



spring creek urban growth framework plan

background reports

working paper 3 landscape and urban form

hansen partnership

may 2008

landscape and urban form analysis - introduction

This report provides an analysis of existing conditions within the Spring Creek Growth Framework Plan study area, relevant to elements of landscape and urban form.

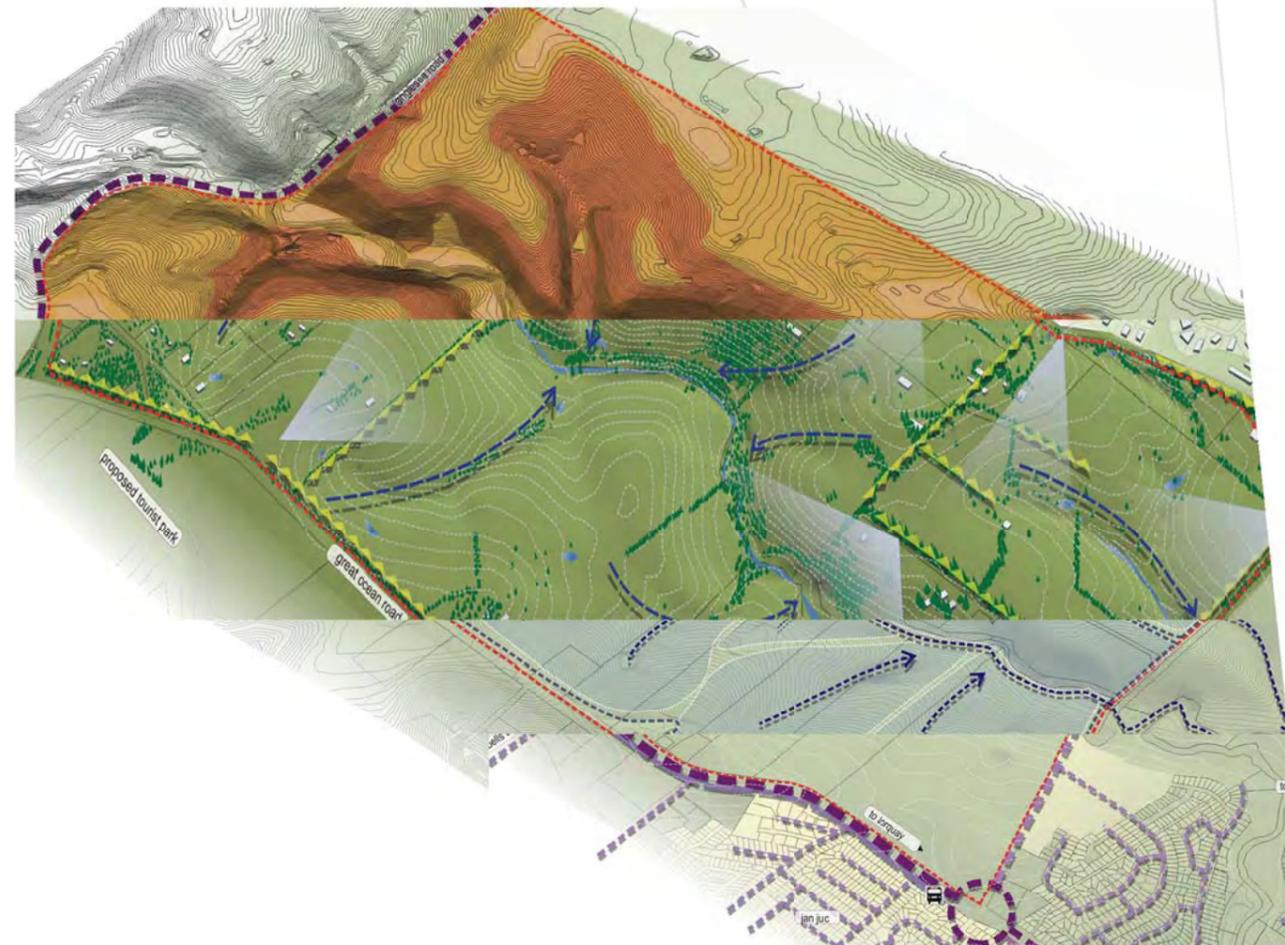
The analysis material presented in this report is based on the findings of site investigations and desktop research carried out by the consultant team.

The analysis covers the following aspects of the physical condition of the study area:

- Access and movement
- Landscape and built form
- Topography
- Viewsheds and visual sensitivity
- Catchments and drainage

On the basis of the investigations and analysis undertaken, a series of landscape character precincts are identified within the overall study area. The key characteristics of each precinct are described.

This report is intended to be read in conjunction with the working papers being prepared by other consultant team members across various specialist areas.



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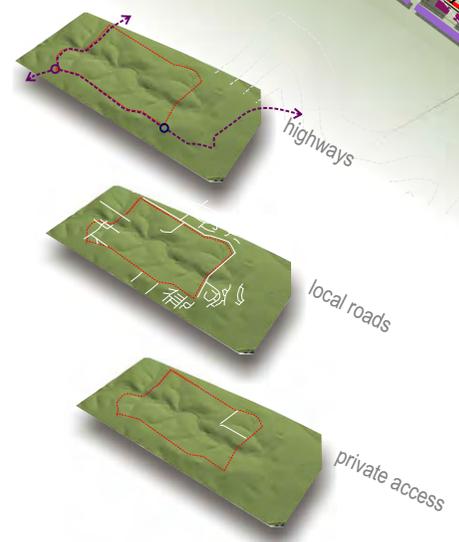
access and movement analysis

legend

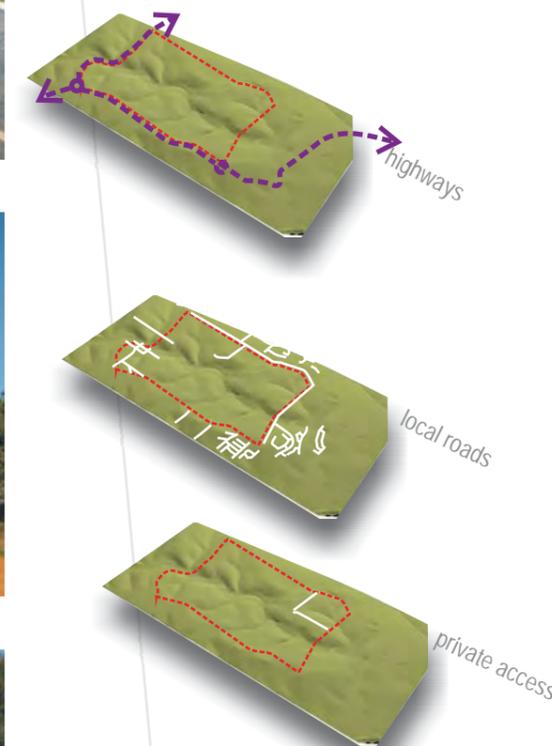
- subject site 
- 5 metre contours 
- major traffic intersection 
- highways 
- local roads 
- private roads 
- public transport (v-line service stops shown) 
- private access 
- proposed roads 

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access and movement analysis



major traffic intersections

- Great Ocean Road Anglesea Road: controlled by roundabout.
- Great Ocean Road Duffields Road: controlled by traffic lights.
- Duffields Road Grossmans Road: t-intersection with signage.
- Grossmans Road Anglesea Road: t-intersection with signage.
- School Road Anglesea Road: t-intersection with signage.

highways

- The Great Ocean Road is a secondary arterial road carrying 6,000 vehicles per day, increasing to 8,400 vpd during peak holiday times.
- Anglesea Road is a secondary arterial road carrying 3,500 vpd, increasing to 5,250 vpd during peak holiday times.

local roads

- Duffields Road is a collector road carrying 2,500 vpd.
- Grossmans Road is a local access road carrying 1,500 vpd west of Duffields Road and 3,500 vpd east of Duffields Road.
- School Road is the only other sealed road in the study area, running through the Bellbrae township.
- All other roads are unsealed, and provide access to rural properties within the study area and residential properties within the Bellbrae township.

public transport

The only public transport service operating within the study area is the V-Line bus which runs along the Great Ocean Road, connecting Warrnambool to Melbourne via Apollo Bay and Geelong. This route includes a number of stops within or abutting the study area, at Bellbrae (corner Great Ocean Road and Addiscott Road), Bells Beach turnoff (corner Great Ocean Road and Bells Boulevard) and Jan Juc turnoff (Corner Great Ocean Road and Duffields Road).

pedestrian and bicycle facilities

Surf Coast Shire has recently completed a Pathways Strategy (2006) which provides a detailed plan for the provision of improved pedestrian and bicycle networks across the shire, including the study area for this project. Future planning for pathways within the study area should consider the recommendations of this study.

Further information regarding access and movement within and around the study area is contained within the *Transport Infrastructure Assessment* background report.

Photo Locations:

- 1) Great Ocean Road, south-west of Bellbrae township. 2) Anglesea Road, north of Bellbrae. 3) Duffields Road. 4) Duffields Road. 5) School Road, Bellbrae. 6) Ashmore Road. 7) Seifferts Road, Bellbrae. 8) Old Great Ocean Road, east of Bellbrae.



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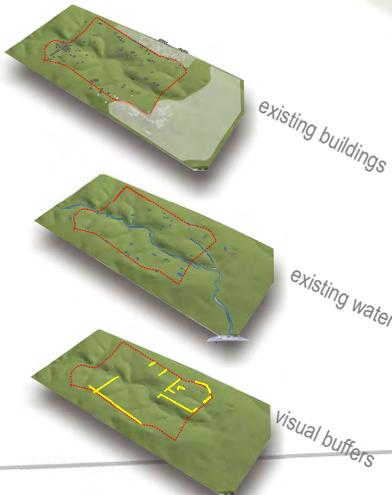
landscape and built form analysis

legend

- subject site 
- 5 metre contours 
- existing waterbodies 
- canopy vegetation 
- existing waterways 
- existing drainage lines 
- existing buildings 
- panoramic views 
- communications tower 
- visual buffers 

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vegetation

Canopy vegetation within the study area is characterised into 3 main types: remnant indigenous vegetation, windrow plantings and native tree plantations.

Remnant vegetation is found in bushland areas to the south of the Bellbrae township, adjacent to the recreation reserve, in road reservations and along the riparian corridor of Spring Creek. The extent and significance of this vegetation is described in the *Environmental Values* background report.

Windrow plantings are prominent across the study area, and are both an indicator of the agricultural heritage of the area and a prominent visual contributor to the prevailing landscape character. They are typically comprised of either exotic Cypress and Pine species or native Eucalypts. Many of the windrows within the study area are likely to be in excess of 80 years old, and as such it is likely that many of the trees within them are senescent, and may require removal in the future, particularly if residential development is envisaged in proximity to them.

A number of plantation areas also exist within the study area, comprising native Blue Gums of varying levels of maturity. It is likely that these have been planted as commercial crops, with their eventual removal anticipated as part of normal agricultural practices.

waterways and water bodies

Spring Creek is the major waterway within the study area. It effectively bisects the study area, with no existing constructed crossing points between Anglesea Road in the west and Duffields Road in the east. A number of minor drainage lines and tributaries run into Spring Creek within the study area, the largest of which is located within the north-east area, crossing Duffields Road approximately 500 metres north of Spring Creek. Various farm dams are scattered across the study area.

views and vistas

The enclosed valley landform of the study area tends to contain most panoramic vistas within the extents of the study area. The alignments of Grossmans Road in the north and the Great Ocean Road in the south, in particular, generally follow ridgelines parallel to Spring Creek, thus containing views within. Broad vistas across the Spring Creek valley are available from both the north-eastern and south-eastern corners of the site on Duffields Road. Grossmans Road offers panoramic views of the study area and in some instances these views extend beyond to Bass Strait. In general the broadest vistas are available from the perimeter of the study area rather than internally.

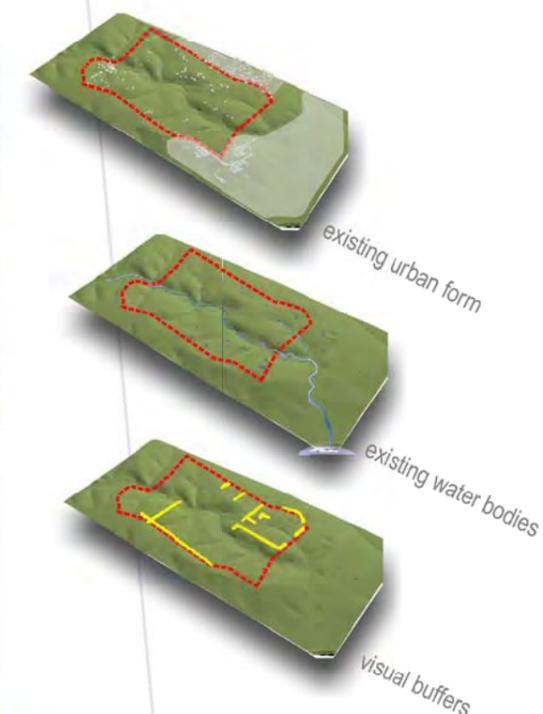
Existing vegetation, particularly within road reservations, provides a filtering effect, reducing the extent to which broad views of the study area are available. Most views into the study area from the Great Ocean Road are filtered or screened by roadside vegetation.

built form

The study area is largely undeveloped, with the small township of Bellbrae being the only area of any development density. There is an area of 'rural living' development near Ashmore Road. Residential development of standard suburban density abuts the south-eastern corner of the study area, comprising the existing urban areas of Jan Juc and the Ocean Views Estate, with lots typically under 1,000m². Lower density development abuts the north of the study area, comprising the Ocean Acres Estate, where minimum lot sizes are 4,000m². Further to the west along Grossmans Road is the Kithbrook Park development, which is under construction. This development is a retirement community, eventually comprising 231 single storey 'villas' in a development configuration comprising a relatively high density.

Photo Locations:

1) Riparian vegetation, Spring Creek. 2) Remnant roadside vegetation, Duffields Rd. 3) Shelter belt vegetation, Fernbachs Dve. 4) Spring Creek corridor, Bellbrae. 5) Panoramic vista, cnr Duffields Rd & Grossmans Rd. 6) Screened vista, Great Ocean Road. 7) Typical built form, Ocean Acres estate. 8) Typical built form, Ocean Views estate.



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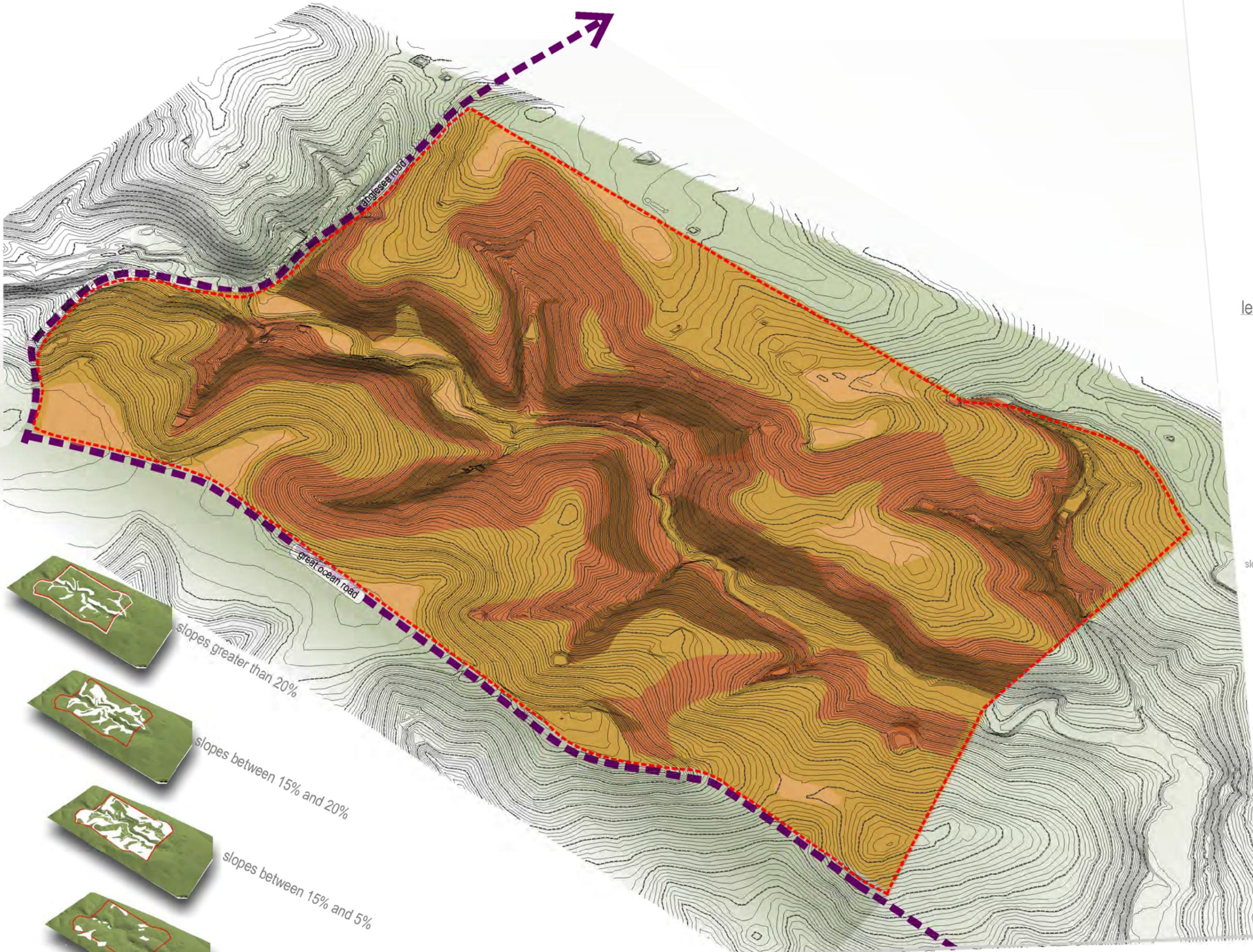
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spring creek growth framework

slope analysis

legend

- subject site 
- 5 metre contours 
- highway 
- slope greater than 20% 
- slope between 15% and 20% 
- slope between than 15% and 5% 
- slope less than 5% 



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very steep slopes

Slopes in excess of 20% gradient (1 in 5) are considered to be very steep and are typically unsuitable for residential subdivision and development at standard suburban densities.

Within the study area, areas of very steep slopes are found along a number of drainage lines, and in particular along most of the northern side of the Spring Creek corridor and parts of the southern side.

Very steep slopes account for approximately 10% of the total study area.

steep slopes

Slopes between 15% and 20% gradient (1 in 6 to 1 in 5) are considered to be steep, however they can accommodate residential subdivision and development at lower than average suburban densities, provided that road and lot alignments and configurations are designed to work with, rather than against, the prevailing topographic characteristics of the land. Larger than average lots and building envelope controls are typically used to manage development on steep slopes.

Within the study area, there are extensive areas of steep slopes, along most of the waterways and drainage lines.

Steep slopes account for approximately 25% of the total study area.

moderate slopes

Slopes between 5% and 15% gradient (1 in 20 to 1 in 7) are considered to be moderate, and can accommodate residential development at average suburban densities, provided that road and lot alignments and configurations are designed to work with, rather than against, the prevailing topographic characteristics of the land.

Within the study area, there are extensive areas of moderate slopes, typically on higher ground away from the incised drainage lines and waterways, closer to perimeter roads. The existing Bellbrae township is located on moderate slopes.

Moderate slopes account for approximately 60% of the total study area.

gentle slopes

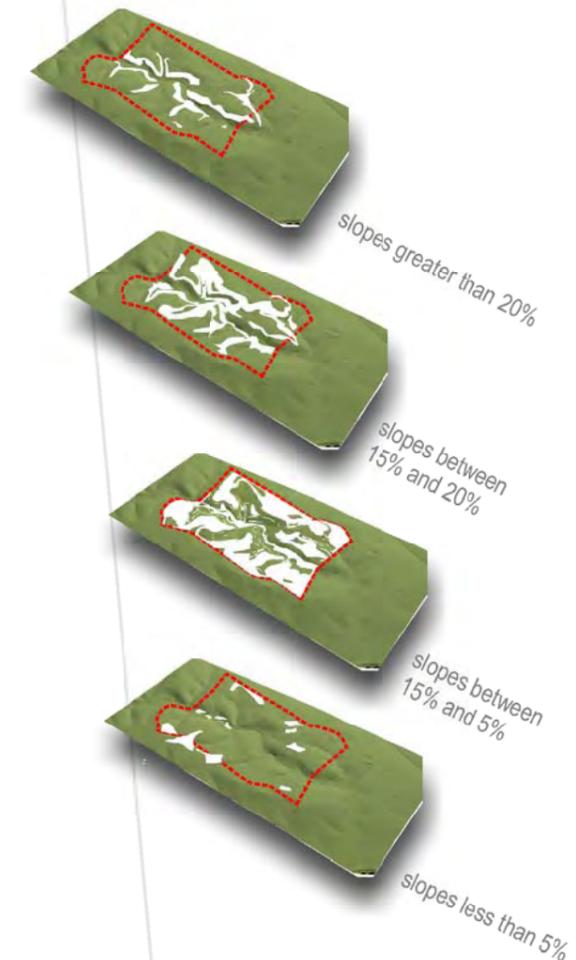
Slopes less than 5% gradient (less than 1 in 20) are considered to be gentle, and can accommodate residential development at average suburban densities, in configurations which are not limited by topographical constraints, such as standardised grid layouts.

Within the study area, gentle slopes are generally limited to hilltops along the Great Ocean Road and Grossmans Road and low-lying alluvial flats along the Spring Creek corridor close to the Bellbrae township.

Gentle slopes account for approximately 5% of the total study area.

Photo Locations:

1) Very steep slopes on north side of Spring Creek valley. 2) Steep slopes on north side of Spring Creek valley. 3) Moderate slopes on south side of Spring Creek valley. 4) Gentle slopes on hilltop north of Fernbachs Drive.



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viewshed analysis

legend

- subject site 
- 5 metre contours 
- viewpoint locations 
- high visual sensitivity 
- moderately visual sensitivity 
- low visibility sensitivity 
- very low visual sensitivity 

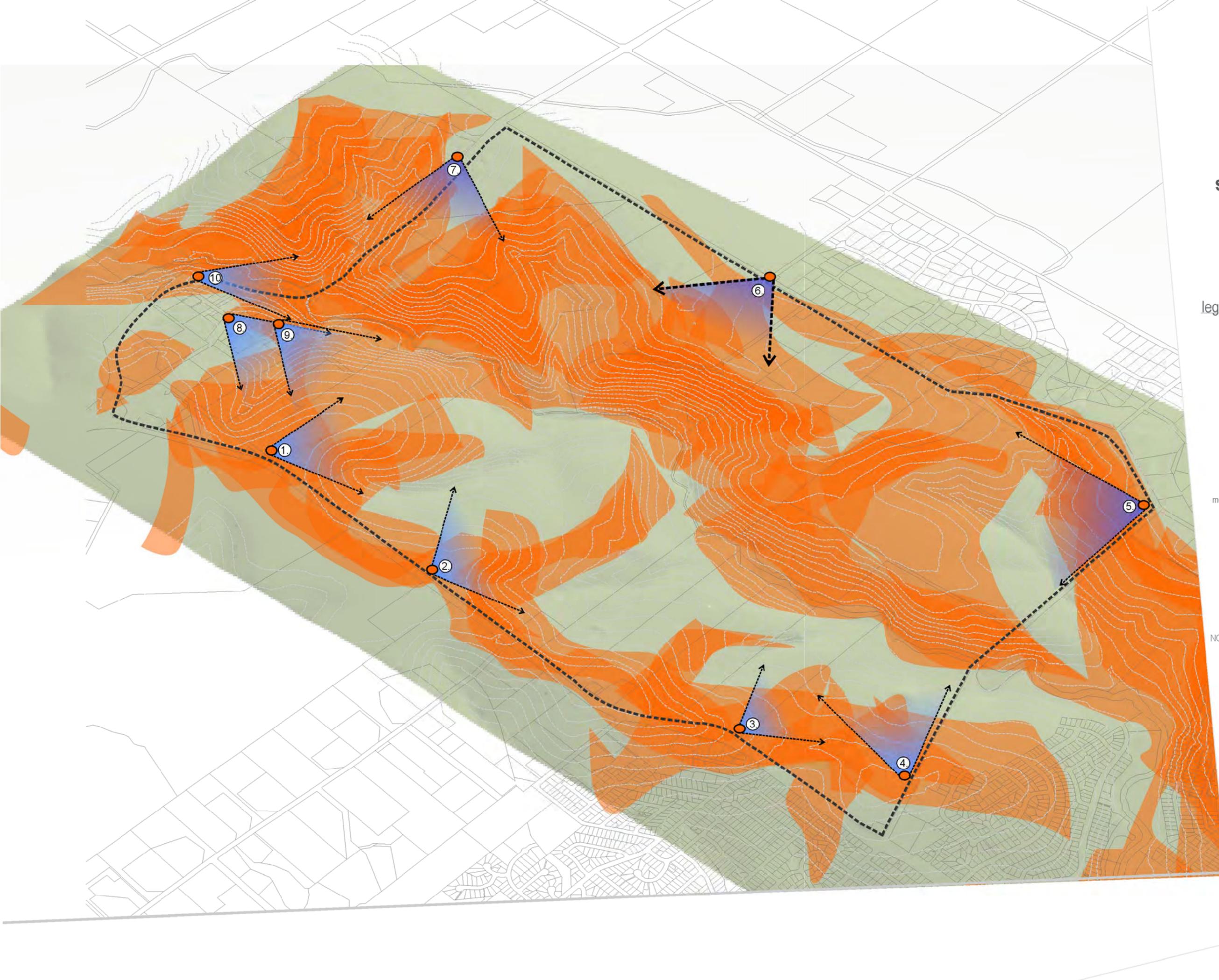
NOTE: refer to LCD004-1 for viewpoint locations

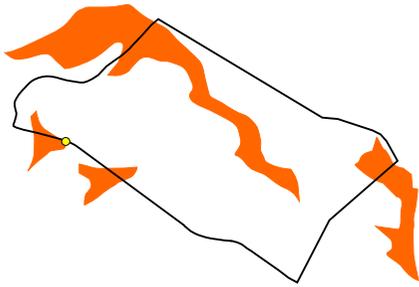
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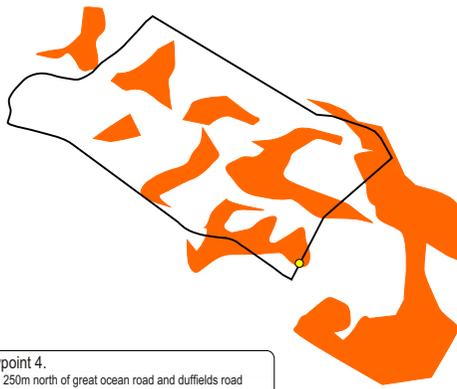


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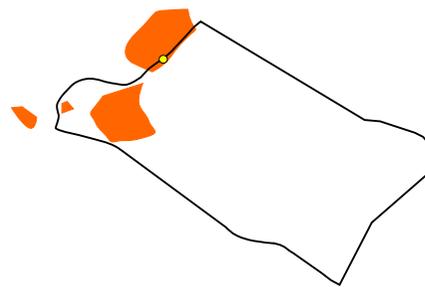




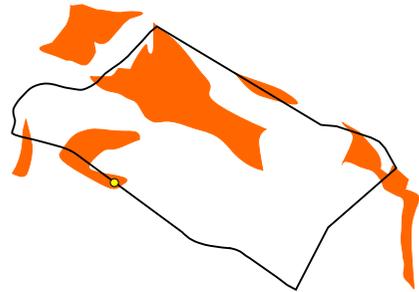
viewpoint 1.
high point 700m north-east of great ocean road and anglesea road intersection.



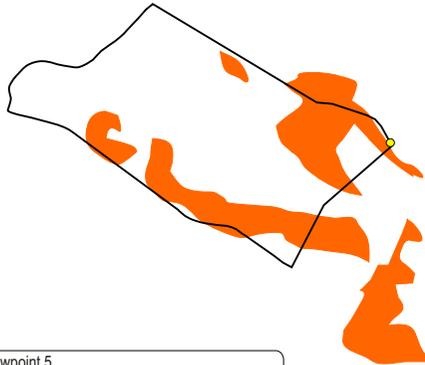
viewpoint 4.
ridge, 250m north of great ocean road and duffields road intersection.



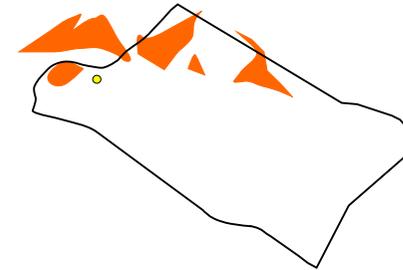
viewpoint 7.
approaching bellbrae along anglesea road, 250m south from intersection of anglesea road and grossmans road.



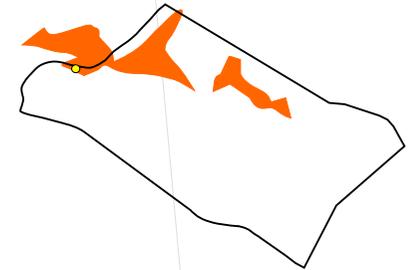
viewpoint 2.
high point, 900m from viewpoint location 1 on the great ocean road.



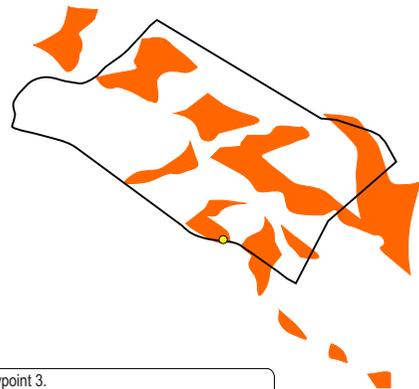
viewpoint 5.
intersection of duffields road and grossmans road north-eastern corner of the subject site.



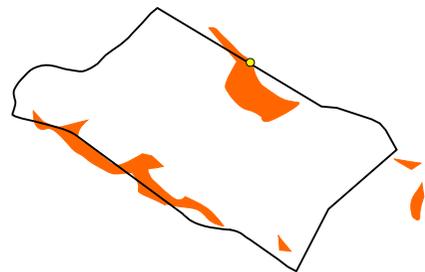
viewpoint 8.
intersection of bellbrae school road and cunningham drive, bellbrae



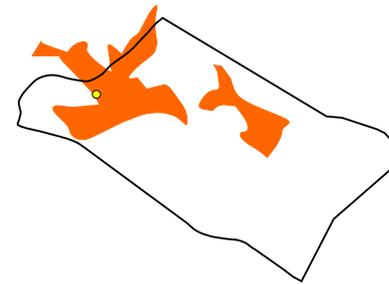
viewpoint 10.
intersection of seiffert road and anglesea road, bellbrae



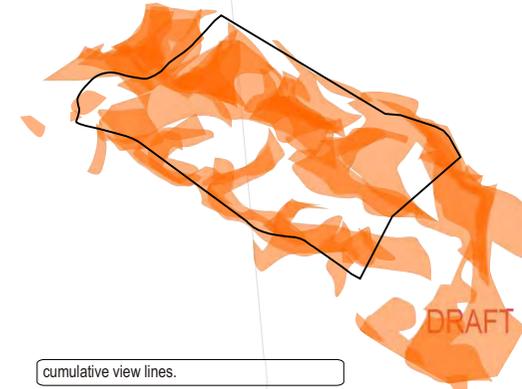
viewpoint 3.
800m west along great ocean road from the duffields road intersection.



viewpoint 6.
grossmans road, 1600m east of intersection of anglesea road grossmans road.



viewpoint 9.
intersection of wood road and cunningham drive, bellbrae



cumulative view lines.

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viewpoints

In order to measure the visual sensitivity of the study area, a series of viewpoints were selected as being typical locations from which views of the study area were available. These viewpoints were mapped using a 3D digital terrain modelling software which enables all 'visible' land from each viewpoint to be mapped. It should be noted that this technique does not account for visual screening provided by vegetation and other structures, and as such the visual exposure indicated is typically exaggerated. It is however a useful tool for mapping relative visual sensitivity within a defined area.

The selection of viewpoint locations is influenced by the likely presence of viewers, ie locations along major roads and within existing urban areas, such as Bellbrae township, are preferred as they have a higher incidence of people able to view than more remote locations, such as undeveloped, poorly accessible agricultural areas.

high visual sensitivity

Areas of high visual sensitivity are those areas which are visible from a majority of selected viewpoints. Within the study area this includes:

- Some south-facing slopes between Anglesea Road and Ashmore Road, and between Ashmore Road and Fernbach's Drive, which are visible from Anglesea Road, Great Ocean Road and Bellbrae township.
- Some south-facing slopes near Fernbach's Drive which are visible from Duffields Road.

moderate visual sensitivity

Areas of moderate visual sensitivity are those areas which are visible from 3 to 5 selected viewpoints. Within the study area this includes:

- Extensive areas of south-facing slopes to the north of Spring Creek, which are visible from Anglesea Road, Great Ocean Road, Duffields Road and the Bellbrae township.
- Some north-facing slopes to the south of Spring Creek, which are visible from Grossmans Road.
- Some east-facing slopes which are visible from Duffields Road.
- North-facing slopes to the south of Spring Creek, at the western end of the study area, which are visible from Anglesea Road and the Bellbrae township.

low visual sensitivity

Areas of low visual sensitivity are those areas which are visible from 1 or 2 selected viewpoints. Within the study area this includes:

- Upper slopes and hilltops to the north of Spring Creek, which are visible from Duffields Road and Grossmans Road.

very low visual sensitivity

Areas of very low visual sensitivity are those areas which are only visible from 1 selected viewpoint. Within the study area this includes:

- Extensive areas of north-facing slopes to the south of Spring Creek, elevated land in the north-western corner of the study area and the enclosed valley to the north of Spring Creek close to Duffields Road.

VP 1.



VP 6.



VP 2.



VP 7.



VP 4.



VP 8.



VP 5.



VP 9.



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spring creek growth framework

catchment and drainage analysis

legend

- subject site 
- 1 metre contours 
- primary catchments 
- secondary catchments 
- drainage lines 



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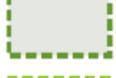


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spring creek growth framework

existing landscape characters precincts

legend

- subject site 
- 5 metre contours 
- bellbrae precinct 
- anglesea road precinct 
- great ocean road precinct 
- north-east valley precinct 
- south-east slopes precinct 
- grossmans road plateau precinct 
- spring creek valley precinct 



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contextual landscape character

The study area is contained within Precinct 1.2 – Undulating Mixed Farming of the *Great Ocean Road Region Landscape Assessment Study 2003*. The key characteristics of Precinct 1.2, as described in that report, are:

- Sense of enclosure in the hinterland
- Shelter belt planting
- Discreet placement of simple structures among the vales and trees
- A rural outlook from road corridors inland
- Indigenous coastal heath in coastal areas
- Sea cliffs and surf beaches
- Coastal townships

A number of these characteristics are evident within the study area, and contribute to its overall landscape character.

landscape character precincts

bellbrae precinct. Comprising the township of Bellbrae and its immediate surrounds, the key characteristics of this precinct are extensive indigenous canopy vegetation, moderate topography with north and east-facing slopes, low density urban form in a rural/bushland setting, and generally enclosed viewsheds resulting from the township's location within the Spring Creek valley.

anglesea road precinct. Comprising the north-west corner of the study area, the key characteristics are the open pastures criss-crossed with established shelter belts, moderate to steep topography with generally south-facing slopes and an enclosed valley, occasional farm buildings and views along the Spring Creek valley.

great ocean road precinct. Comprising the central southern part of the study area, the key characteristics are open pastures with scattered remnant vegetation, generally moderate topography with north-facing slopes intersected by steep to very steep slopes along some of the incised tributaries, occasional farm buildings and panoramic vistas across the Spring Creek valley.

north-east valley precinct. Comprising the north-east corner of the study area, the key characteristics are open pastures fringed with established shelter belts, moderate topography with generally east-facing slopes bisected by a deeply incised tributary, occasional farm buildings and generally enclosed views resulting from the valley form. Panoramic vistas across the study area and beyond to Bass Strait are available along the Grossmans Road edge.

south-east slopes precinct. Comprising the south-east corner of the study area, the key characteristics are open pastures with scattered remnant vegetation, generally moderate topography with north-facing slopes, occasional farm buildings and panoramic views to the north and west along the Spring Creek Valley. The existing urban fabric of To rquay is visible to the east, however Jan Juc is screened from views by the ridgeline to the south, along which the Great Ocean Road runs.

grossmans road plateau precinct. Comprising the central northern part of the study area, the key characteristics are open pastures with prominent shelter belts, remnant vegetation along Grossmans Road, generally moderate topography, occasional farm buildings and panoramic views to the south due



Photo Locations:
1) Bellbrae precinct. 2) Anglesea Road precinct.
3) Great Ocean Road precinct. 4) North-east valley precinct. 5) South-east slopes precinct. 6) Grossmans Road plateau precinct. 7) Spring Creek valley precinct.

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