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Pasminco Cockle Creek Smelter Site

Visual Analysis

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Prepared for:

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1.0 INTRODUCTION

1.1 Purpose of the Study

The purpose of this study is to provide a visual analysis of the Pasmenco Cockle Creek Smelter (PCCS) and the Incitec-Pivot sites located along the north-western slopes of Munibung Hill above the northern shores of Lake Macquarie.

The study identifies the scenic quality of the site, evaluating views both from within the site and to the site from accessible vantage points. The visual analysis will define the status of the scenic amenity of the site which would be used to determine the visual effect and impact of future development on its landscape environment. The analysis will provide a visual curtilage for development and the basis for the preparation of a set of visual criteria for development along the north-western to south-western slopes of Munibung Hill.

The visual effect is additionally evaluated in the context of visual sensitivity and visual amenity on the surrounding area. The adjacent environmental setting and landuses have also been evaluated for its visual impact on the site.

1.2 Site location

The PCCS and Incitec-Pivot sites are located on the northern to western slopes of Munibung Hill, north of the township of Boolaroo. The sites are located directly east of Cockle Bay at the northern side of Lake Macquarie. The sites are within the Lake Macquarie local government area and near the regional centre of Newcastle.

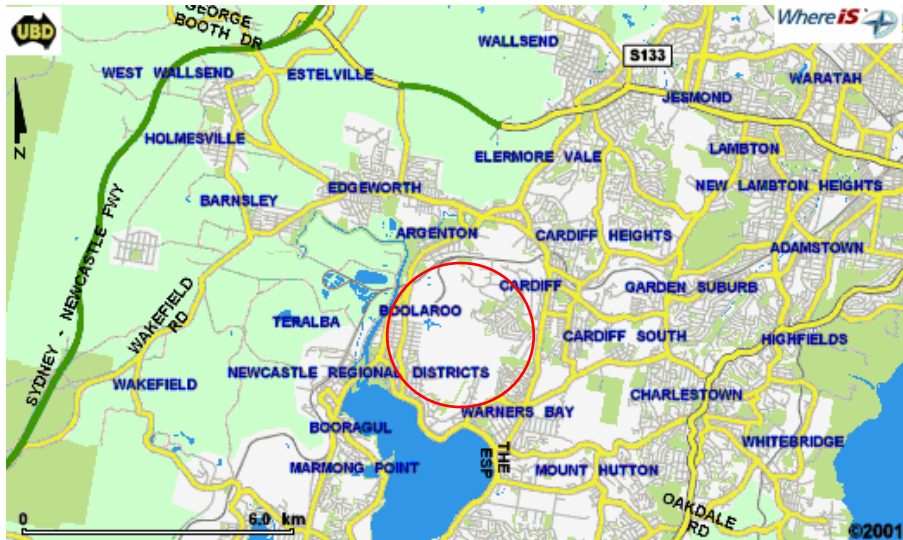


Figure 1: Location map

1.3 Surrounding land uses

The sites are surrounded by a number of existing townships. To the north is Argenton, a residential suburb, separated from the PCCS site by the Great Northern Railway. Cardiff industrial area lies to the north-west. The residential area of Macquarie Hills lies east of the site and is obscured from view by the north-south ridgeline of Munibung Hill. Boolaroo residential suburb and its commercial and retail township lies to the south-west of the site.

1.4 Surrounding landform

The surrounding landform immediately to the north-west of the sites is relatively flat. It forms the Cockle Creek basin, with the lowest point at Cockle Creek which drains into Cockle Bay, located at the north-western portion of Lake Macquarie. The flatland is punctuated by small local hills to the north-west. To the distant is the Sugarloaf Range, which stretches from the north-west to the west, encompassing the Awaba and Heaton state forests. The crowning feature of the mountain range is Mount Sugarloaf with its summit at RL 412. Munibung Hill is one of the highest points east of Sugarloaf Range.



Figure 2: Regional landform



Figure 3: Aerial view of the subject area with boundary and allotment identification

2.0 THE SITE

2.1 Site description

The **Pasminco Cockle Creek Smelter site** is located along the base and north-western slopes of Munibung Hill and comprises the following allotments:

- Lot 21 DP 251322 – a triangular-shaped allotment bounded by T C Frith and Main Streets;
- Lot 201 DP 805914 – containing the smelter buildings;
- Lot 1 DP 225720 – the Incitec-Pivot site;
- Lot 1 DP 523781 – the north-western slopes of Munibung Hill.

The site is bounded by:

- the Main Northern Railway line and Argenton to the north;
- Lake Road/ Main Street to the west;
- the industrial area of Cardiff to the north-east; and
- ridges of Munibung Hill from the east to the south.

The **Incitec-Pivot site** is located on the mid-level, north-western slopes of Munibung Hill adjacent to the northern boundary of the Boolaroo residential precinct, adjoining the PCCS site. It comprises Lot 1, DP 225720.

2.2 Munibung Hill

Munibung Hill forms the backdrop to both sites. The Lake Macquarie Scenic Quality Plan has identified the hill as one of the 15 critical ridgelines in Lake Macquarie. It is a prominent hill rising to RL 161 AHD, located at the northern end of Lake Macquarie, and is one of the few remaining undeveloped parcels of land between the northern end of Lake Macquarie and the City of Newcastle. The hill is approximately 4km long and extends from Speers Point in the south to the Main Northern Railway line at Argenton.¹

2.3 Heritage significance

The National Trust considers Munibung Hill “as a most important feature of the landscape adjoining Lake Macquarie”.²



Figure 4: Historical view of Munibung Hill from Warners Bay

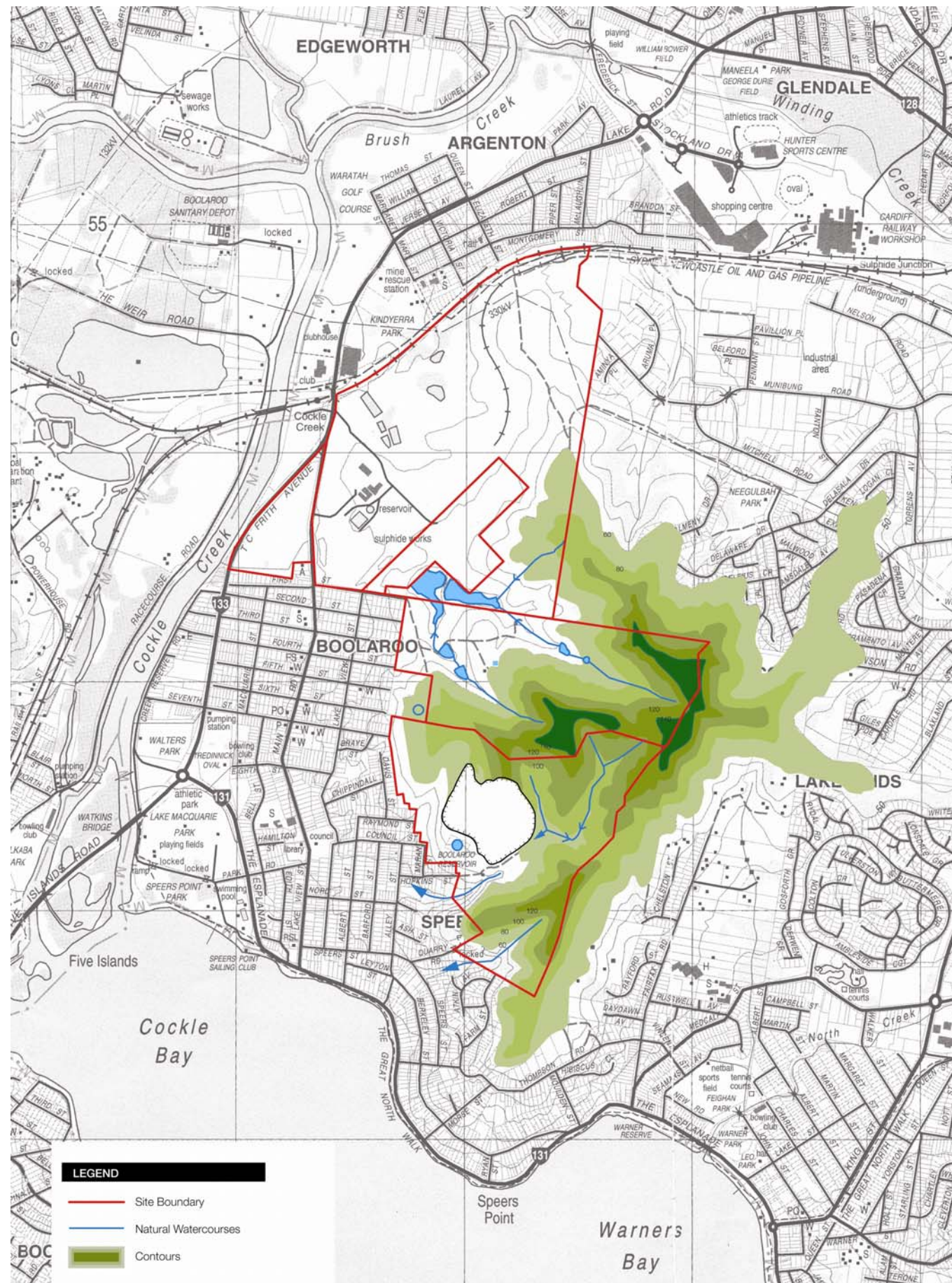


Figure 5: Natural features

2.4 Landform

Munibung Hill comprises three spurs running in a north-south and east-west direction. The PCCS and Incitec-Pivot sites are nestled within the northern and western slopes of the hill between the north-south and east-west spurs. The adjoining Hawkins Land is nestled within the south-western slopes of Munibung Hill.

The upper slopes near the ridges (above RL 80) are less than 1 in 5 (20%) gradient, with the lower slopes ranging from 1 in 6 to 1 in 8 (16.5-12.5%) gradient. The Pasmenco smelter buildings are located on relatively flat land at the base of the hill slopes on land generally below RL 30.

The PCCS and Incitec-Pivot sites lie within the two main valleys of the northern and western spurs of Munibung Hill. The valleys form natural drainage lines.

2.5 Existing landscape

The sites are devoid of original indigenous vegetation due to extensive vegetation destruction on the western slopes of Munibung Hill. Only remnants of the original forest cover remain. The remnant forest cover indicates species similar to those on adjacent areas and on Sugarloaf Range to the west³, which is Disturbed Open Woodland.⁴

On the lower western slopes of the sites, tree cover has been effectively removed, killed off by toxic fumes arising from lead smelter activities and by the increased fluorine levels in phosphate material utilised in fertiliser manufacture on the Incitec site.⁵ However, from 1993 to 2003, extensive reforestation was undertaken along the western slopes by Pasmenco, with a total number of 160,000 trees planted include eucalypt, angophora and myrtaceous species, which were endemic to the region. Spotted Gum is the most common species, planted on slopes and ridges over most the area as it is particularly suited to the free-draining, low fertility sandy soils of the hill slopes. Other predominant species include Spotted Gum (*Eucalyptus maculata*), Turpentine (*Syncarpia glomulifera*) and Grey Ironbark (*Eucalyptus paniculata*), with understorey and sub-canopy dominated by Acacias (*Acacia longifolia*, *acacia falcate* and *acacia myrtifolia*).⁶

At the Munibung Hill summit, vegetation is surrounded by exposed rock and steep slopes. The area at the base of the site, characterised by more gentle slopes, has been predominantly cleared and is vegetated by grasses. Munibung Hill was subject to a fire in late September 2003, reducing much of the hillside vegetation.

Within the PCCS site with former smelter operations and the Incitec building the area is highly modified, covered with factory buildings, roads etc.⁷

Umwelt's preliminary assessment of the conservation significance of the vegetation community on the site indicates that the highly modified and disturbed site is unlikely to comprise a significant vegetation community within the Lake Macquarie region.⁸

2.6 Fauna habitat

The introduced regenerating vegetation present within the site provides potential habitat for a range of limited number of fauna species. However, the extent of habitat is minimal due to the high level of disturbance.⁹

The area is considered unlikely to provide a significant area of fauna habitat in the local area. There are no significant ecological constraints to the proposed redevelopment of the site. Generally, the fauna of Munibung Hill is not considered of high conservation value.¹⁰ A squirrel glider population was identified on the adjoining Macquarie Park Estate on the lower northern slopes of Munibung Hill.

2.7 Bushfire risk

Most of Munibung Hill has a medium fire hazard.¹¹

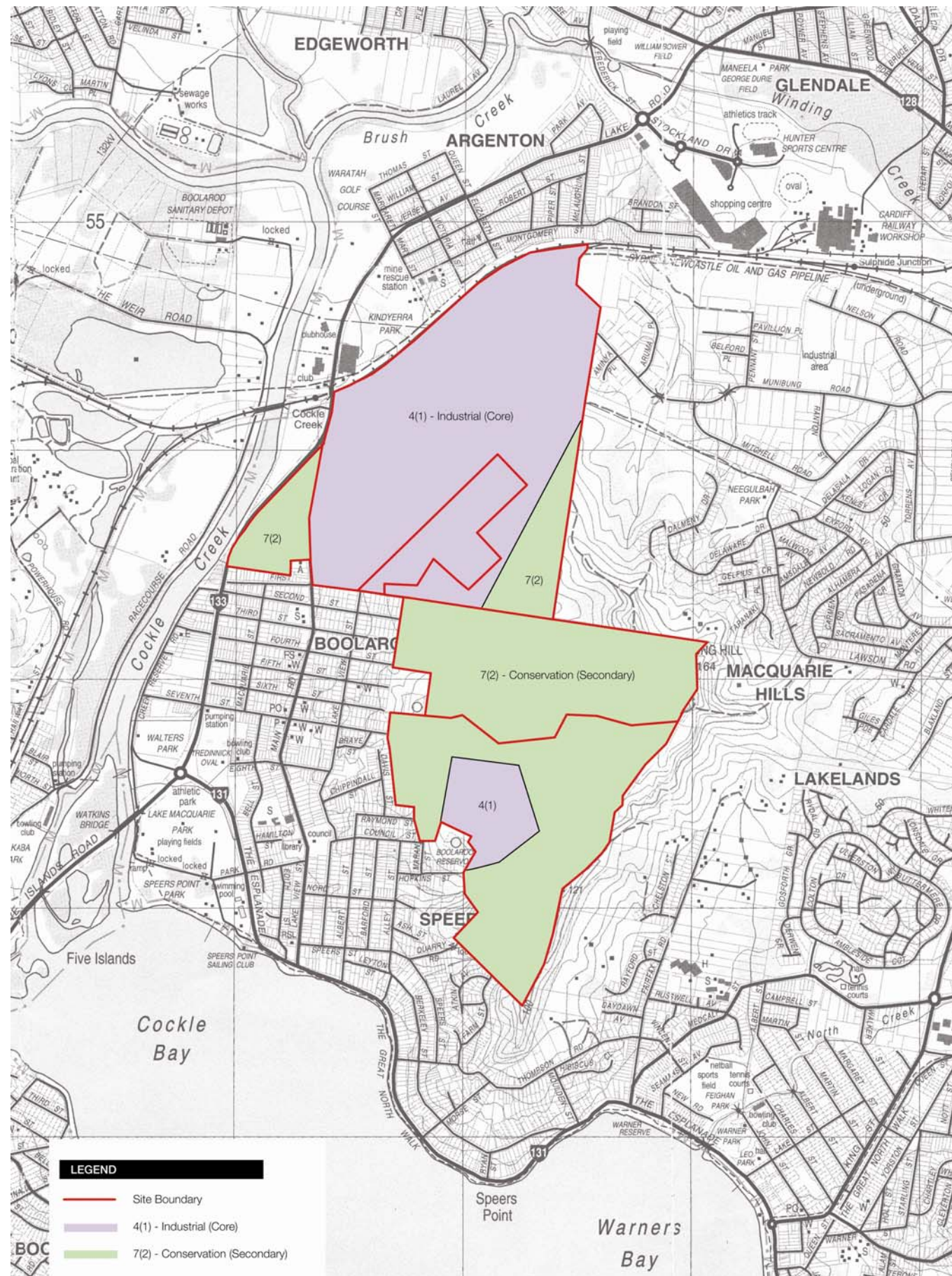


Figure 6: Land use

3.0 PLANNING FRAMEWORK

The sites are within the Lake Macquarie local government area and are governed by the following local planning policies relevant to this study:

- Lake Macquarie Local Environmental Plan 2004, gazetted 19 March 2004;
- Scenic Quality Guidelines, adopted 1 September 2003.

3.1 Lake Macquarie LEP 2004

The PCCS and Incitec-Pivot sites

Under LEP 2004, the PCCS and Incitec-Pivot sites along the lower slopes to the north-west of Munibung Hill (Lot 201 DP 805914) is zoned **4(1): Industrial Core**, with broad objectives of the zone to provide land for:

- a wide range of employment-generating industries;
- a range of industrial uses that require large areas of land or separation from more intensive forms of employment generating industries.

The minimum subdivision standard for land in this zone is 4000m².

Under LEP 2004, the remainder of the PCCS land along the upper north-western slopes of Munibung Hill is zoned **7(2): Conservation (Secondary)**, with broad objectives of this zone are to:

- protect, conserve and enhance land that is environmentally important;
- protect, manage and enhance corridors to facilitate species movement, dispersal and interchange of genetic material;
- enable development that will not compromise the ecological, hydrological, scenic or scientific attributes of the land or adjacent land in Zone 7(1);
- ensure that development proposals result in rehabilitation and conservation of environmentally important land; and
- provide for sustainable water cycle management.

The minimum subdivision standard for land in this zone is 40 hectares.

3.2 Lake Macquarie Scenic Quality Guidelines

The study and assessment of Lake Macquarie's scenic qualities were based on the following scenic quality criteria:

- Landscape setting
- Significant features, viewing points and ridgelines
- Visual accessibility and
- Scenic management zones

3.2.1 Landscape setting units

Munibung Hill has been **not** been identified as having any landscape setting rating within the Scenic Quality Guidelines.

3.2.2 Significant features, viewing points and ridgelines

Munibung Hill has been categorised as a site with Significant Features, with the Scenic Management Objective:

To protect the significant features of the City from visual impact from developments that in isolation or by accumulated effect may cause the loss of a substantial proportion of these features.

Strategic guidelines for the significant feature include:

- Protection to the fullest extent; and
- Development proposals of the identified feature or where the feature is within the development site are subject to detailed visual impact assessment.

Munibung Hill is also identified as a Significant Viewing Point, with the Scenic Management Objective:
To protect the significant views that present the scenic character of Lake Macquarie to residents and visitors.

- Strategic guidelines for the significant viewing point include:
- Protection and management of their scenic value;
 - Developments and landscape changes in the viewsheds of significant views and routes meet the scenic quality objectives for their Landscape Setting Unit and Scenic Management Zone; and
 - Development proposals within the foreground and mid-ground of the significant views and routes are subject to detailed visual impact assessment.

3.2.3 Scenic management zones

Munibung Hill has been classified in Scenic Management Zone A: Very High. Scenic Management Zone A is assigned to areas where highest Scenic Quality and Visual Accessibility. These areas are of critical value to the scenic image of the City and are the most sensitive to development change.

The objectives and strategies for this zone are as follows:

Objectives	Strategies
Ridges and hillsides	
Protect the natural character of all ridgelines and the dominant natural character of hillsides by ensuring the visual impact of development is minimised.	Development on ridgelines is limited to ensure: - The visual integrity and massing of the tree canopy is retained. - Building and structure height does not extend above the physical ridgeline, not tree line. - Tree clearing is limited to ensure no loss of tree canopy.
The visual impact of development is restricted to retain areas in their existing condition and the very high scenic quality applicable these areas is maintained.	Development on the hillsides : - Applications to remove or disturb trees comply with Council's Bushland and Tree Management requirements. - Meet Council requirements and design controls for density, vegetation retention, earthworks, slope restrictions, scale and form. Is required to be partially (75-85%) screened by suitable vegetation within 5 years.

The residential area of **Boolaroo** adjoining the south-western portion of the PCCS site and the north-western portion of Hawkins Land to the south of the PCCS site has been classified **Category C** as Moderate. Scenic Management Zone C is for areas of moderate to low Scenic Quality and Visual Accessibility and where the landscape values do not detract significantly from that image or amenity.

The objectives and strategies for this zone are as follows:

Objectives	Strategies
Urban areas	
To maintain the existing desirable character and reinforce the visual landscape and townscape quality and amenity by ensuring developments do not visually dominate and do not exceed a moderate level of visual impact in the context of the setting.	- Development demonstrates no detrimental visual impact. - Development considers and enhances the existing desirable character. - Development visible from Significant Features or View Points and Ridgelines maintains a dominant tree canopy.

The residential area of **Speers Point** adjoining the south-western portion of the adjoining Hawkins Land has been classified **Category B** as High. Scenic Management Zone B is for areas that are highly valued in the city for the maintenance.

The objectives and strategies for this zone are:

Objectives	Strategies
Urban areas	
To maintain the desirable character of the area, while allowing some development.	- Development considers and enhances the existing desirable character. - The height, form and scale of development is not visually prominent from Significant Features, View Points or Ridgelines.

3.3 Draft Development Control Plan – Munibung Hill

- The scenic quality of Munibung Hill should be maintained and enhanced to provide an attractive natural focal point on the northern shores of Lake Macquarie (p.3), with specific aims and objectives:
- to protect and enhance the visual character and natural landscape of Munibung Hill
 - to conserve and preserve the scenic qualities of the site.

The Draft DCP recommends no development above the 50m contour along the eastern slopes of Munibung Hill.

3.4 Munibung Hill Planning and Development Control Study (1991)

The study recommends that urban development not be allowed to extend up the eastern slopes above the 50m contour.

3.5 Council Resolution

Lake Macquarie City Council resolved on 26 September 1996, relating to a residential development at Thompson Road, Speers Point, that future development in that area is to be limited to the 54m contour level. The upper limit of development is currently under review by Council.

The Subdivision Development Application for the Macquarie Park Estate at Macquarie Hills to the east of the PCCS site was approved 154 allotments, an allotment designated Public Reserve and a drainage corridor in March 2004, with uppermost allotment boundaries up to the 68m contour.

4.0 VISUAL ASSESSMENT OF THE SITES

The PCCS and Incitec-Pivot sites are located within the northern-western slopes of Munibung Hill. Munibung Hill is a visually prominent feature, forming a natural and rural scenic backdrop to the surrounding urban areas. It is significant as one of the most prominent landmarks at the northern end of Lake Macquarie.



Figure 7: Aerial view of the sites against the backdrop of Munibung Hill

Munibung Hill with its high ridges elevating from 110 to 160 AHD has a large visual catchment area. The key scenic features of the northern area of Lake Macquarie are lake, its foreshore area and the vegetated ridgelines and upper slopes of Munibung Hill seen against the skyline.

Munibung Hill is clearly viewed from the southern approach northwards from Five Islands Road and the northern foreshores of Booragul and Eleebana on Lake Macquarie, as illustrated in *Photos 1-3*.



**NORTH TO
FIVE ISLANDS ROAD**

**SMELTER
BUILDINGS**

SPEERS POINT PARK

**EAST-WEST RIDGE
OF MUNIBUNG HILL**

**SOUTH-WEST RIDGE
OF MUNIBUNG HILL**

NORTH-SOUTH RIDGE

SPEERS POINT

Photo 1: Panoramic view north-east from Five Islands Road to Warners Bay towards the PCCS site (identified by its stacks) from foreshore of Edwards Park with Munibung Hill beyond



NORTH TO PCCS SITE

**EAST-WEST RIDGE
SPEERS POINT RESIDENTIAL AREA**

**SOUTH-WEST RIDGE
OF MUNIBUNG HILL**

NORTH-SOUTH RIDGE OF MUNIBUNG HILL

Photo 2: View north-east to PCCS site and the adjoining Hawkins Land to its south, with Munibung Hill beyond from foreshore of Edwards Park



Photo 3: View north-east to PCCS site and the adjoining Hawkins Land to its south, with Munibung Hill beyond from foreshore of Edwards Park

Vistas of the sites and its backdrop of Munibung Hill can also be obtained from several vantage points along Racecourse Road sited along the western banks of Cockle Creek and from the hillside residential suburb of Teralba to the north-west of Cockle Bay, as illustrated in *Photos 4 and 5*.



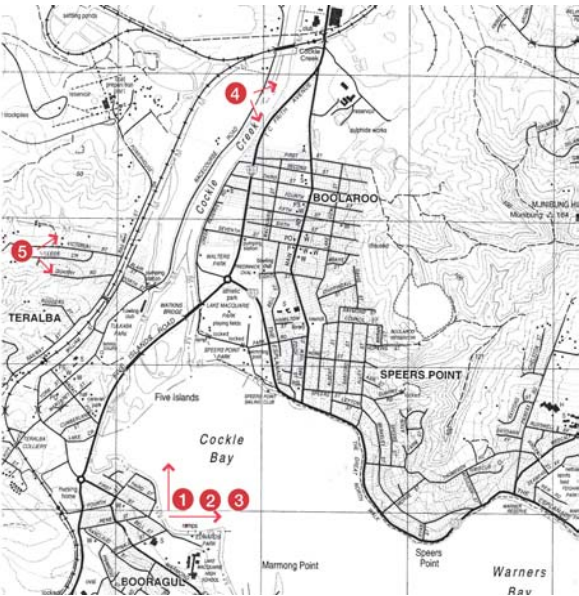
PASMINCO SMELTER BUILDINGS **INCITEC BUILDING** **BOOLAROO RESIDENTIAL AREA** **HAWKINS QUARRY**

Photo 4: View east from Racecourse Road at Cockle Creek to PCCS site with Munibung Hill beyond



NORTH-EAST TO PCCS SITE **NORTH TO BOOLAROO RESIDENTIAL AREA** **HAWKINS QUARRY** **NORTH-WEST**

Photo 5: View east from top of Hillside Crescent, Teralba to PCCS site with Munibung Hill beyond





From within the PCCS site are panoramic views to:

- Cockle Bay (to the south-west);
- the residential township of Boolaroo to the west;
- the residential suburb of Argenton and the industrial area of Cardiff to the north; and
- the Sugarloaf Range beyond, to the west.

Panoramic views of Sugarloaf Range to the west and south-west are afforded from a number of vantage points along the lower slopes of Munibung Hill, below RL 30, on which the existing Pasmaenco smelter buildings and roadways are located, as illustrated in *Photos 6-20*. Within the smelter site, the terrain has been modified into a series of flat levelled terraces on which the existing industrial buildings are sited.



Photo 6: View south-west over Boolaroo to hills beyond



Photo 7: View west to Stockton Borehole Colliery and Sugarloaf Range beyond



Photo 8: View south over Boolaroo to hills beyond, screened by existing vegetation



Photo 9: View south over Boolaroo to hills beyond



Photo 10: View west over Boolaroo to Sugarloaf Range beyond, screened by existing vegetation



Photo 11: View from southern corner of PCCS site with vegetation screening site to Main St

View from PCCS site at below RL 15.00



Photo 12: View south-east to sound wall fronting First Street, Boolaroo at RL 15.00 approx.



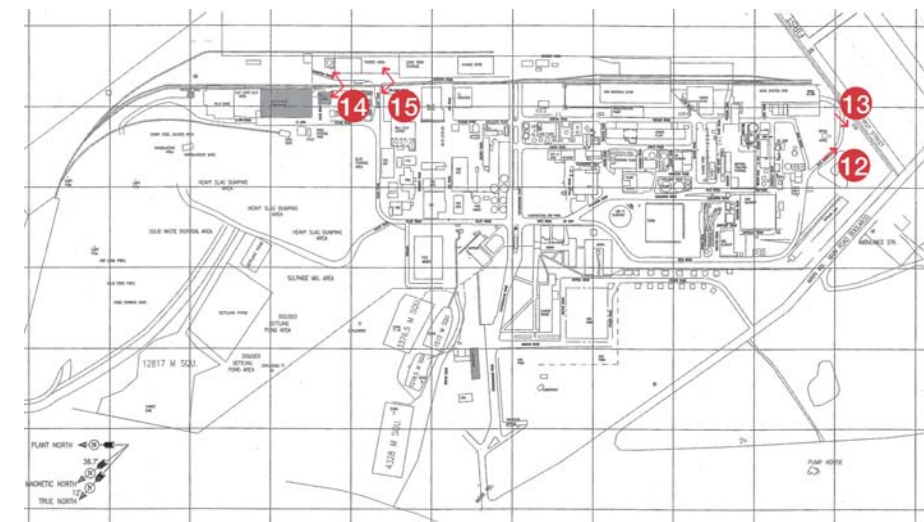
Photo 13: View to detention basin at south-western corner of the site and to sound wall fronting First Street, Boolaroo



Photo 14: View north-east at RL 25.00 approx.



Photo 15: View north to smelter buildings at RL 25.00 approx.



Views from PCCS site

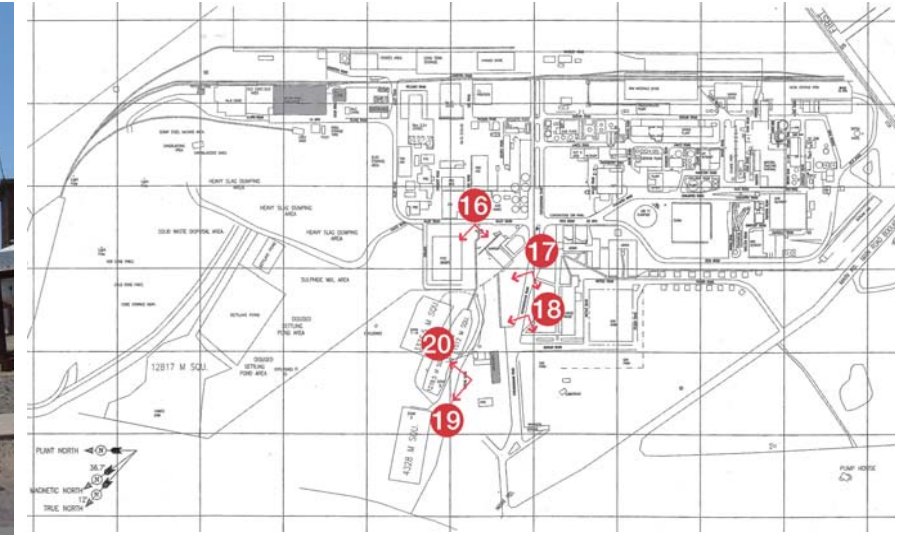


Photo 16: View south-west at RL 20.00 approx.



Photo 17: View northwest to Sugarloaf Range beyond at RL 18.00 approx.



Photo 18: View north to Sugarloaf Range beyond at RL 18.00 approx.



Photo 19: View north to Sugarloaf Range beyond at RL 15.00 approx.



Photo 20: View north-east at RL 15.00 approx.

From the north-eastern portion of the PCCS site which adjoins the Cardiff industrial area are expansive views to the north-east of the industrial area and to the north of the residential suburb of Argenton sited north of the Main Northern Railway Line (*Photo 21*). This north-eastern area is levelled terrain comprising predominantly of fill. The area is visually screened from the western portion of the PCCS site by the lower slopes of the north-south spur of Munibung Hill (*Photo 22*). The spur provides a natural visual buffer to future development of this portion of land adjacent to the Cardiff industrial area. The only visual intrusion to the spur is the presence of communication towers and aerial cable linkages raised along the lower slopes of the hillside.



NORTH-WEST

NORTH – ARGENTON BEYOND

NORTH-EAST – CARDIFF INDUSTRIAL ESTATE

Photo 21: View north from PCCS site near Cardiff industrial area at RL 20.00 approx.



Photo 22: View west to ridge at the eastern side of PCCS site at RL 20.00 approx.

From the top of the spur is a commanding view of the urbanised areas of Cardiff, Argenton and Macquarie Hills to the east, as illustrated in *Photo 23 and 24*.



NORTH

NORTH-EAST – CARDIFF INDUSTRIAL AREA

SOUTH-EAST – MUNIBUNG HILL

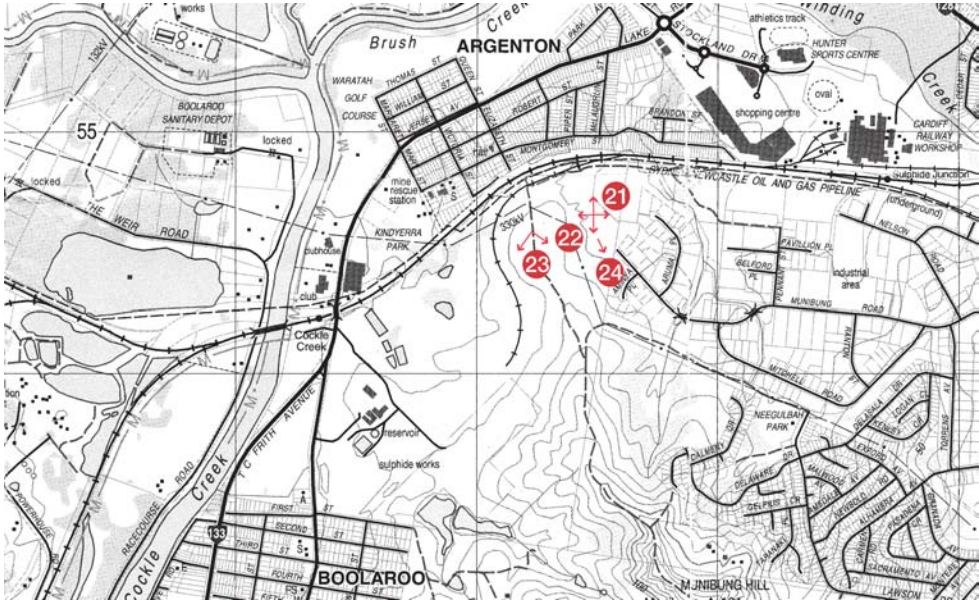
SOUTH

SOUTH-WEST

Photo 23: View north to south-west of Cardiff industrial area, Munibung Hill and PCCS site at RL 30.00 approx.



Photo 24: View south to Munibung Hill at RL 30.00 approx.



The site is attractive for the numerous visual variety of its undulating woodland, pastoral hillsides and valleys as backdrop to the flatter disturbed areas of the lower slopes. From within the site are commanding views eastwards of the spurs and vegetated western slopes of Munibung Hill, which are significant lower skylines, as illustrated in *Photos 25, 26, 27 and 28*.



Photo 25: View south to Munibung Hill at RL 30.00 approx.



Photo 26: View east to Munibung Hill at RL 25.00 approx.



NORTH

NORTH-EAST

EAST

Photo 27: View east to Munibung Hill from PCCS site at RL 20.00 approx.

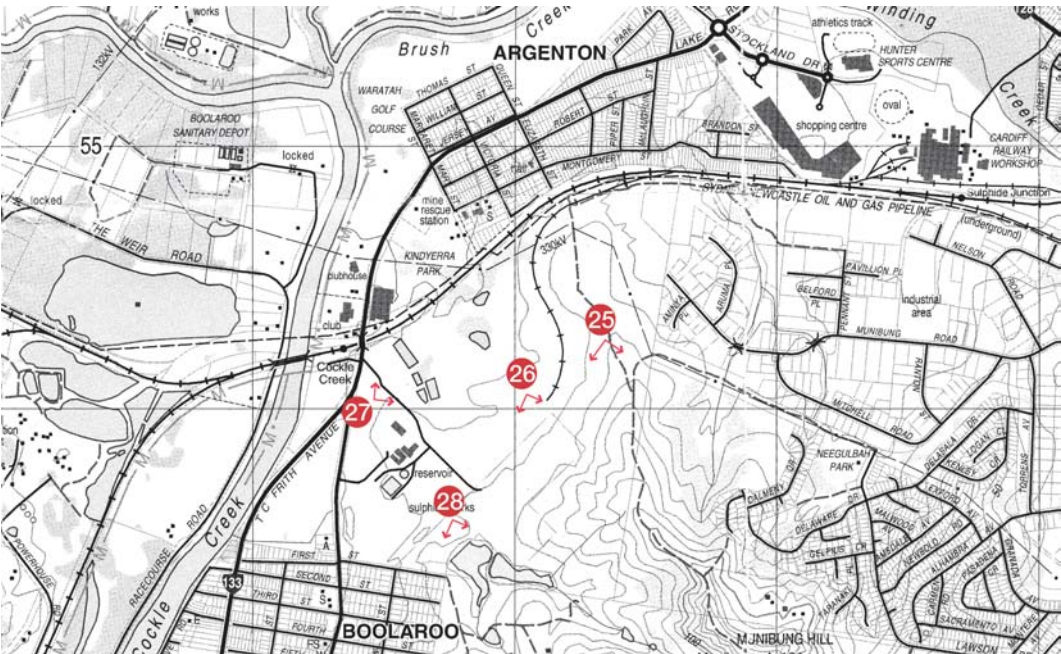


NORTH-EAST

EAST

SOUTH-EAST

Photo 28: View south-east to Munibung Hill from Incitec site at RL 30.00 approx.



Spectacular panoramic views of the Cockle Creek valley and Sugarloaf Range beyond are afforded from the western slopes of Munibung Hill, as illustrated in *Photos 29-33*.



NORTH

NORTH-EAST TO CARDIFF INDUSTRIAL ESTATE



**NORTH-EAST TO MACQUARIE HILLS
RESIDENTIAL AREA**

Photo 29: View north to north-east from Munibung Hill from eastern boundary of PCCS site at RL 45.00 approx.



WEST TO INCITEC

PASMINCO

ARGENTON

NORTH-WEST

Photo 30: View west to north-west from Munibung Hill from eastern boundary of PCCS site at RL 50.00 approx.



SOUTH-WEST

WEST TO INCITEC BUILDING

NORTH-WEST TO PASMINCO SMELTER BUILDINGS

Photo 31: View west from Munibung Hill from eastern boundary of PCCS site at RL 60.00 approx.



NORTH-WEST TO INCITEC

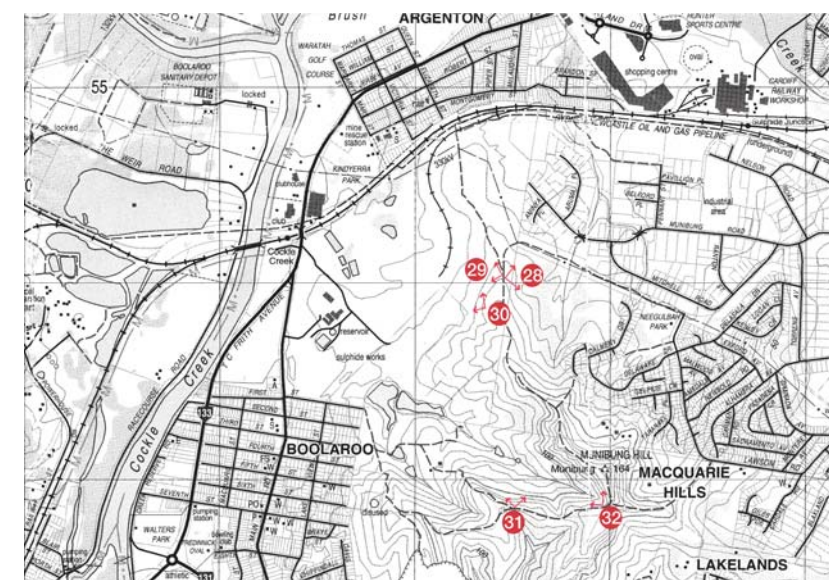
NORTH

NORTH-EAST

Photo 32: View north from Munibung Hill of the woodland valley of the east-west spur at RL 100.00 approx.



Photo 33: View west from Munibung Hill at eastern boundary of PCCS site at RL 150.00 approx. of Boolaroo residential area and Sugarloaf Range beyond



From the southern and south-western slopes of Munibung Hill are extensive views of Cockle Bay and the northern waters of Lake Macquarie, as illustrated in *Photos 34-37*.



SOUTH-WEST TO COCKLE BAY AND SPEERS POINT RESIDENTIAL AREA WEST TO BOOLAROO RESIDENTIAL AREA NORTH-WEST TO PASMINCO SMELTER BUILDINGS

Photo 34: Panoramic view west from Munibung Hill to residential areas below and Sugarloaf Range beyond at RL 80.00 approx.



SOUTH-WEST TO COCKLE BAY AND SPEERS POINT RESIDENTIAL AREA WEST TO BOOLAROO RESIDENTIAL AREA INCITEC NORTH-WEST

Photo 35: View west from Munibung Hill from eastern boundary of PCCS site at RL 100.00 approx.

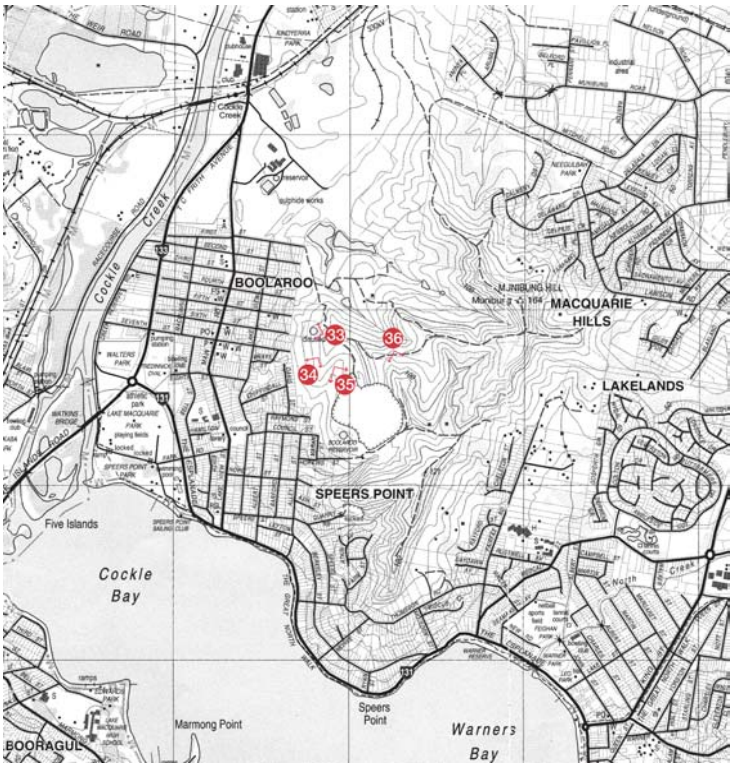




Photo 36: View from adjoining Hawkins Land towards its common northern boundary with the PCCS site, along the east-western spur of Munibung Hill



Photo 37: View south-east to Lake Macquarie from southern boundary of PCCS site with Hawkins Land at RL 120.00 approx.

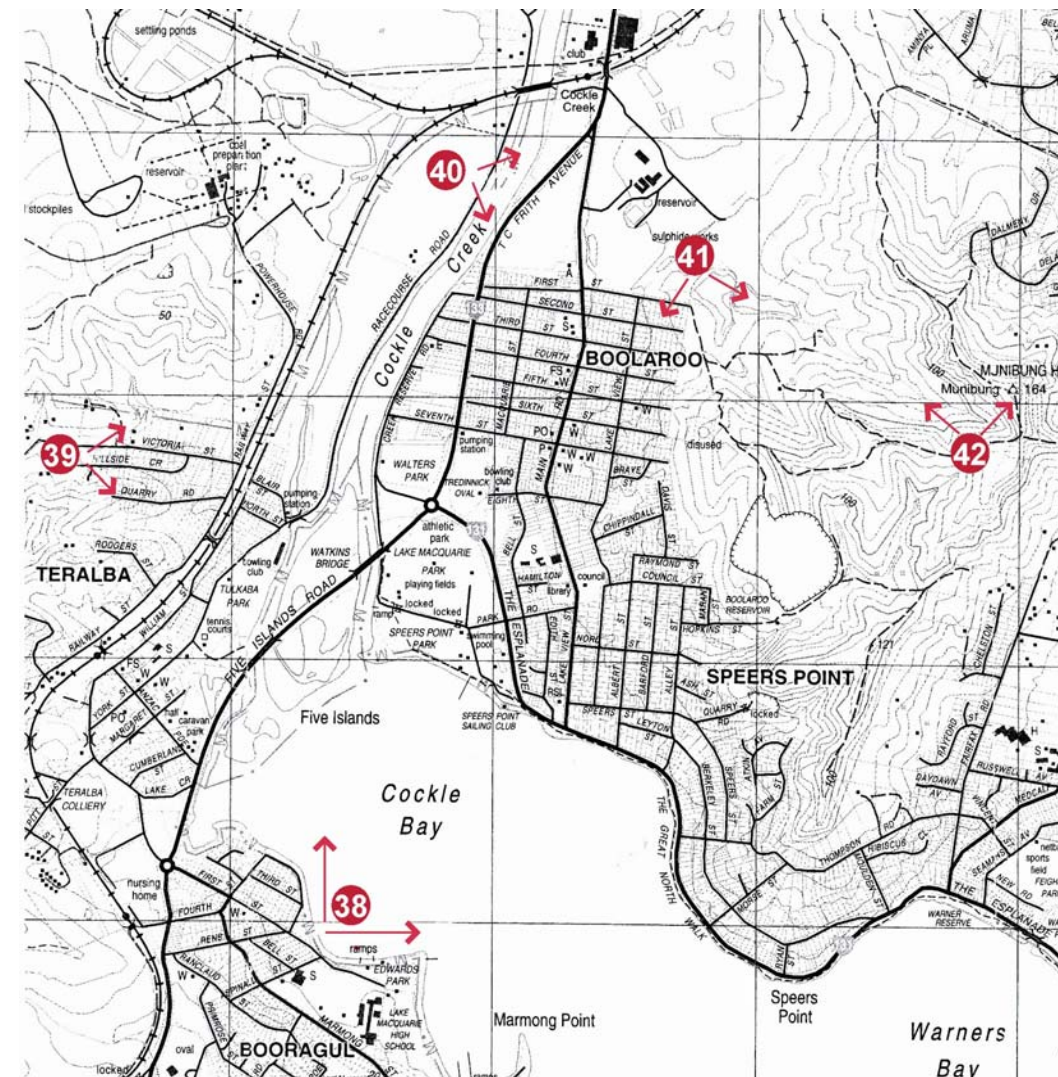
5.0 DEVELOPMENT OPTIONS

3 development options were explored for the site for development on the slopes of Munibung Hill and its spurs, at contour levels:

- RL 70
- RL 80 and
- RL 90

To assess the visual impact of development on the sites, key public views to the sites have been selected, with a red dotted line superimposed to indicate the 3 options for the extent of development. These are visual approximations of heights only. Accurate heights must be verified through survey.

Selected views are taken from the following key vantage points:





(A) OUTLINE OF RL 60 CONTOUR



(B) OUTLINE OF RL 70 CONTOUR



(C) OUTLINE OF RL 80 CONTOUR

Contour levels RL 60, 70 & 80 were assessed on the southern slopes as the heights of the southern and south-western spurs are lower than that main ridges of Munibung Hill

Photo 38: View north-east to PCCS site and the adjoining Hawkins Land analysing the visual effect on scenic landforms of alternative development limits of RL 60, 70 and 80 contours (as illustrated in red dotted line)



(A) OUTLINE OF RL 70 CONTOUR



(B) OUTLINE OF RL 80 CONTOUR



(C) OUTLINE OF RL 90 CONTOUR

Photo 39: View east of the PCCS site analysing the visual effect on scenic landforms of alternative development limits of RL 70, 80 and 90 contours (as illustrated in red dotted line)



(A) OUTLINE OF RL 70 CONTOUR



(B) OUTLINE OF RL 80 CONTOUR



(C) OUTLINE OF RL 90 CONTOUR

Photo 40: View east from the western foreshore of Cockle Creek to PCCS site and Hawkins Land analysing the likely visual effects on scenic landforms of alternative development limits of RL 70, 80 and 90 contours (as illustrated in red dotted line)



(A) OUTLINE OF RL 70 CONTOUR

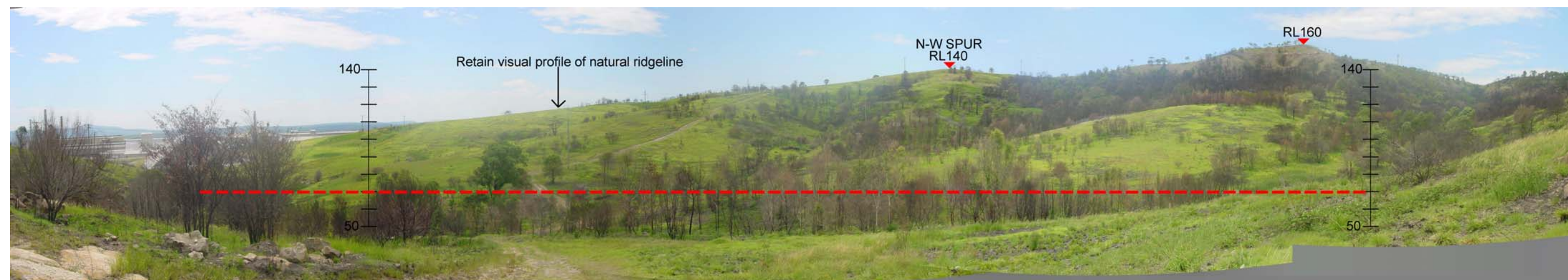


(B) OUTLINE OF RL 80 CONTOUR

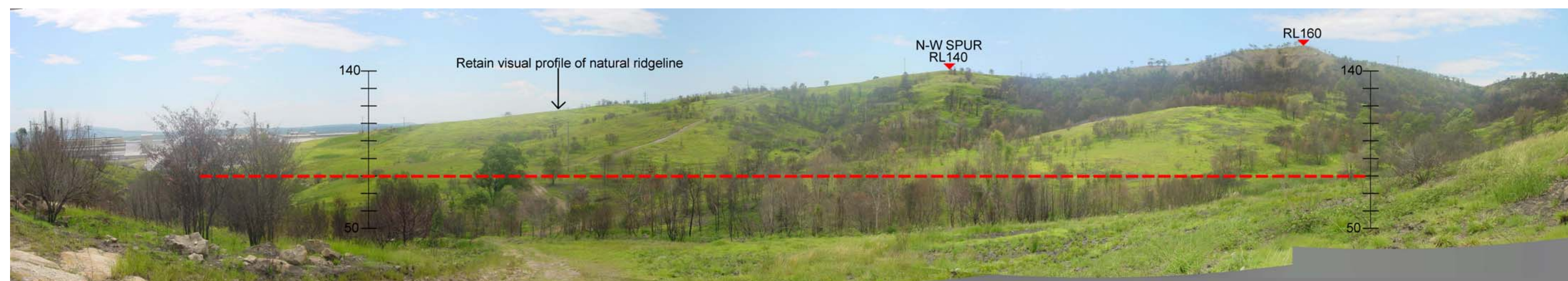


(C) OUTLINE OF RL 90 CONTOUR

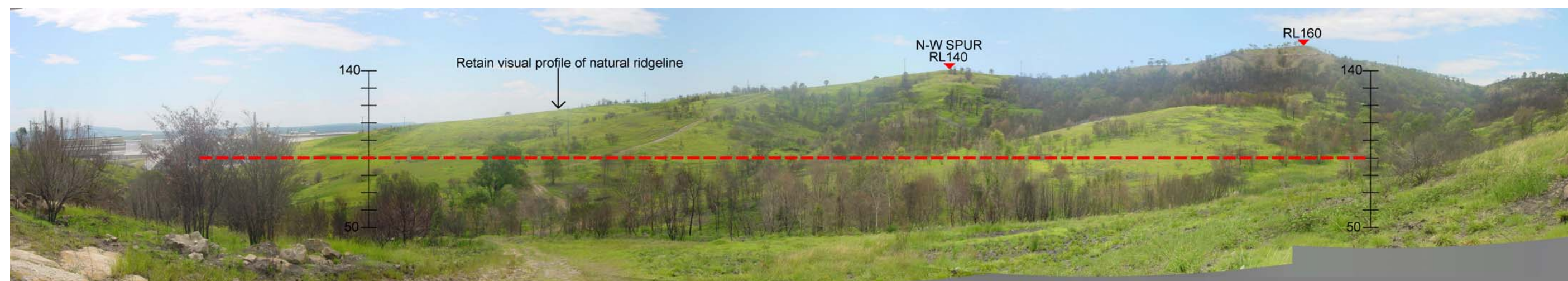
Photo 41: View south-east to Munibung Hill from Incitec site analysing the visual effect on scenic landforms of alternative development limits of RL 70, 80 and 90 contours (as illustrated in red dotted line)



(A) OUTLINE OF RL 70 CONTOUR



(B) OUTLINE OF RL 80 CONTOUR



(C) OUTLINE OF RL 90 CONTOUR

Photo 42: View north from Munibung Hill of east-west spur analysing the visual effect on scenic landforms of alternative development limits of RL 70, 80 and 90 (as illustrated in red dotted line)

Development areas below those contour levels are illustrated as follows:

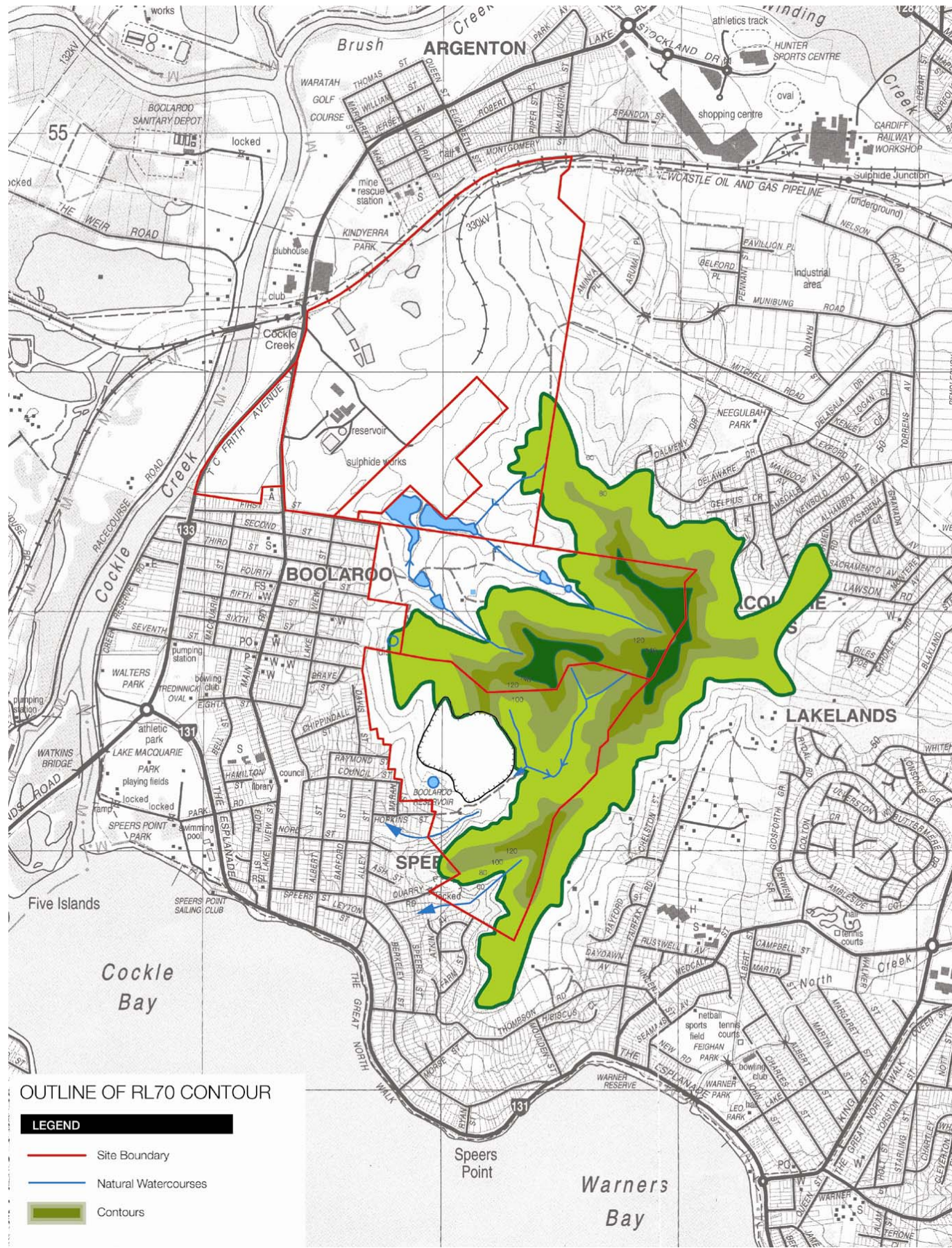


Figure 8: Extent of landscape zone above the RL 70 contour on Munibung Hill

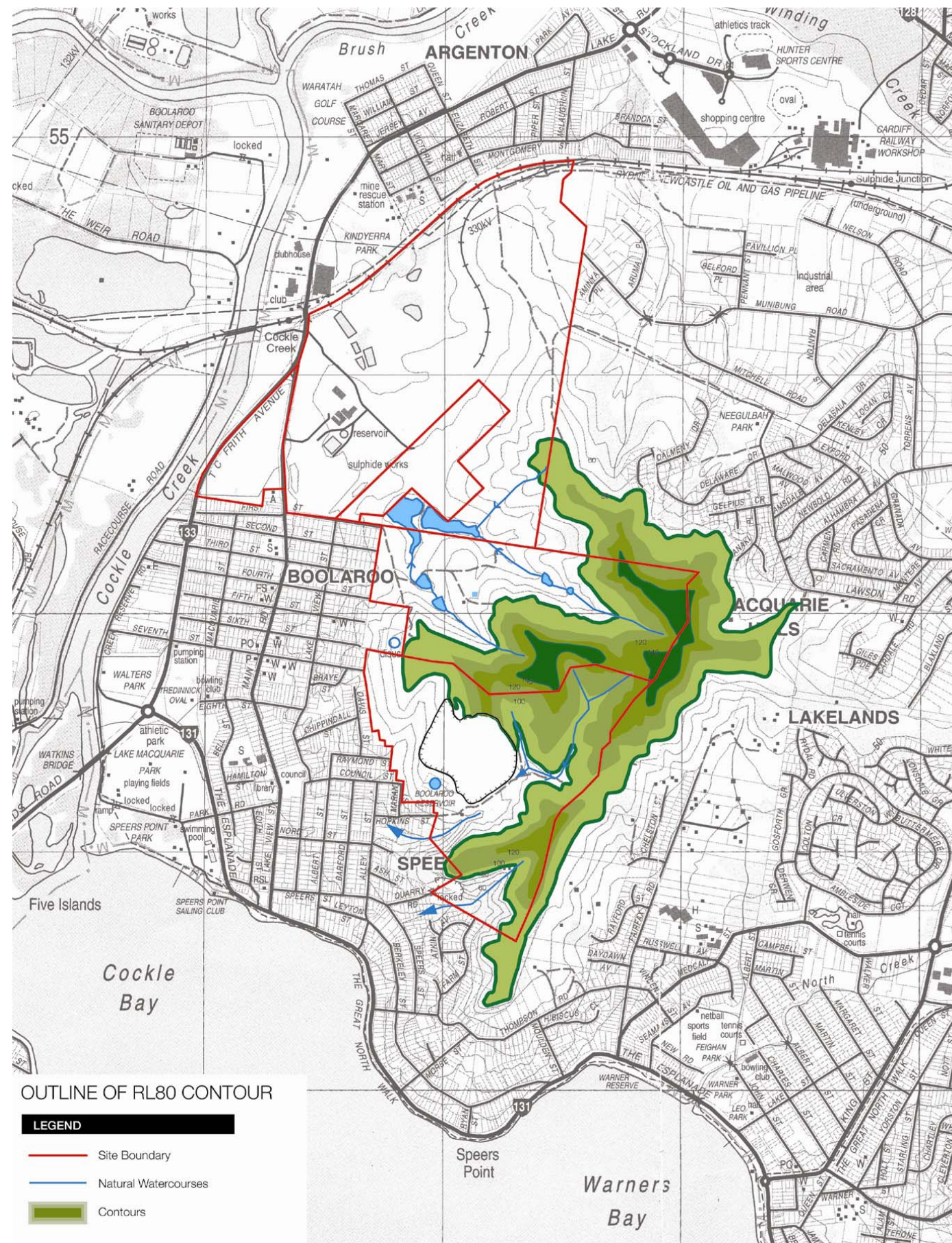


Figure 9: Extent of landscape zone above the RL 80 contour on Munibung Hill

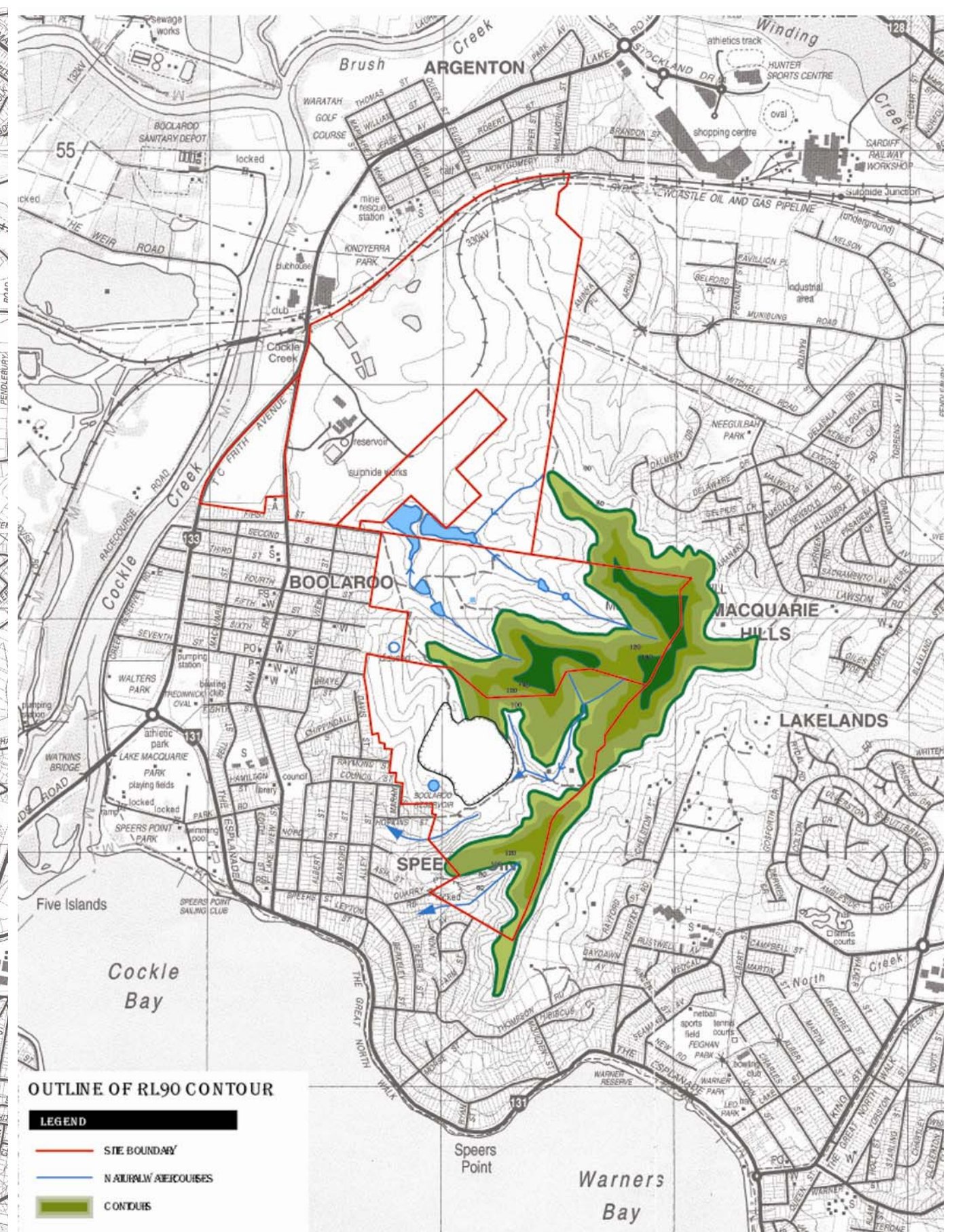


Figure 10: Extent of landscape zone above the RL 90 contour on Munibung Hill

6.0 VISUAL SIGNIFICANCE OF MUNIBUNG HILL

The Lake Macquarie City Council’s reports and planning instruments have identified Munibung Hill as a visually prominent feature forming a natural and rural scenic backdrop to the surrounding urban areas, and is significant as one of the most prominent landmarks at the northern end of Lake Macquarie.¹² It is a key natural scenic focal point on the northern shores of Lake Macquarie.¹³ The hill provides a number of visually significant skylines and its extensive visual catchment ensures its significance as one of the potential lookouts for the Newcastle/ Lake Macquarie urban area.¹⁴

The ridgelines and steep slopes are of particular visual sensitivity and generally have a low capacity to accept development without reducing landscape quality.¹⁵ The ridges and steep slopes of Munibung Hill have been identified in the *Lower Hunter Landscape Improvement Study* as conspicuous, of high scenic value and should be preserved. Development of the ridgelines would adversely affect the scenic quality of the area. The study states that whilst the western slopes are visually conspicuous, they are of low landscape quality, with the land modified by industrial and quarrying activities. The north-western slopes are conspicuous and require tree planting programme to realise its inherent scenic potential.¹⁶

Based on the visual and scenic significance of Munibung Hill, a number of criteria should be established for future development on this hill, based on Lake Macquarie City Council’s guidelines and policies as well as from visual evaluation of this scenic feature which is within the subject sites. The criteria aim at preserving the scenic quality of Munibung Hill as an attractive natural focal point on the northern shores of Lake Macquarie.

7.0 VISUAL EVALUATION OF THE SITE

In establishing a visual curtilage for development, the key principle is to retain the natural and scenic qualities of Munibung Hill which comprise the landscape ridgelines, spurs and escarpments. These form a visually prominent skyline to the northern shores of Lake Macquarie. These natural features are therefore of high visual sensitivity.

A permissible development contour has been identified to retain an area of visual sensitivity along the upper slopes and ridgelines of Munibung Hill, based on visual evaluation of the sites from key public vantage points. These areas of visual sensitivity are to remain undeveloped and should be reforested with natural landscape. A line indicating approximately the proposed permissible development contour on the subject sites along the slopes of Munibung Hill are illustrated in the following photographs, as viewed from various vantage points. These are visual approximations of heights with accurate heights to be verified on site through survey.

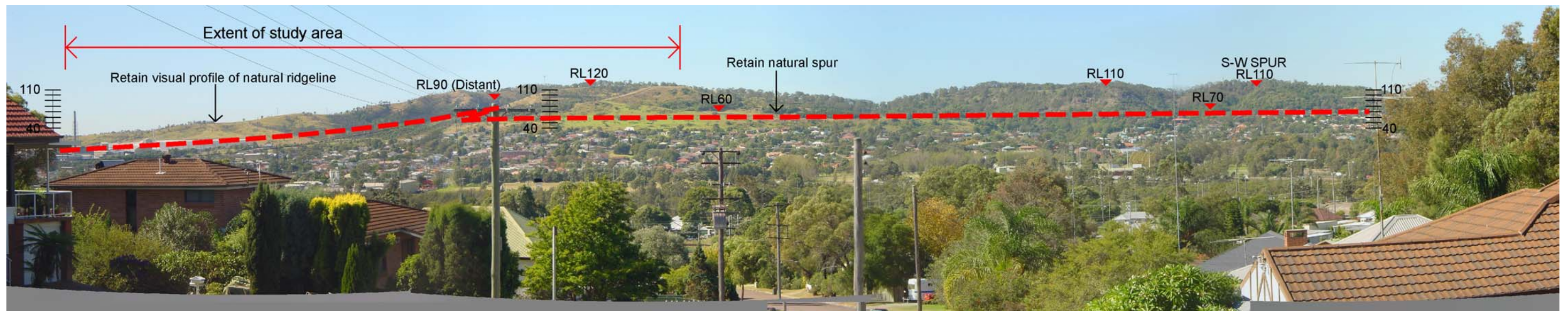


NORTH TO PCCS SITE EAST-WEST RIDGE – SPEERS POINT RESIDENTIAL AREA SOUTH-WEST RIDGE NORTH-SOUTH RIDGE OF MUNIBUNG HILL

Photo 43: View north-east to PCCS site and the adjoining Hawkins Land with Munibung Hill beyond from the foreshore of Edwards Park, illustrating (in red dotted line) the likely visual impact of the proposed extent of development on the sites

The southern and south-western spurs of Munibung Hill are key natural features forming a scenic backdrop to the northern portion of Lake Macquarie. The spurs are within the PCCS site and Hawkins Land and are of high visual significance being prominently visible from the public recreational areas of Edwards Park and its foreshore area, from Lake Macquarie and from the key approach road of Five Islands Road.

The southern and south-western spurs rise to approximately RL 110 in height. Based on the visual assessment of this key view and taking into consideration the heights of the spurs and ridgelines, it is proposed that the visual curtilage for development on these spurs be established at RL 70 and falling to RL 60 at the south-western spur, as illustrated in *Photo 43* above.



NORTH-EAST TO PCCS SITE

NORTH TO BOOLAROO RESIDENTIAL AREA

HAWKINS QUARRY

Photo 44: View east of the PCCS and Incitec-Pivot sites with Munibung Hill beyond from the suburb of Teralba located on the western hillside of Cockle Creek, illustrating (in red dotted line) the likely visual impact of the proposed extent of development on the sites

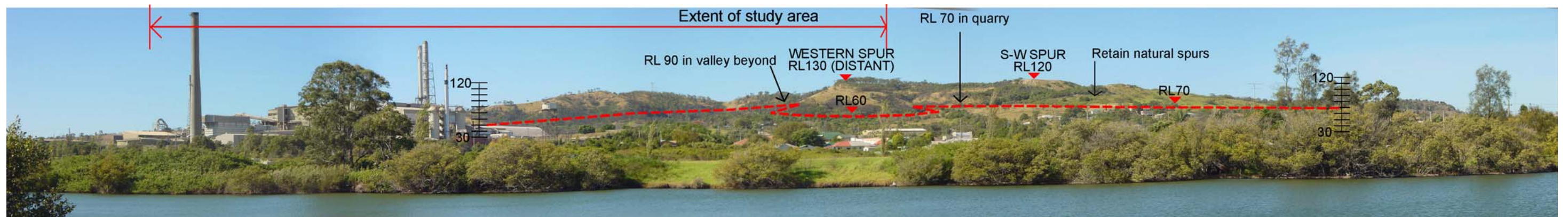
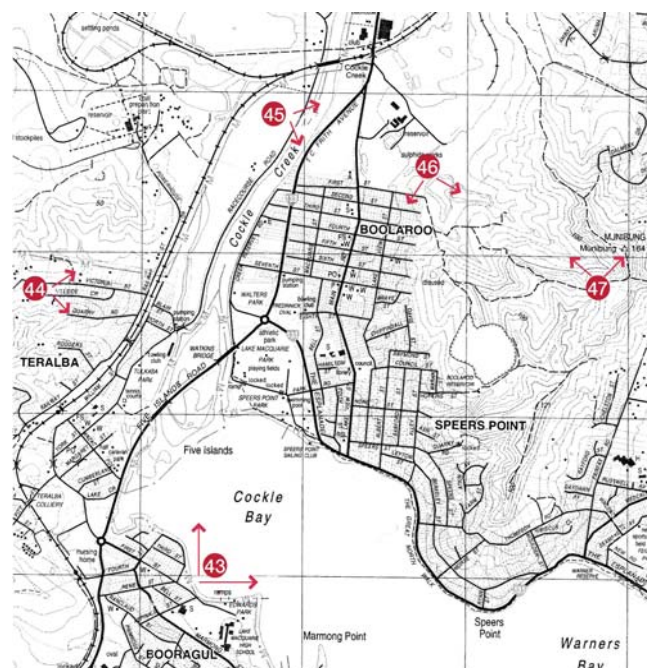


Photo 45: View east from the western foreshore of Cockle Creek to PCCS and Incitec-Pivot sites with Munibung Hill beyond, illustrating (in red dotted line) the likely visual impact of the proposed extent of development on the sites



The north-western, western and south-western spurs of Munibung Hill can be viewed from Teralba and from the western foreshores of Cockle Creek, as illustrated in *Photos 44 and 45*.

The western slope of the north-western spur and the northern slope of the western spur are within **the** PCCS site. The ridgelines of these spurs rise to RL 130-160. Due to the high slopes with the PCCS site, it is proposed that the visual curtilage for development on these slopes be established at RL 80-90 and below. However, the visual curtilage for development at the end of the spurs should be lowered to RL 60 in order to retain the visual profile of the natural ridgeline.



Photo 46: View south-east to Munibung Hill from Incitec site at RL 30.00 approx., illustrating (in red dotted line) the likely visual impact of the proposed extent of development on the PCCS site

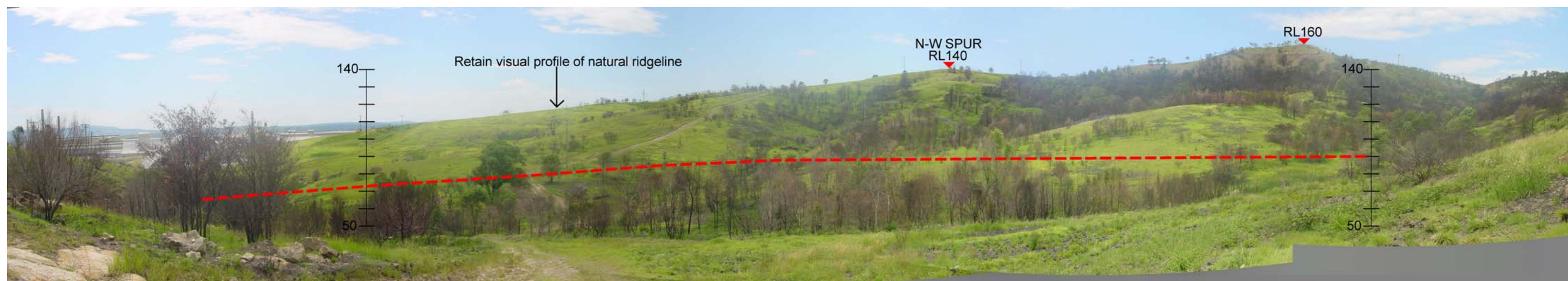
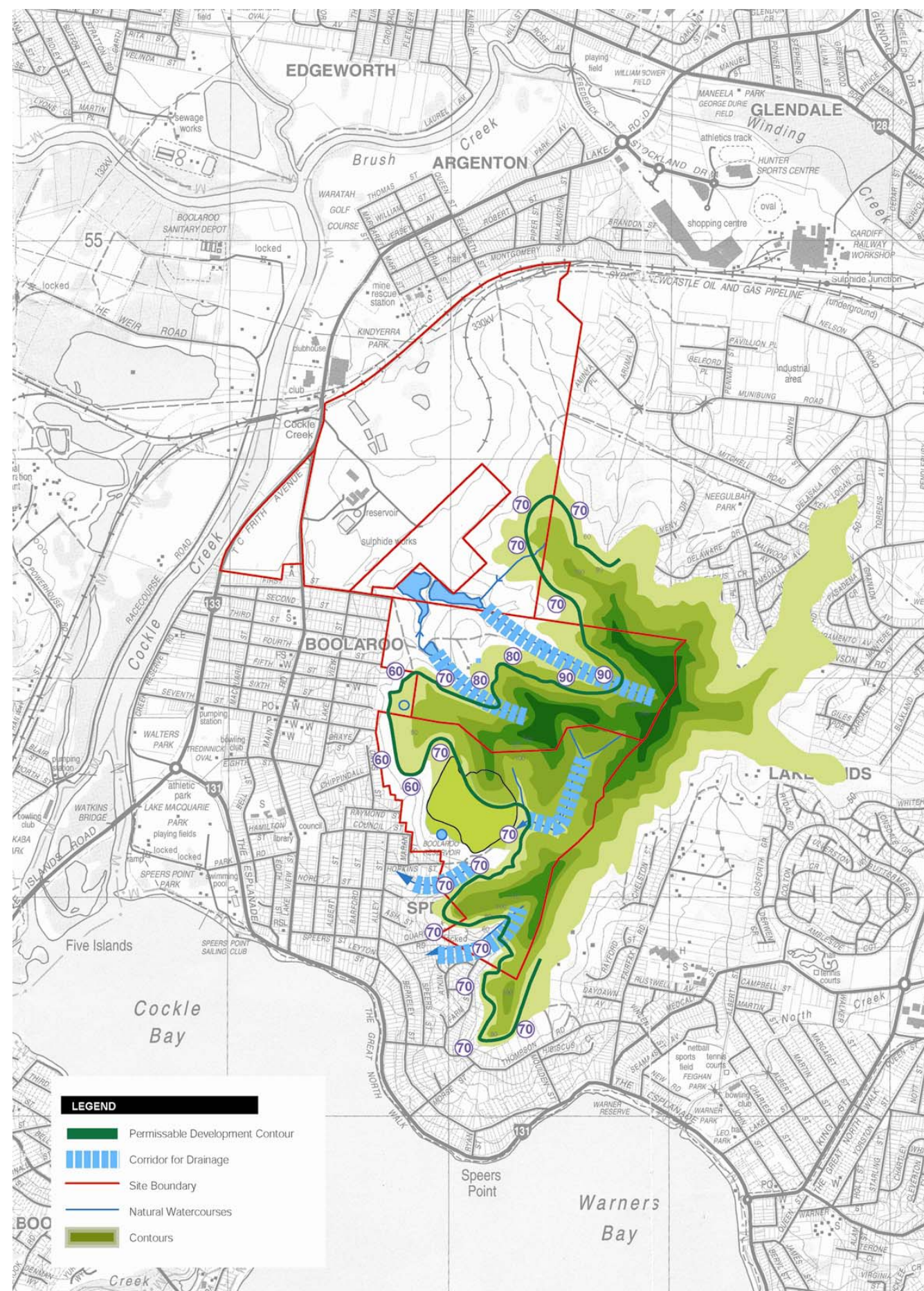


Photo 47: View north from Munibung Hill of east-west spur at RL 100.00 approx., illustrating (in red dotted line) the likely visual impact of the proposed extent of development on the PCCS site

Views to Munibung Hill from the PCCS site illustrating the proposed extent of development on the site. Development should maintain an undeveloped area along the upper slopes and ridgelines of Munibung Hill for the reforestation of the natural landscape and to retain the visual profile of the natural ridgeline.



A diagram illustrating a proposed visual curtilage for development has been prepared for Munibung Hill based on a visual evaluation of its scenic qualities and physical analysis of the site and its topography. The curtilage for development retains the area of visual sensitivity above the identified contours to maintain an undeveloped area along the upper slopes and ridgelines of Munibung Hill for the reforestation of the natural landscape. The areas identified to be undeveloped are generally steeper than 1 in 5 gradients, thereby imposing a constraint on ease of development.

Figure 11: Development curtilage

8.0 RECOMMENDED CRITERIA FOR ESTABLISHING DEVELOPMENT LIMITS

The criteria for future development are to:

- (1) Maintain the natural character of Munibung Hill as a dominant key scenic feature of the northern landscape of Lake Macquarie, preserving the natural ridgelines and spurs**

Preserve the scenic character of Munibung Hill from the visual impact of development, particularly along its ridges and upper hillsides with the avoidance of development in close proximity to ridgelines to maintain the visual profile of natural ridgelines. Areas of development can be higher in areas where the landform backdrop is topographically higher and where the slope gradient is less than 1 in 5 or 20%. Ensure, in principle, development maintains the minimum of approximately 30m clear vegetated ridgeline to Munibung Hill and its spurs.
- (2) Retain and reinstate a natural landscape ridgeline canopy on Munibung Hill**

Views to the ridgelines and upper slopes of Munibung Hill are to be of natural wooded landscape against the skyline with tree canopy (from re-forestation) dominating, as visually seen above the residential areas of Speers Point to the east. Retain existing mature indigenous trees. Ensure that a reforestation program is maintained by future owners. Visual dominance of the built form along the slopes is to be avoided.
- (3) Retain existing natural drainage corridors**

Ensure development provides a physical curtilage along the natural drainage lines and watercourses in the valleys of Munibung Hill for the natural flow of water down the site. These areas are generally of steep topography exceeding 1 in 5 gradient.
- (4) Reduce the visual impact of development within the mid-level slopes of Munibung Hill**

Ensure developments do not visually dominate as seen in the context of its setting, such as:

 - Reduce the ratio of site coverage to allotment area by ensuring development on allotments;
 - Provide for a greater proportion of landscaped open space to site coverage;
 - Height, form and scale of the built form are not visually prominent;
 - Sensitive site planning and layout of allotments; and
 - Siting of access roadways along contour lines.
- (5) Ensure a contextual relationship with the existing residential areas of Boolaroo and Speers Point**

Provide a seamless integration with the existing residential areas of Boolaroo and Speers Point located at the lower slopes with the pattern of development on the lower slopes of the site matching that of these residential areas.
- (6) Establish fire radiation zones around development in high fire hazard areas**

Ensure that development is easily accessed by local roadways which provide fire evacuation zone for developments. Access roadways are to be sensitively sited along contour lines to ensure minimal visual impact on the hillside.

ENDNOTES

- ¹ Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1990), p.1.
- ² Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1990), p.l2.
- ³ Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1990), p.6.
- ⁴ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.4
- ⁵ Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1991), p.11.
- ⁶ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.4
- ⁷ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.1-2.
- ⁸ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.4.
- ⁹ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.6.
- ¹⁰ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.8.
- ¹¹ Umwelt Environmental Consultants: *Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site* (March 2004), p.8.
- ¹² Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1990), p.20.
- ¹³ Resource Planning Pty Limited: *Draft Development Control Plan – Munibung Hill* (1990), p.3.
- ¹⁴ Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1990), p.8.
- ¹⁵ Resource Planning Pty Limited: *Munibung Hill Planning and Development Control Study* (1990), p.8.
- ¹⁶ *The Lower Hunter Landscape Improvement Study*, p. 21.

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Resource Planning Pty Limited:	<i>Draft Development Control Plan – Munibung Hill</i> (1990).
Umwelt Environmental Consultants:	<i>Preliminary Analysis and Issues Paper: Flora and Fauna – Pasminco Cockle Creek Smelter Site</i> (March 2004).
Lake Macquarie City Council:	Development Control Plan No. 1: Principles of Development.
Lake Macquarie City Council:	Scenic Quality Guidelines (September 2003).