

pakenham east precinct landscape assessment

for cardinia shire council

prepared by hansen partnership Pty Ltd

may 2013



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1 Introduction

Hansen Partnership have been engaged by Cardinia Shire Council to prepare a Landscape Assessment to inform the development of a Precinct Structure Plan for the Pakenham East Precinct.

The Pakenham East Precinct is part of the new logical inclusions extension to the Urban Growth Boundary announced by the Minister for Planning in June 2013.

1.1 methodology

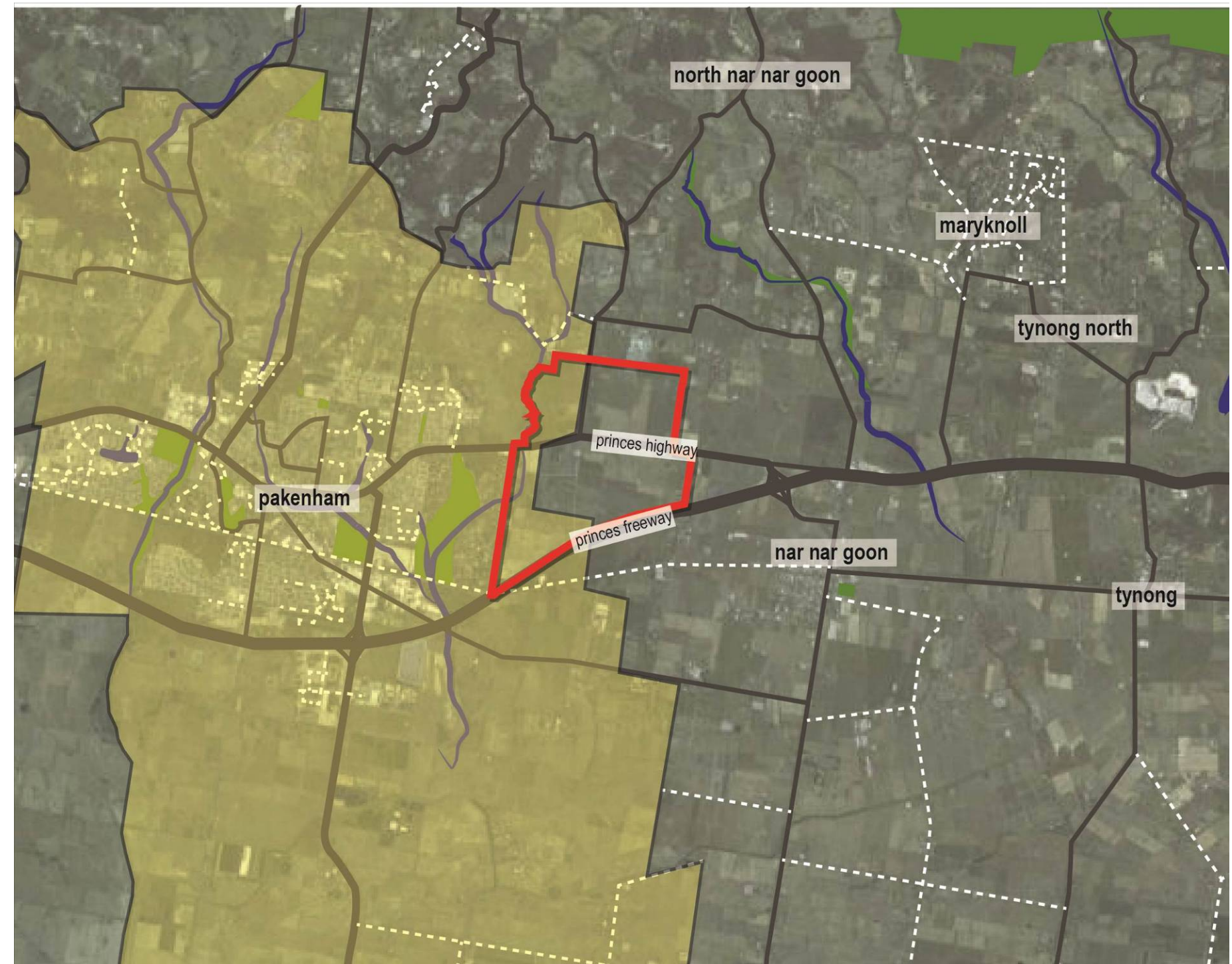
The report documents the approach to the Landscape Assessment undertaken by Hansen Partnership and has been based on *Visual Landscape Planning in Western Australia: A manual for evaluation, assessment, siting and design*.

The methodology can be described under the following headings:

- Information gathering:
 - Description of the study area location and context
 - Acquisition of base data, information and briefings from Council.
 - Base mapping
- Landscape characterisation:
 - Describing the visual landscape character and the development of landscape character units
 - Vegetation & fauna mapping
 - Topography and aspect mapping
 - Land-use mapping
- Landscape Values Evaluation:
 - Assess how the visual landscape character is viewed, experienced and valued.
 - Identification of key viewing locations and their significance
 - Identification of visual character preferences
- Landscape Management Framework:
 - Set objectives for landscape character areas
 - Set strategies for landscape character areas
 - Address appropriate planning controls
 - Inform design & built form guidelines
 - Select key viewpoints and provide illustrations of views with and without the application of proposed design and built form guidelines
 - Assess and map areas considered appropriate for future development
 - Advise on non statutory actions such as the preservation or enhancement of particular landscape qualities

1.2 Study area location

The study area is an irregular shaped parcel of predominantly cleared agricultural land located approximately 60km southeast of Melbourne, 20km east of the Narre Warren-Fountain Gate Principal Activity Centre and 6km east of the Pakenham town centre.



1.3 Study area & surrounds

The Princes Freeway is a primary road way located along the southern study area boundary and runs in a generally east west direction.

The Princes Highway is a primary road way which runs through the centre of the study area in an east west direction connecting Pakenham in the west to the Princes Freeway intersection approximately 1.45km to the east.

The eastern residential fringe of Pakenham is located to the west of the study area in the form of the Cardinia Lakes Residential development. Pakenham Golf Club is located approximately 350m to the west of the study area. Ryan Road and associated residential property abuts the south west boundary of the study area. The study area boundary then follows the alignment of Deep Creek which continues to the north west corner of the study area.

Rural properties abut the northern and eastern boundaries of the study area.

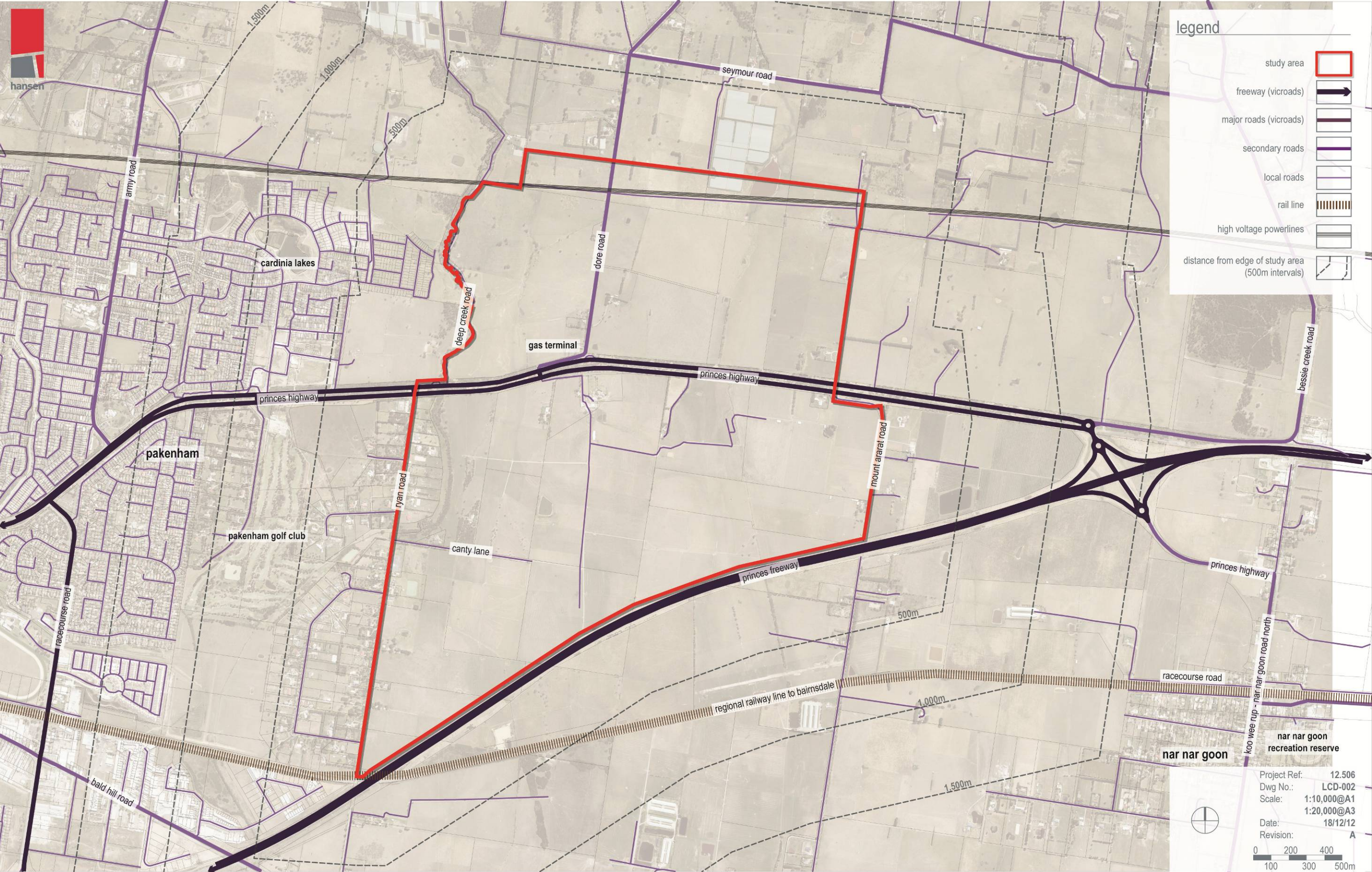
An existing transmission line is located within the northern part of the study area and running in a generally east west direction.

Dore Road is a secondary road which intersects with the Princes Highway running in a north south direction from the centre of the study area at the intersection with the Princes Highway and connecting to the rural land to the north.

The town of Nar Nar Goon is located approximately 1.75km from the south east corner of the study area.

The Gippsland rail line is located to the south of the study area and services the V Line train network running in a generally east west direction connecting Pakenham to the neighbouring town of Nar Nar Goon.

pakenham east precinct landscape assessment | study area and surrounds



1.4 Topography

The study area topography falls generally from undulating terrain in the north to the valley floor in the south. This pattern of land topography is part of a broader land formation of foothills and valleys characteristic of the southern extents of the Dandenong Ranges.

A clearly defined ridgeline formation of elevated land is located in the centre of the study area extending down from the northern boundary towards the low lying land adjacent to the Princes Highway.

The north east corner of the site is also elevated and reflects the southern extents of a greater ridgeline formation located beyond the study area to the north and east.

A valley of lower lying land is located to the east and west of the central ridgeline with a drainage line running from north to south along Deep Creek adjacent to Deep Creek Road.

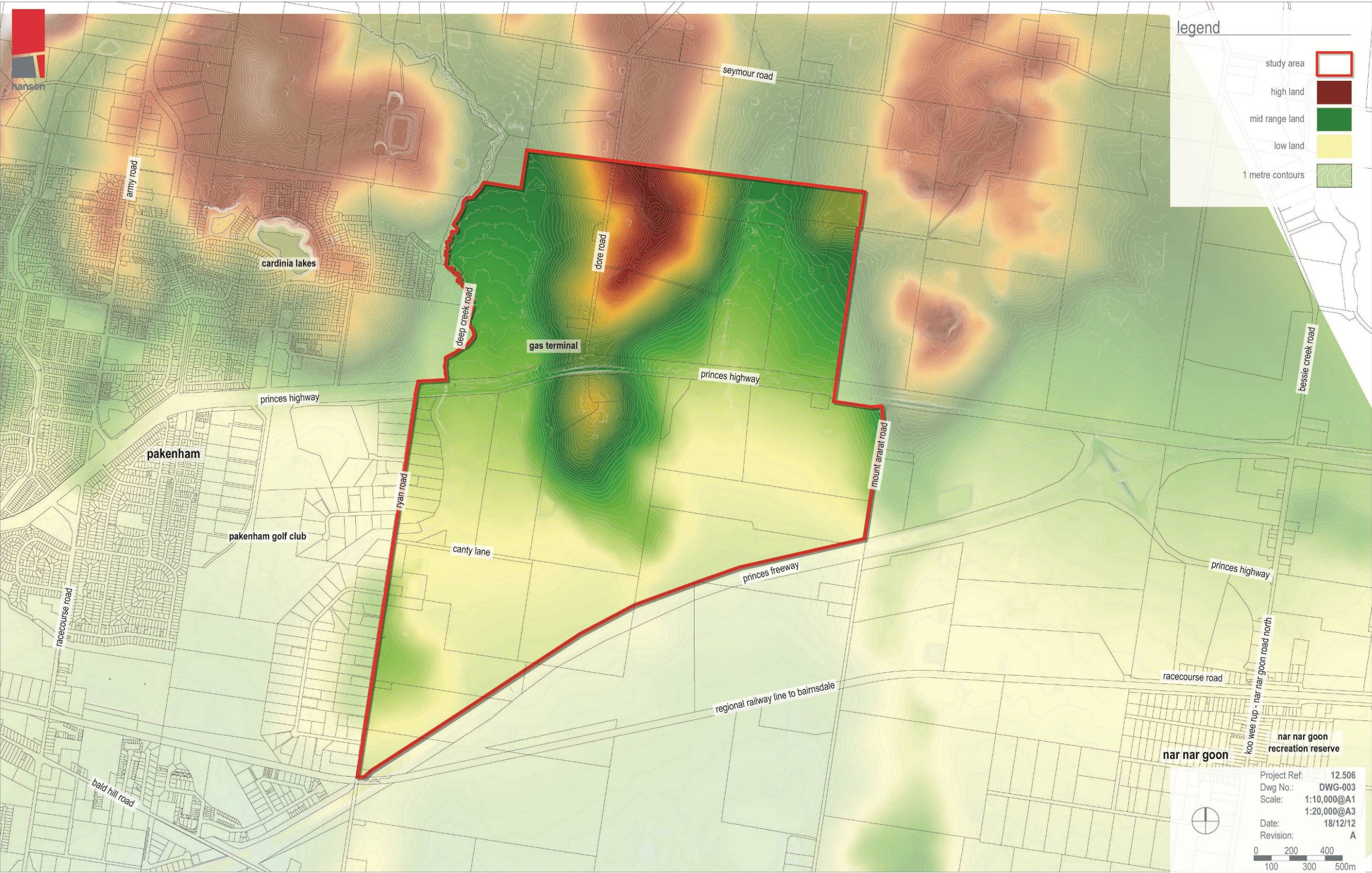
The southern portion of the site to the south of the Princes Highway consists of predominantly lower lying terrain.

A small patch of land in the south west corner of the site is slightly elevated above the surrounding land.

The Princes Highway is an engineered major road which, in most locations, has been raised above the surrounding landscape with embankments either side of the road reserve. Towards the centre of the site, the road passes through the central ridgeline described above and the terrain has been excavated to accommodate the road grading. This has resulted in the formation of steep embankments either side of the westbound lanes of the Princes Highway.



pakenham east precinct landscape assessment | topographical analysis



1.5 Vegetation

The vegetation analysis map opposite provides an overview of the extent of existing vegetation located within the study area based on 2005 EVC cadastre data provided by Cardinia Shire Council. As shown the study area is largely cleared pasture land and is predominantly devoid of vegetation.

Scattered native and exotic trees and shrubs are located along fence lines, driveways and around existing farm settlements most likely acting as wind breaks for local residents and livestock.

The majority of the existing tree vegetation is located along road sides and Deep Creek. Road side vegetation is visible along Dore Road with a patch of more dense coverage located towards the centre of the site at the southern end of the Dore Road.

Extensive road side vegetation exists along either side of the majority of the Princes Highway road reserve and within the wide central median. This vegetation is densely planted for the most part but some gaps occur in localised areas.

Dense predominantly native vegetation including mature native trees lines the embankments either side of Deep Creek as well as within the road reserve of Deep Creek Road on the western study area boundary.

Vegetation exists within the road reserve of Ryan Road along the south west boundary of the site and within the private rural residential properties located between the Princes Highway and Canty Lane.

The mapping also shows a dense patch of suspected remnant bushland vegetation located within a private property in the south west part of the site on Canty Lane.



Ryan Road

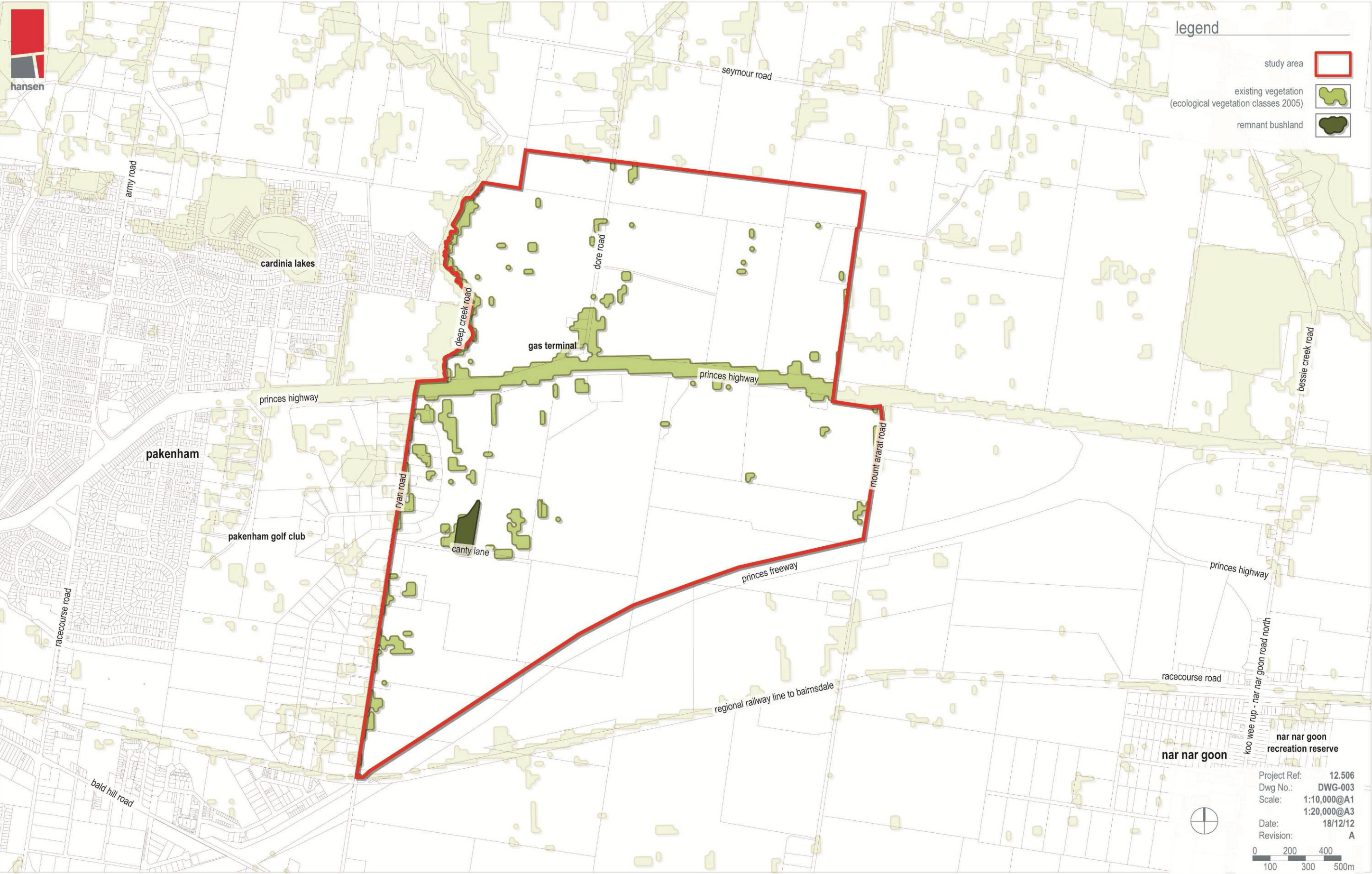


Deep Creek Road



Princes Highway

pakenham east precinct landscape assessment | vegetation analysis



2 Planning framework

This section of the report provides a brief summary of the relevant planning zones and overlays that are relevant to the study area and the immediate adjoining land.

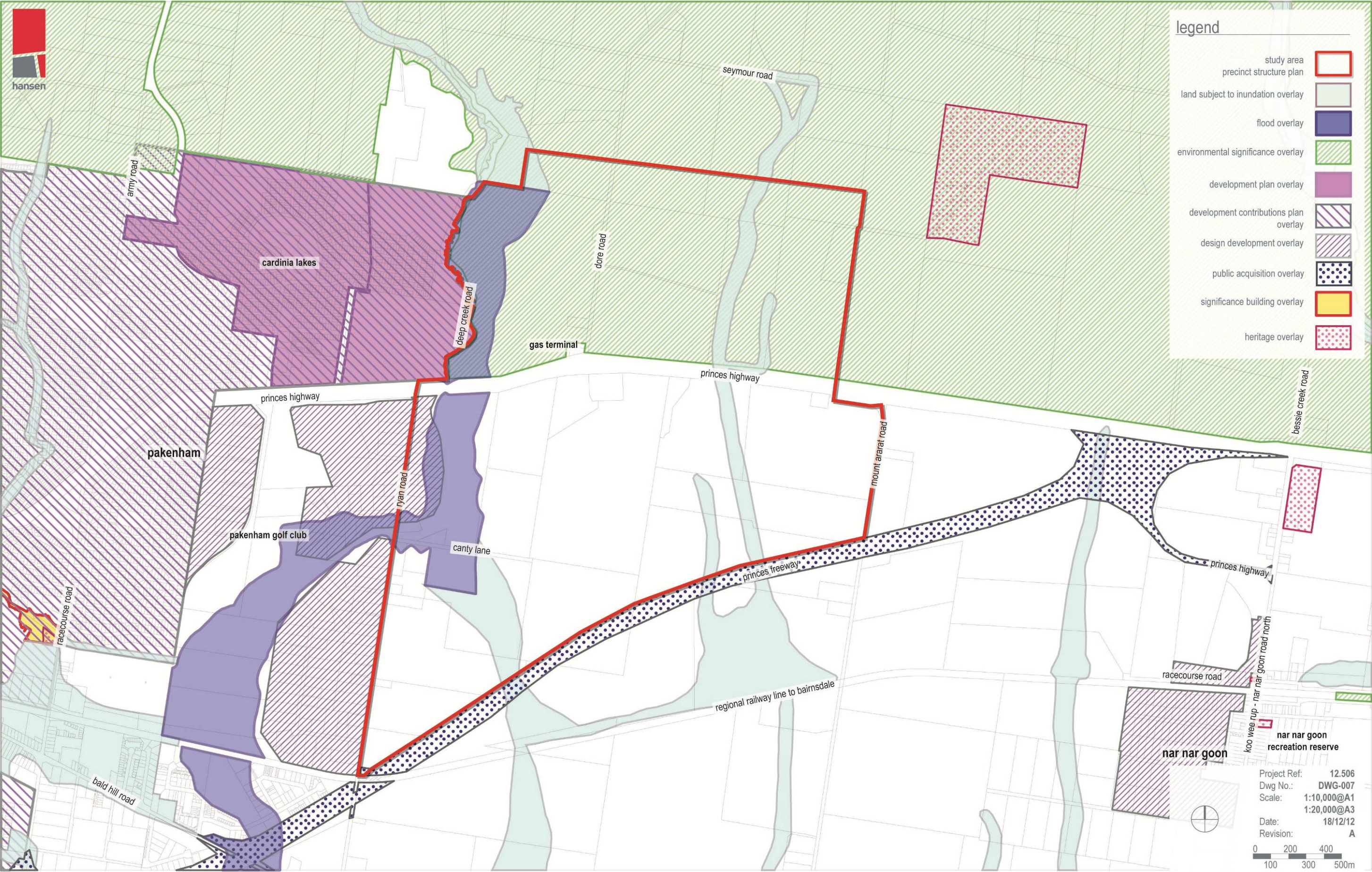
2.1 Planning Zones

The Planning zone diagram opposite provides a graphic summary of the existing planning zones that apply to the study area and the immediate surrounding land.

2.2 Planning overlays

The Planning overlays diagram opposite provides a graphic summary of the existing overlays that apply to the study area.

pakenham east precinct landscape assessment | planning framework



3 Views Analysis

This section of the report describes the outcomes of the Views Analysis which includes both a Viewshed Analysis and Field Work Assessments.

3.1 Viewshed Analysis

The viewshed analysis is undertaken early on in the assessment methodology as a means to ascertain the full extent of technically feasible views to the study area from the surrounding landscape.

A viewshed is defined as the surface area visible from a given viewpoint or series of viewpoints. It is also the area from which that viewpoint or series of viewpoints may be seen. This is referred to as the 'intervisibility' relation. The visibility between two points depends upon the presence of obstacles, such as hills, trees and buildings along the path of the visual ray that connects the two points. Such obstacles may obstruct or reduce the reciprocal vision of the same two points.

The approach is to identify this broader extent as a basis for ground proofing the results through extensive fieldwork and landscape assessment. It is important to emphasise that the viewshed analysis will yield a much broader extent of views as the study is based on topography only and does not take into consideration the restrictive impact on views from built form and existing vegetation.

3.2 Viewshed methodology

The viewshed analysis of the study area was developed using computer software packages (Autocad, Rhinoceros & Adobe) to develop a three-dimensional terrain model of the region within which the subject land is contained. The model used topographical data obtained from Cardinia Shire Council, comprising elevation information with a 0.5m contour interval.

Following development of the terrain model of the study area and its surroundings, a series of points were selected based on a desktop analysis of likely sensitive viewing locations.

Utilising 'Rhino' terrain modelling and based on the concept of intervisibility described above, a projection was simulated at a height of 1.6m above the ground radially to the surrounding terrain. The objective of this process is to ascertain all locations that are conceivably visible from a particular location. This analysis is based on topography only and does not consider built form, vegetation or any other potential visual obstruction.

The resultant map provides an illustrative description of the viewshed of the proposed development, whereby the visibility of the proposal is highest in coloured areas and lowest, to the point of being invisible in the uncoloured areas. The viewshed analysis map categorises all land within the viewshed as being of (either) high, medium or limited visual exposure from the locations selected.

3.3 Viewshed locations

The viewshed locations selected are all located within publicly accessible areas along roads and within road reserves.

It is recognised that both the Princes Highway and the Princes Freeway are major roads which bisect and abut the study area respectively and that they are utilised by a high number of motorists travelling too and from Pakenham.

Viewshed locations 1, 2, 3, 4, 5, 6, 7, 10 & 11 have therefore been located along these primary routes to investigate the extent views to the study from these main roads.

Viewshed location 8 is located at the intersection with the study area boundary and Dore Road.

Viewshed location 9 & 13 are located along Ryan Road on the south western study area boundary.

Viewshed location 12 is located at the north western extents of Nar Nar Goon.

Viewshed location 14 is located on Tahoe Court in order to investigate the views from the eastern elevated extents of the residential development of Cardinia Lakes.

Viewshed location 15 is taken from Seymour Road north east of the study area boundary.

Viewshed location 16 is taken from Deep Creek Road in the north west corner of the study area.

3.4 Analysis of all viewshed locations combined

The diagram shown opposite provides a graphic summary of the visual exposure achieved from all viewshed locations combined. The areas with visual exposure are shaded in red.

Given the number of the viewshed locations (16) selected it is to be expected that the vast majority of the study area is shown as having some degree of visual exposure.

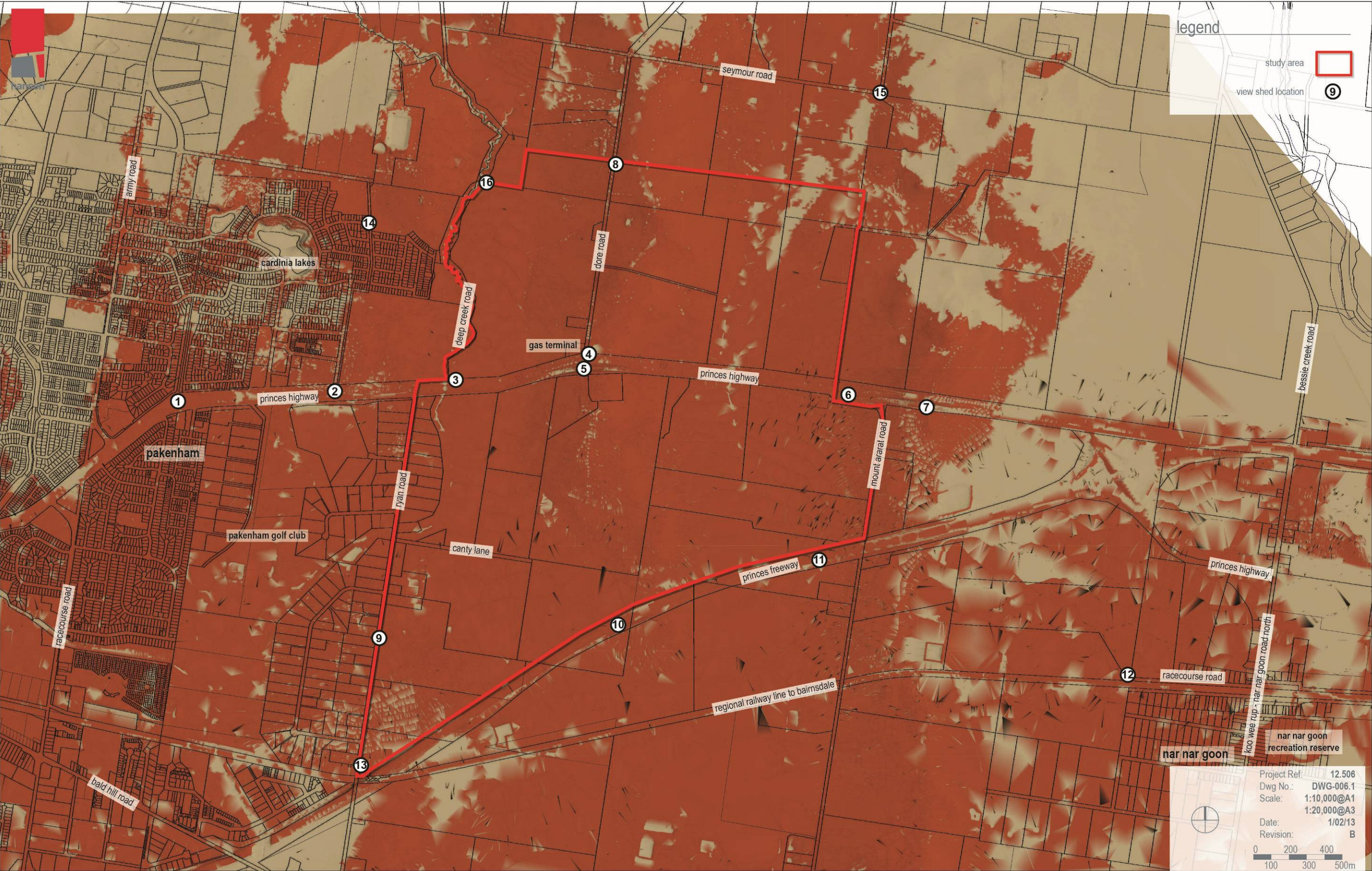
The following sections of the report provide a detailed summary of the results of each viewshed location analysis and highlights areas of particular interest to the landscape assessment study.

3.5 Field Work Assessments

Each viewpoint has also been assessed through field work to review the outcomes of the viewshed analysis. This process is necessary in order to account for the potential screening and filtering effect on views caused by existing vegetation and built form.

Typically the actual view from the ground will be reduced once these factors are taken into consideration.

pakenham east precinct landscape assessment | view shed - visual exposure from all view shed locations combined



3.6 Viewshed location 1 – Princes Highway

Viewshed Analysis

Viewshed 1 is located on the east bound lane of the Princes Highway approximately 1km west of the study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows that a relatively small area of terrain within the study area is visible from this location approximately 2km east of the view shed location.

The area highlighted reflects the western embankment associated with the central ridge line formation described in section 1.4 of this report.

Field Work Assessment

The image below shows the view from this location looking east towards the study area from the Princes Highway. The image shows the effect of the road side vegetation and other built elements such as the Cardinia Lakes residential development, lighting poles and signage.

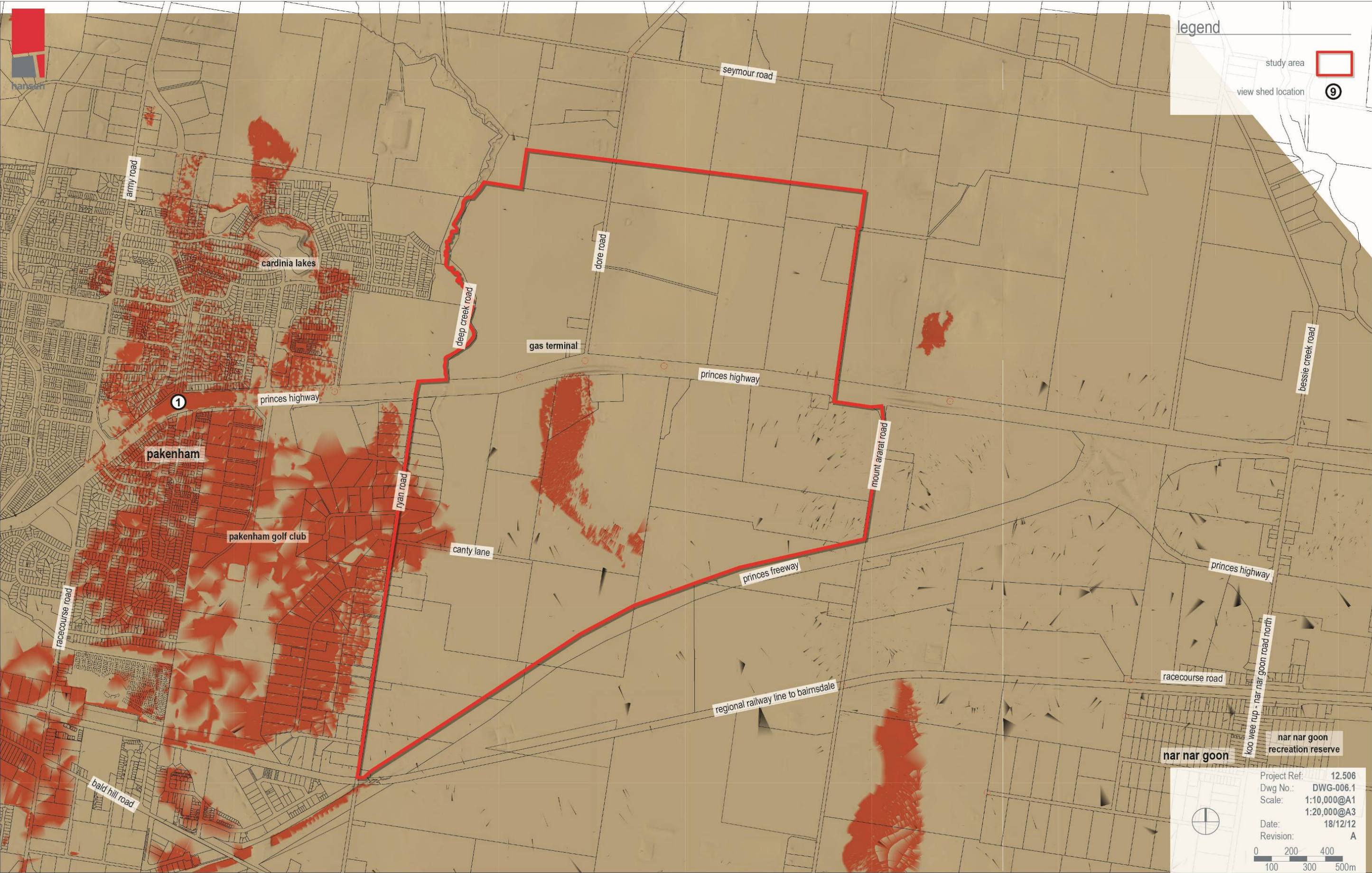
These elements restrict views to the study area from this location to a relatively insignificant glimpse of the elevated terrain located towards the centre of the study area at the intersection with the Princes Highway.

This 'on ground' assessment of the view from this location confirms that the large patch of potentially visible land shown in the viewshed analysis map opposite is not an issue for further consideration.



Princes Highway looking east

pakenham east precinct landscape assessment | view shed location 1



3.7 Viewshed location 2 – Princes Highway

Viewshed analysis

Viewshed 2 is located on the east bound lane of the Princes Highway approximately 500m west of the study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows that the study area is visible towards the centre of the site in a defined linear patch of terrain. This reflects the prominence of the western embankment of the central ridgeline formation within the study area.

The analysis also indicates visual exposure for a section of land in the south west corner of the study area.

Field work Assessment

The image below shows the view looking east towards the study area from the Princes Highway east bound lane at the intersection with Abrehardt Road.

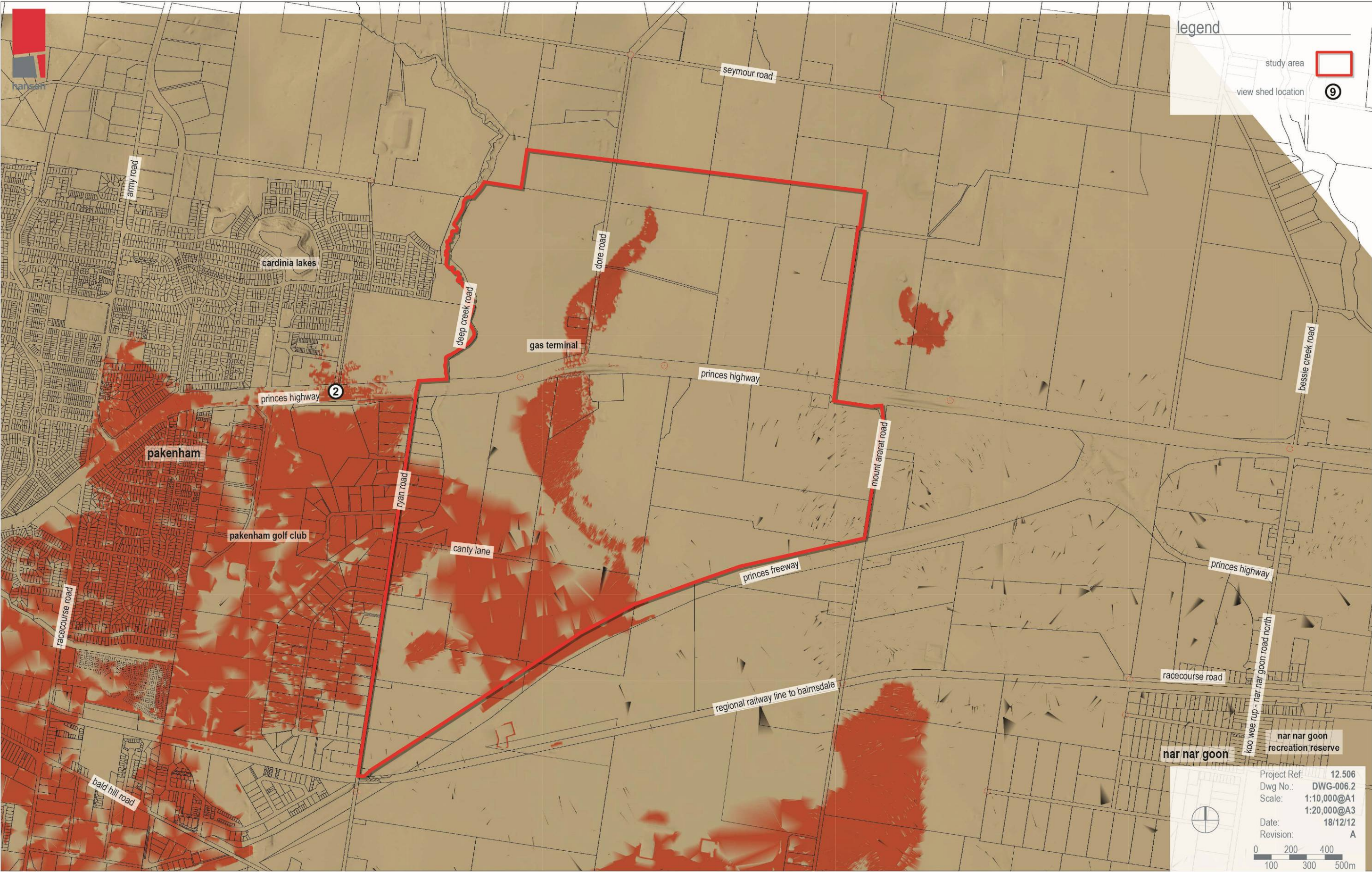
Dense planting within the road reserve restricts views to the study area to a relatively small glimpse of elevated terrain located on the horizon line of the road.

This confirms that when existing vegetation is taken into consideration, the large areas of the study area shown on viewshed analysis map opposite can be disregarded.



Princes Highway looking east

pakenham east precinct landscape assessment | view shed location 2



3.8 Viewshed location 3 – Princes Highway

Viewshed Analysis

Viewshed 3 is located on the east bound lane of the Princes Highway at the intersection with Deep Creek Road immediately inside the western study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows a prominent area of visual exposure in the western part of the study area running fairly consistently from north to south. The highlighted area also covers the length of the Princes Highway for approximately 600m from the western boundary to the centre. Again, these results are likely to reflect the existence of the central ridge line formation which runs in a north south direction through the study area.

The area to the south of the Princes Highway is also visible, reflecting the relatively lower lying terrain in this area as viewed from the road reserve.

Field Work Assessment

The image below shows the view looking east from the Princes Highway east bound lane at the intersection with Deep Creek Road.

A relatively narrow section of the study area framed by the road side vegetation is visible approximately 800m to the east looking directly down the road reserve. This area forms part of the elevated terrain that is located to the south of the Princes Highway. Existing vegetation, including mature windbreak vegetation associated with a rural settlement is visible in the image.

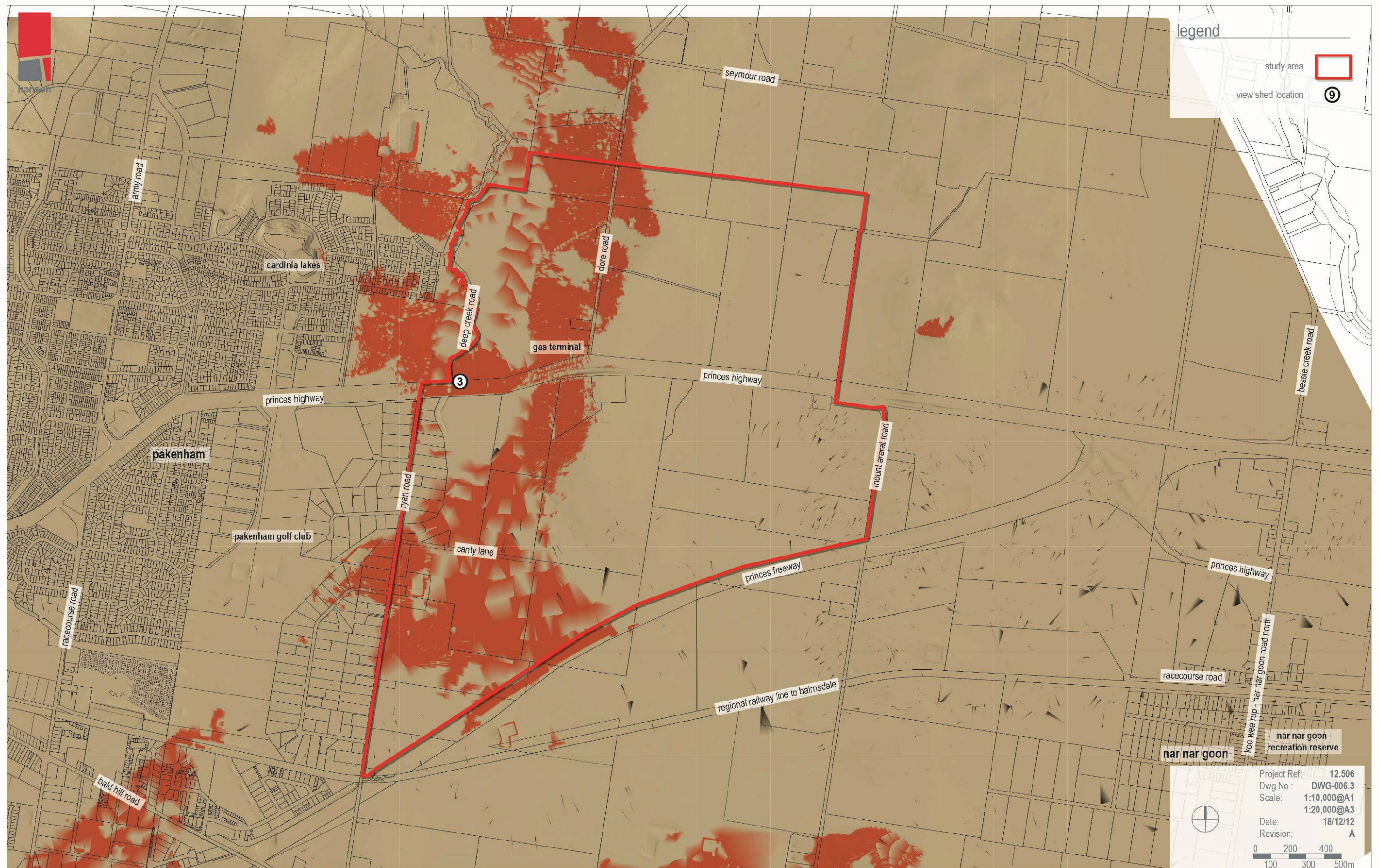
A relatively short gap in the road side vegetation at the intersection with Deep Creek Road affords a view to the north and north east across the study area. Cleared pasture land occupies the foreground with the prominent ridgeline and roadside vegetation of along Dore Road forming the backdrop.

Views to the south are screened by the dense existing vegetation located within the Princes Highway road reserve.



Princes Highway looking east

pakenham east precinct landscape assessment | view shed location 3



3.9 Viewshed location 4 – Princes Highway

Viewshed Analysis

Viewshed 4 is located on the east bound lane of the Princes Highway at the intersection with Dore Road. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis indicates three prominent areas of visual exposure from this location:

- The area along the western boundary which reflects the elevated terrain and ridge formation that is located beyond the study area boundary. It should also be noted that the Princes Highway is east bound in this location and is therefore considered appropriate to discount visual exposure detected to the west i.e. behind the direction of travel.
- A relatively confined area in and around the intersection of the Princes Highway and Dore Road and in particular an area of elevated terrain to the north of the Princes Highway. This reflects the rising topography associated with the central ridgeline formation which rises from the edge of the Princes highway up into the northern study area.
- A relatively broad area of visual exposure which appears in a prominent cone shaped graphic on the viewshed map. This result reflects the rising topography of the western embankment of the ridgeline formation located to the east of the study area boundary.

Field Work Assessment

The image below shows the view from this location looking north, north east and east, taken from a clearing in the road reserve at the edge of the Princes Highway directly in line with the alignment of Dore Road.

A gap in the roadside vegetation allows views into the study area to the north and north east. The viewing location is elevated, located on land that forms part of the ridgeline at the centre of the study area. The study area topography rises up to the north from this point generally following the alignment of Dore Road. Consequently the southern embankment is visible from this location through the gap in the roadside vegetation. The view also includes the existing buildings, exotic windbreak and fence line vegetation associated with the rural settlement at no. 40 Dore Road.

The view east, directly down the road reserve, is restricted to a narrow band of land framed by the road side planting. A glimpse of the elevated ridgeline beyond the study area appears in the far distance along the horizon line.

This assessment confirms that when existing vegetation is taken into consideration, the areas identified as potentially visible from this location can be largely disregarded with the exception of the elevated land along Dore Road and a narrow view contained by the existing road reserve vegetation.



Princes Highway looking east

pakenham east precinct landscape assessment | view shed location 4



3.10 Viewshed location 5 – Princes Highway west bound

Viewshed Analysis

Viewshed 5 is located on the west bound lane of the Princes Highway set within the localised engineered cutting towards the centre of the study area. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis indicates three prominent areas of visual exposure from this location:

- A relatively small patch of visual exposure in and around the intersection of the western study area boundary and the Princes Highway. This is likely to reflect the rising topography of the road reserve in this location.
- A confined area of exposure within the engineered cutting reflecting the restrictive effect of views from this location caused by the engineered embankments on either side of the location.
- An area of land on the eastern study area boundary. It should also be noted that the Princes Highway is west bound in this location and is therefore considered appropriate to discount visual exposure detected to the east i.e. behind the direction of travel.

Field Work Assessment

The image below shows the view from this location looking west from the Princes Highway.

The steeply rising embankment either side of the road reserve restricts views to the north and south.

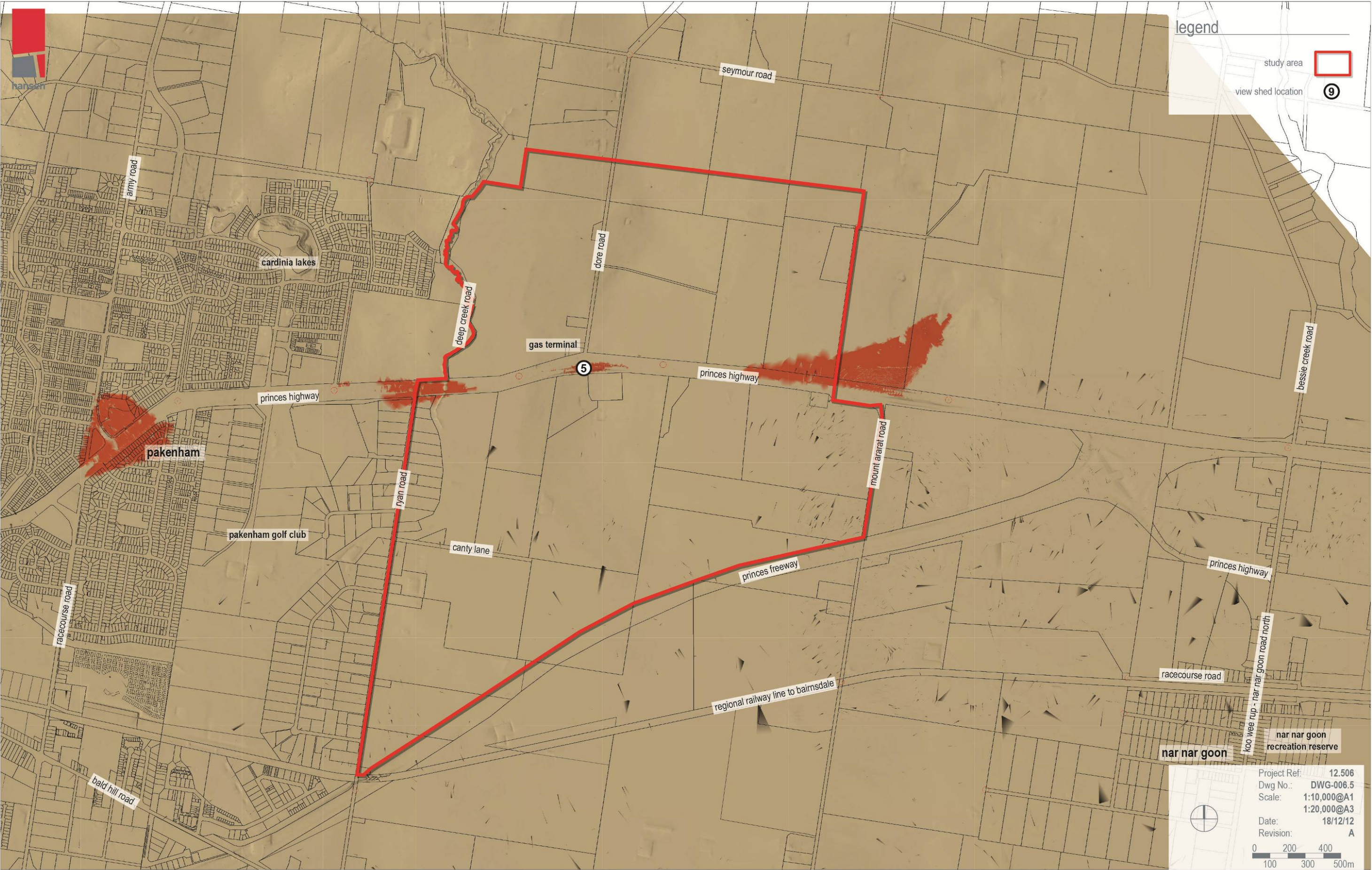
The view west directly down the road is confined by the existing vegetation within the road reserve and the engineered embankment.

This confirms the results of the viewshed mapping analysis as shown opposite.



Princes Highway looking west

pakenham east precinct landscape assessment | view shed location 5



3.11 Viewshed location 6 - Princes Highway west bound

Viewshed Analysis

Viewshed 6 is located on the west bound lane of the Princes Highway at the intersection with the eastern study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis indicates a broad area of visual exposure occupying the majority of the eastern half of the study area including areas both north and south of the Princes Highway.

This reflects two main features of the topography as viewed from this location:

- The rising terrain to the north west which corresponds with the central ridgeline formation
- The relatively lower lying terrain to the south and west from this location.

It is also noted that a small patch of land is exposed in the south west corner of the site adjacent to Ryan Road, again reflecting the localised rise in topography in this area.

The majority of the road reserve along the Princes Freeway is also captured in the viewshed mapping, although this area is outside of the study area boundary.

Field Work Assessment

The image below shows the view from this location on the Princes Highway looking south west, west and north west towards the study area. At this location the Princes Highway road reserve heading west exits an engineered cutting. The viewpoint is elevated and a short gap appears in the road side vegetation. The resulting view is wide and expansive capturing large parts of the low lying cleared land to the south of the Princes Highway. Long views are afforded directly down the road reserve looking west towards Pakenham.

The view between roadside vegetation also captures glimpses of the eastern embankment associated with the prominent ridge formation located towards the centre of the study area. The canopy of the existing vegetation associated with Dore Road and adjoining rural settlements are also visible lining the horizon to the north west

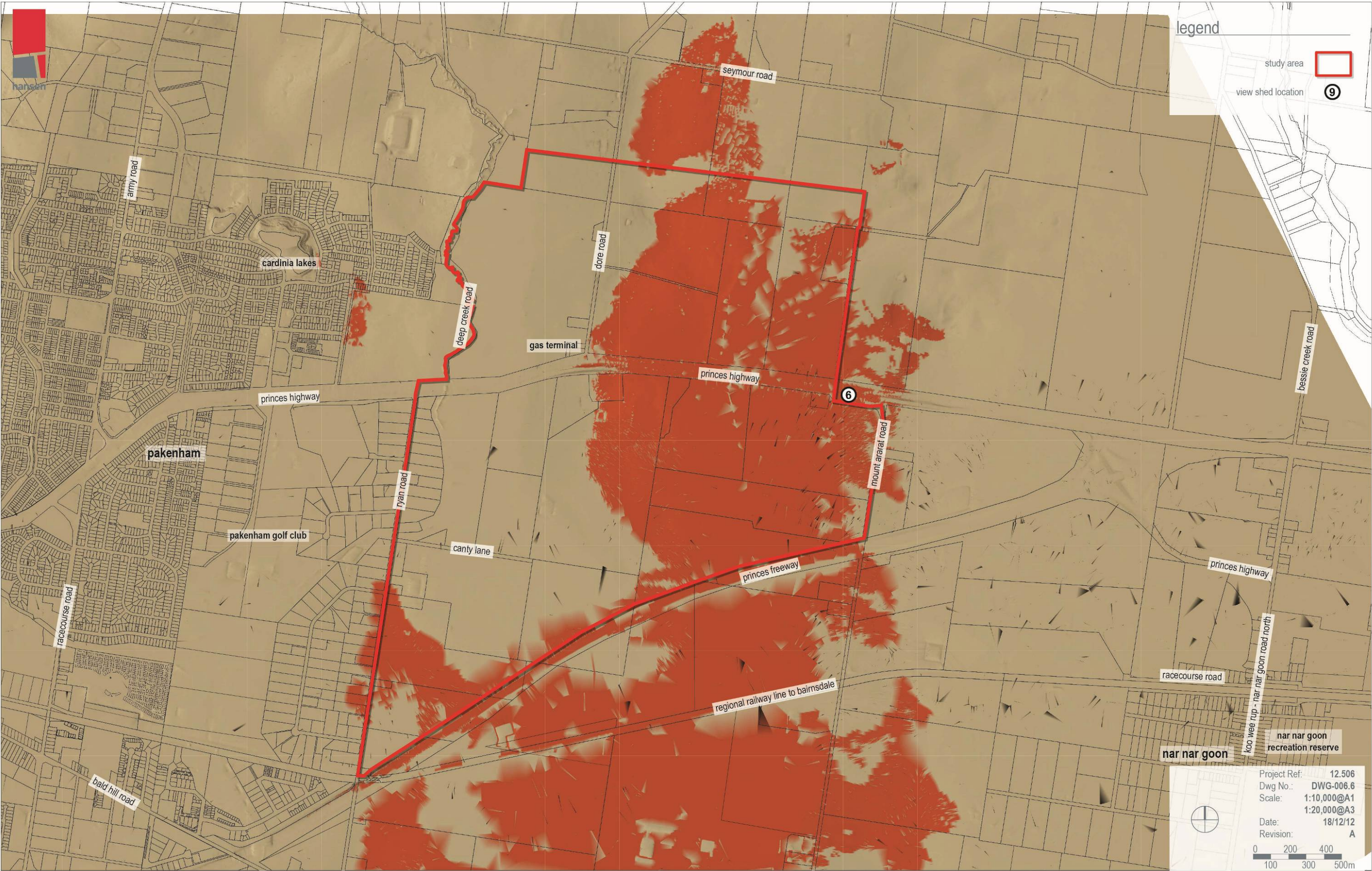
Road side vegetation along the northern side of the Princes Highway restricts views to the lower lying land within the study area to the north west, revealing only the more elevated land and ridgeline. The existing transmission line is visible in the far distance of the right hand side of the image.

This assessment shows that there are wide and largely unobstructed views to the low lying land to the south, as indicated in the viewshed mapping opposite. The views to the west and north west are, in part, screened by road side vegetation in the foreground. However, the upper most portion of the ridgeline at the centre of the site protrudes above the foreground vegetation in some places and is prominent within the view.



Princes Highway looking west

pakenham east precinct landscape assessment | view shed location 6



3.12 Viewshed location 7 – Princes Highway west bound

Viewshed Analysis

Viewshed 7 is located on the west bound lane of the Princes Highway approximately 500m east of the study area boundary set within a localised engineered cutting. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows a narrow cone of visual exposure located in and around the centre of the Princes Highway road alignment towards the centre of the site. This relatively limited visual exposure is the result of the restricted views available within the engineered cutting with rising embankment either side of the road surface.

It should also be noted that the Princes Highway is west bound in this location and is therefore considered appropriate to discount visual exposure detected to the east i.e. behind the direction of travel.

Field Work Assessment

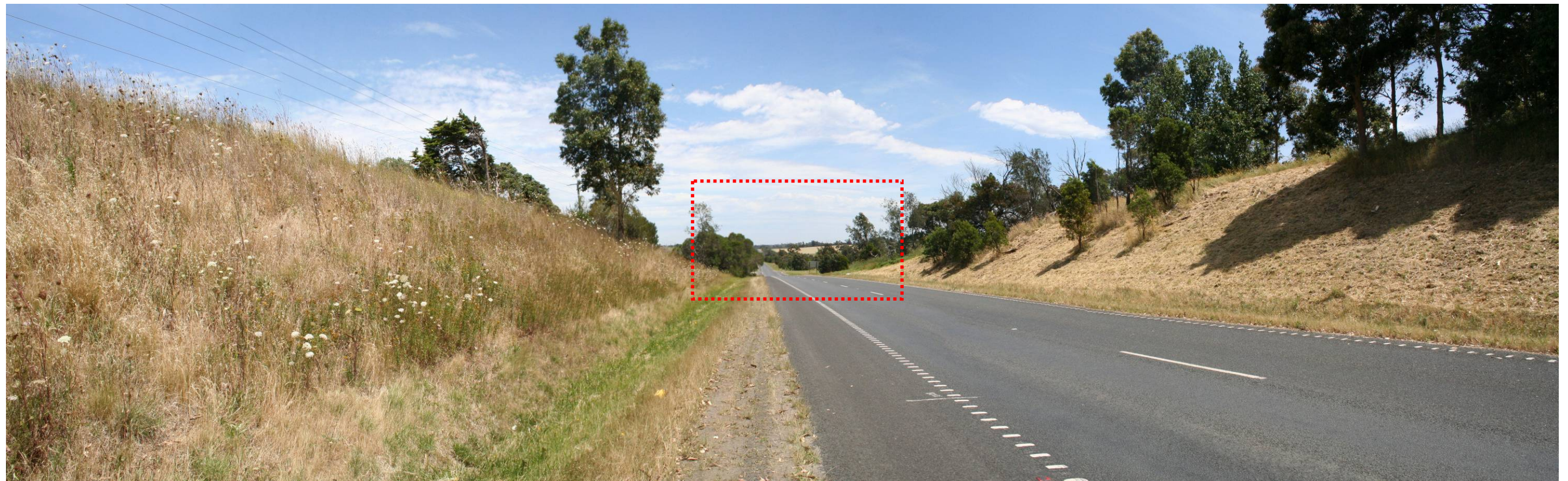
The image below shows the view from this location looking west from the Princes Highway west bound lane. The steeply rising embankments and existing vegetation either side of the road prevent views to the study area to the north west and south west. This frames a narrow view to the study area which is limited to the more elevated land associated with the eastern ridgeline embankment at the centre of the study area in the vicinity of Dore Road.

The background of this view shows the elevated terrain beyond the study area to the west. The horizon line comprises the canopy of trees associated with the roadside vegetation along Abrehart Road.

This assessment confirms the viewshed mapping shown opposite although views to the lower lying topography either side of the Princes Highway are generally screened by existing vegetation located within the road reserve. This is also the case for the land associated with Cardinia Lakes beyond Abrehart Road which is screened by the existing vegetation along the road reserve

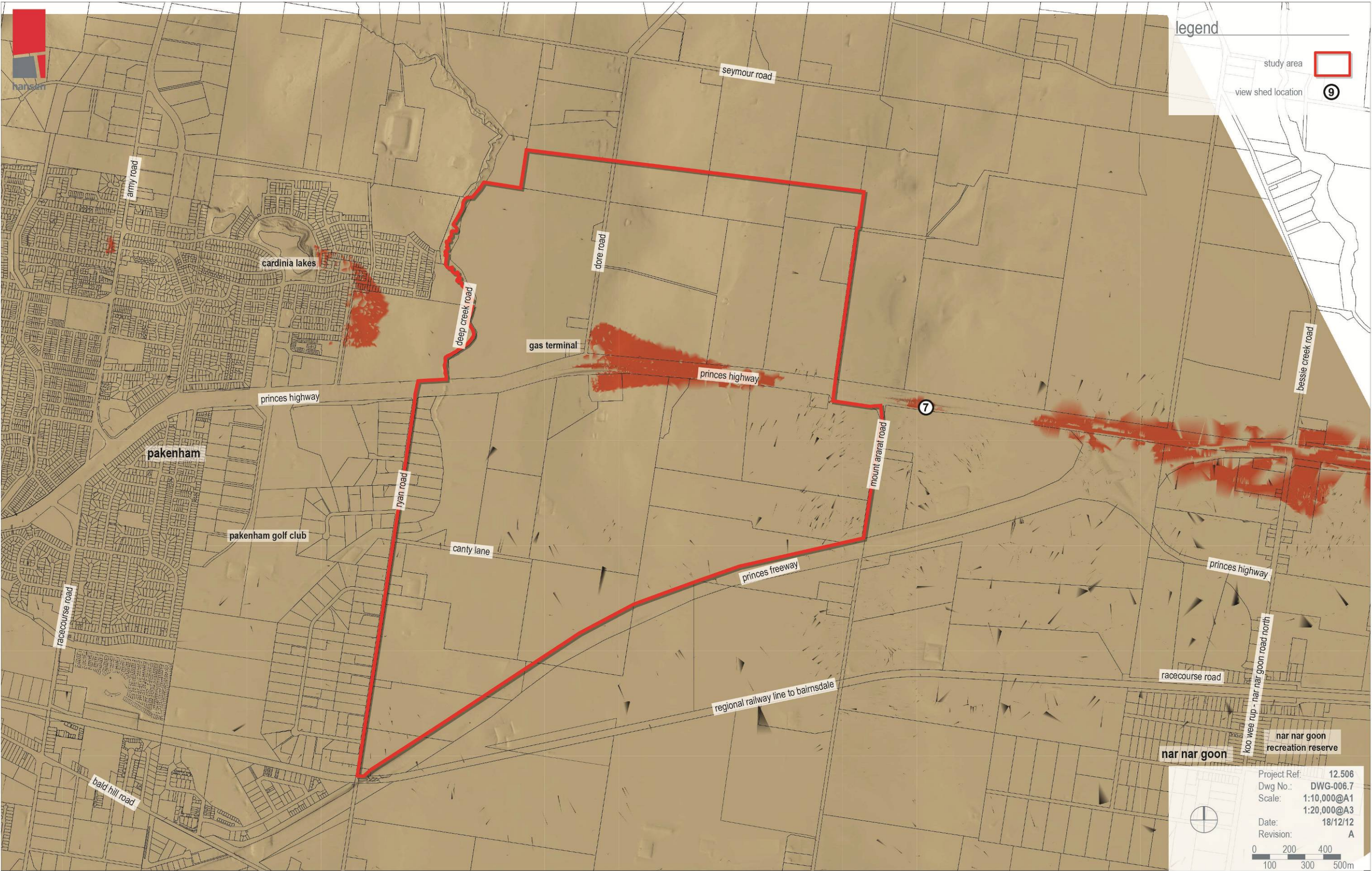


Blow up of highlighted area, Princes Highway looking west



Princes Highway looking west

pakenham east precinct landscape assessment | view shed location 7



3.13 Viewshed location 8 – Dore Road

Viewshed Analysis

Viewshed 8 is located on Dore Road at the northern boundary extents of the study area. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows a broad zone of visual exposure located in the western third of the study area running in a north south direction.

This result reflects two key features worth highlighting for discussion:

- The viewshed location is set on higher terrain within the central ridgeline formation previously discussed in earlier sections of this report. This relatively elevated position over the valley floor land to the south and west has resulted in consistent visual exposure across the lower lying land. The eastern embankment of the neighbouring ridgeline to the west, which is partly occupied by the residential development of Cardinia Lakes, is also visible for the same reasons.
- Secondly, that the area to the east of the viewshed location is not exposed. This is most likely due to the rising terrain to the east of Dore Road which forms the higher ridgeline formation. This topography characteristic appears to be restricting views to the east for the most part from this location.

The furthest extents of visual exposure in the south west corner of the site is approximately 3km from the viewshed location.

Field Work Assessment

The image below shows the view from this location looking south from Dore Road at the common intersection with the northern study area boundary. This is a high point in the study area. Existing mature, potentially remnant trees line sections of the Dore Road reserve providing some screening of views to the south. However, gaps in the existing vegetation afford expansive views across the undulating rural terrain to the south west, the valley floor associated with Deep Creek and the residential development of Cardinia Lakes located on a ridgeline beyond the western boundary. The rising terrain to the east of this location limits views to the study area to a patch of rural land immediately adjoining Dore Road.

The existing transmission line is prominent in the view as it runs east to west across the study area.

With the inclusion of factors such as existing vegetation, this assessment shows that the area potentially visible identified by the viewshed analysis is reduced in part. The land to the south of the Princes Highway is certainly obscured or in some cases screened from view, mostly as a result of the existing vegetation along Dore Road.

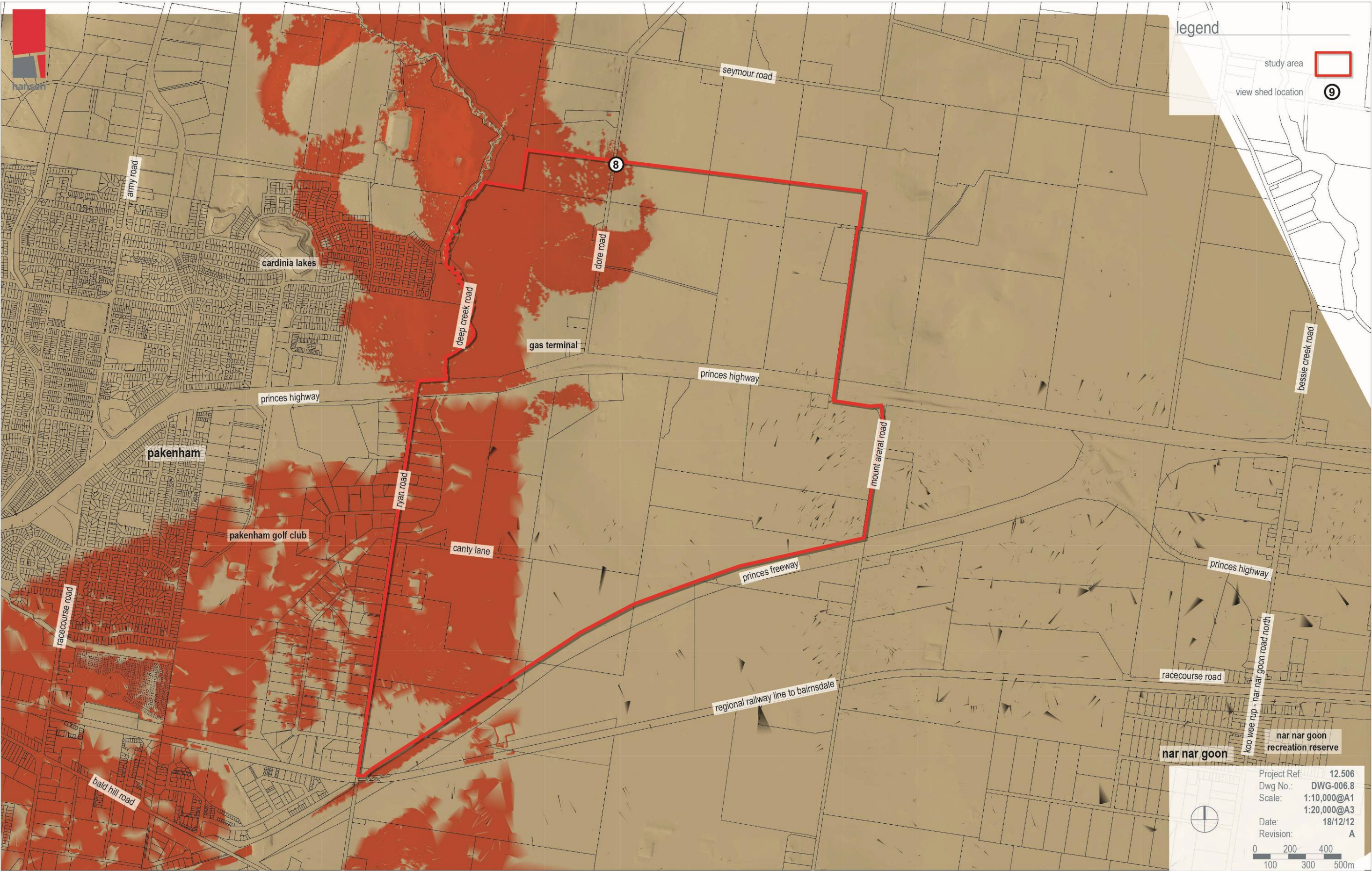


Blow up of highlighted area



Dore Road looking south

pakenham east precinct landscape assessment | view shed location 8



3.14 Viewshed location 9 – Ryan Road

Viewshed Analysis

Viewshed 9 is located on Ryan Road at the south west boundary extents of the study area. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows a broad area of visual exposure occupying the south west quarter of the study area. This reflects the relatively low lying terrain of this land resulting in a broad area of visual exposure.

The study also indicates exposure on the western embankment of the central ridgeline to the north of the Princes Highway. This area is approximately 1.5km from the viewshed location.

A narrow band of visual exposure is also detected on the south eastern boundary of the study area adjacent Mount Ararat Road.

Field Work Assessment

The image below shows the view from this location looking north east across the study area from Ryan Road. This location is elevated above the adjoining low lying cleared rural pasture affording expansive views across the study area and the undulating foothills located to the north east.

The existing residential dwellings and associated planting screen views tending to the north. Dense vegetation associated with the private property on Canty Lane is prominent in the middle ground. This vegetation also prevents views to the low lying land immediately to the north of Canty Lane.

An elevated ridgeline land form is also visible from this location marked by the existing rural settlement located at 2686 Princes Highway. This settlement is located on elevated land that continues to the north of the Princes Highway in the form of a ridgeline located towards the centre of the study area.

The horizon line is defined by the undulating foothills of the Dandenong Ranges which are located beyond the northern boundary of the study area. This is a prominent feature in the wider regional landscape.



Blow up of highlighted area



Ryan Road looking north east

pakenham east precinct landscape assessment | view shed location 9



3.15 Viewshed location 10 – Princes Freeway east bound

Viewshed Analysis

Viewshed 10 is located on the Princes Freeway east bound lane beyond the southern boundary of the study area. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The analysis shows a broad area of visual exposure in the south west corner of the site within a 500m distance from the viewshed location as well as a patch of exposure in the low lying land towards the centre of the site.

The Princes Highway is located approximately 1.5km from this location.

Field Work Assessment

The image below is taken from this location on the east bound lane of the Princes Freeway looking north across the study area.

The road reserve is elevated above the adjoining low lying pasture within the study area affording wide views across the study area from this location. It is noted also that the relatively recently installed road side planting is likely to screen views to the study area once it reaches maturity.

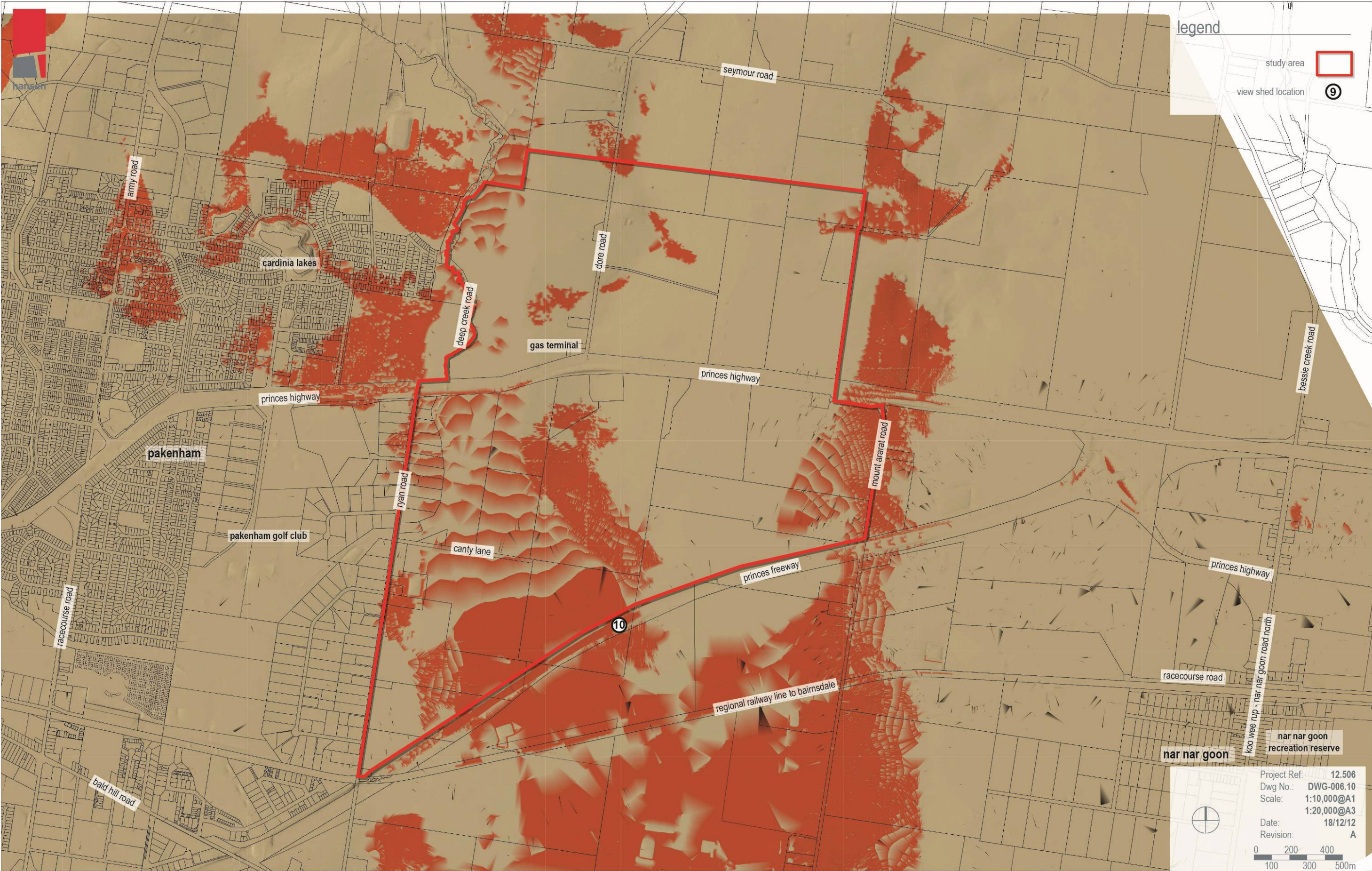
The elevated ridgeline located at the centre of the study area is prominent in the middle ground of the image. The existing rural settlement including buildings and wind break planting is located on the top of the ridge at 2686 Princes Highway and visible. This property is approximately 1.5km from this location.

The background and horizon is defined by the undulating and vegetated hills of the Dandenong Ranges.



Princes Freeway looking north

pakenham east precinct landscape assessment | view shed location 10



3.16 Viewshed location 11 – Princes Freeway west bound

Viewshed Analysis

Viewshed 11 is located on the Princes Freeway west bound lane beyond the southern boundary of the study area. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite

The results show scattered visual exposure across the majority of the low lying land in the south east quarter of the subject site, south of the Princes Highway. This reflects the relatively gently rising terrain in this area which rises from the Princes Freeway edge up towards the Princes Highway road reserve.

The analysis also indicates a consistent area of visual exposure to the north of the Princes Highway which reflects the land form of the southern and eastern embankment of the central ridgeline. This area of visual exposure is located approximately 2km from the viewshed location.

Field work assessment

The image below shows the view from this location on the Princes Freeway west bound lane looking north west across the study area.

There is minimal road side vegetation along this section of road and consequently this location affords clear views across the low lying terrain along the valley floor and to the ridge line at the centre of the study area.

The existing rural settlement at 2686 Princes Highway is a notable element within this view located on the top of the ridgeline.

A band of dense vegetation associated with the Prince Highway reads as a defining line at the base of the undulating land to the north.

The ridge line features prominently in this view and appears as part of a series of undulating land forms, which rise and fall in the land to the north of the study area. The vegetation located around existing rural properties and along Dore Road lines the horizon line in the far distance.

Dore Road is approximately 2.3km from this location.

The ridge line land form and vegetation obscures views to the study area to the west of Dore Road.

This assessment generally confirms the extent of visible areas shown in the viewshed map opposite.



Blow up of highlighted area



Princes Freeway looking north west

pakenham east precinct landscape assessment | view shed location 11



3.17 Viewshed location 12 – Racecourse Road, Nar Nar Goon

Viewshed Analysis

Viewshed 12 is located on Racecourse Road at the north west extents of the town of Nar Nar Goon located approximately 1.5km south east of the study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite

The analysis highlights a pronounced band of visual exposure in a relatively confined linear band located towards the centre of the site, both north and south of the Princes Highway. This area is approximately 3km from the viewshed location. This result reflects the topography associated with the eastern and southern embankments of the central ridgeline formation which is located towards the centre of the site.

The analysis also highlights a small patch of land in the south west corner of the study area which corresponds with the slightly elevated terrain in this location and the land adjoining Ryan Road. This area is approximately 4km from the viewshed location.

Field work assessment

The image below shows the view from this location at the western extent of Race Course Road, Nar Nar Goon.

Scattered rural buildings, wind break vegetation and infrastructure occupies the low lying land in the foreground of the image. These elements screen views to the low lying parts of the study area. The south west corner of the study area is approximately 1.7km from this location.

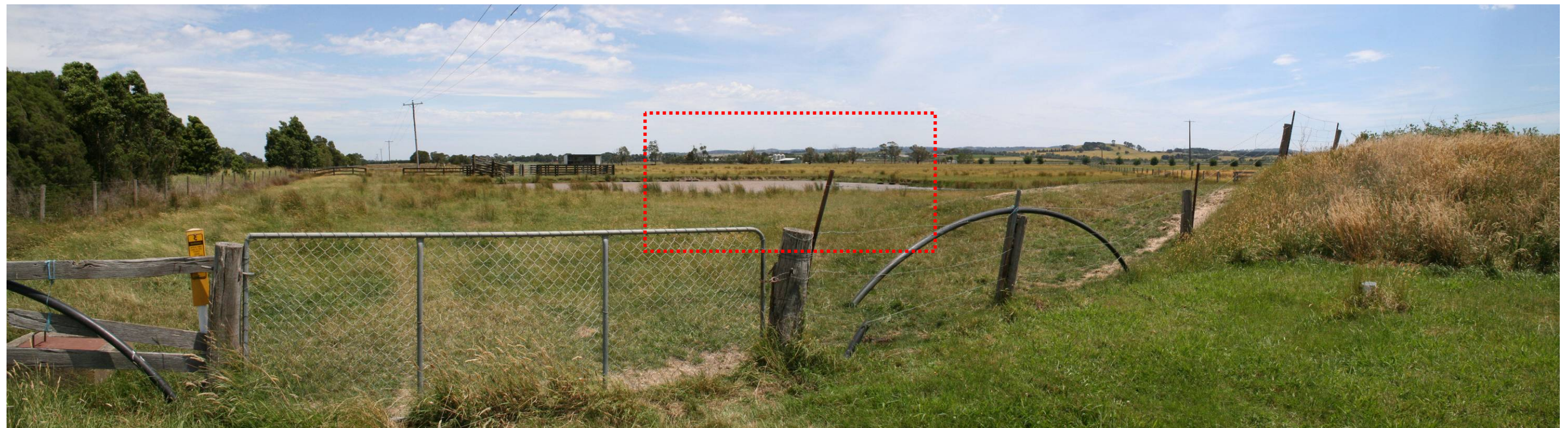
The extent of study area visible is limited to glimpses of the ridge formation at the centre of the study area. A glimpse of the dense windbreak vegetation located at the rural settlement at 40 Dore Road is discernable although at 3.9km from the viewing location it occupies a relatively small proportion of the field of view.

The undulating hills and vegetation of the Dandenong Ranges form the background of the image and line the horizon

Although glimpses of the study area are visible from this location, views are limited by both existing foreground obstructions such buildings and vegetation as well as the distance to the study area from this location.

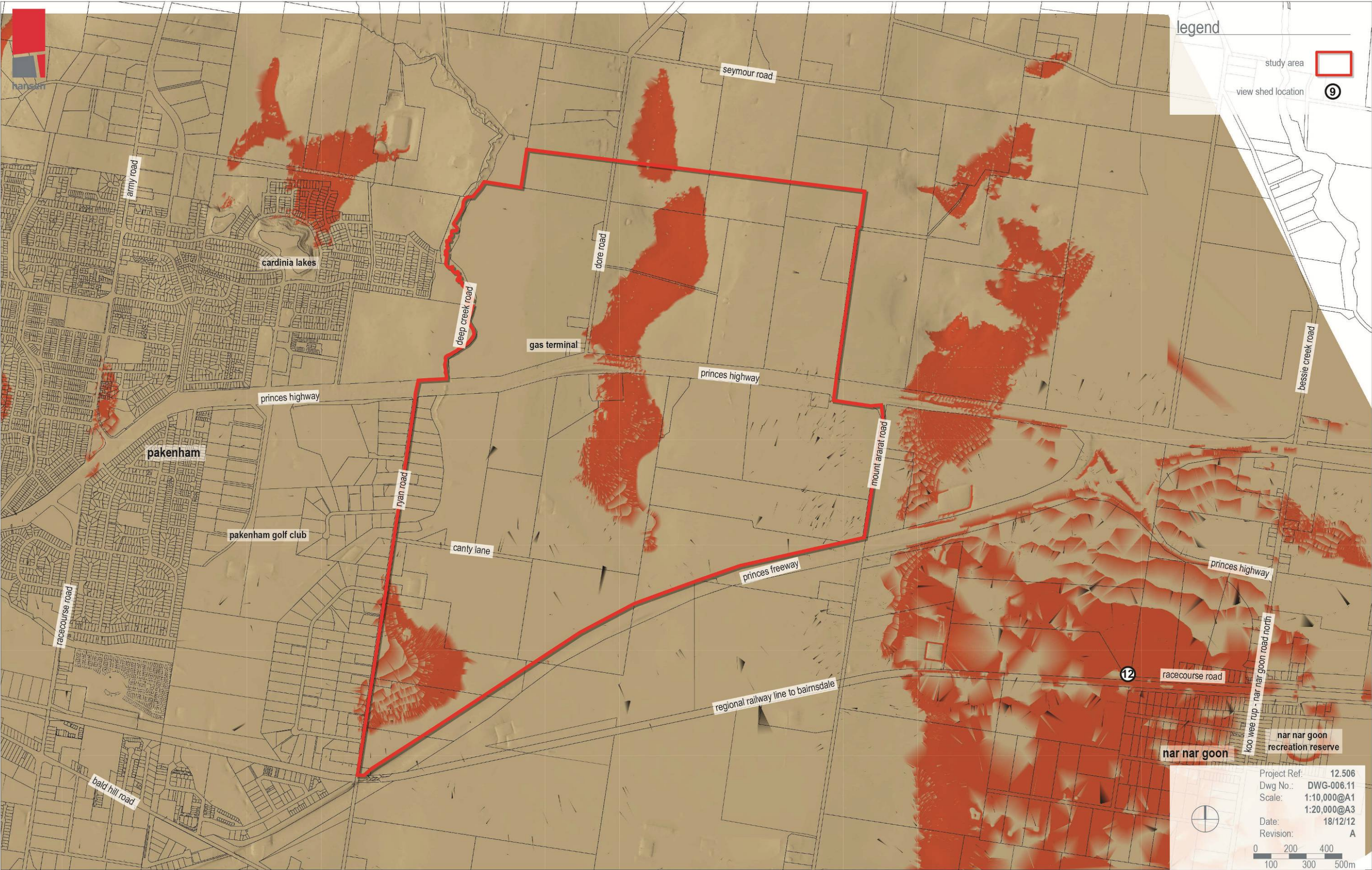


Blow up of highlighted area



Racecourse Road looking north west

pakenham east precinct landscape assessment | view shed location 12



3.18 Viewshed location 13 – Ryan Road

Viewshed Analysis

Viewshed 13 is located on Ryan Road at the south west corner of the study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite

The results from this location indicate limited visual exposure across the majority of the study area. A narrow sliver of land is detected approximately 3.5km from the viewshed location. This reflects the western embankment of the central ridgeline land formation.

Field work assessment

The image below shows the view from this location on Ryan Road looking north east across the study area. The roadside vegetation along the Princes Freeway screens views to the south (right of image).

A gentle rise in the terrain within the foreground of the image restricts the extent of views from this location to a distance of approximately 300m.

Views tending further north are screened by the existing residential properties and associated built form and vegetation.

The undulating hills of the broader Dandenong Ranges landscape to the north of the study area are visible within the background line of the image.

For the reasons described above, the portion of study area adjacent to Dore Road indicated on the viewshed map, approximately 3.5km away, is barely discernable from this location and can therefore be discounted.

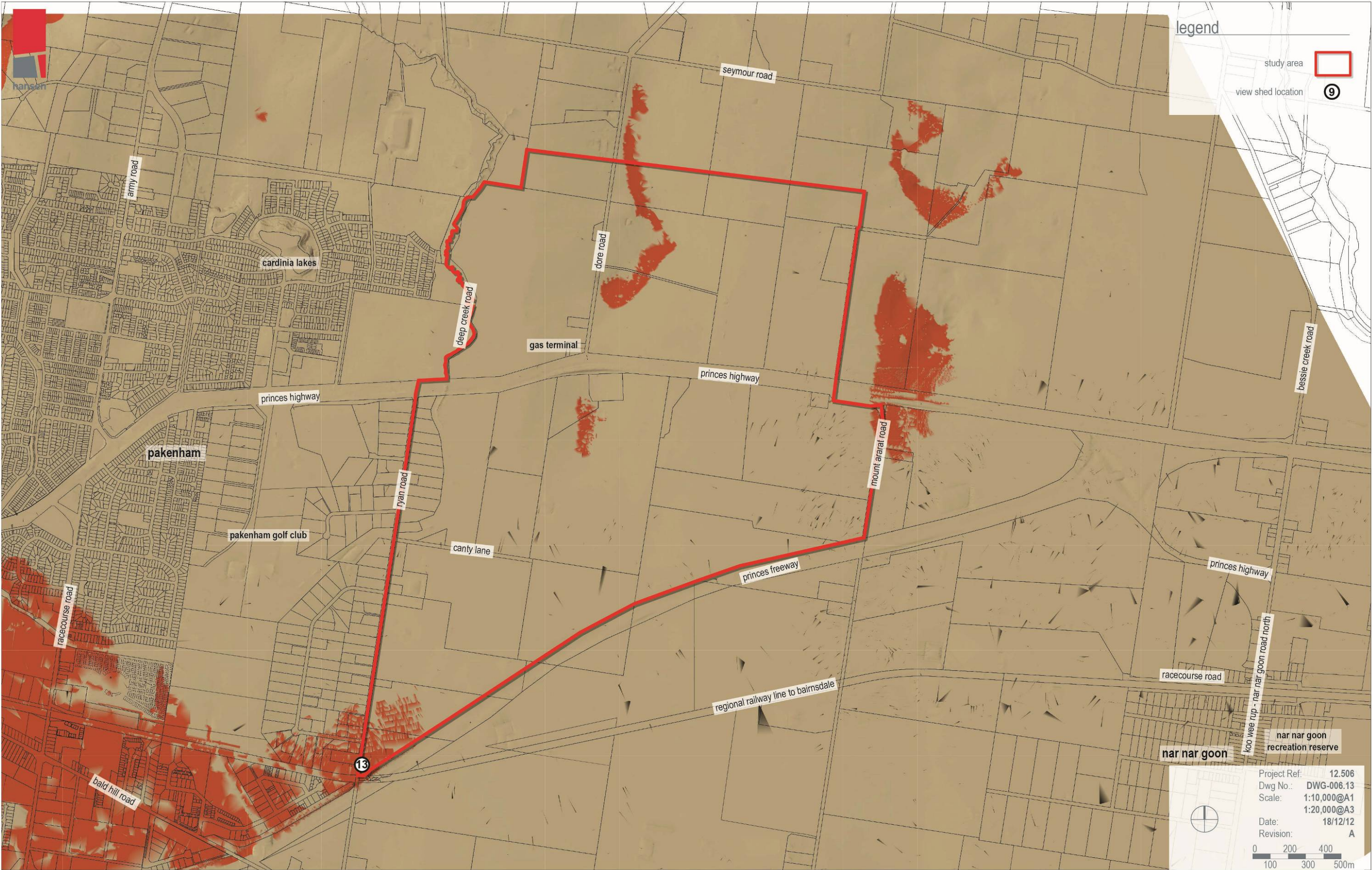


Blow up of highlighted area



Ryan Road looking g north east

pakenham east precinct landscape assessment | view shed location 13



3.19 Viewshed location 14 – Tahoe Court Viewshed Analysis

Viewshed 14 is located at the eastern end of Tahoe Court. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The viewshed map shows that the western embankment of the ridgeline located at the centre of the study area is potentially visible including Dore Road and the existing rural settlement at 2686 Princes Highway.

The analysis also indicates potential views to the low lying study area land along the valley floor to the east and south of the Princes Highway, including a section of the Princes Freeway road reserve.

Field Work Assessment

The image below shows the view from this location in a vacant lot at the end of Tahoe Court. This an elevated viewpoint which affords wide views to the east across the valley floor towards the study area.

The existing transmission is prominent in this view as it runs in an east west direction through the northern part of the study area.

The dense band of vegetation which lines Deep Creek and Deep Creek Road is visible within the middle ground of the image.

The ridge line which runs through the centre of the study area in the vicinity of Dore Road is also visible in the background of the image. The existing vegetation along Dore Road and adjoining rural settlements contributes positively to the landscape and breaks up the sequence of cleared rural pasture land.

The bands of vegetation along Deep Creek, Dore Road and the ridgelines and properties to the east reinforces the scene in the middle and background as a series of undulating ridgelines, including the ridgeline at the centre of the study area, with the wider hills of the Dandenong Ranges lining the horizon.

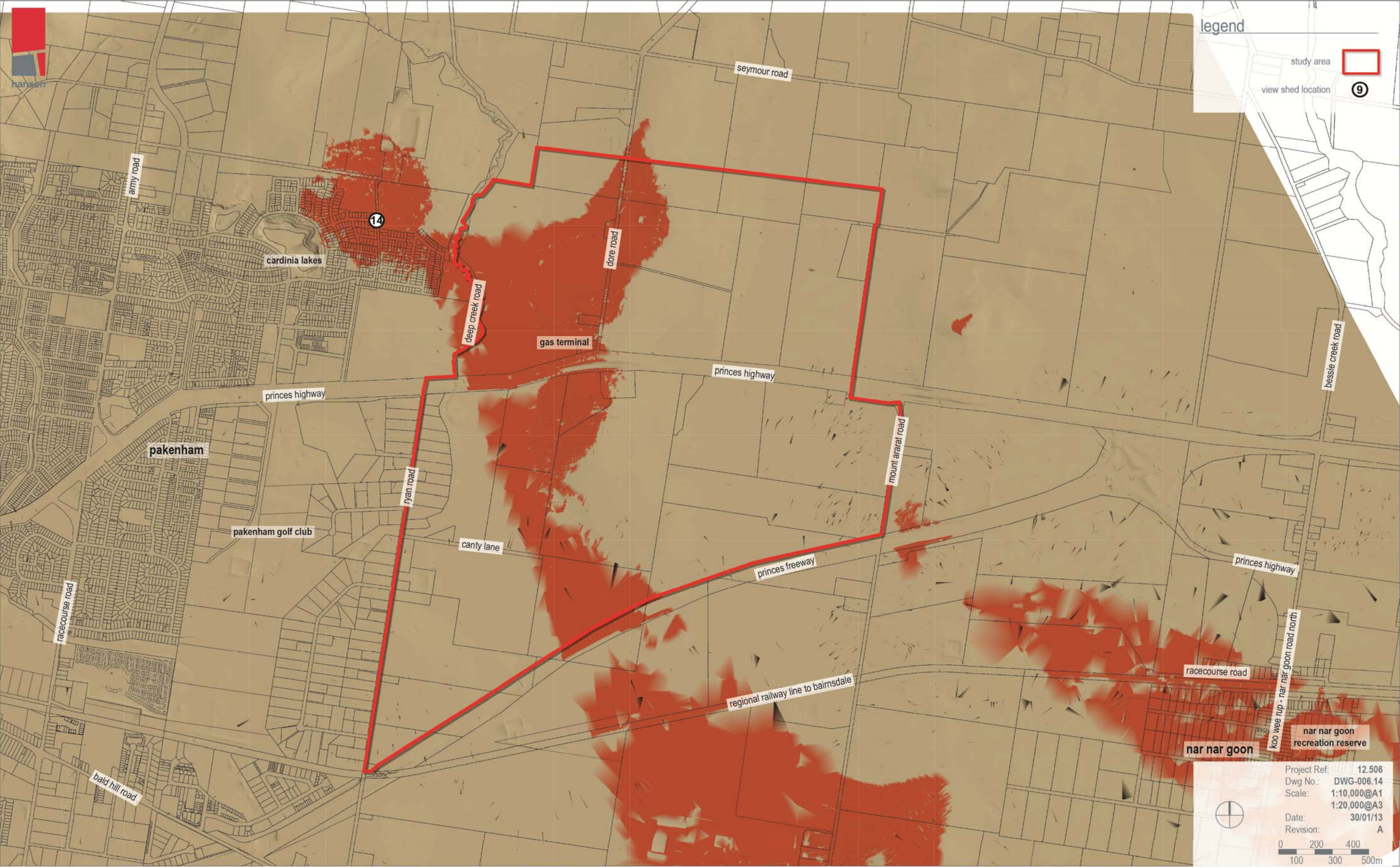


Blow up of highlighted area



Tahoe Court looking east and south east

pakenham east precinct landscape assessment | view shed location 14



3.20 Viewshed location 15 – Seymour Road Viewshed Analysis

Viewshed 14 is located on Seymour Road approximately 500m north of the study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The eastern embankment of the ridgeline located at the centre of the study area is highlighted as potentially visible from this location. Similarly the land around the existing rural settlement at 2686 Princes Highway is highlighted as potentially visible.

Field Work Assessment

The image below shows the view from this location taken from the south west corner of Seymour Road looking south west towards the study area. The nearest study area boundary is approximately 500m from this location.

The view looks across undulating rural land including farm infrastructure and fencing. A gentle rise in the foreground terrain obscures views directly to the south. The terrain also falls to the west affording some views across low lying rural pasture and the study area to the south west.

The ridgeline land formation located towards the centre of the site is visible to the south west. The existing vegetation located along Dore Road lines a stretch of the horizon line to the south west. This vegetation is approximately 1.7km from this location.

A glimpse of the existing rural settlement and associated wind break vegetation is visible on the elevated ridge located to the south of the Princes Highway in the far distance. This property is approximately 2.3km from this location.

The existing transmission line located within the study area breaks the horizon line.

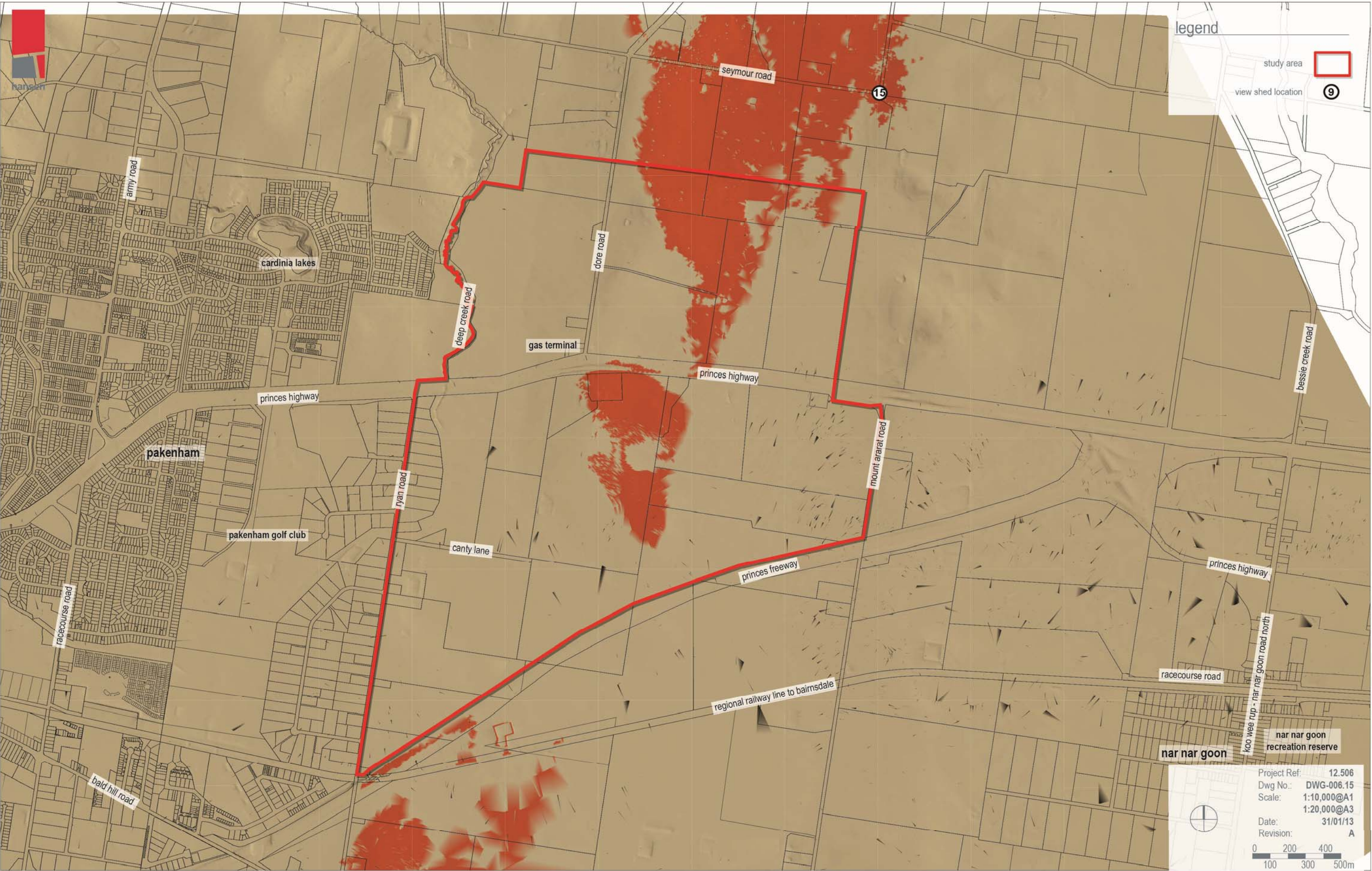


Blow up of highlighted area



Seymour Road looking south and south west

pakenham east precinct landscape assessment | view shed location 15



3.21 Viewpoint 16 – Deep Creek Road

Viewshed analysis

Viewshed 14 is located on Deep Creek Road at the north west corner of the study area boundary. The results have been mapped and areas of visual exposure are shown shaded in red on the page opposite.

The map shows that the western embankment of the ridgeline located at the centre of the study area is potentially visible from this location. This result is responding to the rising topography from Deep Creek Road up to the ridgeline in this part of the study area.

A short section of the Princes Highway road reserve is highlighted in addition to low lying land to the south of the Cauty Lane.

Field Work Analysis

The image below shows the view from Deep Creek Road looking east across the study area. A clearing in the roadside vegetation affords a wide view across low lying cleared pasture.

An existing rural settlement including associated agricultural buildings and vegetation at 208 Deep Creek Road is visible in the left hand side of the image.

The existing transmission line features prominently in this view.

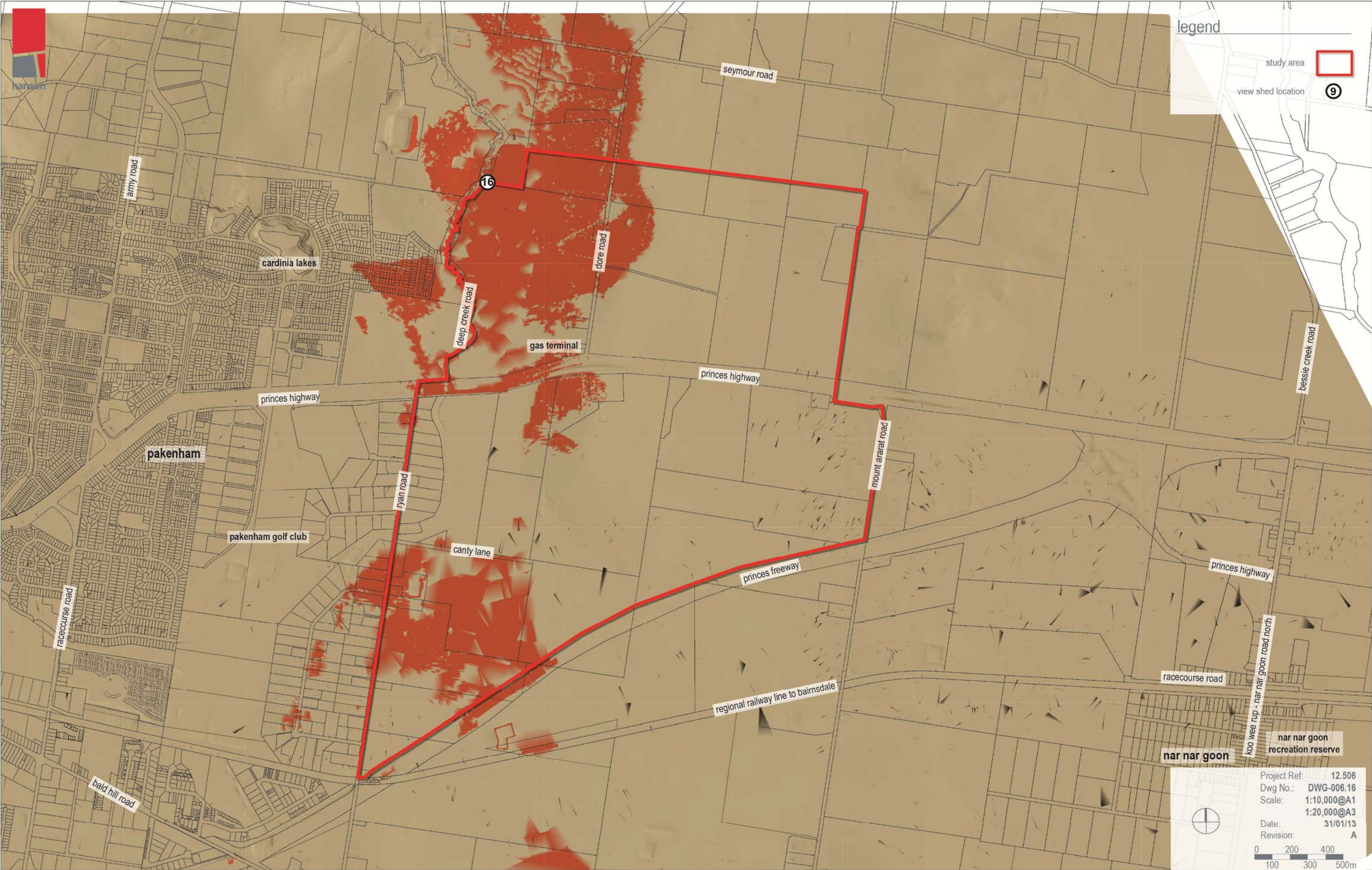
The view also takes in the view towards the western embankment of the ridge line located at the centre of the study area. The tree canopies from the vegetation located along Dore Road and the land to the east line the horizon line in the background of the image.

The study area to the south of the Princes Highway is not visible from this location as it is screened by existing vegetation located within the road reserve.



Deep Creek Road looking east and south east

pakenham east precinct landscape assessment | view shed location 16



3.22 Degrees of visual exposure

Through a detailed analysis of each viewshed location accompanied by on ground assessment we have been able to assemble an overall picture of the relative visual exposure of the study area from a range of views both surrounding the study area and from key roads.

By overlaying these results we have been able to identify common underlying themes in the mapping. These have been categorised into broad groups as follows:

- **Very high visual exposure**
- **High visual exposure**
- **Medium visual exposure**
- **Low visual exposure (negligible)**

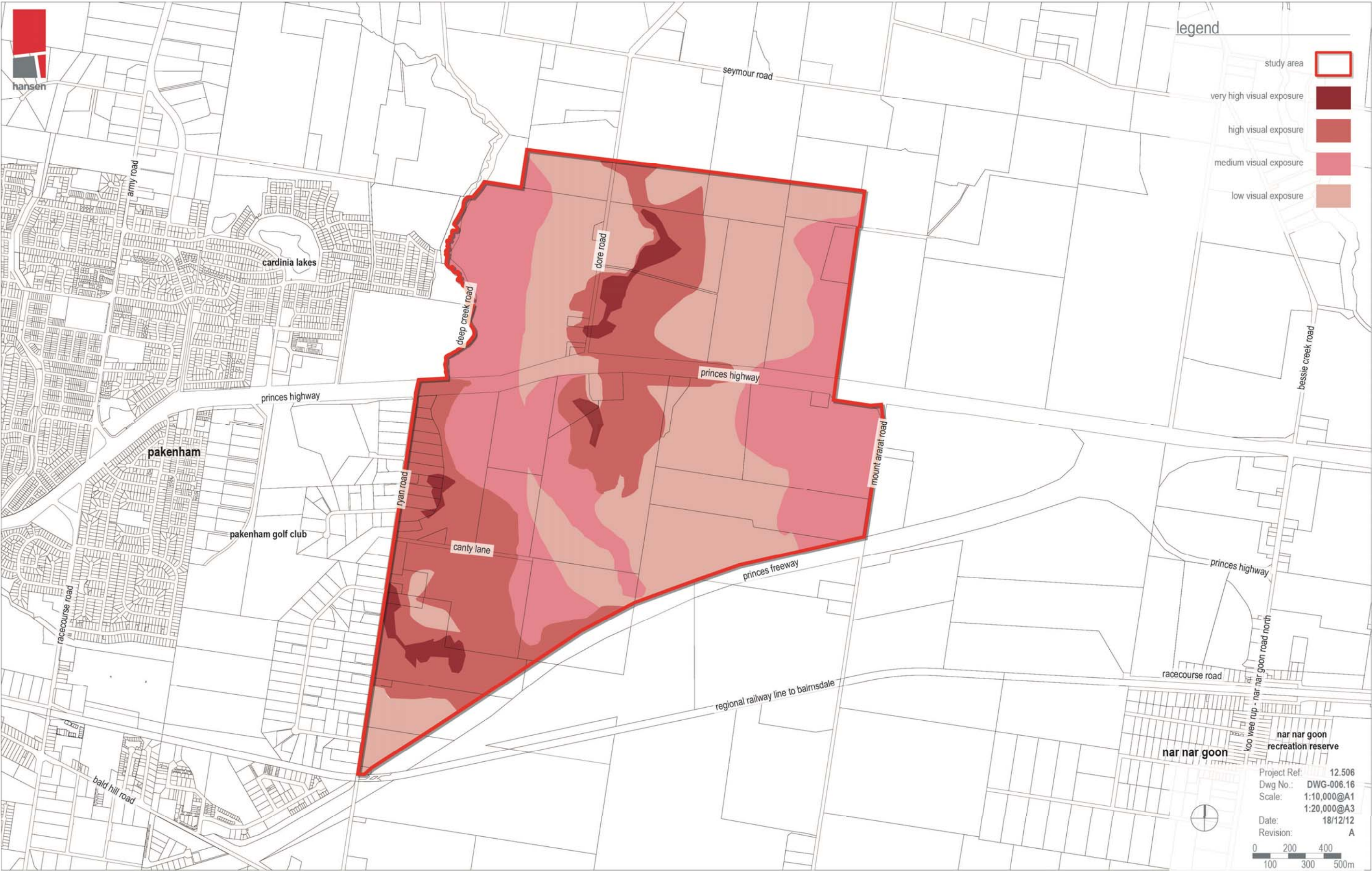
This breakdown is shown graphically in the degrees of visual exposure map on the opposite page.

The analysis shows that areas of very high visual exposure are consistently found on the upper extents of the ridgeline located towards the centre of the site. This area is a relatively narrow band of terrain which runs in a north south direction from the northern boundary to a location approximately 500m south of the Princes Highway.

A second consistent area of very high visual exposure is the land along the south western boundary from the Princes Highway to the southern corner of the study area. However, the field work assessment indicates that in most cases this land is screened or filtered from view by existing vegetation.

This analysis also reflects the common findings of the viewshed analysis in relation to the impact of the undulating topography within the study area and the prominence of the central ridgeline as part of a wider land formation associated with the foothills of the Dandenong Ranges.

pakenham east precinct landscape assessment | degrees of visual exposure



4 Landscape characterisation

This section of the report focuses on describing the visual landscape character of the study area as a basis for the landscape assessment by identifying the main natural, rural and built characteristics of the study area and through detailed descriptions the key features which characterise the landscape.

4.1 The broader landscape character

Despite the neighbouring urban fringe of Pakenham to the east, the study area sits within a predominantly rural setting and the majority of the study area can be described as cleared pasture land of varying topography and use.

The more densely vegetated and tree lined landscape associated with the Deep Creek Riparian area along Deep Creek Road and the western study area boundary is characterised by a more enclosed, shaded landscape experience with intermittent views across the study area's open pasture to the east.

The Princes Highway bisects the site in an east west direction and the associated grading of this major road and the adjoining roadside vegetation results in a landscape character which is often distinct from the surrounding land.

A small triangular patch of land located in the south west corner of the study area features existing dense remnant bushland and trees and is part of an existing property which is accessed via Cauty Lane off Ryan Road.

Finally, a section of Ryan Road between the intersection of the Princes Highway and Cauty Lane is characterised by the "Rural Living" style properties set within large landscaped gardens.

4.2 Defined landscape units

Through this analysis, a number of individual and distinct landscape units can be identified within the study area as follows:

- **Unit 1 - Elevated pasture**
- **Unit 2 – Low lying pasture**
- **Unit 3 – Riparian**
- **Unit 4 – Princes Highway**
- **Unit 5 – Remnant bushland**
- **Unit 6 – Rural residential**

These are shown graphically in the Landscape Character Units Map shown opposite.

hansen

legend

- study area
- elevated pasture
- low lying pasture
- riparian
- princes highway
- remnant bushland
- rural residential

nar nar goon recreation reserve

Project Ref: 12.506
 Dwg No.: DWG-005
 Scale: 1:10,000@A1
 1:20,000@A3
 Date: 18/12/12
 Revision: A

0 200 400
 100 300 500m

seymour road
 army road
 cardinia lakes
 pakenham
 pakenham golf club
 racecourse road
 bald hill road
 deep creek road
 dore road
 gas terminal
 canty lane
 princes highway
 princes freeway
 regional railway line to bairnsdale
 koo wee rup - nar nar goon road north
 bessie creek road
 mount ararat road

4.3 Landscape Unit 1 - Elevated Pasture

Landscape Unit 1 – Elevated Pasture is characterised by elevated undulating predominantly cleared pasture land with expansive views to neighbouring ridgelines and the distant landscape.

This landscape unit is located in the northern and central study area and in a small pocket of land located in the north east corner.

The key characteristic of this landscape unit is the influence of elevated topography in the form of a pronounced ridge line which extends down through the study area from the northern foothills towards the lower lying land to the south. This undulating terrain slopes down to the lower lying land which occupies the valley floor areas to the west, east and south of the study area.

Other features of this landscape unit are the predominantly cleared pasture land and scattered plantings of both native and exotic vegetation located generally along fence lines, driveways and road reserves.

Occasional residential settlements including the farm buildings, dwellings and associated infrastructure such as dams, sheds and fencing are located within this area contributing to the overall rural landscape character.

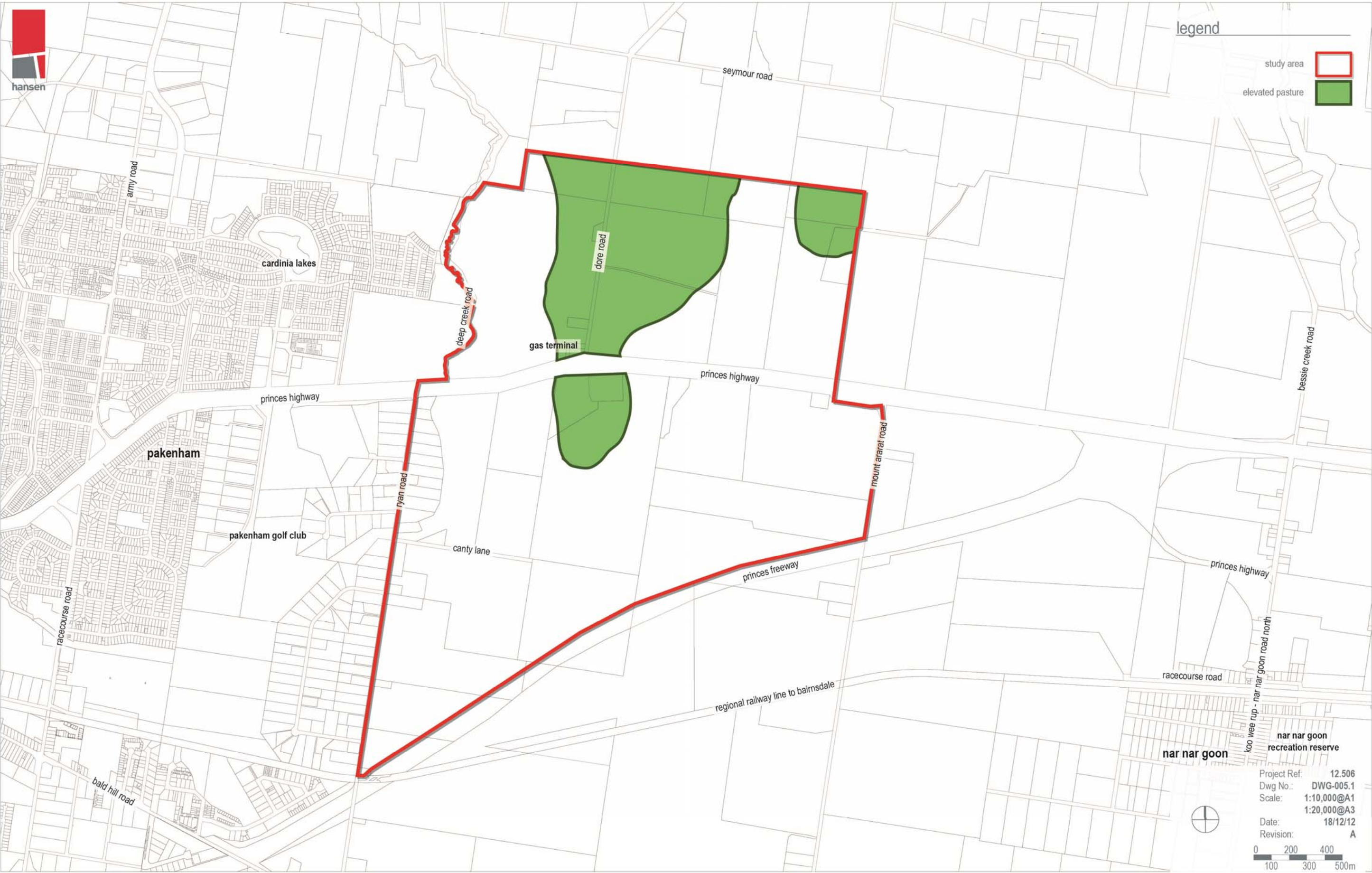
Gaps between existing road reserve vegetation along Dore Road afford expansive, long views to the south and east across cleared pasture land. The views to the west are restricted to the cleared pasture within the foreground due to the rising land formation located beyond the western study area boundary.

An existing power line which runs along the northern study area boundary is also characteristic of the Elevated Pasture landscape.



Elevated Pasture landscape character, Dore Road looking south towards the study area

pakenham east precinct landscape assessment | landscape character - elevated pasture



4.4 Landscape Unit 2 - Low Lying Pasture

Landscape Unit 2 – Low Lying Pasture is characterised by predominantly cleared and generally level pasture land located in the lower lying land at the base of the central ridgeline.

This landscape unit occupies land to the east, west and south of the central ridgeline within the study area, and the land predominantly to the south of the Princes Highway.

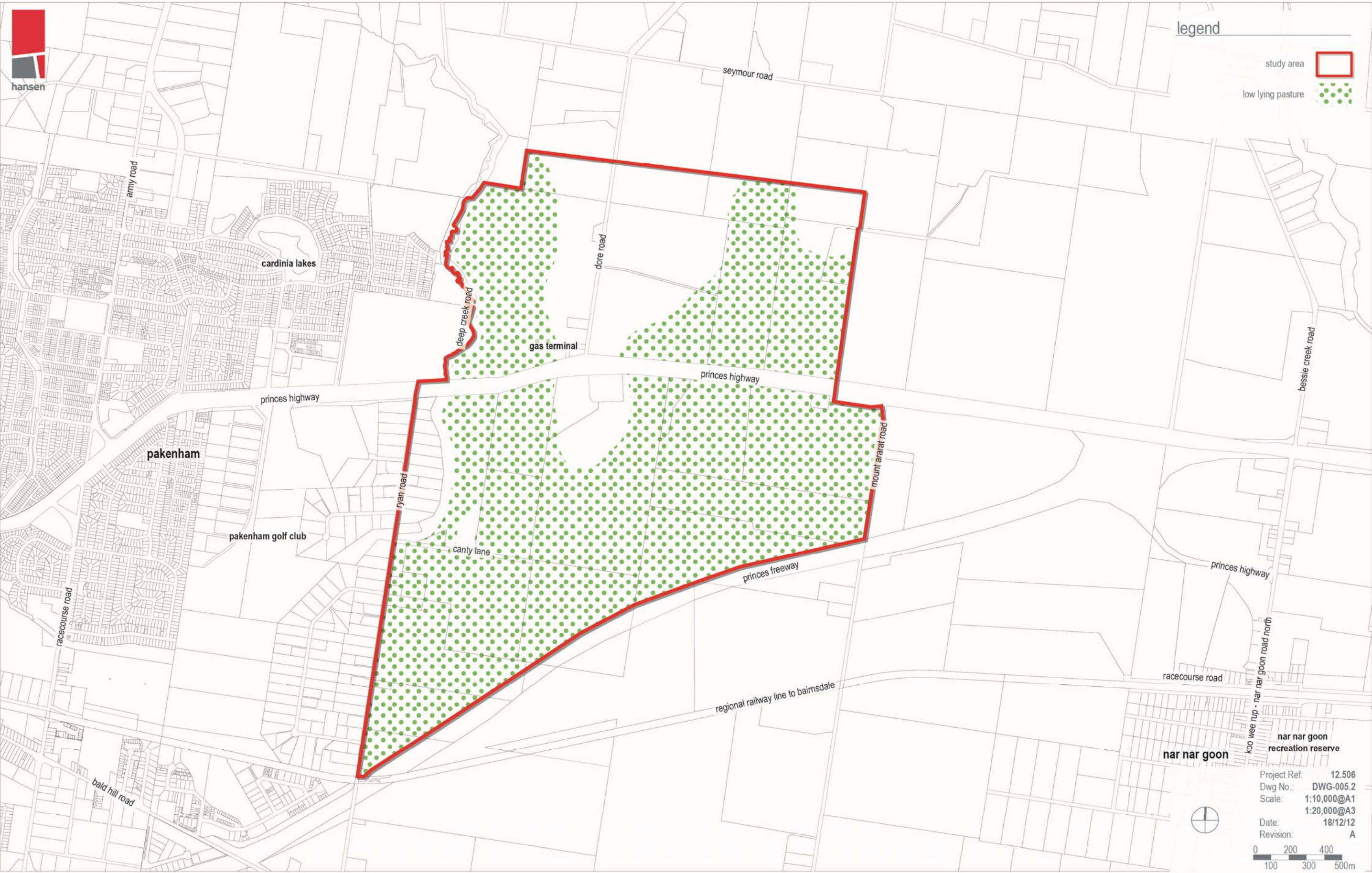
This unit is characterised by long views across cleared pastureland. Scattered buildings and farm infrastructure contribute to the character of this part of the study area.

Low Lying Pasture is also characterised by scattered existing native and exotic vegetation located around existing dwellings, along fence lines and road reserves.



Low Lying Pasture landscape character, view looking south from Princes Highway

pakenham east precinct landscape assessment | landscape character - low lying pasture



Landscape Unit 3 – Riparian

Landscape Unit 3 – Riparian is principally concerned with the distinct landscape character associated with the Deep Creek water way and the more densely vegetated landscape located along Deep Creek Road.

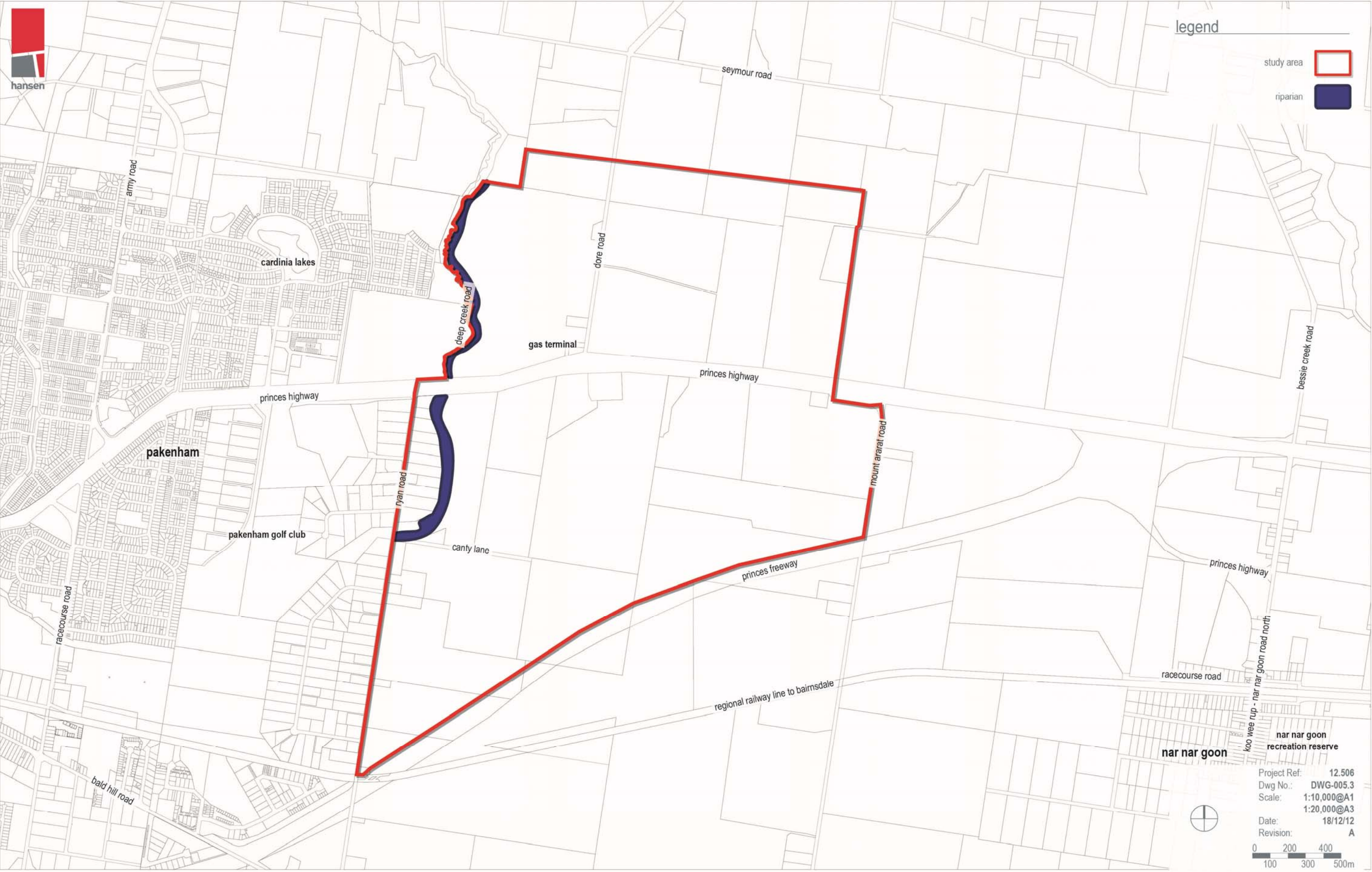
The Riparian landscape is located within a relatively narrow band, no more than 20m wide, either side of Deep Creek which runs from the north west corner of the study area in a generally southerly direction to the intersection with Ryan Road on the western boundary.

Existing exotic and native vegetation (predominantly native) located along the banks of Deep Creek and within the Deep Creek Road reserve creates a more enclosed landscape experience and restricts some views to the surrounding landscape to the east and west. It should be noted that this varies along the length of Deep Creek Road and, at some locations along the road, breaks in the vegetation allow views across pastureland to the east and west.

At the time of inspection, Deep Creek was a relatively minor water body which had cut into the landscape through the ongoing effect of erosion. Views to the actual water are limited to glimpses from the top of the embankment and are generally not attainable from Deep Creek Road.



pakenham east precinct landscape assessment | landscape character - riparian



4.5 Landscape Unit 4 - Princes Highway

Landscape Unit 4 – Princes Highway is associated with the landscape character of the Princes Highway which bisects the centre of the study area running in an east west direction.

The Princes Highway is a highly modified landscape comprising a linear road form with two lanes travelling in each direction. A road reserve is located on the northern and southern sides planted with predominantly native vegetation.

A wide central median divides the two road surfaces and is generally planted densely with predominantly native vegetation.

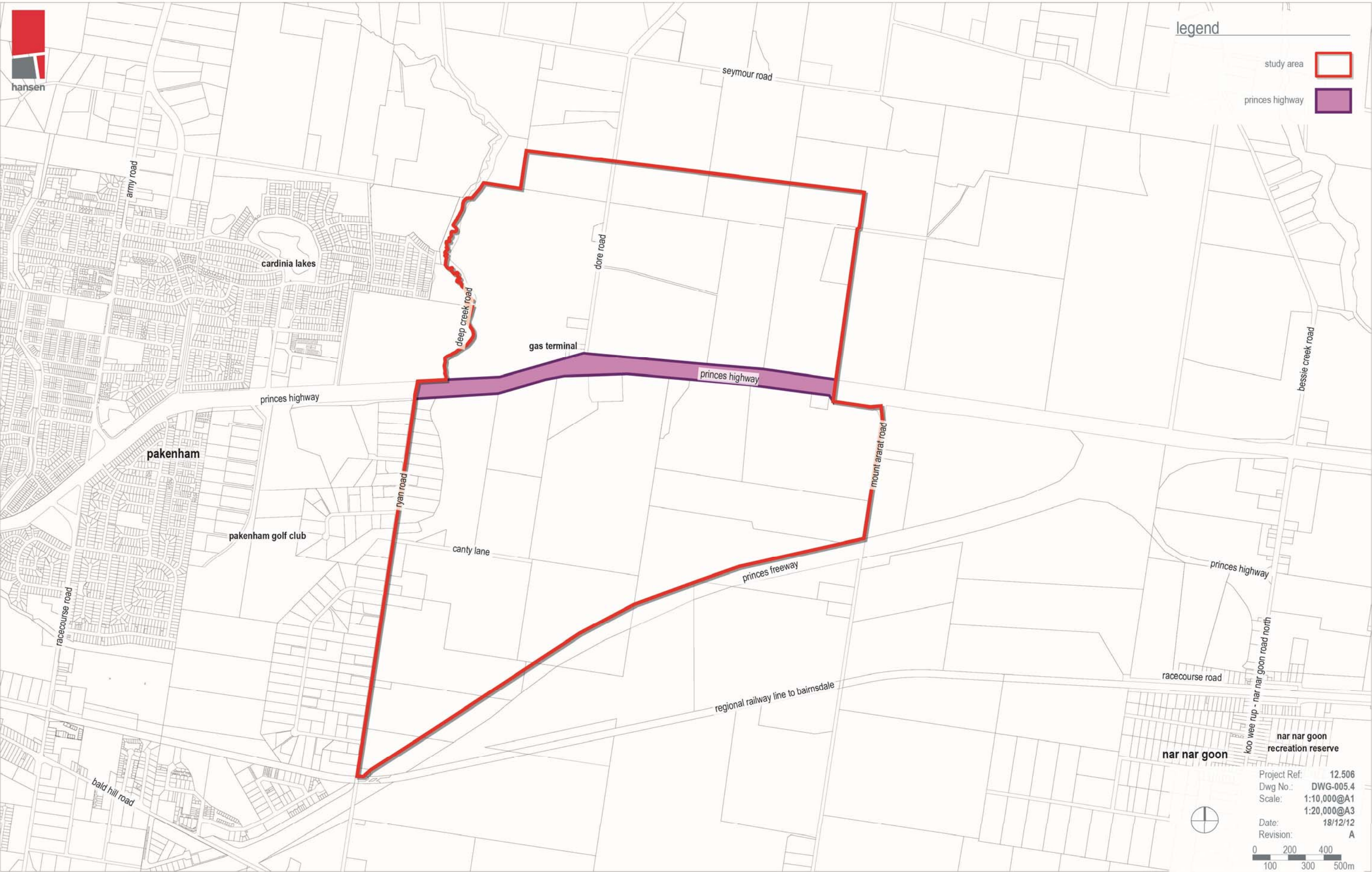
Occasional breaks in the roadside vegetation allow views across the study area and to the distant landscape in some locations.

The road surface itself is generally elevated above the surrounding landscape in most locations.

Road signage and other associated roadway infrastructure also characterise the character of the Princes Highway.



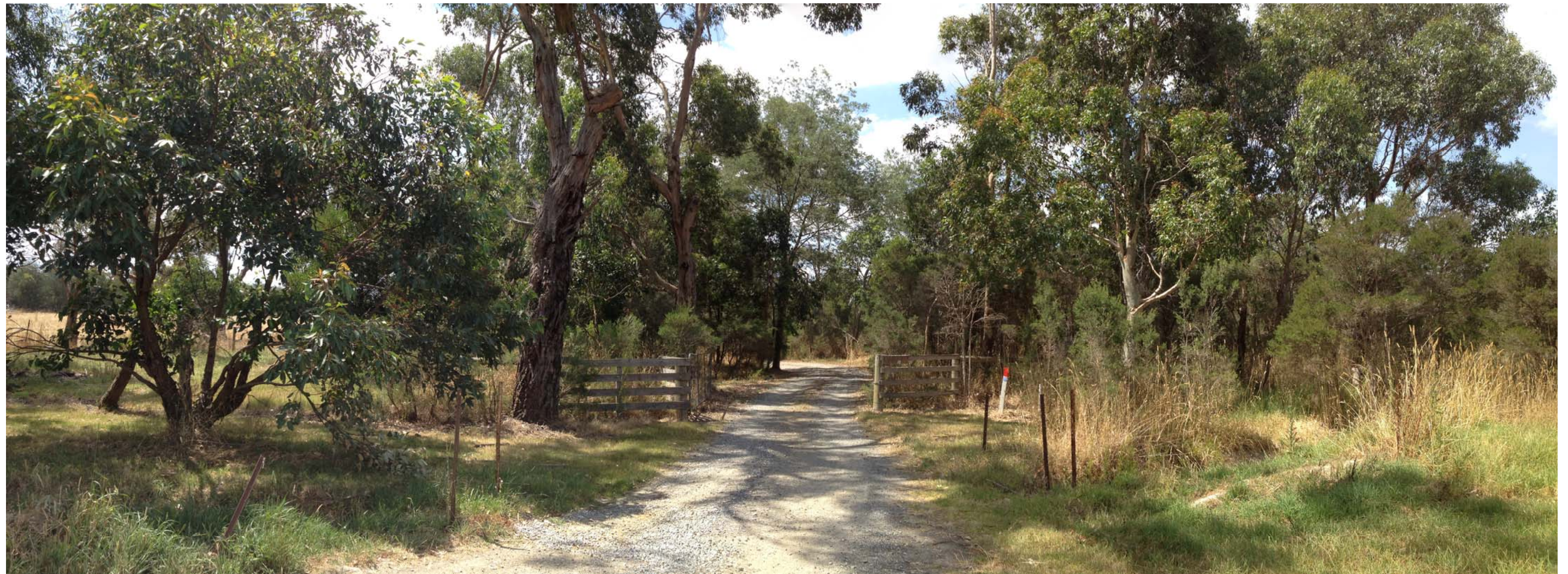
pakenham east precinct landscape assessment | landscape character - princes highway



4.6 Landscape Unit 5 - Remnant Bushland

A relatively small patch of what is likely to be at least in part remnant bushland interplanted with younger trees as part of a revegetation strategy. This area is located in the south west corner of the study area within a private property accessed via a long unsealed driveway off Canty Lane.

The landscape character of this area is defined by dense native vegetation and tree canopies which restrict views to the surrounding landscape and the study area.



pakenham east precinct landscape assessment | landscape character - remnant bushland



4.7 Landscape Unit 6 - Rural Residential

Landscape Unit 6 – Rural Residential is associated with a neighbourhood of rural residential properties located on Ryan Road south of the Princes Highway and along the western study area boundary.

This section of Ryan Road from the intersection with the Princes Highway heading south to the intersection with Deep Creek is a sealed road. The landscape is characterised by intermittent planting of native and exotic vegetation both within the road reserve and set within large private front gardens of properties in this area. Timber pole power lines are located along the road alignment. The vegetation and residential buildings in this area restricts views to the surrounding landscape and to the study area from Ryan Road.

The residential setting is often characterised by large formal open grounds and landscaped gardens utilising a range of front fence and gate treatments, screening vegetation and hedges which reflect the semi rural setting of this location. Large open grassed front gardens and driveways are also a common characteristic of the landscape setting in this area.



5 Landscape Values Assessment

This section of the report provides an evaluation of the way the visual landscape character is viewed, experienced and valued. This is achieved through the following:

- A discussion of the relative value of different landscapes within the study area. What is it about the landscapes features and views that are valued?
- Identification of viewing locations
- Identifying the viewers or receptors of the landscape
- A description of the how the landscape is experienced. What are the important views and where are they seen from?

The landscape values assessment is also informed by the preceding analysis of the landscape character and the viewshed analysis.

The aim of this exercise relates directly to the overall project objective to identify important landscape areas for consideration in the development of a precinct structure plan.

Landscape values

It is generally accepted that the nature of landscape values varies from person to person and relies largely on the perceptions of individuals based on factors such as cultural backgrounds, education and economic circumstances etc. For the purposes of this study a set of broad landscape character preference indicators have been developed through the lens of hansen partnership as a professional office of landscape architects, urban designers and planners.

To ensure that the methodology is based on sound practice, this landscape assessment reflects the methodology outlined in the guidelines provided by the *Visual Landscape and Planning in Western Australia* (the guidelines). These guidelines identify a number of generic landscape character preference indicators that can be applied to 3 broad land categories: natural, rural and built landscapes.

Given that the study area consists of largely cleared rural pasture, it is considered appropriate to focus on the preference indicators for the rural landscape category.

As described in the guidelines, the preference indicators can be classified in to two preference categories: **most preferred** and **least preferred**.

Most preferred features

The most preferred landscape character indicators for the study area include:

- Significant landscape features such as tree stands, historic relics, windmills and areas of unusual topographic variation
- Distinctive remnant vegetation located along streamsides, roadsides, and in paddocks.
- Settlement patterns and individual structures that strengthen the local rural character (silos, windmills, water tanks, historic buildings, bridges, hay bales and dams).
- Gradual transition zones between agricultural and natural landscapes
- Presence of water bodies (dams, lakes, inundated areas) that borrow location, shape, scale and edge configuration from natural elements.
- Unusual diversity in agricultural landscapes – colour, contrast or species diversity
- Agricultural patterns, colours, textures
- Gradual transition zones between agricultural land and natural landscape
- Areas or sites frequently prone to ephemeral features (presence of fauna, distinctive crop rotations, water conditions and climatic conditions).

Least preferred features

The least preferred landscape character indicators for the study area include:

- Areas of soil salinity/salt scalds or dead or dying vegetation
- Areas of extensive weed infestation
- Eroded areas
- Tips, dumps and land fill sites
- Land use areas that contrast significantly from natural landscape characteristics (plantations, mines, rural settlement, utility towers, roads and fencing).
- Abandoned structures in a state of disrepair or destruction
- Unmanaged roads or access tracks
- Farm structures in a state of disrepair
- Infrastructure installations such as gas stations and transmission lines
- Major roads, freeways and highways

The following section of the report explores these landscape value indicators through an assessment from a number of key viewing locations. These have been identified based on the outcomes of the viewshed analysis, landscape characterisation and extensive field work.

5.1 Landscape Values – Elevated Pasture

Preferred landscape indicators

The following preferred landscape indicators were noted during the field work:

- Existing vegetation including mature native trees located within the Dore Road reserve and exotic trees and wind break vegetation along fence lines and rural settlements.
- Undulating terrain and the prominent ridgeline located towards the centre of the study area
- Settlement patterns such as dams, dwellings and rural infrastructure.
- Proximity to a transition zone from the Dandenong Ranges to predominantly cleared rural pasture.



Least preferred landscape indicators

The following least preferred landscape indicators were noted during the field work:

- Scattered dead trees located within cleared rural pasture land
- The existing transmission line which runs in an east west direction within the northern part of the study area.
- Gas Terminal located off Dore Road towards the centre of the study area.
- Dead or dying vegetation within sections of the Dore Road reserve



Discussion

The elevated pasture landscape consists of undulating land at the southern extents of the broader foothills of the Dandenong Ranges. This undulating terrain is part of a series of folding ridgelines and valleys in the region which extend down generally from north to south to the wider, flatter valley floor landscape.

The image below shows the view looking north along Dore Road from within the Elevated Pasture landscape unit. The image shows the context of the Elevated Pasture landscape as a gradual transition from the undulating foothills of the Dandenong Ranges in the distance, to the more open, cleared rural land in the middle ground and the new residential developments of Pakenham to the west of the study area (left of the image).

The topography of the Elevated Pasture is a key feature of the study area and contributes positively to its overall landscape value.

The existing trees along Dore Road and adjoining settlements also contribute to the landscape value forming a distinctive feature of the landscape experience along Dore Road which contrasts with the surrounding cleared rural land. The vegetation along Dore Road is also visible from the surrounding landscape.

This is by no means a pristine landscape of high ecological value. The land is largely devoid of vegetation excepting the road reserves and settlements and there are a number of least preferred indicators such as the transmission lines and dead trees which have a negative effect on the overall value. However, the context of this part of the study area set within a wider land formation that is regionally significant is worthy of consideration.

Landscape Value - Moderate



5.2 Low Lying Pasture Landscape Values

Preferred landscape indicators

The following preferred landscape indicators were noted during the field work:

- Trees and wind break vegetation along fence lines and rural settlements.
- Settlement patterns such as dams, dwellings and rural infrastructure.

Least preferred landscape indicators

The following least preferred landscape indicators were noted during the field work:

- The landscape is largely devoid of vegetation.

Discussion

The Low Lying Pasture landscape is largely devoid of landscape features of note or value. The landscape is highly modified and has been cleared of vegetation. The landscape is viewed as a working agricultural landscape with scattered rural settlements and associated infrastructure reinforcing the experience.

Landscape Value - Low



5.3 Riparian – Landscape Values

Most preferred features

The most preferred landscape character indicators for the study area include:

- Dense tree and understorey vegetation located along the Deep Creek embankment and the Deep Creek Road reserve.
- The Deep Creek water way.



Least preferred features

The least preferred landscape character indicators for the study area include:

- Eroded Deep Creek embankment
- Weeds and dead trees located within the road reserve and embankment landscape.



Discussion

The Riparian landscape is located in the vicinity of the Deep Creek water way and the more densely vegetated landscape located along Deep Creek Road. Deep Creek Road is an unsealed road that meanders along the western boundary of the study area generally following the creek alignment.

The value of this portion of the study area is primarily associated with the canopy vegetation comprising mostly native trees. This vegetation closely hugs the waterway alignment and forms a distinct band along the valley floor which contrasts with the surrounding, largely cleared pasture and the new residential developments associated with Cardinia Lakes to the west of the study area.

The vegetation creates a pleasant sense of shade and enclosure when travelling along Deep Creek Road, with gaps allowing views to the cleared land to the east.

It should be noted that this area is by no means a pristine landscape. Elements such as the eroded creek embankment, some weed infestation within the road reserve and a number of dead or dying trees are not particularly desirable.

Although the eroded embankment means that the water body is not visible from the road, the Riparian landscape has feature of some landscape merit.

Landscape Value - Moderate



Deep Creek Road

5.4 Princes Highway – Landscape Values

Most preferred features

The most preferred landscape character indicators for the study area include:

- Dense, predominantly native vegetation located within the road reserve.
- Topographic features as the road undulates.



Least preferred features

The least preferred landscape character indicators for the study area include:

- The Princes Highway is a major sealed road.
- Areas of unmanaged road reserve in the vicinity of Dores Road.



Discussion

The Princes Highway, being a major road is highly modified. The existing vegetation located within the road reserve has some landscape value providing a dense visual buffer for long sections of the Princes Highway.

The landscape experience along the Princes Highway is for the most part defined by the combination of road side vegetation and undulating terrain. Most notably the Princes Highway passes through the ridgeline at the centre of the study area. In this location the road travelling west towards Pakenham passes through an engineered cutting with steep embankments rising above the road surface on either side. This has the effect of temporarily constraining views to the surrounding landscape.

The Princes Highway is generally a heavily built environment and features elements such as barriers and signage. The road reserve in the vicinity of Dores Road contains a stockpile and a wide expanse of unsealed surface.

Landscape Value - Low



5.5 Remnant Bush land - Landscape Values

Most preferred features

The most preferred landscape character indicators for the study area include:

- Dense vegetation including potentially remnant tree stands.

Least preferred features

The least preferred landscape character indicators for the study area include:

- None of note

Discussion

This landscape unit occupies private property accessed of Cady Lane in the south west part of the study area. The site appears to have been revegetated by the owners and dense native vegetation and new trees are a visible from the road reserve. The site also appears to contain a number of remnant trees. Overall these features make a positive contribution to the landscape.

Landscape Value - Moderate



5.6 Rural Residential Landscape Values

Most preferred features

The most preferred landscape character indicators for the study area include:

- Existing vegetation located within the road reserve on Ryan Road.
- A pattern of rural living style residential dwellings with typically large landscape front gardens and fencing treatments such as post and rail.



Least preferred features

The least preferred landscape character indicators for the study area include:

- Road way infrastructure and signage
- Transmission lines
- Sealed Road



Discussion

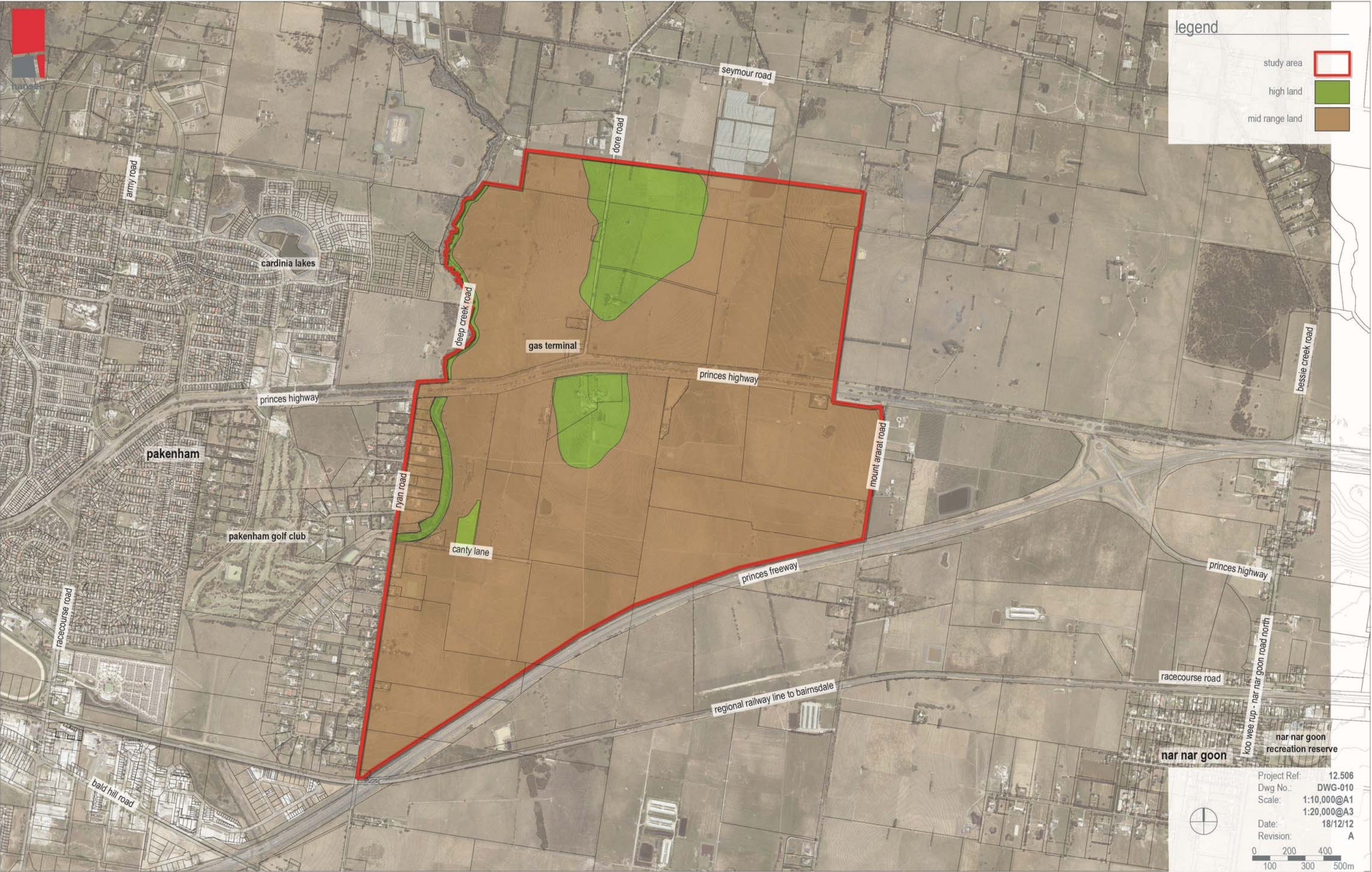
The rural residential landscape is a highly modified urban environment incorporating large dwellings within large allotments. The landscape reads as a neighbourhood and is characterised by front gardens, open lawns, formal driveways and front fences and hedgerows. Ryan Road is a sealed road surface lined with concrete kerbs and well manicured reserves. Existing trees in the road reserve contribute positively to the landscape.

While the landscape has a pleasant residential atmosphere the indicators described above do not lend themselves to high landscape value in the same way as a pristine remnant bushland or extraordinary topographic features.

Landscape Value - Low



pakenham east precinct landscape assessment | landscape values

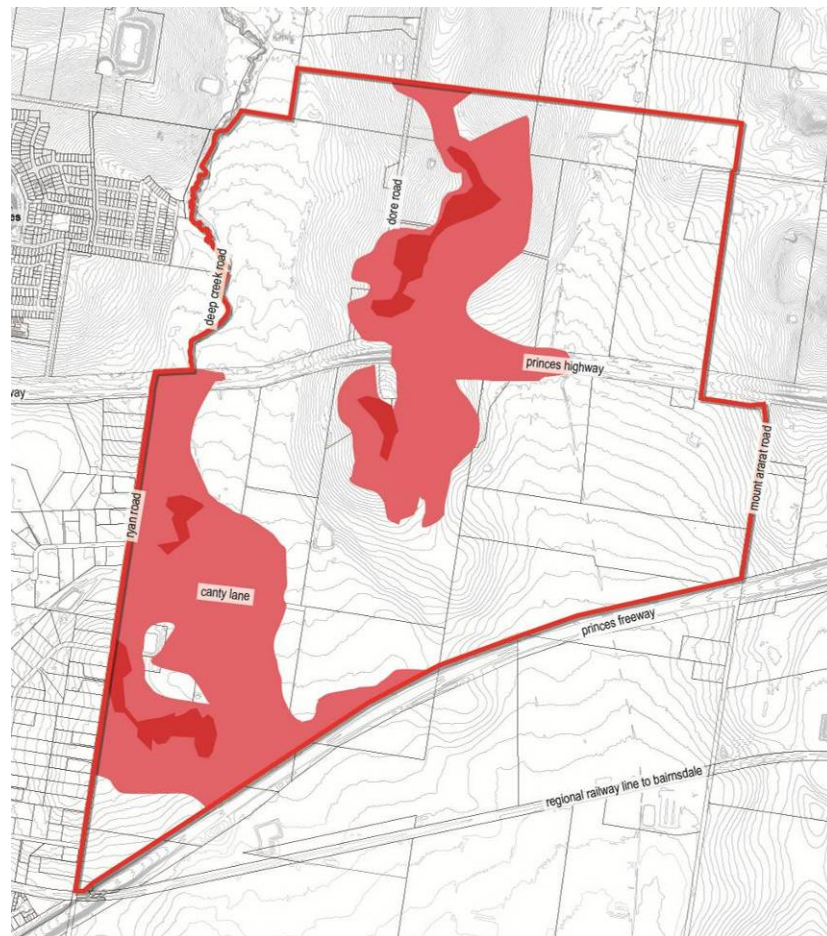


6 Visually sensitive landscapes

6.1 Areas of very high and high visual exposure

The image below shows the results of the viewshed analysis focussing on areas of very high and high potential for visual exposure. The diagram identifies principally 2 particular areas:

- The elevated land associated with the ridgeline formation located towards the centre of the site. This land formation extends down from the elevated undulating terrain to the north of the study area to the low lying valley floor just south of the Princes Highway.
- The slightly elevated land located in the south west corner of the site adjoining Ryan Road. It is noted that the topography of this area is less pronounced than the central ridgeline.

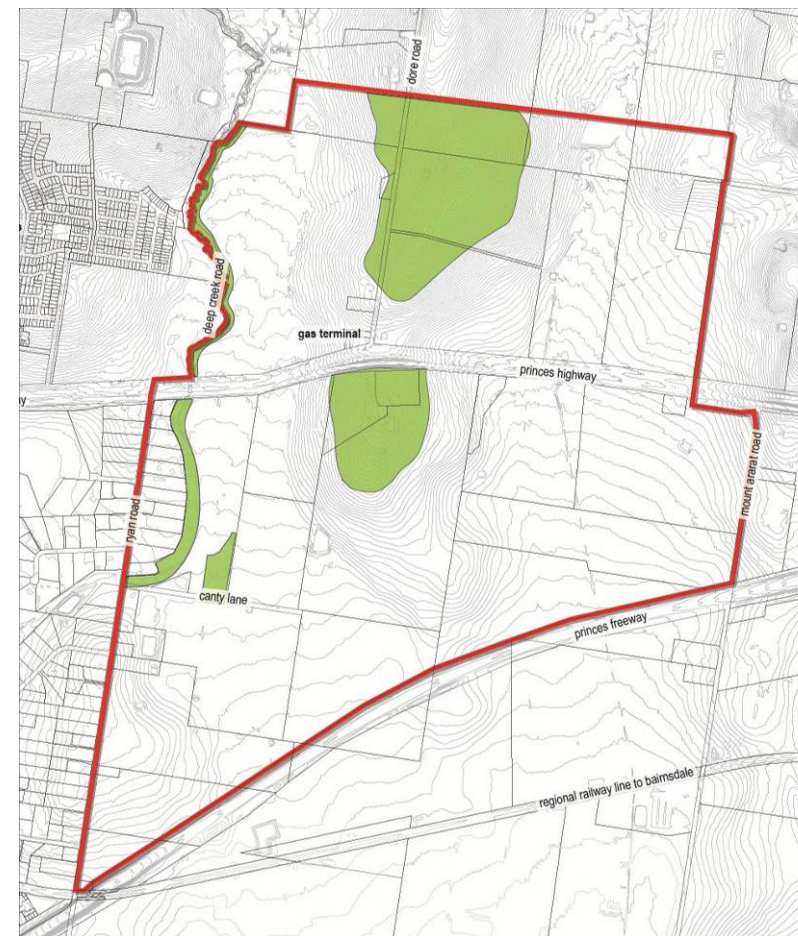


6.2 Areas of landscape value

The results of the Landscape Values Assessment indicate that there are principally 4 areas attributed as having a moderate value. Importantly, none of the land was considered as having a high value.

These areas are:

- The upper extents of the central ridgeline formation in the vicinity of Dore Road and the northern study area boundary.
- The elevated knoll located towards the centre of the study area, just south of the Princes Highway.
- The land associated with Deep Creek and Deep Creek Road which runs in a north south direction along the western study area boundary.
- The relatively small patch of existing area of suspected remnant bushland located within a private property on Canty Lane.



6.3 Visually sensitive landscapes

By reviewing these areas cumulatively we are able to explore the parts of the study area that overlap in terms of their potential for visual exposure and landscape value.

These overlapping, visually sensitive areas form the focus for the subsequent views assessment on the basis that:

- They are areas of potentially very high visual exposure. (It is important to note that this is based on topography alone and does not consider elements such as existing vegetation or built form that may obscure views from any particular locations.)
- They are areas of moderate landscape value based on the presence of the identified preferred landscape indicators.

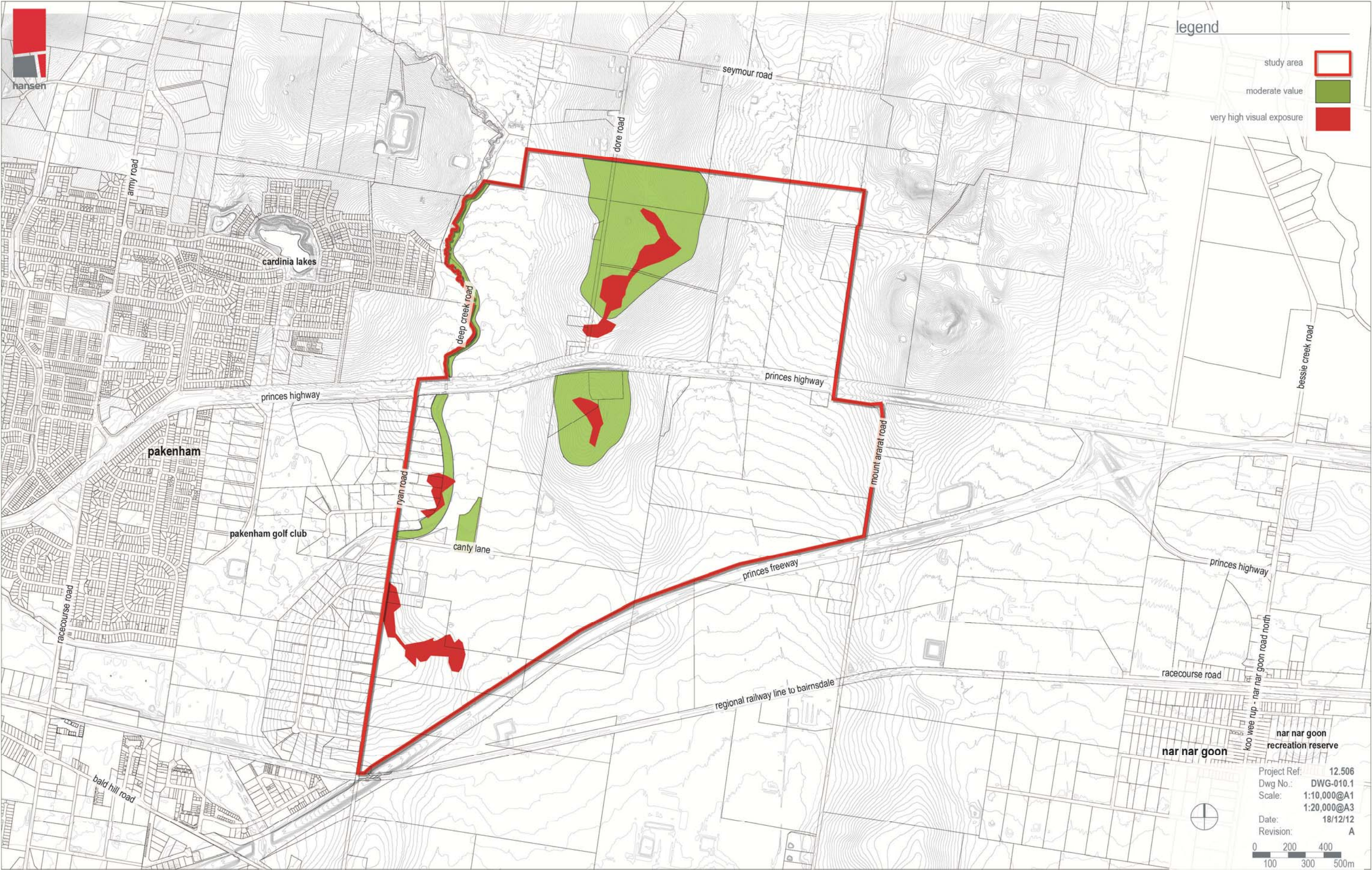
The analysis described above is mapped on the page opposite and the following visually sensitive areas have been identified:

- The land associated with the ridgeline formation in the vicinity of Dore Road at the centre of the study area.
- The elevated knoll located to the south of the Princes Highway
- The landscape associated with Deep Creek.

It is noted that the mapping also indicates an areas of very high visual exposure in the vicinity Deep Creek Road at the south west boundary of the study area. Although this land is elevated to some degree from the surrounding pasture, the relative change in level is not as profound as the ridgeline formation at the centre of the study area. As discussed earlier in this report, the landscape is not considered of particular value having little or no preferred landscape indicators. This area is therefore not considered a focus for the views assessment.

For the most part, the landscape associated with Deep Creek is not identified as having potential visual exposure. This is expected given that the water way is a local low point in the landscape. However, the creek is attributed with a number of preferred landscape indicators, principally vegetation and the creek itself. The vegetation along Deep Creek is likely to read in strong contrast to the surrounding cleared pasture, particularly from elevated viewpoints that encompass the wider landscape context. As such the band of vegetation along Deep Creek is expected to a visually prominent feature in views.

pakenham east precinct landscape assessment | visually sensitive landscapes



7 Landscape Management Framework

This section of the report seeks to identify key views based on the outcomes of the landscape assessment process described in the preceding chapters.

7.1 Outcomes of the landscape assessment

The following provides a brief recap on the key outcomes from the landscape assessment process thus far:

Views Analysis:

- The Viewshed Analysis and Field Work Assessments has confirmed that areas of very high and high visual exposure within the study area are concentrated around the central ridgeline land form, both north and south of the Princes Freeway.

Landscape Characterisation:

- 6 Landscape Character Units have been identified and mapped.
 - Unit 1 - Elevated pasture
 - Unit 2 – Low lying pasture
 - Unit 3 – Riparian
 - Unit 4 – Princes Highway
 - Unit 5 – Remnant bushland
 - Unit 6 – Rural residential

Landscape Values Assessment:

- An assessment of most desirable and least desirable landscape features in each of the landscape character units indicates that the Elevated Pasture Landscape Character Unit has a Moderate Landscape Value. The balance of the study area is considered to be of Low Landscape Value.

Visual Receptors:

- The visual receptors for the study area are predominantly those travelling in vehicles along the Princes Freeway and Princes Highway. Other roads in the vicinity of the study area are lesser utilised, secondary roads.
- It is important to note that this is limited to receptors from publicly accessible locations and not residences or private properties.

7.2 Identification of key viewing locations

With these considerations in mind, the next task is to identify key locations where areas of Moderate Landscape Value are visible and those views area available to a relatively number of visual receptors.

By reviewing each of the 16 no Viewpoints assessed in section 3 of the report the following viewpoints have been identified as meeting these criteria:

- Viewpoint Location 6 – Princes Highway Westbound
- Viewpoint Location 11 – Princes Freeway Westbound

These are shown on the map opposite in relation to the areas of visual sensitivity and the Moderate landscape value.

pakenham east precinct landscape assessment | key viewing locations



7.3 Viewpoint location 6 - discussion

The image in 7.1 below shows the view from this location on the Princes Highway looking south west, west and north west towards the study area. At this location the Princes Highway road reserve heading west exits an engineered cutting. The viewpoint is elevated and a short gap appears in the road side vegetation. The resulting view is wide and expansive capturing large parts of the low lying cleared land to the south of the Princes Highway. Long views are afforded directly down the road reserve looking west towards Pakenham.

This view has been selected for its particular exposure to the prominent ridge line land form which runs through the centre of the study area from north to south, either side of the Princes Highway. This rolling and undulating land form is a distinctive characteristic of the this part of the region as the Dandenong Ranges fold and undulate to the low lying valley floor by transitioning through 'foothills'. The study area rests at the southern extents of the foothills and provides an important local reference point for the landscape setting.

This is most profound when travelling west on the Princes Highway, through the engineered cutting. Exiting the cutting, road users are exposed to a wide and expansive view from south west to north west as well as the long view directly down the Princes highway. The visual prominence of the ridgeline land form is well within the visual field of view. In a sense, this location is a form of "gateway" to the eastern fringe of metropolitan Melbourne and in light of any future development will be the first exposure to higher density housing for travellers entering the area from the east. It is therefore considered appropriate that this view is further assessed to inform the establishment of a framework to preserve the visual character of the ridgeline.

Photomontage analysis

This work has been undertaken using a series of accurate photomontages utilising a Rhino 3D terrain model of the existing topography and visual assessment techniques outlined in detail within the Appendix of this report.

Figure 7.1 below shows a series of merged digital photographs capturing the view looking towards the study area from this location.

Figure 7.2 shows the existing view overlaid with a digitally developed 3 dimensional render of the terrain created using Rhino software. This image confirms the accuracy of the digitally produced terrain image and the consistency between the camera lens settings in the photograph and the virtual view (refer Appendix).

Figure 7.3 shows the virtual view. Using Rhino software, the areas of Moderate Landscape Value and high visual sensitivity described in Section 6 of the report have been mapped and accurately rendered into the view.

With the 3D terrain render overlaid accurately over the existing photographs, specific contour points can be identified.

Figure 7.4 shows the existing view in grey and highlights two contour levels:

- RL 90M in land north of the Princes Highway
- RL 62M in land south of the Princes Highway

These levels have been selected as points above which the important landscape features are still retained in the view. The ridgeline and existing trees located along Dore Road and adjoining properties remain visible above the highlighted contour lines, thus preserving their visual prominence in the landscape setting.

This provides the basis for a simple framework for future development within the study area.

Recommendations – Views from the Princes Highway

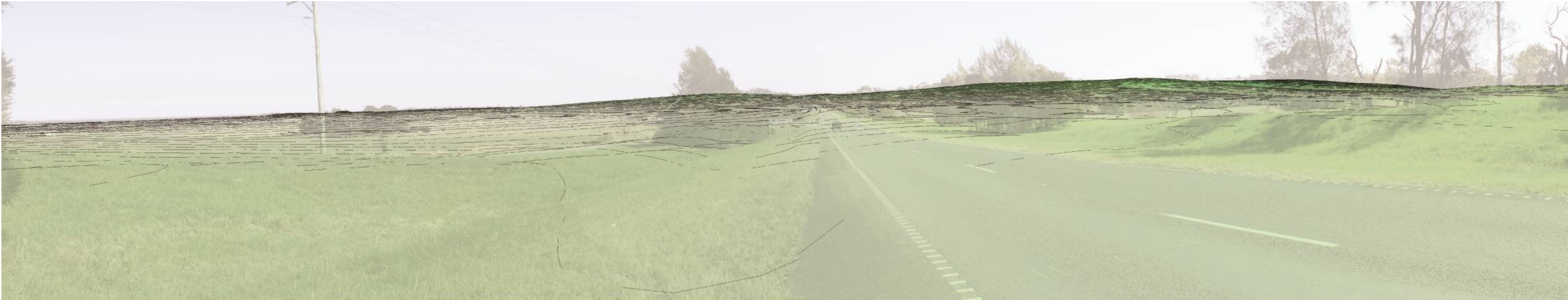
Figure 7.5 shows the existing view with RL 90 and RL 62 highlighted in red. An enlargement of the affected area has been provided in Figure 7.6.

Based on the preceding analysis the following objectives have been determined in relation to views from the Princes Highway:

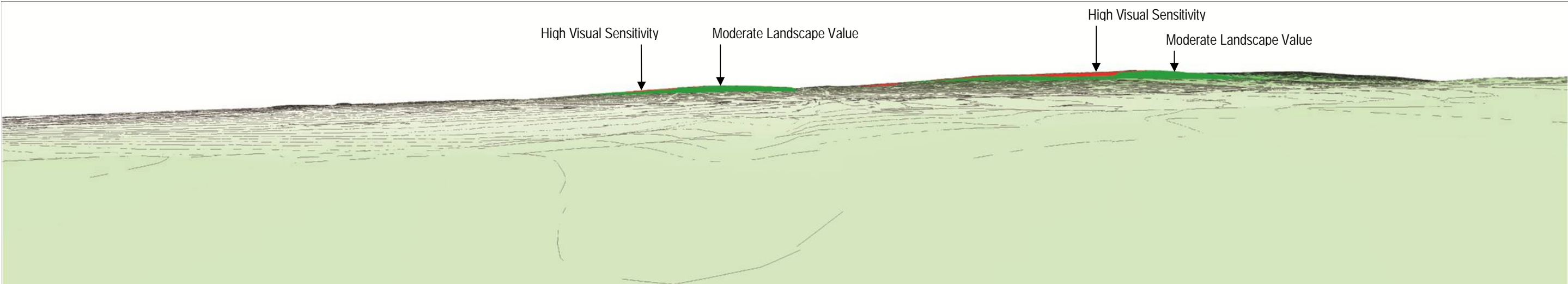
- Development should not obstruct views to RL90m and above in land north of the Princes Highway.
- Development should not obstruct views to RL62m and above in land south of the Princes Highway.



Figure 7.1 Viewpoint Location 6 – Princes Highway Westbound – Existing View



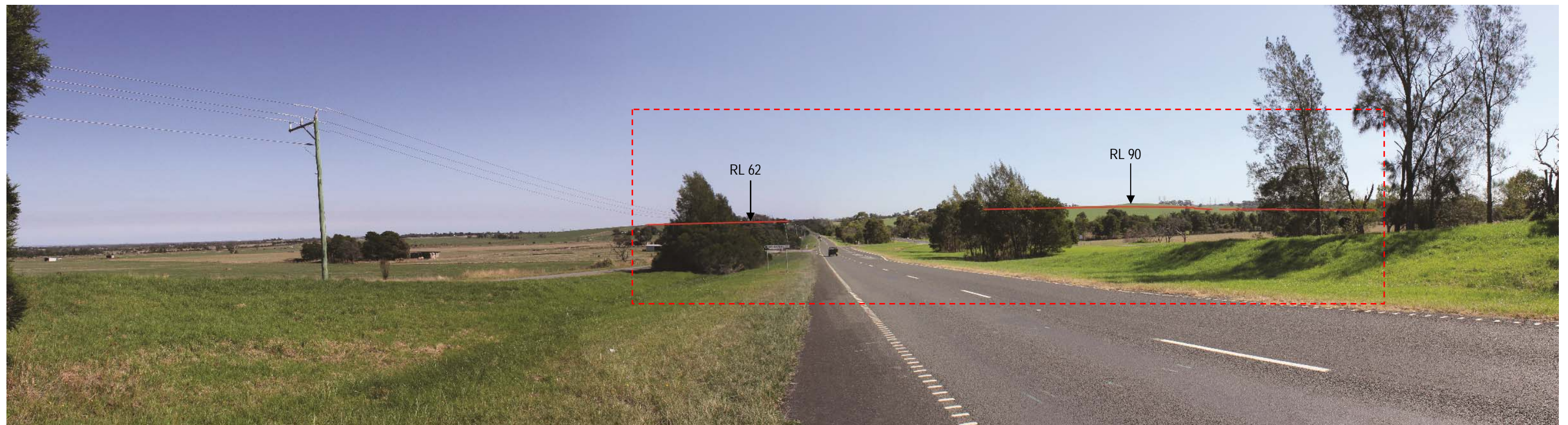
7.2 Viewpoint Location 6 – 3D Terrain Overlaid over photograph



7.3 Viewpoint Location 6 – 3D Terrain showing areas of Moderate Landscape Value (green) & areas of high visual sensitivity (red) as identified in Section 6



7.4 Viewpoint Location 6 – black & white photograph showing red contours RL 62 south of the Princes Highway & RL90 north of the Princes Highway



7.5 Viewpoint Location 6 – Photomontage showing the existing view overlaid with red contours RL 62 south of the Princes Highway & RL90 north of the Princes Highway



7.6 Enlargement

7.4 Viewpoint location 11 – Discussion

The image below shows the view from the west bound lane of the Princes Freeway.

This view has been selected for its visual exposure to the study area, and more importantly, the central ridgeline land form which extends through the centre of the study area, both north and south of the Princes Highway.

The view exposes vehicle passengers and commuters travelling west towards Pakenham to the wider surrounding landscape context of the foothills as they undulate down from more elevated terrain to the north of the study area. Of particular interest is the sense of a tree lined horizon. The existing vegetation located on Dore Road in part contributes to this feature. The ridgeline within the study area therefore reads as a series of similar, tree lined land forms which extend into the low lying valley, both west and east of the study area boundary, from the elevated hills in the north.

This landscape setting is further reinforced by the rolling, more heavily vegetated distant hills associated with the Dandenong Ranges to the north of the study area.

For these reasons the view from this location has been selected for further landscape assessment to determine appropriate strategies to ensure the preservation of the identified landscape features in light of potential future development.

Photomontage analysis

This work has been undertaken using a series of accurate photomontages utilising a Rhino 3D terrain model of the existing topography and visual assessment techniques outlined in detail within the Appendix of this report.

Figure 7.7 below shows a series of merged digital photographs capturing the view looking towards the study area from this location.

Figure 7.8 shows the existing view overlaid with a digitally developed 3 dimensional render of the terrain created using Rhino software. This image confirms the accuracy of the digitally produced terrain image and the consistency between the camera lens settings in the photograph and the virtual view (refer Appendix).

Figure 7.9 shows the virtual view. Using Rhino software, the areas of Moderate Landscape Value and high visual sensitivity described in Section 6 of the report have been mapped and accurately rendered into the view.

With the 3D terrain render overlaid accurately over the existing photographs, specific contour points can be identified.

Figure 7.10 shows the existing view in grey and highlights two contour levels:

- RL 90M in land north of the Princes Highway
- RL 62M in land south of the Princes Highway

These levels have been identified as the limit

These levels have been selected as points above which the important landscape features are still retained in the view. The ridgeline and existing trees located along Dore Road and adjoining properties remain visible above the highlighted contour lines, thus preserving their visual prominence in the landscape setting.

This provides the basis for a simple framework for future development within the study

Recommendations – Views from the Princes Freeway

Figure 7.11 shows the existing view with RL 90 and RL 62 highlighted in red. An enlargement of the affected area has been provided in Figure 7.6.

Based on the preceding analysis the following objectives have been determined in relation to views from the Princes Freeway:

Development should not obstruct views to RL90m and above in land north of the Princes Highway.

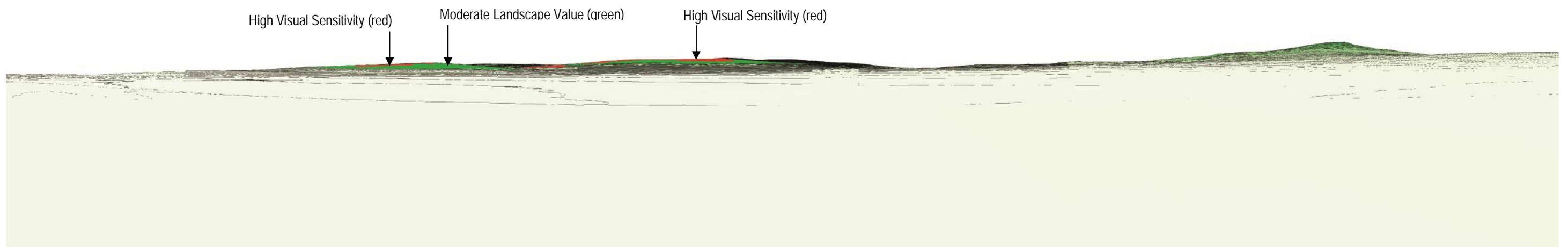
Development should not obstruct views to RL62m and above in land south of the Princes Highway



7.7 Viewpoint Location 11 – Princes Freeway Westbound



7.8 Viewpoint Location 11– 3D Terrain Overlaid over photograph



7.9 Viewpoint Location 11 – 3D Terrain showing areas of Moderate Landscape Value (green) & areas of high visual sensitivity (red) as identified in Section 6



7.10 Viewpoint Location 11 – black & white photograph showing red contours RL 62 south of the Princes Highway & RL90 north of the Princes Highway



7.11 Viewpoint Location 6 – Photomontage showing the existing view overlaid with red contours RL 62 south of the Princes Highway & RL90 north of the Princes Highway



7.12 Enlargement

7.5 Landscape Management Framework

The following objectives have been determined for the study area:

- 1 For viewpoints along the west bound lane of the Princes Highway:
 - Development should not obstruct views to RL90m and above in land north of the Princes Highway.
 - Development should not obstruct views to RL62m and above in land south of the Princes Highway
- 2 For viewpoints along the Princes Freeway:
 - Development should not obstruct views to RL90m and above in land north of the Princes Highway.
 - Development should not obstruct views to RL62m and above in land south of the Princes Highway

With these objectives established, the following outlines a Landscape Management Framework that guides and controls the location and extent of particular development heights across the study area.

7.6 Development height zoning

For the purposes of this study the following building heights have been identified based on typical heights for residential development informed by the wider planning scheme framework and building codes:

- Single Storey dwellings – 4.5m
- Two Storey Dwellings – 7.5m
- Maximum Building Height – 10m

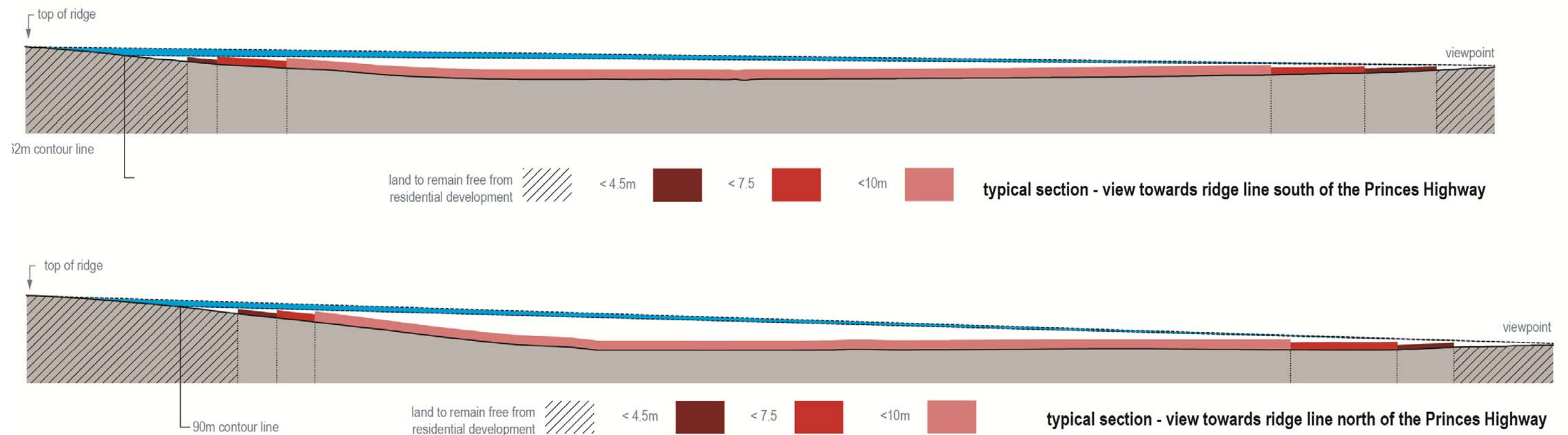
By analysing the existing site terrain in 3D and the range of view lines to the ridgelines both north and south of the Princes Highway, the extent of each of the development heights can be transposed onto the study area.

The principles of this approach can be explained through simple sectional diagrams as shown in Figure 7.13 below.

The result is a staggered or stepped building height zoning which maintains views to the ridgeline from the locations identified.

7.7 Development height mapping

The resulting distribution of development height zones has been mapped and is shown on the page opposite.



pakenham east precinct landscape assessment | landscape management framework

