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## ***REPORT ON ENVIRONMENTAL ISSUES AND CONSTRAINTS COLQUHOUN AREA STUDY : MAY 1999***

### **1.0 Background**

The Shire of East Gippsland, as part of the new planning scheme, is undertaking a study of private land in the Colquhoun area north of Lakes Entrance. The purpose of the study is to identify an appropriate zoning and subdivision structure taking into account the natural values of the area so that future development is environmentally sustainable.

This report details the natural values and suggests what environmental constraints may apply to future development.

### **2.0 Description of study area**

#### **2.1 Topography**

The study area is defined on Map .... and is bounded on the north by Colquhoun State Forest, to the east by the Princes Highway, to the south by North Arm, Ostlers Road and Thorpes Lane and the west by Harrisons Track. Two catchments (Bunga Creek in the east and North Arm in the west) are divided by the ridge along Colquhoun Road. The valleys are moderately steep in the North Arm catchment and less so in the Bunga Creek catchment. Drainage is generally southwards into two estuarine areas, Lake Bunga and North Arm (part of the Gippsland Lakes) Valley and ridge topography runs generally north/south with significant southerly, easterly and westerly aspects. There are also north aspects along Thorpes Lane, Bunga Creek Road and Ostlers Road. Aspect is an important factor in light and water relationships as they affect plant growth. North and west aspects are normally drier and less moist than south and east aspects.

#### **2.2 Rainfall**

- 600-900 mm - lowest July or August, highest October.

#### **2.3 Seasonal growth limitations**

- Temperature limiting June-August
- Rainfall limiting November-March (although high summer rainfall is also common)

## 2.4 Fire risk

- Substantial areas of State Forest and privately owned native forest in the north and west sections of the study area carry high fuel loads. The study area is covered by the Fire Hazard Overlay - East Gippsland Shire Council Planning Scheme and residential development is constrained by the provisions relating to that overlay.

## 2.5 Land systems

- To develop and apply sound land management it is necessary to identify land types (systems) and to understand factors the processes (soils, erosion etc) within them and how different land uses (subdivision, farming) may affect these processes. The "Study of the Land in the Catchment of the Gippsland Lakes" (DCFL 1998) identifies the following land systems in the Colquhoun Study Area, together with a brief summary of the constraints these systems impose on land use.

- 2.5.1 Andersons land system - covers most of the Bunga Creek catchment and a southerly part of North Arm catchment.

- Constraints
- poor drainage on valley flats
  - low nutrient status apart from limestone valley slopes
  - reduced water infiltration following compaction of soil
  - sheet and rill erosion of exposed soil
  - potential gully erosion all aspects

- 2.5.2 Westbury land system - occurs on the southern parts of the study area (Ostlers Road, Bunga Creek Road (west), Thorpes Lane.

- Constraints
- somewhat poor drainage more so on drainage depressions
  - low nutrient status
  - soil structure decline following compaction
  - potential sheet rill and gully erosion

- 2.5.3 Clifton land system - most of the study area west of Colquhoun Road except for North Arm and Ostlers Road areas.

- Constraints
- low nutrient status on plateaux areas
  - potential gully erosion on broken slopes and small spurs

## 2.5.4 Summary of system constraints

In very broad terms, the Clifton land system poses fewer constraints to land use practices than Anderson or Westbury systems. The main planning constraint will be against insensitive development on steep slopes in any of these systems.

Misuse in any of the systems will increase off site processes especially increased sediment loads and nutrient transfer to the two sensitive estuaries into which the

systems drain. Various estuarine studies of the Gippsland Lakes indicate that continuing high nutrient levels are a key factor in algal blooms and general deterioration of estuarine water values. Development in the study area should have an environmental objective of reducing the present catchment nutrient loads entering these two estuaries.

#### 2.5.6 Fire hazard constrains

The region is one of the most fire prone in Victoria, especially to major forest fires. Conditions relating to safe residential location, residential "fire safe" design and access to residential subdivisions for safety and fire suppression are very important, especially in the area west of Colquhoun Road (Baades Road, Harrison's Track) where no through access is available. Adequate fuel reduction and other fire prevention works as detailed in the Draft Municipal Fire Prevention Plan will be required in areas open to subdivision. The areas of biological significance, such as warm temperate rainforest and estuarine vegetation also need protection from fire.

## 2.6 Vegetation

The information below is presented in layman's language and summarised. For detail contact Appendix .... or reference list.

### 2.6.1. Bunga Creek catchment

Most of the Bunga Creek catchment has been cleared for agriculture. Remnant native vegetation is now generally restricted to lower slopes and valley bottoms and includes:

- Warm temperate rainforest remnants
- Open forest remnants of White Stringybark, Red Box, Gippsland Grey Box and occasionally Silvertop on some slopes.

The original native vegetation prior to clearing would also have included moist Swamp Paperbark thickets in the valley bottoms, much more warm temperate rainforest on sheltered aspects and a tall open forest on the slopes and ridges similar to the present day remnants (Peel *pers. comm*).

### 2.6.2 North Arm catchment

There are still extensive areas of native vegetation along the Harrison's Track and Baades Road ridges. The area between Baades Road and Colquhoun Road has largely been cleared for agriculture apart from the lower valley slopes and bottoms. Vegetation types include:

- Warm temperate rainforest

- on the lower slopes and valley bottoms between Baades Road and Colquhoun road (Secombes Gully). The remainder of this area has been cleared;
- in Otterburn gully west of Harrisons Track;
- adjacent to North Arm (Wyanga area)
- Open forest
  - Stringybark, Red Ironbark, Gippsland Grey Box on drier sites grading to Mountain Grey Gum, Blackwood and Manna Gum in valley bottoms.

### 2.6.3 Vegetation and other biodiversity constraints

- The warm temperate rainforest vegetation type is listed under the Flora and Fauna Guarantee Act which confers a high level of legislative protection. An action plan to preserve this vegetation type statewide is in place. Funding for aspects of the plan is likely to be available in this instance. There are constraints under the Act against actions detrimental to preservation including clearing, etc.
- The Native Vegetation Clearance controls (NVR) under the Planning Scheme pose constraints on any clearing of native vegetation except for dwellings and associated uses.
- The remnant vegetation, especially the rainforest provides important refuge and habitat areas for fauna associated with each vegetation type. Although there are no "significant" populations of fauna in the study area, there are a number of rarely observed species present. More than two hundred species of vertebrate have been recorded in the area of Lakes Entrance and Metung (Victorian Wildlife Database records). Increased human presence, domestic pets and feral animals drawn by human food sources (eg foxes, rats etc) will have significant impacts on these native species, even if the remnant vegetation remains intact or increases.
- The connectivity of the remnant vegetation provides good corridor habitat for wildlife in many locations, especially the Secombes and Otterburn valleys. Future development planning should also include revegetation to preserve and where possible increase connectivity across both catchments.

The sites of environmental significance are detailed under the Environmental Significance Overlay (ESO) in the Planning Scheme. The site reference is ESO53 (Colquhoun/Kalimna).

## 3.0 Strategic environmental issues

The strategic environmental issues for the two catchments are:

### 3.1 Bunga Creek catchment strategy

- Reduction of nutrient and sediment loads entering Lake Bunga.

- Improvement of landscape and biodiversity values in anticipation of more intense rural subdivision within a 50 year time scale.

### 3.1.1 Suggested actions required

- Revegetation of the valley bottoms and where possible some lower slopes of the Bunga Creek valley and tributaries.
- Reconstruction of Swamp Paperbark wetlands above the Princes Highway.

### 3.1.2 These actions will

- Reduce nutrient transport down catchment to Lake Bunga and provide more efficient sediment trapping along the watercourses during high rainfall or flood events.
- The re-introduction of a forested landscape element to the lower catchment will improve site values and rural vistas.
- The habitat corridors created by re-vegetation works will link Colquhoun State Forest with bushland adjacent to the coast at Lake Bunga.
- On a 30-50 year time scale this catchment will then be better positioned to handle any rural/urban expansion of Lakes Entrance.

### 3.2 North Arm catchment strategy

- To ensure future subdivisional development does not have adverse impacts on the environmental values of rainforest, native forest and North Arm estuary.
- To reduce nutrient and sediment loads entering North Arm estuary.
- To preserve and enhance native vegetation (especially rainforest areas) on private land.

### 3.2.1 Suggested actions

- Ensure that future subdivisional development (including access) is limited to slopes less than 30%.
- Ensure that native vegetation removed during subdivision is replaced by re-vegetating elsewhere in the subdivisional plan or local area.
- Investigate and specify what site engineering works such as sediment traps, nutrient absorbing areas are required to ensure a reduction in nutrient and sediment transport off-site following subdivision.

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**SUGGESTIONS FOR ENVIRONMENTALLY FRIENDLY SUBDIVISIONS**  
**IN COLOUHOON RURAL AREA**

- Avoid access tracks on steep limestone slopes. Confine access entry to relatively flat areas and avoid rainforest areas as a top priority.
- Avoid access tracks across valley bottoms where natural drainage may be affected.
- Place houses on sites with a northerly/westerly aspect to conserve winter warmth.
- Plant vegetation to provide summer shade/winter sun.
- Site doors/openings to take advantage of cooling summer breezes (afternoon southern sea breezes). Use eaves/verandahs to reduce a heat transfer.
- Make the ground surfacing near the house permeable, so as to absorb intense rainfall run off.
- Conserve water supply by reticulating to tanks and/or dam nearby – direct the drainage to dam or watercourse carefully, preferably as dispersed flow rather than channelled flow. Consider single dam on common land within subdivision.
- Consider solar heating.
- Manage trees to provide wood supply, shade, nectar for fauna. Select species carefully as to purpose, eventual size and safety considerations such as fire hazard and falling limbs.
- Consider the effect of pets on wildlife. Restrain “hunting” pets during night time.
- Consider site sensitive construction (such as pole houses) on sensitive or steep sites which may erode.
- Develop vegetation to absorb nutrients from septic tank outfalls.
- Consider secondary treatment options and/or dry composting installations for sewage treatment.
- Re-cycle “grey” water in dry situations.
- Consider the effect of services provision on existing vegetation – overhead wires requiring tree removal or trenching damaging tree roots.
- Site services underground where possible. Investigate the best services route for all subdivisions proposed, rather than for each subdivision on an “ad hoc” basis.
- Use fencing with care – to protect native vegetation from grazing animals; to restrain pets from entering fauna habitat. Consider not fencing where this is appropriate for other reasons – landscape, shading etc.
- Minimise herbicide use, especially in drainage lines.
- Adopt a weed eradication program for the subdivision. Include weed eradication as a first task prior to ground disturbance and access construction to reduce weeds on newly disturbed soil.
- Recognise environmental weeds as well as “declared” noxious weeds in the eradication program.
- Consider and plan for the life cycle of plants used in re-vegetation or garden design. Consider the implications of site, years to maturity, leaf fall, root penetration, fertiliser requirements and water needs of these plants before planting. Invest in expert guidance on species selection and cultivation.
- Be prepared for plant losses and the need for replacement.
- Introduce water bodies into subdivisions wherever possible to retard intense rainfall events, provide drought/fire water supply, fauna habitat, landscape values and recreation use. Be prepared to manage these common water bodies – edge planting, water holding capability, water quality aspects need to be considered.