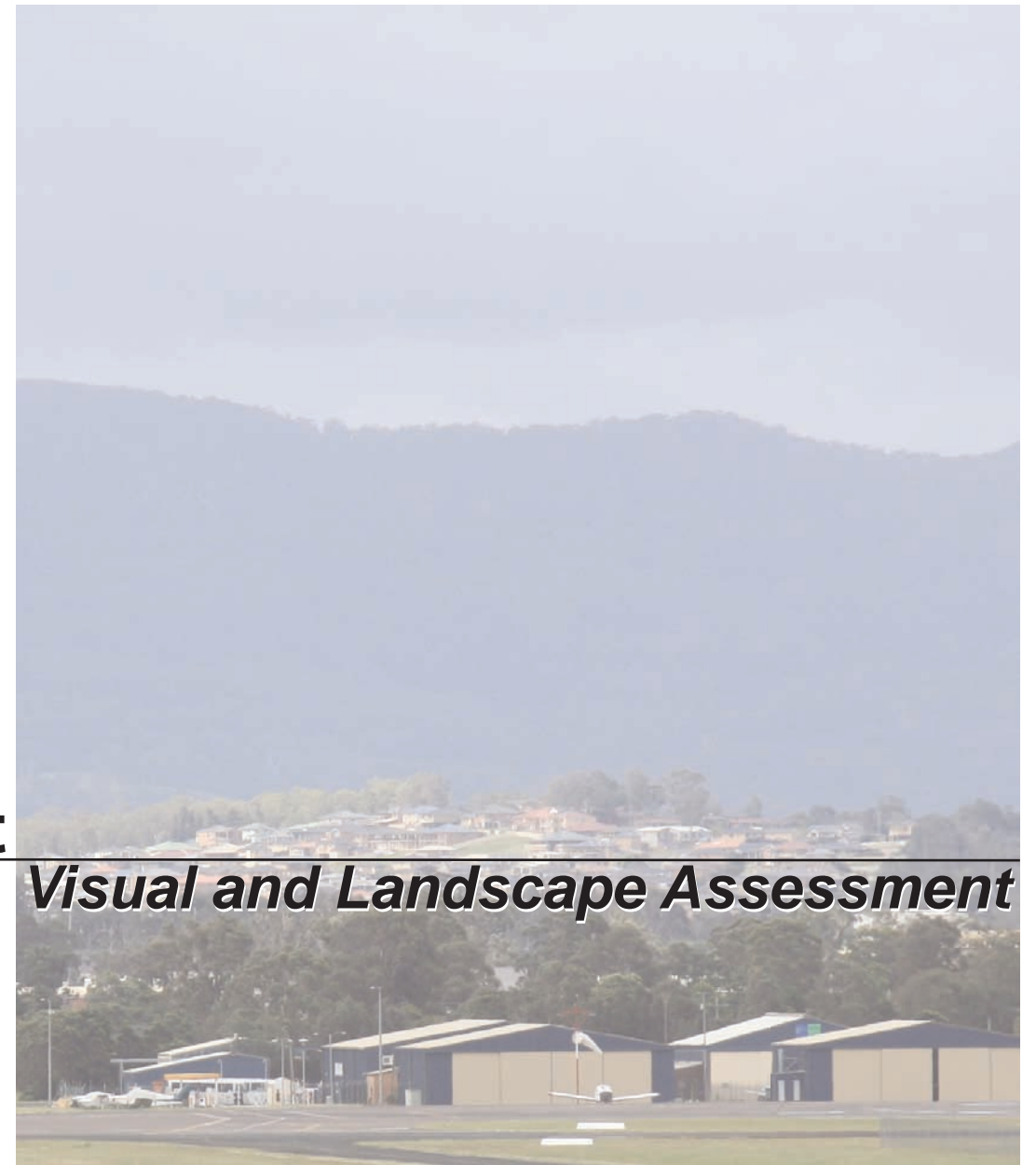


# Calderwood Urban Development Project

## *Visual and Landscape Assessment*



*22 February 2010*

# Table of Contents

<b>Executive Summary</b>	<b>3</b>
<b>1.0 Introduction</b>	<b>4</b>
1.1 Location Plan of Calderwood Urban Development Project	4
<b>2.0 Site Appreciation</b>	<b>6</b>
2.1 Elevation	6
2.2 Slope Analysis and Drainage	6
2.3 Vegetation	7
2.4 Infrastructure and Build Elements	7
2.5 Landscape Character	8
<b>3.0 Visual Assessment</b>	<b>9</b>
3.1 Analysis of Key Viewpoints	9
3.2 Visual Influences	10
3.3 Indicative Views and Locations	11
3.4 Summary Visual and Landscape Issues	23
<b>4.0 Strategies for Visual Mitigation</b>	<b>24</b>

# Executive Summary

This report has been prepared by Environmental Partnership to accompany a Concept Plan Application under Part 3A of the *Environmental Planning & Assessment Act, 1979* (EP&A Act) and a proposal for State significant site listing under Schedule 3 of *State Environmental Planning Policy Major Development 2005* (SEPP Major Development) in relation to the Calderwood Urban Development Project.

The report has reviewed the landscape character of the site and analysed an initial structure plan for urban development for its visual impact on adjoining areas.

The report identified the following:

- The site is predominantly rural in character having been largely cleared for past agricultural land uses
- The wooded ridgelines are a significant feature of the visual and landscape character of the Calderwood Valley, and views towards the Illawarra Escarpment
- The natural character of the upper reaches of Johnstons Spur will be conserved and will assist to reduce the impact of the development. The retention of the natural ridgeline minimises the areas where development is observed at the top of ridgelines
- Development of the valley will be visible from immediately adjoining areas including Marshall Mount Road, Calderwood Road, and Illawarra Highway
- Lower slopes of Johnstons Spur are visible from the east and south - and are proposed for development
- Proposed development will change the landscape character from rural to urban
- Views of the site from the north are restricted by an adjoining ridgeline
- Views lines from adjoining areas are reduced to varying degrees by existing development and vegetation
- The site is visible from the escarpment to the north west, west and south, however these viewing locations are generally not publicly accessible

## Visual impact of urban development

- For the majority of views of the development the Escarpment will remain the dominant visual feature
- For the majority of views Johnstons Spur and the associated ridgeline will remain an important visual feature
- Johnstons Spur is proposed in the concept plan to be retained for open space, environmental conservation and/or management purposes which will lessen the visual impact of development
- Additional tree canopy cover along main roads, the ridgeline and at the interface with Johnstons Spur will lessen the visual impact of urban development within the less visually prominent lowland areas
- The retention of tree canopy cover along the main riparian corridors of Macquarie Rivulet and Marshall Mount Creek will lessen the visual impact of urban development within the less visually prominent lowland areas



# 1.0 Introduction

This report has been prepared by Environmental Partnership to accompany a Concept Plan Application under Part 3A of the Environmental Planning & Assessment Act, 1979 (EP&A Act) and a proposal for State significant site listing under Schedule 3 of State Environmental Planning Policy Major Development 2005 (SEPP Major Development) in relation to the Calderwood Urban Development Project.

The Calderwood Urban Development Project is a master planned community development by Delfin Lend Lease (DLL).

The Calderwood Urban Development Project proposes a mix of residential, employment, retail, education, conservation and open space uses. The development proposes approximately 4,800 dwellings and approximately 50 hectares of retail, education, community and mixed use / employment land. The overall development will accommodate approximately 12,400 people and will deliver an estimated \$2.9 billion in development expenditure and create approximately 8,000 full time equivalent jobs by 2031.

The Calderwood Urban Development Project site is located within the Calderwood Valley in the Illawarra Region. It is approximately 706 hectares in area with approximately 600 hectares of land in the Shellharbour LGA and the balance located within the Wollongong LGA.

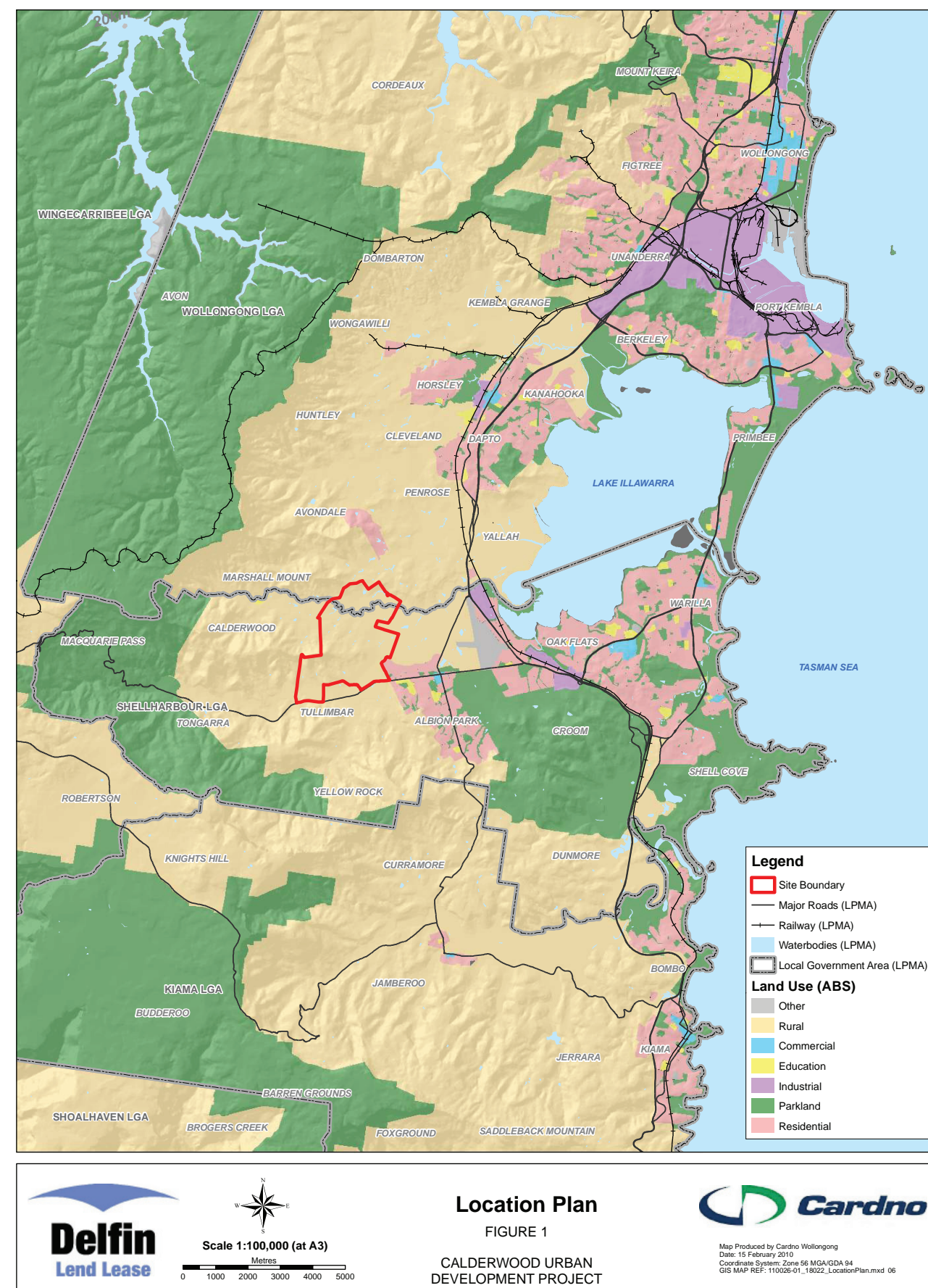
The Calderwood Valley is bounded to the north by Marshall Mount Creek (which forms the boundary between the Shellharbour and Wollongong LGAs), to the east by the Macquarie Rivulet, to the south by Johnstons Spur and to the west by the Illawarra Escarpment. Beyond Johnstons Spur to the south is the adjoining Macquarie Rivulet Valley within the suburb of North Macquarie. The Calderwood Urban Development Project land extends south from the Calderwood Valley to the Illawarra Highway. Refer to Location Plan at Figure 1.1.

The Calderwood Valley has long been recognised as a location for future urban development, firstly in the Illawarra Urban and Metropolitan Development Programmes and more recently in the Illawarra Regional Strategy (IRS).

The IRS nominates Calderwood as an alternate release area if demand for additional housing supply arises because of growth beyond projections of the Strategy, or if regional lot supply is lower than expected.

In 2008, the former Growth Centres Commission reviewed the proposed West Dapto Release Area (WDRA) draft planning documents. The GCC concluded that forecast housing land supply in the IRS cannot be delivered as expected due to implementation difficulties with the WDRA, and the significantly lower than anticipated supply of housing land to market in the Illawarra Region is now been recognised as a reality.

The GCC Review of the WDRA also recognised that there is merit in the early release of Calderwood in terms of creating a higher dwelling production rate and meeting State government policy to release as much land to the market as quickly as possible. Given the demonstrated shortfall in land supply in the Illawarra Region and the WDRA implementation difficulties highlighted in the GCC Report, the release of Calderwood for urban development now conforms to its strategic role under the IRS as a source of supply triggered by on-going delays in regional lot supply. The Calderwood Urban Development Project can deliver about 12% of the IRS' new dwelling target.



**1.1 Location Plan of Calderwood Urban Development Project**

Changes in outlook arising from global, national and regional factors influencing investment and delivery certainty, housing supply and affordability and employment and economic development also add to the case for immediate commencement of the Calderwood Project.

In April 2008 the Minister for Planning issued terms of reference for the preparation of a Justification Report to address the implications of initiating the rezoning of Calderwood for urban development including associated staging, timing and infrastructure considerations.

In February 2009 the Minister for Planning considered a Preliminary Assessment Report for the Calderwood Urban Development Project that provided justification for the planning, assessment and delivery of the project to occur under Part 3A of the EP&A Act, having regard to the demonstrated contribution that the project will have to achieving State and regional planning objectives.

Subsequently, on the 16 April 2009, pursuant to Clause 6 of SEPP Major Development, the Minister for Planning formed the opinion that the Calderwood Urban Development Project constitutes a Major Project to be assessed and determined under Part 3A of the EP&A Act, and also authorised the submission of a Concept Plan for the site. In doing so, the Minister also formed the opinion that a State significant site (SSS) study be undertaken to determine whether to list the site as a State Significant site in Schedule 3 of SEPP Major Development.

The Part 3A process under the EP&A Act allows for the Calderwood Urban Development Project to be planned, assessed and delivered in an holistic manner, with a uniform set of planning provisions and determination by a single consent authority. Given the scale of the proposal, the Concept Plan and SSS listing provide the opportunity to identify and resolve key issues such as land use and urban form, development staging, infrastructure delivery and environmental management in an integrated and timely manner.

This report has been prepared to fulfil the Environmental Assessment Requirements issued by the Director General for the inclusion of the Calderwood site as a State Significant Site under SEPP Major Development, and for a Concept Plan approval for the development. Specifically, this report addresses the following requirements:

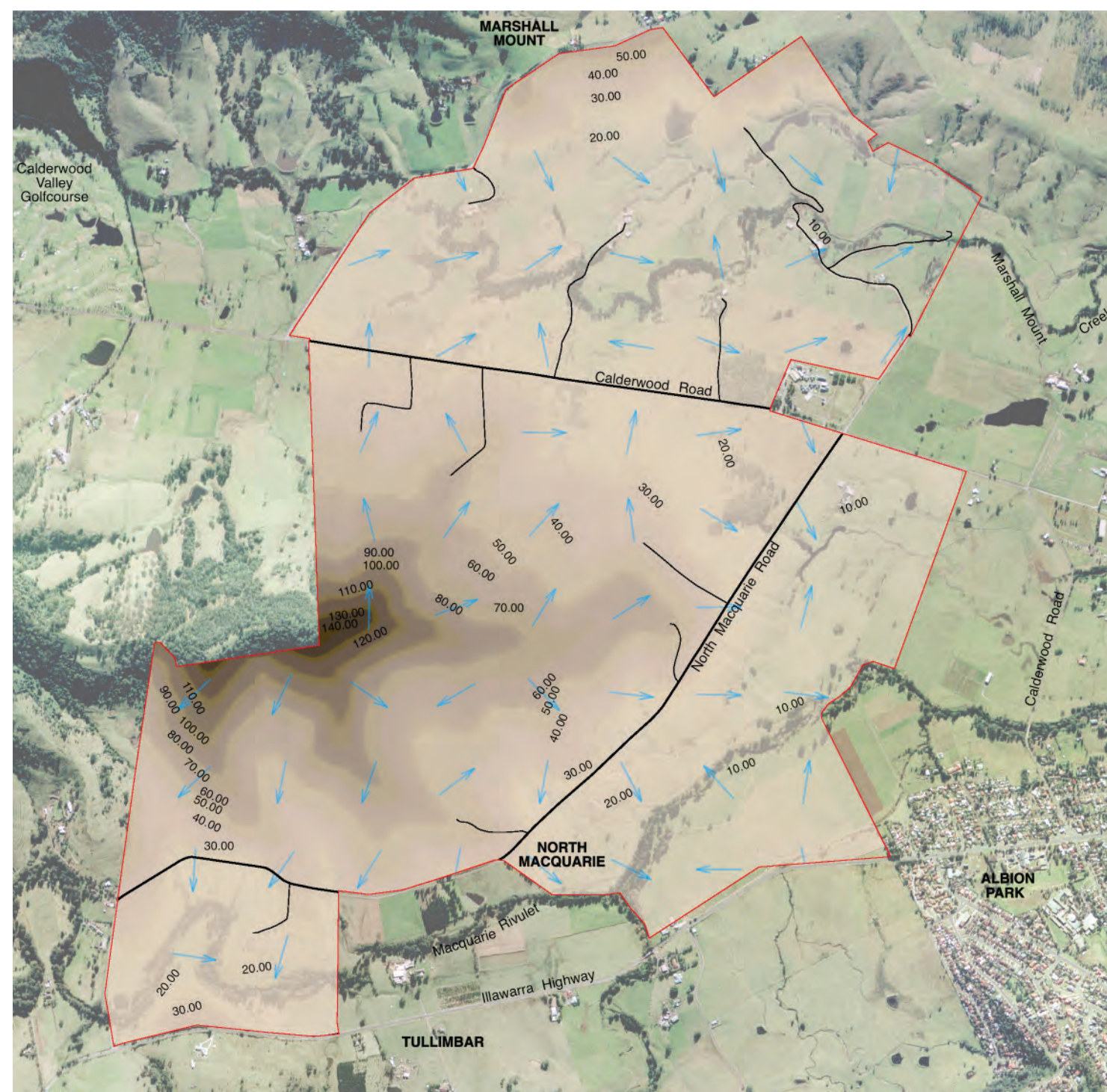
- Undertake a site analysis that identifies the relevant natural and built environmental features
- View analysis, including artist's perspective and photomontages

In accordance with the Director General's Requirements this report has been prepared following consultation with the following agencies:

- Shellharbour City Council
- Wollongong City Council



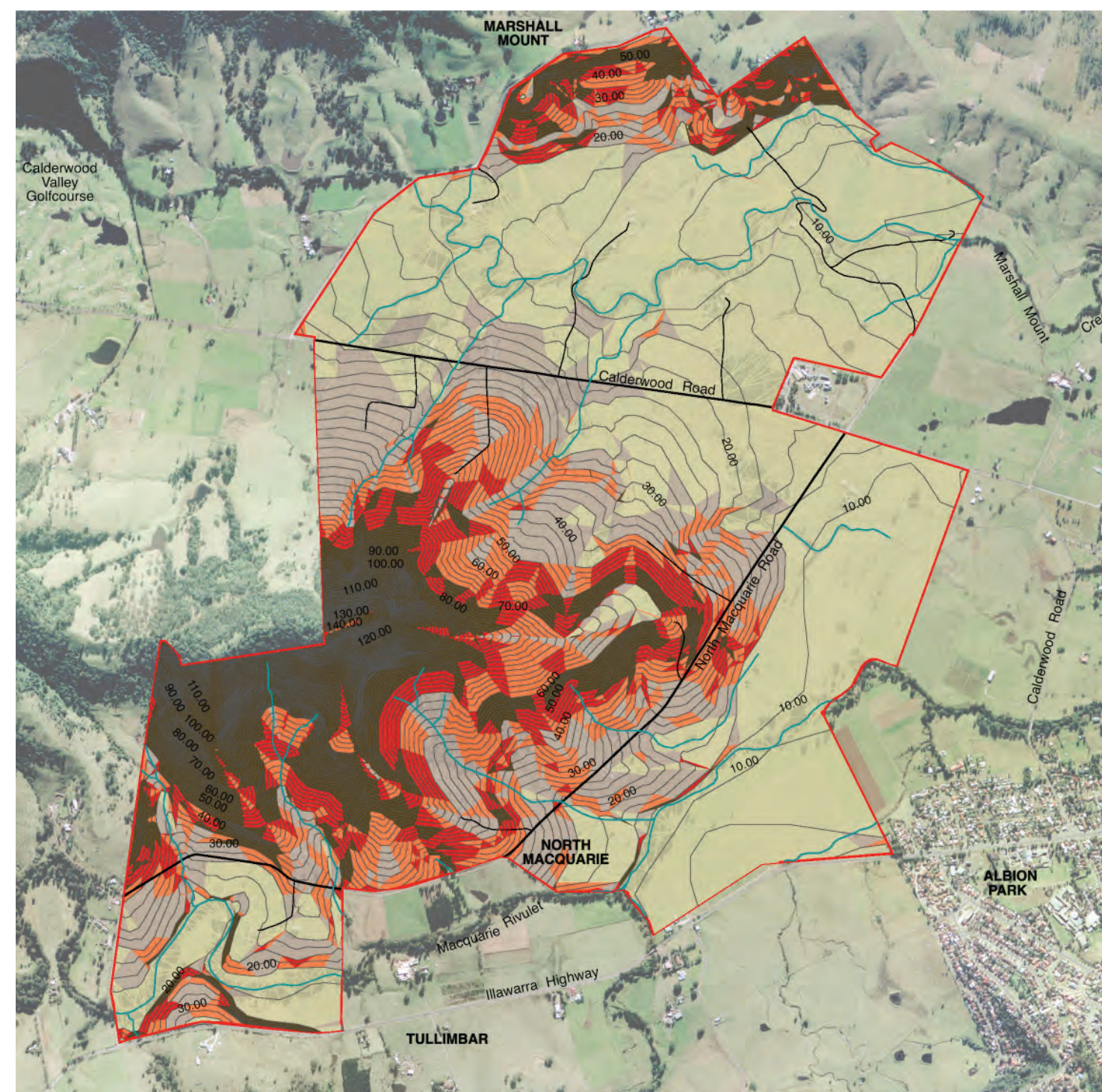
## 2.0 Site Appreciation



### 2.1 Elevation

#### Key points for consideration

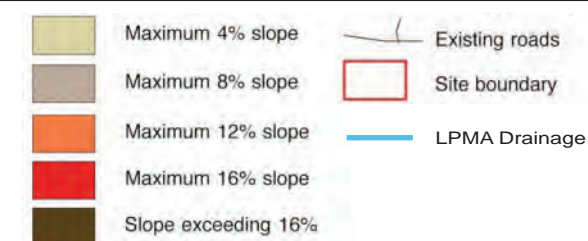
- highest elevations through Johnstons Spur
- these areas will tend to be most visually prominent from a wider range of areas



### 2.2 Slope Analysis and Drainage

#### Key points for consideration

- over half of site is undulating in topography
- steepest topography and the floodplains of the two creeklines are limitations on suitability for urban development



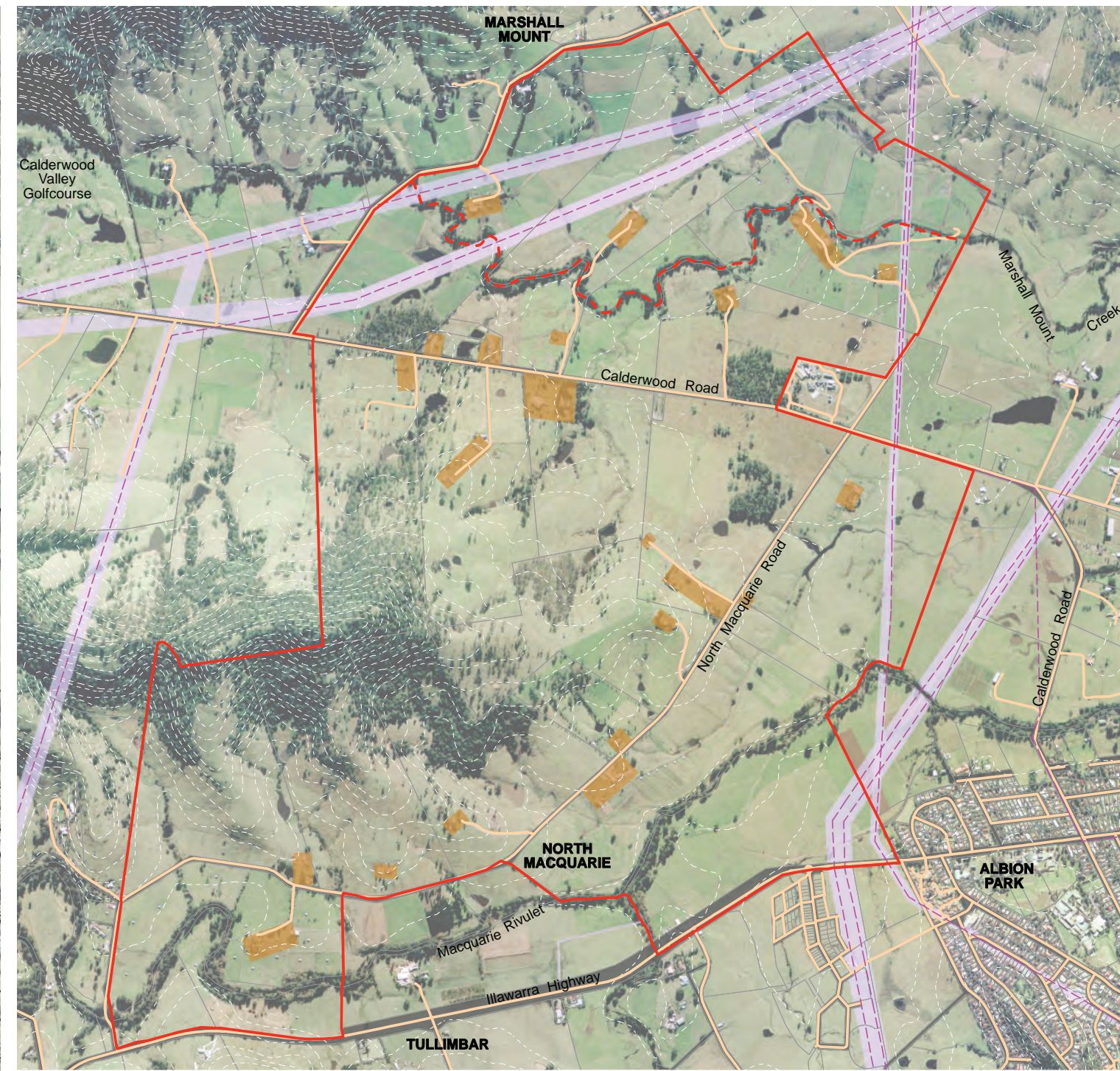
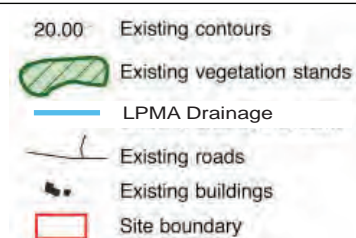




## 2.3 Vegetation

### Key points for consideration

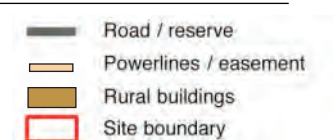
- major tree stands occur to Johnstons Spur or as isolated groups
- limited quality of understorey to these areas
- narrow bands of tree canopy to the two creek lines



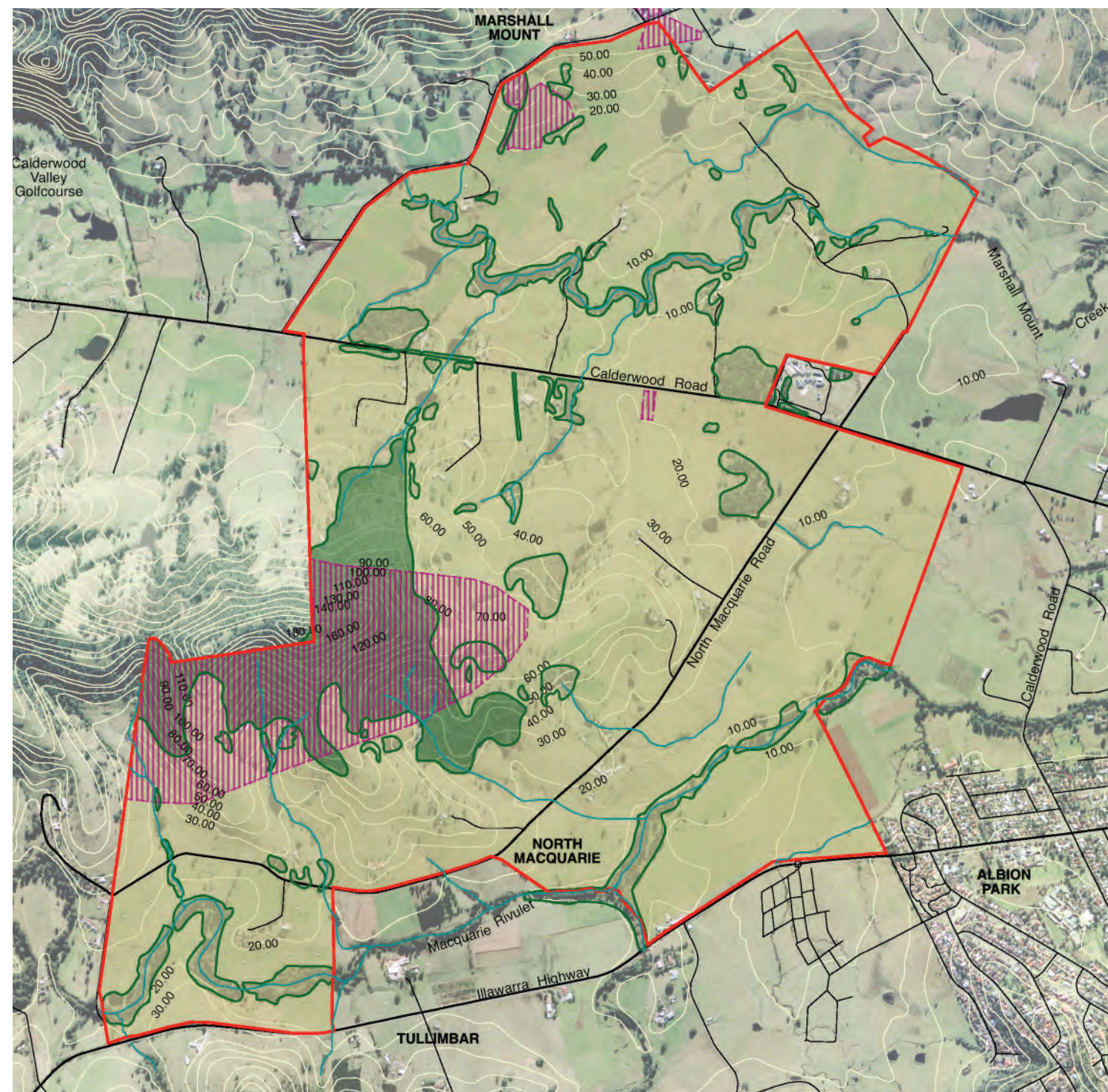
## 2.4 Infrastructure and Build Elements

### Key points for consideration

- high voltage power easements cross the site - in particular in north



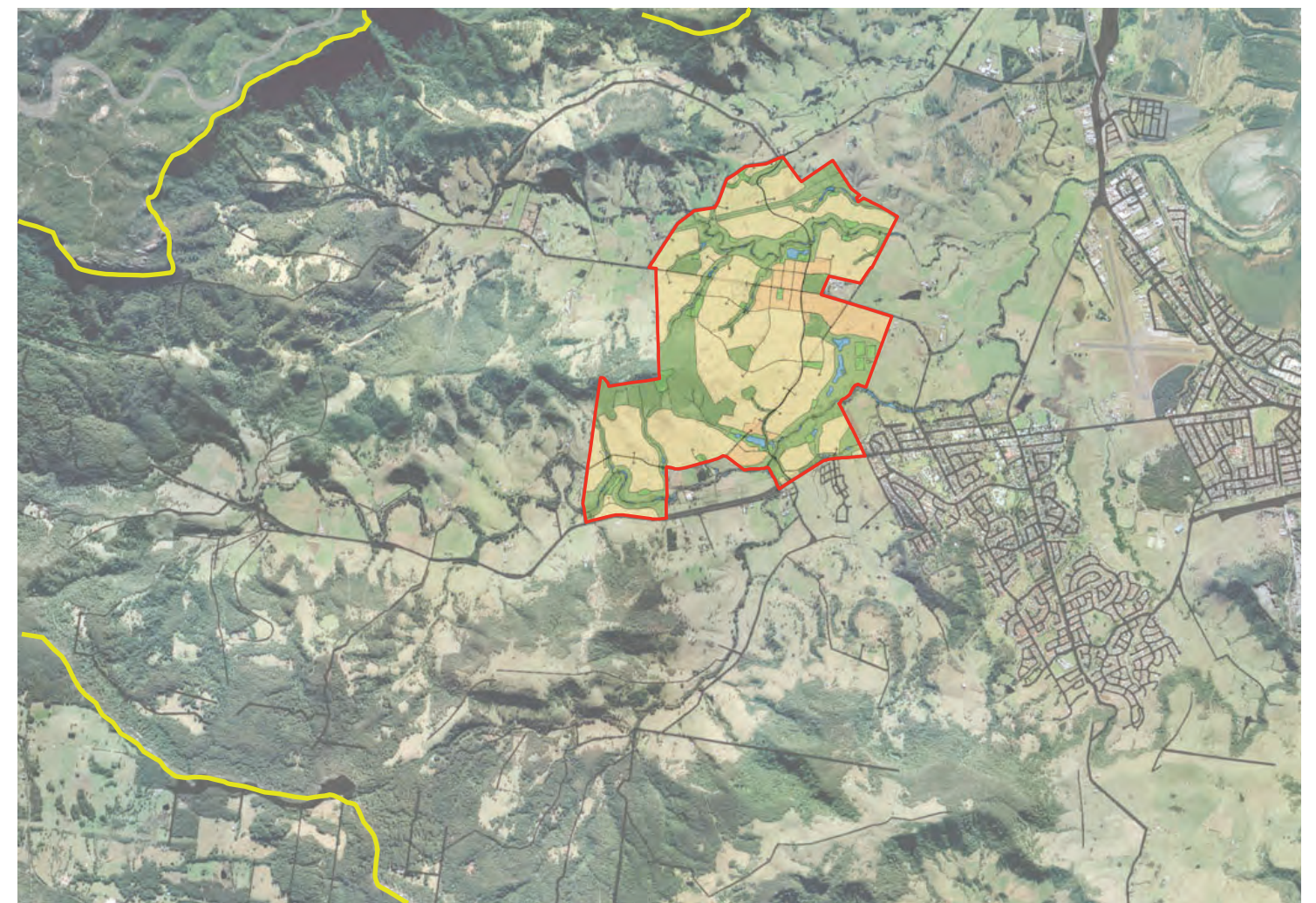
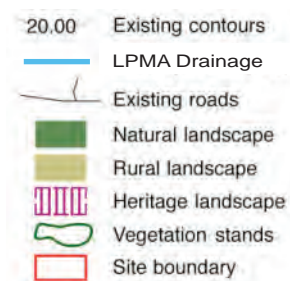




## 2.5 Landscape Character

### Key points for consideration

- majority of site is rural in character having been cleared for agriculture and grazing.
- backdrop of wooded ridgelines are key element of character of valley



Escarpment

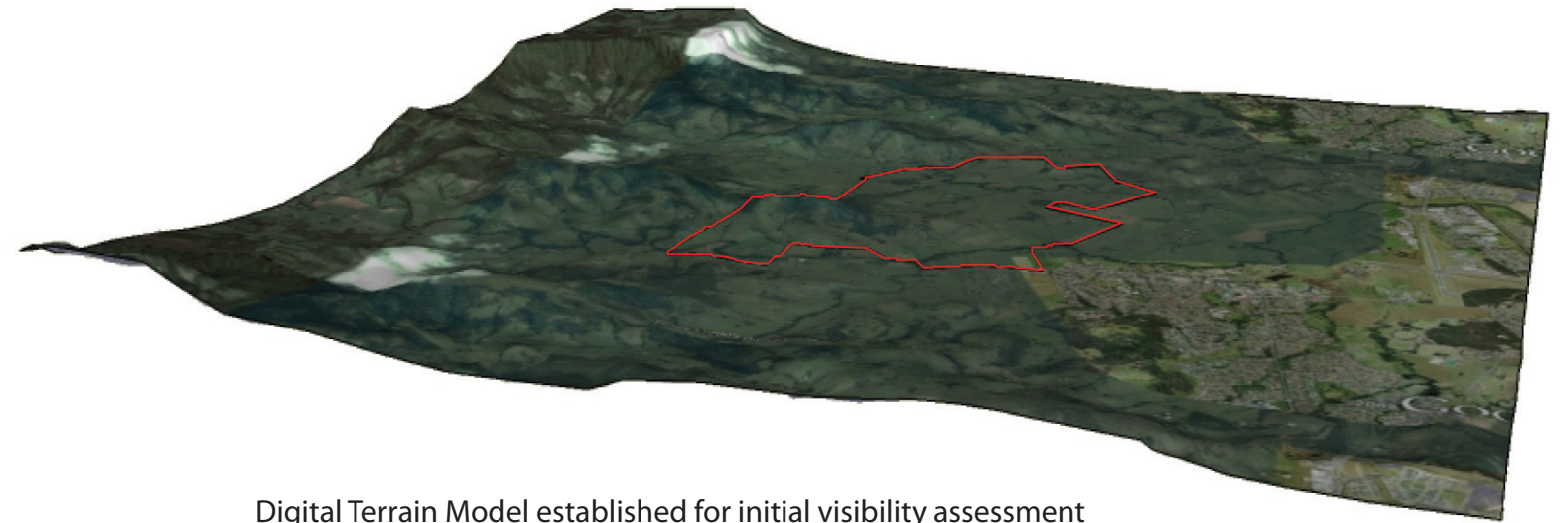


## 3.0 Visual Assessment

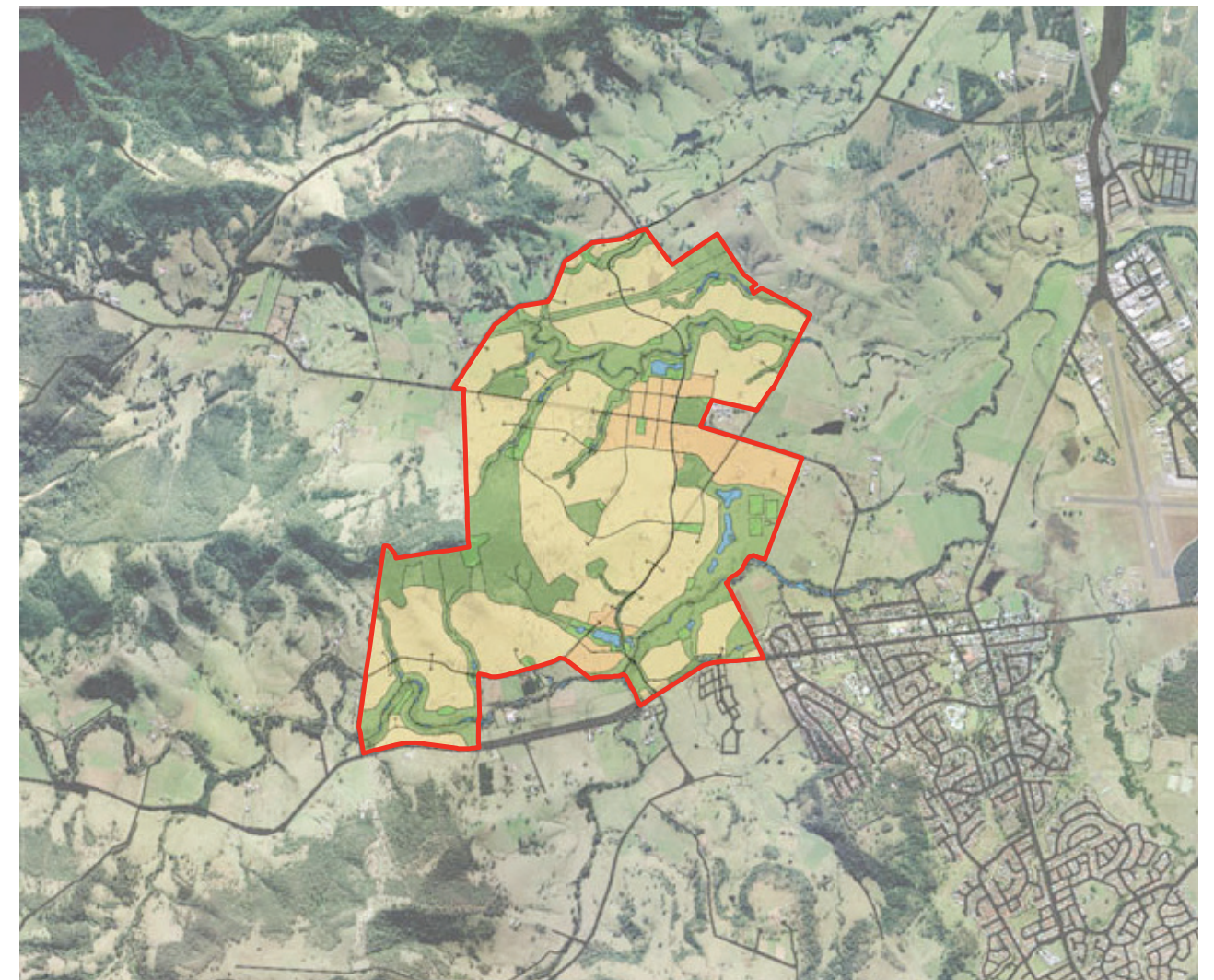
### 3.1 Analysis of Key Viewpoints

The visual assessment followed the process as outlined below:

1. Develop analysis of topography, vegetation, infrastructure and built elements (refer section 2.0 Site Appreciation).
2. Identify a broad range of potential viewpoints.
3. Create Digital Terrain Model (DTM) for an area of 10 square kilometers.
5. Analyze potential visibility of site from adjoining areas using the DTM based on Topography only.
5. Review potential views in Google Earth to refine key viewpoints.
6. Visit key viewpoints to verify visibility of site and obtain current views.
7. Import initial structure plan to Google Earth to establish extent of proposed development.
8. Transpose development extent to current views of the site to establish range of visibility.



Digital Terrain Model established for initial visibility assessment



Preliminary structure plan on aerial photograph





View from Illawarra Hwy/Yellow Rock Rd Intersection



View from Tongarra Rd./Church St. Intersection



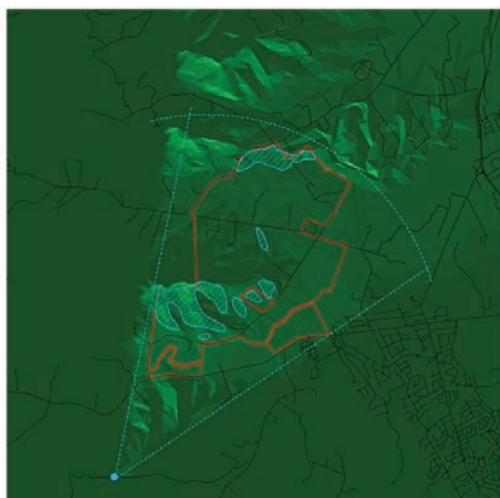
View from Johnstons Spur



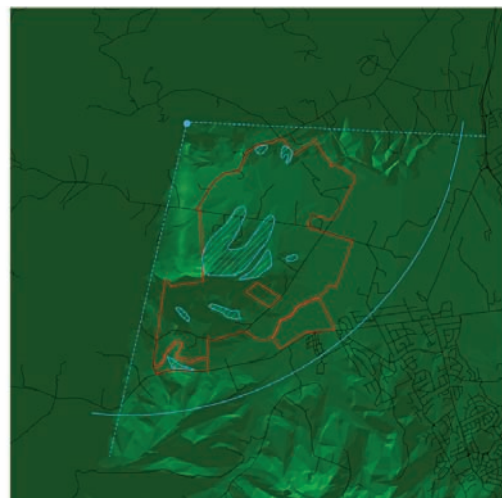
View from Calderwood Rd. East



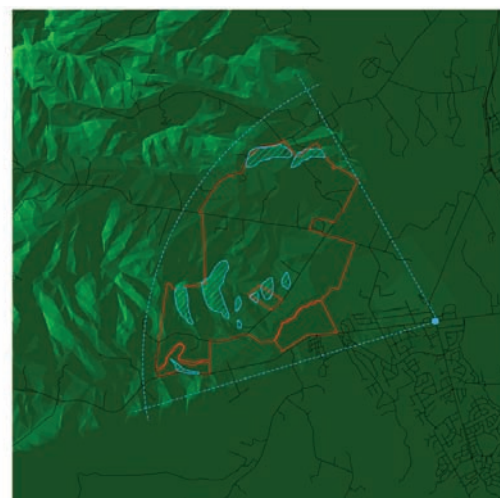
View from Princes Hwy./Terry St. Intersection



View from South West Escarpment



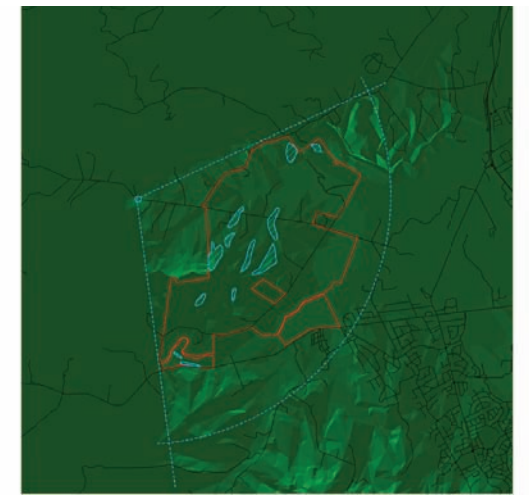
View from North West Escarpment



View from Tongarra Rd./Terry St. Intersection



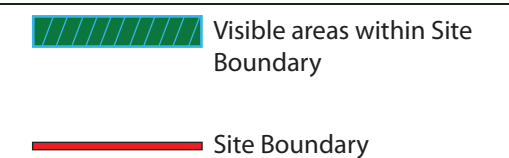
View from Marshall Mt. Rd./Yallah Rd. Intersection



View from Calderwood Rd. West

### 3.2 Visual Influences

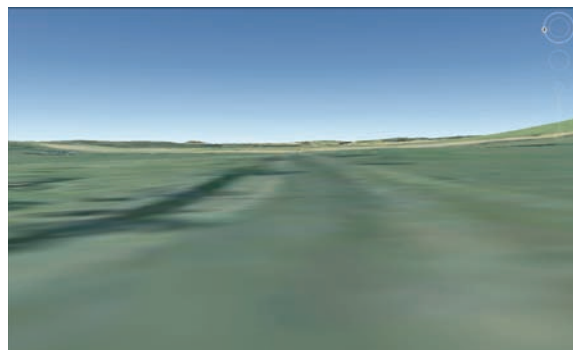
Visibility of the site was analyzed from adjoining areas using a Digital Terrain Model.



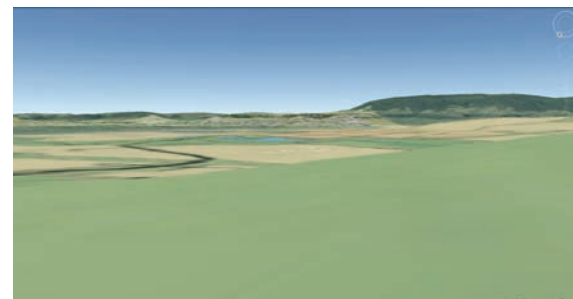
**Opposite Page:** Map indicating the twelve viewing points that were analysed in this section. The inset views comprise the Google Earth view generated as part of the preliminary assessment



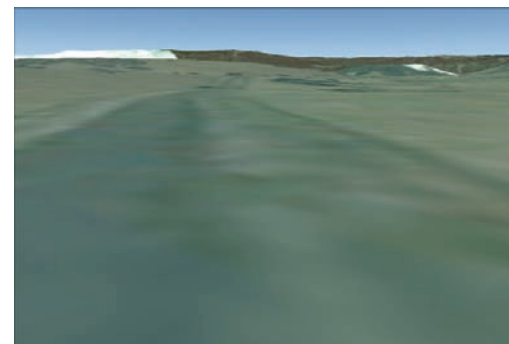
### 3.3 Indicative Views and Locations



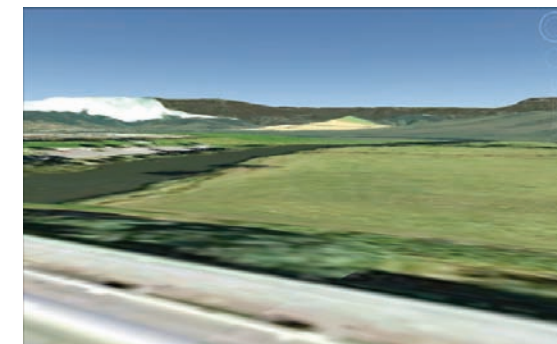
View 12



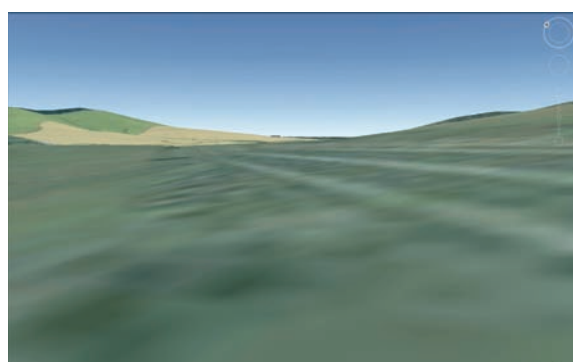
View 11



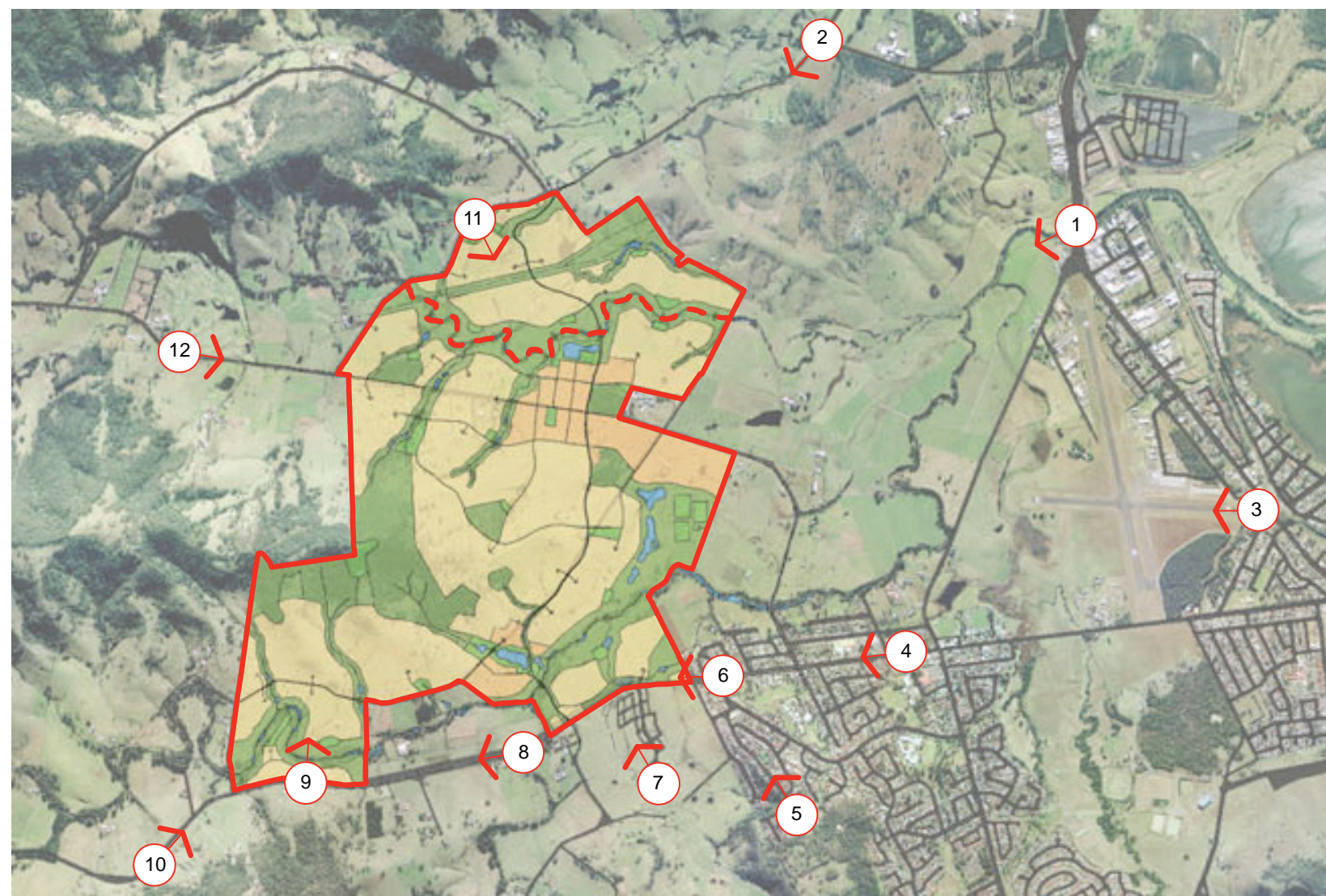
View 2



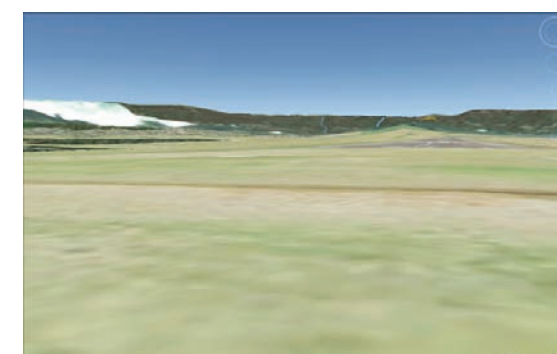
View 1



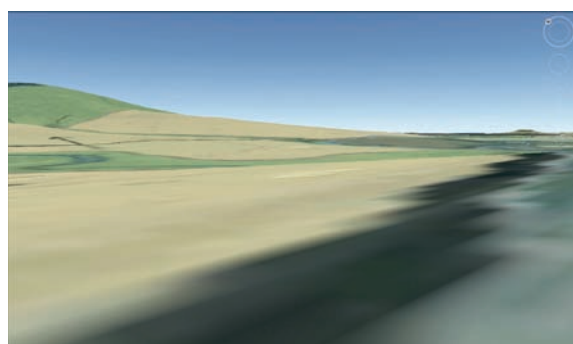
View 10



\*All views indicative



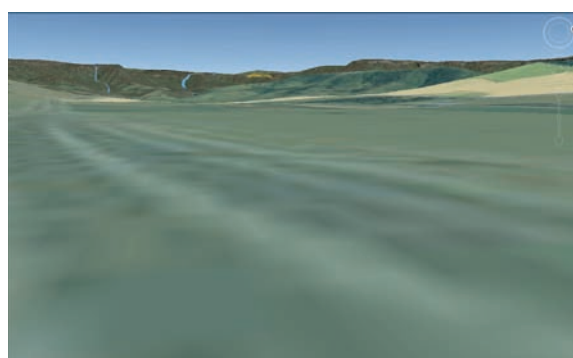
View 3



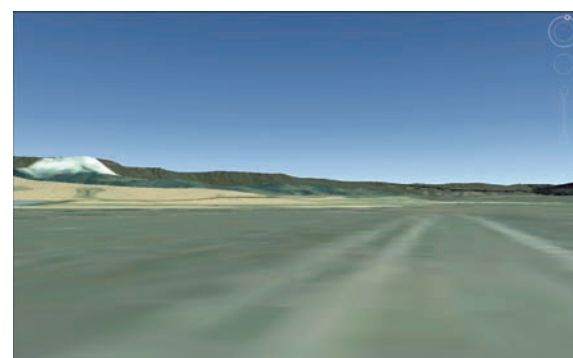
View 9



View 4



View 8



View 7



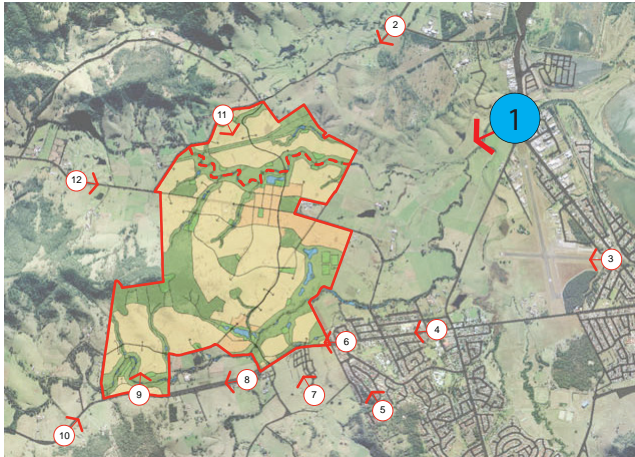
View 6



View 5



View 1



View Location Map

Location: Princes Highway bridge over Marshall Mount Creek  
Elevation (approx): 8 m  
Distance to Site Boundary (approx): 2.15 km  
← View Direction: Perpendicular to road



Existing View

Key points for consideration

- Urban development will be visible in the middle ground of view
- Escarpment is a dominant feature in view background
- Higher proportion of open space visible than urban development
- Minor encroachment of urban development on the lower reaches of the ridgeline

Potential mitigation measures

- Development of streetscape tree canopy to screen development

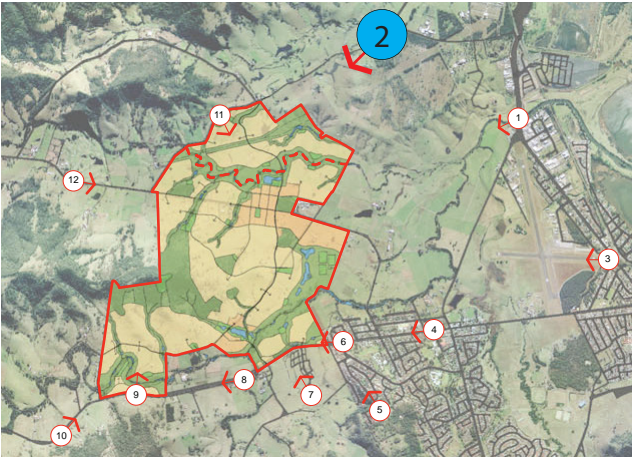


View with Development Overlay

Open Space and/or environmental conservation/management Urban Development



View 2



View Location Map

Location: Intersection of Yallah Road and Marshall Mount Road  
Elevation (approx): 25 m  
Distance to Site Boundary (approx): 1.5 km  
← View Direction: Down road



Existing View

Key points for consideration

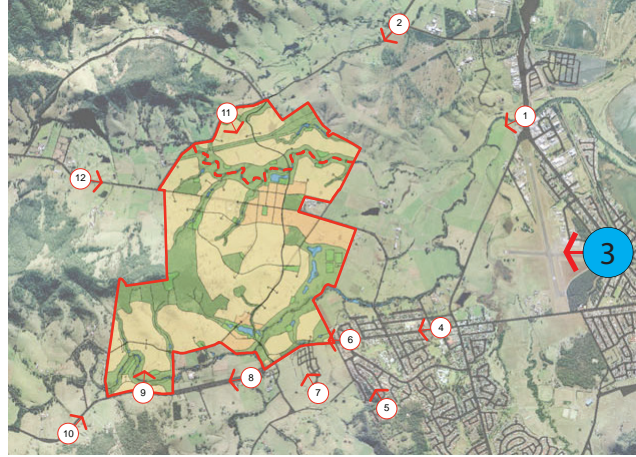
- Urban development will not be visible



View with Development Overlay - No Visible Development



## View 3



View Location Map

Location: Eastern edge of Illawarra Regional Airport off Princes Highway  
 Elevation (approx): 5 m  
 Distance to Site Boundary (approx): 3.35 km  
 View Direction: Perpendicular to road



Existing View

*Key points for consideration*

- Escarpment is dominant feature in view background
- Urban development will be visible in the middle ground of view
- Urban development is confined to lower slopes of Johnstons Spur
- More open space visible than urban development
- Middle ground ridgelines conserved as open space

*Potential mitigation measures*

- Development of streetscape tree canopy to screen development



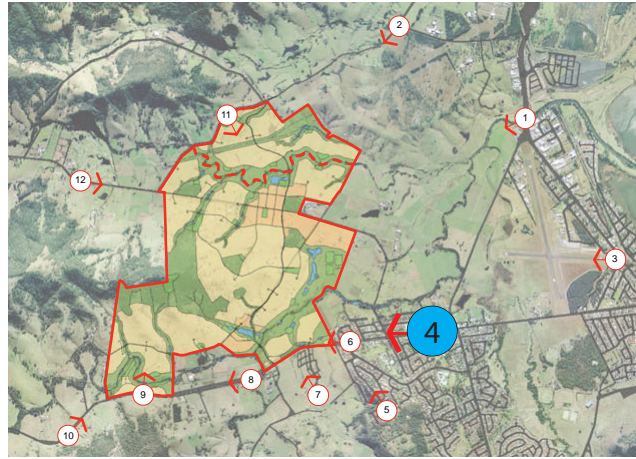
View with Development Overlay

Open Space etc

Urban Development



## View 4



View Location Map

Location: Intersection of Macquarie Street and Tongarra Road, Albion Park  
 Elevation (approx): 17 m  
 Distance to Site Boundary (approx): 700 m  
 ← View Direction: West along road



Existing View

*Key points for consideration*

- Urban development will not be visible



View with Development Overlay - No Visible Development