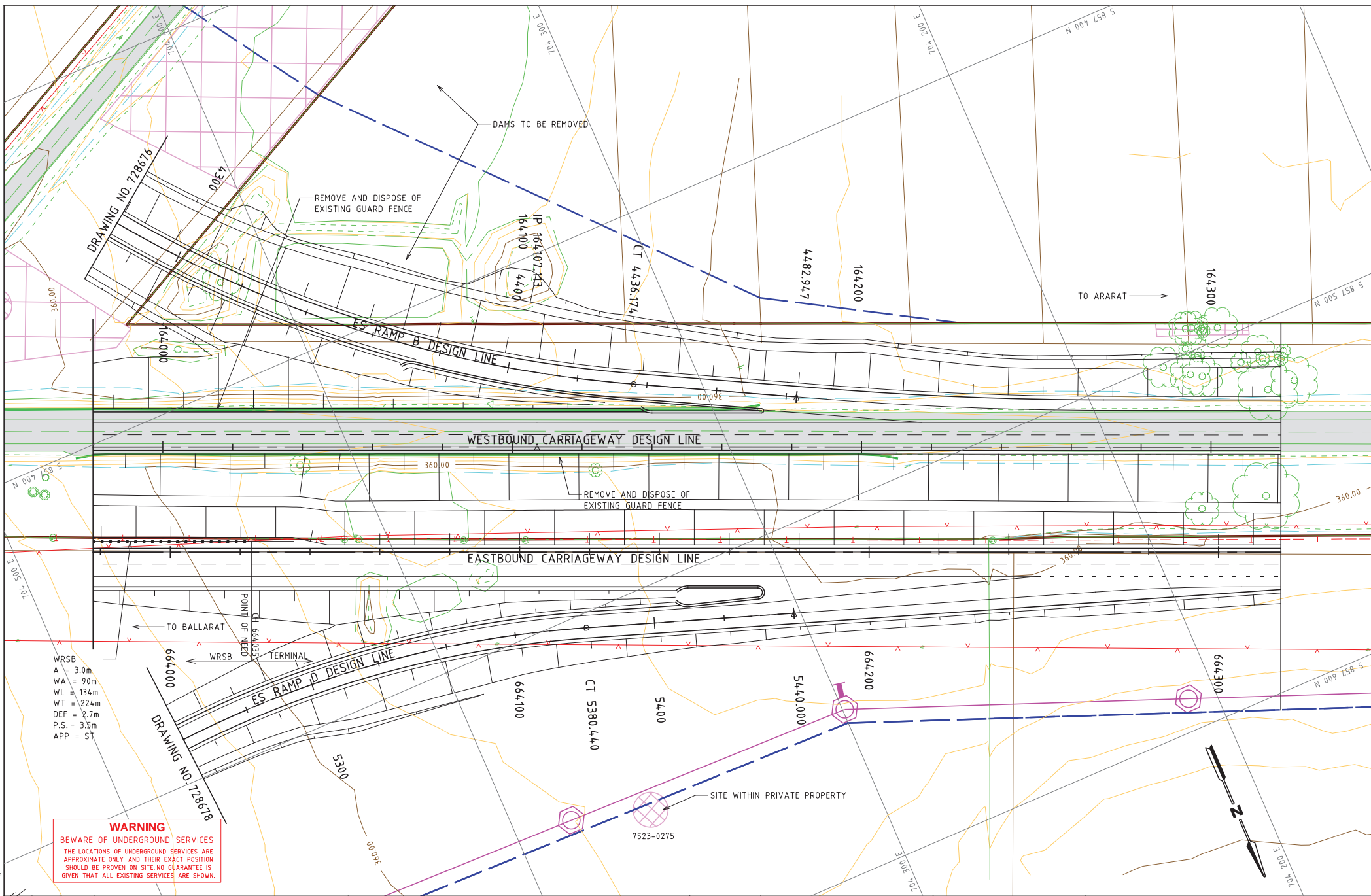
TECHNICAL CONSULTING	DESIGNED PROJECT DESIGN
3 PROSPECT HILL ROAD, CARBISWELL, VICTORIA, 3124 PHONE (03) 9811 8355 FAX (03) 9811 8329	APPROVED J. MIKITCZUK 18/10/13 CAT: Road_Design PROJ: (a) Section 2A FILE: 716-pd-a-ap-13.dgn

vicroads

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 163640 - CH 163980 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 140	DRAWING NO. 728641
			ISSUE A

14/11/2013 Default
 716-pd-a-ap-13.dgn



WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

WRSB
 A = 3.0m
 WA = 90m
 WL = 134m
 WT = 224m
 DEF = 2.7m
 P.S. = 3.5m
 APP = ST

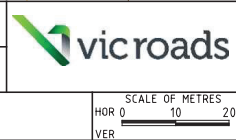
ISSUE	APP'D	DATE	AMENDMENT
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GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

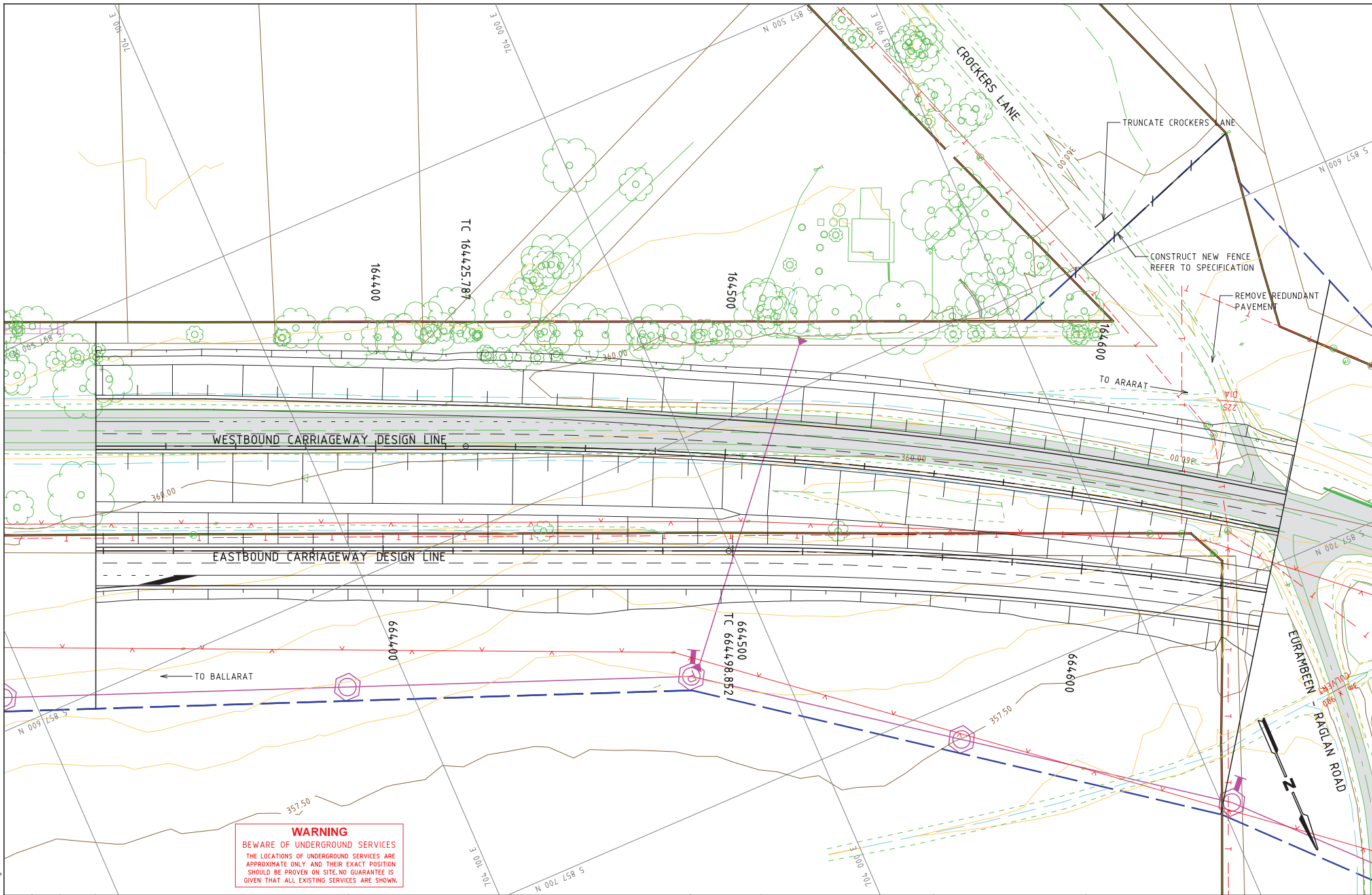
— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-14.dgn



WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 163980 - CH 164320 ALIGNMENT PLAN					
SCALE OF METRES HOR 0 10 20 VER	FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 141	DRAWING NO. 728642	ISSUE



WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
X NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBONELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

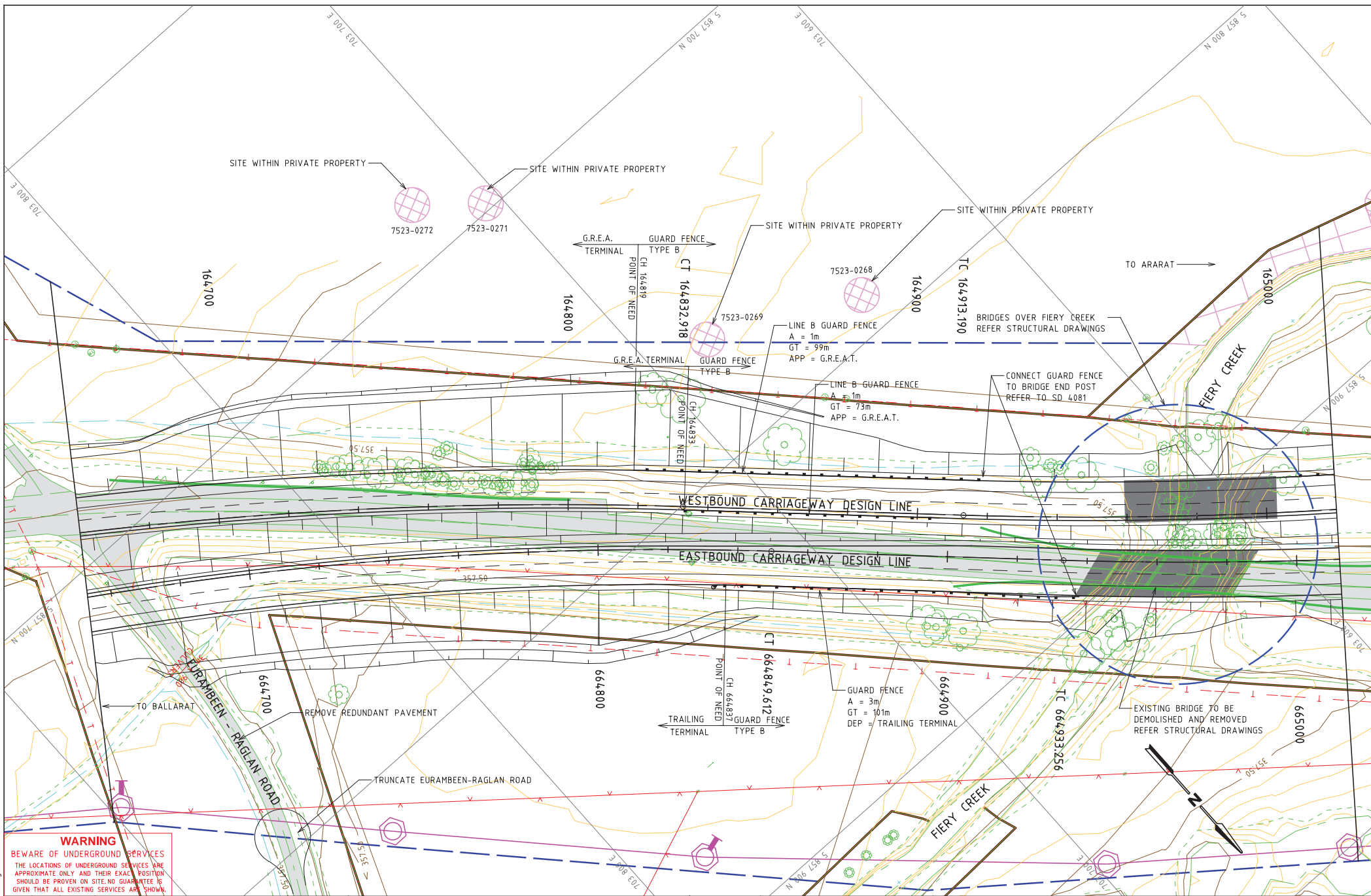
DESIGNED PROJECT DESIGN
 APPROVED

CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-15.dgn

SCALE OF METRES
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 164320 - CH 164660 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	142	728643

14/11/2013 Default
 716-pd-a-ap-15.dgn



WARNING
 BEWARE OF UNDERGROUND SERVICES
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ISSUE	APP'D	DATE	AMENDMENT	

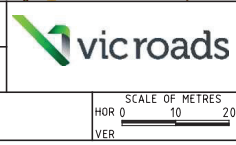
GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED

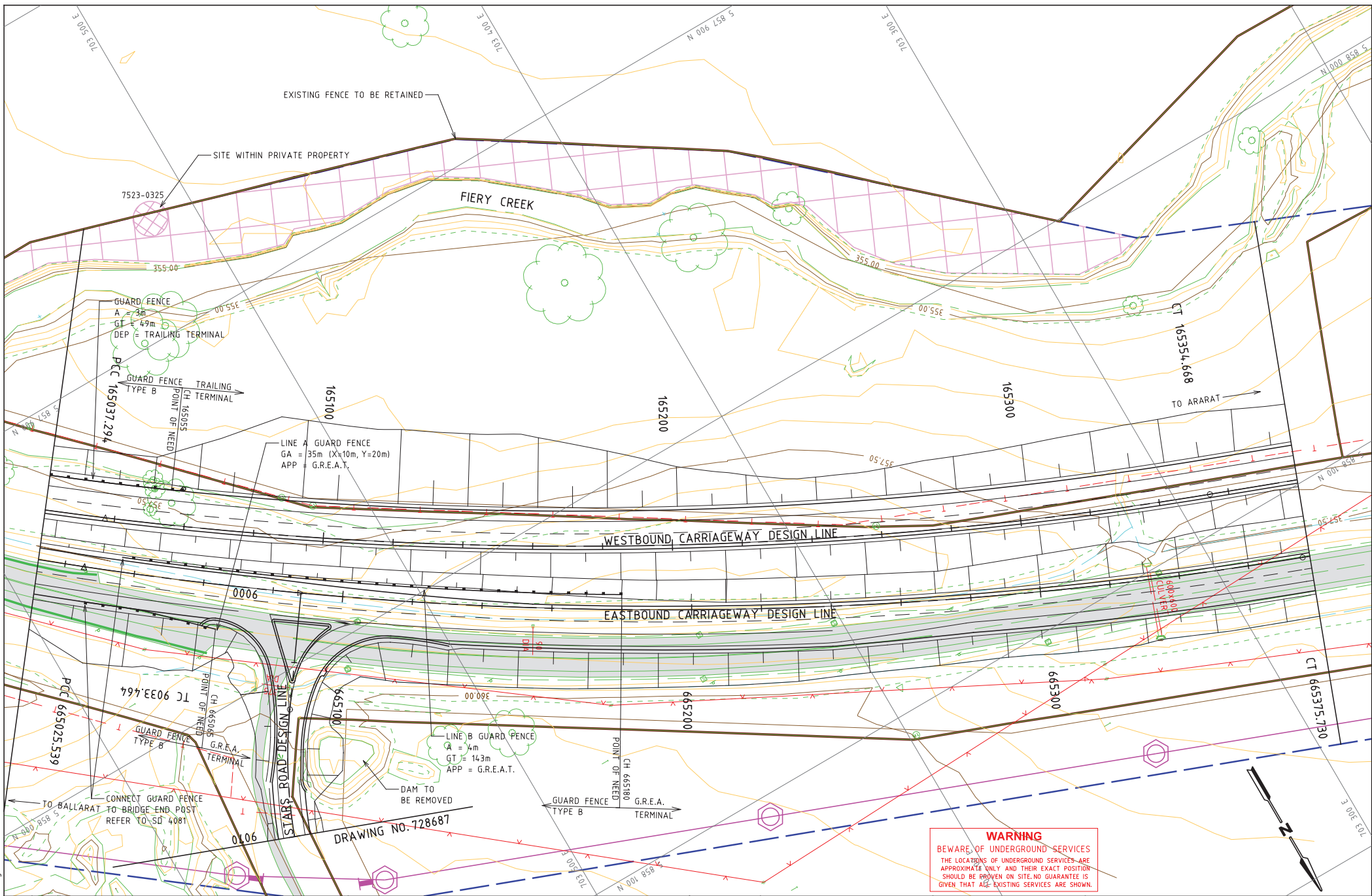
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WESTERN HWY/FWY
 WESTERN HIGHWAY - BEAUFORT TO ARARAT
 MCKINNON LANE TO ANDERSONS ROAD
 CH 164660 - CH 165020
ALIGNMENT PLAN

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	143	728644	

14/11/2013 Default
 716-pd-a-ap-16.dgn



WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
 NO GO ZONES
— EXISTING SAFETY BARRIER

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE 1031 9811 8355
 FAX 1031 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED

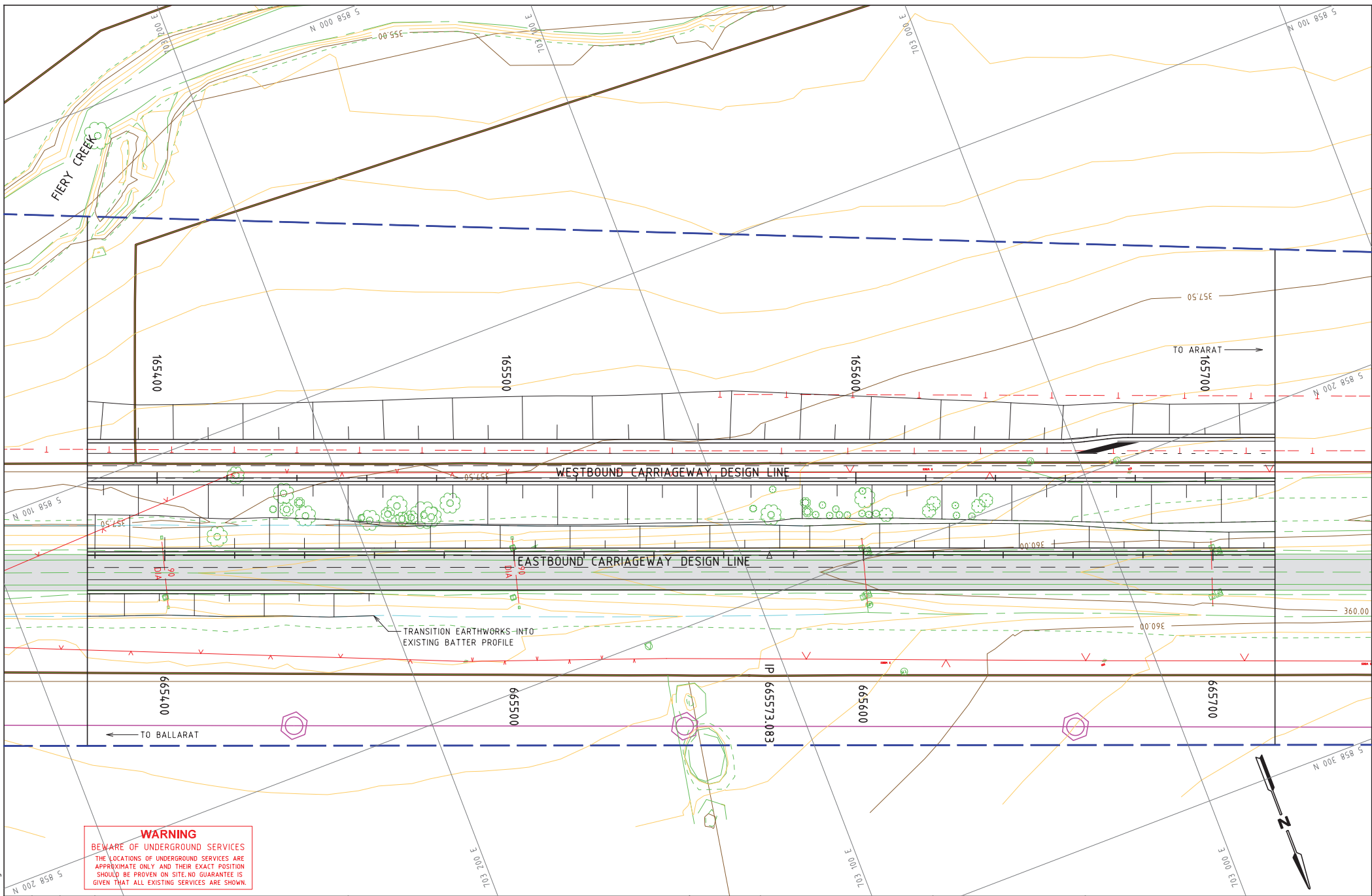
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 FILE: 716-pd-a-ap-17.dgn

SCALE OF METRES
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 165020 - CH 165380 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	144	728645
			ISSUE

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ISSUE	APP'D	DATE	AMENDMENT	



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— EXISTING SAFETY BARRIER
X NO GO ZONES

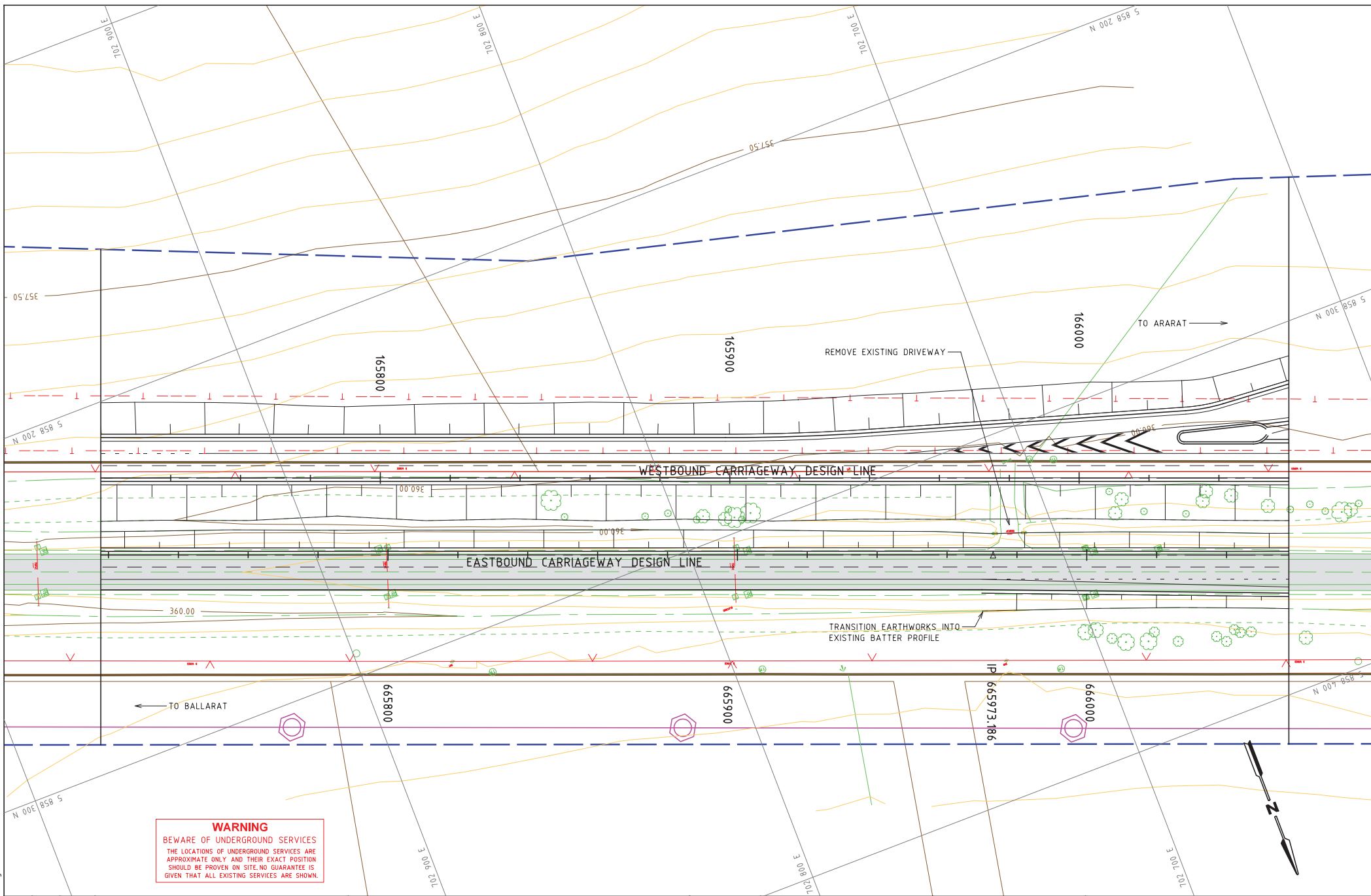
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-18.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 165380 - CH 165720 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 145	DRAWING NO. 728646

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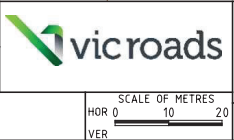
ISSUE	APP'D	DATE	AMENDMENT
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— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
X NO GO ZONES

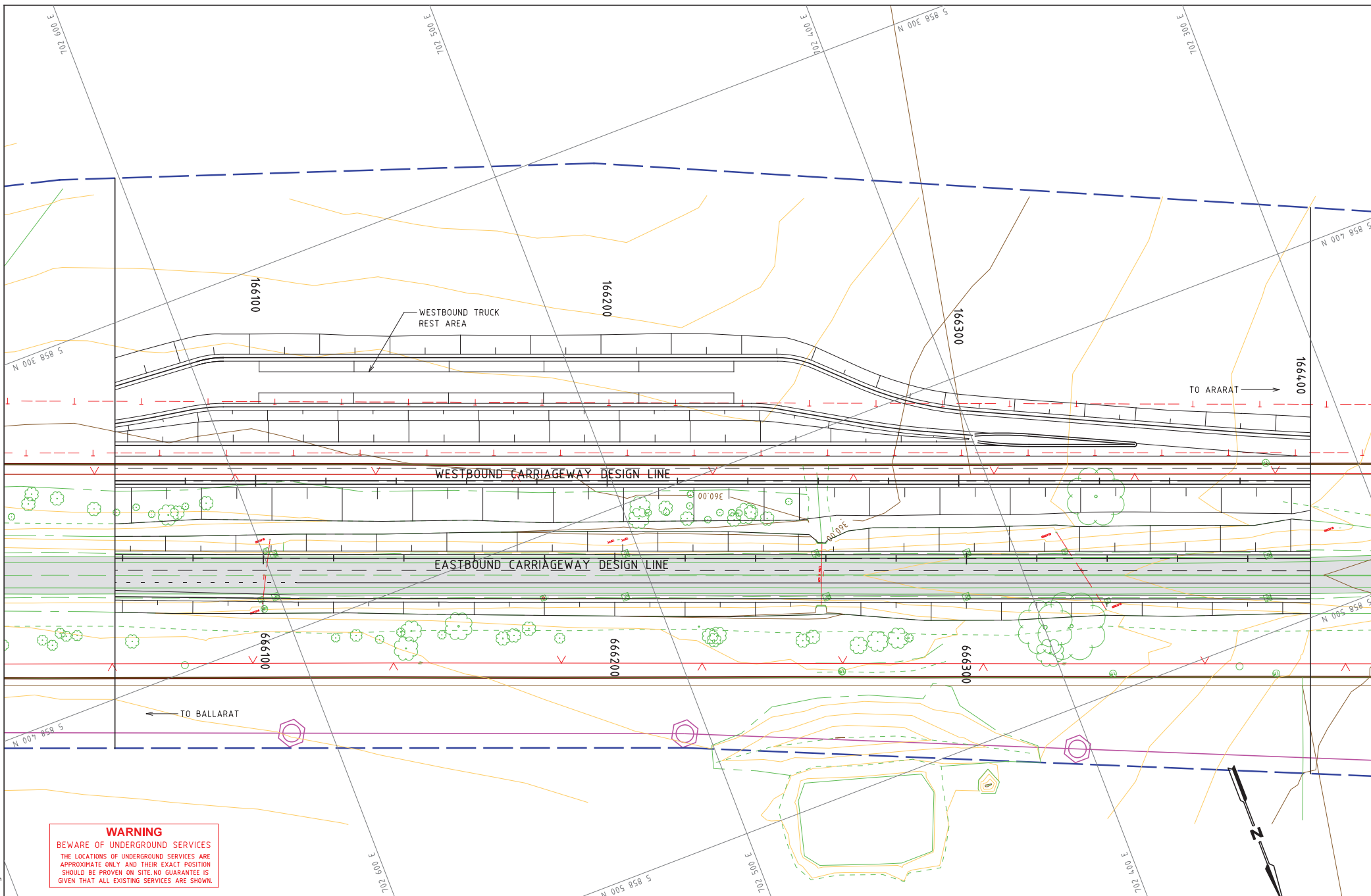
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-19.dgn



WESTERN HWY/FWY
 WESTERN HIGHWAY - BEAUFORT TO ARARAT
 MCKINNON LANE TO ANDERSONS ROAD
 CH 165720 - CH 166060
ALIGNMENT PLAN

FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	146	728647	



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— PROPOSED POWER LINE RELOCATION
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 NO GO ZONES

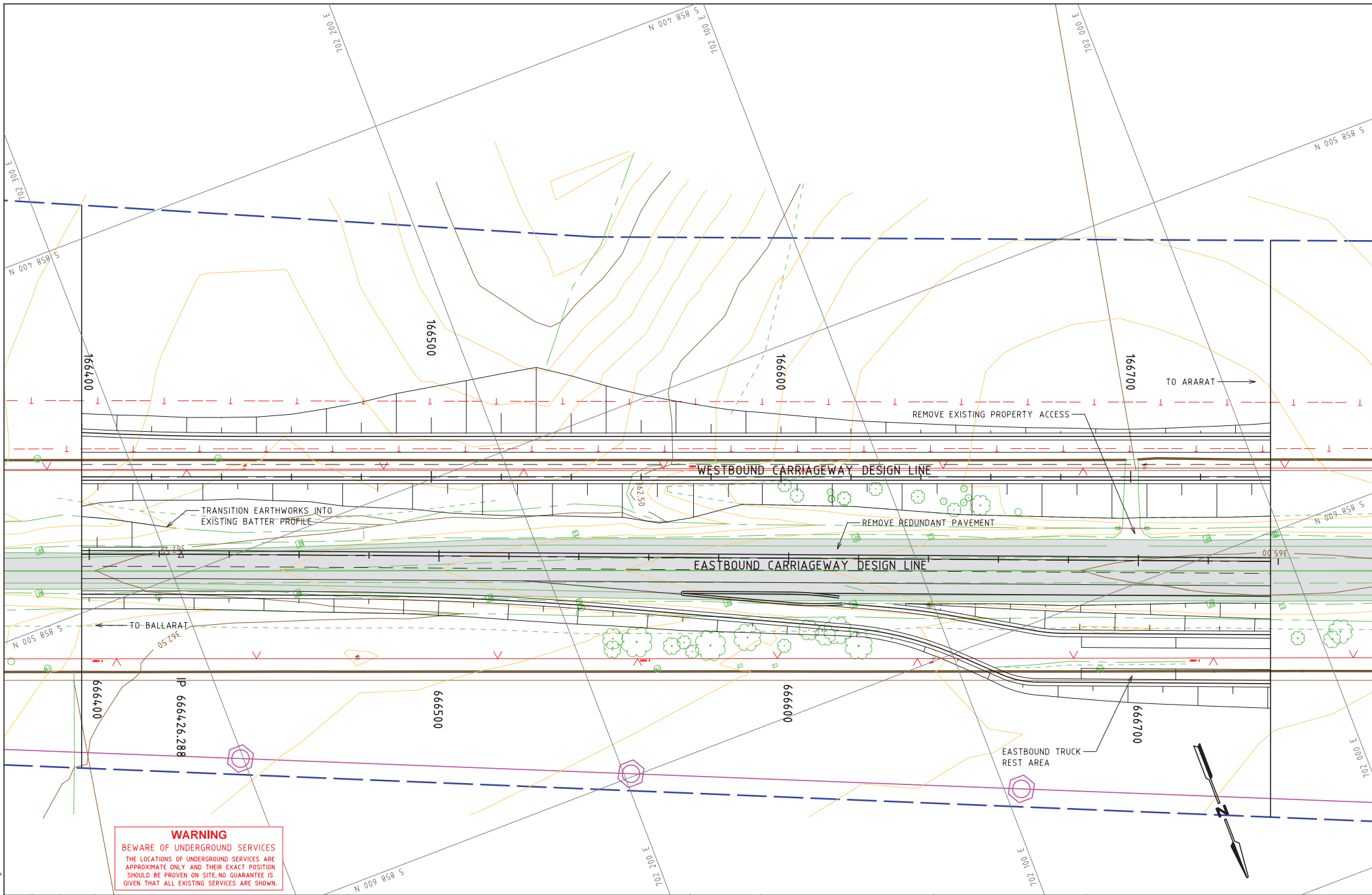
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
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 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-20.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 166060 - CH 166400			
ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 147	DRAWING NO. 728648

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— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
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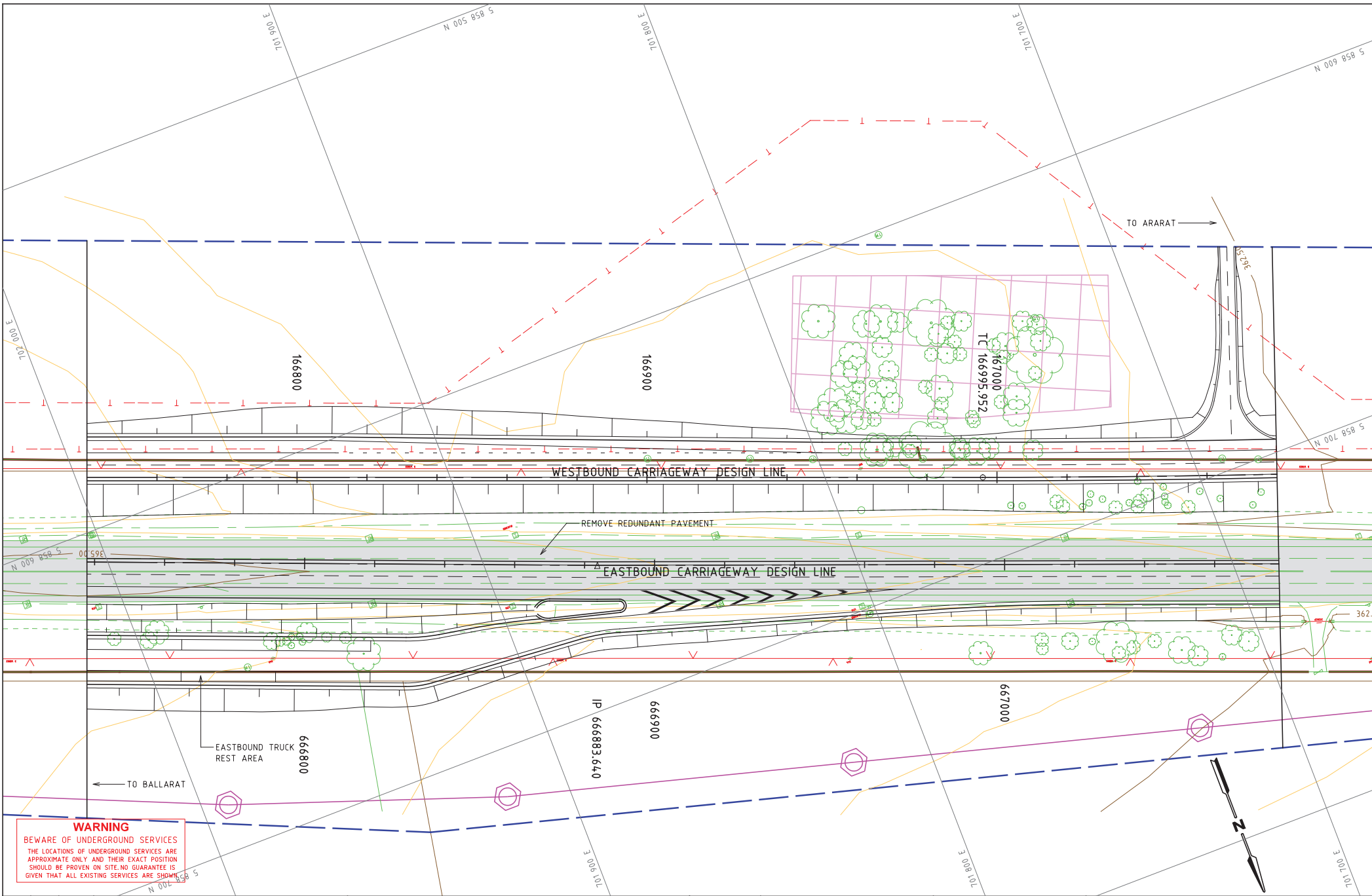
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-21.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 166400 - CH 166740 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
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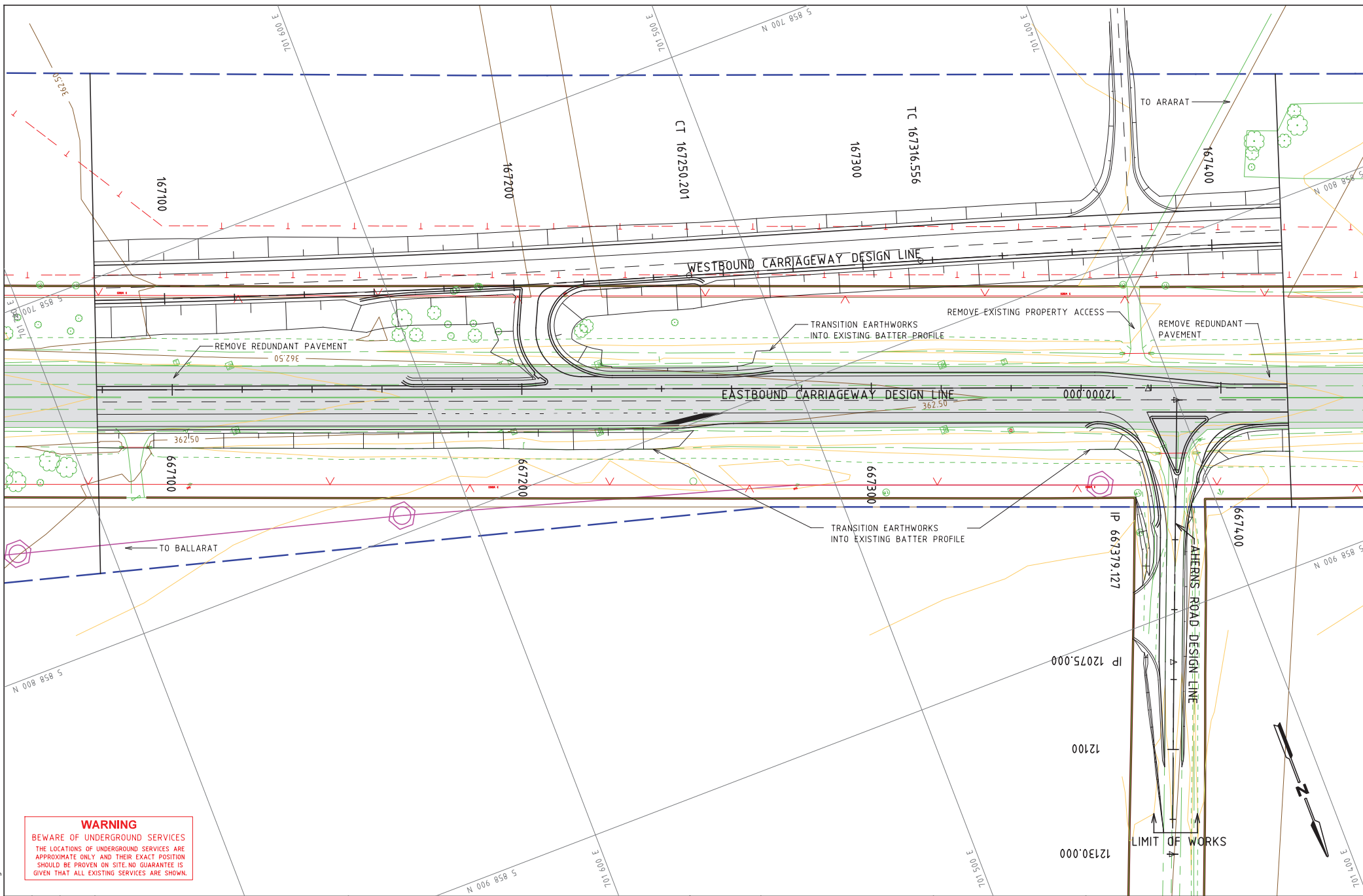
TECHNICAL CONSULTING
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DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-22.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 166740 - CH 167080			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
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— EXISTING SAFETY BARRIER
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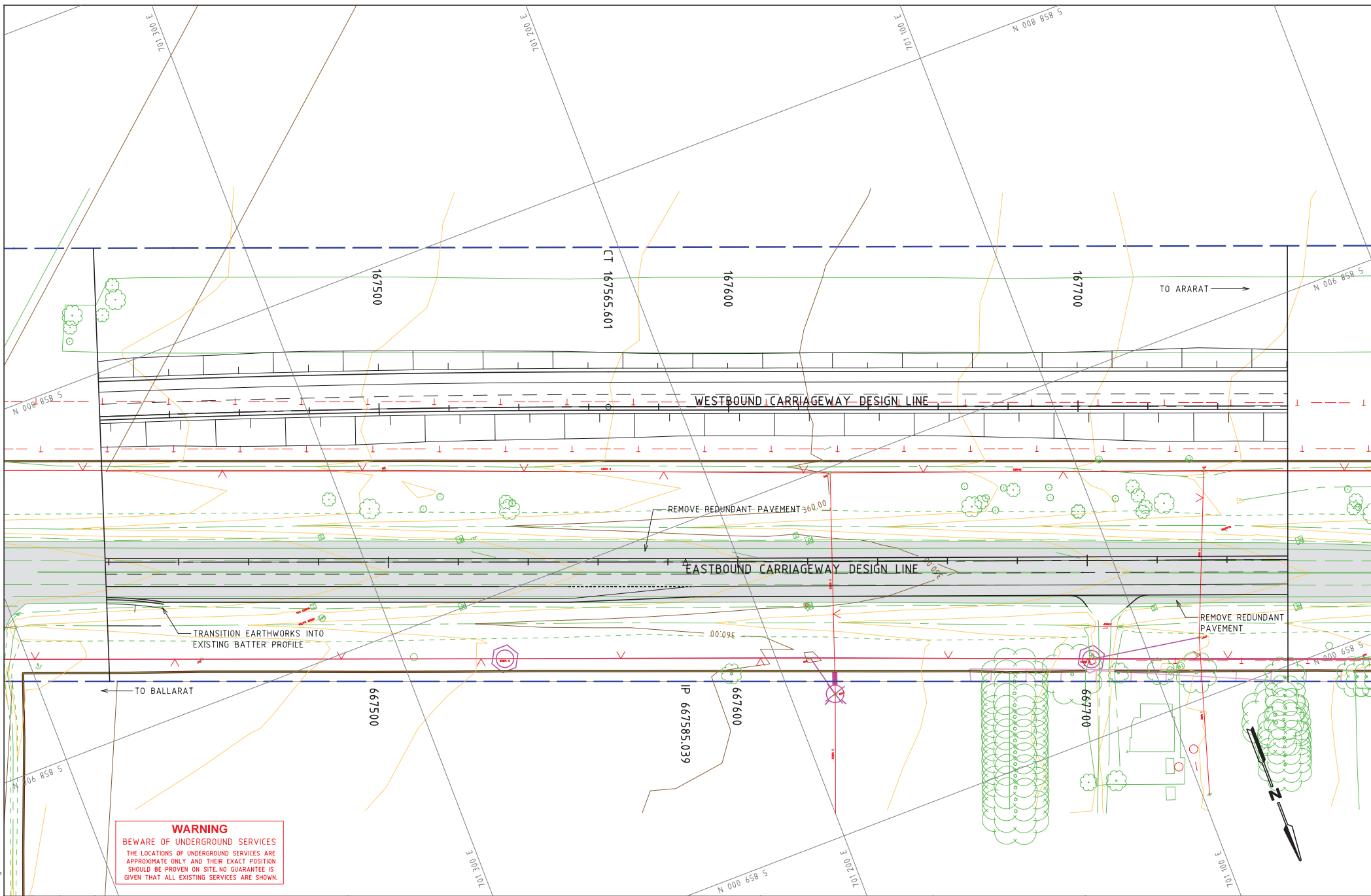
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 PHONE (03) 9811 8355
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DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-23.dgn

SCALE OF METRES
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 167080 - CH 167420 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
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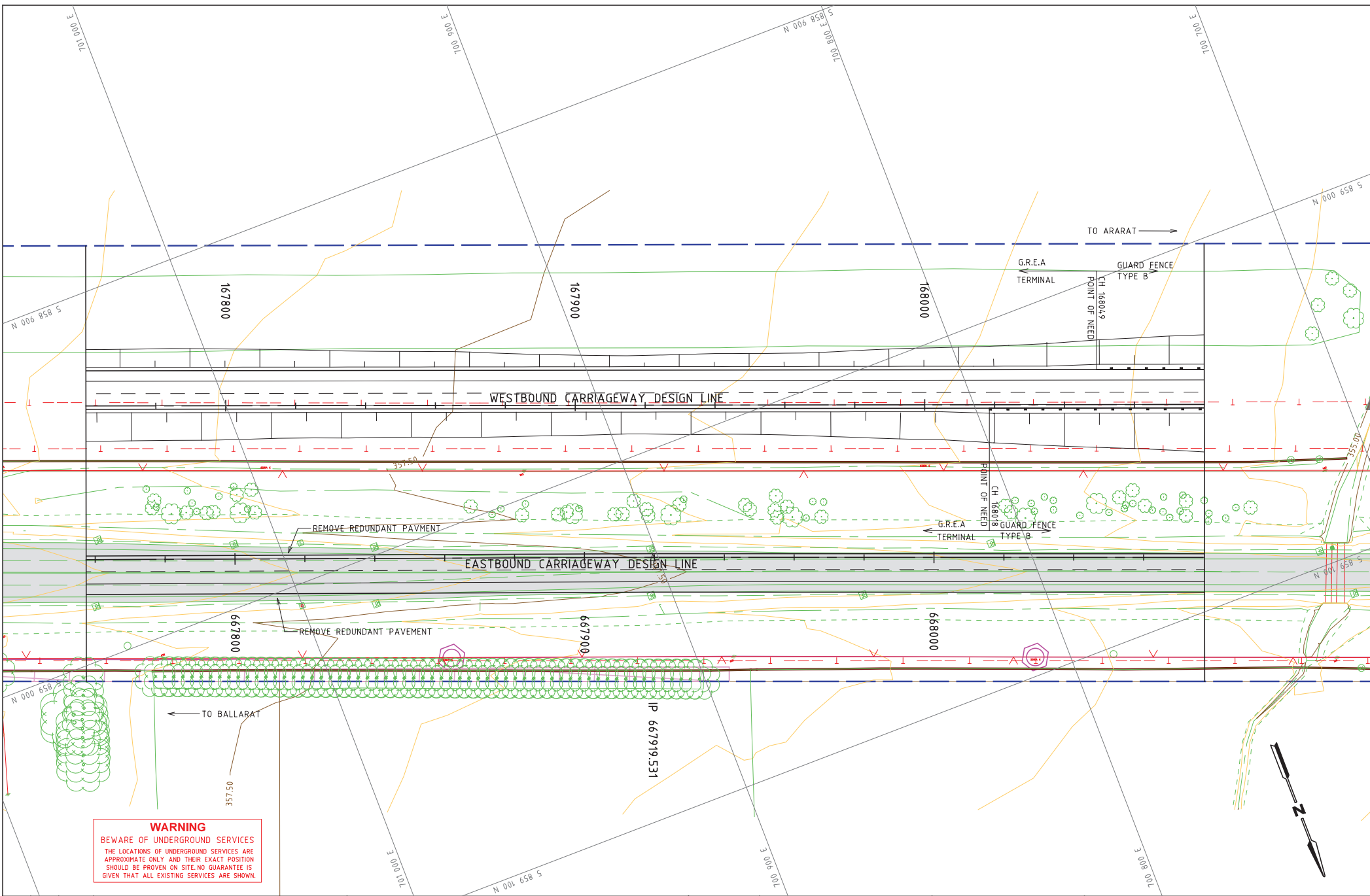
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DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-24.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 167420 - CH 167760 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 151	DRAWING NO. 728652

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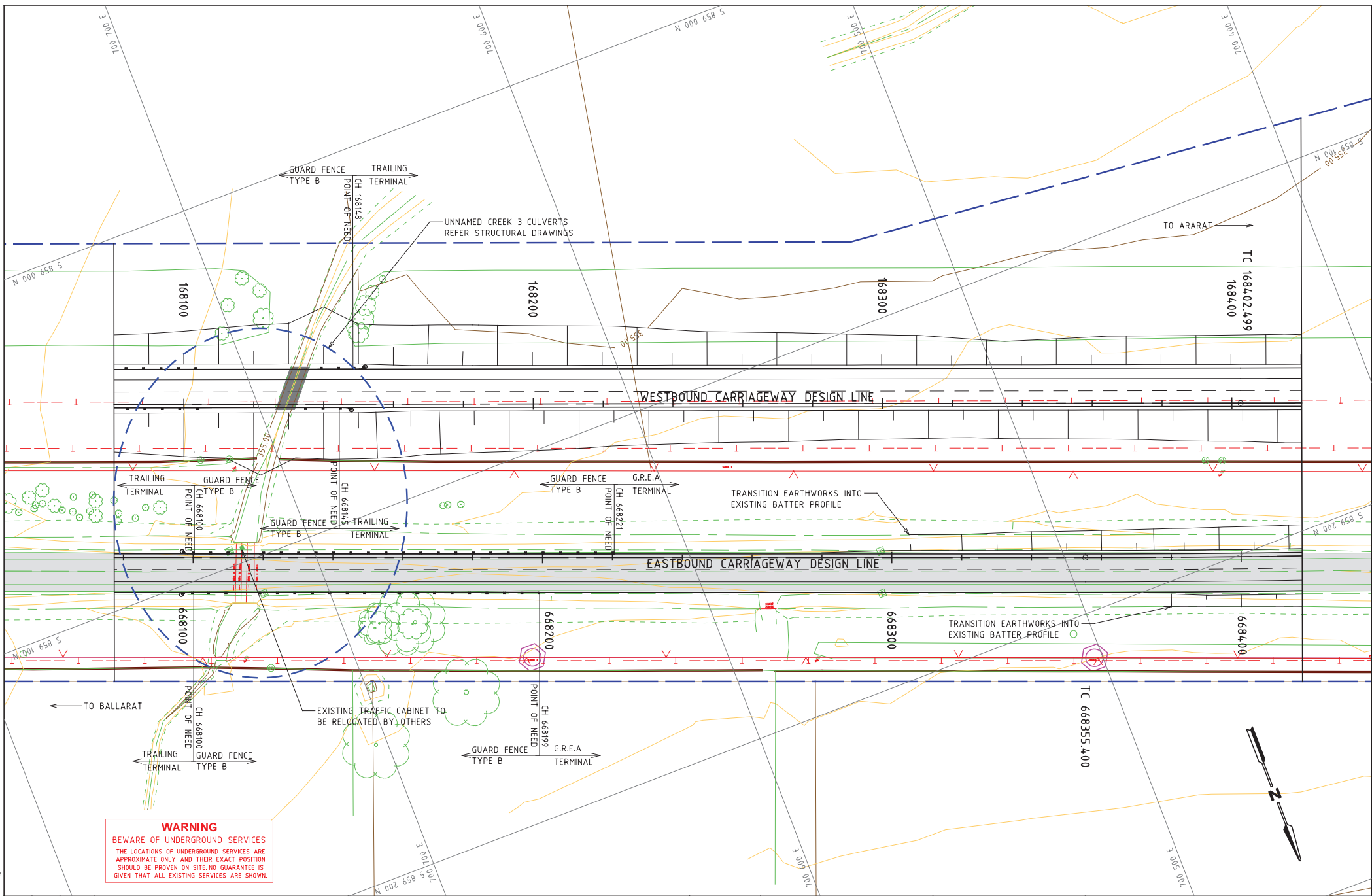
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-25.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 167760 - CH 168080 ALIGNMENT PLAN				
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	152	728653	

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716-pd-a-ap-25.dgn



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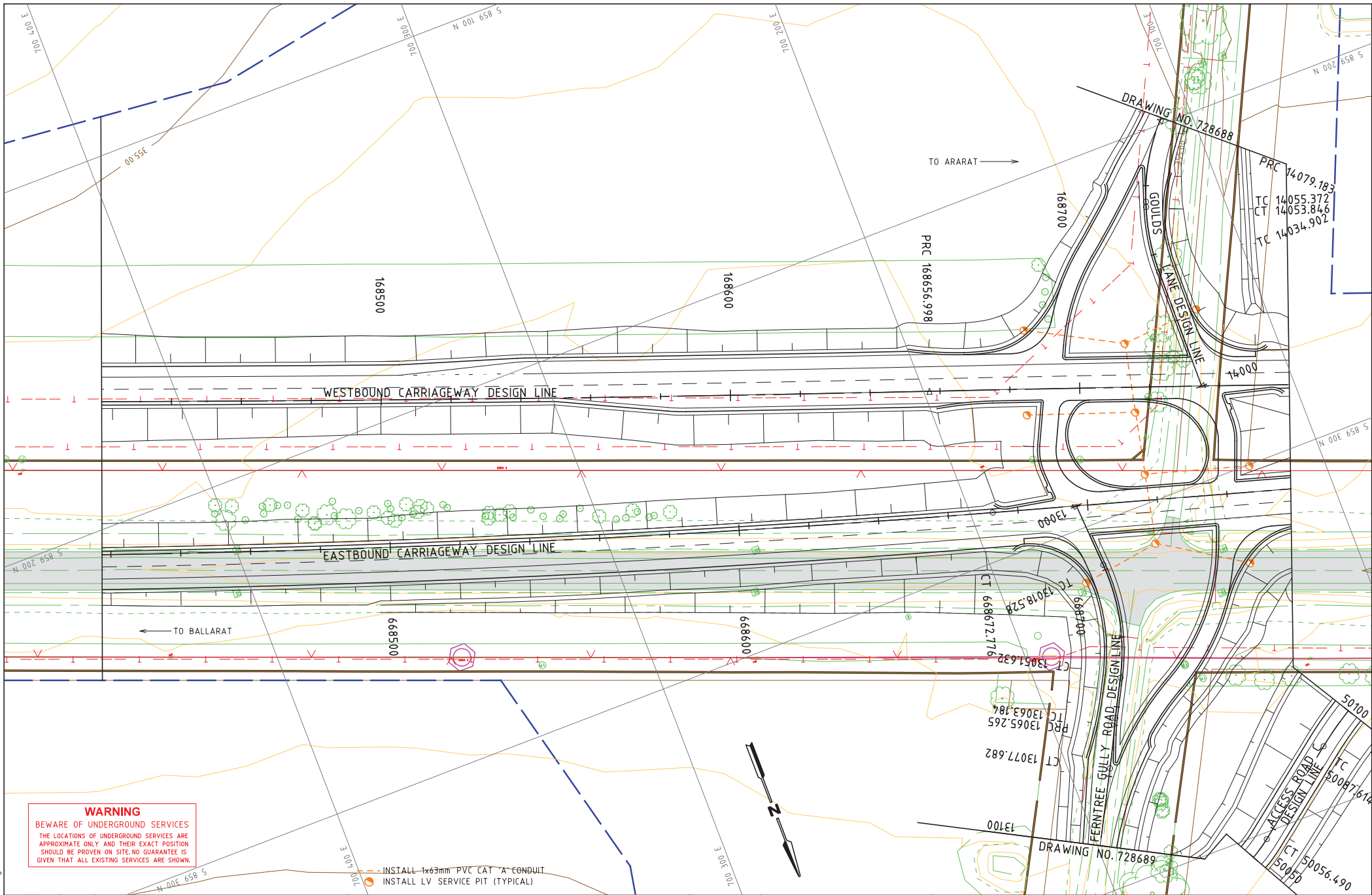
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SCALE OF METRES
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
CH 168080 - CH 168420			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	153	728654

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— INSTALL 1x63mm PVC CAT 'A' CONDUIT
 ○ INSTALL LV SERVICE PIT (TYPICAL)

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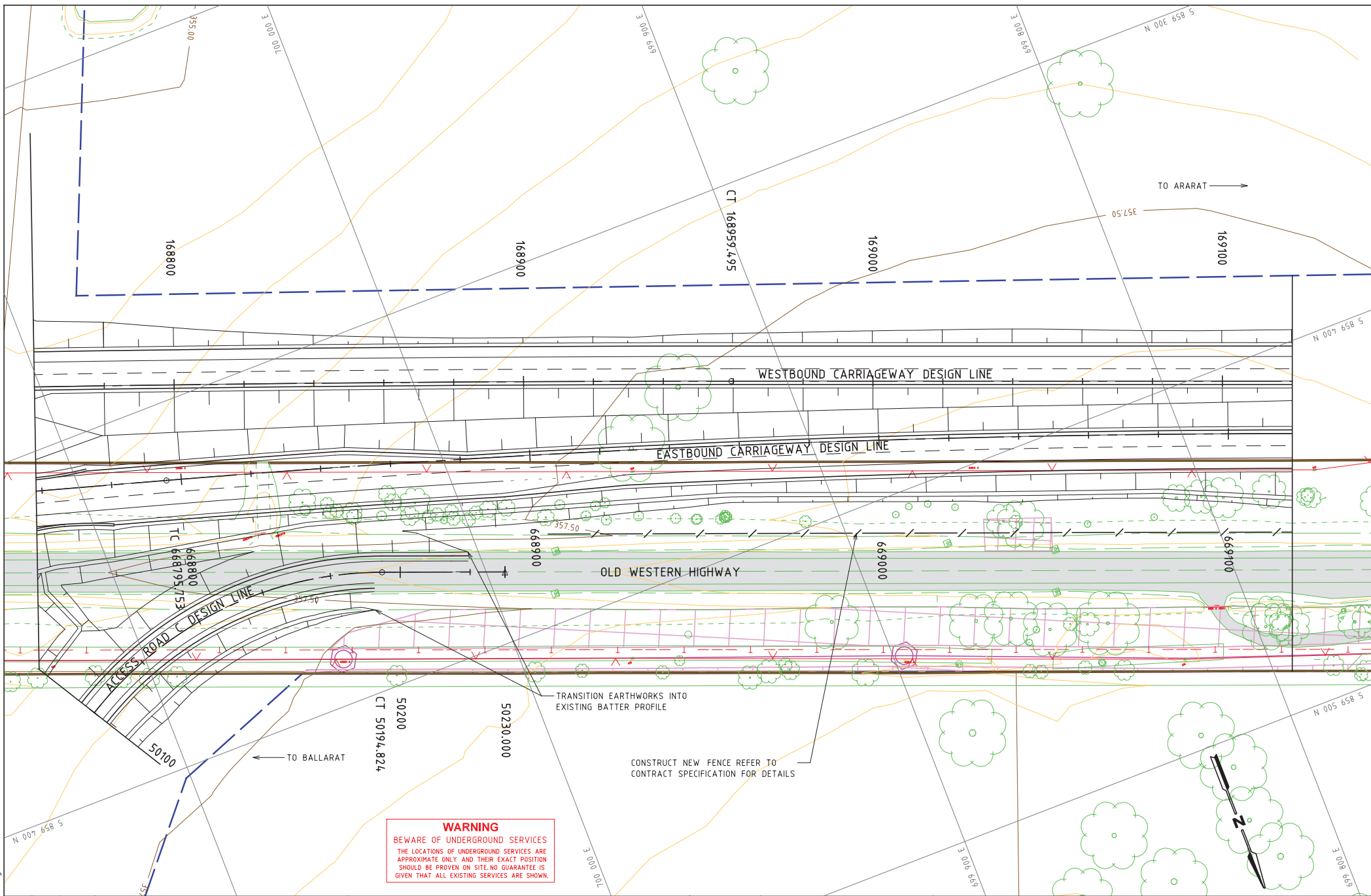
TECHNICAL CONSULTING
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 PHONE (03) 9811 8355
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 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-27.dgn

SCALE OF METRES
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WESTERN HWY/FWY				
WESTERN HIGHWAY - BEAUFORT TO ARARAT				
MCKINNON LANE TO ANDERSONS ROAD				
CH 1684.20 - CH 168760				
ALIGNMENT PLAN				
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	154	728655	

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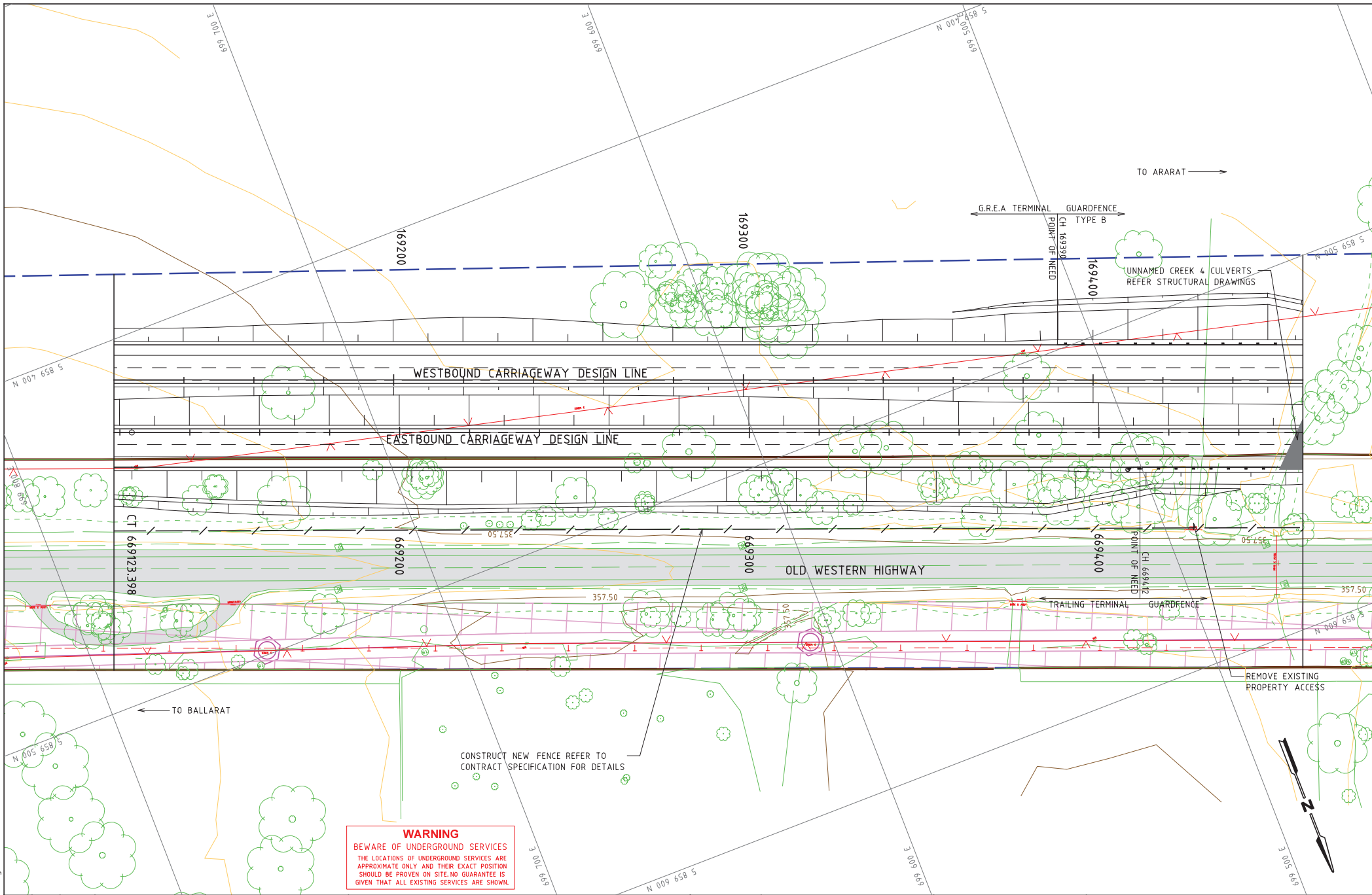
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 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-28.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 168760 - CH 169120 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 155	DRAWING NO. 728656

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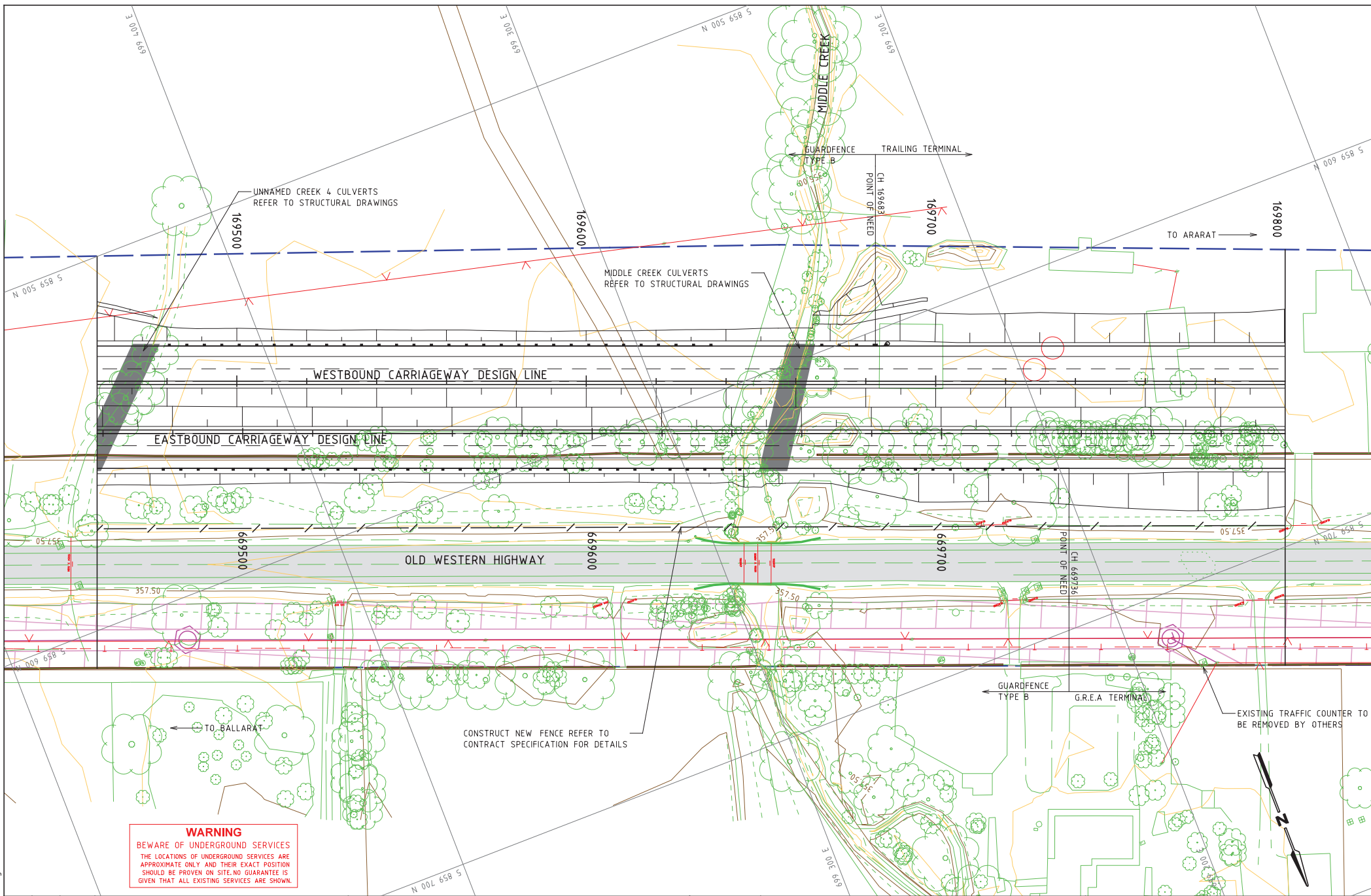
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 APPROVED
 J. MIKITCZUK
 18/10/13
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SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 169120 - CH 169460 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 156	DRAWING NO. 728657

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ISSUE	APP'D	DATE	AMENDMENT



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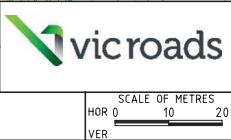
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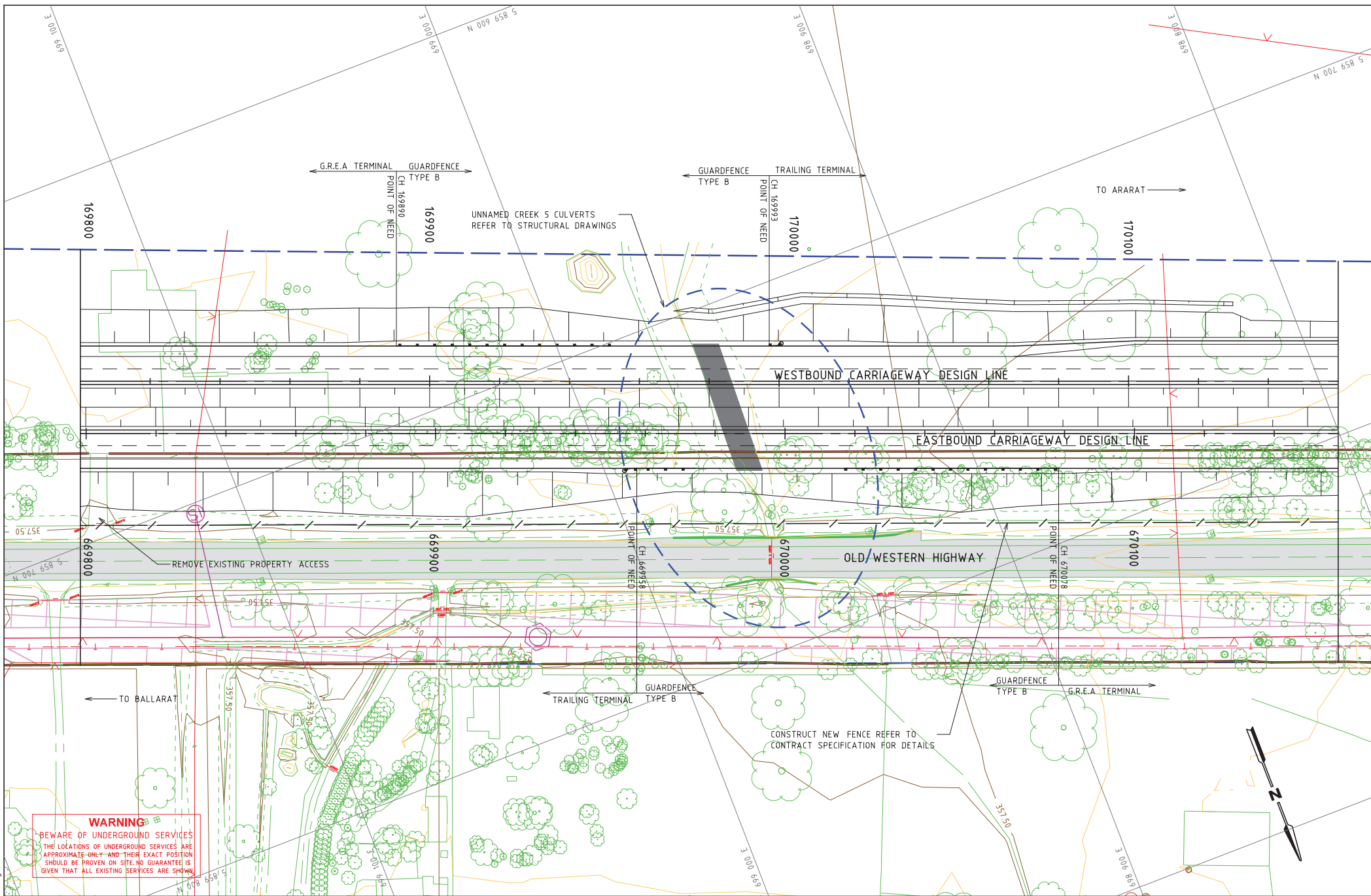
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DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-30.dgn



WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
CH 169460 - CH 169800			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	157	728658

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716-pd-a-ap-30.dgn



14/11/2013 Default
716-pd-a-ap-31.dgn

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ISSUE	APP'D	DATE	AMENDMENT

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
 NO GO ZONES
— EXISTING SAFETY BARRIER

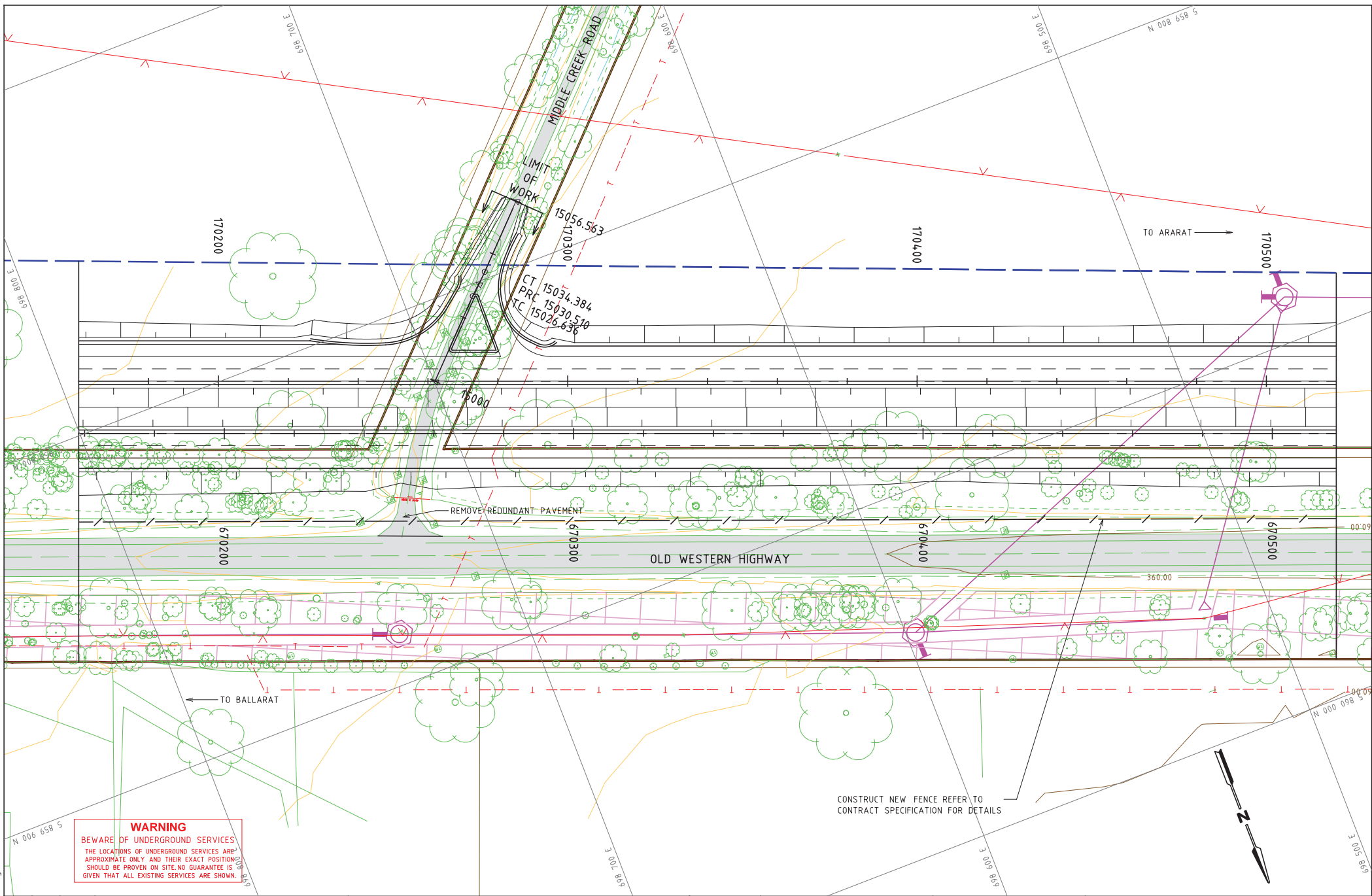
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED

CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-31.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 169800 - CH 170160 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 158	DRAWING NO. 728659



WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
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 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

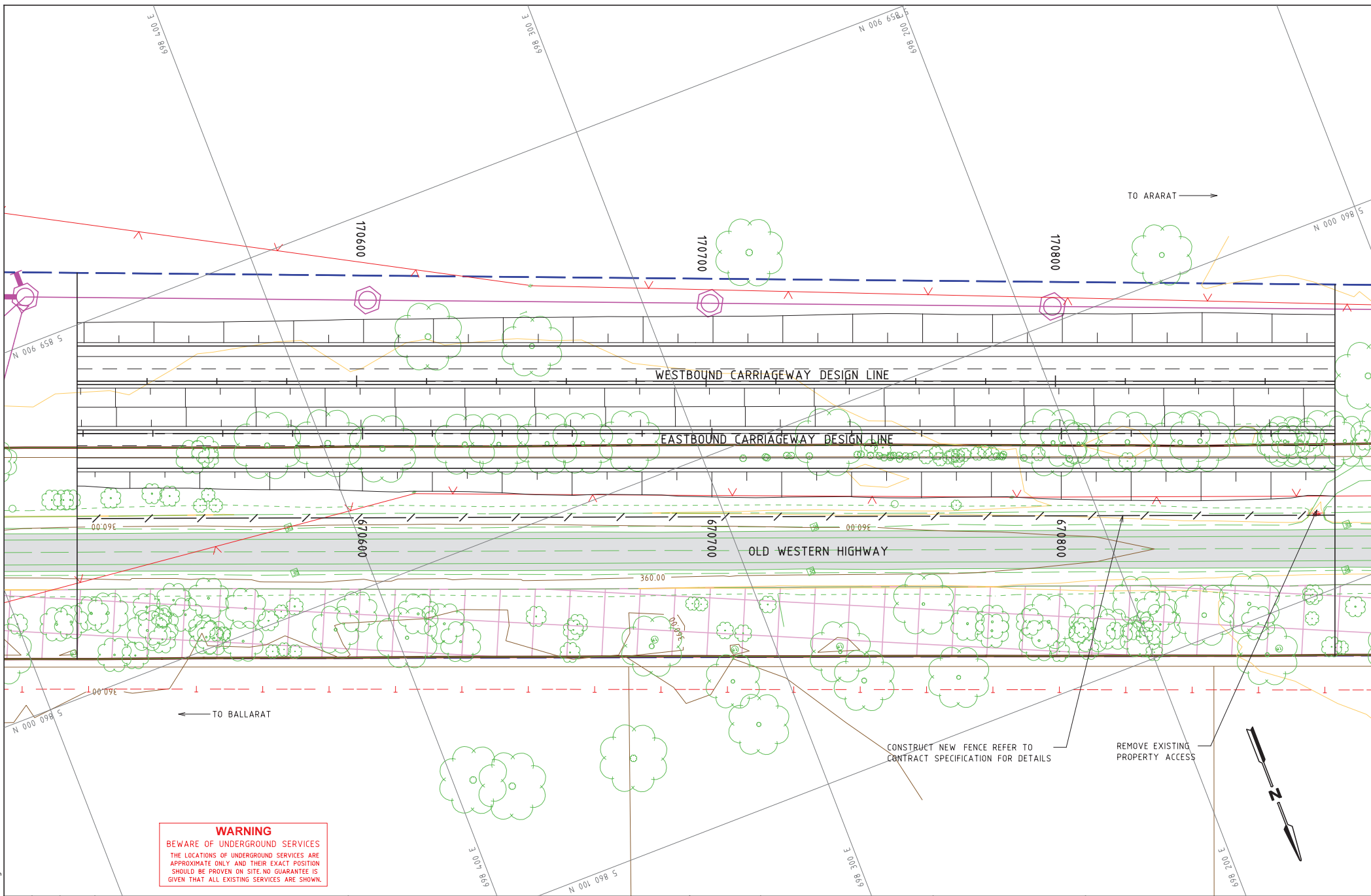
— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
X NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-32.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 170160 - CH 170520 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 159	DRAWING NO. 728660



WARNING
 BEWARE OF UNDERGROUND SERVICES
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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
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 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

PROPOSED ROW BOUNDARY
 EXISTING FENCE PROPOSED POWER LINE RELOCATION
 NO GO ZONES EXISTING SAFETY BARRIER

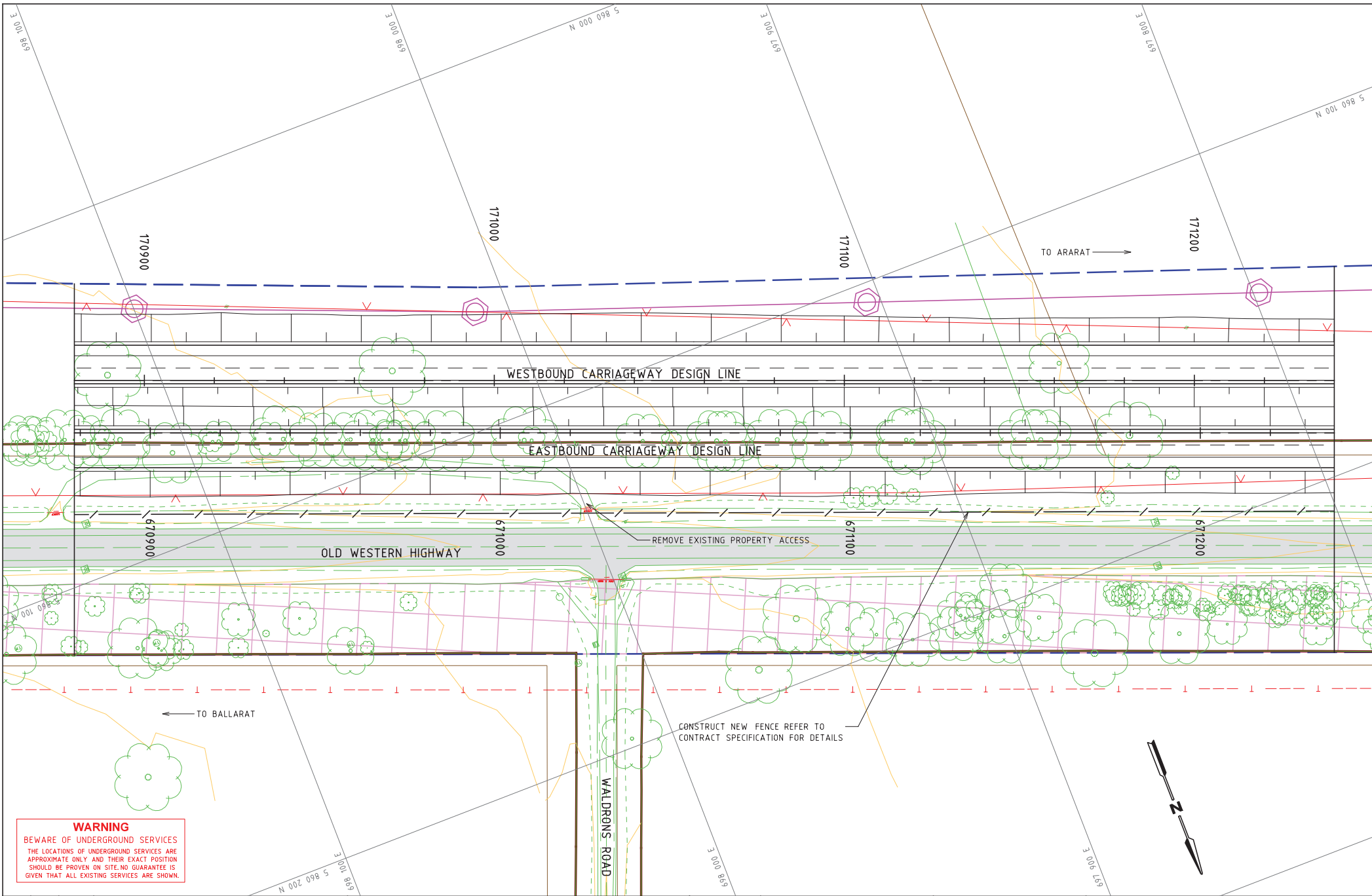
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-33.dgn

SCALE OF METRES
 HOR 0 10 20
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WESTERN HWY/FWY				
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 170520 - CH 170880				
ALIGNMENT PLAN				
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	160	728661	

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WARNING
 BEWARE OF UNDERGROUND SERVICES
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ISSUE	APP'D	DATE	AMENDMENT	

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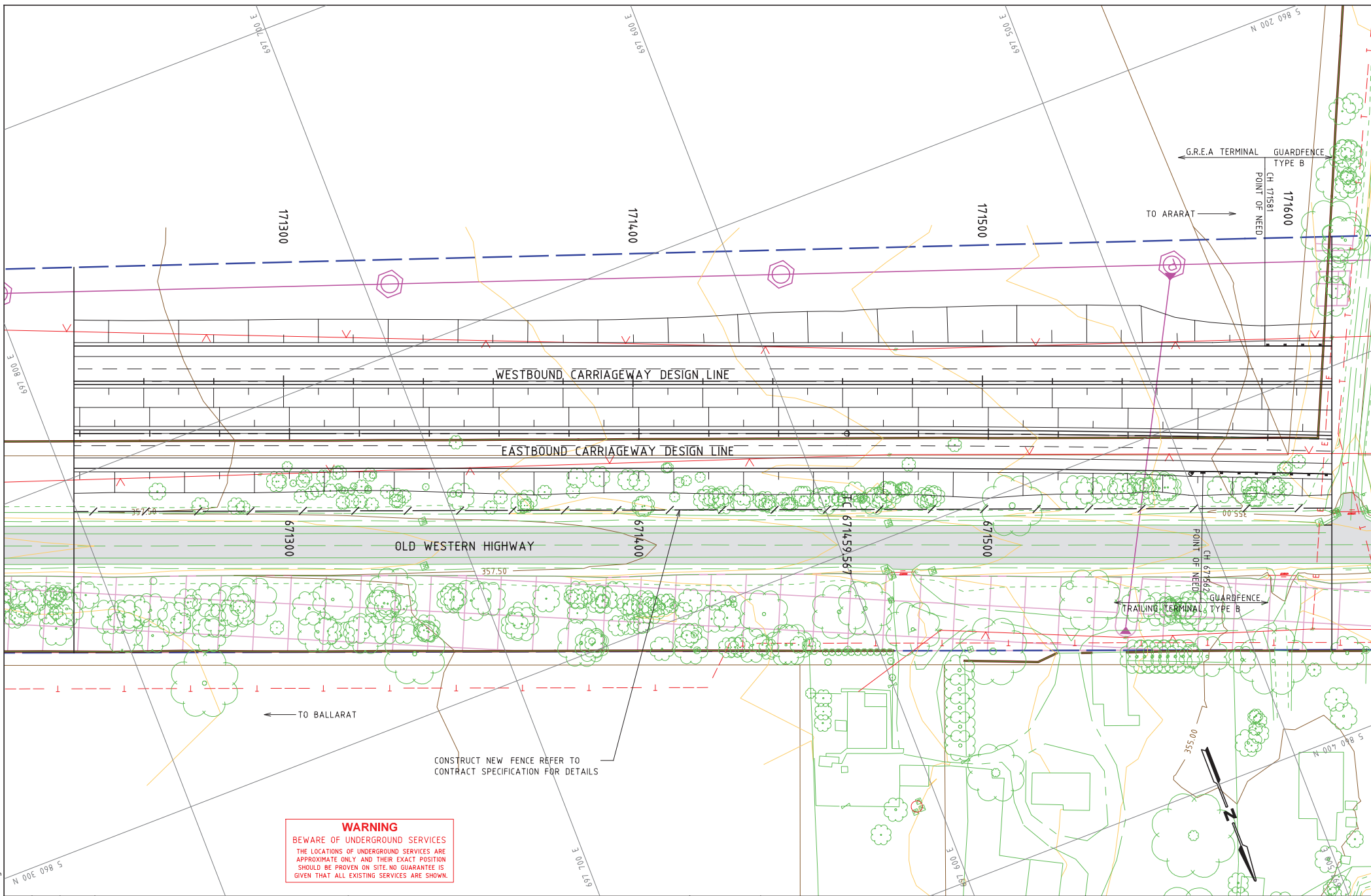
— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-34.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 170880 - CH 171240 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	161	728662



WARNING
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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
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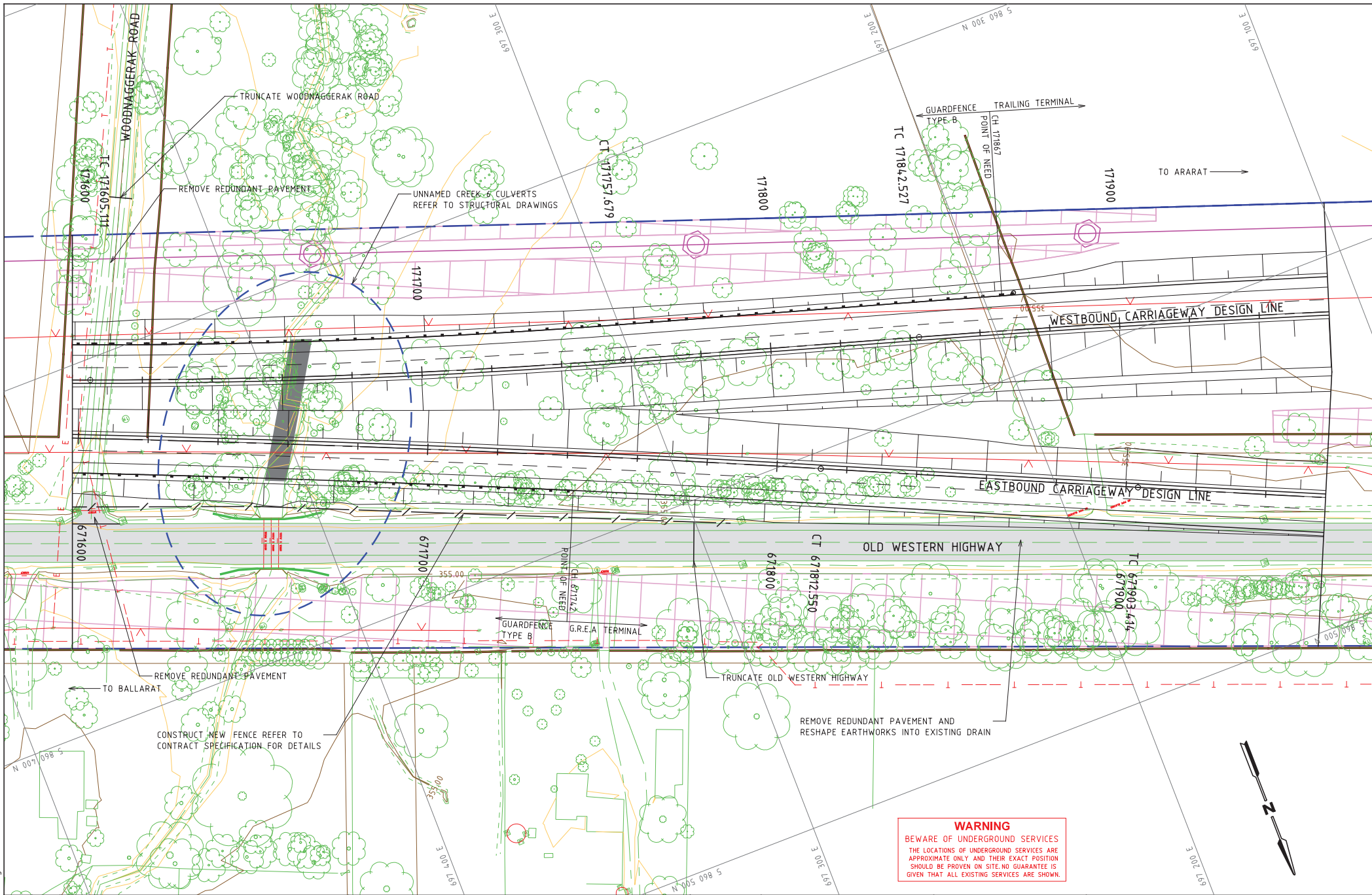
— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-35.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY				
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD				
CH 171240 - CH 171600				
ALIGNMENT PLAN				
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.	ISSUE
716	8612	162	728663	



WARNING
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ISSUE	APP'D	DATE	AMENDMENT

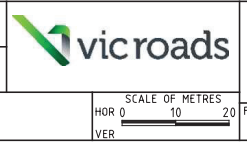
GENERAL NOTES
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 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
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— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— EXISTING SAFETY BARRIER
X NO GO ZONES
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER

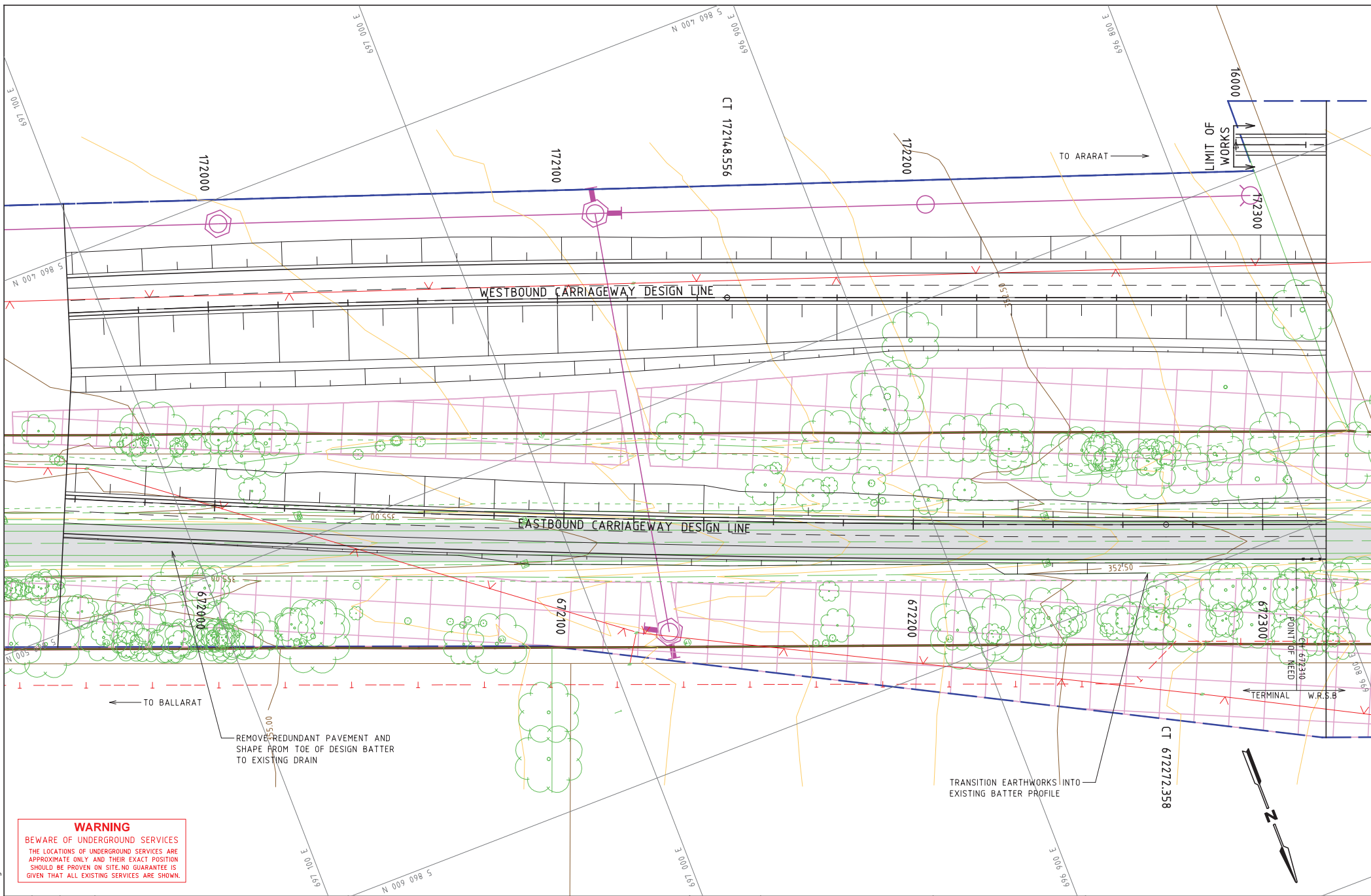
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED

CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-36.dgn



WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
CH 171600 - CH 171960			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	163	728664
SCALE OF METRES			
HOR 0 10 20			
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WARNING
 BEWARE OF UNDERGROUND SERVICES
 THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

REMOVE REDUNDANT PAVEMENT AND SHAPE FROM TOE OF DESIGN BATTER TO EXISTING DRAIN

TRANSITION EARTHWORKS INTO EXISTING BATTER PROFILE

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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
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— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

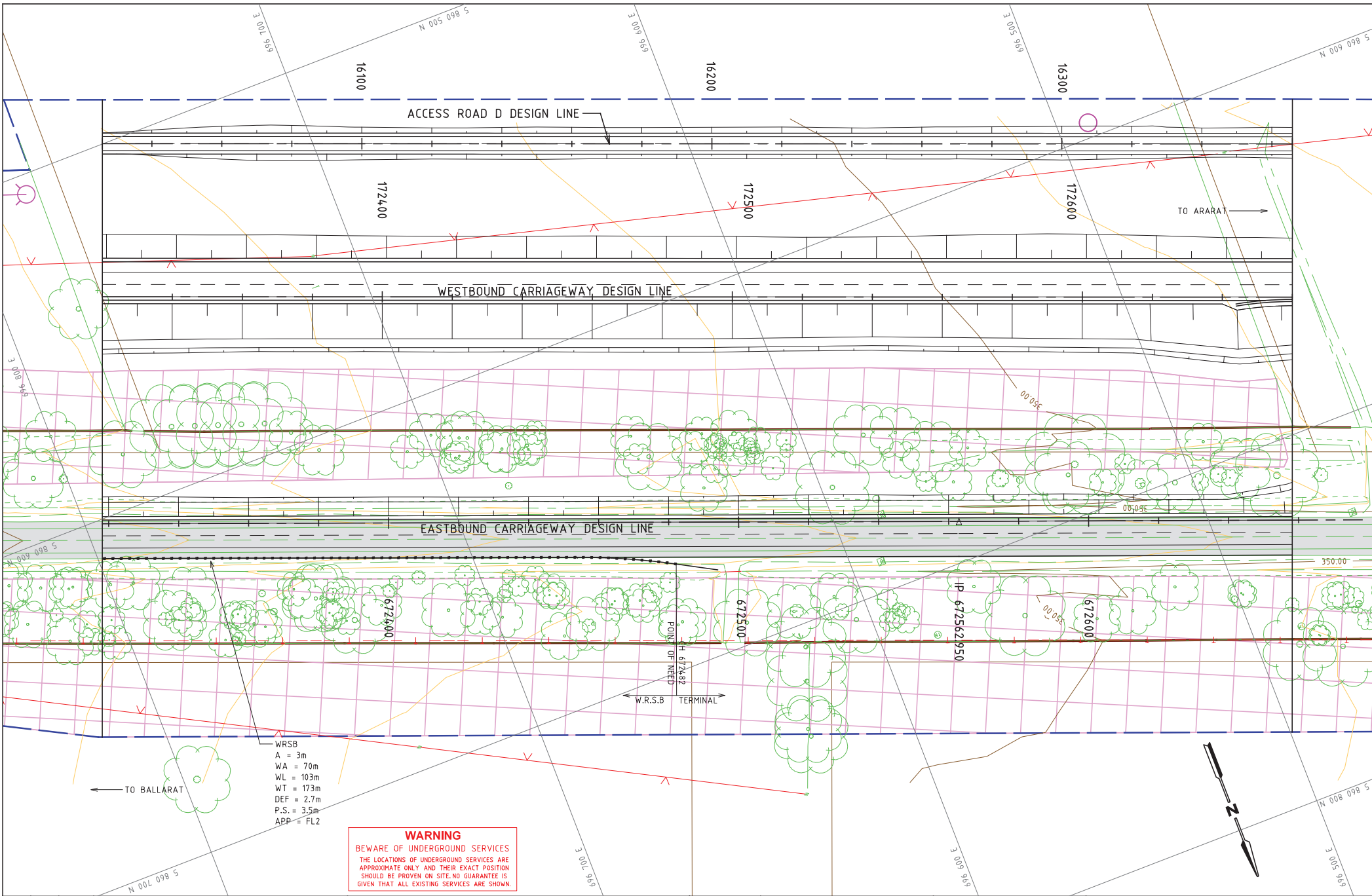
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-37.dgn

SCALE OF METRES
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 171960 - CH 172320 ALIGNMENT PLAN			
FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 164	DRAWING NO. 728665

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WRSB
 A = 3m
 WA = 70m
 WL = 103m
 WT = 173m
 DEF = 2.7m
 P.S. = 3.5m
 APP = FL2

WARNING
 BEWARE OF UNDERGROUND SERVICES
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GENERAL NOTES	
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2.	FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
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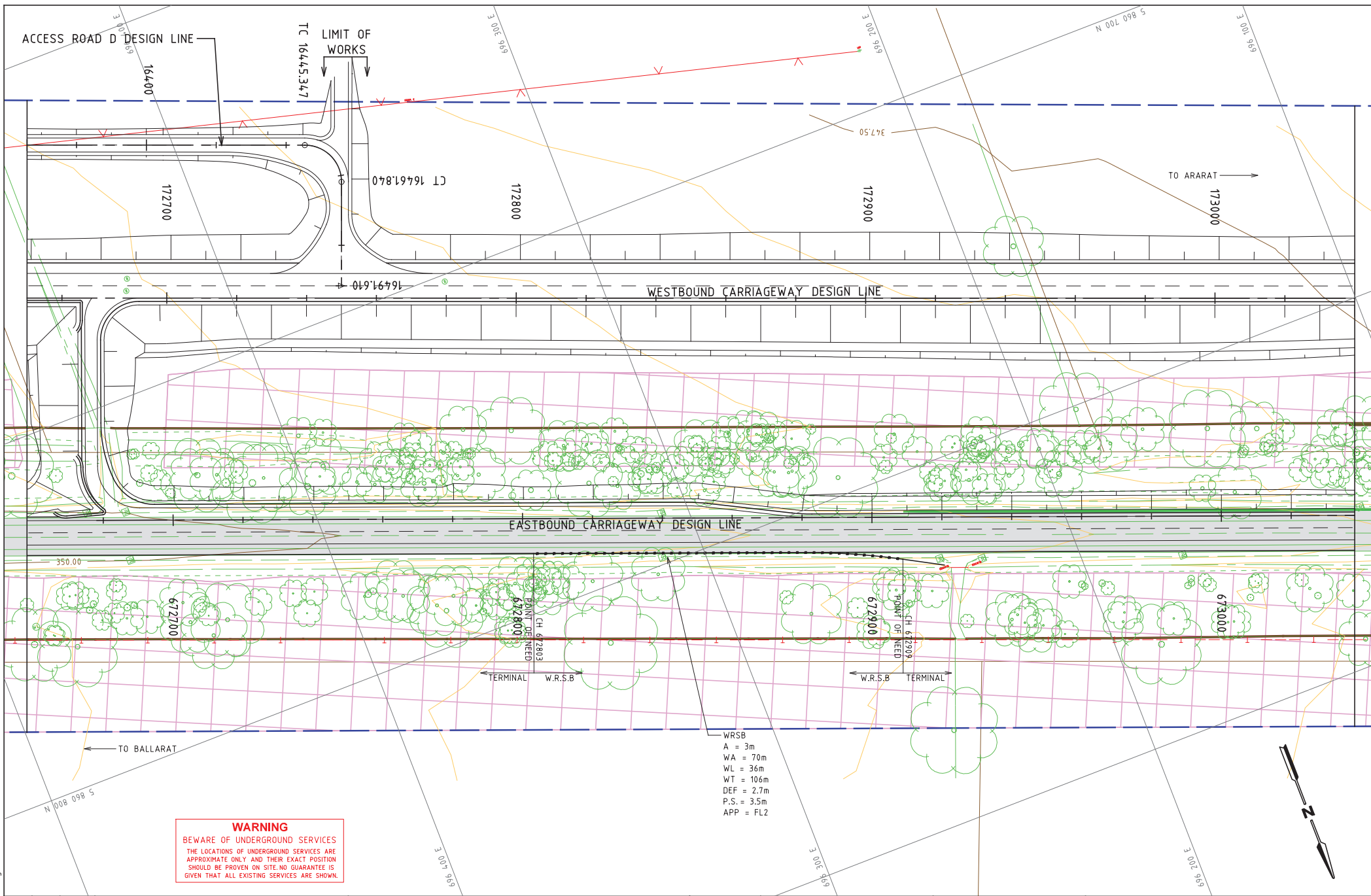
TECHNICAL CONSULTING	
3 PROSPECT HILL ROAD, CARBISWELL, VICTORIA, 3124 PHONE (03) 9811 8355 FAX (03) 9811 8329	
DESIGNED PROJECT DESIGN	
APPROVED J. MIKITCZUK 18/10/13	
CAT: Road_Design PROJ: (a) Section 2A FILE: 716-pd-a-ap-38.dgn	

SCALE OF METRES
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WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 172320 - CH 172660 ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	165	728666
ISSUE			

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ISSUE	APP'D	DATE	AMENDMENT
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WARNING
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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES

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— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
— EXISTING SAFETY BARRIER
 NO GO ZONES

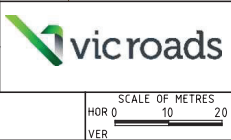
TECHNICAL CONSULTING

3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN

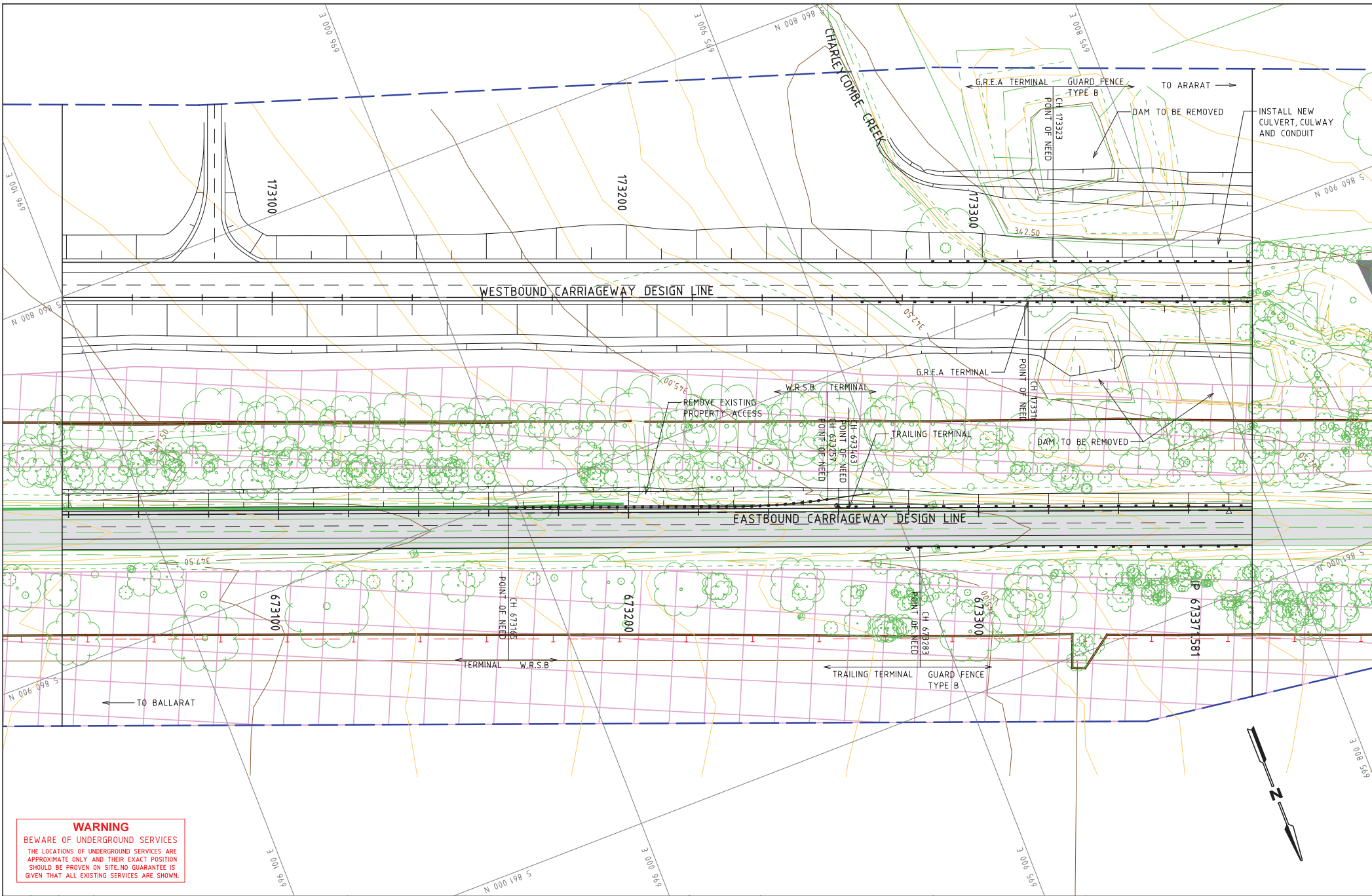
APPROVED
 J. MIKITCZUK
 18/10/13

CAT: Road_Design
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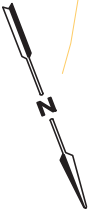


WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 172660 - CH 173040			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	166	728667

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WARNING
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ISSUE	APP'D	DATE		AMENDMENT

GENERAL NOTES
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— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— EXISTING SAFETY BARRIER
— PROPOSED POWER LINE RELOCATION
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CAMBERWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

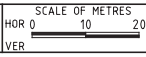
DESIGNED PROJECT DESIGN

APPROVED
 J. MIKITCZUK
 18/10/13

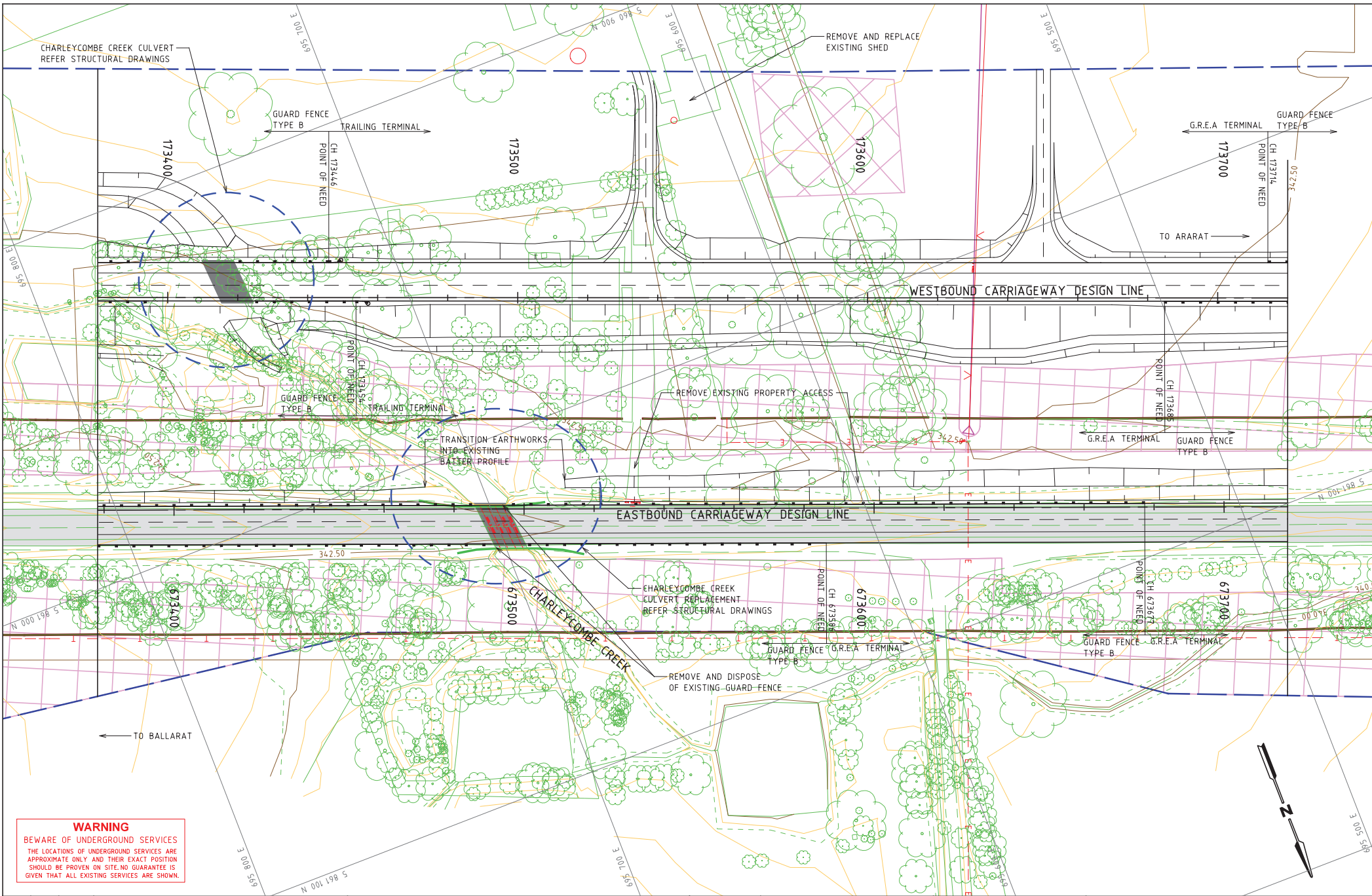
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WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
CH 173040 - CH 173380			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	167	728668



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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
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 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— EXISTING SAFETY BARRIER
 NO GO ZONES
— PROPOSED POWER LINE RELOCATION

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

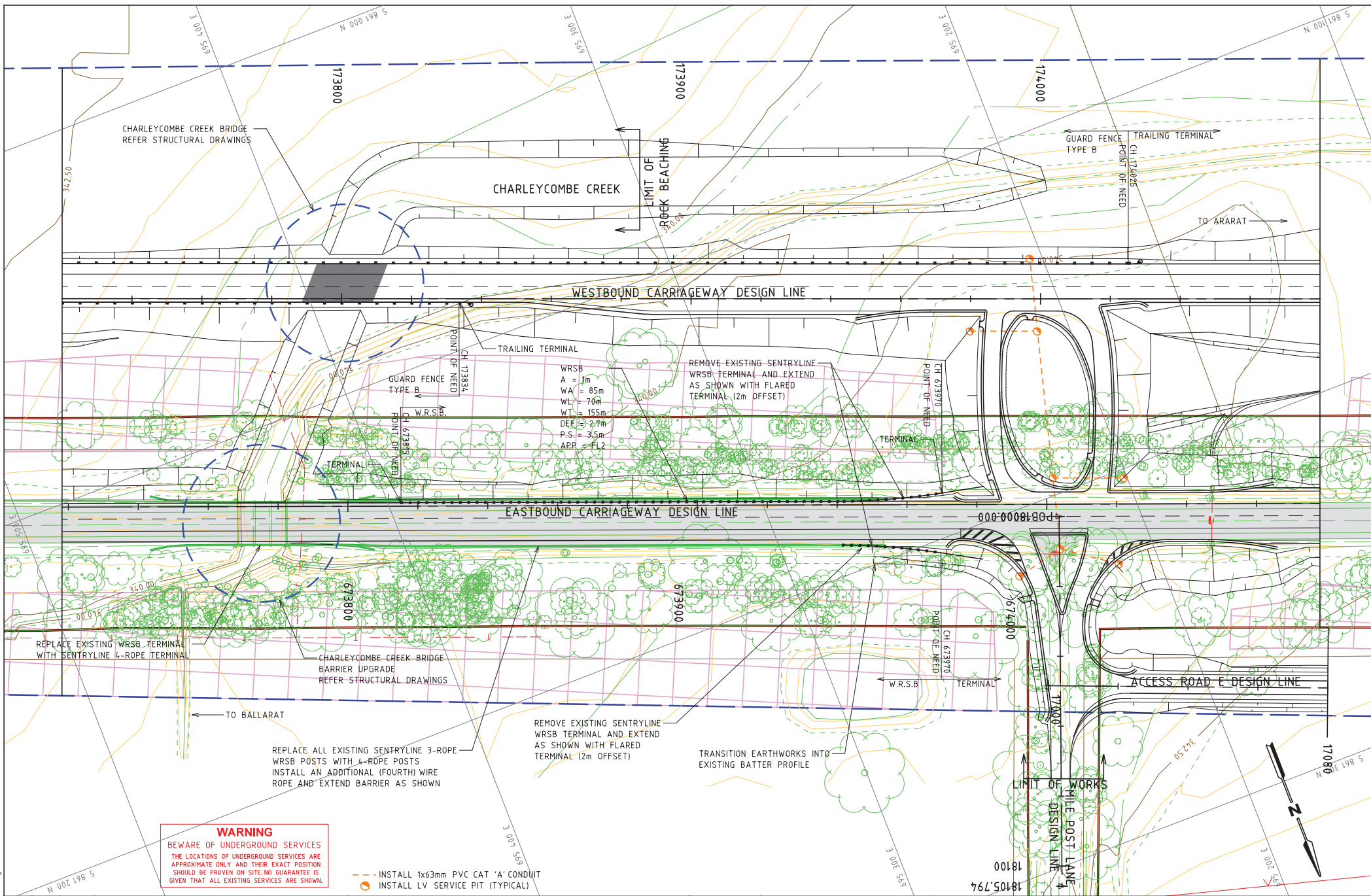
DESIGNED PROJECT DESIGN
 APPROVED

CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-41.dgn

SCALE OF METRES
 HOR 0 10 20
 VER

WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD			
CH 173380 - CH 173720			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	168	728669

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716-pd-a-ap-41.dgn



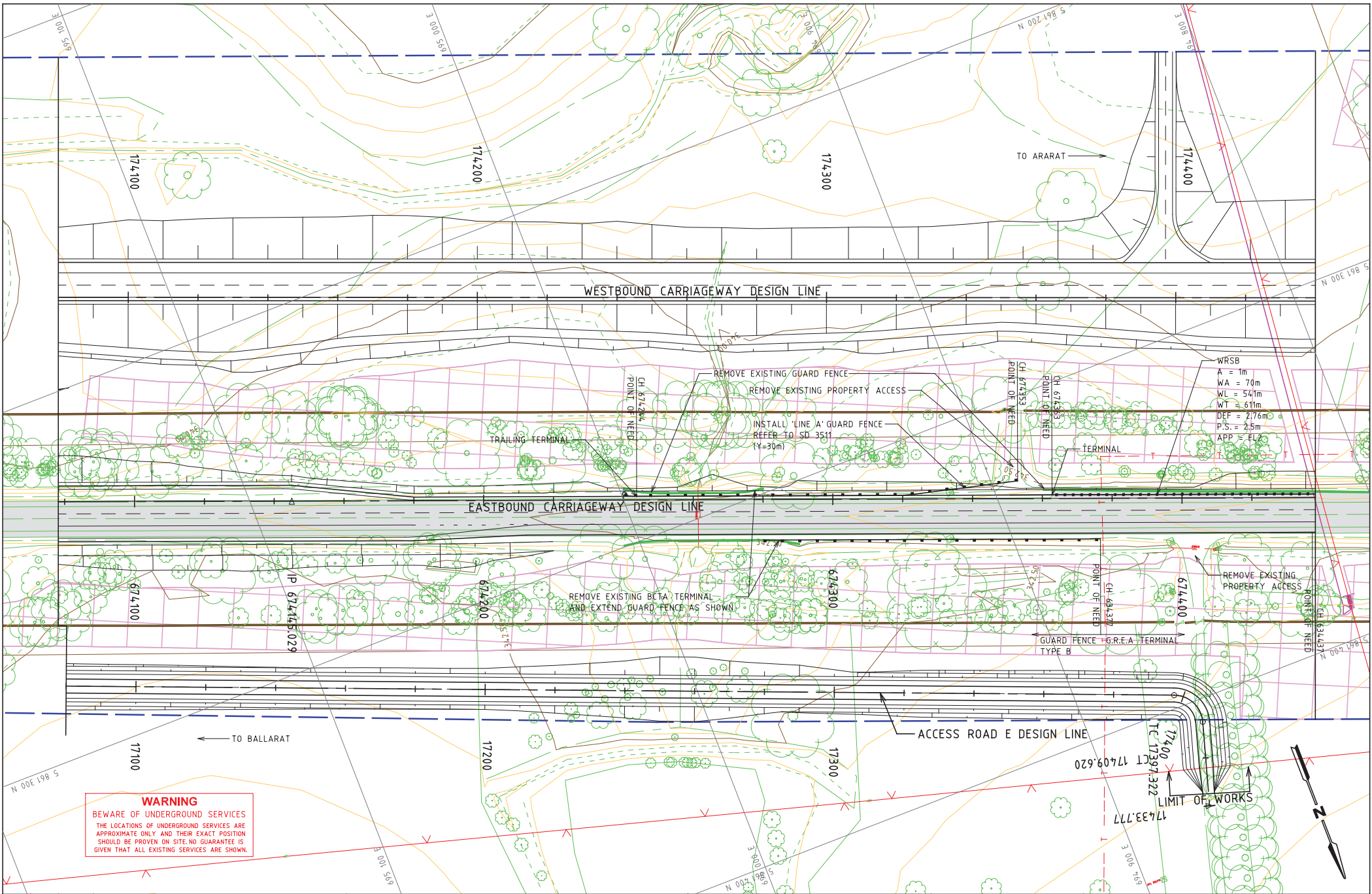
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ISSUE	APP'D	DATE	AMENDMENT	

TECHNICAL CONSULTING 3 PROSPECT HILL ROAD, CARBISWELL, VICTORIA, 3124 PHONE (03) 9811 8355 FAX (03) 9811 8329	DESIGNED PROJECT DESIGN APPROVED
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vicroads WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 173720 - CH 174080 ALIGNMENT PLAN	SCALE OF METRES HOR 0 10 20 VER	FILE NO. 716 CONTRACT NO. 8612 SHEET NO. 169 DRAWING NO. 728670
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CAT: Road_Design PRO: (a) Section 2A FILE: 716-pd-a-ap-42.dgn	18105.794 18100 17000 17080	TO BALLARAT TO ARARAT
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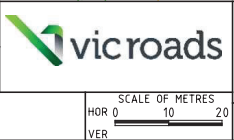
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ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
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 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

— PROPOSED ROW BOUNDARY
— EXISTING FENCE
— PROPOSED POWER LINE RELOCATION
 NO GO ZONES
— EXISTING SAFETY BARRIER

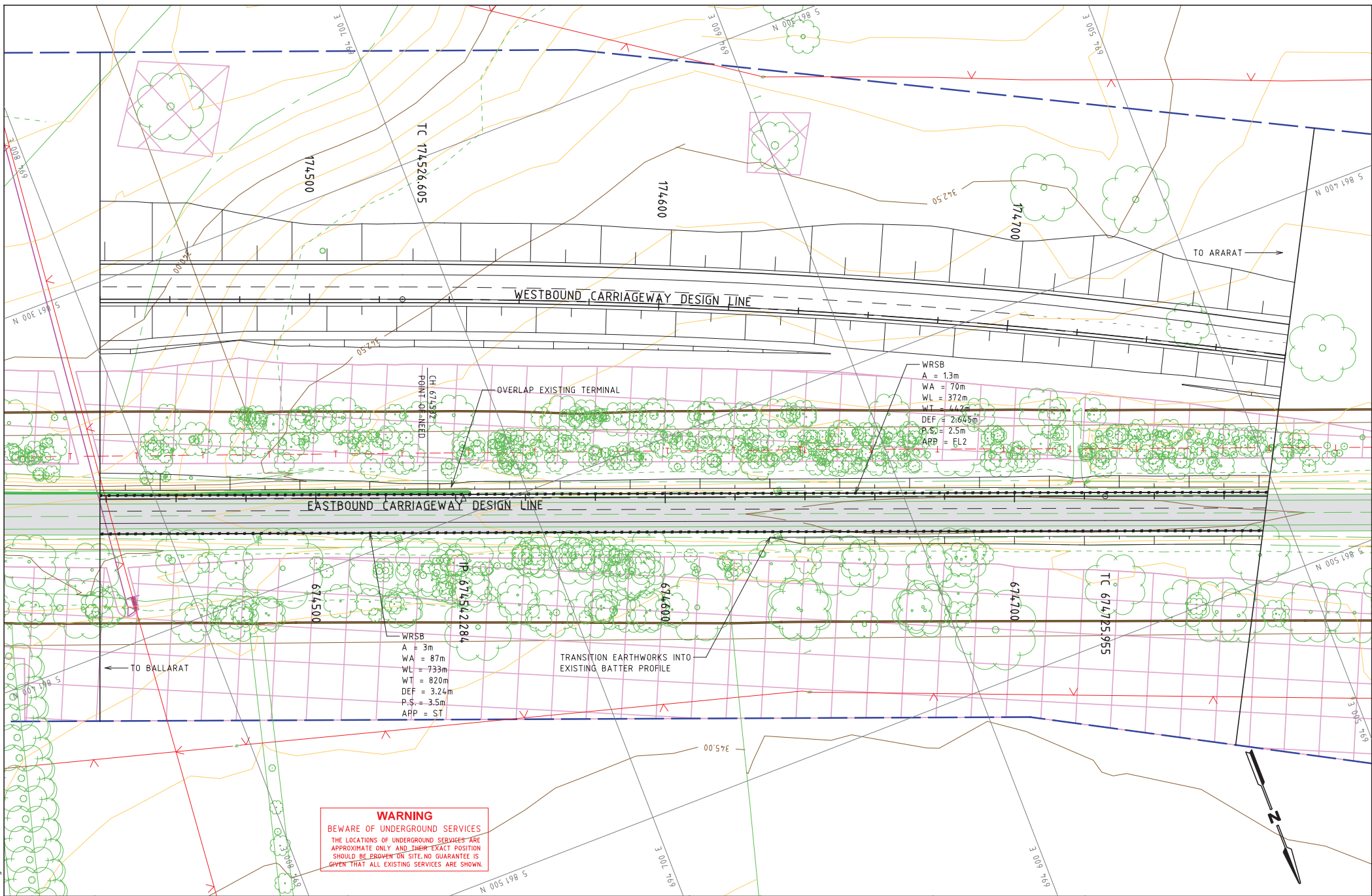
TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PRO: (a) Section 2A
 FILE: 716-pd-a-ap-43.dgn



WESTERN HWY/FWY			
WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 174080 - CH 174440			
ALIGNMENT PLAN			
FILE NO.	CONTRACT NO.	SHEET NO.	DRAWING NO.
716	8612	170	728671

14/11/2013 14:46:12 PM 716-pd-a-ap-43.dgn



WARNING
 BEWARE OF UNDERGROUND SERVICES
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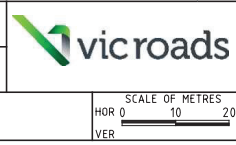
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A	J.M.	29/10/2018	WRSB OFFSETS INCREASED	
ISSUE	APP'D	DATE	AMENDMENT	

GENERAL NOTES
 1. SURVEY DATUMS: LEVEL-AHD, GRID-MGA ZONE 54
 2. FOR WRSB DETAILS REFER TO GUARD FENCE AND WIRE ROPE SAFETY BARRIER SETTING OUT TERMINOLOGY DRAWING.
 3. REFER LANDSCAPE DRAWINGS FOR TREES TO BE REMOVED.

PROPOSED ROW BOUNDARY
 EXISTING FENCE
 PROPOSED POWER LINE RELOCATION
 EXISTING SAFETY BARRIER
 NO GO ZONES

TECHNICAL CONSULTING
 3 PROSPECT HILL ROAD,
 CARBISWELL,
 VICTORIA, 3124
 PHONE (03) 9811 8355
 FAX (03) 9811 8329

DESIGNED PROJECT DESIGN
 APPROVED
 J. MIKITCZUK
 18/10/13
 CAT: Road_Design
 PROJ: (a) Section 2A
 FILE: 716-pd-a-ap-44.dgn



WESTERN HWY/FWY WESTERN HIGHWAY - BEAUFORT TO ARARAT MCKINNON LANE TO ANDERSONS ROAD CH 174440 - CH 174780 ALIGNMENT PLAN					
HOR SCALE OF METRES 0 10 20 VER	FILE NO. 716	CONTRACT NO. 8612	SHEET NO. 171	DRAWING NO. 728672	ISSUE A

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