

# Statement of Evidence

Reference: *Draft Amendment PDPSAMEND-2021/022804*  
*Clarence Local Provisions Schedule*

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Field of expertise: Visual Landscape Planning

Filed on behalf of: Howrah Hills Landcare Group Inc.

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# *Visual Values Assessment of the Knopwood Hill Slopes*

## 1 BACKGROUND

This is a statement of evidence from Bruce Chetwynd, Visual Landscape Planner of 113 Nelson Road, Mount Nelson, Tasmania 7007. I have over 30 years experience in the visual landscape field.

My qualifications include BA (Environmental Design), TCAE, Hobart; Graduate Diploma of Landscape Planning, TCAE; Graduate Diploma of Recreation Planning, CCAE, Canberra.

My professional experience includes: Senior Landscape Planner, Forest Practice Authority Tasmania (forest visual management and recreation planning and design); and landscape assessment and planning of various residential, commercial and facilities development proposals throughout Tasmania. These include Wellington Park scenic assessment and strategic planning, Port Arthur resort proposal, Eagle Hawk Neck cluster housing proposal, Lake Saint Clair resort, Lauderdale refuse tip extension proposals, Meander Valley Scenic Strategy study and Coles Bay and Four Mile Creek shoreline residential proposals.

This report was commissioned by the Howrah Hill Landcare Group to provide evidence and opinion in association with planning scheme amendment PDPSAMEND-2021-022802 to rezone land at Howrah to Landscape Conservation Zone and apply the priority vegetation overlay.

The study method has been to analyse various natural aspects of the land, the nature of the landform and the potential viewing exposure to public areas. The purpose is to consider the likely visual impact of the proposed amendment.

## 2 STUDY AREA

This statement addresses the scenic values of the mid-slopes the bushland hillside of Knopwood Hill which adjoins and forms the eastern backdrop to suburban Howrah. It reviews the potential scenic or visual landscape effects of the alternative Tasmanian Planning Scheme zones, Low Density Residential & Landscape Conservation, it also considers these zones in comparison to previous requirements including allowing multiple dwellings on the proposed and existing subdivision lots.

The land subject to the amendments is Lots 1-8 (100 Skyline Drive), 144-146 (5 Zenith Court, 18 Newhaven Drive & 125 Norma Street) and numbers 60a, 60b, 60c, & 46 Skyline Drive, as well as triangular area of lot 6, 100 Skyline Drive at the north-west. This is the moderate to steep hillslopes above the established neighbouring residential area on lower slopes with currently low density housing above on the mid-slopes. The upper level of some of these lots reaches to the 120m contour, whilst the highest existing buildings are located at around the 110m level.



Figure 1: Subject land (Aerial photos from the LIST)

## 2.1 Viewing Context

The hillside is immediately behind Howrah and forms the native bushland backdrop and is critical to the character of the local precinct and more broadly to the landscape character of greater Hobart and the surrounding Derwent River valley.

Mornington Hill, Knopwood Hill, Glebe Hill and Rokeby Hills further to the south, together form a continuous ridgeline and natural backdrop of rolling wooded hills and bushlands seen from the local Howrah residential area. This is viewed as well as from further afield on the western side of the Derwent River valley, in particular from the suburb of Mount Nelson and the Lookout at 7km distance, from Bellerive Bluff and from the Derwent River on recreational boats, commuter and tourism ferries and cruise liners.

Moreover in a regional context, the study area is an integral part of the continuous line of wooded low hills running along both sides of the Derwent River valley. Urban areas are nestled along the riversides and generally rise up the lower less steep slopes with retained woodland character and wooded skylines above. The hills are essential elements defining the visual landscape character of greater Hobart and surrounding suburban areas. On the western side of the river this visual character is compromised but not lost by established residential areas along Nelson Road and the top of Tolmans Hill. These are partially merged within retained woodlands as allowed under earlier fire regulations for clearing boundaries. Over many years, urban encroachment on these hillsides remains a recurring concern of citizens and residents of the region. In recognition of this fact, the Hobart City Council established the Skyline Reserve on the upper slopes of Mount Nelson. This follows identification of the critical visual sensitivity of these areas in line with the *Urban skylines and Hillfaces Guidelines*<sup>1</sup>.

The native bushland slopes of Knopwood Hill are an essential component of the existing character of Howrah and the broader suburban area. The study area largely encompasses the mid-slope foreground backdrop to Howrah where details of vegetation and houses are observable and viewing

is from a low angle below across the slopes. Its upper boundary runs across the hillside and at the western end, forms part of the skyline viewed from near Shoreline and the East Derwent Highway. From the western side of the Derwent River a face-on level view of the full slope is experienced in background and broad patterns are noticed rather than detail. The area is also part of the elongated coastline and slopes stretching from Rosny across to Tranmere.

## 2.2 Viewing status or sensitivity

The visual status of the landscape of the study area was established following well established methodology outlined in the *Manual for Forest Visual Management* <sup>2</sup>. The high number of viewers and frequency of viewing by local residents and motorists ensures that the study zone rates as 'High Sensitivity' to viewing as compared to a lesser visited rural location. The scenic quality is rated as 'High to Moderate' based on South-East Coastal Hills 'landscape character type'. Viewing distance as discussed above ranges from Foreground and Middleground for the local urban area through to Background from the western side of the Derwent and from the River itself. Drawn together these evaluations signify that changes to views should remain largely 'Inevident' through to 'Apparent' within the existing character of the landscape. In common expression, changes due to housing and vegetation clearances to the wooded appearance, while allowing for changes to be visible, should retain a high level of the existing and surrounding landscape character of the slopes. Introduced visual elements should never dominate in the scene.

This is consistent with long standing planning policy of the Clarence City Council as defined in the *Natural Assets Inventory* in 1995 <sup>3</sup>. It references the desire to conserve the wooded skyline of the ridges along the Derwent River and identifies the value that the local community places on retention of the wooded backdrops adjoining suburban areas. For residential development on hill slopes, this may only be achieved through development control where siting responds to constraint of the land such as slope, screening capacity of vegetation and exposure to viewing from public areas.

### 3 VIEWING EXPOSURE

For analysis purposes, numerous viewpoints were identified from where the rezoned lots are likely to be visible. Together these as representative of the public viewing experience for residents to the rezoned hill slopes. Viewing is from a wide area of suburban Howrah adjoining on the west and from the South Arm Highway (for the northern and southern traffic), as well as from Howrah Road and the Shoreline Shopping Centre. The rezoned area is also readily viewed from the western side of the densely populated Derwent River valley, from key points such as the Mount Nelson Lookout and the slopes of Mt Nelson. (See Viewpoints Map, Figure 2).



Figure 2: Viewpoint Map (Aerial photos from the LIST)

Selected viewpoints used to assess visual characterises of the study area, specifically Howrah Rd 02, Howrah Rd 03 and South Arm Highway 01 as shown in red on this local map.. A further two location and Bellerive Bluff and the Mount Nelson Lookout were also considered.

For the selected viewpoints, “Visible Areas” were analysed and plotted to assist in understanding the extent of viewing of the area. This was plotted by Global Mapper GIS software Version 19.1. The subdivision boundaries were captured in digital form from existing maps in GIS and then exported to Google Earth as digital DXF files. These were then directly digitally rendered in red in the Street View images below.

Comparison field images were then taken to provide a demonstration of the views with a known camera/lens field of view providing a more realistic representation when viewed by a person from the various locations.

All field photographs were taken by or under direction of Bruce Chetwynd. Focal lengths are specified in Full Frame 35mm equivalent lenses with accompanying Field of View horizontal angles. Larger versions of images are included as an appendix.



### 3.1 South Arm Hwy 01 - Study Area Layout and Field Photograph



Figure 3: Full width image in Google Earth Street View. This is 18mm lens or 90 degree Field of View in 35mm camera



Figure 4: Photo by passenger on B Chetwynd's Nikon D5600; 39mm lens or 49 degrees Field of View

### 3.2 Howrah Road 02 – Study Area Layout and Field Photograph.



*Figure 5: similar location to 01 but further away. (Full width image in Google Earth Street View. Approx. 18mm lens or 90 degree Field of View)*



*Figure 6: Photo by B Chetwynd Nikon D5600; 39mm lens equivalent or 49 degrees Field of View*



### 3.3 Bellerive Bluff view – Study Area Layout and Field Photograph



*Figure 7: White house high/centre. Full width image in Google Earth Street View. Approx. 18mm lens or 90 degree Field of View.*



*Figure 8: Photo by B Chetwynd, Nikon D5600; 39mm lens equivalent or 49 degrees Field of View)*



### 3.4 Mount Nelson Lookout – Study Area Layout and Field Photograph)



*Figure 9: 75% zoom Google Earth Street View image; 24mm lens or approx. 74 degree Field of View*



*Figure 10: Photo taken by B Chetwynd Nikon D5600; 55mm lens or 36 degree Field of View*

### 3.5 Visible Area Analysis

The land seen from 4 representative viewpoints from a wide sweep around the southern Derwent River basin is displayed as coloured areas on maps below. This is based on analysis by Global Mapper GIS of the topographical form of the land, a wide range of horizontal viewing angle and the height and distance of each viewpoint. It shows that the Knopwood Hill slopes are comprehensively visible from a wide range of urban areas.

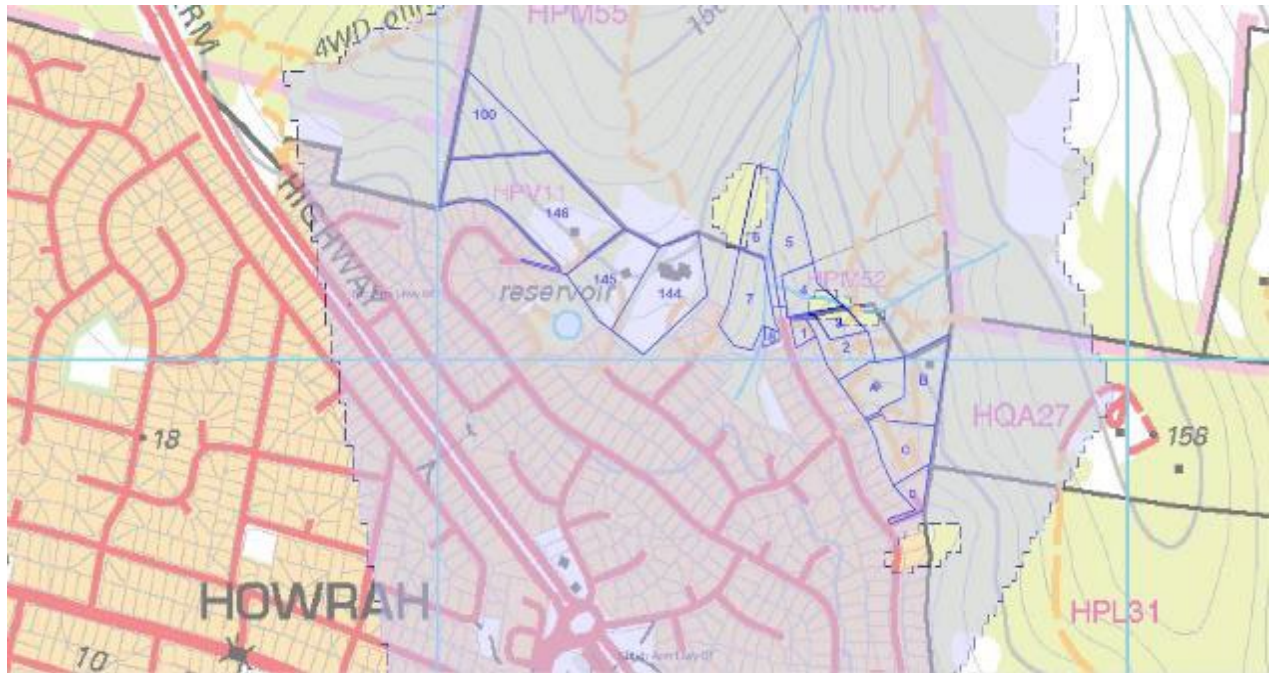


Figure 11: Howrah Rd 02 Visible Area (Shown as grey colour shaded areas)

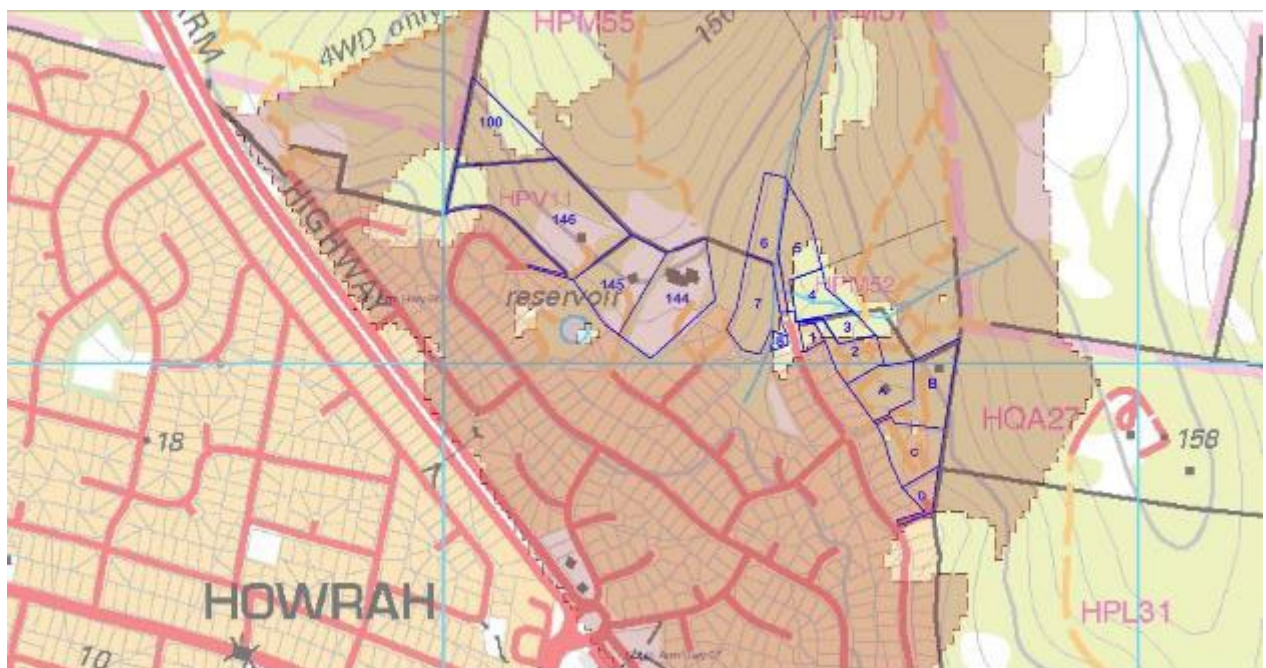


Figure 12: South Arm Highway 01 Visible Area (Shown as brown colour shaded areas)



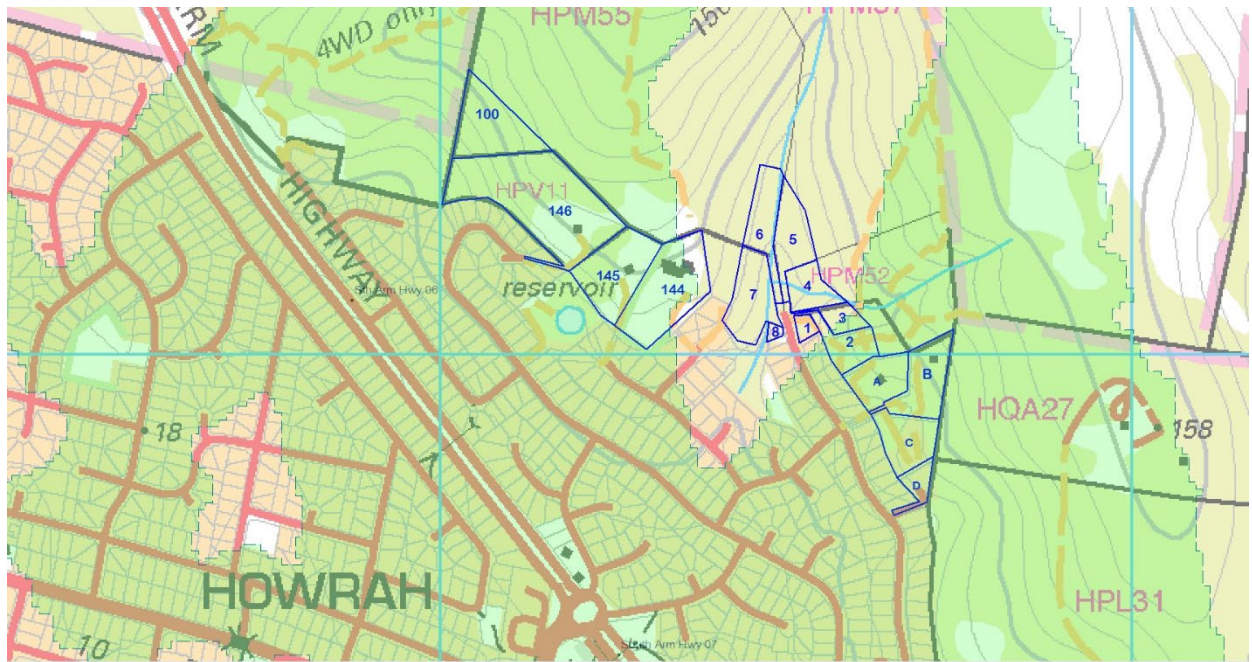


Figure 13: Bellerive Bluff Visible Area (Shown as green colour shaded areas)

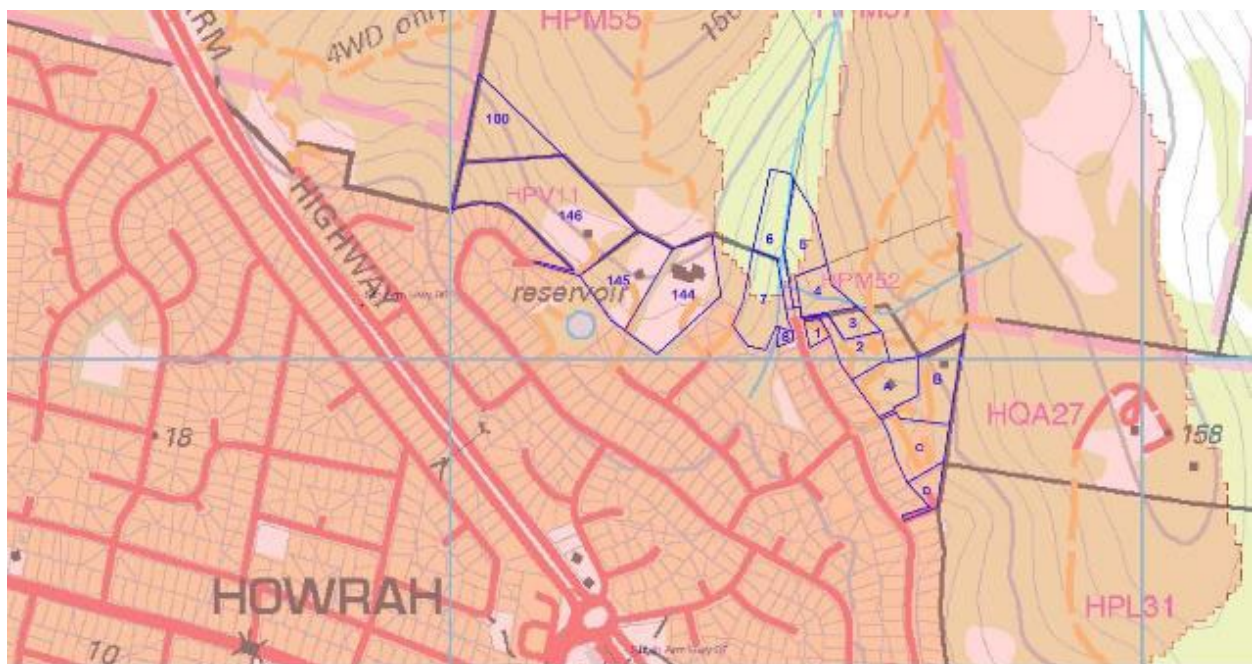


Figure 14: Mount Nelson Lookout Visible Area (Shown as brown colour shaded areas)



## 4 REVIEW OF CURRENT DEVELOPMENT ON THE KNOPWOOD HILL SLOPES

### 4.1 Existing visual changes due to housing and clearing

From the greater Howrah urban area viewing to the study area is from a low angle. The lower slopes are often screened by local houses and structures while the upper areas are generally exposed to viewing. Native forest is often regrowth of low canopy height providing moderate potential for screening. The low viewing angle from Howrah means that retained forest or trees generally screen cleared land on gentle to moderate slopes while in steep areas cleared land can be exposed to viewing. (See Viewpoint Map, Figure 2)

From residents on Western shore, the Derwent River and Bellerive Bluff, the whole of the study area is exposed to viewing and likely scrutiny. Viewing distance ranges from 7km at Mount Nelson Lookout to 4km at Bellerive Bluff and various locations on the Derwent River. Due to this greater distance the slopes are seen full face-on and from a generally horizontal perspective.

### 4.2 Visual aspects of housing in the study area

At the North-East zone of the study area, the large developed lots of 144 (1.27ha), 145 (0.96ha) and 146 (2.32ha) have been partially cleared to grassland (possibly from an earlier grazing period) especially in the vicinity of the houses and out-buildings.

On lots 144 and 145, from Howrah the existing houses are only partly exposed to viewing due to siting on *Gentle* to *Shallow* slopes as well as screening by remnant forest and plantings. (See Slope Map, Figure 15). Existing changes appear part-natural and unobtrusive to outside viewing. From the western shore including from the Mount Nelson Lookout, they are also partly screened by vegetation while the surrounding grasslands of former paddocks are more exposed but fragmented by scattered clumps of low trees.

Both of these lots have some areas of *Gentle* to *Shallow* slopes. As stated above, vegetation on these areas provides a partial screen to established houses. Nevertheless, the majority of land in these lots has slopes that are *Moderate* to *Steep* where buildings would be visually unsuitable and dominant in the landscape.

Lot 146 is occupied by a long white house which appears elongated across the slope at a high position on the lot at 105 m. The house is on the side of the ridgeline and is on a steeper site (on *Steep* slope) than for the neighbouring houses discussed above. The land directly in front of the house falls away more steeply to the south-west. The house is unscreened despite a row of planted trees below and is fully exposed and very prominent and dominant to viewing from all directions (i.e. both from Howrah and the western shore). The light colour of this house, its elongated design and large scale and the absence of screening vegetation are key factors in the prominence of this house to viewing from all areas. This is the case despite the house being on a large lot size. The majority of this lot has *Steep* to *Severe* slopes on which buildings would be highly intrusive in the landscape.

Housing on lots 144 and 145 are useful to guide the suitability of sites in achieving acceptable visual outcomes. These are large lot sizes and the existing low houses and partial screening by vegetation ensures that the partially disturbed lots provide a visual transition between the undisturbed bushland above and the established high-density urban areas directly below. Lot 146 is also an example of why control is desirable on the external colours and materials of buildings, such as provided for in the proposed Landscape Conservation Zone, can be beneficial in limiting visual impacts.

Lot 100 (0.92ha) at the north-east of the study area is a vacant block which is very steep and classified as *Severe* slope across the greater majority of the parcel. (See Figure 15 *Slope Map*).

It is covered in mature Casuarina “forest” with a dense, low, even canopy likely as a result of past fires. The lot is fully exposed and face-on to viewing from Bellerive Bluff and from Battery Point and Sandy Bay shorelines and suburban areas. These factors indicate high viewing sensitivity and a low capacity to absorb changes (i.e. they would be visually prominent and unacceptable). Development would dominate the scene and could be expected to impact strongly on the existing natural appearance. It presents significant challenges and has little potential for housing development.

At the South-East zone of the study area, housing is established on 4 smaller lots of land (A (0.52ha), B (0.70ha), C (0.590ha) and D (0.21ha)). These smaller lots are on native forest slopes. From the majority of Howrah, these houses are partially screened by surrounding vegetation on the slopes and the acute angle of viewing and thus have reduced visual prominence. Mostly the upper parts of walls and house roofs are seen above the vegetation although ground surfaces are hidden from view.

On Lot A which is mostly *Moderate* slope, the original moderate sized house in the area is built on a small gently sloping site. This has green painted walls and roof and is mostly screened by retained native vegetation and is well integrated into the treed slopes. This relates to all views except only from Mount Nelson where the roof in morning and midday lighting appears light toned and strongly contrasting.

Lot B covers mostly *Steep* slopes and the house is darkly painted, larger and modern. It is sited on a cut bench on a steep minor ridgeline. At 105m altitude this is equal highest of current houses. Extensive earthworks and cut batters have occurred across the slope exposing the light coloured mudstone of this region. The house and surround land is fully exposed to viewing from the western shore and Bellerive Bluff and appear as a small scale hole in the forest canopy. The road up to this house is narrow and winding and is well screened due to narrow clearing width through retained forest. A redeeming factor is that the owner specifically chose to paint the walls black to lessen its prominence; however the large extent of clearing and site disturbance results in the partial dominance of the development.

It is likely that the house is on the most suitable site on this lot. Areas elsewhere on the lot are steeper and appear to be visually more sensitive and unsuited to additional development.

On Lot C ranges from *Moderate* to *Steep* slopes. The large rectangular house is on the *Moderate* slope site at the break of slope with the *Steep* area rising behind on which some thinning of bushlands appears to have taken place. Below the house, vegetation clearing has resulted in full exposure of the house to viewing from the western shore and Bellerive Bluff. The building and roof are darkly coloured which reduces prominence although the sloping roof has a lighter and more prominent appearance in midday full sun. This house is prominent to viewing from afar.

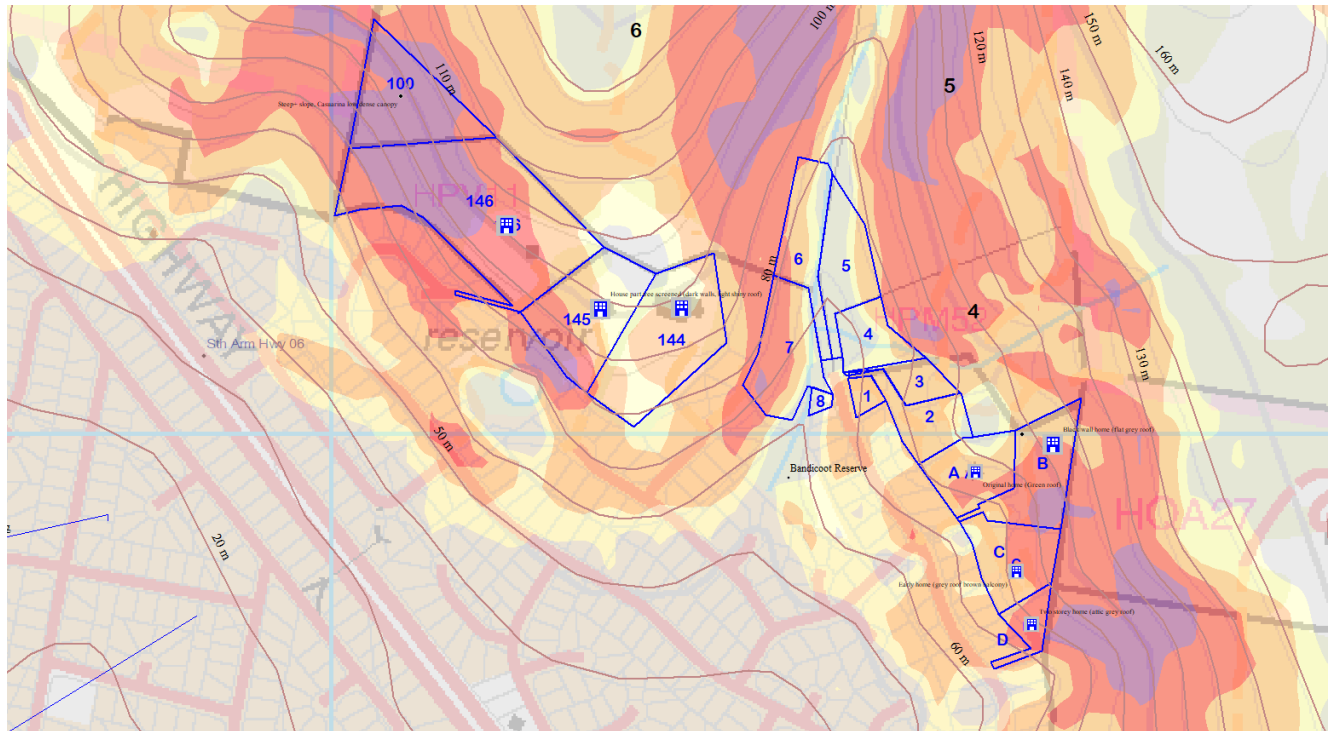
Lot D is small in size on a *Steep* slope and is visually not suited to additional development. The existing house is double-storey and thus prominent to viewing, as is predictable on such steep slopes.

The central gully located between the two developed zones reviewed above is subdivided into 7 lots (note Lot 8 is a Council reserve). Much of the subject area of lots 5 and 6 is unseen from key points outside, including from Mount Nelson viewpoint, or seen at an acute/side-on angle. The latter two provide potential for visually suitable sites on each within slopes Gentle and Shallow to Moderate. Siting of buildings below the 75m contour is recommended for these lots.

Lot 4 is mainly Gentle to Shallow sloping land visible from various outside locations. Buildings should be sited below the 70m level of this lot.






Lots 1, 2, and 3 are on the steeper Moderate slopes visible from various outside locations. These are suitable for individual buildings located within the subject area to ensure partial retention of the woodland character to these blocks. The Shallow slope area at the upper level of the subject area, of Lot 2 has a potential site for a visually suitable building on the lower slopes.

Lot 7 (0.72ha) at the western entrance to the gully has *Steep* to *Severe* slopes where the siting of additional buildings would be visually unacceptable. The best siting option would be on the lesser slopes at a lower level/altitude, accompanied by retention of trees for partial screening.



### ***Slope Classes***

(Note that these are broad classification only and give a general overview). These are shown in the map as muted colour, shaded areas similar to those in the legend.

	2.5°	<b>Gentle slope</b>
	9.0°	<b>Shallow slope</b>
	11.0°	<b>Moderate slope</b>
	15.0°	<b>Steep slope</b>
	19.0°	<b>Severe slope</b>

*Figure 15: Slope Classes (The Slope Classes were generated by Global Modeller GIS software)*

The Slope Analysis gives a broad understanding of the form of the land, however it does not display details identified on a walk across parts of already developed areas. Nevertheless it indicates that many of the mostly suitable buildings sites have already been developed as described earlier in analysis of individual housing lots. Lidar topographical analysis would be required to fully appreciate the finer detail.



As shown in the diagram below, the steepness of the land increases higher up on the mid slopes as compared to the lesser steepness of the lower slopes where residential development is already established. This indicates that land clearing for further building blocks on the current bushland above will have greater prominence and likely impact to public viewing areas.

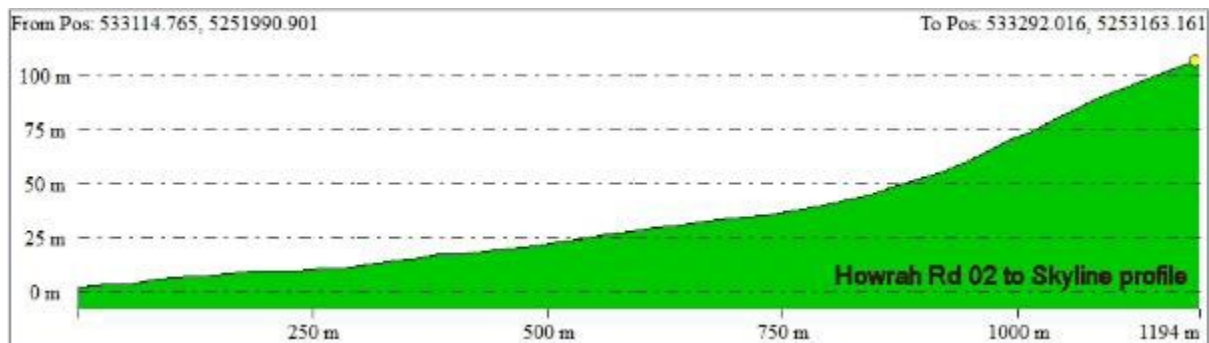


Figure 16: Landform Profile showing the concave profile and increasing steepness and thus visibility of the upper slopes targeted for the rezoning. (This landform profile was generated using Global Modeller GIS software).

## 5 OTHER FACTORS

### 5.1 Fire regulation and vegetation clearance

In considering future subdivisions on forested hill slopes today, modern fire management provisions call for far greater vegetation clearing setbacks from all buildings than required 15 years ago when many of the existing developments took place. These provisions are significantly more severe today especially on sloping lands requiring greater/wider down-slope clearing. This has significant effects of increasing the exposure of the house and surrounding cleared land to outside viewing. Thus in the current Howrah Hills situation, it will be far more difficult today to achieve an effective visual transition in landscape character between the urban zone below and native forest vegetation above.

### 5.2 Soil and excavations

Another factor of importance on many parts of the study area, especially on ridgelines and steep slopes, is the shallow infertile soils with underlying light colour mudstone. Building excavations can expose such ground surfaces that are difficult to revegetate and would remain high contrasting and dominant to viewing.

### 5.3 Characteristics of rezoning

A zoning which allows for “multiple dwelling” of a nominal 1500m<sup>2</sup> block size would result in a much greater density of development and in the present “semi-natural transition area” can be expected to result in a residential dominance of the landscape. This would result in an exponentially far greater density of development on the slopes than has occurred in the past examples discussed above and is likely to create an accompanying increased urban dominance even within gently sloping areas. With such residential block size on all but Gentle slopes, clearing of the majority or all native vegetation for construction of house, services and access could be expected.

### 5.4 New housing in bushland slopes

Today the trend is for increasingly larger size new houses in prestige bushland settings, including on hill slopes. To achieve large floor space on slopes with shallow soils and high cost for excavations, two options are available. The first is to use a single storey design with a broad footprint spread across the slope. The second is a two storey design where the building is likely to have greater exposure and difficulty of screening. Both are likely to create a greater visual presence of housing than if the floor space could be achieved through excavation.

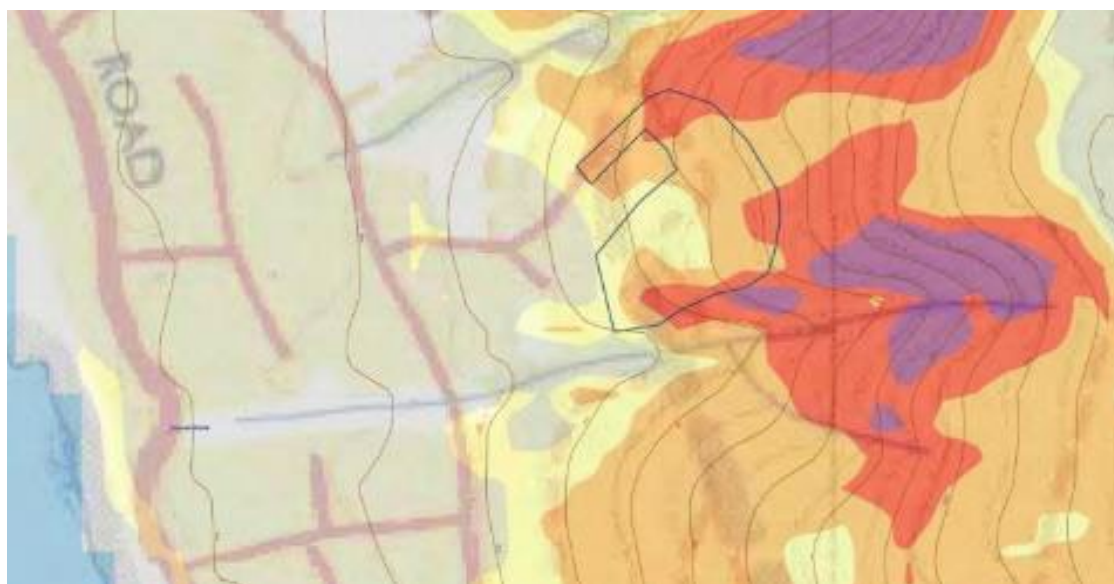
Traditional sites suitable for housing (moderately flat slopes and deep soils) are likely to be extremely limited or already utilised throughout the study area. Some development may be forced onto visually exposed ridgelines and construction on slopes will likely require significant and difficult earthworks. For these reasons, elementary subdivision on plan of lots of similar size will be problematic and not effective. This is due to the need for functional road access and building sites.

## 6 NEARBY ROKEBY HILLS SUBDIVISION EXAMPLE

To gain a better insight into what may be expected with development of the Knopwood Hill slopes if more intensive subdivision and housing is allowed to occur, a comparison may be made with the recent subdivision and infrastructure on the slopes of Rokeby Hills nearby to the south. Here the average lots are around 1600m<sup>2</sup>. All of the trees and native vegetation was removed during site preparations and construction of roads and stormwater facilities etc. From a visual landscape perspective this subdivision retains none of the original native forest/bushland character of the site. The dominant visual impact of the development on this sloping site appears as an intrusive change in character especially in viewing from along the eastern shore beaches and as well from the majority of urban areas on the western side of the River.






A recent Low Density Residential subdivision exists in the nearby landscape on Rokeby Hills, at Tunah Street Howrah, 2 km further south of Skyline Drive. This may be reviewed as a convenient guide to the potential visual exposure and prominence of Skyline Drive subdivision under the new multi-dwelling provisions.

This subdivision has resulted in a dominant visual deviation from the generally landscape character of the region. This has occurred on the mid-slopes and is a similar extension of the suburban area up slope into native bushland. The subdivision is on west facing slopes of 11° to 15° and its top edge has an elevation of 75m on the slope of a 120m high hill. This change in the landscape is visually dominant at this stage, notwithstanding the raw new clearing for development. (See Slope Map and photo from Bellerive Bluff at Figures 7 & 8)



### ***Slope Classes***

(Note that these are broad classification only and give a general overview). These are shown in the map as muted colour, shaded areas similar to those in the legend.

	2.5°	<b>Gentle slope</b>
	9.0°	<b>Shallow slope</b>
	11.0°	<b>Moderate slope</b>
	15.0°	<b>Steep slope</b>
	19.0°	<b>Severe slope</b>

*Figure 17: Slope Classes (The Slope Classes were generated by Global Modeller GIS software)*





*Figure 18: Photo by B Chetwynd, Nikon D5600; 55mm lens equivalent or 36 degrees F of V.*

Factors contributing to this visual outcome of the Rokeby Hills subdivision are the steepness of the slopes (especially at the upper section), total clearance of vegetation, complete scarification of the ground and access roads design directly up and down the slope. The subdivision lots range from approximately 900m<sup>2</sup> to 1500m<sup>2</sup> and are most easily seen from Kangaroo Bluff in Bellerive at 4 km and from across the river in Mount Nelson and Sandy Bay at 7 km. Limited viewing from the local area is possible due to the even slope profile and short setback from the coastline and Tranmere Road. For the Skyline Drive subdivision however, this is not the case as the profile is concave and slope increases towards the top of the lots. (See profile below from Howrah Road 02 to the Skyline Drive area).

## 7 CONCLUSIONS AND RECOMENDATIONS

Allowing multiple dwellings in the rezoning of the Knopwood Hill slopes has the potential to strongly affect the remaining native bushland on the prominent slopes and hills backdrop to Howrah and thus strongly impact on its present visual character.

In deliberation on the rezoning, allotments with a majority Moderate, Steep or Severe slopes ( $11^{\circ}$  and steeper) should remain outside of the multiple-dwelling zone. Single dwelling should only be allowed on Shallow and Gentle slopes (less than  $11^{\circ}$  to  $8^{\circ}$ ) to provide opportunity for retention of native vegetation and effective screening.

Analysis of landscape values based on exposure to public viewing, elevational position, and prominence to viewing due to steeper slopes and directional aspect, shows that significant portions of the western lots are highly prominent to viewing to the surrounding suburban region and to distant viewing from the west. Any further development of these areas needs to be restricted to shallow slopes where these may exist.

**(1)** Urban Skylines and Hillfaces Committee, 2000. Planning Guidelines: Urban skylines and hillfaces. Dept. of Primary Industries, Water and Environment, Tasmania, Hobart.

**(2)** Forest Practice Board, 2006. A Manual for Forest Landscape Management. (Republished 24-10-2006, Forest Practice Board, Tasmania; Philip Horning and Bruce Chetwynd, 1990).

**(3)** De Gryse, 1995. Natural Assets Inventory. City of Clarence, Tasmania.

## 8 APPENDIX A - Additional Viewpoints

Photographs (By Bruce Chetwynd)







## 9 APPENDIX B - Main Viewpoints Photographs High resolution images

Figure 4 - South Arm Highway 01





Figure 6 - Howrah Road 02





*Figure 8 - Bellerive Bluff*





Figure 10 - Mount Nelson Lookout

