Coffs Harbour Local Environmental Plan 2013

PLANNING PROPOSAL

Bonville Rural Residential Area

SEPTEMBER 2014

Geoff Smyth & Associates

de Groot & Benson Pty Ltd

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1. INTRODUCTION

This Planning Proposal has been prepared in accordance with section 55 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)* and the guideline prepared by the Department of Planning dated July 2009 entitled *"A guide to preparing Planning Proposals"*. In particular, this Planning Proposal addresses the following specific matters in the guideline:

- Objectives and intended outcomes;
- Explanation of provisions;
- Justification;
    - Need for the Planning Proposal;
    - Relationship to strategic planning framework;
    - Environmental, social and economic impact; and
    - State and Commonwealth interests.

The purpose of this Planning Proposal is to assess the capability and suitability of the land at Bonville for rezoning for environmental protection and rural residential land uses. Environmental studies were prepared to clarify the extent of the land suitable for rural residential rezoning (R5 Large Lot Residential) and the extent of land that should be protected under the E2 Environmental Conservation zone.

The Study Area is shown on Illustration 1.1 Study Area. This Planning Proposal follows strategic planning previously prepared under the Rural Residential Strategy (RRS) endorsed by Council in November 2009 and includes a Local Environmental Study focussing on the land identified in the RRS as candidate areas for rural residential rezoning.

This Planning Proposal addresses matters that are intended to be included in a draft Local Environmental Plan (LEP) amendment. A draft Developer Contributions Plan has been prepared to support the draft LEP amendment.

de Groot and Benson, Consulting Engineers in association with Geoff Smyth & Associates were engaged by Council to carry out the Local Environmental Study and to prepare this Planning Proposal. The following sub-consultants carried out specialist technical assessments:

Company/Firm	Consultant(s)	Role
Keiley Hunter Urban Planner	Keiley Hunter	Strategic Planner
Jackie Amos Landscape Architect	Jackie Amos	Landscape Architect
Eco Logical Australia Pty Ltd	Dr Lachlan Copeland Peter Knock Susan Courtney Martin Stuart	Ecologists, Bush Fire Consultants,
Whitehead & Associates, Environmental Consultants	Strider Duerinckx	Environmental Engineer
Tim Hill Heritage Management and Planning	Tim Hill	Archaeologist

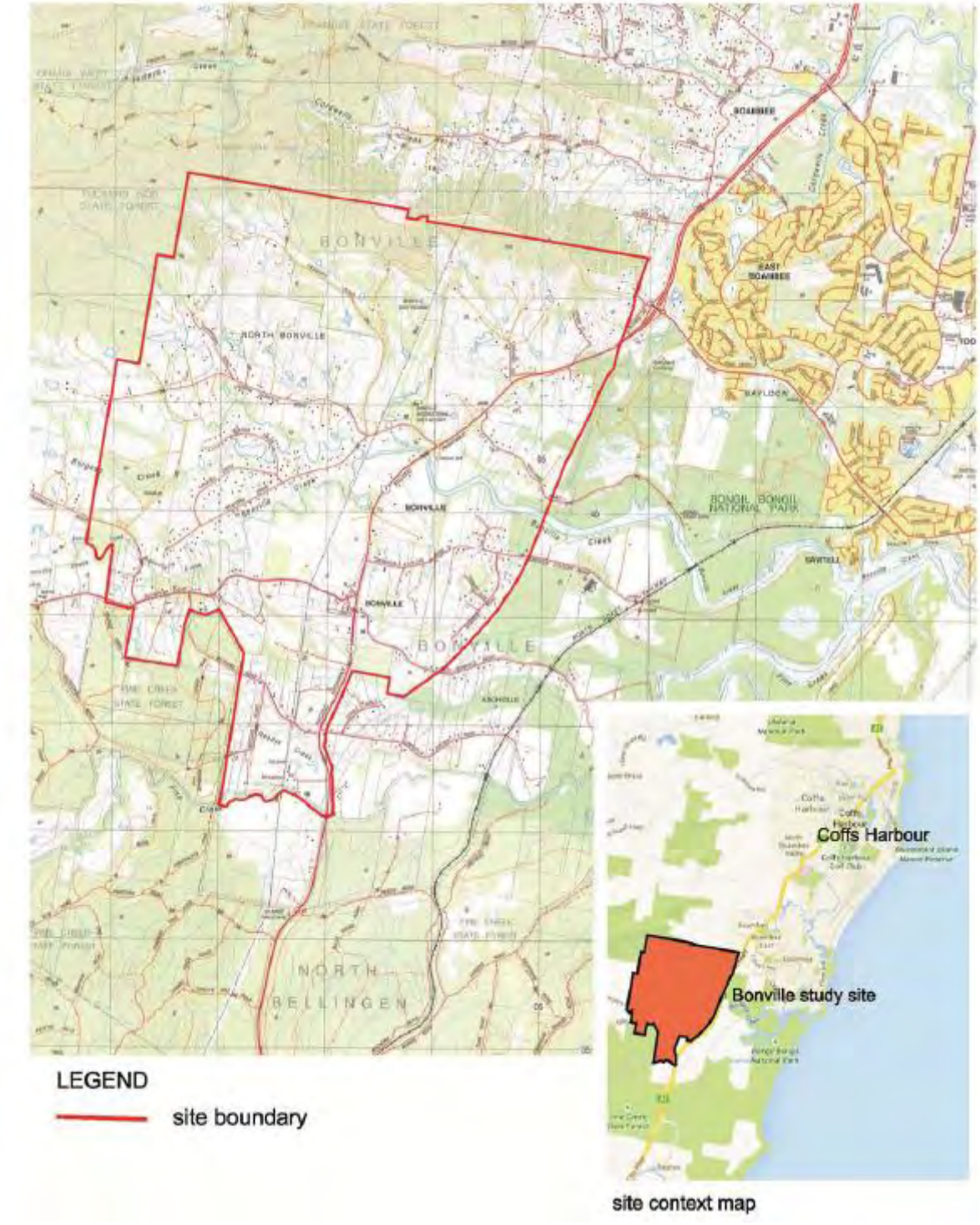
Key outcomes of the site investigations carried out for this Planning Proposal are:

- Rationalisation of the Bonville Rural Residential Candidate Areas based on cadastral boundaries and environmental buffers;
- Mapping and rezoning of 499 ha of rural residential land;
- Mapping and rezoning of 254 ha of environmental conservation zoned land;
- Mapping and environmental zoning of riparian buffers to improve water quality, ecological function and stability of beds and banks in the study area;
- Mapping and environmental zoning of additional areas of high conservation land;
- Mapping of bushfire buffers;
- Flood plain mapping up to the 1 in 100 year event;
- Assessment of a safe and sustainable minimum area for the operation of onsite wastewater disposal systems; and
- Development of visual enhancement strategies to ensure rural residential development maintains the scenic values and rural character of the Bonville area.

The following Planning Proposal provides a summary of the findings of the various site assessments and explains the methodology behind the allocation of the environmental and rural residential zone boundaries.

Full copies of each of the comprehensive site assessments are found as appendices to this report.

Illustration 1.1 Study Area



Source: Jackie Amos Landscape Architect, September 2013

2. SITE IDENTIFICATION

The Bonville study area is located approximately 13 kilometres (km) south of the Coffs Harbour city centre on the North Coast of NSW (Illustration 1.1). The Pacific Highway is on the eastern boundary of the site. This length of the highway opened in September 2008 and provided a bypass to Bonville. The former Pacific Highway, now Pine Creek Way, provides access through the study site. Bonville includes a number of roads with connections to the Pine Creek Way. The study area is bounded by Boambee and Pine Creek State Forests to the north, west and south and Bongil Bongil National Park to the east. The Bonville Creek runs generally west to east across the study area. An aerial photograph of the study area is shown at **Illustration 2.1**. The study area covers approximately 1,860 ha.

The current land uses in the Bonville locality consist of existing rural residential subdivisions and agriculture (including intensive horticulture cropping), private recreation (Bonville International Golf Resort) and small rural living lots. The old Pacific Highway (now Pine Creek Way) runs north-south on the eastern border of the study area and is the main access road to Bonville. The following roads provide access to the upper and lower Bonville Valley from Pine Creek Way (north to south):

> Titans Close; Irvines Road; Williams Road; North Bonville Road (linking to Cassidy's Road and Braford Drive); Bonville Station Road; Gleniffer Road (linking to Crossmaglen Road); East Bonville Road; and Butlers Road.

The study area comprises a mixture of zoning under the Coffs Harbour Local Environmental Plan 2013 as shown in Illustration 2.2

The Bonville study area includes a public primary school on Gleniffer Road not far from the Pine Creek Way intersection. The Pine Creek Way includes a service station and Australia Post outlet. Two former fruit stores are not far from the service station, but these closed with the completion of the highway bypass. The Waterside Caravan Park is on Pine Creek Way near the North Bonville Road intersection. Further south, the Brookhaven over 55's village is on Pine Creek Way and this development is growing with the construction of a number of mobile homes underway. The Bonville International Golf Resort is on North Bonville Road.

North Bonville is on the catchment of Bonville Creek. There is a ridge at the very north of Bonville that extends from west to south. The south face of this ridge is mostly vegetated. The northern side of this ridge is Boambee and these slopes were previously banana plantations. A second major ridge runs across the southern part of the site at the location of Gleniffer Road. This ridge divides the study site into two major catchments. The north part of the site is a catchment for Bonville Creek whilst the area south of Gleniffer Road falls south to Reedys and Pine Creeks. The main land uses in the study site are rural agricultural and rural living. There is a scattering of environmental protection areas across the site and along riparian areas.

Cropping activities tend to be limited to small holdings with crops including bananas, orchards and vegetables. Grazing land is mostly for cattle and horses with the southern part of the study area appearing to have large expanses of pasture.

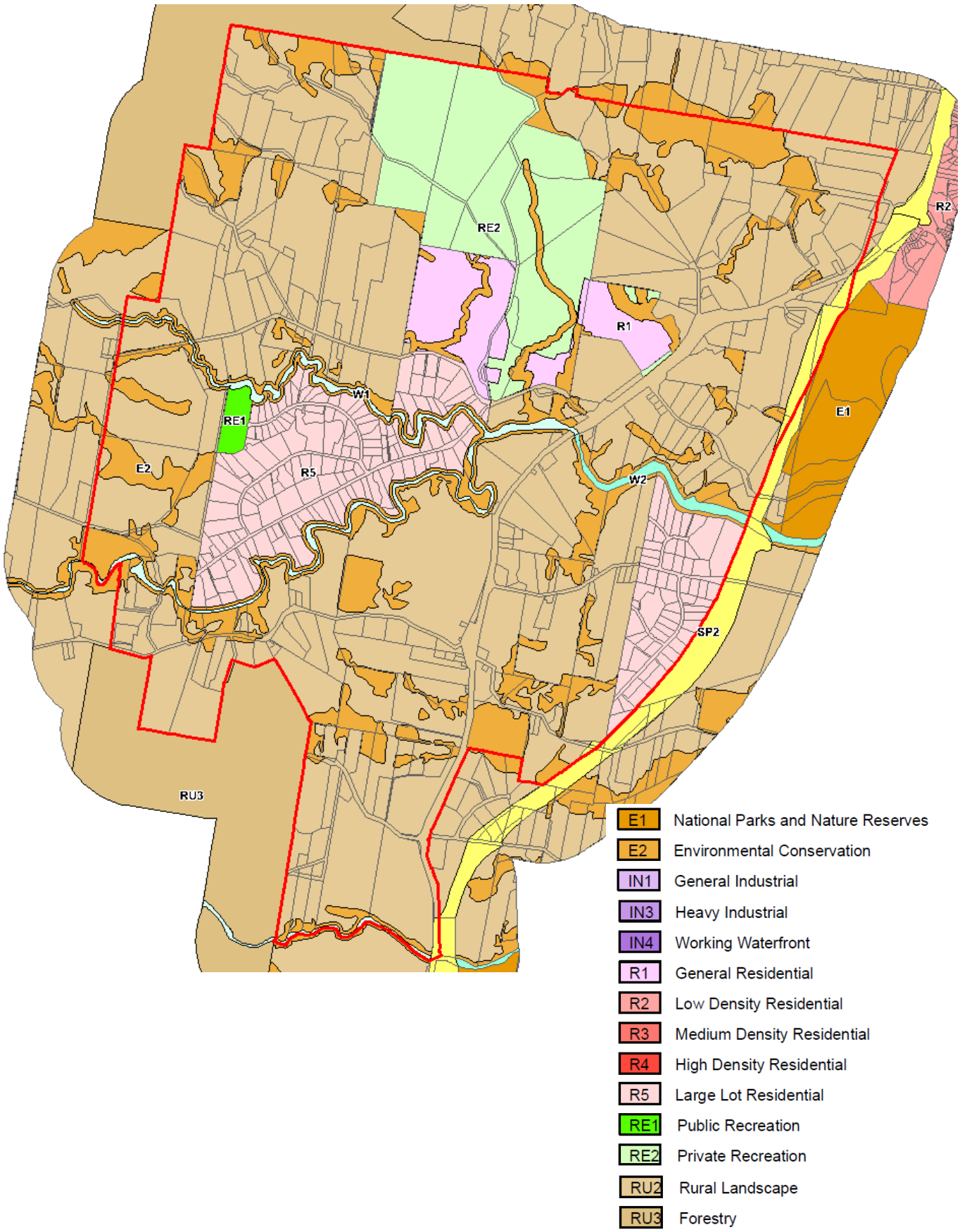
Vegetation is scattered across the study area. The largest extent of remnant native vegetation is in north Bonville on the south face of the ridge extending from Tuckers Nob State Forest. The lower part of this vegetation is the setting for the Bonville International Golf Course. Riparian vegetation is a combination of native vegetation and exotic weeds, predominantly Camphor Laurel. There are areas of native wetland along Bonville Creek between Pine Creek Way and the Pacific Highway.

Native vegetation across the study area is fragmented and has been affected by past and current land uses. Bongil Bongil National Park is east of the study area at the end of Williams Road. This area represents a relatively intact area of native vegetation on the banks of Bonville Creek.

Illustration 2.1 Aerial Image

Source: CHCC 2014

Illustration 2.2 Coffs Harbour LEP 2013



3. BACKGROUND

Council endorsed a Rural Residential Strategy on 26 November 2009 with Bonville being the agreed Priority Release Area due to its easy accessibility to the nearby centres of Boambee and Sawtell/Toormina and highway access to the Coffs Harbour city centre. The study area is divided into 'candidate areas' identified in previous strategic plans (Rural Residential Strategy 1999 and Our Living City Strategy 2007) as being broadly suitable for rural residential land use based on proximity to village centres, land capability and land suitability factors.

Candidate Areas were further defined in the Coffs Harbour City Rural Residential Strategy (RRS) 2009 based on constraints analysis including flooding, water resources, ecological significance, bushfire hazard, scenic qualities, land capability, acid sulfate and contaminated soils, regionally significant farmland and resource protection.

The candidate areas are shown at Illustration 3.1.

Endorsement of Bonville as a priority release area potentially provided 441.2 hectares of land for rural residential purposes. In 2009, based on the then uptake rate, the Bonville release area provides a 7.7 year supply of rural residential land.

This study builds on the work already completed in the RRS 2009 by carrying out detailed environmental assessments focussing upon the land already identified in the candidate areas as being broadly suitable for rural residential development.

The findings of these assessments will inform a Planning Proposal for rezoning of land suitable for rural residential and environmental protection purposes as well as the preparation of a Developer Contributions Plan (CP) for the release area and additional controls for inclusion in the Coffs Harbour Development Control Plan (DCP) 2013.

The Planning Proposal will support an amendment to the Coffs Harbour Local Environmental Plan (CHLEP) 2013 rezoning land from RU2 Rural Landscape to R5 Large Lot Residential and E2 Environmental Conservation.

In this report the term "rural residential" has the same meaning as 'large lot residential'.

Illustration 3.1 shows each Candidate Area (CA). The Bonville Possible Future Urban Investigation Area and land already rezoned for residential purposes associated with the Bonville International Golf (BIG) Club.

Illustration 3.1 Rural Residential Candidate Areas

CANDIDATE AREAS (CA) AREA OF UNCONSTRAINED LAND (RRS)

CA	AREA (HA)	CA	AREA (HA)	CA	AREA (HA)	CA	AREA (HA)
1	32.5	5	11.7	9	19.0	13	26.5
2	115.8	6	26.7	10	6.3	14	14.5
3	3.9	7	FUTURE URBAN	11	9.7	15	101.9
4	29.5	8	29.7	12	FUTURE URBAN	16	10.3

Source: CHCC 2014 NOTE: CA 7 AND CA 12 WERE EXCLUDED FROM THE STUDY AREA

4. THE PLANNING PROPOSAL

The following environmental assessments were carried out to inform the Planning Proposal. Each assessment is summarised in this section with the full report included as an Appendix.

4.1. Flora and Fauna

The Flora and Fauna Assessment of the Bonville study area prepared by Ecological Australia (**Appendix A**) documented and mapped the environmental values of the area in the context of land suitability for rezoning for environmental conservation or rural residential land use.

The study area covers approximately 1,860 ha with mapped vegetation systems ranging from the flood plain Ecologically Endangered Communities (EEC's) in the low-lying easterly areas through to wet sclerophyll and rainforest systems on the elevated and south-facing slopes to the north. Significant riparian vegetation systems exist with a large percentage found in a degraded state due to previous land-uses, including some small riparian remnants heavily affected by environmental weeds (e.g. exotic vines).

Fauna habitats provide varied resources for a range of (mainly) highly mobile annual and seasonal migratory and resident species. These species include state and federally-listed species such as Grey-headed Flying-fox and Koala. Microbats in particular are a unique fauna guild which represent a large percentage of the threatened species detected during the current assessment, most of which were recorded along drainage lines.

The landscape and vegetation character of study area has changed over time as a result of

- Past extensive clearing and vegetation modification through forestry and agricultural land use.
- Dairying and plantation timber for paper manufacturing that no longer persist in the area.
- Extensive areas of the riparian zones are mapped as exotic vegetation.
- Large areas of mapped primary Koala habitat supports communities dominated by Camphor Laurel.
- Pacific Highway bypass of Bonville has reduced traffic flow along the old permeable highway (now Pine Creek Way) with possible longer-term benefits to fauna. Additionally wildlife exclusion fencing and fauna over and underpasses assist in separating vehicle and wildlife interaction along the Bonville Pacific Highway upgrade route.

Previous planning initiatives such as Koala habitat protection and changed rural enterprises have resulted in revegetation of certain areas and vegetation losses in other developed areas. Challenges continue in the implementation of planning initiatives regarding protection of significant lands, riparian vegetated buffers, wildlife corridors and linkages between existing remnant vegetation within and downstream of the study area.

The flora and fauna assessment is summarised as follows (refer to Appendix A for more details):

Koala Activity

Koala activity was confirmed from several locations within the study area:

- Pine Creek Way – Titans Close Koala crossing;
- Private property adjacent to Bonville International Golf Club (BIG) lands;
- Private property in the Crossmaglen Road – Burgess Creek area;
- Reedy Creek; and

- Pine Creek drainage lines

Koala evidence and locations were determined from the periphery of the study area and are likely to have been populated by dispersing Koalas moving from Pine Creek State Forest and Bongil Bongil National Park which are adjacent to the study area. Corridors are highlighted as crucial components which allow Koalas to traverse remnant and regenerating habitats. A focus on maintaining and improving existing Koala habitat is required for the Bonville study area.

Vegetation Communities

Vegetation mapping is sourced from Class 5 vegetation mapping completed by Office of Environment & Heritage (OEH) and Coffs Harbour City Council (CHCC) for the Coffs Harbour LGA (OEH 2012). Where site access was possible, the vegetation layer for this study was ground-truthed via field survey. Using this information 22 communities have been delineated within the study area, of which only 15 are recognised as supporting remnant native vegetation. The remainder were allocated to derived communities or non-natural vegetation states due to previous land uses, clearing and re-growth events or landform modifications. For example, the freshwater wetland community is largely comprised of derived communities resulting from clearing forested drainage lines and damming or creating impediments to drainage. These actions result in the formation of a water feature or artificial wetland community. Overtime these water features can become important areas for wildlife in the landscape such as water birds, frogs and reptiles as well as providing water resources for domestic or rural uses.

Class 5 vegetation mapping is available on Council's online mapping. A table showing the percentage cover across the study area of the broad vegetation classes is shown below.

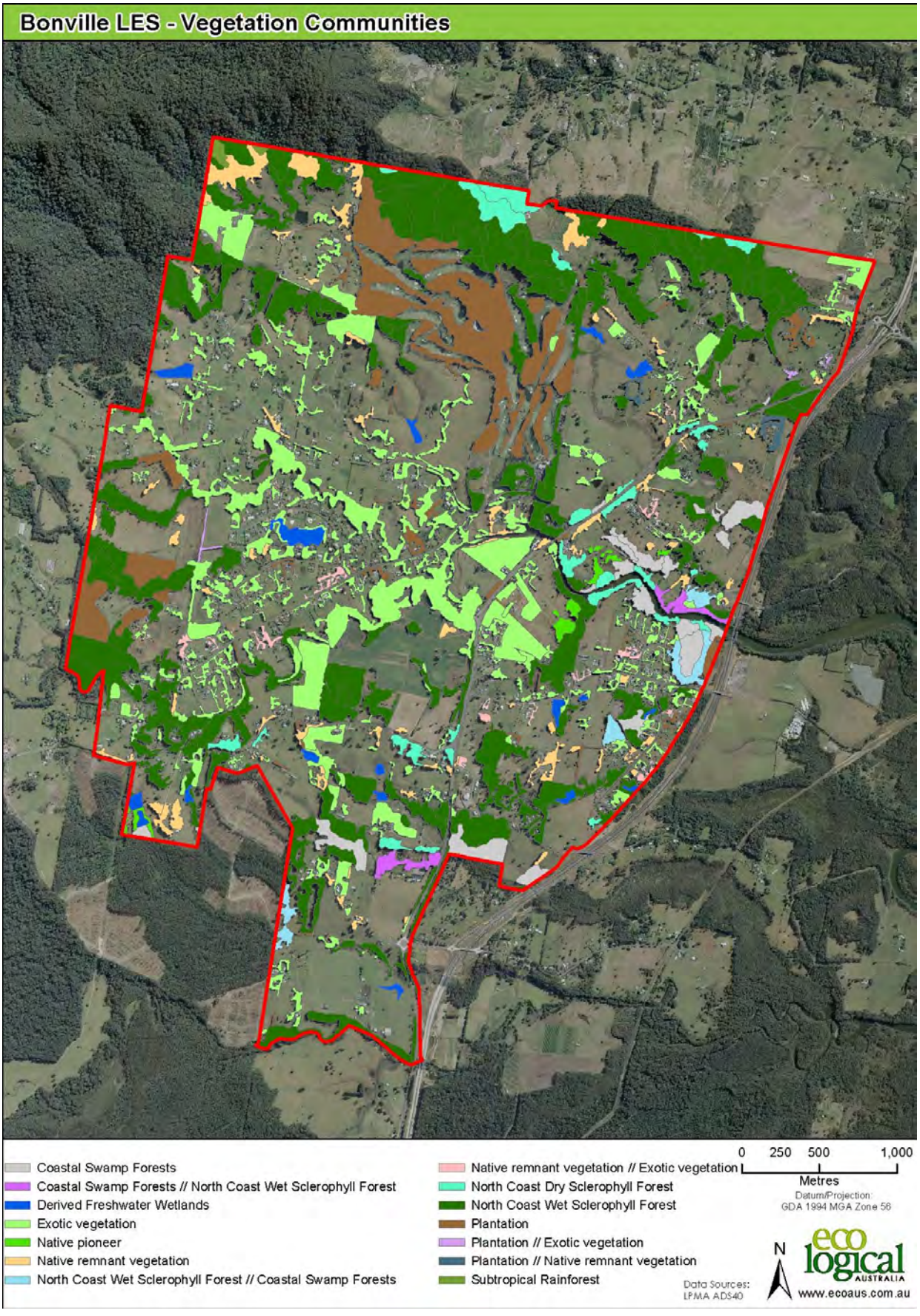
Table 4.1 Vegetation Class

Class	Area (ha)	Forested vegetation cover (%)	Study area cover (%)
Dry Sclerophyll Forests	28.07	3.76	1.52
Exotic Vegetation	184.80	24.78	10.00
Forested Wetlands	36.11	4.84	1.95
Freshwater Wetlands	11.88	1.59	0.64
Native Pioneers	5.30	0.71	0.29
Native Remnant Vegetation	43.49	5.83	2.35
Plantation	99.72	13.37	5.39
Rainforest	1.79	0.24	0.10
Wet Sclerophyll Forests	334.70	44.87	18.10
Cleared / not mapped	1103.00	NA	59.66
Total	**1848.87**	**100.00**	**100.00**

Table 4.2 Vegetation Community Areas (ha)

Class	Vegetation Community	Area Ha
Dry Sclerophyll	Coast and Escarpment Blackbutt Dry Forest	24.30
Dry Sclerophyll	Foothills Grey Gum - Ironbark - Mahogany Dry Forest	3.77
Exotic Vegetation	Camphor laurel	78.99
Exotic Vegetation	Exotic vegetation	105.81
Forested Wetlands	Coastal Paperbark Swamp Oak Floodplain Forest	9.38
Forested Wetlands	Coastal Swamp Mahogany Forest	18.84
Forested Wetlands	Coastal Paperbark Sedgeland Dominated Forest	7.90
Freshwater Wetlands	Coastal Freshwater Wetland	11.88
Native Pioneers	Acacia pioneers	5.30
Native Remnant	Native remnant vegetation	43.49
Plantation	Plantation - native species	83.77
Plantation	Plantation - exotic/pine species	0.19
Plantation	Environmental plantings	15.76
Rainforest	Escarpment and Lowland Bangalow - Carabeen - Black Booyong Palm Gully Rainforest	1.79
Wet Sclerophyll	Coast and Hinterland Riparian Flooded Gum Bangalow Wet Forest	92.87
Wet Sclerophyll	Hinterland Blackbutt - Bangalow - Turpentine Wet Shrubby Tall Forest	0.16
Wet Sclerophyll	Foothills and Escarpment Blue Gum Tallowwood - Turpentine Wet Shrubby Forest	41.52
Wet Sclerophyll	Foothills to Escarpment Brush Box - Tallowwood - Blackbutt Wet Forest	66.27
Wet Sclerophyll	Southern Foothills Blackbutt - Turpentine - Tallowwood Wet Ferny Forest	48.33
Wet Sclerophyll	Northern Escarpment Blackbutt - Apple Wet Ferny Forest	34.97
Wet Sclerophyll	Hinterland and Escarpment Tallowwood - Blackbutt - Blue Gum Wet Ferny Forest	45.56
Wet Sclerophyll	Foothills Turpentine - Grey Gum - Ironbark Moist Shrubby Forest	5.01

Illustration 4.1 Vegetation Communities



Vegetation Condition

A native vegetation condition statement for each community was developed, based on the ranking of good, moderate or poor condition categories. This ranking system was used to categorise vegetation mapping and determine simple condition statements within the study area – refer to Illustration 4.2. This system was based on available information from the mapping project coupled with field assessment data.

Four condition categories were created by applying the following rules to the data. Table 4.3 provides a summary of the rankings and the area they cover within the study area.

- Data was excluded or given a Null rating for non-vegetated systems (e.g. farm dams or horticultural production areas). Null ranked land is not shown in the Vegetation Condition map at Illustration 4.2.
- Areas dominated by weeds or native pioneers, small / fragmented native remnants and hardwood plantations were ranked as Poor.
- Areas of native vegetation categorised as specific vegetation community units and >0.25 ha were ranked as Moderate.
- Areas of native vegetation not connected to Moderate category areas and <0.25 ha were ranked as Poor.
- The ranking of Moderate category vegetation patches was lowered / elevated based on field validation where forest structural components were observed to be present / absent (e.g. old-growth and hollow-bearing trees).
- The ranking of Moderate categories was elevated to Good where they formed part of a large contiguous forest block (e.g. good connectivity).

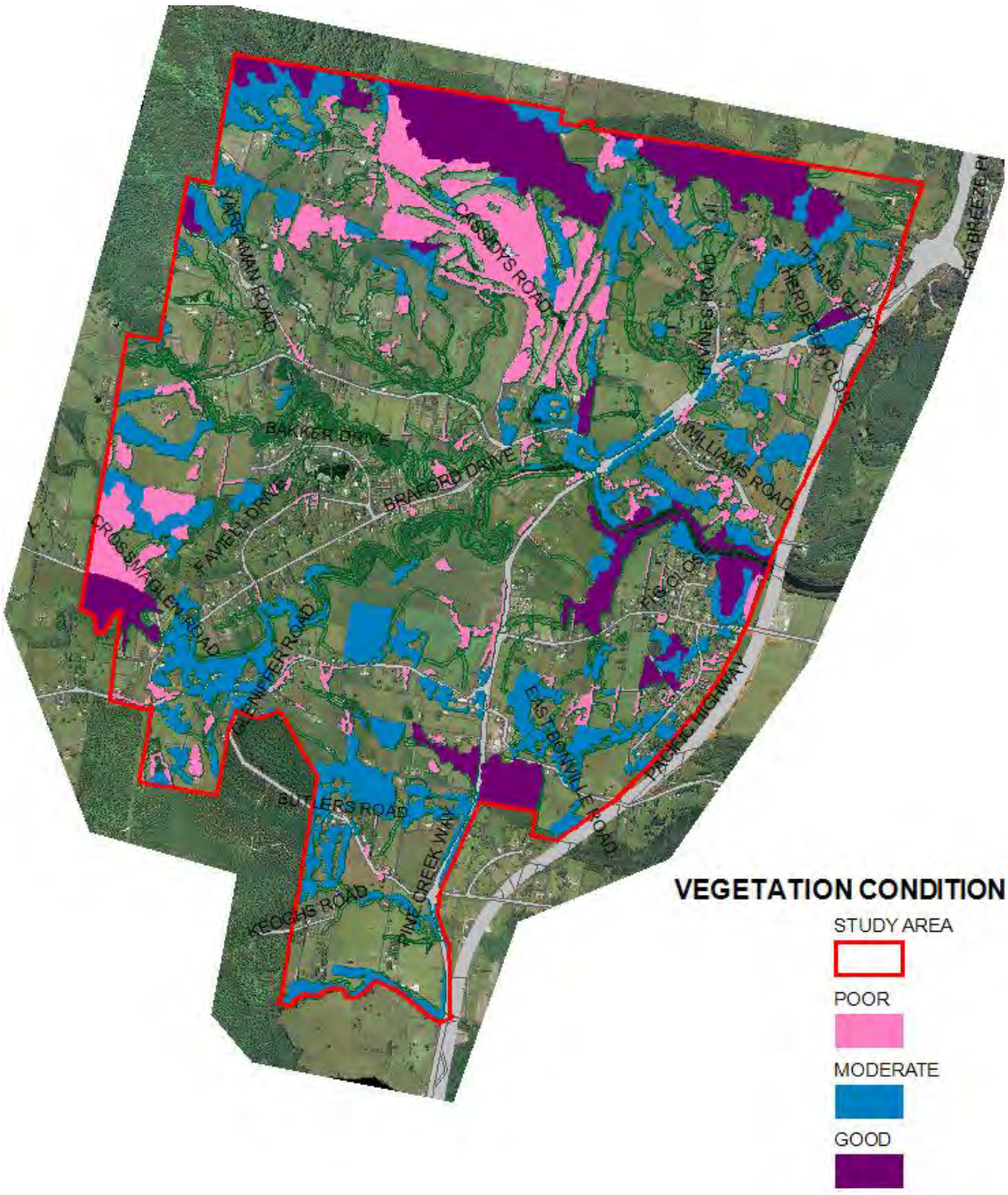
A ranking of Poor does not necessarily indicate low conservation significance. Small regenerating and / or degraded patches of native vegetation may represent higher ecological values in a landscape context. For example, these may represent an example of an EEC or have the potential to form part of a wildlife corridor.

The vegetation condition data was combined with riparian buffers, potential EECs and landscape context (corridors) to create the habitat significance and environmental constraints layers

Table 4.3 Vegetation Condition Rankings

Vegetation Condition	Polygons	Area (ha)
Null	36	67.97
Poor	398	285.34
Moderate	173	243.92
Good	57	148.64

Illustration 4.2 Vegetation Condition



Source: CHCC and Ecological Australia 2014

Species of plant

Within the study area 197 plant species were recorded including 25 exotic species. The full list is found in Appendix B of the Flora and Fauna Assessment appended to this report. This does not represent a comprehensive flora species list of the study area. This list is a combination of flora survey records and additional incidental sightings from the current field

Significant flora

No significant flora (ROTAP or NSW TSC-listed species) were recorded during the survey effort for this study. A review of the OEH Atlas records for the study area highlighted *Marsdenia longiloba* (Slender Marsdenia) as a threatened species which occurs within the study area.

Fauna Habitats

The vegetation communities described within the study area provide a range of fauna habitat resources. At a landscape scale the vegetation of the study area is a mosaic of remnant and regenerating forested patches, regenerating ephemeral drainage lines and riparian zones supporting a high density of planted and naturalised weed species.

Forested vegetation communities range from small areas of rainforest to extensive wet sclerophyll forests, isolated areas of dry sclerophyll forest and remnant swamp forest communities. These communities are largely dominated by eucalypts and support mesic or moist understoreys. Based on historic accounts of timber extraction activities and remnant vegetation patches it is likely that rainforest and swamp forest communities may have been more widespread within the locality prior to European settlement.

Riparian zones and man-made wetlands also provide a range of resources for specific fauna guilds within the study area. Large areas within the valley have been extensively cleared of forest (60%) while regenerating and exotic vegetation accounts for a further 15% of the overall vegetation cover. Derived grasslands containing a mix of introduced and native grasses occur widely as a habitat type, and provide habitat resources for some native fauna.

The disturbance regimes applied to the Bonville area since the late 1800's have reduced the occurrence of a range of native faunal species while providing opportunities for certain other fauna species. A severely depleted habitat component throughout the study area is hollow-bearing trees. Large trees rarely occur and only a few significant trees containing a range of hollow sizes were recorded within the study area.

Eucalypts take many decades to mature and centuries to reach an age where hollows can develop. Blackbutt growth rates (measured in the Coffs Harbour area) were estimated at approximately 21 years to reach 25 cm (DBH), 52 years to 50 cm, 94 years to 75 cm, 144 years to 100 cm and 194 years to 125 cm (Mackowski 1984). The oldest trees produce the largest hollows which are a necessary requirement for certain fauna species such as the larger forest owls and glider species.

Fauna Species

The Bonville area provides a range of fauna habitats for a number of fauna species. Table 4.4 lists faunal groups and the number of native and exotic species recorded during field survey effort (including records from previous studies). Many more species likely to occur based on the available habitats of the study area.

Table 4.4 Summary of Fauna Species Recorded On-site

Terrestrial Fauna Groups	Native	Exotic	Total
Frogs	5	1	6
Reptiles	8	0	8
Mammals (excl. bats)	14	4	18
Bats	17	0	17
Birds	118	3	121
Total			170

Significant Fauna

Eight threatened species listed as **Vulnerable** under the TSC Act were recorded during the current field survey:

Bird	*Mammals*
Square-tailed Kite (*Lophoictinia isura*)	East Coast Freetail-bat (*Mormopterus norfolkensis*) Eastern Bentwing (*Miniopterus schreibersii oceanensis*) Grey-headed Flying-fox (*Pteropus poliocephalus*) Koala (*Phascolarctos cinereus*) Large-footed Myotis (*Myotis macropus*) Little Bentwing Bat (*Miniopterus australis*) Yellow-bellied Freetail Bat (*Saccolaimus flaviventris*

Of these species three bats have not been previously recorded within the study area, namely the East Coast Freetail-bat, Large-footed Myotis and Yellow-bellied Freetail Bat. A combined total of 18 threatened fauna species have been recorded within the study area during current and previous studies.

Species, Populations and Communities of Conservation Concern

From the database searches 94 animals and 40 plants listed under the TSC Act or the EPBC Act are recorded within a one km search of the study area. Of these 46 animals and 13 plants are either likely or have the potential to occur within the study area based on available habitat. Eight EECs have been recorded within this search with only the three following likely to occur:

- *Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions;*
- *Swamp Sclerophyll Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions;* and
- *Freshwater Wetlands on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions.*

Landscape Linkages

Several large remnant forested areas and potential corridor features are located adjacent to and traversing the study area. These areas include:

- Boambee State Forest to the north-west;
- Pine Creek State Forest to the south;
- links to the lowland habitats to the east (Bongil Bongil National Park);
- the ridgeline running east along the northern boundary of the study area; and
- surrounding private property areas.

Koala populations in particular have been documented as highly significant in the Pine Creek - Bongil Bongil areas in a state and national context (Scotts 2013). This area is burdened by the Bonville Pacific Highway upgrade and forms the easterly edge of the Bonville study area.

Overall a greater separation between wildlife and vehicle traffic now exists, although the road upgrade has reduced habitat in the area via clearing and potentially severed significant east to west wildlife movement. Death and injury to wildlife by cars on roadways (particularly in high speed areas) can cause significant impacts to local wildlife population dynamics. The upgrade may have reduced these potential impacts (after an initial disruption) by providing dedicated wildlife overpass, underpass and fencing along the roadway allowing fauna movement away from vehicle interaction. However Koala monitoring research for the Bonville Pacific Highway upgrade (2000 – 2009) reported a decline in Koala numbers. High levels of disease, a low breeding rate and vehicle strike were all implicated (AMBS 2012).

Six fauna underpasses are located directly adjacent to the Bonville study area. Most of these are located along drainage lines and one dedicated fauna overpass exists just south of the study area. These drainage line linkages under the roadway allow land and water movement to fauna species. These underpasses logically align with likely local corridors traversing the study area or adjoin State Forest or National Park tenure (Figure 9 of Appendix A). The main underpass location linkages are listed (north to south):

- Titans – Herdegen Close;
- Bonville Creek (north and south bank);
- Northern Pine Creek tributary;
- Reedy Creek; and
- Pine Creek

Several subregional corridors traverse the study area (Illustration 4.3) and were mapped as part of the Key Habitats and Corridors for Forest Fauna project (Scotts 2003). Construction of the Bonville bypass has preserved the majority of these corridors except one which would probably follow a drainage line along a tributary of Pine Creek. Post highway construction, a review of corridor connections is required to examine functional connectivity regarding the new fauna underpasses, as at least one depicted corridor is misaligned.

The Coffs Harbour City Council NSW 2009 Draft Priority Habitats and Corridors Strategy 2010 – 2030 maps local corridors within a regional framework across the Coffs Harbour LGA. These two corridor frameworks were overlayed with existing GIS datasets to highlight areas which would improve connectivity and wildlife movement.

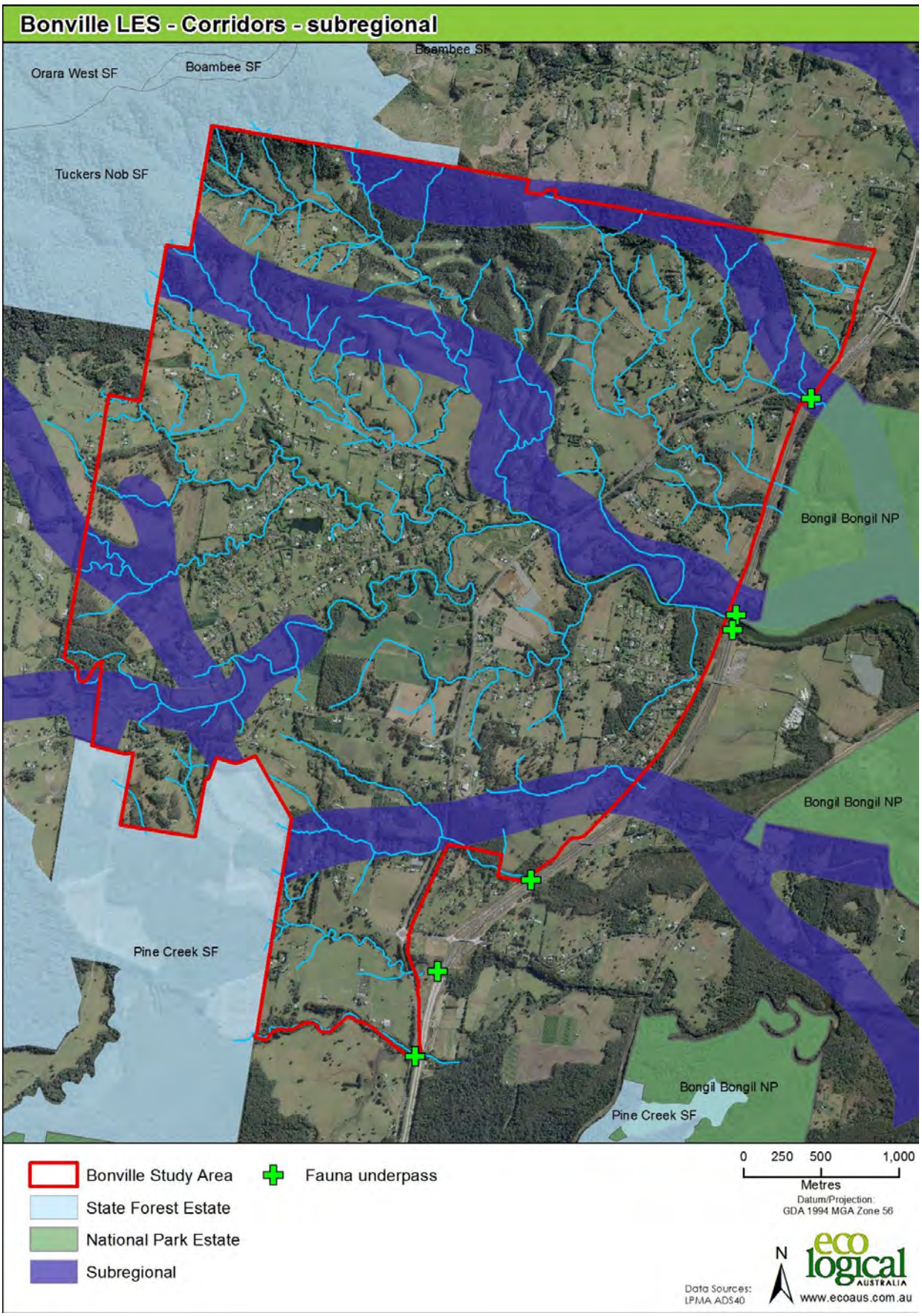
Both datasets show plantation habitat was not considered as an ecological unit as part of these corridor assessments. Plantation forest cover provides certain habitat features to allow wildlife movement and comprises a significant part of the potential BIG club corridor. This corridor extends from the northerly portion of the study area in a southerly direction along the Bonville Creek riparian corridor and east to Bongil Bongil National Park.

The most practical solution to wildlife corridors within existing zoned and occupied landscapes is to utilise drainage lines and their subsequent vegetation buffers applicable to the stream order definition.

Drainage lines are natural traverse zones for a range of species particularly highly mobile bird and bat species. Data from the microbat echolocation call data indicate that microbats utilise these natural conduits for their foraging requirements indicated by 12 species recorded included several threatened species.

Local corridor definition for this study area has naturally been focused on riparian and their associated buffer areas with the potential limits to development around water front land. Protection and improvement through environmental management, weed removal and suppression of riparian zones will also improve the ability for the Koala to access fauna underpasses under the Pacific Highway bypass to significant koala habitat areas in the Bongil Bongil and Pine Creek locations. Riparian buffers form a significant component of the environmental constraints derivation as discussed later in this report.

Illustration 4.3 Vegetation Communities



Riparian Buffers

Riparian buffers are a major consideration of this planning process as they present a significant environmental constraint to proposed development. Stream orders range from 1st order through to 6th order for the lower section of Bonville Creek. This created riparian buffers on both sides of each drainage line ranging from 10 - 40 m. All stream orders require buffers to be created from the top of bank on each drainage line. These buffers were used in defining environmental constraints and/or potential LEP environmental zones.

The NSW Office of Water (NOW) guidelines states that '*where a watercourse does not exhibit the features of a defined channel with bed and banks, the Office of Water may determine that the watercourse is not waterfront land for the purposes of the WM Act*'. Many of the 1st order streams within the study area may not display defined bed and channel definition as they have been cleared and grazed for many decades. Undefined and/or degraded 1st order drainage lines will require assessment by NOW as part of the future development assessment process.

Table 4.5 Stream Order and Buffer Distances

Watercourse type	VRZ width (each side of watercourse)	Total RC width
1st Order	10 Metres	20 m + channel width
2nd Order	20 Metres	40 m + channel width
3rd order	30 Metres	60 m + channel width
4th Order and greater (includes estuaries, wetlands and any parts of rivers influenced by tidal waters)	40 Metres	80 m + channel width

Environmental Constraint Derivation

The following criteria were used to build the constraints layer (Illustration 4.4).

- Evaluate and protect existing high value vegetation.
- Protect existing Koala habitat.
- Establish corridor network to link existing vegetation to improve ecological function and catchment protection.
- Quantify statutory requirements for vegetation buffers around drainage lines for drainage line stabilisation and to improve water quality.

This layer was designed with the purpose of protecting and maintaining existing threatened species habitat, applying statutory requirements to riparian zones and applying the best available data when defining corridors.

The following GIS layers were combined and intersected to create a single environmental constraints layer (Figure 11 of Appendix A).

- CHCC LEP 2013 – existing zones E2, W1 and W2.
- Potential E2 zoned land identified in the field assessment for this study

- Class 5 Vegetation mapping:
  - EEC.
  - Vegetation significance.
  - Vegetation condition values.
  - Vegetation extent.
- Point significant field data
- Riparian buffers – 3rd order and greater
- Minor drainage buffers – 1st and 2nd order
- Remnant vegetation and/or corridor

The following table shows the area covered by each environmental constraints category within the study area:

Table 4.6 Environmental Constraints Areas (ha)

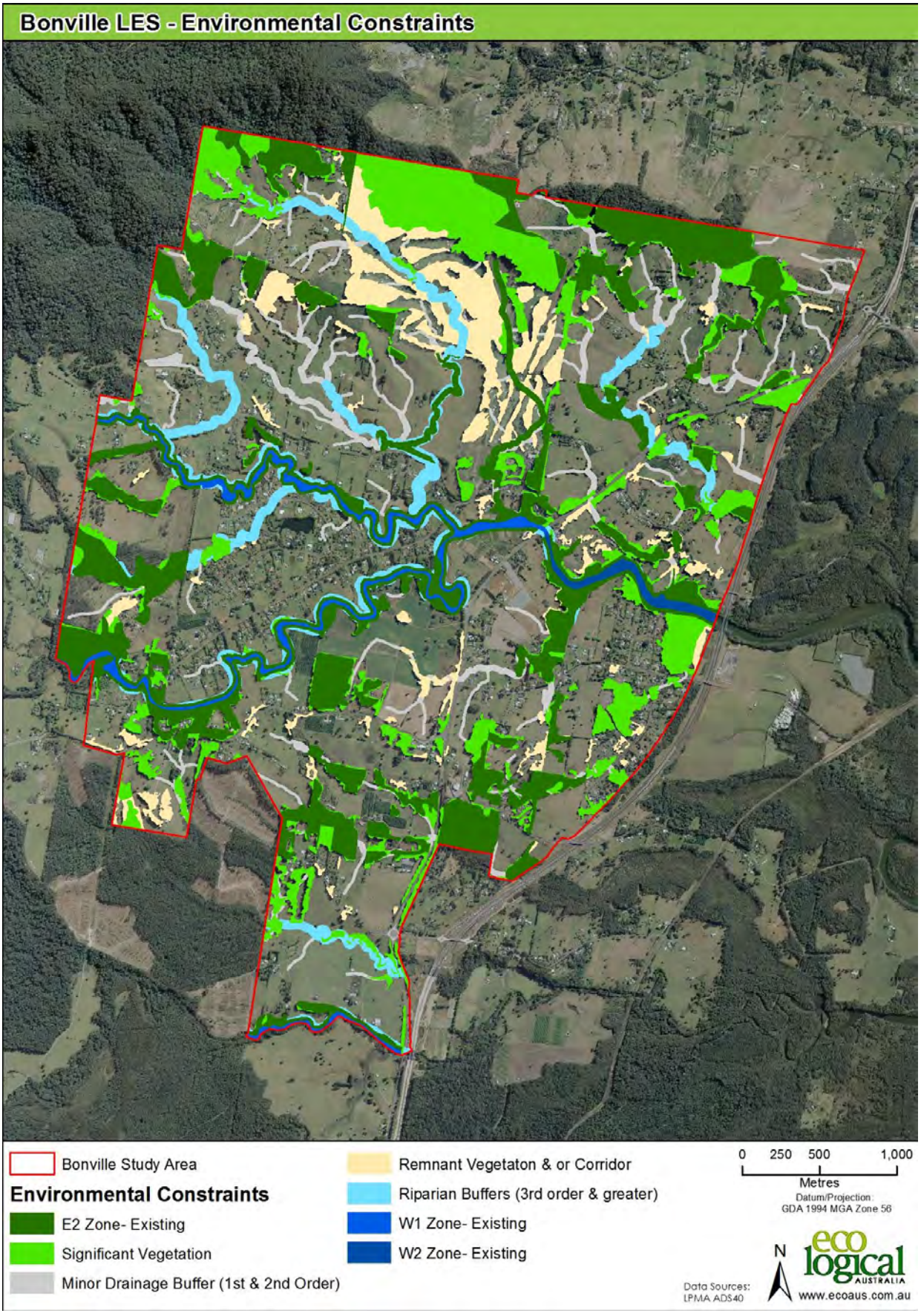
Environmental Constraint	Area (ha)
E2 zone - existing	284.50
Minor drainage buffer (1st and 2nd order)	73.39
Remnant vegetation and/or corridor	98.52
Riparian buffers (3rd order and greater)	65.79
E2 - Potential	187.96
W1 zone - existing	24.11
W2 zone - existing	7.23
Total area of constrained land within the study area	741.50
Total area of land within the study area	1,860

Recommendations

Recommendations for the Bonville study area developed during this study are as follows:

1. Retain all high conservation habitats within E2 zoning.
2. Absorb riparian buffer areas within E2 zoning as a statutory component.
3. Remnant vegetation and / or corridor linkages should be retained as a biodiversity overlay.
4. Provide 1st and 2nd order streams as a 'likely constraint' and displayed as a biodiversity overlay.
5. Improve wildlife movement corridors under Pine Creek Way (formerly Old Pacific Highway) particularly at Reedy and Pine Creeks. This should enable a dry east – west access for fauna under the new Pacific Highway and Pine Creek Way road corridors.
6. Encourage and establish a Bonville Landcare group to reduce NSW-listed weeds and environmental weed species, particularly along the Burgess, Crossmaglen and Bonville Creek drainage lines.
7. Corridors within the Bonville International Golf (BIG) Club lands must be maintained and improved to manage direct and indirect impacts of proposed development works.
8. Encourage BIG club to develop a Flora and Fauna Plan of Management (PoM) for proposed housing development works and general management of environmentally significant lands under their control.

Illustration 4.4 Environmental Constraints Layer



4.2. Acid Sulfate Soils

Acid Sulfate Soil Risk Mapping

Council's acid sulfate risk mapping has been extracted from their GIS system and is attached as Figure 5 and Figure 6 of Appendix B. This mapping was prepared by the Acid Sulfate Soils Advisory Committee, NSW Department of Land and Water Conservation, March 1998. It is predominantly based on surface elevation and landform. It is not known what, if any, actual field testing has been undertaken in the study area. The mapping provides:

Acid Sulfate Planning – Refer Figure 3 of Appendix B. The mapping shows that the eastern portion of the site has Class 4 and 5 areas. These areas are defined as:

- Class 4 – Works beyond 2m below natural ground surface; works by which the water table may be lowered beyond 2m below natural ground level;
- Class 5 – Works within 500m of the above Classes of land which are likely to lower the water level by 1m on the adjacent Class of land.

The mapping does not anticipate acid sulfate soils to be present in the class 5 land. The class 5 land is rather a buffer and is included as major works, particularly drainage works, could conceivably impact on the water table in the adjacent class 4 or higher lands.

Where significant earthworks or drainage works are proposed within the classified lands, Council requires an acid sulphate assessment, and where present, a management plan.

Limited Field Investigations

At the time that the investigations were being undertaken, the potential acid sulfate areas are outside the Candidate areas minimal site investigations were undertaken.

Notwithstanding this, it is recommended that Council's existing policies of requiring acid sulfate assessment and, where present, management, be retained for the class 4 and 5 lands in Study Area.

As is generally found along the lower creek lines around Coffs Harbour, mild acid sulfate soils will be found in places. Management practices will be required such as treatment with lime. The investigations and management will add to the cost of development. However, as the extent of deep excavation will be limited and the likelihood of high acid sulfate soils is low, it is not expected that managing acid sulfate soils will be a significant constraint. Testing and management of acid sulfate soils will not significantly impact on the viability of development.

4.3. Geotechnical Assessment

Investigations

Across the investigation area the topography is that of moderate to steep slopes falling to gentle limited floodplains adjacent several creek lines. The general profile of soils underlying the site is:

- Under the sloping terrain – residual soils, having weathered from the underlying rock which, according to the 1:250,000 Geological Series Mapping, Sheet SH 56 – 10 & 11, is siliceous argillite, slate, rare siliceous greywacke from the Brooklana Formation of the Carboniferous period. The slopes are dominated by residual soils, that is, soils that have formed in their current location by the weathering of the underlying rock. Some slopewash may be present in isolated areas below steep slopes. Slopewash is soil that has been washed down from up-slope and deposited.
- Under the flood plains, either residual soils as above, or alluvial soils, having formed through deposition from the creeks.

The natural residual soil on the slopes is cohesive (silty clay) in nature and is generally fairly shallow. Weathered rock can be expected within several metres depth. On the steeper slopes where erosion is typically acting faster, weathered rock can be at quite shallow depths. Topsoil on the slopes is typically 100-200mm in depth. Across the floodplain the soil profile is more variable and can be significantly deeper in alluvial areas.

Over the past 20 years, de Groot & Benson have carried out in excess of 50 geotechnical investigations specifically related to the proposed construction of residential dwellings in the investigation area. The location and borelogs of 26 of these sites in contained in Appendix B. These borelogs confirm the typical soil profile within the first 1.5m of most sites:

- 0 – 0.2 m — topsoil
- 0.2m – 1.5m — A variety of clay – varying between grey, yellow, and orange, typically of medium plasticity and stiffness increasing with depth; generally assessed as Class M to AS 2870.

Generally all these sites were classified as either S or M. To date, there has not been one site that has not been able to be provided with an engineered solution to the foundation design of dwellings in the investigation area.

Conclusions and Recommendations

The geotechnical conditions across the proposed development areas do not pose a major constraint. Slope, as discussed in section 4.5, will have the greatest effect of development. The residual soils will typically yield an M classification in accordance with AS2870 although this will give way to a P classification on the steeper slopes.

This investigation is general in nature and, apart from limited field work, relies on local experience in the design and construction of residential footings throughout the Coffs Harbour region over the Brooklana Formation. This investigation does not obviate the need for site specific investigations as part of individual development.

It is recommended that Council retain existing policies that require individual site classifications and the engineering design of slabs and footings, plus compaction control of subdivision earthworks. Notwithstanding the recommendations of section 4.5, no additional planning and policy requirements are recommended.

4.4. Bushfire Hazard Management

A Bushfire Hazard Assessment was prepared by EcoLogical Australia (ELA) and is found at **Appendix C** of this report.

The aim of the Bushfire Hazard Assessment is to investigate the capability and general suitability of the study area or future rural residential land use and other land uses with the appropriate bushfire protection measures as guided by the relevant legislation and policy into bushfire planning and design of new development in NSW. The findings and recommendations are to inform a Planning Proposal to rezone suitable land within the study area for rural residential or environmental conservation purposes.

The objectives of this assessment are to:

1. Provide statements as to the capability of the site to achieve the required minimum bushfire protection measures for future development, namely subdivision and the construction of dwellings;
2. Satisfy the legislative requirements for assessment of rezoning bushfire prone land for residential purposes under the *Environmental Planning and Assessment Act 1979*;
3. Investigate the application of Asset Protection Zone (APZ) building setbacks to vegetation/bushland and report on the location and dimensions of any required APZ;
4. Provide guidance on the access and egress requirements for residential development in bushfire prone land; and
5. Provide guidance on other bushfire protection measures such as the provision of utilities.

This assessment is based on the existing vegetation coverage as well as the possible future vegetation coverage as recommended in the ecological assessment prepared by ELA (2013) for this study. Some of the current bushland areas will contribute to the future bushfire hazard, however this hazard will be significantly added to, particularly in the way of connectivity between remnants and along drainage lines to achieve biodiversity and riparian environmental objectives. The potential increase in fire hazard is not sufficient to preclude residential development or pose a future hazard that cannot be addressed by typical bushfire protection planning precautions as outlined in *Planning for Bushfire Protection (PfBP) 2006.*

The concept of bushfire risk as influenced by fire history and current and past bushfire issues has little bearing on the determination of bushfire protection strategies for rezoning and future development at this site. This is due to a different future vegetation layer and the fact that PfBP 2006 assesses bushfire protection based purely on vegetation and slope (i.e. hazard and not risk), making the assumption that a fire may occur in any patch of bushland at a worst-case scenario (based on a set design fire).

Notwithstanding this, the *Mid North Coast Bushfire Risk Management Plan* was reviewed to gain a greater understanding of the bushfire environment, hazard and risk issues that affect the study area. The only impact the plan has specifically on the study area is the requirement to conduct hazard reduction within the forest plantations adjacent the southwest boundary of the study area. This complementary management offsite does not affect the bushfire protection measures required for future development within the study area.

Vegetation Communities Influencing Bushfire

The 'predominant vegetation' influencing fire behaviour approaching future developable areas has been assessed strictly in accordance with the methodology specified within PfBP.

Comprehensive and site specific vegetation assessment and mapping prepared by Eco Logical Australia (2013) is found in Section 4.1 and Appendix A of this report.

Mapped vegetation formations within the study area include units mapped as Sclerophyll (Wet and Dry) Rainforest, Native Remnant, Native Pioneers, Exotic, and Plantation. The primary hazard is predominantly Tall Open Forest of varying conditions with floristics, particularly within the understorey, changing from the wetter lowland areas such as along the drainage lines to the higher slopes.

The bushfire assessment takes into consideration the recommended future vegetation coverage as indicated in Illustration 4.4 'Environmental Constraints Layer'. This layer comprises the existing environmental zoned land as well as the recommended additional environmental zones and biodiversity overlays.

The PfBP predominant vegetation classification of all future vegetation for the study area is 'forest', with the exception of small remnants (less than 1 ha) and narrow corridors (less than 50 m in width) which are able to be classified as 'low hazard' due to the limited fire behaviour in small areas of vegetation.

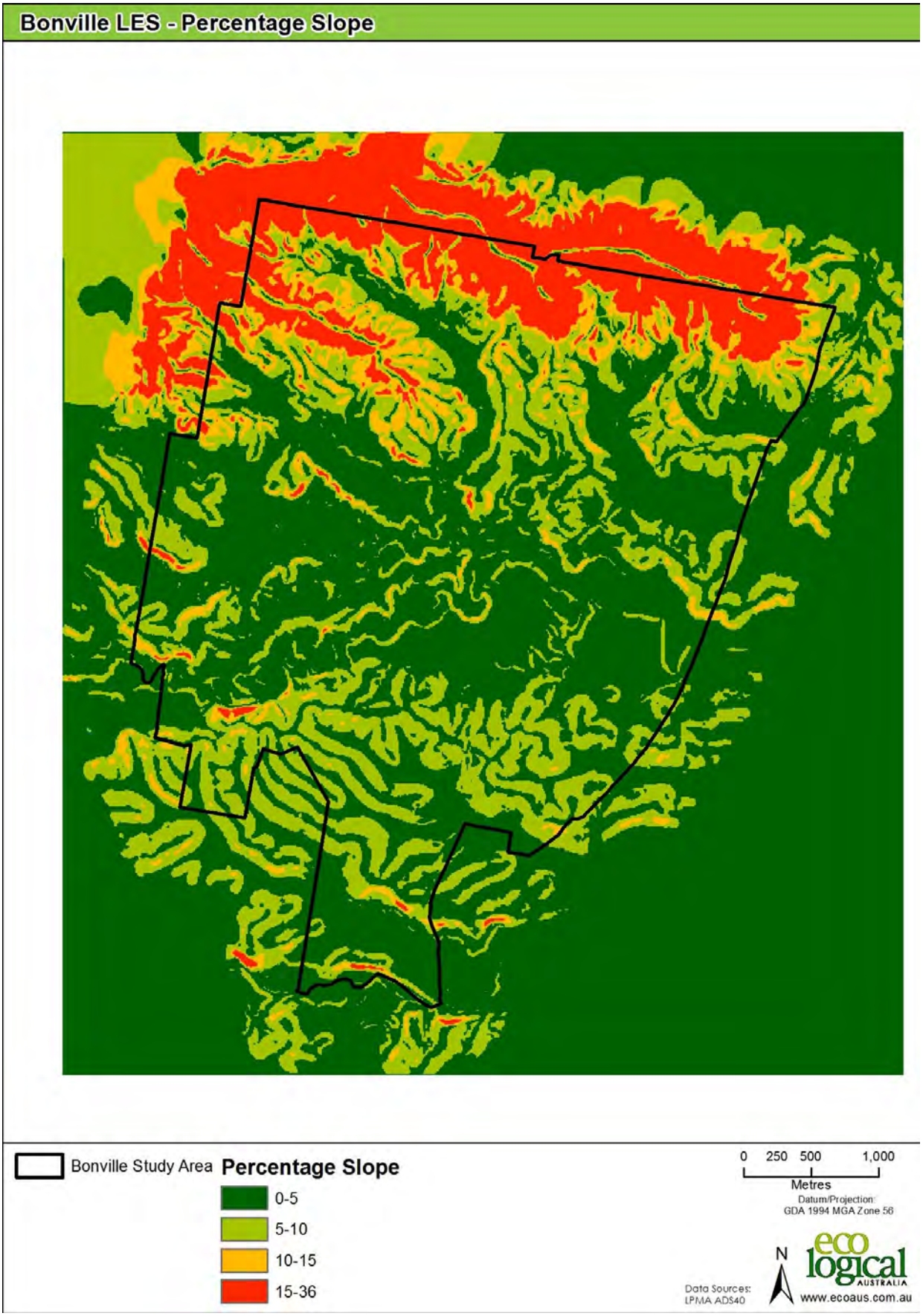
The presence and potential for rainforest throughout the study area has been carefully assessed. Although some gullies, sheltered slopes and riparian areas provide habitat for mesic components, these areas are relatively small and maintain (or likely to present) a Eucalypt dominant overstorey such that they cannot be classified as 'rainforest' in accordance with PfBP methodology and Rural Fire Service (RFS) guidelines. Areas of true rainforest do exist, such as within the gullies on the southern aspects of the range that forms the northern boundary of the study area, however these areas are located away from the study area boundary and area relatively small within the context of the total (predominant) hazard.

Slopes Influencing Bushfire

The 'effective slope' influencing fire behaviour approaching the developable area has been assessed strictly in accordance with the methodology specified within PfBP. This is conducted by measuring the worst-case scenario slope where the vegetation occurs over a 100 m transect measured outwards from the development boundary.

All slope classes are represented within the study area, from the floodplains within the valley floor, to the gentle and undulating hills between the major drainage lines, to the steep slopes leading up the ridgelines and spurs in the north of the study area. The slopes across the study area can be appreciated from the digital terrain model presented in Illustration 4.5 'Percentage Slope'.

Illustration 4.5 Percentage Slope



Bushfire Protection Measures

PfBP requires the assessment of a suite of bushfire protection measures that in total afford an adequate level of protection. The measures required to be assessed for rezoning are listed in **Table 4.7** below and are discussed in detail in the remainder of this section. This section demonstrates that the study area can accommodate the required bushfire protection measures whilst achieving the Section 117 (EPAA) Planning Direction 4.4 objectives and RFS requirements.

Table 4.7 Bushfire Protection Measures

Bushfire Protection Measure	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ setbacks from vegetation including prescriptions of vegetation management within the APZ.
Access	Assessment to include access and egress in and out of a developable area such as alternate access, operational response and evacuation options. APZ perimeter access to be considered as is design standards of public roads and any fire trails.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for firefighting.
Building construction standards	Provide a guide on the application of construction standards for future buildings.

APZ Location and Dimension

Using the vegetation, (both current and proposed extent), and slope data discussed above, APZs suitable for residential subdivision around all significant environmental lands have been calculated. These have been mapped and identified in **Illustration 4.6 Bushfire APZ Buffers** and described in the following table.

Illustration 4.6 Bushfire APZ Buffers

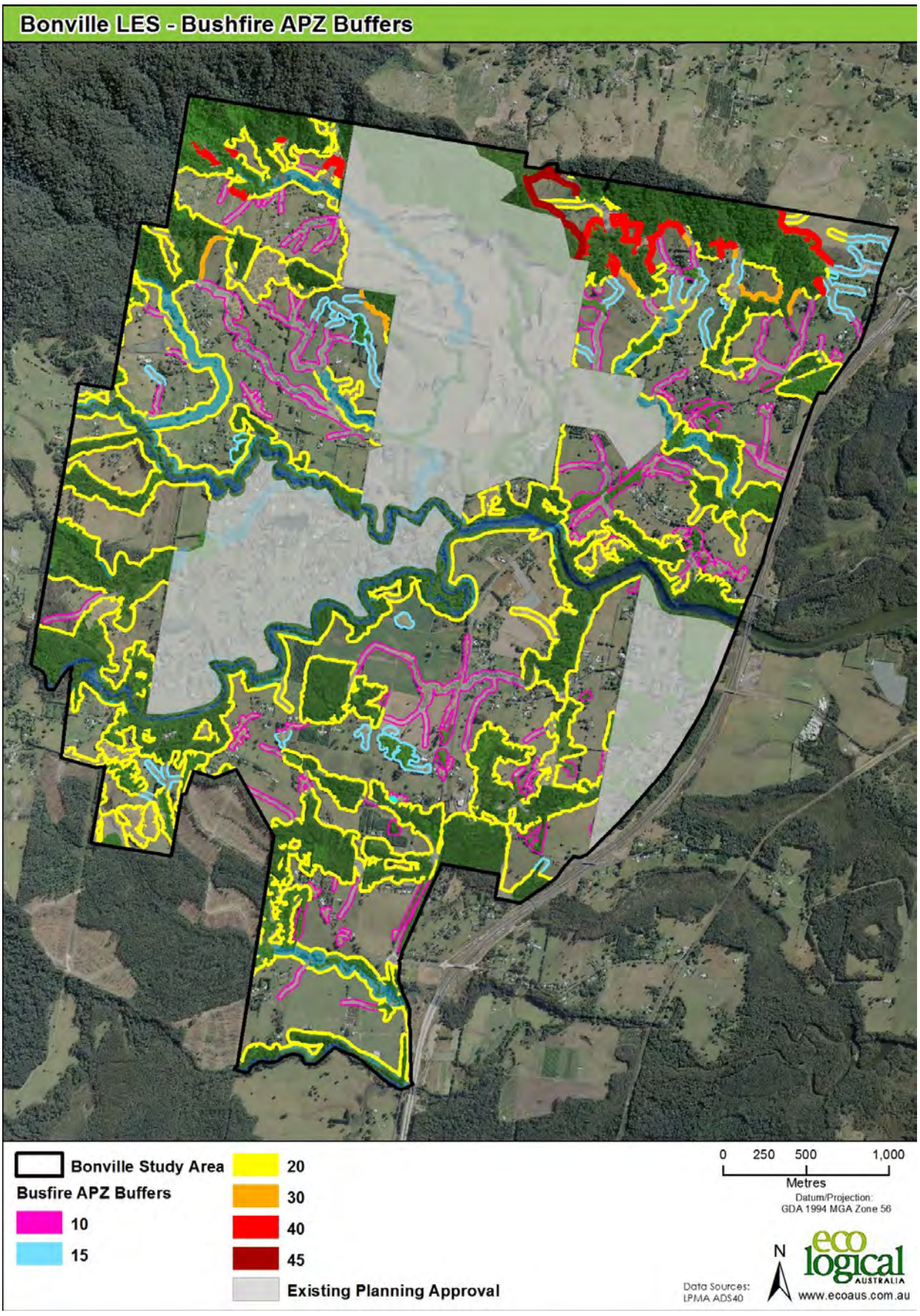


Table 4.8 Asset Protection Zone (APZ) Calculation

Predominant Vegetation	Effective Slope	APZ width	APZ colour Illustration 4.6	SFPP APZ width	BAL-29 APZ
Forest	Upslope/Flat	20 m (10 m OPA)		60 m (20 m OPA)	21 m
Forest	>0-5° downslope	20 m (5 m OPA)		70 m (20 m OPA)	27 m
Forest	>5-10° downslope	30 m (15 m OPA)		85 m (25 m OPA)	33 m
Forest	>10-15° downslope	40 m (20 m OPA)		100 m (30 m OPA)	42 m
Forest	>15-18° downslope	45 m (20 m OPA)		100 m (25 m OPA)	52 m
Low hazard	Upslope/Flat	10 m		30 m	9 m
Low hazard	>0-5° downslope	10 m		40 m	11 m
Low hazard	>5-10° downslope	15 m		50 m	15 m
Low hazard	>10-15° downslope	15 m		60 m	19 m

An alternative APZ dimension for Special Fire Protection Purposes (SFPP) is also listed in the table above. These SFPP APZs are for schools, child care centres, accommodation, retirement villages and other uses listed under s100B (6) *Rural Fires Act 1997.*

It is currently considered best practice to provide an APZ dimension that achieves a building construction standard under *AS 3959-2009 Construction of buildings in bushfire-prone areas* (Standards Australia 2009) of Bushfire Attack Level (BAL)-29 at the maximum. The current accepted minimum APZ dimension allows for a BAL-40 standard. The increase in APZ provides a higher level of bushfire protection and ensures that future home owners are not impacted by the additional costs associated with construction of a dwelling at BAL-40. The above table lists the current minimum APZ and best practice APZ related to BAL-29 (refer to Section 5.4 in Appendix C at the end of this report for more information on AS 3959-2009).

It is important to note that the APZ calculations quoted in this assessment are indicative only and have been determined at a landscape scale. This level of detail is suitable for a rezoning assessment whereby the aim is to demonstrate whether a parcel of land can accommodate the bushfire hazard, the expected APZ and future development. The final APZ dimensions for any future subdivision or development depends on the accuracy of a slope assessment undertaken at a site-specific level. The APZ dimensions quoted in this assessment should not be relied on to approve a future subdivision; they may be used as a guide only.

Vegetation Management within APZ

The management of vegetation within the APZ is to achieve the specifications of an Inner Protection Area (IPA) and Outer Protection Area (OPA) as described by PfBP. As such, the future APZ should be managed as follows:

- No tree or tree canopy is to occur within 2 - 5 m of future dwelling rooflines;

- The presence of a few shrubs or trees in the APZ is acceptable provided that they are well spread out, do not form a continuous canopy, and are located far enough away from future buildings so that they will not ignite the buildings by direct flame contact or radiant heat emission;
- Any landscaping or plantings should preferably be low flammability species such as local rainforest species;
- In the IPA, the ground fuel is to be maintained to less than 4 tonnes per hectare of fine fuel (4 t/ha is equivalent to a 1 cm thick layer of leaf litter and fine fuel means any dead or living vegetation of less than 6 mm in diameter, e.g. twigs less than a pencil in thickness); and
- In the OPA, the ground fuel may have up to 8 tonnes per hectare of fine fuel.

Recommendations and Conclusion

The recommendations of this bushfire assessment include the provision of Asset Protection Zones, adequate access, water supply for fire-fighting, the safe installation of utilities, and building construction standards for future dwellings.

This bushfire assessment demonstrates that the subject land is capable of accommodating future rural residential subdivision and associated land use with the appropriate bushfire protection measures and bushfire planning requirements prescribed by s.117 (2) Direction 4.4 – 'Planning for Bush Fire Protection' (EP&A Act) and *Planning for Bushfire Protection* (RFS 2006).

The recommendations of this assessment will be incorporated into a site specific Development Control Plan for the Bonville R5 Large Lot Residential Area.

4.5. Topography

The topography of the study area is that of moderately steep sided valleys and ridgelines with incised gullies draining to two main creek lines. These flow west to east within limited floodplains. The ground level within the study area varies from 5 to 170 m AHD, although not far beyond the study boundary the land continues to rise to ridgelines that in places exceed 300 m in elevation. Figure 6 of Appendix B - Topography, at the end of this report, provides contour mapping of the study area. Illustration 4.5 show the range of slopes.

Within the study area the topographical characteristic of most importance to development potential is slope, and specifically, steep slopes. The steeper the slope, the greater the erosion potential and risk of instability (land slips, slumps & soil creep). Steep slopes also increase bush fire hazard. These issues can be managed to an extent although only at increasing costs. As slopes increase beyond about 25%, the costs of constructing roads, infrastructure, building footings and retaining structures increases significantly and is generally uneconomic by about 40%. Industrial developments generally require even gentler slopes due to their larger building footprints.

Bushfire access tracks are typically limited to 18 degrees (34.5%) and this represents another development limit.

Conclusions and Recommendations

There are several options available to developers and Council to manage the risk posed by the steeper land. The following is recommended:

Class A Land: - (land slopes less than 15%)

No specific planning controls are warranted. Conventional engineering design and construction practices are acceptable.

Class B Land: (land slopes between 15% and 30%)

No specific planning controls are recommended. The risk can be managed through good hillside engineering practice at both the subdivision and individual development stages. As part of any development or construction application, council should review and be satisfied that such practice is implemented.

Class C Land: (land slopes between 30% and 40%).

Within the proposed rural residential lands the extent of Class 'C' land is limited and it will not be economic to address through earthworks. It is recommend that:

- At subdivision stage, a stability assessment be undertaken for any road or services infrastructure proposed across or immediately up/downslope (within 10m) of class C land.
- At subdivision stage, lots be sized to ensure sufficient area for dwelling construction (say 750 m^2) is available within class A or B land.
- At the individual development stage, a stability assessment be undertaken for any significant building works on or immediately up/downslope (within 10m) of class C land.

Class D Land, all zoning. (land slopes greater than 40%).

There is very little class D land within the proposed areas. At both subdivision and individual development stage, a detailed slope assessment will be required for any works in or within 10 metres of class D land.

In previous strategies for rural residential areas at Bonville the candidate areas were excluded above a slope of 20%. The assessment undertaken in this study considers that only slopes above 30% should be a hard constraint. The Development Control Plan for the candidate areas will define the limitation.

4.6. Flood Liable Land

A study of flood impacts was prepared by de Groot and Benson, Consulting Engineers. The study area encompasses some 1,858 ha of mostly rural and rural residential land. This study is limited to assessment of suitable land for rural residential development. No determination of existing floodplain damages or further analysis of floodplain management options were undertaken.

In order to determine the extent of land affected by flooding, hydrologic and hydraulic computer flood modelling was undertaken. Key aspects were:

- A WBNM hydrologic computer model of the entire Bonville and Pine Creek catchments were prepared, extending to the ocean.

- The WBNM model included a rainfall elevation gradient consistent with recent Coffs Harbour flood studies.

- A Tuflow hydraulic computer model was constructed. The study area was modelled by a 4m two-dimensional grid. A one-dimensional model was extended from the study area to the ocean.

- The flood events modelled were:
  - 100-year ARI (1% AEP) flood under existing conditions. Temporal patterns from ARR87 (ref 4) were modelled for events of 30 min to 12 hour duration. Events of 2 hours (minor creeks) and 9 hours (Bonville and Pine Creeks) were generally found to be critical.
  - 100-year ARI with predicted effects of climate change by the year 2050 (0.5m rise in sea level and 10% increase in flows)
  - 500-year ARI under existing conditions.
  - The probable maximum flood (PMF).

- A sensitivity test was undertaken which found that flood level predictions within the study area are not sensitive to the ocean level assumption.

- The models were not calibrated due to an absence of data. However, the results were compared to what limited previous flood studies and historic flood level data is available. The comparison against previous studies was mixed, but was better against the limited historic flood data. The modelling for this study is considered superior to any previous investigations.

The results of the modelling are shown of Maps 1 to 7 at Appendix H. The maps show the flood extents and contours for the 100-year ARI flood under existing conditions. The additional extents for the larger events are also shown.

4.7. Visual Analysis

A detailed Visual Analysis of the Bonville study area was prepared by Jackie Amos Landscape Architect. The full report is found at Appendix E and is summarised below. The purpose of the Visual Analysis is to:

- Establish key features that contribute toward the scenic value of the study area. Of particular importance will be an assessment of all existing vegetation to determine visual (and ecological) significance and importance having regard to the overall natural heritage of the area;
- identify visual impact in the context of adjoining and surrounding development in relation to its setting, density, built form, aesthetics and building mass as viewed from the public domain;
- identify locations that may be particularly sensitive to visual impact, such as ridgelines and steep slopes; and
- identify view corridors and key sources of views, particularly along the Pacific Highway and Pine Creek Way (old Pacific Highway), including addressing landscape treatment and screening major roadways.

This Visual Analysis Report has been prepared for Coffs Harbour City Council as a specialist study to inform the future rezoning of the Bonville Release Area for rural residential purpose to meet future market demand.

Bonville has been identified as the priority release area for future rural residential development in the Coffs Harbour local government area. However, it is also recognised that the area is in a visually sensitive location and that it will be important to maintain the visual quality of the area after development.

Future development, by its very nature, cannot occur without resulting in a changed appearance to Bonville. Any development will be associated with an increase in dwellings and infrastructure and a reduction in the landscapes that currently contribute to the visual character of Bonville. In terms of maintaining the visual quality of the area, development needs to be executed in a way that suits and contributes to the visual character of Bonville. This study seeks to understand the scenic value of Bonville and to provide strategies for development to occur in a way that retains these values.

The final part of the report is dedicated to providing Visual Enhancement Strategies to lessen the visual impact of future development in the study area. These strategies are aimed at creating a future Bonville that retains the positive aspects of its visual character and has a distinct sense of place. These strategies relate to the planning of new communities as well as to the design of individual properties. It is intended these strategies will provide input into a locality based Development Control Plan for rural residential development at Bonville.

The Scenic Value of the Study Area

The study site is undulating land about Bonville and Pine Creeks. North Bonville lies between a vegetated ridge to its north and Bonville Creek to it south. The ridge extends from the Tuckers Nob State Forest and includes Bonville Peak at an elevation of 584 metres. A number of tributaries drain to Bonville Creek. North Bonville is undulating with grassed hills, areas of remnant vegetation, vegetated riparian areas and rural properties. There is Rural Living on the lower ground about Braford, Faviell and Bakker Drives.

At south Bonville, Gleniffer Road is on a ridge running east to west. North of Gleniffer Road, the land falls to Bonville Creek. Between Gleniffer and Butler Roads the land is undulating and falls to a tributary of Pine Creek. Butlers Road is also on a ridge. The land south of Butlers Road falls to Pine Creek. Gleniffer and Butler Roads provide excellent views to the north and northwest.

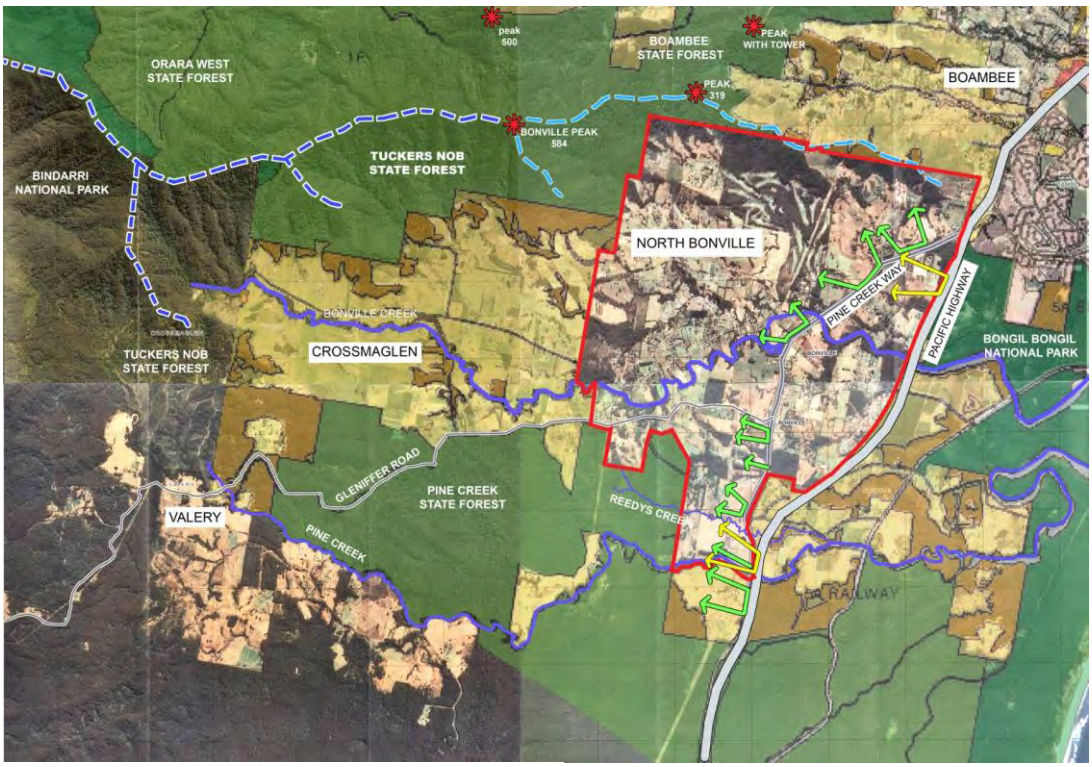
The land east of Pine Creek Way is also undulating falling to Bonville and Pine Creeks. Williams Road is on a ridge with land to the south falling to Bonville Creek. The topography is flatter around Bonville Station Road, Fig Close and Forest Oak Drive. Generally the topography falls to the highway where it becomes relatively level forming the floodplains of Bonville and Pine Creeks.

Bonville is located in the foothills and drainage basin created by the range to the north and northwest. The Dorrigo plateau and its associated peaks and ridges are further west. The closer ridges of the Tuckers Nob State Forest are vegetated. The ridges and peaks of the Dorrigo Plateau are part of Dorrigo National Park and are also vegetated. Collectively, these peaks and ridges form a picturesque and dramatic setting in which Bonville is viewed.

The site setting and landscape features in the site create an appealing and distinct visual character to Bonville. The attractive backdrop of vegetated ridges and peaks is often visible and provides the setting for Bonville. Within the site, remnant vegetation, green undulating pastures, scattered homes and rural infrastructure and the vegetated creeks contribute to creating a pleasant character of rural living within a natural setting.

Illustration 4.7 provides a visual overview of the study site and its context.

Illustration 4.7 Study Area Visual Context



LEGEND

- site boundary
- road
- creek
- main ridge
- minor ridge
- peak
- view from Pacific Highway to ridge
- view from Pine Creek Way to ridge

Views to the Site

The Pacific Highway and Pine Creek Way are the main accesses to the study area. From Pine Creek Way a number of roads provide access to the various parts of Bonville. Pine Creek Way is used primarily by local traffic. Both roads provide a variety of views to the study site. The views to the west tend to be the more dramatic and scenic views given that the land in this directions rises up to the vegetated ridge and peaks of Tuckers Nob State Forest. The views to the east are limited by vegetation and topography. East of the Pacific Highway the landscape is relatively flat being on the flood plains of Bonville and Pine Creeks. East of the Pine Creek Way, the landscape is a series of hills and drainage lines. It tends to be the views west to the vegetated ridge and peaks that define the area as scenic.

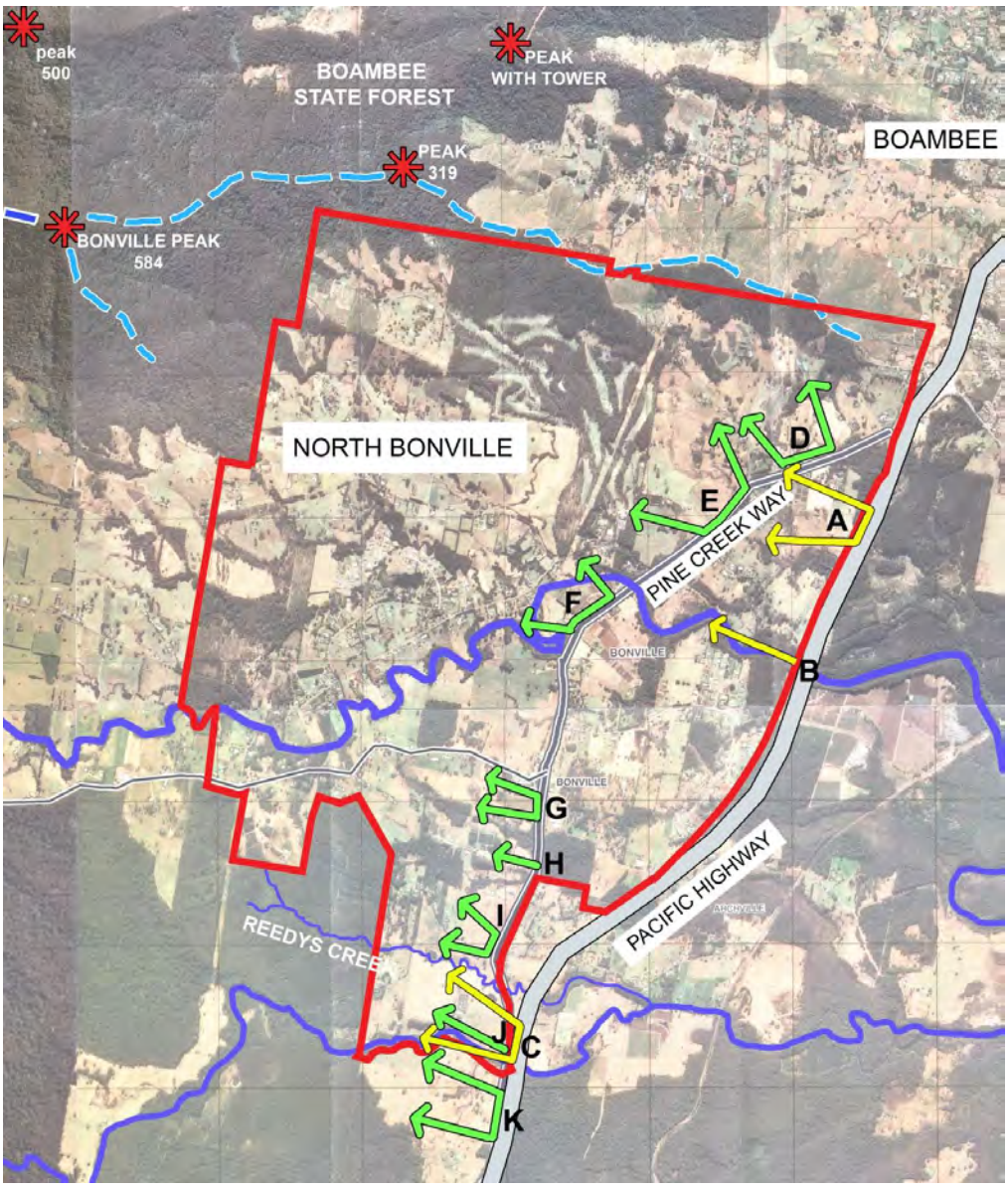
There are limited broad views available from the highway to the study site. For most of the length of the site, the highway is in cut below the surrounds. There are three highway locations from which it is possible to gain long views into the Bonville study area. These occur south of the Lyons Road interchange, at the Bonville Creek crossing and between the Archville Station Road and the Pine Creek crossing. For the balance of the study area, the Pacific Highway sits below the study site and views out from the highway are concealed either by a grassed or planted bank and vegetation.

The Pine Creek Way meanders through the study site and traverses a variety of topography including elevated locations and creek crossings. There are eight main locations from which broad views are possible from Pine Creek Way to the scenic landscape to the west. At other locations the topography, vegetation or built structures limits views out from the road.

The speed of travel along each road affects the ability to take in the scenic view to the west. On the Pacific Highway the speed limit of 110km/hour means vehicles are travelling quickly. The limited locations where broad views are possible and the fast speed of travel means these views tend to be brief. On the Pine Creek Way the speed limit is mostly 80km per hour with a short section of 60km per hour at Bonville village. The lower speed of travel, combined with the greater number of viewing opportunities, means that Pine Creek Way provides more opportunity and greater travel time to take in the scenic views to the west.

Illustration 4.8 indicates the locations on the Pacific Highway and Pine Creek Way from which it is possible to gain broad views to the Bonville study site and the scenic landscape to the west. Photographs illustrate the scenic view available from each of these locations.

Illustration 4.8 Views into the Study Area



VIEW LOCATIONS 'A' TO 'K'

Pacific Highway View A

South of Lyons Road, the highway is above the study site and it is possible to gain views north and west to the site. The view north takes in the vegetated ridge. The view west takes in the vegetated ridge including Bonville Peak. The foreground includes rural land and vegetation.

Pacific Highway View A, south of Lyons Road interchange, north of Williams Road overpass

Pacific Highway View B

At the Bonville Creek crossing it is possible to gain a brief view west to the vegetated ridge. This view is framed by vegetation along the creek. It is a brief, but attractive view.

Pacific Highway View B, Bonville Creek crossing looking west

Pacific Highway View C

A third broad view is possible from the highway between Archville Road and Pine Creek. The view is limited by vegetation but it is possible to see glimpses of the vegetated ridge in the distance

Pacific Highway View C, filtered view west from between Archville Station Road and Pine Creek

Pine Creek Way View D

At the northern end of Pine Creek Way the first broad view available west occurs between Titans Close and Irvines Road. This view takes in the vegetated hills north of the study site and a distant view of the vegetated ridge to the west. It is a rural landscape within a backdrop of bushland.

Pine Creek Way View D, view west between Irvines Road and Titans Close

Pine Creek Way View E

Between Irvines and Williams Roads spectacular, broad views are available west from Pine Creek Way. This view takes in a rural landscape with a backdrop of vegetation and a broad view of the vegetated ridge and Bonville Peak beyond. The view west is relatively uncluttered by built infrastructure. The view east is a brief view possible between road side vegetation. It takes in relatively level rural land with vegetation as a backdrop.

Pine Creek Way View E, between Irvines Road and Williams Road looking west

Pine Creek Way Location E, between Irvines Road and Williams Road looking east

Pine Creek Way View F

This view is between Bonville Creek and the Bonville Post Office on Pine Creek Way. At this location the topography is flat being on the banks of Bonville Creek. Views are limited by vegetation, horticultural activities and built infrastructure. The view available either side of the road takes in horticultural and agricultural practices and vegetation along Bonville Creek. It is a rural landscape. There are fleeting and distant views available west. This is a busy view with a variety of built and agricultural infrastructure. The view east takes in a rural property and vegetation on Bonville Creek.

Pine Creek Way View F, between Bonville Creek and Bonville Post Office, looking west

Pine Creek Way Location F, between Bonville Creek and Bonville Post Office, looking east

Pine Creek Way View G

South of Gleniffer Road, a broad view west is possible. This view takes in a rural landscape with a grassed hill, scattered trees and scattered residences. In the distance, it is possible to see parts of the vegetated ridge to the west. Looking north, it is possible to see the old bridge that is the link between Gleniffer and East Bonville Roads. The view east is a short view to a large shed and rural properties. This view is limited by topography and vegetation.

Pine Creek Way View G, south of Gleniffer Road looking west

Pine Creek Way Location G, south of Gleniffer Road looking east

Pine Creek Way View H

This location, halfway between Gleniffer and Butlers Roads, provides a brief view to the western scenic ridge. The view also takes in a rural property and collection of old cars that are something of a landmark on Pine Creek Way. Vegetation frames and limits this view.

Pine Creek Way View H, between Gleniffer and Butlers Roads looking west

Pine Creek Way View I

This is an elevated viewpoint on Pine Creek Way at the Butlers Road turnoff. At this location very broad views are possible to the west and these views take in the rural landscape, scattered trees, vegetation and in the distance, the vegetated ridge and Bonville Peak. All the visible elements and the scale of this view make this a particularly picturesque outlook.

Pine Creek Way View I, Pine Creek Way at Butlers Road turnoff looking west

Pine Creek Way View J

This view point is just north of Pine Creek and is at a relatively low level. The open rural landscape in the foreground allows distant views to the vegetated ridge to the west. Again the broadness of the view, the rural landscape and natural backdrop make this an attractive view.

Pine Creek Way View J, north of Pine Creek looking west

Pine Creek Way View K

This location is just beyond the study site, but it provides a spectacular view of the vegetated ridge both west of the study site and north of Crossmaglen. This is an elevated location south of Pine Creek Way and the scenery is spectacular. The foreground is a distinctly rural landscape with a timber cottage, scattered Hoop Pines and Eucalypts. The backdrop is of dense vegetation along Pine Creek with a continuous backdrop of vegetated hills and prominent peaks in the distance.

Pine Creek Way View K, south of Pine Creek beyond the study site, looking northwest

Vegetation as a Visual Feature

From a visual point of view, the existing vegetation, whether native or exotic, is important in contributing to the visual character of Bonville. The vegetation of the Tuckers Nob State Forest serves to provide a backdrop to views to the west. The vegetated ridge north of the site provides a backdrop for views in this direction. Dense vegetation, mostly Camphor Laurel, defines the creeks and drainage patterns east of Pine Creek Way. Dense patches of forest define the wetlands east of Pine Creek Way.

Much of the vegetation is scattered across the site. This scattered vegetation has a variety of visual impacts upon the character of the site. Where the vegetation is seen close to the viewpoint e.g. a public road, the vegetation can filter or limit the view. In other instances vegetation can frame a view. Particularly attractive trees or vegetation groups can themselves be the focal point. Overall the remnant vegetation gives a sense of a 'green' environment and adds to the sense of a rural landscape. The variety and 'format' of vegetation across the site gives great visual diversity to the study site. Some areas appear as very open and rural whilst others are within forest.

Vegetation is also an important in that it 'softens' the appearance of built elements. For example, along Grandis Drive many Rural Living lots include remnant trees that add shade and greenery. On Rural Agriculture lots vegetation adds amenity to the small holdings.

Mapping the Visual Character of the Study Site


Dry Sclerophyll Forest, Pine Creek Way


Wet Sclerophyll Forest (left of photo)


Plantation trees about Bonville Golf Course


Exotic vegetation in Rural Living


Camphor Laurel along creek (foreground)


Remnant native trees in Rural Living garden


Scattered remnant trees in Rural Land, Butlers Road

Topography and Creeks

The topography is important in adding to the visual character of the area. The ridges and peaks beyond the site provide a visual setting for Bonville. The undulating nature of the study site creates a diverse and varying landscape. The landscape is not revealed in one viewing but instead becomes a collection of locations separated by hills and drainage lines. This provides an opportunity to create precincts that may not necessarily be viewed from a large number of locations.

Bonville and Pine Creeks are landscape features to the study site. West of Pine Creek Way, these riparian areas are largely denoted by dense growth of Camphor Laurel. East of Pine Creek Way are some areas of Forested Wetlands. These creeks are local landmarks.


Bonville Creek, Braford Drive


Reedys Creek, south of Butlers Road


Creek crossing, end of North Bonville Road

Rural landscape

Bonville is known for its rural landscape. This rural land includes mostly small holdings, although there are some larger properties with greater stock numbers. Properties typically include a dwelling, associated infrastructure like sheds, yards and stables, gardens, sometimes horticultural crops, small pastures with horses and cattle and scattered vegetation.

The density of this rural infrastructure changes across the study site. Around Yarraman and North Bonville Roads, the holdings seem to be relatively small with residences located close to the road. Further north from North Bonville road, the rural dwellings are more set apart and located on the hills. South of Bonville Creek and along Pine Creek Way there are a number of horticultural businesses growing produce. These tend to have more intense infrastructure with green houses, crops and storage facilities. North and south of Gleniffer Road the rural landscape is mostly pasture with a reduced density in built infrastructure.

The overall impression is of a visually complex landscape with a variety of activities and lifestyles occurring. These include hobby farms with a couple of horses or cows, larger farming properties, bush retreats on small blocks hidden way in forest areas and large new homes built on elevated locations to take in the views. It is an eclectic landscape but the overall impression is of a 'green' landscape with plenty of space and great visual amenity.


Pine Creek Way


Yarraman Road


North Bonville road


Crossmaglen Road


Williams Road


Irvine Road

Streetscapes

Bonville is well connected to Coffs Harbour and there is plenty of access through and into the various parts of the site. The Pacific Highway distinctly separates Bonville from East Bonville. The highway is separated from its surrounds by being cut into the landscape, by acoustic walls and vegetation. The relocation of the highway has significantly changed the character of Pine Creek Way. It is now an attractive road that meanders through a rural landscape taking in scenic views west and with two creek crossings. The removal of the highway has restored Pine Creek Way to a local access with a village centre.

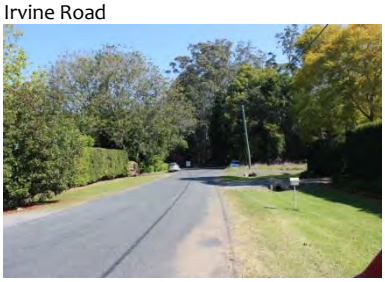
A number of roads extend from Pine Creek Way. These roads tend to be organic in layout following the site topography. Many of the roads are located along ridges. This is the case for Irvine Road, Williams Road, East Bonville Road, Gleniffer Road and Butlers Road. On Williams Road there are many dwellings located along the road and these tend to restrict views out from the road. On Butlers Road and parts of Gleniffer Road broad views are possible out across the rural landscape.

The visual character of many of the streets contributes to the appearance of the study site. There is very little kerb and gutter within the study site excluding along the Pacific Highway. Generally the roads are two lanes with grassed verges. All roads are bitumen except for Cassidys and Keoghs Roads.


Irvine Road

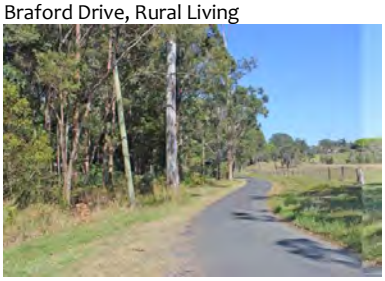

North Bonville Road


Cassidys Road


Braford Drive, Rural Living


Faviell Drive, Rural Living


Grandis Road, Rural Living


Titans Close


Gleniffer Road


East Bonville Road

Vegetation along the roads contributes to the visual character of the site. The areas of remnant forest along Pine Creek Way and Gleniffer Road give a visual link to the vegetated ridgelines beyond the site. This vegetation also gives a distinct 'country road' character to these locations. Other roads e.g. North Bonville Road and Yarraman Road are devoid of road side vegetation, however, plantings within the adjacent properties adds shade and amenity to the streetscape. These plantings are not necessarily native, but they contribute to the 'green' character of the area. In the Rural Living precincts trees within gardens and planted along frontages add greenery to the streets.

Fencing to property frontages adds to the visual character and amenity of the study site. Most fences are rural in character and it is these fences that tend to 'fit in' with the setting. Timber post and rail fences and post and wire fences allows views to the property beyond and are reflective of how the location is either being used or may have been used in the past.

Landscape Character Units

The key features occur across the site in a variety of patterns and densities. To assess the existing landscape character and to evaluate the likely visual impacts of future rural residential development within the study area, the site has been divided into 15 Landscape Character Units. The boundary for each unit was determined based on the landscape within that unit having similar characteristics to its surrounds. A detailed visual analysis of each of the 15 Character Units is found in the full report at Appendix E. Each of the Character Units (Illustration 4.9) was ranked LOW to HIGH in terms of scenic quality and sensitivity to change. The following table summarises the rankings.

Illustration 4.9 Views into the Study Area

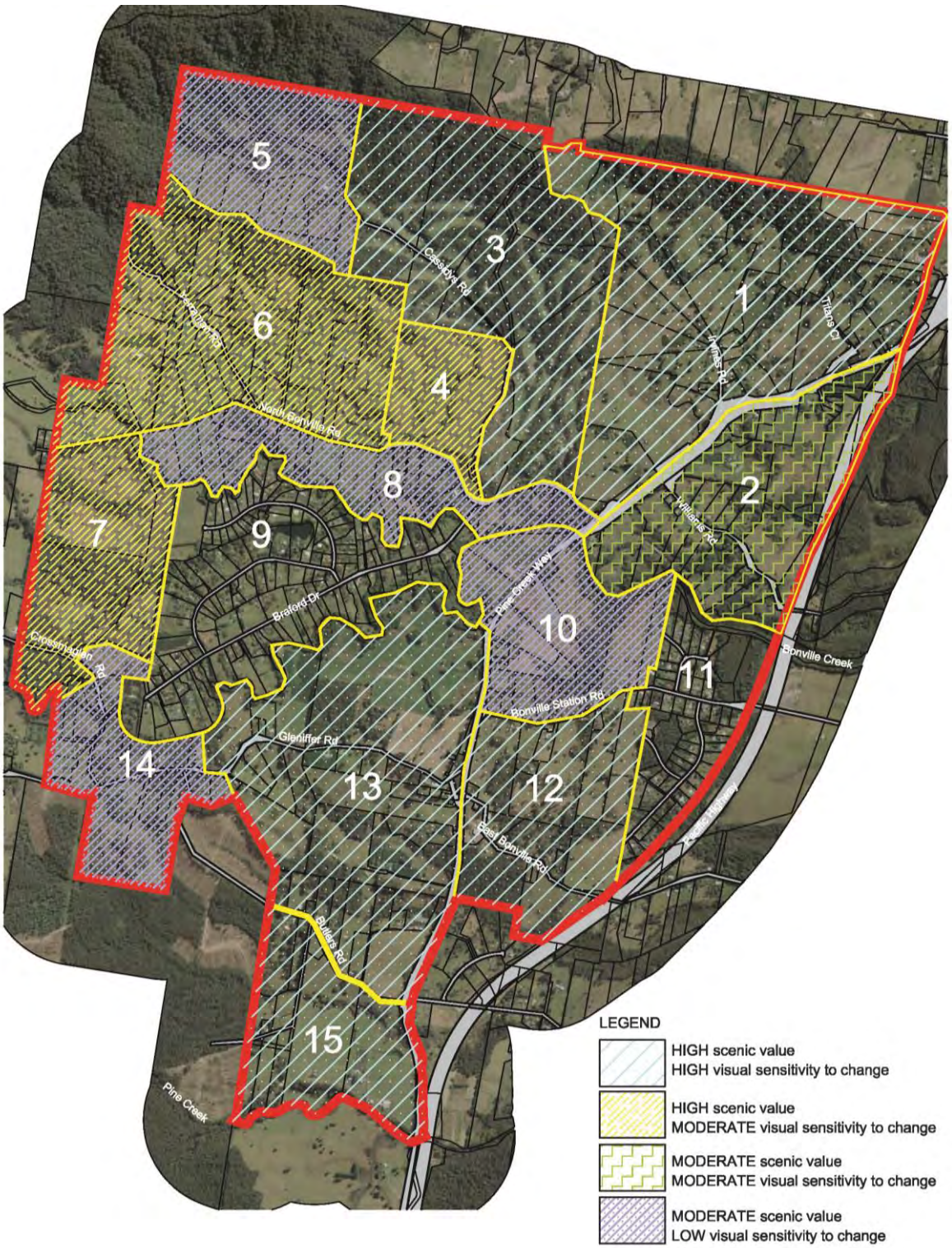


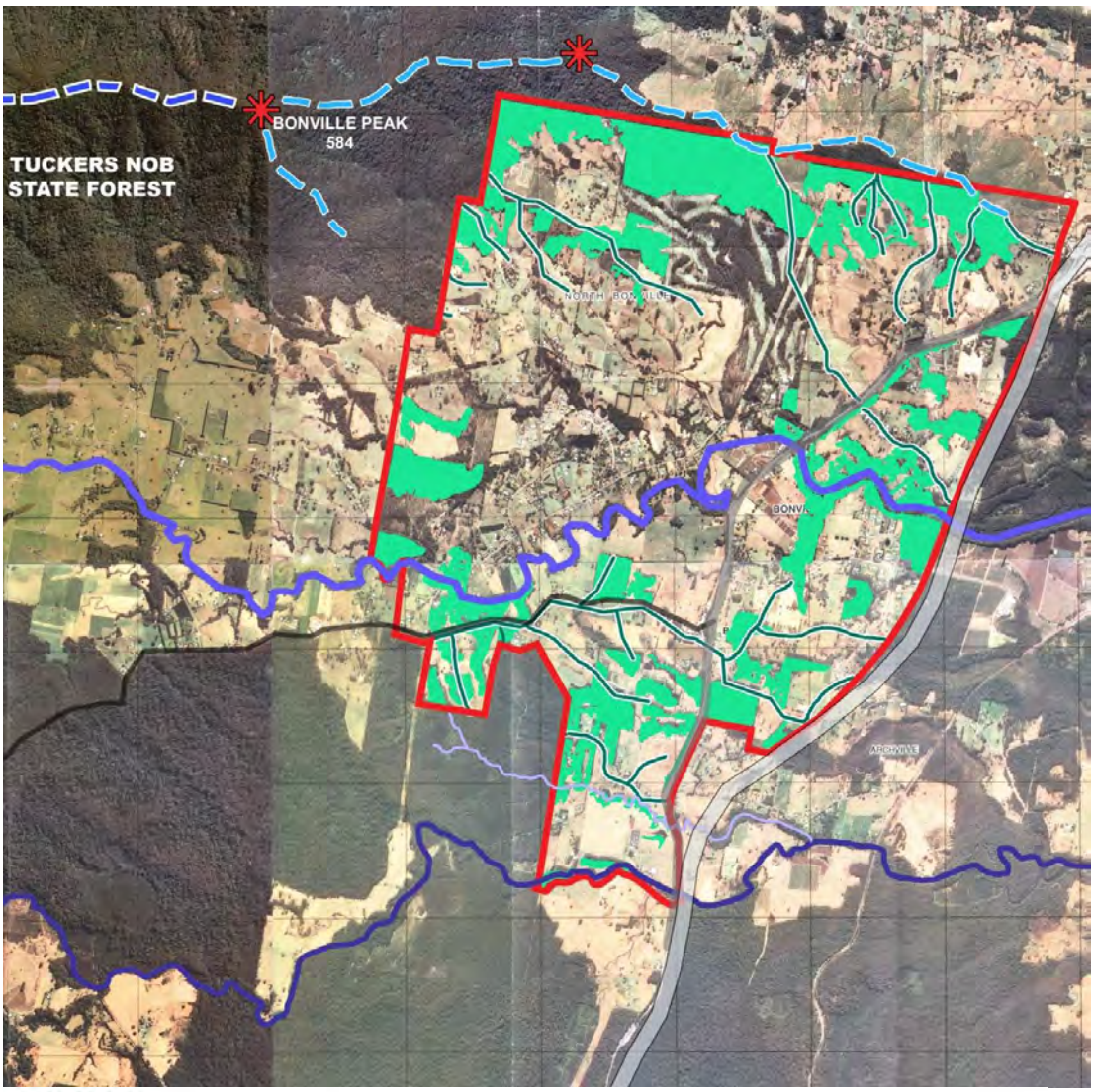
Table 4.9 Visual Assessment Summary

Landscape Character Unit	Visual Assessment Summary
1	undulating, large *Rural Landscape* in a natural setting; large area of Wet sclerophyll Forest to north; clusters of dwellings along road with scattered dwellings on hills; broad views to the area from Pine Creek Way; scenic outlook to north and west; sits within a context of bush and rural land **HIGH** scenic quality and **HIGH** visual sensitivity to change
2	a visually busy *Rural Landscape* with a cluster of dwellings along Williams Road; scattered vegetation with dense vegetation along Bonville Creek; views into unit limited by topography and vegetation; filtered views out to scenic west; visually dominated by rural infrastructure and built elements **MODERATE** scenic quality and **MODERAT**E visual sensitivity to change
3	*Private Recreation* area associated with Bonville Golf Course; manicured golf course in a bush setting; large area of Wet Sclerophyll Forest to north, appears as large area of natural bush; specific private use and unlikely to be developed **HIGH** scenic quality and **HIGH** visual sensitivity to change
4	*General Residential* land owned by Bonville Golf Course; the subject of a residential development proposal; currently rural grassed land with Camphor Laurel along creek; visible from Cassidys and North Bonville Roads; scenic outlook west; context includes golf course, *Rural Landscape* and *Large Lot Residential* **HIGH** scenic quality and **MODERATE** visual sensitivity to change
5	*Rural Landscape* close to vegetated ridges; steep land with scattered dwellings on hills; only visible from end of Cassidys Road (gravel road); scenic outlooks, weed problems; sits within context of golf course, *Rural Landscape* and *Environmental Conversation* **MODERATE** scenic quality and **LOW** visual sensitivity to change
6	undulating *Rural Landscape* with scattered vegetation; small patches of Wet Sclerophyll Forest along northern ridge; dwellings along roads and scattered over hills; broad views to unit available from local roads; uncluttered, rural landscape with western ridge as a backdrop; sits within context of future residential development to golf course land and more densely inhabited *Rural Landscape* to the south **HIGH** scenic quality and **MODERATE** visual sensitivity to change
7	undulating *Rural Landscape* with areas of *Environmental Conservation;* about 50% cleared so remnant vegetation is a feature; large area of Wet Sclerophyll Forest a feature; scattered dwellings concealed by vegetation; views to this location are constrained by vegetation; sits within context of *Large Lot Residential* to east and *Rural Landscape* to north, south and west. **HIGH** scenic quality and **MODERATE** visual sensitivity to change
8	*Rural Landscape* with *Environmental Conservation* along creek; mostly cleared with exotic weeds; many small hobby farms and dwellings along road, a visually busy landscape; sits within context of *Large Lot Residential* to the south and *Rural Landscape* to the north. **MODERATE** scenic quality and **LOW** visual sensitivity to change

Landscape Character Unit	Visual Assessment Summary
9	*Large Lot Residential* with *Environmental Conservation* along Bonville Creek; relatively level land between two creeks; lots range from 3000m^2 to 2 hectares; residences are visual focus with large lots allowing plenty of green space between homes; dwelling character varies from rural to suburban; sits within context of *Rural Landscape*. **MODERATE** scenic quality, not the subject of future development but does provide a context for development in the surrounds
10	relatively level *Rural Landscape* with *Environmental Conservation*, patch of Wet Sclerophyll Forest in the middle; busy landscape with variety of uses including horticulture, over 55's village and service station; mixed character and variety of built infrastructure, some scenic views available west but most views take in visual business along Pine Creek Way; sits within context of *Rural Landscape* and *Large Lot Residential* to the west. **MODERATE** scenic value and **LOW** visual sensitivity to change
11	*Large Lot Residential* with remnant vegetation throughout; relatively level area on Bonville Creek; most lots less than 1 hectare; residences are visual focus although large gardens and remnant trees provide plenty of green space; sits within context of *Rural Landscape*. **MODERATE** scenic quality, not the subject of future development but does provide a context for development in the surrounds
12	undulating *Rural Landscape* with large patches of *Environmental Conservation*; Wet Sclerophyll Forest either side of road; elevated road provides good views to unit and scenic ridges to north and west; limited holdings and dwellings are scattered; vegetation separates dwellings; some views to unit from Pine Creek Way; uncluttered landscape with vegetation a feature; sits within context of *Rural Landscape* to north, west and south and *Large Lot Residential* to east. **HIGH** scenic quality and **HIGH** visual sensitivity to change
13	undulating *Rural Landscape* with small areas of *Environmental Conservation* including a large patch of Wet Sclerophyll Forest near road; large holdings mean dwellings are very scattered and are often well away from road; mix of grazing and cropping; rural landscape with scattered Eucalypt trees is a feature; elevated road gives broad views over unit and scenic outlook west and north; some views possible from Pine Creek Way; sits in context of *Rural Landscape* to south, east and west with *Large Lot Residential* to the north but separated by Bonville Creek **HIGH** scenic quality and **HIGH** visual sensitivity to change
14	undulating *Rural Landscape* with areas *of Environmental Conservation*; about 40% cleared; numerous small holdings with houses set amongst trees; large area of Wet Sclerophyll Forest on creek is a feature; windy road with dwellings only fleetingly visible; only brief view west to ridge; sits in context of *Forestry*, *Rural Landscape* to west and *Large Lot Residential,* only local views available to area **MODERATE** scenic quality and **LOW** visual sensitivity to change
15	*Rural Landscape* with *Environmental Conservation* along Pine Creek; mostly cleared rural land used for grazing; road gives elevated view over area and to scenic ridges to north and west; large holdings with scattered dwellings and some smaller holdings with dwellings set amongst trees; sits in context of *Rural Landscape* and *Forestry* to west **HIGH** scenic value and **HIGH** visual sensitivity to change

Illustration 4.10 identifies key visual and scenic features within, and beyond, the study site.

Illustration 4.10 Key Visual and Scenic Features



LEGEND

- scenic vegetation (includes vegetation that is a natural feature, is visible from numerous locations or that screens some areas of development)
- vegetated major ridge
- vegetated minor ridge
- vegetated peak
- Bonville Creek
- Pine Creek
- Reedys Creek
- ridge within the study site

Visual Enhancement Strategies

Future rural residential development has the potential to dramatically change the visual character of Bonville. The large open rural landscapes that are seen within the natural setting of the vegetated ridges to the north and west are particularly prone to visual impact. At locations further from Pine Creek Way and where there is already a variety of built infrastructure, the visual impact is likely to be not as dramatic.

Despite its existing rural character, the Bonville area represents a sensible choice for Large Lot Residential development due to locational advantage, primarily good highway access to Coffs Harbour and surrounding centres. The goal, therefore, becomes to achieve Large Lot Residential development in a way that retains something of the rural character of the area and that maintains the scenic values of Bonville.

The following Visual Enhancement Strategies have been prepared to guide future Large Lot Residential development at Bonville in a manner that is sensitive to the rural character of the valley, responsive to the natural setting and maintains views to the scenic landscape features that define Bonville.

It is intended these strategies be included, and further developed, in future planning and the preparation of a Development Control Plan for Bonville Rural Residential areas. It is noted that some of these strategies apply to future planning within the Bonville Urban Investigation Area.

Protect and Enhance Scenic Features

1. Maintain vegetation to Tuckers Nob State Forest as a natural backdrop.
2. Avoid visual scarring to ridges by locating infrastructure away from these locations.
3. Enhance existing and new creek crossings as visual connections to the natural landscape.
4. Retain areas of native vegetation to provide separation between development areas.
5. Retain native road side trees to provide screening to new development.
6. Retain scattered paddock trees (e.g. Figs and Eucalypts) as features to new Large Lots.
7. Avoid vegetation removal that leaves development devoid of natural features.
8. Set dwellings into hills where they are less prominent. Stabilise banks with planting.
9. Rehabilitate ridges with weed removal and revegetation strategies.
10. Avoid siting dwellings on ridges where they can detract from the scenic landscape.
11. Integrate creeks and drainage lines as public open space. Rehabilitate drainage lines with weed removal and revegetation.
12. Maintain scenic views out from roads. Locate street trees to maintain or frame scenic views.

Contribute to Site Legibility and Uniqueness

1. Establish new businesses in closed outlets (Bonville future urban investigation area).
2. Upgrade existing closed facilities to be part of the new Bonville village.
3. Provide pedestrian and cycle links along Pine Creek Way as a main route.
4. Install new street trees with a focus on using locally native species. Consider large feature trees at locations where there road reserve is particularly wide.
5. Locate street trees to maintain and frame views to the scenic west.
6. Remove highway infrastructure that is no longer required.
7. Minimise signage to reduce visual clutter. Adopt a Bonville palette of signage.
8. Establish landmarks or built elements to clearly define the arrival at Bonville.
9. Provide street trees to new and existing development to add amenity and provide shade.

10. Create a village centre (within the Bonville future urban investigation area) to become the community hub where residents can meet and interact. Provide good pedestrian and cycle links to the centre.
11. Locate the village centre and public locations with views to Bonville's scenic features to add distinctiveness to the suburb.

Understanding the Site

1. Undertake site investigations for each site that becomes the subject of development so that a site appropriate response can be evolved.

Subdivision Layout

1. Establish lots with enough space to accommodate all built infrastructure and services.
2. Avoid development on steep locations where more cut/fill and built infrastructure is required.
3. Use natural features to provide separation between lots and dwellings.
4. Stagger building sites to provide separation between dwellings.
5. Consider how the development will be seen from public locations.
6. Consider views from the development.
7. Minimise the division of remnant vegetation and riparian zones into many ownerships.
8. Provide public pedestrian and cycle links along streets and potential open spaces.
9. Include street tree planting to new roads.
10. Design subdivisions to be appropriate to the site topography.

Lot Planning

1. Prepare a lot plan that considers all the elements required and how they can be best sited.
2. Provide a minimum setback of 20m from the front boundary and 10m from the side boundary.
3. Consider greater setbacks with landscape elements located to create a 'green' visual buffer between the public road and dwelling and adjacent properties.
4. Use building styles and materials appropriate to the rural and natural setting.
5. For larger subdivisions establishing a design theme and covenants.
6. Adopt a limited palette of materials to create a cohesive landscape without clutter.
7. Adopt environmentally sustainable design principles.
8. Consider the use of locally available materials and labour.
9. Design buildings to be 'light' on the landscape.
10. Avoid large areas of cut and fill and visually dramatic retaining walls.
11. Design to take in the scenic views, but to have privacy.
12. Avoid large expanse of hard materials and locate services away from public view.
13. Consider a curved, gravel driveway with tree planting over a hard, straight driveway.
14. Use permeable, natural materials over hard materials.
15. Retain existing vegetation within individual lots.
16. Plant new trees.
17. Add to the amenity of streets by planting trees along frontages.
18. Establish community groups to create 'greenbelts' across properties.
19. Retain areas of unmown natural grasslands to maintain groundcover.
20. Use native species.

21. Use landscaping to provide privacy and to 'soften' built elements.
22. Adopt a rural fence style. Avoid solid, high fencing.
23. Integrate stormwater management into the site design and improve stormwater quality through Water Sensitive Urban Design measures.
24. Enhance retained vegetation with revegetation strategies.
25. Instigate a weed removal strategy.
26. Encourage wildlife to your garden through native planting.
27. Encourage the natural regeneration of native species by fencing off areas and not mowing.

4.8. Wastewater Assessment

Whitehead and Associates, Environmental Consultants Pty Ltd prepared a Wastewater Assessment for the study area to analyse soil limitations which can affect on-site wastewater management and the lands capability for rural residential subdivision. The report also provides a minimum lot size analysis and modelling to determine maximum lot density for subdivision. The full report is found at Appendix D.

Broad Candidate Areas have been identified in previous strategic studies. Areas identified are shown in Illustration 3.1. Whitehead and Associates (W&A) reviewed the CAs and identified a suitable "average" candidate area that is representative of land areas likely to be redeveloped for rural residential purposes based on slope, soil types and lot sizes upon which to undertake minimum lot size analysis upon. Candidate Area 2 (CA2) was adopted for these purposes. Refer to Illustration 4.11. Ten lots were identified within this Candidate Area and minimum lot size analysis undertaken.

Site & Soil Assessment

Steep slopes (>10-15%), particularly when combined with shallow or poorly drained soils, can lead to surface breakout of effluent downslope of the land application area. Conventional On-site Sewage Management (OSSM) systems will most likely be unsuitable within steep slopes. Future systems within steep slopes will require a detailed site assessment and site specific design to enable a sustainable outcome. Steeply sloping sites are generally unsuitable for trenches and beds and can also be problematic for surface irrigation systems. Conversely, flat and gently sloping sites are less likely to experience such problems and are considered lower risk.

Soils and associated landform elements play a vital role in the design, operation and performance of OSSM systems. Key soil properties can be evaluated to assess a soil's capacity for absorption of wastewater, including soil texture, structure, permeability, drainage characteristics, total depth, and depth to limiting layers, such as bedrock, hardpans or water tables.

There are approximately sixteen (16) mapped soil landscapes within the Bonville Study Area; of which ten (10) soil landscapes fall within the Candidate Areas identified for potential subdivision. Most of the soil landscapes in the Candidate Areas are characterised by a similar limiting subsoil horizon of light clay. No detailed soil investigations have been undertaken for this project but interpretation based on the Coffs Harbour 1:100,000 soil landscape series (Milford, 1999) indicates a limiting soil of light clay at approximately 300–400mm depth.

The predominant and most limiting soil landscapes in the Candidate Area 2 (CA2) are the Promised Land and Megan Soil Landscapes. The Megan and Promised Land Soil Landscapes are similarly characterised by dark reddish brown pedal loam to clay loam, moderately structured topsoil (up to 300mm thick) underlain by reddish brown pedal light clay moderately pedal subsoil (to 3.5m depth depending on location). Bedrock is typically greater than 1.5m depth. Light clay is considered the most limiting soil for effluent application with a Design Loading Rate (DLR) of 5mm/day for trenches and a Design Irrigation Rate (DIR) of 3mm/day for secondary treatment with subsurface irrigation recommended by *AS/NZS1547:2012*.

Water balance modelling was undertaken within CA2 to determine sustainable effluent application rates, and from this estimate the necessary size of the Effluent Management Area (EMA) required for effluent to be applied from a primary treatment system to trench or beds. Water and nutrient balance modelling was also undertaken to determine sustainable sizing of irrigation EMAs. As a result of the modelling it was determined that a minimum EMA of 1,043 m^2 is required for secondary treatment with subsurface irrigation.

Buffer distances from EMAs are typically enforced to minimise risk to public health, maintain public amenity and protect sensitive environments. Generally, adopted environmental buffers for subsurface irrigation based on DLG (1998), are:

- 250m from domestic groundwater bores;
- 100m from permanent watercourses;
- 40m from downslope intermittent watercourses and dams;
- 12m from property boundaries; and
- 6m if area up-gradient and 3m if area down-gradient of buildings.

These buffer distances have been applied to our Minimum Lot Size Analysis for all future OSSM systems in CA2.

Minimum Lot Size Analysis

When considering the suitability of a lot area for sustainable on-site wastewater management, the 'adequate available area' refers to available areas (i.e. not built out or used for a conflicting purpose) where OSSM will not be unduly constrained by underlying site and soil characteristics. Available area on a developed (or potentially developable) lot is determined by the following factors:

- total building area (including dwellings, sheds, pools etc.);
- driveways and paths (impervious areas), and gardens/vegetated area unsuitable for effluent reuse;
- dams, intermittent and permanent watercourses running through lots; and
- maintenance of appropriate setback distances from property boundaries, buildings, driveways and paths, dams and watercourses.

Available areas may also be unsuitable or constrained for OSSM, due to other factors, including (but not limited to):

- excessive slope;
- excessively shallow soils;
- heavy (clay) soils with low permeability;
- excessively poor drainage and/or stormwater run-on; and
- excessive shading by vegetation.

A "sample" of ten representative lots was selected from CA2 that comprise similar characteristics of typical rural residential development. Selected lots typically included a dwelling, garage/shed, pool, trees and shrubs and impervious surfaces (driveways, tanks etc). The residual areas (areas not otherwise occupied by improvements, buffers or conservation vegetation) were then calculated for the selected lots and the results recorded. A percentage of the total lot area that is available for effluent disposal was then determined and the lowest percentage of available area to lot size was then used to conservatively determine the minimum lot size.

Illustration 4.11 Candidate Area 2 (CA2)

Results

The variability of lot sizes and improvements (site structures) of developed lots in the study area makes selection of a "typical" lot difficult, resulting in a conservative approach to define minimum sustainable lot size. From the sample selection of lots investigated, the minimum percentage of the lot available for effluent disposal was 27%. The corresponding minimum lot size (for sustainable irrigation of secondary effluent) is 3,863 m^2. Thus, a conservative minimum lot size (MLS) for subdivision in the study area is calculated to be 4,000 m^2 for waste disposal purposes.

A MLS of 4,000 m^2 allows for development of the site inclusive of a four bedroom (or smaller) dwelling together with associated driveways, sheds, paths and pool, whilst still providing sufficient area for secondary wastewater treatment and sustainable land application.

The selection of 4,000 m^2 as the minimum lot size presents a conservative approach that is similar in comparison to lot sizes that have been calculated for other catchments that have been assessed on the Mid North Coast.

The variability in results indicates that some lots may be capable of being developed to a smaller lot size. In addition, we assumed secondary treatment without full nutrient reduction capabilities, and use of mean rainfall rather than median rainfall which has resulted in larger required EMAs than could be achieved with site specific assessment and design.

Cumulative Impact

The cumulative impact of the recommended MLS for application of wastewater on the local receiving environment was modelled using a GIS based Decentralised Sewer Model (DSM). DSM predicts the performance of on-site and decentralised wastewater management systems under varying environmental conditions by simulating the movement of pollutants (nitrogen, phosphorus and pathogens) within the effluent load as it travels from the point source (on-site or community-scale systems) down the catchment as surface or subsurface flows. The model simulates a 72 year period and is designed to provide conservative estimates of OSSM system performance.

Whilst the DSM modelling undertaken has shown that one system per 4,000 m^2 is sustainable, the limitations of this study should be noted. This study was undertaken and based on a desktop analysis of site and soil data, there were no provisions for soil sampling and confirmation of site conditions throughout the study area and therefore individual site conditions may vary. As a consequence, conservative modelling was undertaken using assumed soil and climate parameters to overestimate the minimum areas and maximum lot densities achievable.

It is recommended that detailed land capability assessments are carried out for rural residential subdivision within the Candidate Areas to ensure that there is sufficient available area for OSSM land application, particular where the subject land already has improvements, such as sheds and dwellings, reducing the potential land area available.

Conclusion

From a land capability point of view, the recommended minimum lot size for future subdivision is 4,000 m^2 and DSM modelling indicates that lot density for subdivision allows one onsite wastewater management system per 4,000 m^2. Due to the unique locality and minimum available area for effluent management identified within CA2 we recommend that all future subdivision require a detailed land capability assessment for onsite wastewater management to ensure any proposed subdivision can be sustainable.

Discussion

The adopted MLS for R5 Large Lot Residential Zoned land under the Coffs Harbour LEP 2013 is 1 ha (10,000 m^2). The RRS recommended a 1 ha MLS for rural residential land unless a high standard is justified through environmental investigations. An area of one ha provides sufficient area to accommodate the probable maximum bushfire APZ of 45 m downslope and 20 m elsewhere for land building areas adjoining steeply forested land.

In the immediate term, 1 ha is the MLS for R5 Large Lot Residential zoned land. In the longer term, Council may consider reducing the MLS of R5 zoned land in village peripheries and adjacent to other similarly fragmented rural residential land subject to sufficient area for wastewater disposal and provision of bushfire APZs.

The Wastewater Assessment demonstrates that within each potential 1 ha lot, there should be at least 4,000 m^2 of land outside of the E2 zone boundary and unconstrained other than the area may include APZ's.

4.9. Archaeology

Tim Hill of Heritage Management and Planning prepared an assessment of Aboriginal and European heritage for the NBVw land release area. The full report is found at Appendix F.

European Heritage

The first historical documents relating to the Coffs Harbour area were the naming of the 'Solitary Islands' by James Cook in May 1770, with additional mapping by Matthew Flinders. However – despite the early records from 1791 of two runaway convicts William and Mary Bryan and their two children to the area, it was not until 1847 that the next record of the settlement exists, with Captain John Korff taking shelter at the southern headland of the now 'Coffs Harbour'. European settlement of the area was relatively late compared to areas along the Bellinger and Clarence Rivers;

> *There was at least some cedar getting at Coffs Creek by Walter Harvie and George Tucker in 1865, with the camp set up by Harvie and Tucker being one of the earliest known semi-permanent settlements in the Coffs Harbour area. Timber getters often employed the services of Aboriginal bushmen who had the knowledge and skills to rapidly identify Cedar trees. (Thomas 2013:2)*

Geographic factors leading to this relatively late settlement of the Coffs Harbour area include its distance between Sydney and Brisbane which reduced the security of pioneering settlements and the absence of a major river to access the rich timber resources typical of North Coast floodplains.

Table 4.10 below lists early settlers in the Boambee & Bonville areas (sourced from Coffs Harbour City Council Library http://libraries.coffsharbour.nsw.gov.au/Local-Heritage/collection/Pages/local-pioneers.aspx)

Table 4.10 Early Settlers

Newport, James	1881	Near North Boambee bridge grew first sugar cane - mill operated by four bullocks
Bayldon, William	1871	Selected at present Lyonsville, named Bonville - chemist by training - much first aid treatment to pioneers - introduced good horses to Bellinger area
Reedy	1884	Selected Bonville Creek
Archer	1884	Selected Pine Creek
Gardiner, Charles	1892	Selected Boambee - grew pineapples, bananas
Keiler	1886	Selected near narrow Boambee bridge - several acres grapes - wine
Brewis, Richard/Sam	1892	Selected
Singleton, Matt		Selected Crossmaglen - very active in local affairs and did much for Bonville Reserve in its early days - bred fine stock
Schneider, August	1886	Selected Englands Road - established sugar mill, later sawmill

Key rural industrial land-use themes can be defined within the Bonville area- being;

- Forestry and forest related industries including early extraction of Cedar and later more broad forestry remaining Eucalypt species. This later process of clearing has historic linkages to the settlement of the area post World War 1 and the clearing of land for early agriculture and horticulture.
- Horticulture and agriculture has played an important role in the study area and has had the most significant impact on the physical landscape. Large areas of land have been cleared and regrowth managed for grazing and horticulture. Significant early crops include Bananas, Sugar Cane and Pineapples. Some agricultural diversification has taken place- and contemporary landuse includes Blueberries, Aquaculture and Nuts (Macadamias particularly). A number of market gardens have operated within the area and are consistent with the historical process of dividing agricultural land into smaller lots as the wider district population increases.
- Mining and Extraction. Some small quarries existing in the area and sand extraction has taken place along the coastal strip. Extractive industries have played a relatively minor historic role in the study area.

Aboriginal Heritage

The study area is located within the Gumbayngirr Nation/Language Area which is broadly known to include the lands north of Nambucca Heads, South of the Clarence River and west up to the Great Dividing Range (Thomas 2013:1). The name Bonville is derived for the Gumbayngirr place name Bongol Bongol/Bongil Bongil which means a place where one stays a long time'. The derived name is assigned to W.E. Bayldon- the first selector in the locality.

There is a historical record of a 'fight' between the Sawtell and Clarence 'tribes' at the end of the 19th century 'on the ridge separating Boambee and Bonville Creeks'- however the camp associated to this event was located downstream nearer to Sawtell (Collins 1997:10).

Estimates of population density were common amongst early explorers, Government Officials and ethno-historians. The earliest official records and data occurred well after the first stage of 'contact' and as such post-date an initial population decline through dispersal, disease and conflict. Given the problematic nature of population estimates- the latter and more 'general' observations of Mathews (1898) for the broader Northern NSW coastline are more relevant;

> *In the well watered coastal districts of New South Wales, where fish and game are abundant, their hunting grounds would be comparatively small*

Radcliffe Brown (in Lane 1970:V.8) concludes for the coastal areas that population densities would be in the order of *'one person to every three square miles'*. Estimates of tribal groups in the order of 200 individuals are relatively common amongst ethno-historic and anthropological literature (ie. Lane 1970 for the Nambucca River district immediately south). An additional element to this discussion of population density is the differentiation of the coastal and escarpment areas where it is generally accepted had lower and much more mobile Aboriginal populations. For the larger River systems (Nambucca, Clarence and Macleay) the concept of more intensive use of the coast as compared to the up-river and escarpment is generally accepted (i.e McBryde 1974, Godwin 1990). However a uniqueness of the Coffs Harbour area is the close proximity of the Great Dividing Range to the Coast. No other 'district' on the North Coast has such a narrow coastal zone- or such a short distance between the very different environments of coast and elevated/cold forests. The extent to which this affected land-use is not known, however the absence of historic information about Bonville (as an example) indicates that this narrow intermediate zone was not intensively used. There is however great potential for pathways and routes between the coast and escarpment/hinterland.

The 'contact' experience of Gumbayngirr people of the study area is somewhat different to other groups resident on the larger river systems of the North Coast. There are no historical accounts of 'massacres' within the study area, although that is not to say they didn't happen along the coastal zone -such as the documented massacre at Red Rock (Goulding 2001:63). Unlike the larger properties and permanent building of European settlers, most Aboriginal living areas from the contact period tended to be very small shacks made from remnant and scavenged materials located usually on Crown Land. Historic living areas tended also to be seasonal- be it for seasonal bush resources such as fish runs or for seasonal work within the horticulture industry. Camps located inland- such as the Bonville area- tended to be on public land and nearby to small townships where there was access to water either naturally occurring or at a public tap. The four main camping areas identified by Goulding (2001:64,65) are Corindi Lake, inland from Arrawarra, Nana Glen (junction of Orara River and Bucca Bucca Creek), Happy Valley in Coffs Harbour, Coffs Creek/Fitzroy Oval, Wongala Estate and Yellow Rock. Generally speaking the historical experiences of Aboriginal people have been one of exclusion up until the 1960's:

> *We have seen that the European group has almost universally accepted stereotypes of the Aboriginal group. These provide the rationale for its continued exclusion from the social life of the European community. It has been shown that only some of the stereotypes are correct, and that Aboriginal communities are in a particularly vulnerable position with regard to scandal because the private lives of their members are the specific concern of certain members of the European group. (Calley 1956:201).*

The nature of historic Aboriginal camps and economy within the historic period is such that it is unlikely these types of 'sites' will be present in the historic record of the study area.

Methodology

Database Search

An AHIMS database search found six (6) records including one (1) 'Isolated Artefact' and 5 'Potential Archaeological Deposits'. No 'Aboriginal Places' have been recorded within the study area. No registered historic heritage items are within the study area.

The most comprehensive 'regional' model for the area is provided by Godwin (1990) in a major review of the earlier archaeological research of Isabelle McBryde. Godwins model specifically investigates patterns of movement between the coastal, sub-coastal and tablelands (escarpment) areas. However the applicability of this model to the Bonville and Coffs Harbour area is problematic as the tablelands/escarpment intrudes so much in to the coastal zone. For the purposes of understanding the archaeological record the study area is considered to fall into the 'coastal' area.

> *Amongst coastal groups proper there was no movement from the coast back into the sub-coastal river valleys and foothills. These people were semi-sedentary and lived close to the coast the whole year round. Movement associated with the subsistence round involved travelling only short distances away from the littoral. There were instances of long distance travel associated with ceremonial gatherings. However, such movement was generally parallel to the coast (i.e. north-south along the coast rather than east-west from coast to hinterland). (Godwin 1990:122,123)*

Using this model it is unlikely that Aboriginal use of the study area- being 'away from the littoral'- was either intensive or likely to be represented through archaeological evidence.

The archaeological site 'types' possibly located within the study area include:

Surface artefact scatters are the material remains of Aboriginal people's activities. Scatter sites usually contains stone artefacts, but other material such as charcoal, animal bone, shell and ochre may also be present. The size of scatters may vary from one square metre to larger areas, and may contain from a few to thousands of artefacts. Stone artefacts can be found almost anywhere Aboriginal people camped or lived, particularly around occupation sites, in sand dunes, rock shelters, caves, on ridges and near watercourses. Ground-axe edges may also be found near axe-grinding grooves or quarries.

Aboriginal culturally modified (scarred and carved) trees are trees that show the scars caused by the removal of bark or wood for the making of, for example, canoes, vessels, boomerangs, shelters and medicines. The shape and size of the scar may indicate the purpose for which the bark or wood was removed from the tree. In some regions of NSW, trees were carved with intricate patterns and designs for ceremonial purposes, or to mark country boundaries or burials.

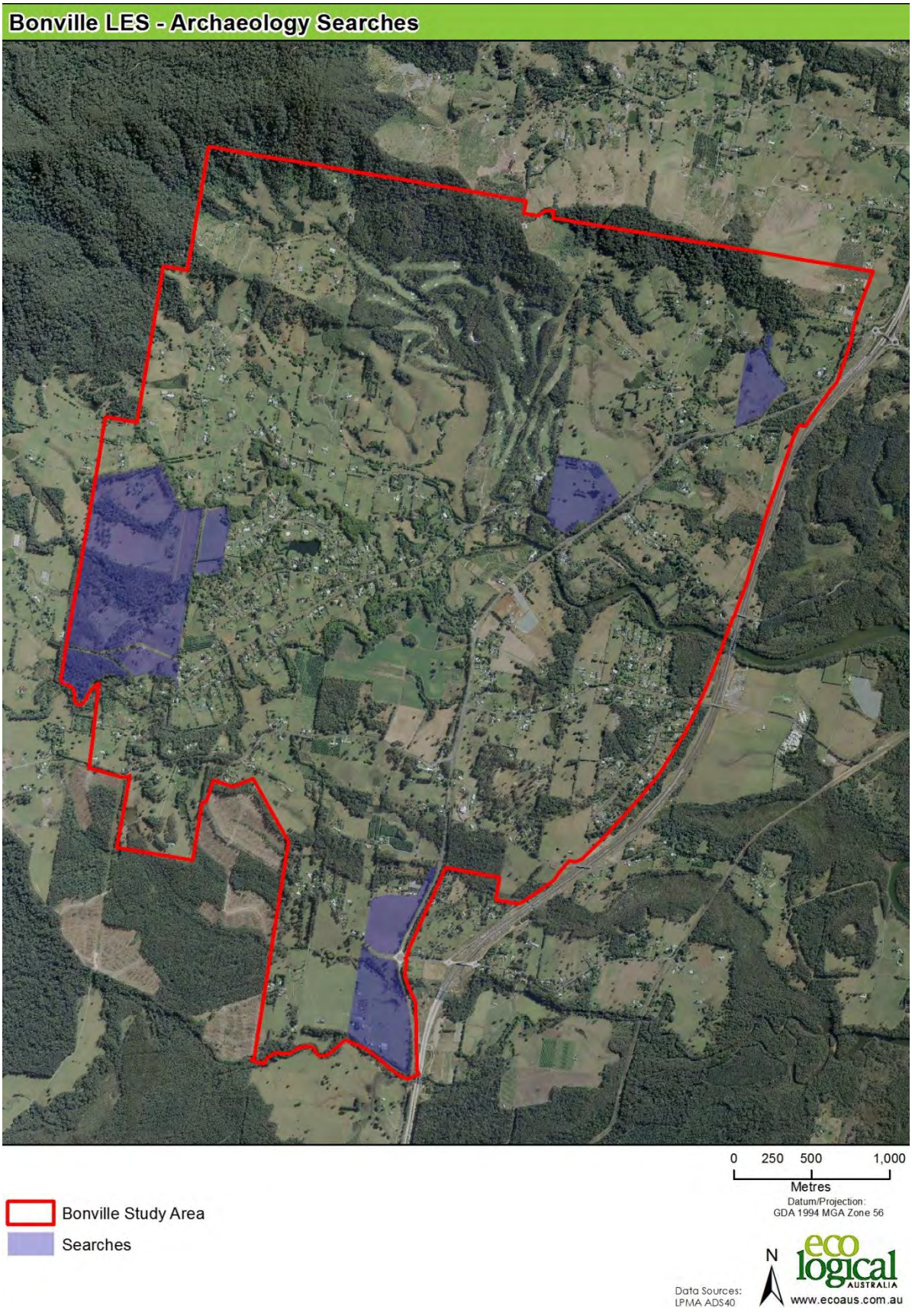
Other site types- including middens, rock-art, quarries, burials and stone arrangements are not likely to be located within the study area due to a range of factors including; post- contact ground disturbance and land clearing; the absence of specific resources required to produce such sites (such as shells or suitable stone); and the low likelihood that the study area was used for these activities (for example there are no accounts of ceremonies being held in the study area).

It is possible that the study area- particularly the northern section- was used as a traditional pathway to the higher escarpment area. However this use would manifest in the archaeological record as isolated artefacts rather than extensive artefact scatters or scarred trees.

Site Investigation

The archaeological survey employed a 'meandering pedestrian transect' methodology with a total distance of just over 14 kms as shown in Illustration 4.12. Survey areas were identified and targeted and considered location and position within the study area so-as to capture as broad a sample of topography as possible and to target areas considered likely candidates for future rural residential development.

Illustration 4.12 **Archaeology Searches**



Conclusion

The archaeological assessment within the study area included a total of 14km of meandering pedestrian transect. The survey was significantly constrained by access to land and vegetation cover associated to agricultural and forestry activity.

The results of the survey confirm the predictive model that '*it is unlikely that Aboriginal use of the study area- being 'away from the littoral'- was either intensive or likely to be represented through archaeological evidence*'. The focus of the study- being on rural land- further reduced the likelihood of locating Historic or Aboriginal sites, and it is unlikely that rural residential development within areas of existing agricultural land and areas of forest regrowth would have a significant risk to archaeological features.

The survey identified several 'board notched stumps' relating to early forestry activity in the Valley In addition, no evidence or accounts of mills or forestry infrastructure (apart from existing roads) were identified during the survey. This would suggest that horticulture has been a more dominant industry. The Old Bonville Bridge is an item worthy of consideration for heritage listing. There are few wooden trestle bridges left so near to the coast and its size and state of maintenance makes it a good example for future conservation. The future use of this method of bridge construction continues a historic theme within the valley and should be encouraged within the area. (Note: Since this study was prepared the wooden trestle bridge has been demolished.)

4.10. Contaminated Lands

Prior to European settlement, the site would have been heavily vegetated in native forest with only rare impact from fire. Clearing and agriculture commenced in the 19th century, expanding roughly to its current extents by the mid-20th. Significant areas of land were cultivated. Most notably bananas were cultivated over the east, north and west facing slopes. The flatter floodplains were also cleared and mainly used for stock grazing. In addition to clearing and agriculture, development of roads, dwellings, storage sheds, yards and small on-stream dams have occurred over the years.

Council's mapping identifies areas that have been subject to cultivation in the past, as shown on Figure 7 of Appendix B. Possible soil contamination exists through these areas and through areas of current cultivation due to the use of pesticides and herbicides. The use of arsenic in pesticides and herbicides during the 1940s to 1960s is considered a definite possibility, if not likely, source of soil contamination. As such a preliminary investigation was undertaken.

Pesticide and herbicide practices in areas of present and past banana cultivation was identified as the most likely source of any wide spread soil contamination. A soil sampling regime was prepared. It was beyond the scope of this investigation to undertake the sampling and testing in full accordance with Ref 10 which requires a 25 x 25 m grid. This would have resulted in approximately 1,000 sampling points and excessive laboratory costs.

The soil investigation levels (SILs) for urban development sites in NSW found in "Contaminated Sites, Guidelines for the NSW Site Auditor Scheme (2nd Edition)" were adopted for this assessment as the concentrations defining site contamination.

For all parcels the anticipated source of contamination is that of widespread application of pesticides/herbicides to the land. In these circumstances no reduction to the SILs to account for the composite nature of the sample is appropriate, as per method 2 section 6 of "*Contaminated Sites, Sampling Design Guidelines*" .

The full laboratory test results can be found in Appendix B.

The results are varied. Some building envelopes had chemical levels below threshold and some had levels above threshold.

All sites with high levels were able to be successfully remediated to comply with EPA guidelines.

The full laboratory test results can be found in **APPENDIX B – Engineering Issues**.

Conclusions and Recommendations

This preliminary investigation has concentrated on possible soil contamination from pesticide and herbicide use within past and present areas of cultivation. It has found:

- In many locations the arsenic concentration is well above what can be expected for the naturally occurring or background levels of arsenic, which is typically less than about 10 mg/kg. This signifies that arsenic has been applied to the land. .

- Some envelopes had low concentrations, consistent with background levels. This suggests that arsenic may not have been used over these parcels. This implies recent cultivation only, well after the use of arsenic.

- The remaining envelopes had elevated arsenic levels, but below the SIL.

  The concentrations of lead were all comfortably below the SIL.

- Traces of Dieldrin, DDE, DDD & DDT were also found in some envelopes although all were well below their SILs. All other organochlorines tested for were not found within the detection limits of the laboratory equipment.

- No organophosphates tested for were found in any parcel within the detection limits of the laboratory equipment.

It can be concluded that arsenic contamination is present across past banana land in the Bonville area. This finding is entirely consistent with past banana land across the Coffs Harbour region.

Council's existing land contamination policies should be applied to any proposed development within the Bonville region. This assessment has not been prepared in sufficient detail, in terms of sampling density, to satisfy Council's policy requirements. All proposed development within present and past cultivated areas should be subject to soil contamination assessments and where contamination is identified a remediation plan be prepared for Council's consideration.

As has been found in other areas, it is anticipated that the arsenic contamination can be readily remediated, generally through on-site vertical mixing. The cost of further investigation, and remediation if required, will fall to the developer. While an additional burden, it is not expected to significantly constrain the land's development potential.

4.11. Road Network

At present, the two main roads serving the study area are Pine Creek Way and the Pacific Highway

- Pine Creek Way was formerly the Pacific Highway and became a Council road several years ago
- Pacific Highway. This is a dual lane divided carriageway. There is limited access to the highway. Interchanges are provided at Lyons Road / Pine Creek Way in the north and Archville Station Road located approximately mid Study Area

Traffic Generation from the Study Area

The average daily traffic generation from the Study Area after full development is summarised below in Table 4.11

Table 4.11 – Study Area Traffic Generation

Development Type	Traffic Generating parameter	AADT (veh/day)
Existing Development	850ET @ 10vpd / ET	8,500 veh/day
Possible Development (460 ha)	415 ET @ 10vpd / ET	4,150 veh/day
Total	**1,000 ET**	**12,650 veh / day**

In terms of assignment to the two main roads leaving the Study Area, our expectation is as follows:

- Pine Creek Way (at Lyons Road) – 6,800 veh /day
- Pine Creek Way (at Archville Station Road) – 4,600 veh /day
- Pine Creek Way (south to Mailmans Track Road) – 1,250 veh /day

Under Clause 2.9 of Section 041 Geometric Road Layout of Council's AUS-SPEC guidelines, both road would be classed as Local Sub-Arterial Roads as their daily traffic is above 6,000 veh/day.

An audit was carried out of the existing road network. The results are contained in Appendix B.

Proposed Road Upgradings

In accordance with the study objectives, road upgradings is proposed to bring the local road network up to AUS-SPEC standards. These are detailed in Appendix E and summarised below and shown on Figure 8 of Appendix B:
Based on the nexus of location and required works, the various upgrading works were divided into 4 catchment Areas. The areas are shown on Figure 9. The various candidate areas in each catchment is shown below:

Catchment	Candidate Areas	Works Required
Catchment 1	Candidate Areas 13, 14,1 5, 16	• Road upgradings to Williams Road, Herdegen Close, Titans Close, Irvines Road • Bus Shelter
Catchment 2	Candidate Areas 2, 3, 4, 5 and 6	• Road upgradings to Yarraman Road, North Bonville Road, Crossmaglen Road • Bus Shelter • New Bridges on Nth Bonville Road and Crossmaglen Road •

Catchment	Candidate Areas	Works Required
Catchment 3	Candidate Areas 8 and 9	• Road upgradings to Butlers Road (part), Keoghs Road (part) • Bus Shelter
Catchment 4	Candidate Areas 10 and 11	• Road upgradings to East Bonville road (part)

4.12. Provision of Services

Telecommunications

Telstra maintain existing networks throughout the study area. Re-subdivision of land within the candidate areas for rural residential purposes will occur gradually. Telstra advises that:

> *Any infrastructure and services provided would be determined closer to the time of development commencement, and be dependent upon any changes to the government policies on the provision of infrastructure in new developments.*
>
> *Telstra will work with Government, NBN Co and stakeholders on the implementation of the current policy on Greenfields estates.*
>
> *Telstra has existing aerial cables, direct buried cables, as well as cables in conduits in the proposed rezoning area. Some of these feed through the proposed rezoning area to customers outside the proposed rezoning area. Telstra will require the protection of / relocation of its telecommunication infrastructure that may be impacted by activities on this site.*

National Broadband Network

Telecommunications are provided to new developments in accordance with the Australian Government's Department of Broadband, Communications and the Digital Economy policy for the provision of the National Broadband Network (NBN) in new developments. Their policy was updated in August 2012 and provides that:

- *NBN Co Limited would be the wholesale provider of last resort in new developments within or adjacent to its long term fibre footprint and meet the cost of doing so*
- *developers—and on their properties, property owners—would be responsible for trenching and ducting*
- *Telstra would not have infrastructure responsibilities but would be retail provider of last resort*
- *developers could use any fibre provider they want, providing they met NBN specifications and open access requirements.*

From 1 January 2011, NBN Co is responsible for the installation of fibre at the development stage for all premises in NBN Co's fibre footprint in:

- *new developments of 100 or more premises, whether broadacre or infill, which receive Stage 5 (civil works) planning approval after 1 January 2011*
- *developments, irrespective of size or type, in areas where NBN Co has already rolled out fibre and the fibre is ready and capable of connection*
- *developments in areas where NBN Co has publicly identified the area as a rollout region—this is on the basis rollout regions will be announced 12 months prior to the ready-for-service date.*

NBN has commenced on the 'roll-out' of fixed wireless in the Bonville region in September. Fixed wireless services are delivered from an off-site radio communications tower to a roof mounted antenna fixed to the premises.

Neither NBN Co nor Telstra will provide any firm servicing commitment at rezoning stage, however, as the NBN wireless network is already under construction in the Bonville area it is highly unlikely that Telstra will provide copper infrastructure as an interim measure. Rather, if the NBN network cannot service the Bonville rural residential release area by the time civil works have been approved, Telstra would provide a high quality wireless service as an interim measure.

It will be the responsibility of developers within the Bonville release area to ensure that pit and pipe—including trenching and ducting, design and third-party certification for development approval purposes—are installed and are fibre-ready at their cost. Ownership of the pit and pipe infrastructure will transfer to the NBN Co in exchange for the provision of fibre within that pit and pipe.

The Commonwealth Government has introduced legislation, via the *Fibre Deployment Bill* and the *Telecommunications Legislation Amendment (Fibre Deployment) Act 2011*, that controls the obligations and responsibilities of providers and developers in the installation of fibre-ready pit and pipe.

Electricity

Essential Energy advised that:

> *The Bonville area is supplied by two 11,000 volt power lines from Essential Energy's Zone Substations at Sawtell and Boambee. They advise that it is difficult to accurately predict load growth for a subdivision being undertaken by landowners over a 20 to 30 year time frame. As the area is currently serviced by existing electrical infrastructure, there is capacity available in the initial stages in providing supply to subdivided blocks.*
>
> *Over time as the land is subdivided and electrical load is added some time in the future a new feeder may be required. Alternatively if load growth exceeds projected levels a new zone substation may be needed. It would be beneficial to make allowances for this type of infrastructure by allowing land corridors for the construction of overhead power lines from Boambee Zone Substation and provision for land to be acquired for the construction of a zone substation.*
>
> *As the land is subdivided and load is added, augmentation of the existing feeders will provide the opportunity to utilise the existing electrical infrastructure in new configurations which may provide the opportunity to delay the requirement for the construction of new overhead power lines. All costs associated with the provision of a suitable high voltage and low voltage electrical supply to the development with be at the cost to the developer.*

Detailed arrangement for the provision of electrical services to future rural residential subdivision in the Bonville release area would be made when the design for the civil works are carried out. For now, it is sufficient to know that there is adequate electrical infrastructure in the area to supply new subdivisions.

Planning for new substations and land corridors would be considered again when the future Bonville Urban Area is further investigated.

High Speed Rail

The following information is extracted directly from the Australian Government Department of Infrastructure and Regional Development website. The following information has been considered, however, as the project is in very preliminary planning stages, it has not influenced the subject Planning Proposal.

On 31 October 2010, the Terms of Reference were released for a strategic study on the implementation of high speed rail (HSR) on the east coast of Australia. The study, managed by the Department of Infrastructure and Regional Development, was established to inform the Australian Government, the ACT and state governments' consideration of next steps for HSR in Australia. The study was undertaken in two phases.

The Phase 1 report was launched on 4 August 2011. The report identified corridors and station locations and potential patronage, as well as providing an indicative estimate of the cost to build an HSR network.

Work on Phase 2 of the study commenced in late 2011 and culminated in the release of the High Speed Rail Study Phase 2 Report on 11 April 2013. The report found that:

- *The HSR network would comprise approximately 1,748 kilometres of dedicated route between Brisbane-Sydney-Canberra-Melbourne.*
- *The preferred alignment includes four capital city stations, four city-peripheral stations, and stations at the Gold Coast, Casino, Grafton,* ***Coffs Harbour,*** *Port Macquarie, Taree, Newcastle, the Central Coast, Southern Highlands, Wagga Wagga, Albury-Wodonga and Shepparton.*
- *Once fully operational (from 2065), HSR could carry approximately 84 million passengers each year, with express journey times of less than three hours between Melbourne-Sydney and Sydney-Brisbane.*
- *The optimal staging for the HSR program would involve building the Sydney-Melbourne line first, starting with the Sydney-Canberra sector. Subsequent stages would be Canberra-Melbourne, Newcastle-Sydney, Brisbane-Gold Coast and Gold Coast-Newcastle.*
- *The estimated cost of constructing the preferred HSR alignment in its entirety would be around $114 billion (in 2012 dollars).*
- *The HSR program and the majority of its individual stages are expected to produce only a small positive financial return on investment. Governments would be required to fund the majority of the upfront capital costs.*
- *If HSR passenger projections were met at the fare levels proposed, the HSR system, once operational, could generate sufficient fare revenue and other revenue to meet operating costs without ongoing public subsidy.*
- *HSR would substantially improve accessibility for the regional centres it served, and provide opportunity for—although not the automatic realisation of—regional development.*

Regional stations would be located west of Casino (along the Bruxner Highway), southeast of Grafton (adjacent to Grafton Airport), southwest of Coffs Harbour (west of the Pacific Highway), west of Port Macquarie (west of the Oxley Highway/ Pacific Highway interchange), southeast of Taree (along Old Bar Road), west of Newcastle (east of the F3 Freeway) and at the Central Coast (north of the F3 Freeway/Pacific Highway interchange at Ourimbah).

Illustration 4.13 High Speed Rail Brisbane to Melbourne

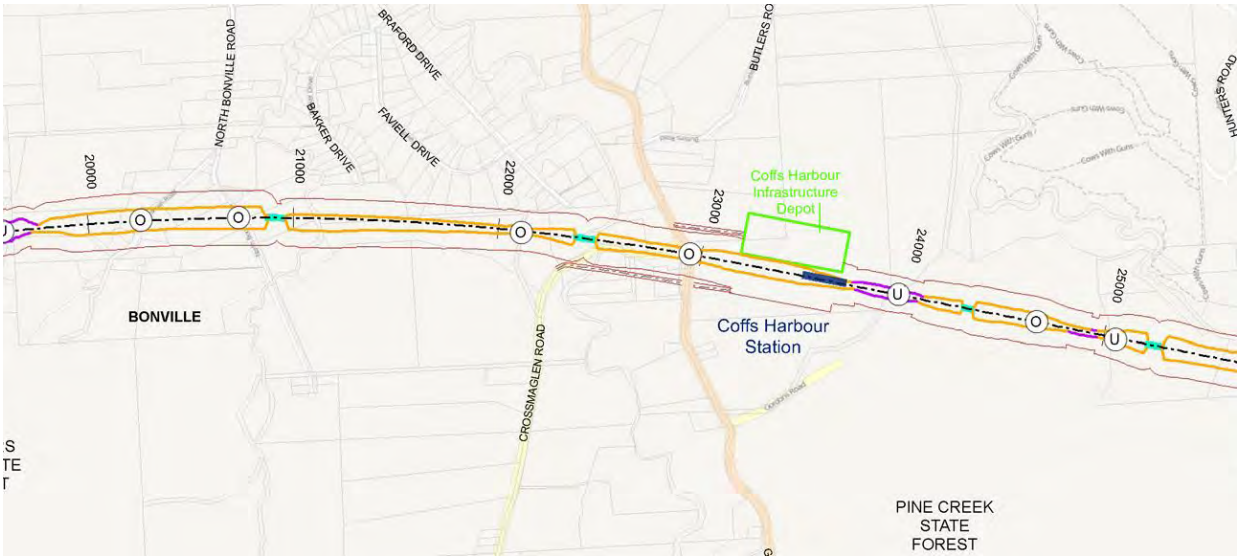
Illustration 4.14 High Speed Rail Grafton to Port Macquarie

Coffs Harbour Station

The urban area of Coffs Harbour is constrained by the surrounding terrain. Much of the proposed growth will occur in the areas immediately adjacent to the existing urban area, into the adjacent foothills, to the south in North Boambee and Bonville. Options northwest of Coffs Harbour around Karangi, along the coast near Coffs Harbour CBD and southwest around Boambee and Bonville were assessed, with the southwest options being preferred due to their better road access and proximity to future development. Because of the vertical gradients of the HSR alignment passing Coffs Harbour, Bonville is the closest location to Coffs Harbour with sufficient level land area to accommodate a station.

Bonville has good transport links, with bus services linking to Coffs Harbour and Sawtell centres and conventional rail stations. There is direct access to the Pacific Highway and the future urban land proposed for release in the Bonville area in the Regional Strategy. The alignment is constrained to the south by the floodplain of the Bellinger River and there is minimal scope to move the alignment east, closer to the Pacific Highway. The preferred location is approximately 15 kilometres by road from both the centre of Coffs Harbour and Coffs Harbour Airport. The preferred station location is to the west of the Pacific Highway/Archville Station Road interchange, south of Valery-Gleniffer Road.

Illustration 4.15 High Speed Rail Coffs Harbour Station



4.13. Significant Regional Farmland Mapping

Part of the study area is identified as regionally significant farmland (RSF) on the Mid North Coast Farmland Mapping Project mapping. Land use and strategic planning recommendations arising from the project detailed in the Final Recommendations Report (NSW Department of Planning March 2009). The following recommendations are relevant to the Bonville Rural Residential study area:

> *Regionally significant farmland cannot be considered for urban (residential, tourism, commercial and industrial) or rural residential zoning unless the land is:*
>
> *a) identified in a council rural residential strategy which has been agreed to by the Department of Planning as at the completion date of the Mid North Coast Regional Strategy, (or exhibited by that time and subsequently agreed to); or*
>
> *b) part of an Growth Area under the 2008 Mid North Coast Regional Strategy; or*
>
> *c) already zoned, subdivided or approved for an urban or rural residential use under an LEP.*

The Bonville rural residential candidate areas (CAs) were identified in the Rural Residential Strategy 2009, a Council endorsed strategy. RSF located within the CA boundaries can therefore be considered for rezoning for urban or rural residential purposes.

RSF located outside of the CA boundaries zoned for rural purposes has not been considered for rural residential rezoning.

RSF and the Bonville Rural Residential CA boundaries are shown at **Illustration 4.16.**

In regard to environmental protection zoned lands, it is stated in the Final Recommendations Report that:

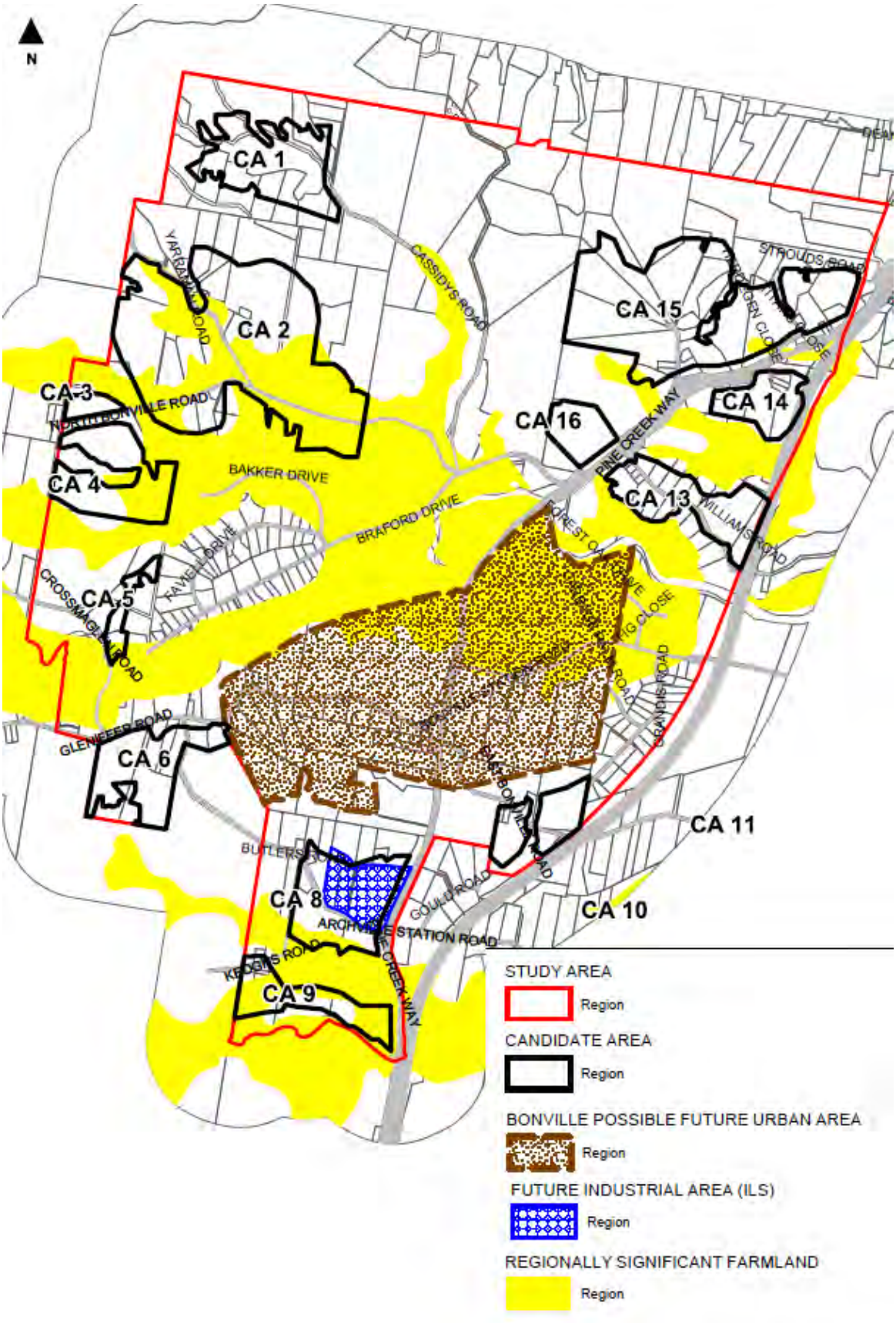
> *Some areas of regionally significant farmland include important habitat or remnant vegetation. Some of those areas are currently zoned environmental protection. While the map indicates the existence of significant farmland, this should not be taken to mean that vegetation and habitat values are secondary to agricultural values, or that land has to be used for agriculture. Where regionally significant farmland is zoned for environmental protection, the zoning should not be altered to rural. However, if the environmental protection zone is to be removed following an assessment of its environmental values, the land should then be protected in a rural zone.*

The ecological assessment of the study area has led to the identification of significant areas of RSF currently zoned rural (RU2) area for rezoning for environmental protection purposes.

The Final Recommendations Report also states that:

> *Regionally significant farmland cannot be identified for future urban use in any review of Growth Area boundaries under the Mid North Coast Regional Strategy. The only exception to this would be where the land forms an otherwise logical extension to the major regional centres of Grafton, Coffs Harbour or Port Macquarie, and the land is needed for efficient urban development and there is no practicable alternative, or where the encroachment onto mapped farmland is minor.*

Illustration 4.16 Regionally Significant Farmland



4.14. Infrastructure Costs

A detailed road audit was carried out by deGroot and Benson, Consulting Engineers to determine the suitability and condition of the existing road network and to calculate the cost of any required road and bridge upgrading to service the future rural residential development.

Based on the nexus of location and required works, the various upgrading works were divided into 4 Catchment Areas. The various candidate areas in each catchment is shown below:

Catchment	Candidate Areas	Works Required
Catchment 1	Candidate Areas 13, 14,1 5, 16	• Road upgradings to Williams Road, Herdegen Close, Titans Close, Irvines Road • Bus Shelter
Catchment 2	Candidate Areas 2, 3, 4, 5 and 6	• Road upgradings to Yarraman Road, North Bonville Road, Crossmaglen Road • Bus Shelter • New Bridges on Nth Bonville Road and Crossmaglen Road
Catchment 3	Candidate Areas 8 and 9	• Road upgradings to Butlers Road (part), Keoghs Road (part) • Bus Shelter
Catchment 4	Candidate Areas 10 and 11	• Road upgradings to East Bonville road (part)

The cost estimates for each Candidate Area are shown below in Table 4.12. Figure 8 of Appendix B shows the main infrastructure to be included in a Section 94 contributions plan.

Table 4.12 – Section 94 Cost Estimates

ROAD CONTRIBUTION CALCULATION							
Candidate Area	Lots	Length of Road in Study Area (m)	Unsealed Length	Seal Width			Total
	No		m	< 4.5m	4.6m to 5.5m	6m	
CANDIDATE AREA 2	112	2850	$0	$0	$274,875	$621,600	$896,475
CANDIDATE AREA 3 / 4	28	500	$0	$0	$0	$148,000	$148,000
CANDIDATE AREA 5	17	1123	$0	$0	$0	$332,408	$332,408
CANDIDATE AREA 6	18	300	$0	$0	$0	$88,800	$88,800
CANDIDATE AREA 8	16	650	$0	$0	$0	$192,400	$192,400
CANDIDATE AREA 9	14	450	$230,625	$0	$0	$133,200	$363,825
CANDIDATE AREA 10 / 11	11	590	$0	$0	$0	$174,640	$174,640
CANDIDATE AREA 13	31	1100	$0	$0	$0	$325,600	$325,600
CANDIDATE AREA 14	12	120	$0	$0	$0	$35,520	$35,520
CANDIDATE AREA 15	71	1000	$51,250	$256,250	$0	$118,400	$425,900
CANDIDATE AREAS 16	10	0	$0	$0	$0	$0	$0
TOTALS FOR AREAS	340	8683	$281,875	$256,250	$274,875	$2,170,568	$2,983,568

5. CONSTRAINTS ANALYSIS / SIEVE MAPPING

5.1. Constraints Mapping Criteria

Environmental assessments carried out for this study as well as Council's Class 5 Vegetation Mapping data have been used for the constraints analysis /sieve mapping. The aim of the constraints analysis is to verify the suitability of land already identified as Candidate Areas for rural residential land release and to recommend land suitable for rezoning to R5 Large Lot Residential and E2 Environmental Conservation.

The methodology of determining suitable land for rezoning was based on the constraints mapping together with an assessment of:

1. Land capability for wastewater disposal areas;
2. Scenic value and visual sensitivity to change;
3. Land holding fragmentation;
4. Safety in terms of flood risk and bushfire threat;
5. Suitable public road access;
6. Regionally Significant Farmland mapping; and
7. Consideration of strategic planning principles and statutory processes;

Zone E2 Environmental Conservation

A GIS layer has been created to illustration the recommended extent of additional land to be rezoned E2. Land with the following attributes is included in the recommended E2 Zone GIS layer.

1. Existing E2 zoned land.
2. Endangered Ecological Communities (EECs).
3. Class 5 Vegetation Mapping
    a. Vegetation condition ranking
    b. Vegetation significance
    c. Vegetation extent
4. Riparian buffer areas (3rd order streams and greater)

Biodiversity Overlay

1. Remnant vegetation and/or corridor linkages
2. Stream order 3 and above identified as 'watercourse'

Zone R5 Large Lot Residential

Land with the following attributes was mapped as R5:

1. Not zoned E2 under current LEP 2013; and
2. Not recommended for inclusion in the E2 zone as listed above; and
3. Located within or adjacent to the Candidate Area boundary based on the nearest cadastral boundary; and
4. Land located adjacent to the Candidate Area boundary based on cadastral boundary and not identified as Regionally Significant Farmland.

Inconsistencies in the mapping of the CAs in previous studies may result in minor encroachments to mapped farmland. The boundaries of the CAs are represented differently in previous studies as follows:-

- Councils Expressions of Interest for the Bonville Rural Residential Study request included candidate areas defined as unconstrained land in a map of the Study Area. The boundaries of the candidate areas in this map are very irregular in shape.
- Councils Rural Residential Strategy 2009 included candidate areas in Figure 11E and 22 that had more refined boundaries with some increase in the area of unconstrained land.
- In Our Living Settlement Strategy at Map 8 and associated detailed maps the candidate areas boundaries vary again from previous maps and appear to be more of a schematic representation.

The CA boundaries have been mapped for this study generally based on the map provided in Council brief and are shown at Illustration 4.17. The extent of the CAs have been adjusted to match the surrounding cadastral boundaries or to the nearest E2 zone boundary, whichever was the closest and excluding any RSF areas.

Adopting cadastral boundaries wherever possible is the preferred approach for accuracy and to minimise disputes over zone boundary location. In adopting cadastral boundaries the potential rural residential lot yield has not be significantly varied from the demand identified in the Rural Residential Strategy 2009 of 441.2 ha.

5.2. Proposed Rural Residential Zone areas (ha)

The following table shows the amount (in hectares) of additional R5 zoned land within each Candidate Area:

CANDIDATE AREA	PROPOSED R5 ZONED LAND (HECTARES)	CANDIDATE AREA	PROPOSED R5 ZONED LAND (HECTARES)
1	NIL	9	20.3
2	164	10 and 11 combined	16.5
3 and 4 combined	40.6	13	46
5	25	14	17.5
6	27	15	103.7
8	24	16	14.4
TOTAL LAND TO BE REZONED FROM RU2 TO R5			**499 HECTARES**

The total area of additional land to be zoned R5 Large Lot Residential is 499 ha.

5.3.Demand Analysis

The Rural Residential Strategy (RRS) identified land release areas based on genuine demand for rural residential housing. The RRS calculated genuine demand on the average number of building approvals granted for rural residential dwellings times 130% to allow for diminishing latent demand over time.

In 2009, the genuine demand for rural residential lots in the Coffs Harbour LGA was calculated to be 55 lots per annum. From 2000 to 2007 the average annual number of building approvals issued for dwellings on rural residential zoned land was 42; this represents a genuine demand for 55 rural residential lots per annum (ie 42 x 130% = 54.6).

Based on data supplied from the Housing and Land Monitor Spreadsheet (Version 1.6 July 2012) from 2007 to 2012, the total number of dwellings approved on rural residential land was 158 or 32 per year. This represents a genuine demand (32 x 130%) for 42 rural residential lots per annum in the Coffs Harbour LGA.

In 2012, the number of vacant rural residential lots in the LGA was:

Locality	No. of Vacant Rural Residential Lots
Bonville	2
Sawtell to Korora	13
Woolgoolga	6
Moonee/Sapphire Beach	0
Emerald/Sandy Beach	1
Rural remainder and villages	361
LGA Total	383

The 'rural remainder and villages' land is generally not representative of the type of well-located rural residential land for which there is a strong market demand. Excluding the 'rural remainder and village' land, there was only 22 vacant rural residential lots in the LGA. It is probable that the low availability of desirable vacant rural residential lots to the market, has resulted in potential buyers looking elsewhere for suitable land; either to adjoining LGAs or to residential land.

The Planning Proposal will result in the rezoning of 499 ha of rural land to R5 Large Lot Residential with a minimum lot size of 1 ha across 12 separate candidate areas. Whilst this land is generally unconstrained and suitable for rural residential subdivision, the following factors will influence the supply of that land to the rural residential market:

1. Owner preference to retain land holdings under their present configuration;
2. Fragmentation of land within the candidate areas into small parcels of separately owned land results in lower lot yields;
3. Spatial arrangement of unconstrained land and environmentally valuable land;
4. Suitable public road access and economic viability of extending road access;
5. Existing dwellings randomly located within the candidate areas; and
6. Demand pressure for land for blueberry cultivation is currently competing with the demand for rural residential housing land.

In consideration of the above factors, in cannot be assumed that the proposed rezoning of 499 ha of land for rural residential purposes will result in the release to the housing market of 499 x 1 ha lots. Additionally, provision for internal access roads will further reduce the lot yield within most of the candidate areas. On this basis the assumed yield will reduce to approximately 340 lots.

Based on the demand estimates above, the proposed rezoning will result in up to ten years supply of vacant rural residential land. On this basis, it is considered that staging of the land release is unnecessary.

5.4. Constraints Maps

The followings maps show overall constraints within the Bonville study area and detailed maps for each Candidate Area.

Illustration 5.1 Overall Constraints

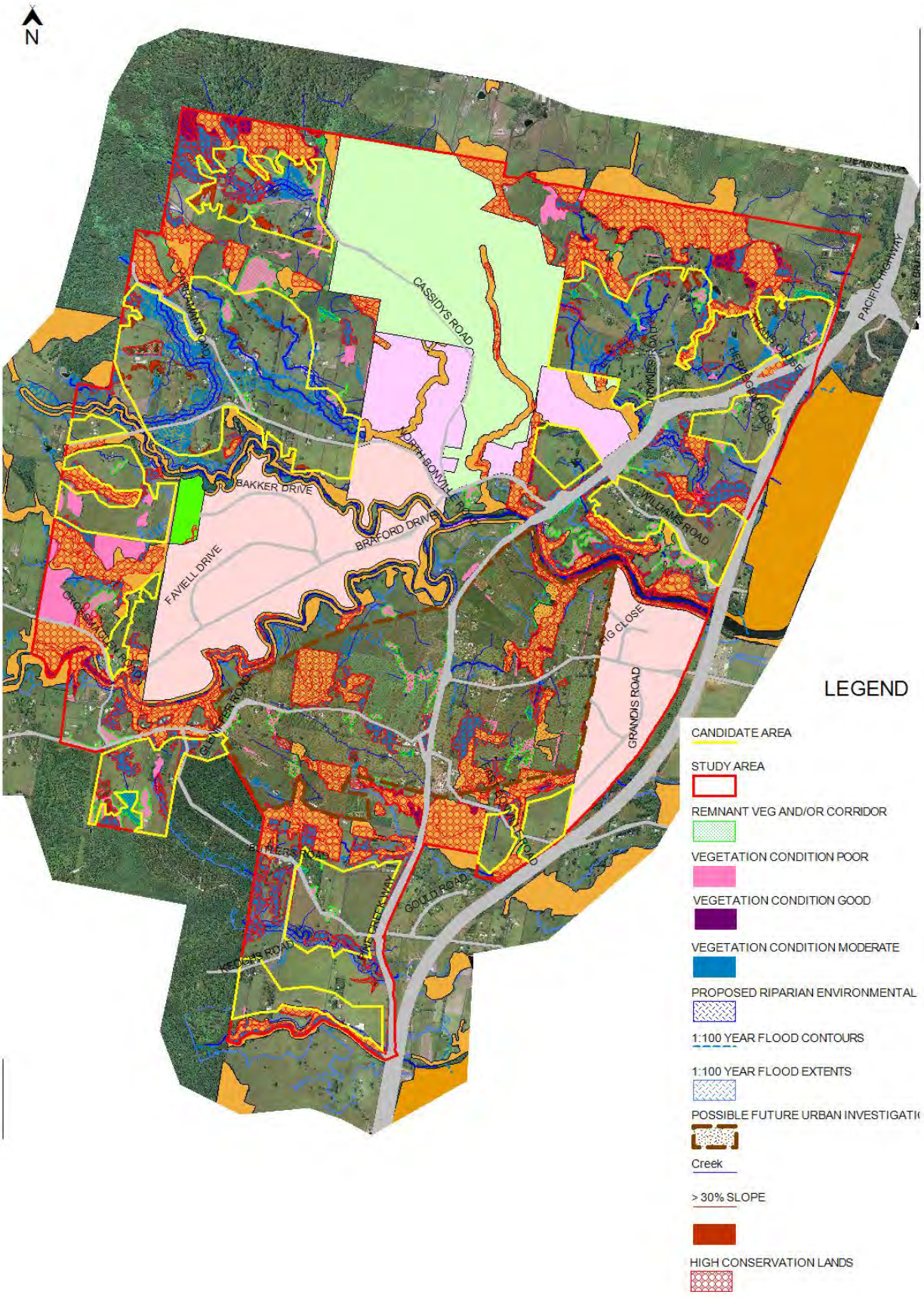
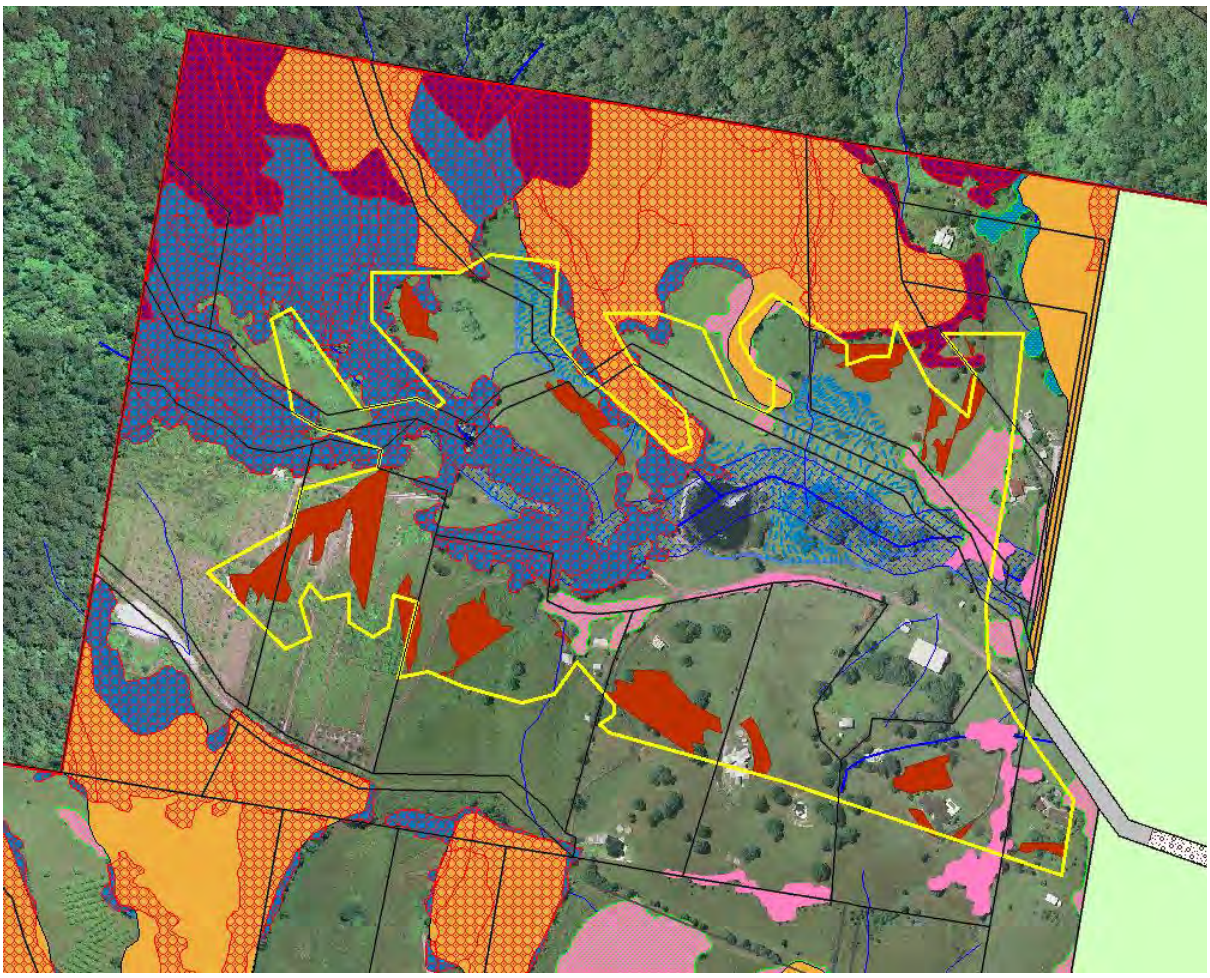


Illustration 5.2 Candidate Area 1 (CA1) Constraints



LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

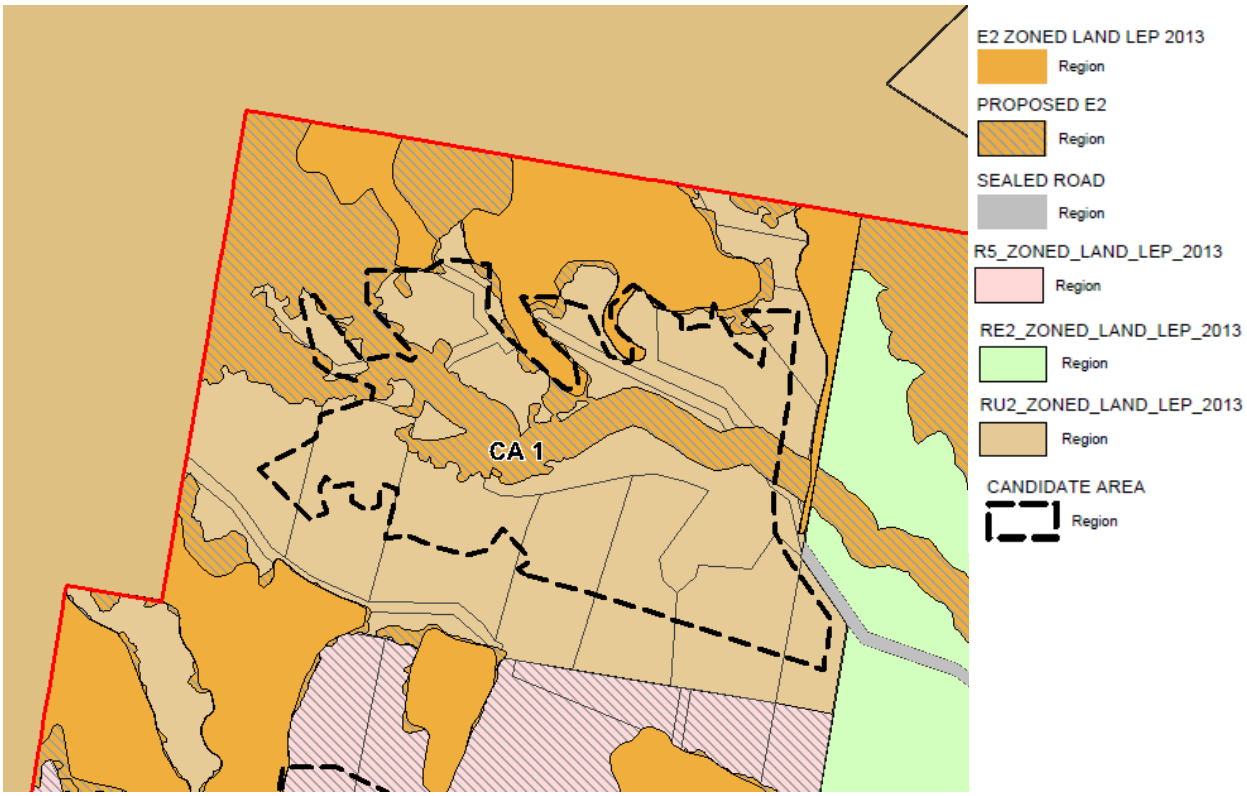
HIGH CONSERVATION LANDS

ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zoned Land

Illustration 5.3 Candidate Area 1 Proposed R5 and E2 Zone extents

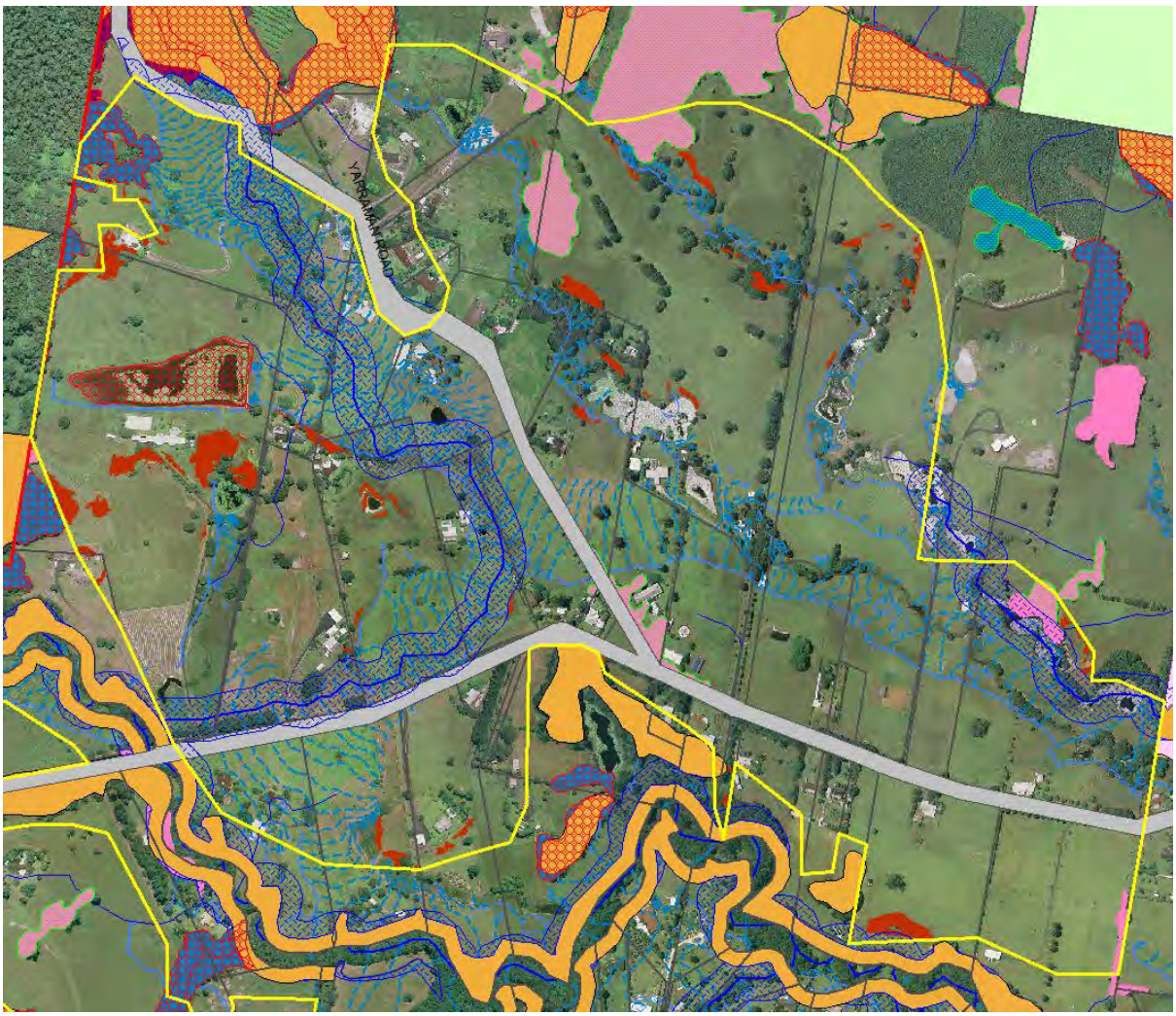


NOTE: ALL RURAL LAND WITHIN CA 1 TO RETAIN RU2 ZONE

Reasons:

1. A significant section of Cassidys Road is unsealed.
2. CA 1 is the most 'remote' of the candidate areas.
3. Road access to most of the unconstrained land within CA 1 would require impact to E2 zoned land.

Illustration 5.4 Candidate Area 2(CA2) Constraints



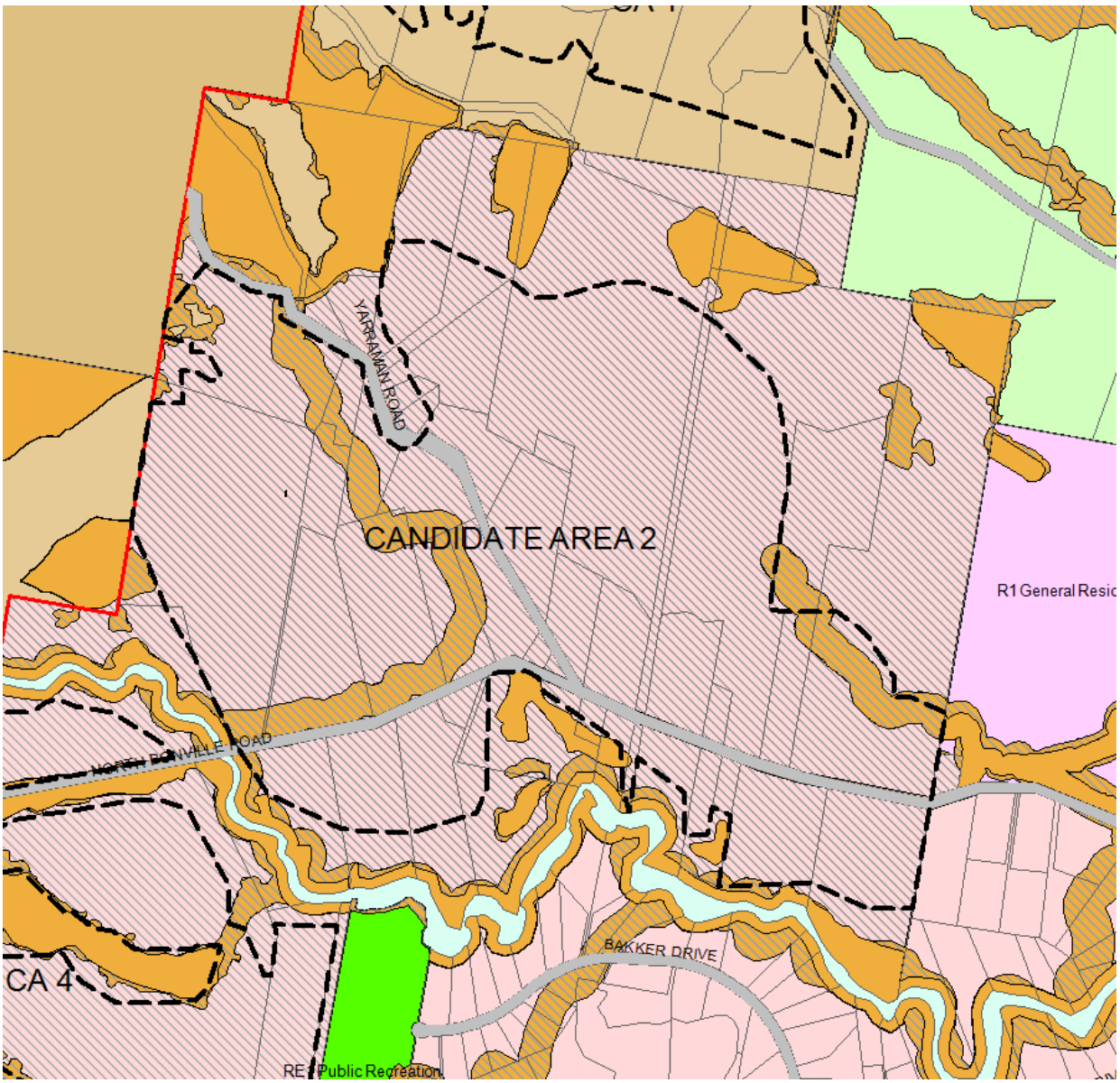
LEGEND

CANDIDATE AREA
STUDY AREA
REMNANT VEG AND/OR CORRIDOR
VEGETATION CONDITION
POOR
VEGETATION CONDITION
GOOD
VEGETATION CONDITION
MODERATE
RIPARIAN BUFFER
Creek
1:100 YEAR FLOOD CONTOURS
1:100 YEAR FLOOD EXTENTS
POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE
HIGH CONSERVATION LANDS
ROADS
SEALED
ROADS
UNSEALED

Existing E2 Zoned Land

Illustration 5.5 Candidate Area 2 Proposed R5 and E2 Zone extents



LEGEND

STUDY AREA

CANDIDATE AREA

PROPOSED E2

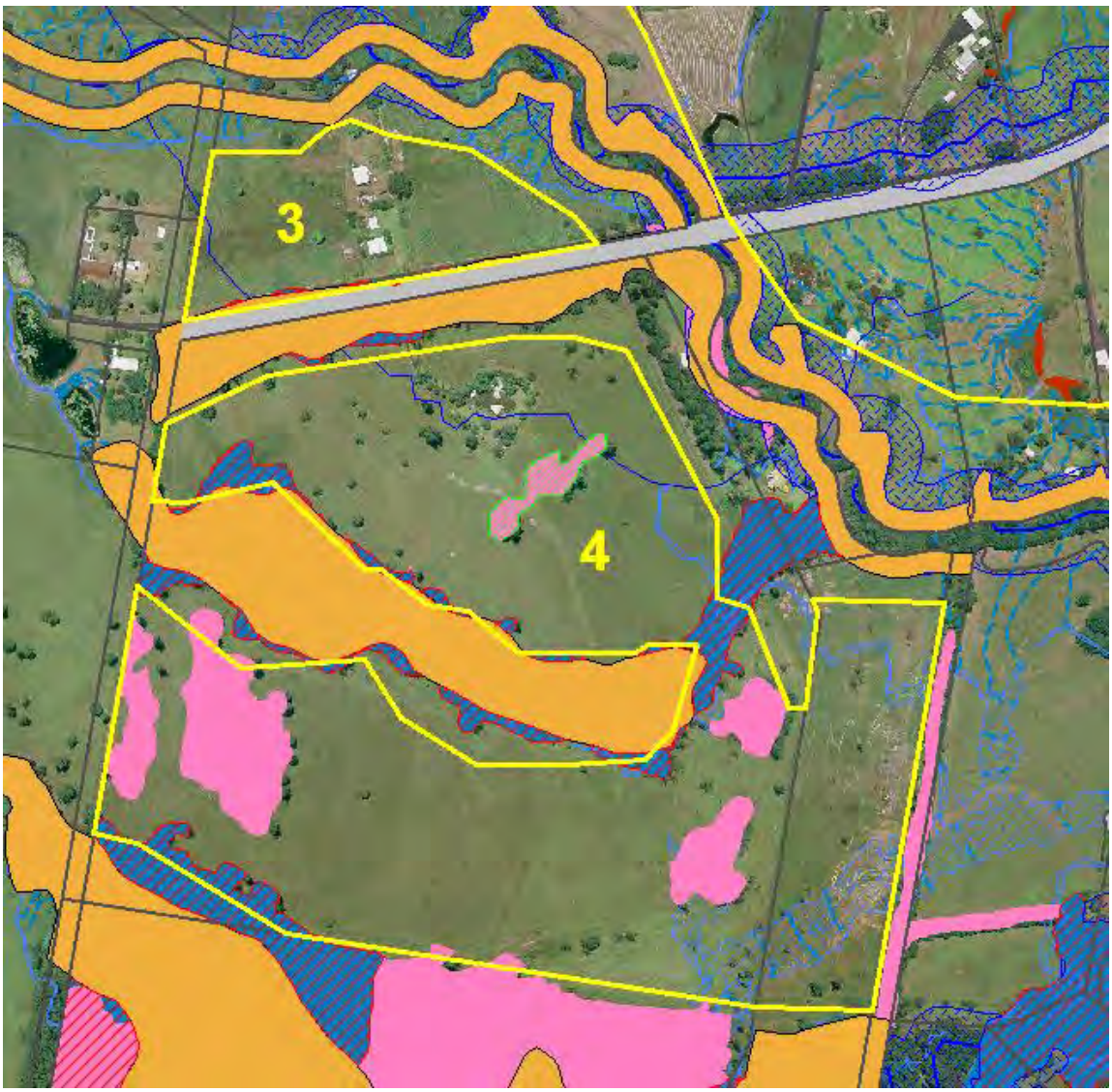
PROPOSED R5 - 164 HA

EXISTING RU2 LEP 2013

EXISTING E2 LEP 2013

EXISTING R5 LEP 2013

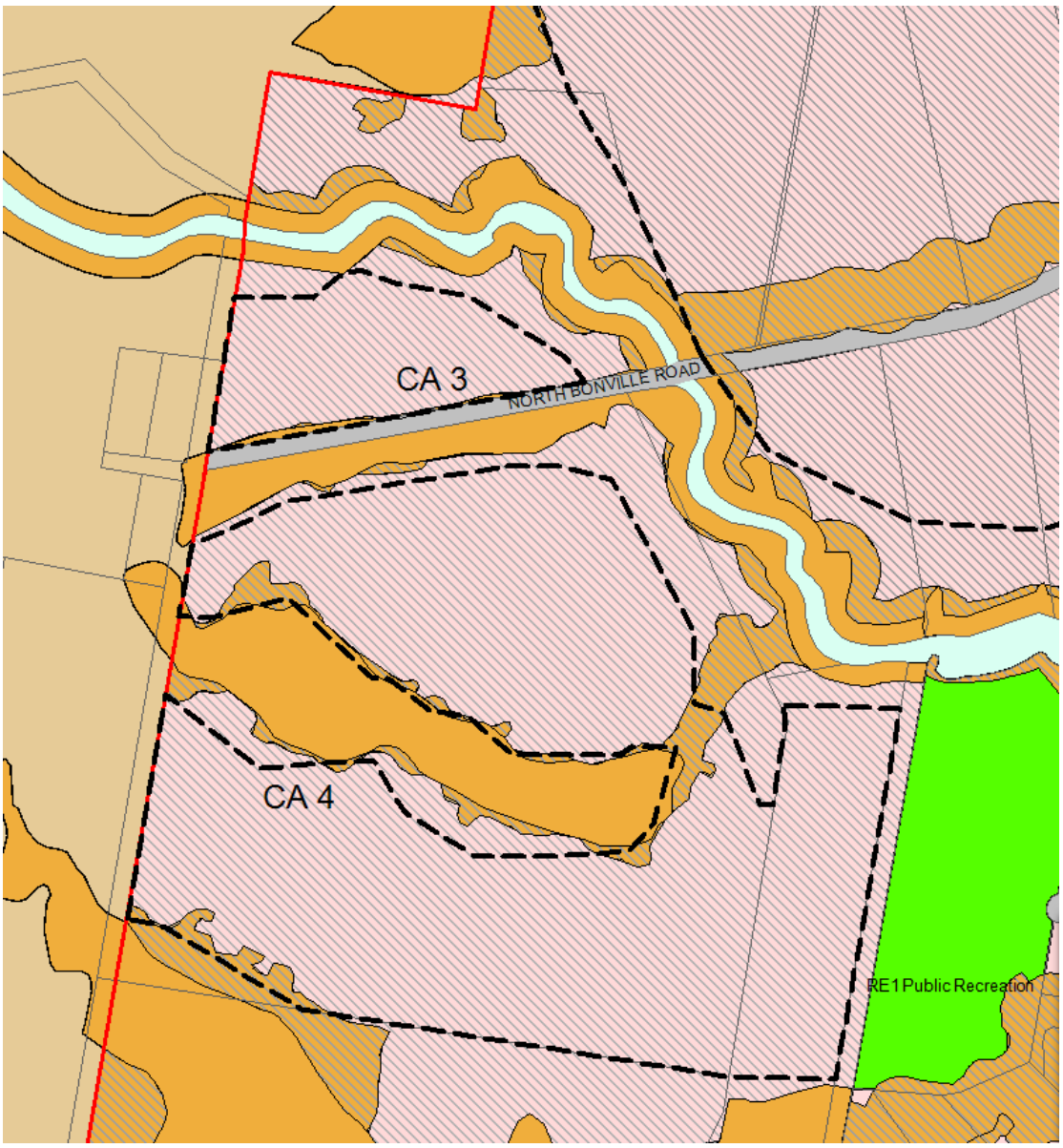
Illustration 5.6 Candidate Areas 3 & 4 (CA3 & 4) Constraints



LEGEND

CANDIDATE AREA
STUDY AREA
REMNANT VEG AND/OR CORRIDOR
VEGETATION CONDITION
POOR
VEGETATION CONDITION
GOOD
VEGETATION CONDITION
MODERATE
RIPARIAN BUFFER
Creek
1:100 YEAR FLOOD CONTOURS
1:100 YEAR FLOOD EXTENTS
POSSIBLE FUTURE URBAN INVESTIGATION AREA
> 30% SLOPE
HIGH CONSERVATION LANDS
ROADS
SEALED
ROADS
UNSEALED
EXISTING E2 ZONED LAND

Illustration 5.7 Candidate Areas 3 & 4 Proposed R5 and E2 Zone extents



LEGEND

STUDY AREA

CANDIDATE AREA

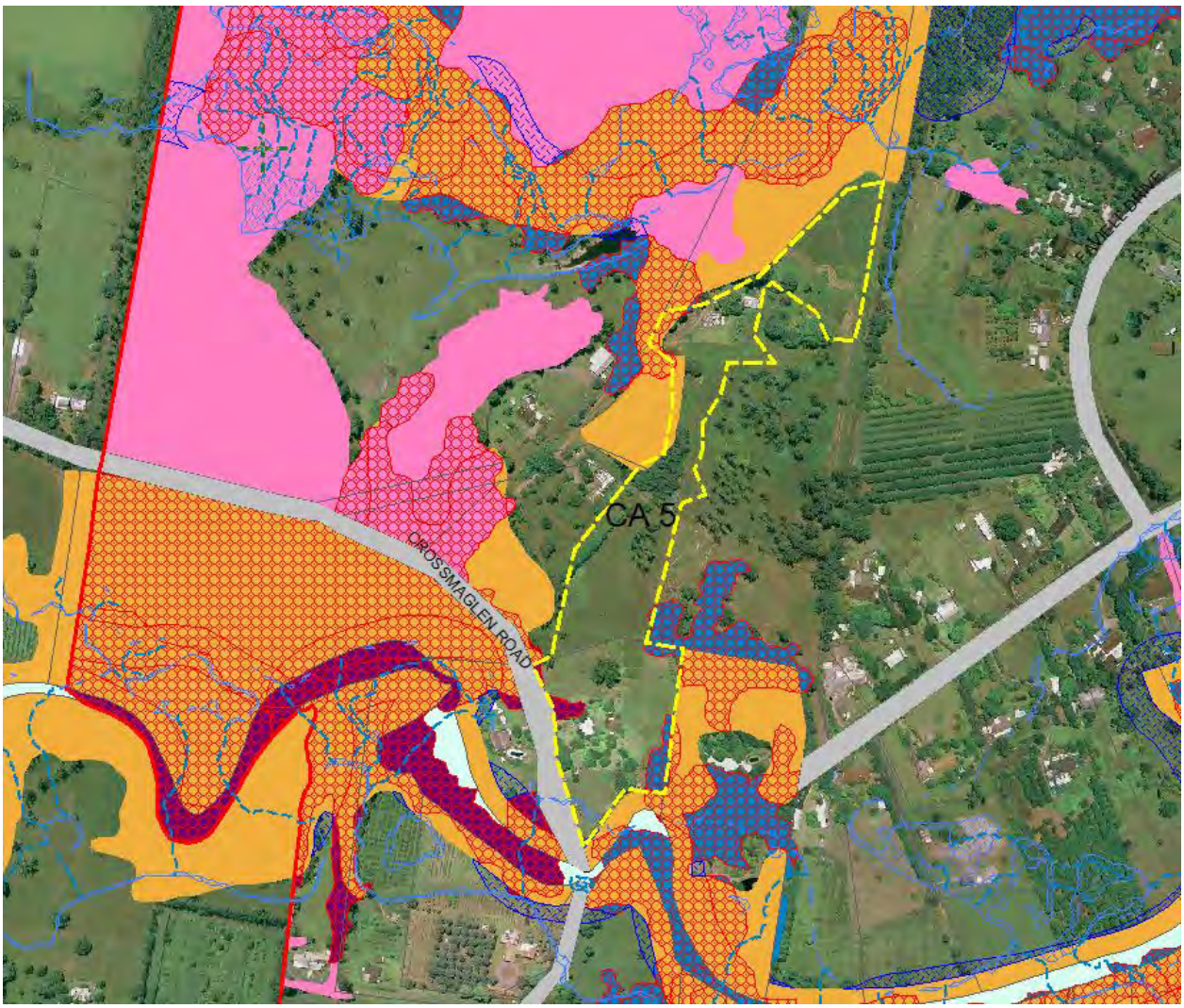
PROPOSED R5 - 40.6 HA

PROPOSED E2

RU2 ZONED LAND LEP 2013

R5 ZONED LAND LEP 2013

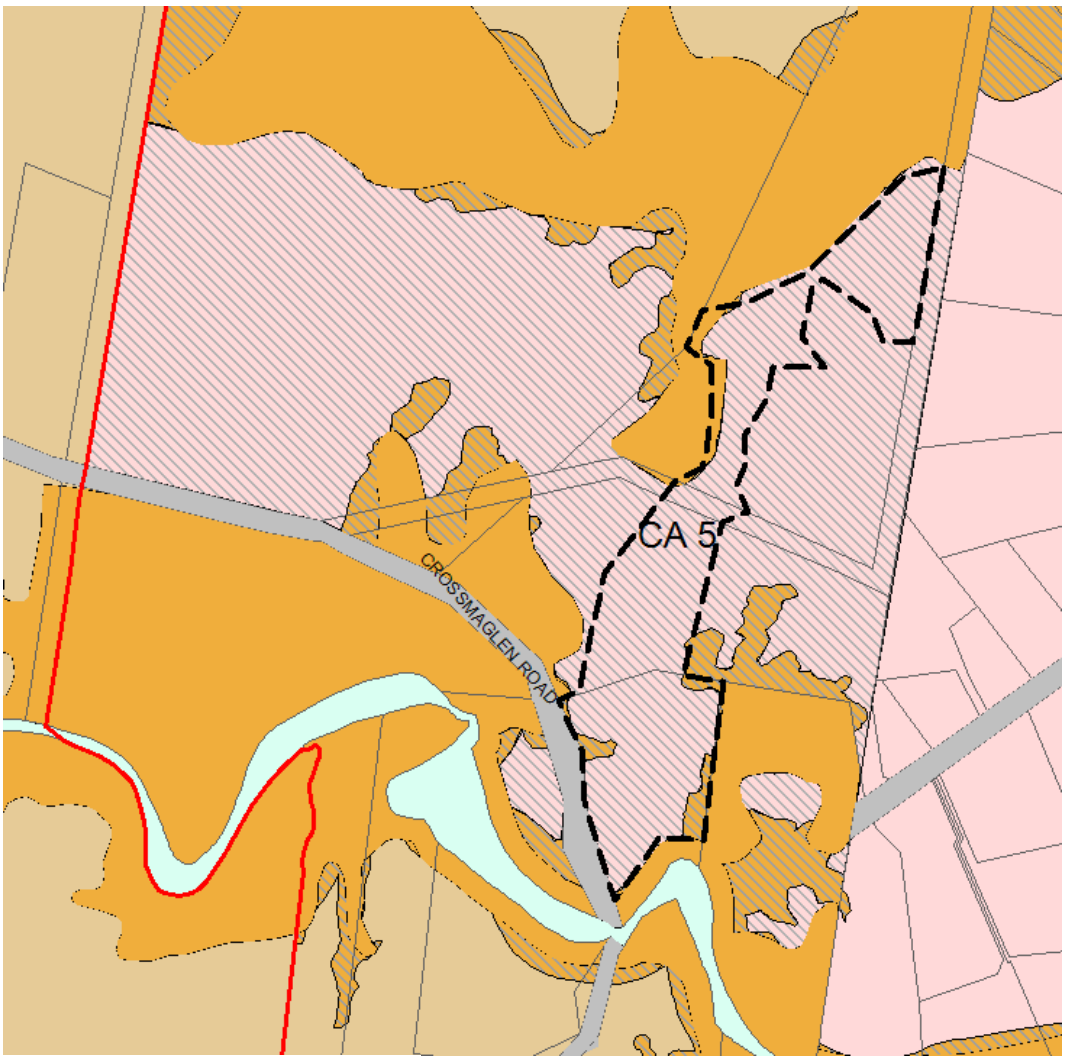
Illustration 5.8 Candidate Area 5 (CA5) Constraints



LEGEND

CANDIDATE AREA
STUDY AREA
REMNANT VEG AND/OR CORRIDOR
VEGETATION CONDITION
POOR
VEGETATION CONDITION
GOOD
VEGETATION CONDITION
MODERATE
RIPARIAN BUFFER
Creek
1:100 YEAR FLOOD CONTOURS
1:100 YEAR FLOOD EXTENTS
POSSIBLE FUTURE URBAN INVESTIGATION AREA
> 30% SLOPE
HIGH CONSERVATION LANDS
ROADS
SEALED
ROADS
UNSEALED
EXISTING E2 ZONED LAND

Illustration 5.9 Candidate Area 5 (CA5) Proposed E2 and R5 Zone extents



CANDIDATE AREA
Region

BONVILLE POSSIBLE FUTURE URBAN
Region

STUDY AREA
Region

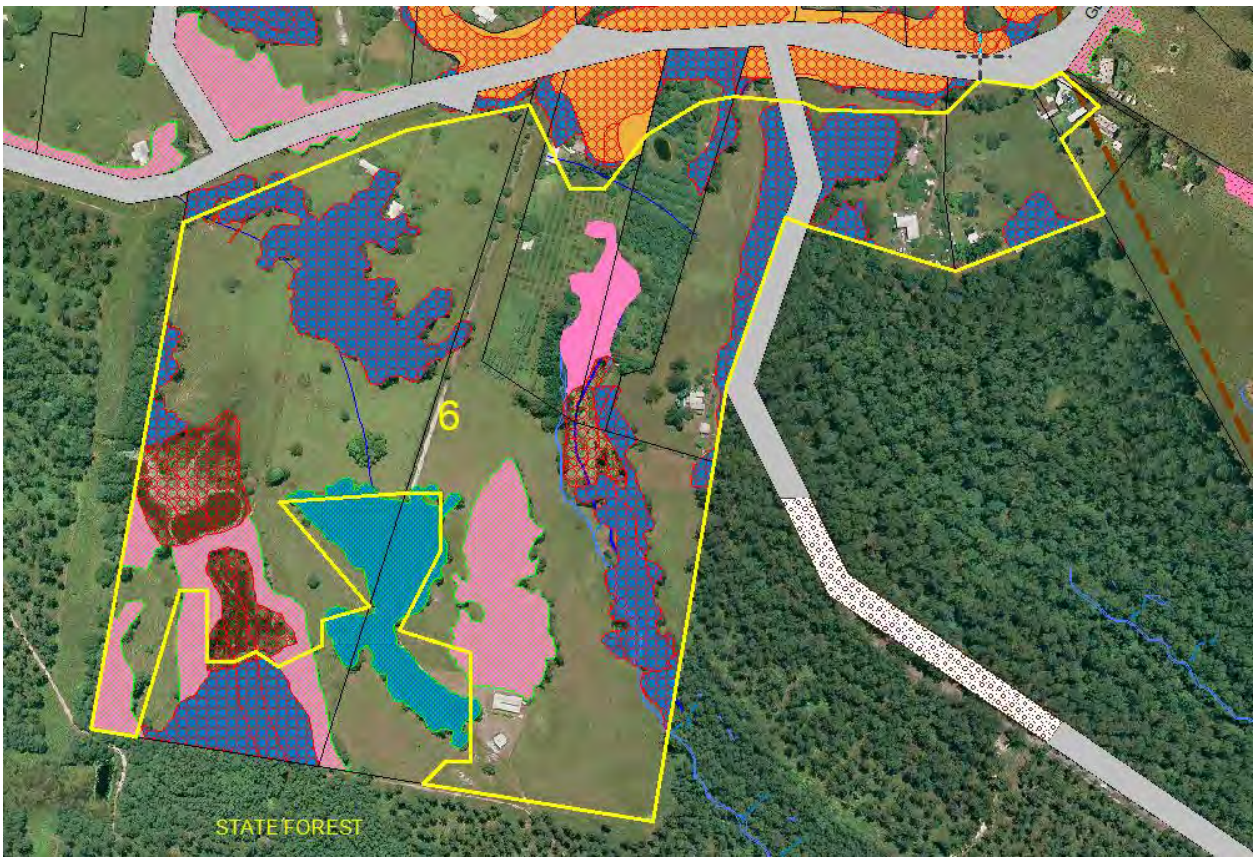
PROPOSED R5 - 25 HA
Region

PROPOSED E2
Region

R5 ZONED LAND LEP 2013
Region

E2 ZONED LAND LEP 2013
Region

Illustration 5.10Candidate Area 6 (CA6) Constraints



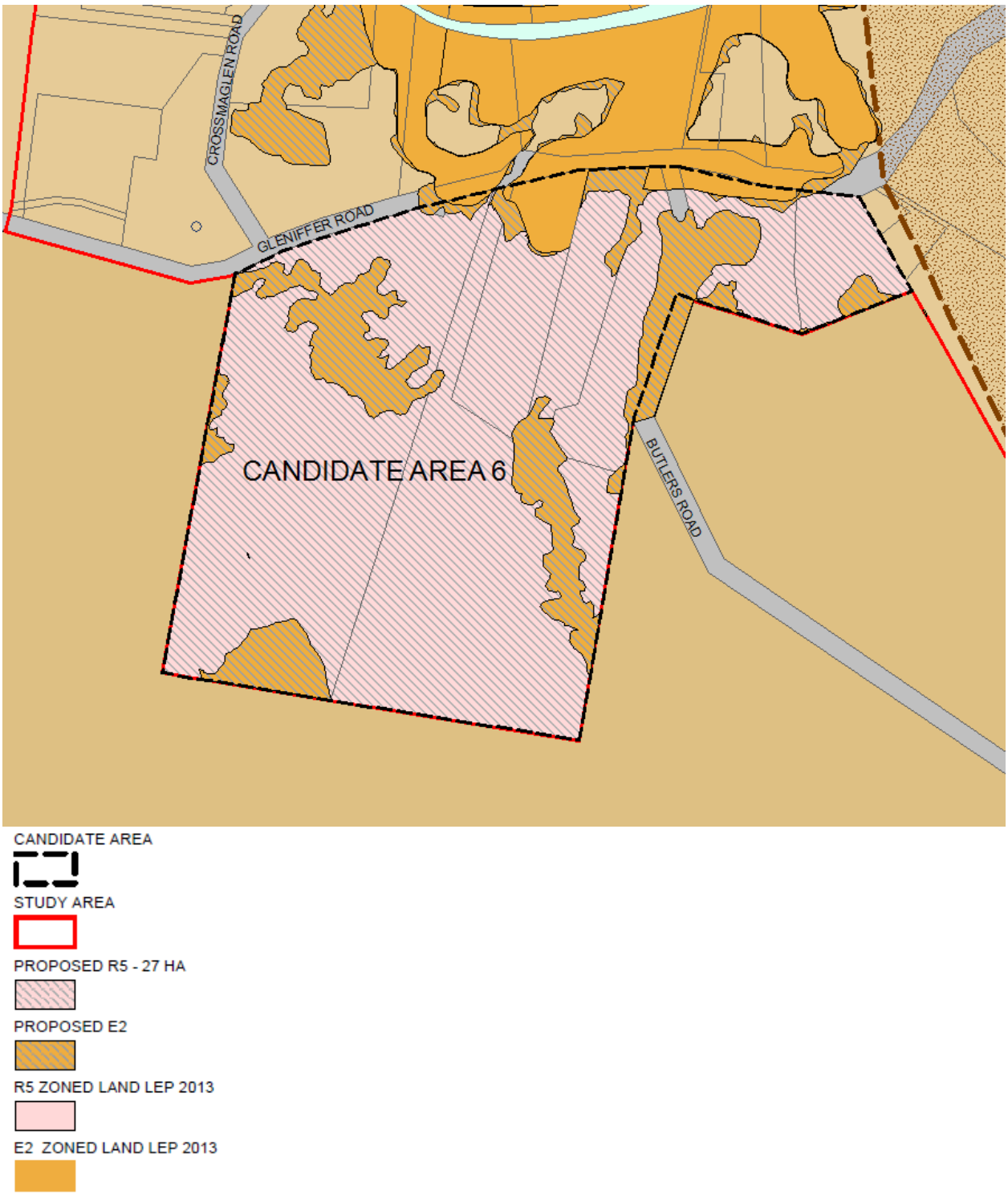
LEGEND

CANDIDATE AREA
STUDY AREA
REMNANT VEG AND/OR CORRIDOR
VEGETATION CONDITION
POOR
VEGETATION CONDITION
GOOD
VEGETATION CONDITION
MODERATE
RIPARIAN BUFFER
Creek
1:100 YEAR FLOOD CONTOURS
1:100 YEAR FLOOD EXTENTS
POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE
HIGH CONSERVATION LANDS
ROADS
SEALED
ROADS
UNSEALED

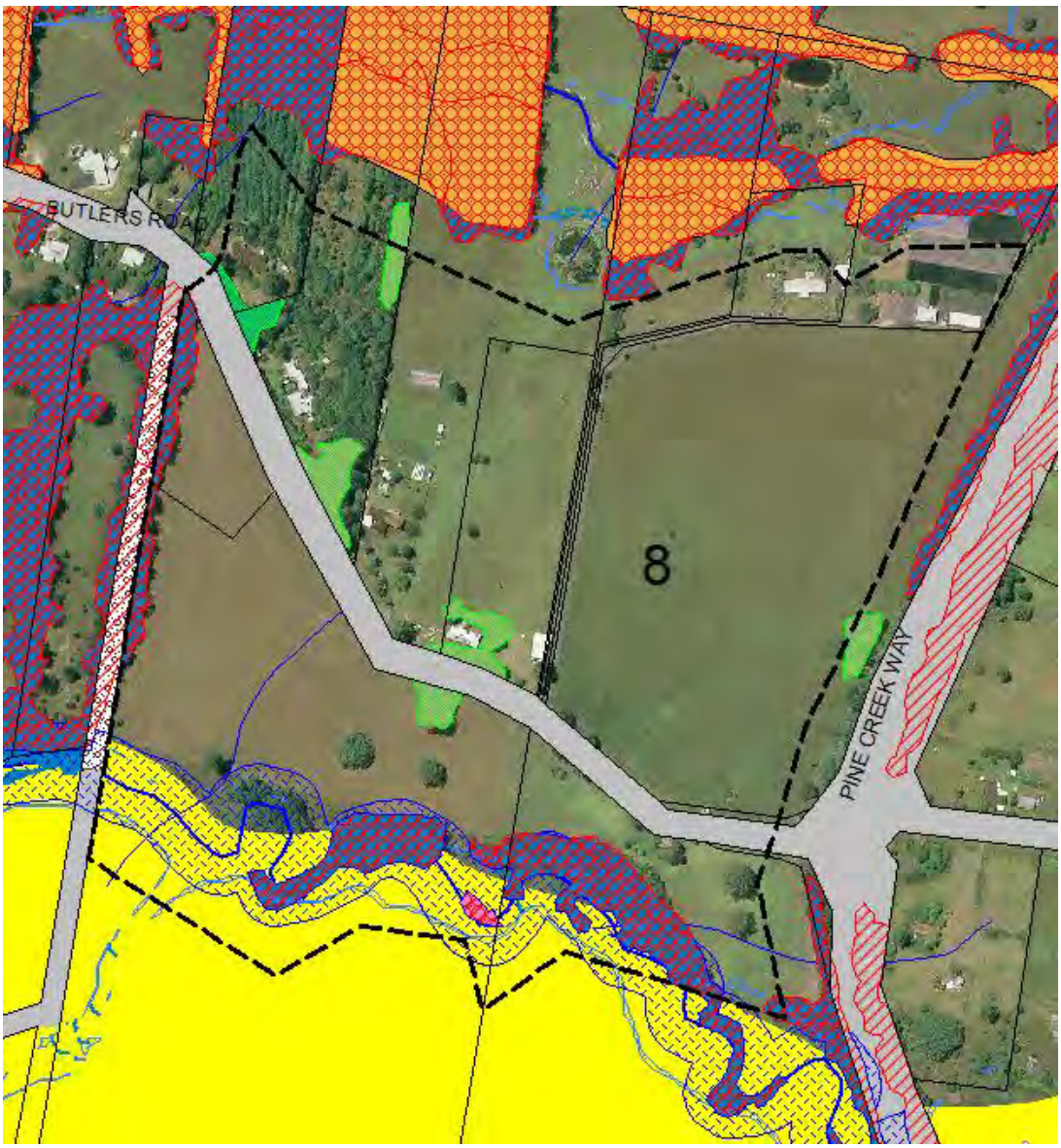
Existing E2 Zone LEP 2013

Illustration 5.11 Candidate Area 6 (CA6) Proposed E2 and R5 Zone extents



Note: Candidate Area 7 is located within land identified as the Bonville Possible Urban Investigation Area and will not be rezoned for rural residential purposes. There is no mapping for Candidate Area 7.

Illustration 5.12 Candidate Area 8 (CA8) Constraints



LEGEND

CANDIDATE AREA
STUDY AREA
REMNANT VEG AND/OR CORRIDOR
VEGETATION CONDITION
POOR
VEGETATION CONDITION
GOOD
VEGETATION CONDITION
MODERATE
RIPARIAN BUFFER
Creek
1:100 YEAR FLOOD CONTOURS
1:100 YEAR FLOOD EXTENTS
POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE
HIGH CONSERVATION LANDS
ROADS
SEALED
ROADS
UNSEALED

Existing E2 Zoned Land

Regionally Significant Farmland

Illustration 5.13 **Candidate Area 8 (CA8) Proposed E2 and R5 Zone extents**

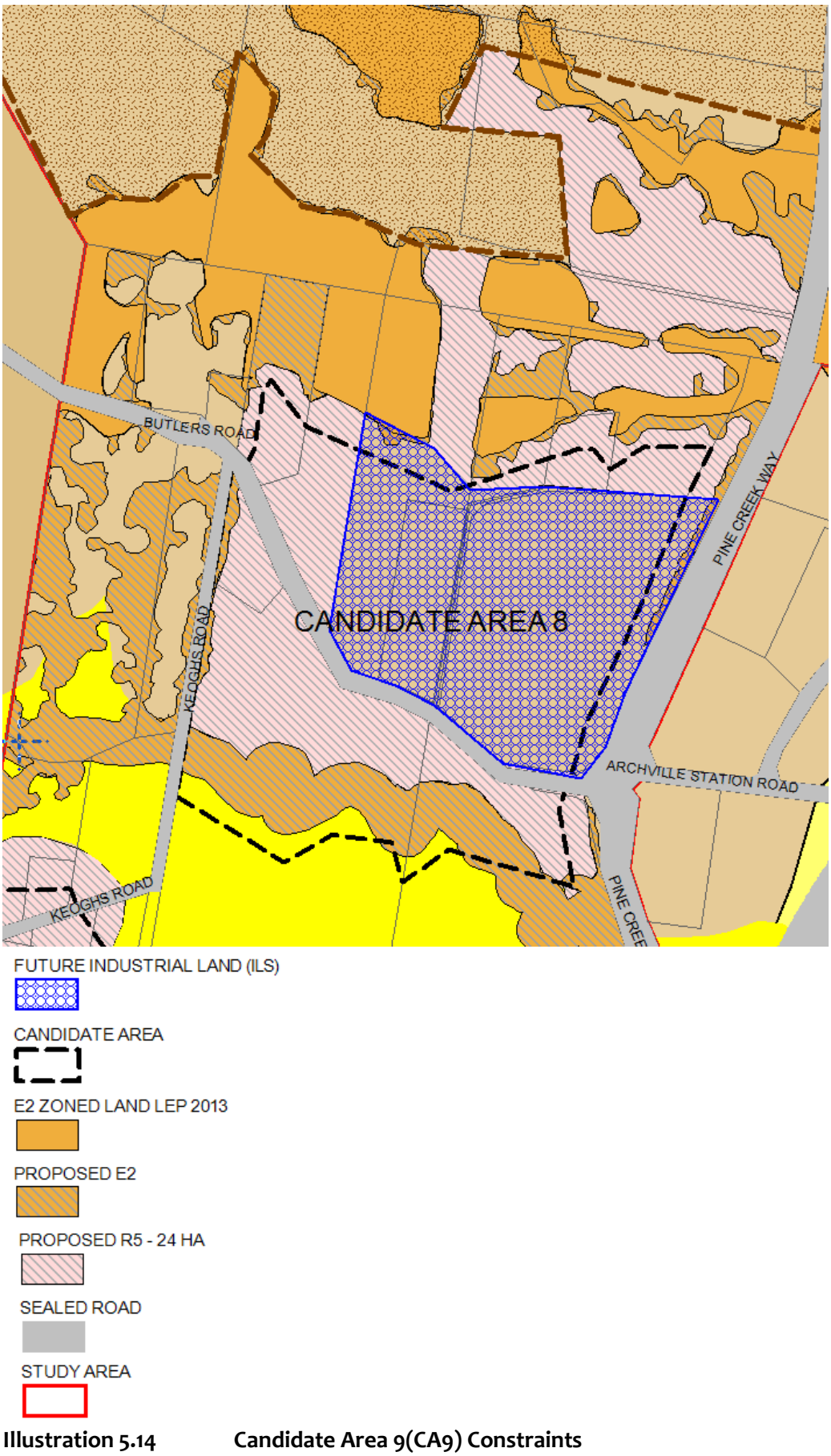
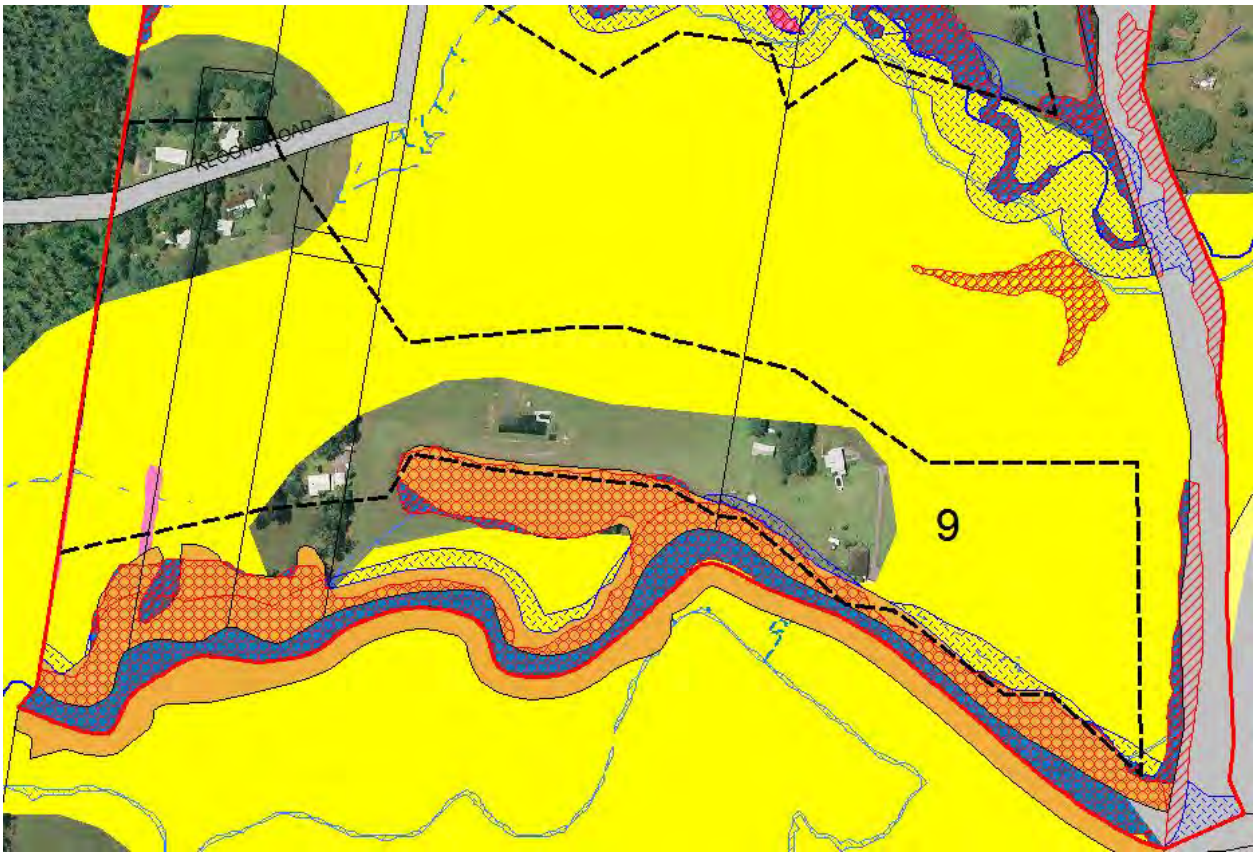


Illustration 5.14 **Candidate Area 9(CA9) Constraints**



LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

HIGH CONSERVATION LANDS

ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zoned Land

Regionally Significant Farmland

Illustration 5.15 **Candidate Area 9 (CA9) Proposed E2 and R5 Zone extents**

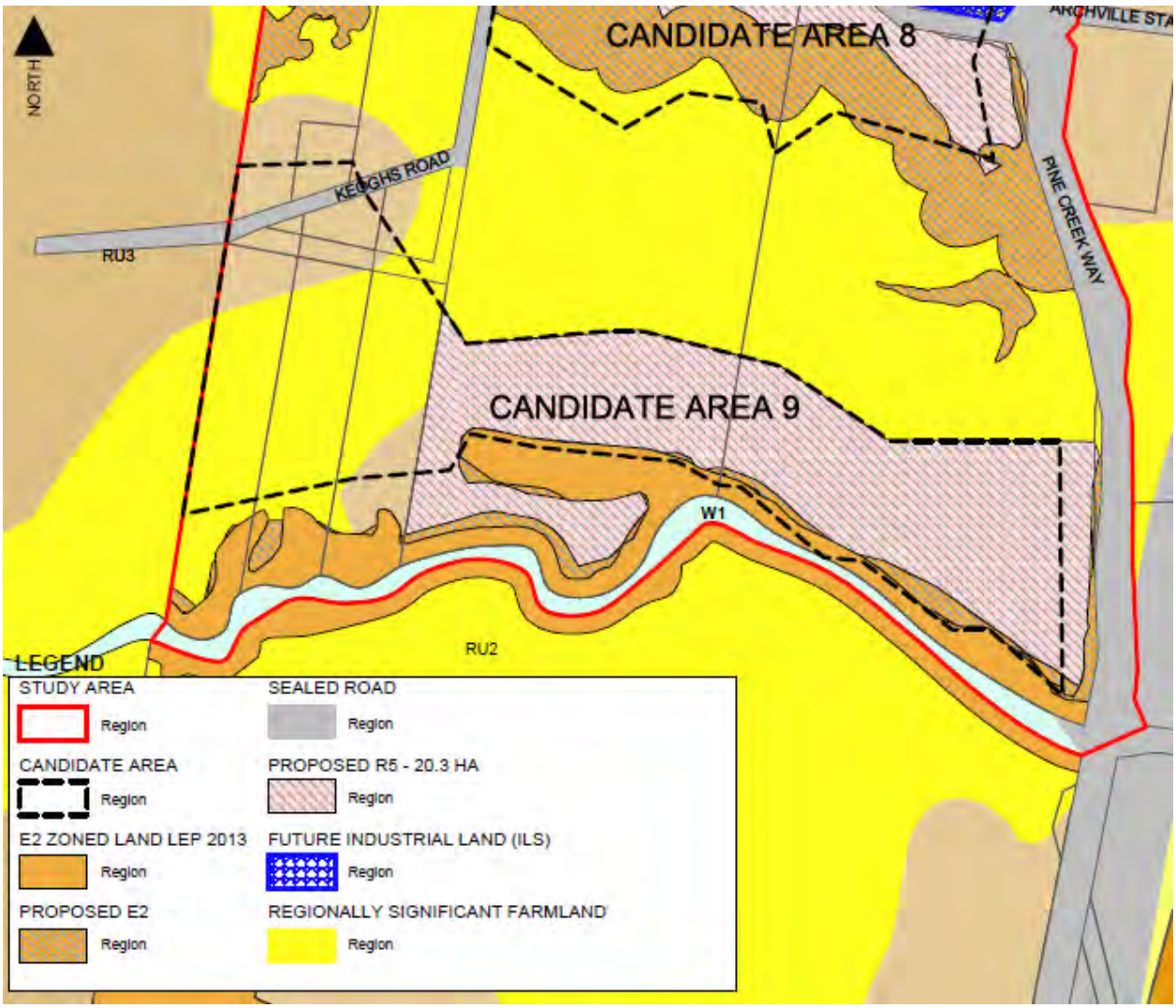
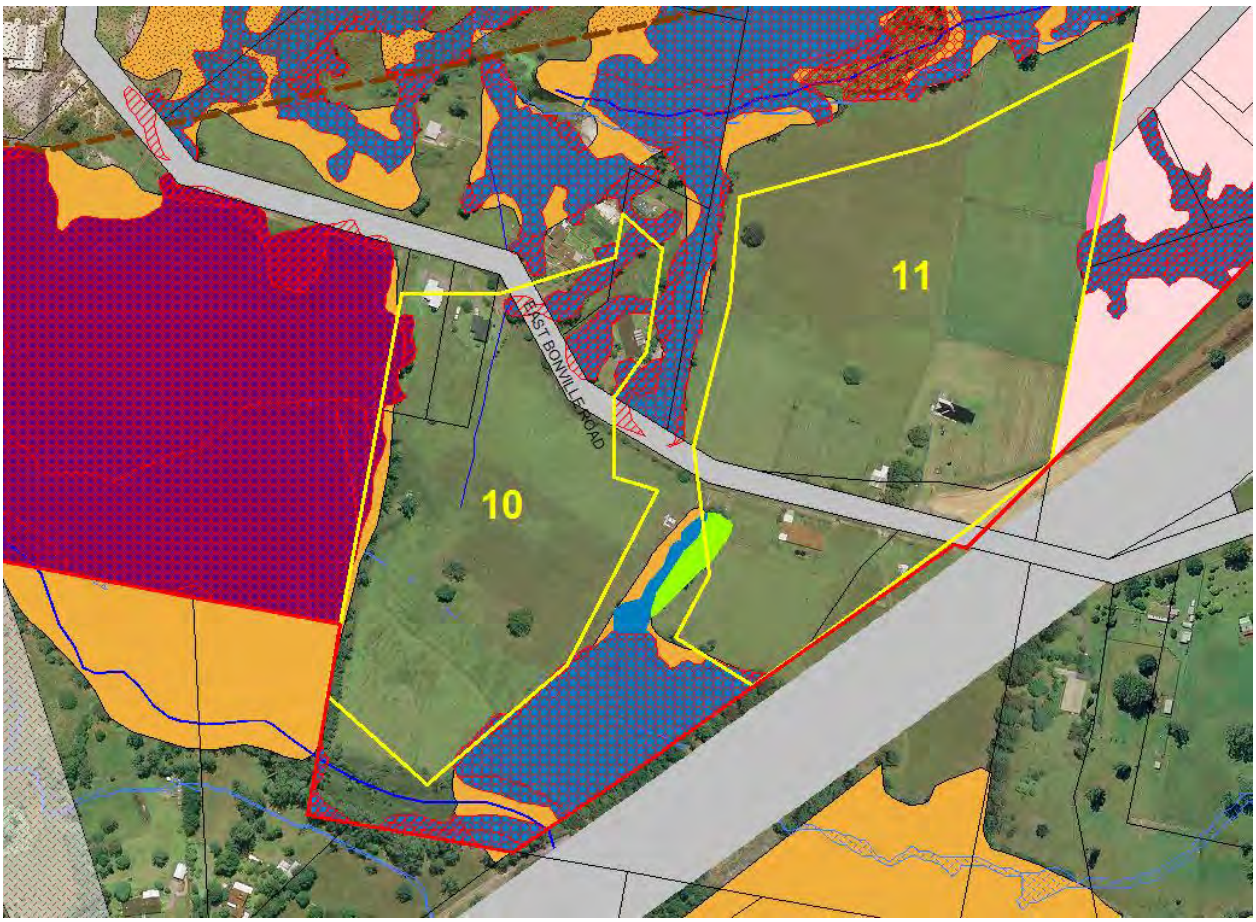


Illustration 5.16 Candidate Areas 10 & 11 (CA 10 & 11) Constraints



LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

HIGH CONSERVATION LANDS

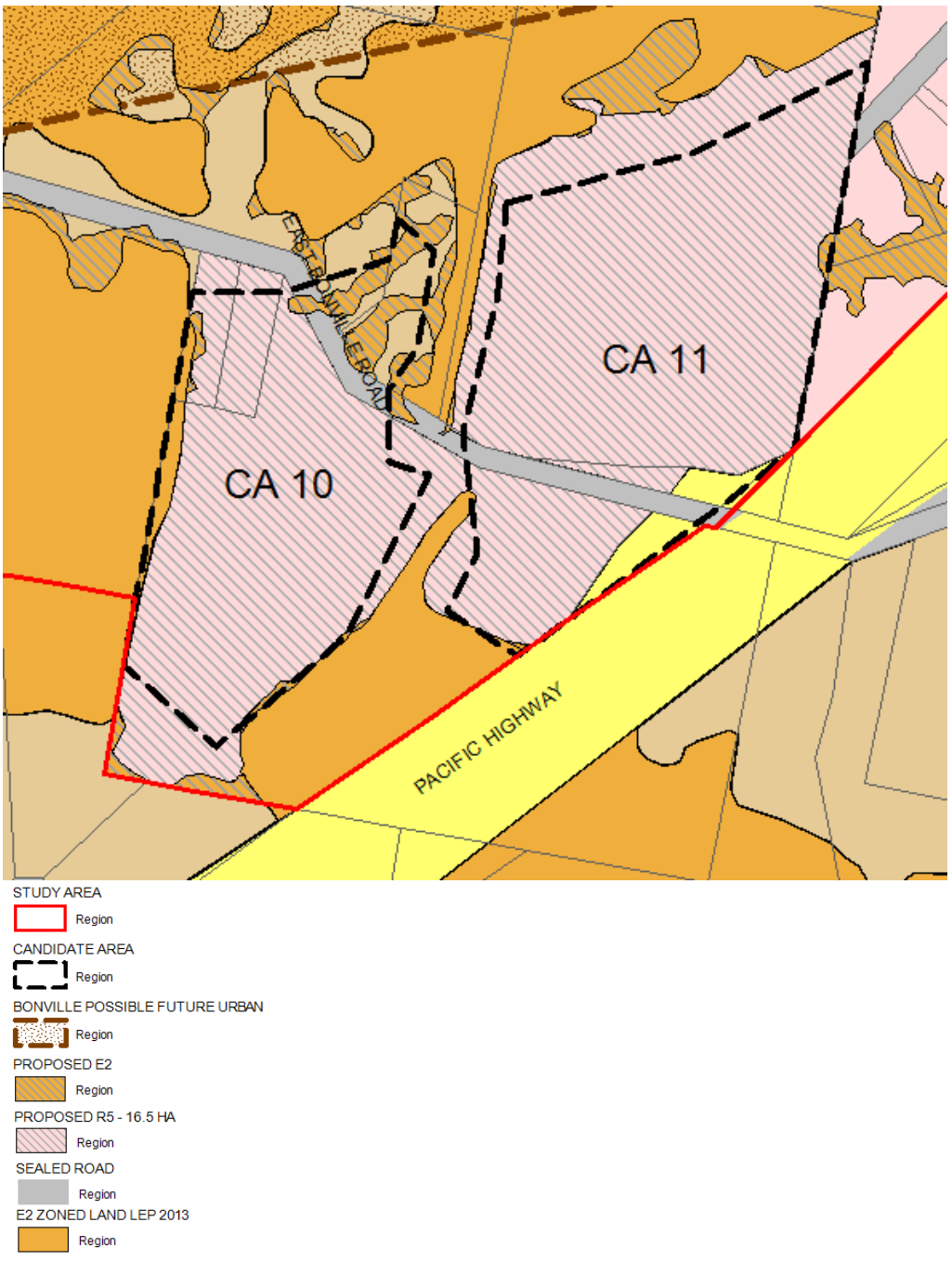
ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zone LEP 2013

Existing R5 Zone LEP 2013

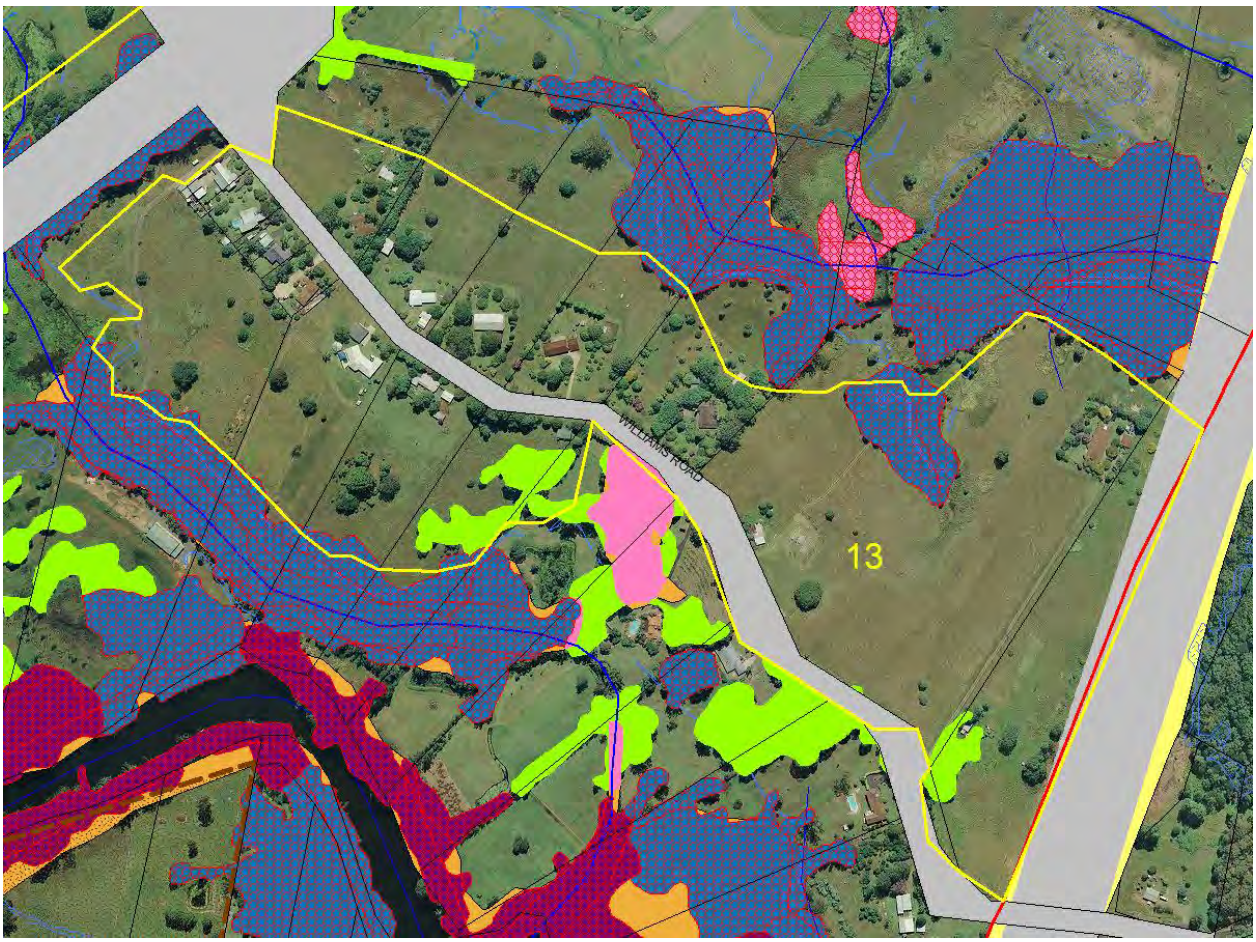
Illustration 5.17 Candidate Areas 10 and 11 Proposed E2 and R5 Zone extents



Note: Candidate Area 12 is located within land identified as the Bonville Possible Urban Investigation Area and will not be rezoned for rural residential purposes.

There are no maps for CA 12.

Illustration 5.18 Candidate Area 13(CA 13) Constraints



LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

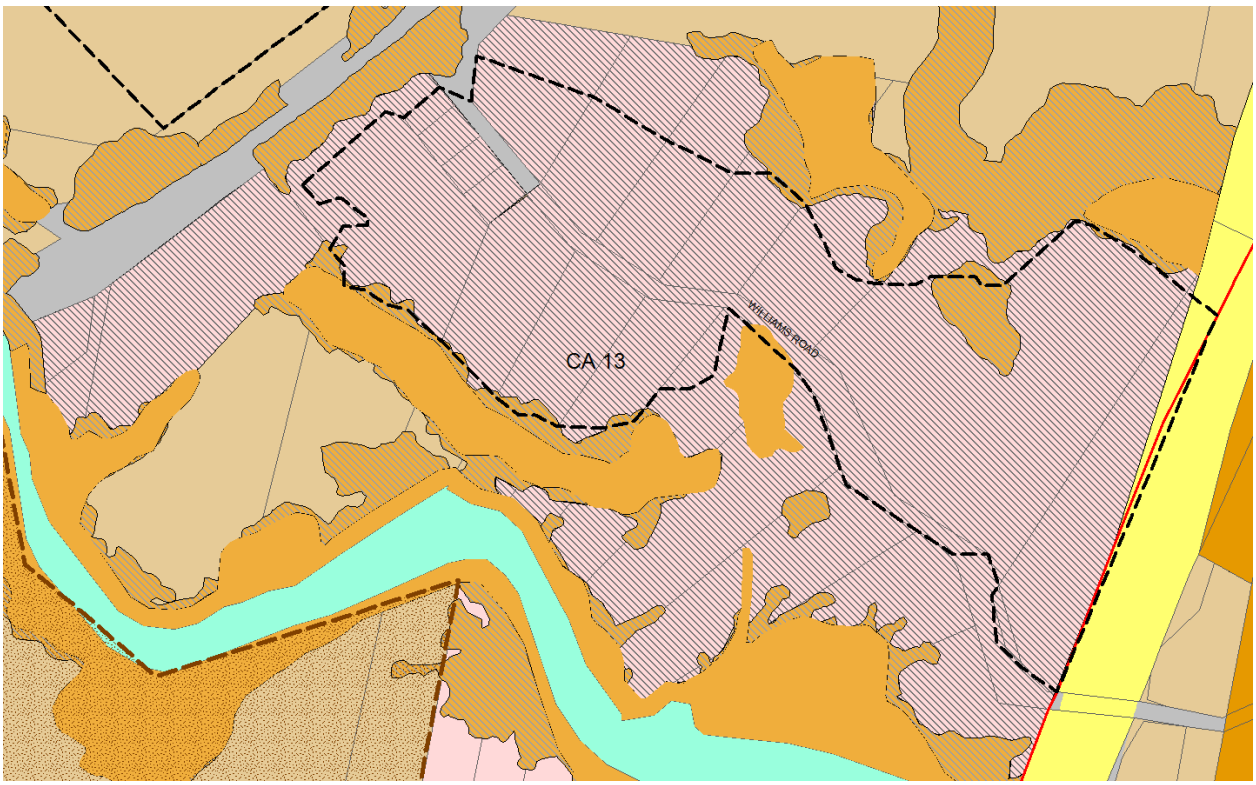
HIGH CONSERVATION LANDS

ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zone LEP 2013

Illustration 5.19 Candidate Area 13 Proposed E2 and R5 Zone extents



CANDIDATE AREA
Region

STUDY AREA
Region

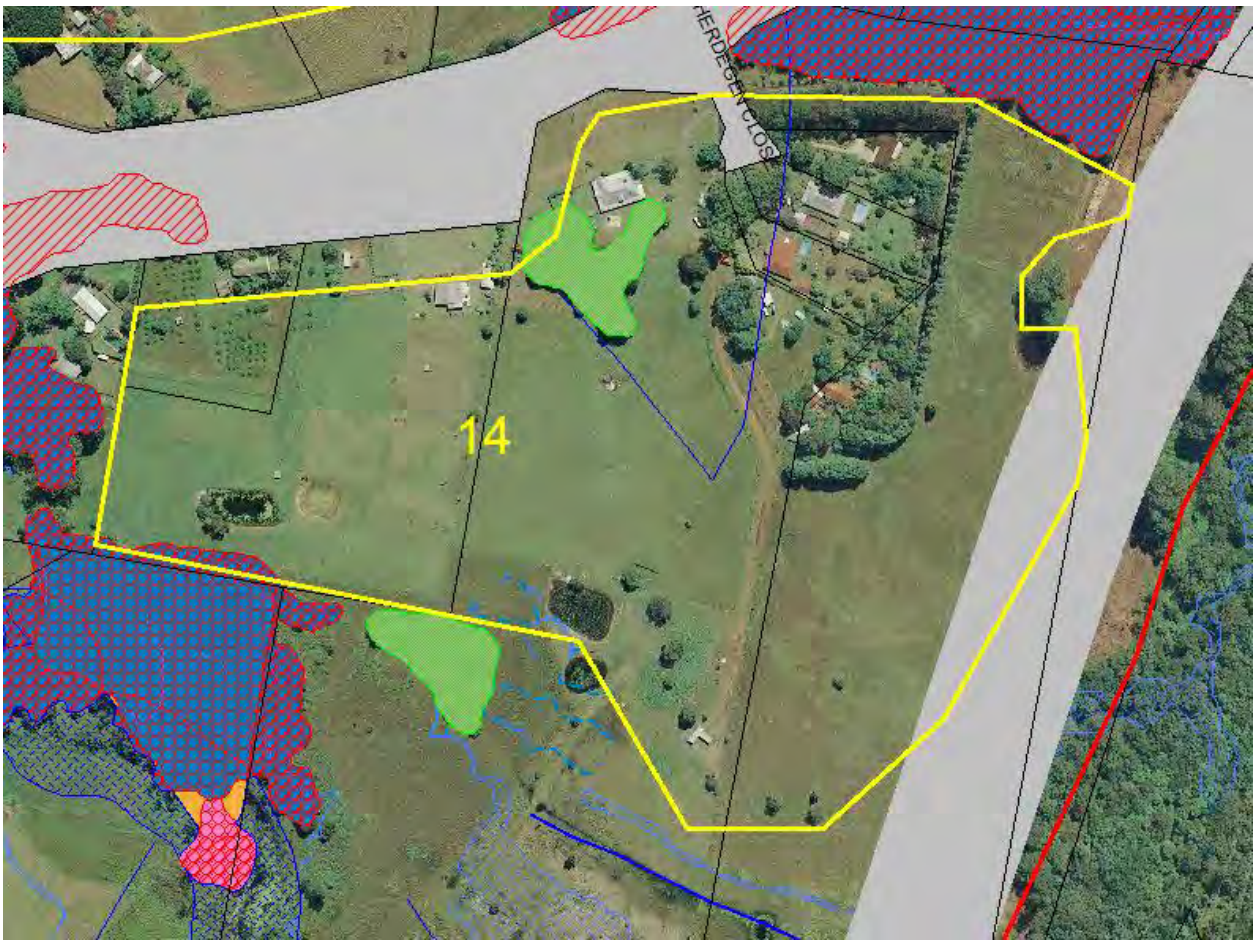
BONVILLE POSSIBLE FUTURE URBAN AREA
Region

PROPOSED E2
Region

PROPOSED R5 - 46 HA
Region

Existing R5 Zone LEP 2013

Illustration 5.20 Candidate Area 14 (CA 14) Constraints



LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

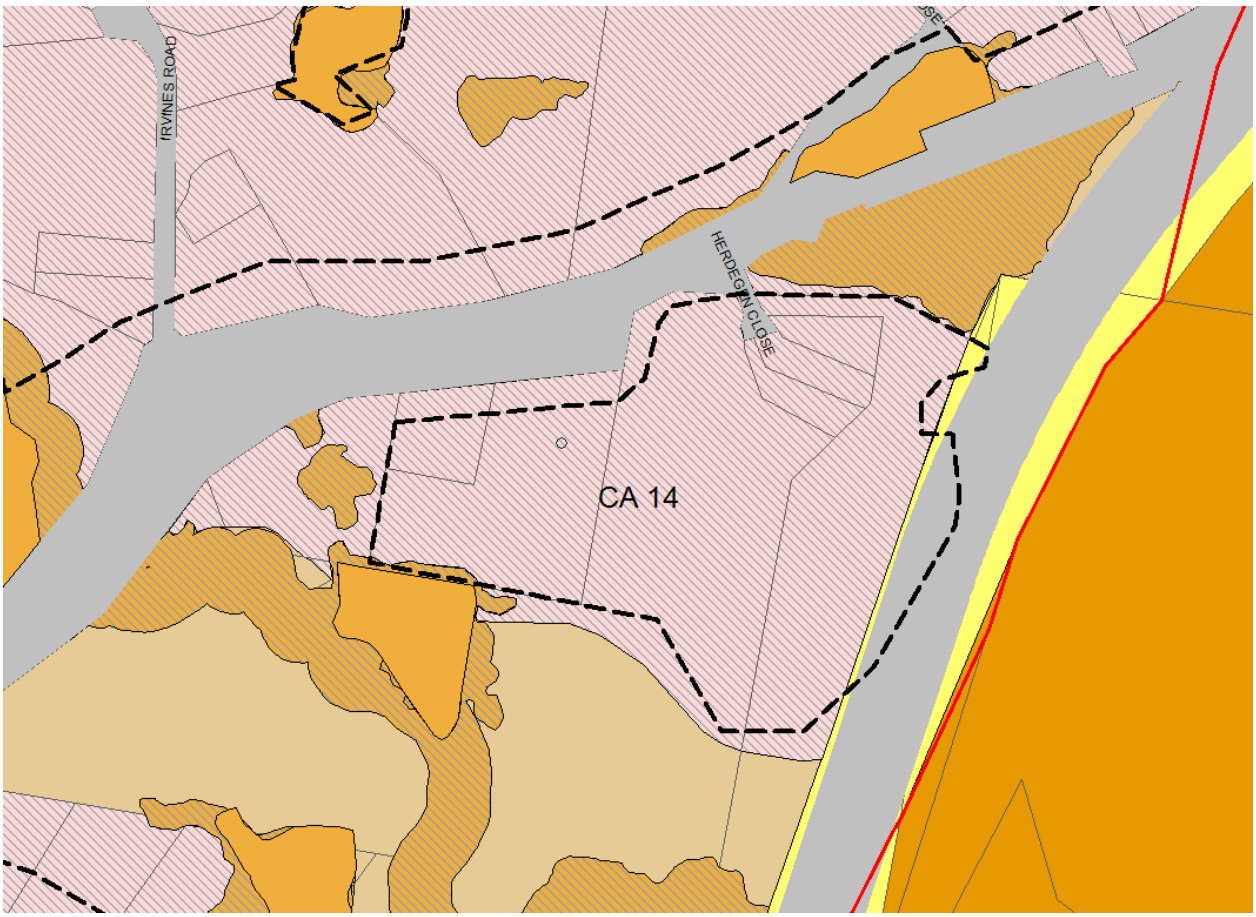
HIGH CONSERVATION LANDS

ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zone LEP 2013

Illustration 5.21 Candidate Area 14 Proposed E2 and R5 Zone extents



STUDY AREA
Region
CANDIDATE AREA
Region
PROPOSED R5 - 17.5 HA
Region
PROPOSED E2
Region
REGIONALLY SIGNIFICANT FARMLAND
Region
SEALED ROAD
Region
E2 ZONED LAND LEP 2013
Region
RU2 ZONED LAND LEP 2013
Region

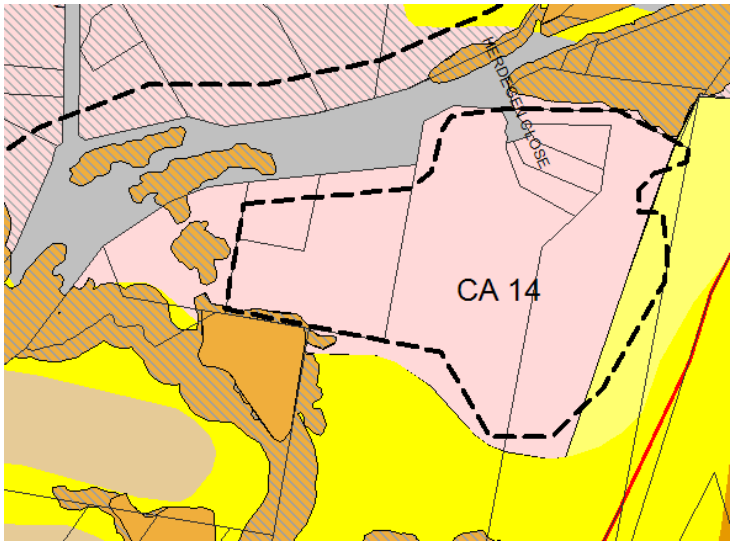
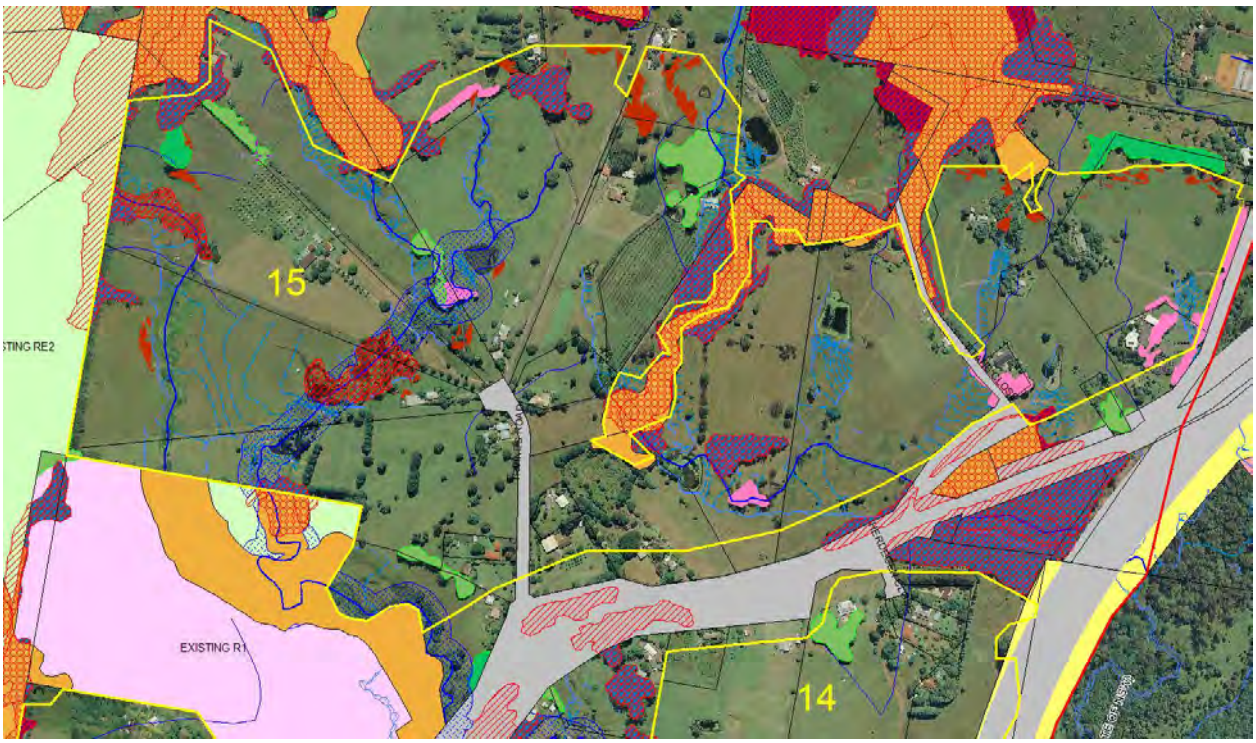


Illustration 5.22 Candidate Area 15 (CA 15) Constraints



LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

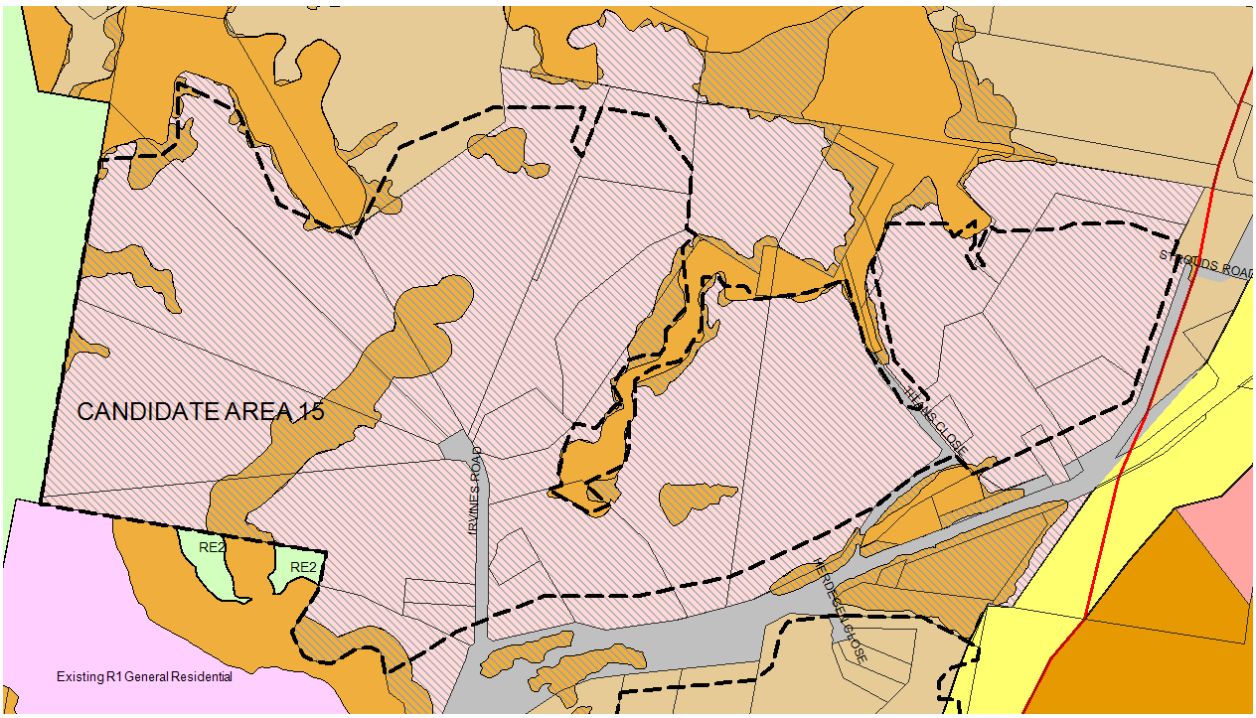
HIGH CONSERVATION LANDS

ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zone LEP 2013

Illustration 5.23 Candidate Area 15 Proposed E2 and R5 Zone extents



CANDIDATE AREA

E2 ZONED LAND LEP 2013

PROPOSED E2

PROPOSED R5 - 103.7 HA

SEALED ROAD

R5_ZONED_LAND_LEP_2013

RE2_ZONED_LAND_LEP_2013

RU2_ZONED_LAND_LEP_2013

Illustration 5.24 **Candidate Area 16 (CA 16) Constraints**

LEGEND

CANDIDATE AREA

STUDY AREA

REMNANT VEG AND/OR CORRIDOR

VEGETATION CONDITION
POOR

VEGETATION CONDITION
GOOD

VEGETATION CONDITION
MODERATE

RIPARIAN BUFFER

Creek

1:100 YEAR FLOOD CONTOURS

1:100 YEAR FLOOD EXTENTS

POSSIBLE FUTURE URBAN INVESTIGATION AREA

> 30% SLOPE

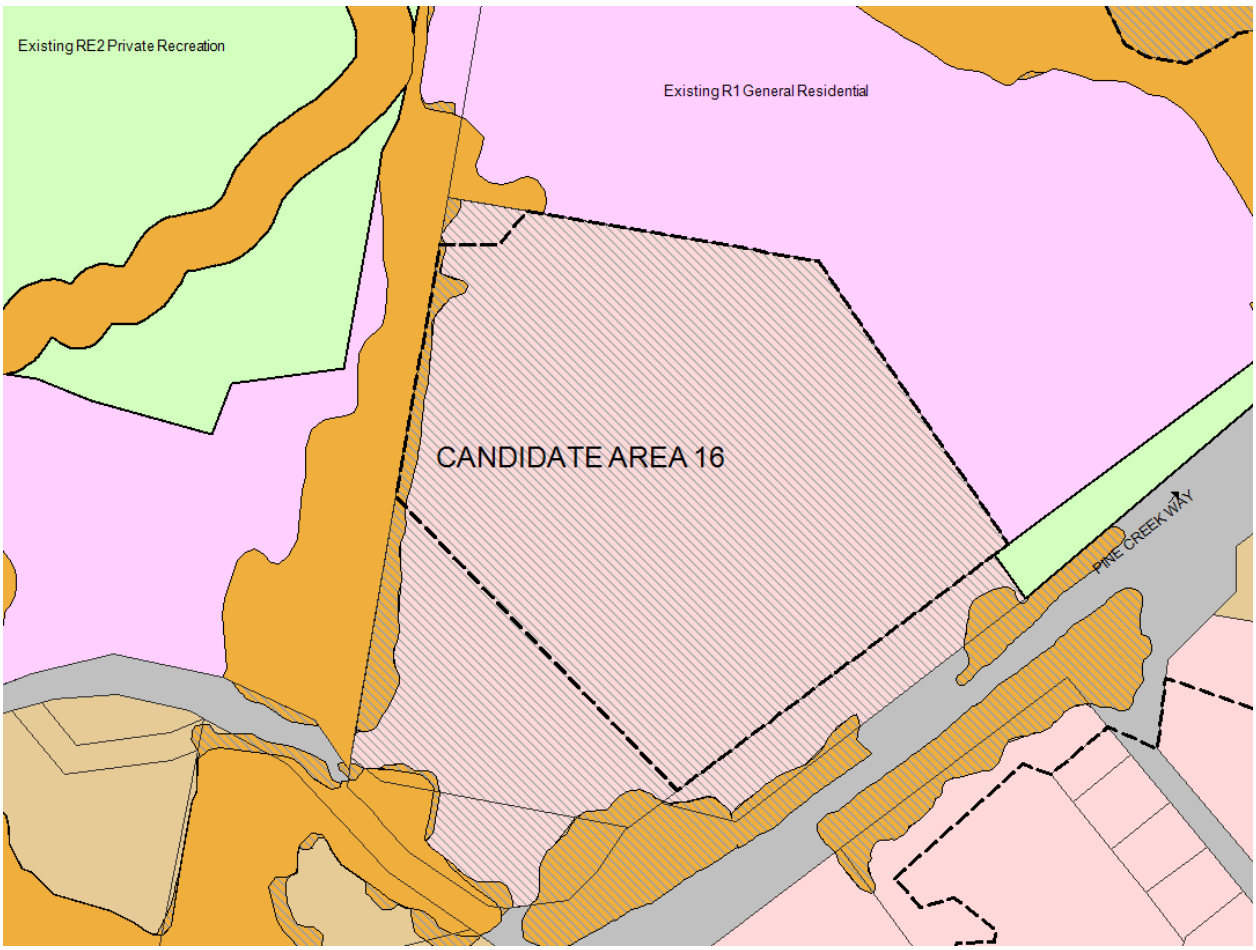
HIGH CONSERVATION LANDS

ROADS
SEALED

ROADS
UNSEALED

Existing E2 Zone LEP 2013

Illustration 5.25 Candidate Area 16 Proposed E2 and R5 Zone extents



CANDIDATE AREA

E2 ZONED LAND LEP 2013

PROPOSED E2

PROPOSED R5 - 14.4 HA

SEALED ROAD

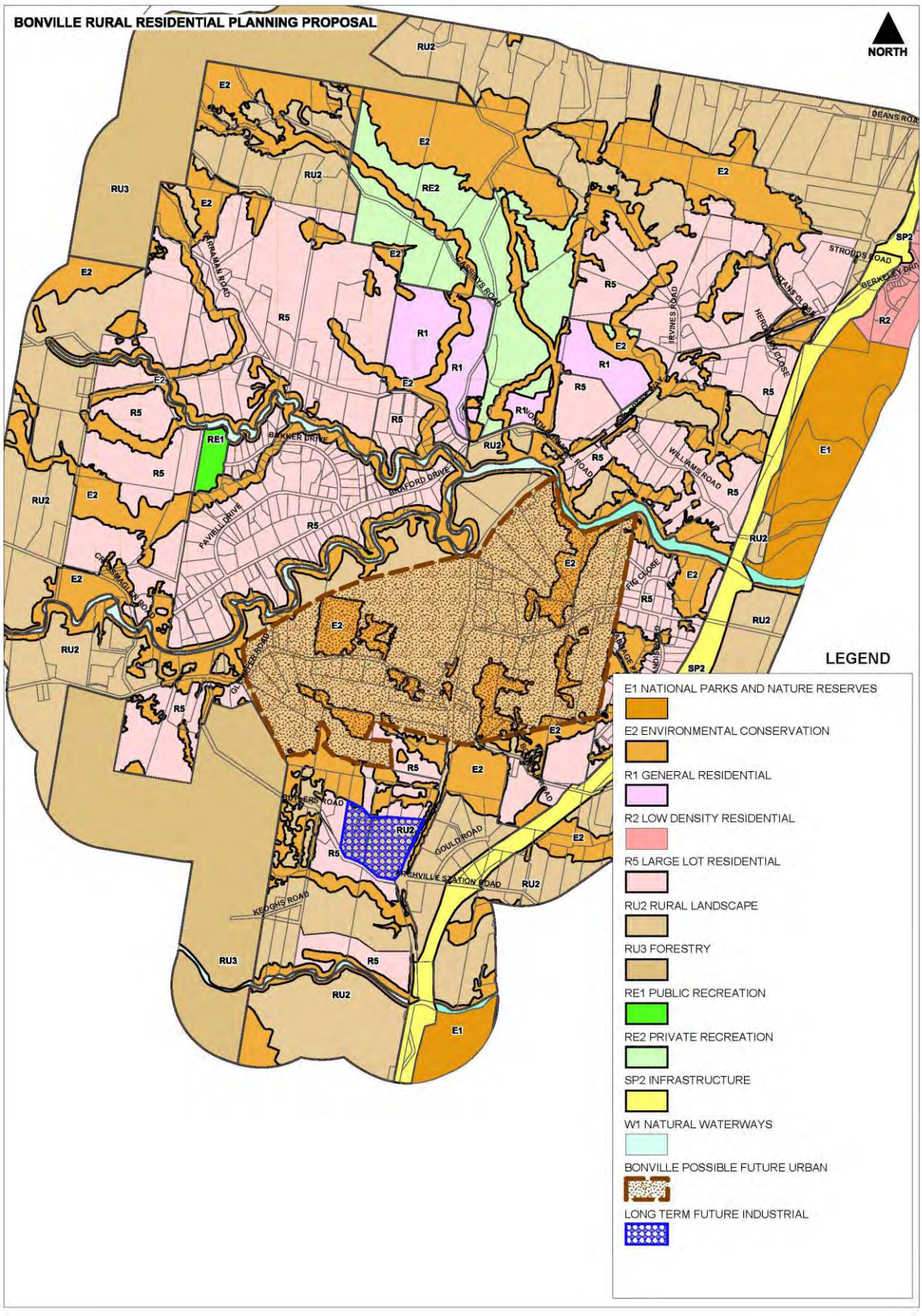
R5_ZONED_LAND_LEP_2013

RE2_ZONED_LAND_LEP_2013

RU2_ZONED_LAND_LEP_2013

R1_ZONED_LAND_LEP_2013

Illustration 5.26 Combined Proposed Rezoning Map



5.5.Statutory Planning Considerations

Coffs Harbour Local Environmental Plan 2013 (CHLEP 2013)

The CHLEP 2013 came into force on 27 September 2013 and is the current local planning instrument for the site. The study area comprises a range of zones. The subject planning proposal seeks to rezone 499 ha of RU2 zoned land to R5 Large Lot Residential and 254 ha of mixed zoned land to E2 Environmental Conservation.

Development within the study area for rural residential development within the RU2 or E2 zones is not consistent with these objectives nor is it permissible under the provisions of CHLEP 2013. Accordingly suitable land within the study area requires rezoning to enable it to be developed for rural residential purposes. The purpose of this Planning Proposal is to assess the impacts of rezoning the land based on the site assessments carried out to inform this Planning Proposal.

Coffs Harbour City Koala Plan of Management (Clause 7.8 of CHLEP 2013)

The Coffs Harbour Koala Plan of Management (CKPoM) was prepared in accordance with State Environmental Planning Policy No. 44 - Koala Habitat Protection. It was prepared as a joint initiative by the NSW National Parks and Wildlife Service and Coffs Harbour City Council. The plan aims to identify and provide management strategies for the community of koalas present in the Coffs Harbour LGA. Clause 7.8 of the LEP refers to the CKPoM.

The study area contains both Primary and Secondary Koala Habitat under the CKPoM. There is, however, a need to revise the Koala habitat mapping as it was based on aerial photography that is more than 15 years old. The CKPoM (Lunney et. al., 1999) was constructed from LGA-wide vegetation mapping program performed by Fisher, Body and Gill from aerial photography flown in 1996. The CKPoM utilised this vegetation mapping and Koala population survey information to delineate a three-tiered habitat model. The underlining vegetation mapping has been revised for this Planning Proposal which has implications for Koala habitat emphasis and interpretation. This concept is discussed in detail in section 4 of the Ecological Assessment (**Appendix A**) and summarised below.

The vegetation mapping shows large areas of primary Koala habitat which supports communities dominated by Camphor Laurel. This indicates a potential over-emphasis of functional Koala habitat extent in the study area in the CKPoM mapping.
Koala activity was confirmed from several locations within the study area, including:

- Pine Creek Way – Titans Close Koala crossing;
- Private property adjacent to BIG club lands;
- Private property in the Crossmaglen Road – Burgess Creek area;
- Reedy Creek; and
- Pine Creek drainage lines.

The Bonville Pacific Highway bypass has reduced traffic flow along the old permeable highway (now Pine Creek Way) with possible longer-term benefits to fauna. Additionally wildlife exclusion fencing and fauna over and underpasses assist in separating vehicle and wildlife interaction along the Bonville Pacific Highway upgrade route.

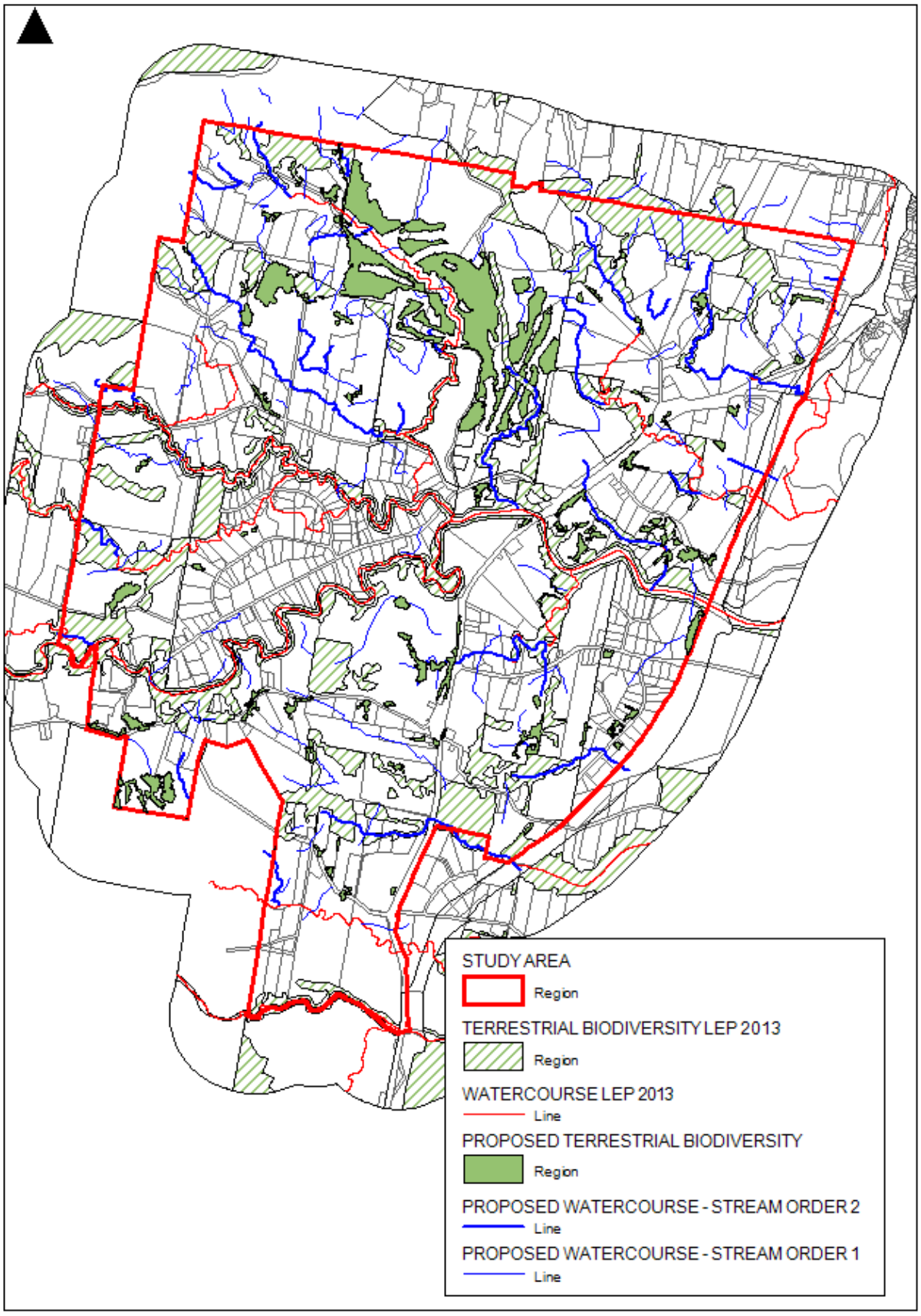
Increased residential development throughout the study area is expected as a result of the proposed rezoning for large lot residential purposes as well as the future residential development within the BIG club lands.

The Planning Proposal includes the rezoning of an additional 254 ha of E2 zoned land and the preparation of biodiversity overlay mapping identifying remnant vegetation and/or corridor linkages as 'terrestrial biodiversity' and stream order 3 and above as 'watercourse'. Development of land identified on the biodiversity overlay mapping triggers consideration of Clauses 7.4 and 7.6 of the LEP and aims to maintain terrestrial biodiversity by:

(a) protecting native fauna and flora, and
(b) protecting the ecological processes necessary for their continued existence, and
(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

The draft biodiversity overlay mapping is shown at Illustration 5.28. Additional controls for the protection of Koalas and their habitat are found in Component B7 'Biodiversity Requirements' of the Coffs Harbour DCP 2013.

Illustration 5.27 Biodiversity Overlay.



Development Control Plans

The following components of the Coffs Harbour Development Control Plan (DCP) 2013 apply to development within the Bonville rural residential area:

Component A1:	Administration
Component A2:	Notification and Public Participation
Component B1:	Subdivision Requirements
Component B2	Residential Development Requirements
Component B5:	Rural Development Requirements
Component B6:	Post European Heritage Requirements
Component B7:	Biodiversity Requirements
Component C1:	Design Requirements
Component C2:	Access, Parking and Servicing Requirements
Component C3:	Landscaping Requirements
Component C4:	Signage Requirements
Component C6:	Minor Earthworks Requirements
Component C7:	Waste Management Requirements
Component C8:	Integrated (Natural) Water Cycle Management
Component D1:	Erosion and Sediment Control Requirements
Component D2:	Contaminated Land Management
Component D3:	Flooding and Coastal Hazards

The controls provided within the Coffs Harbour DCP 2013 will appropriately guide future development within the proposed R5 Large Lot Residential Areas identified in this study. It is recommended that Council amend the wording of Control C2.1(d) 'Access Arrangements for Large Lot Residential Areas' of Component C2 of the DCP to exclude the word "Korora". The access controls should apply equally to all R5 zoned land in the LGA including the Bonville Rural Residential Release Area.

6. OBJECTIVES AND INTENDED OUTCOMES

The objectives of the subject Planning Proposal for the Bonville rural residential area are to inform an amendment to the Coffs Harbour Local Environmental Plan (CHLEP) 2013.

This Planning Proposal will amend the current LEP to enable development within the Study Area that will:

- Amend the extent of existing environmental protection zoned land to improve habitat corridor/linkages and conserve important vegetation;
- Include minor drainage buffers and remnant vegetation and/or corridor linkages in a terrestrial biodiversity and watercourse overlay; and
- Rezone land from RU2 Rural Landscape to R5 Large Lot Residential;

The draft DCP 2013 (Component E16) Bonville Rural Residential Area provides additional controls that will guide the development of an environmentally sustainable 'rural lifestyle' lots with strong links to its landscape features.

This study has focussed on the broad Candidate Areas for rural residential development, however, environmental assessments have also considered adjoining and surrounding land.

This study has assessed the general suitability of land for rezoning for rural residential purposes under an R5 zone with a 1 ha minimum lot size. The study has also assessed the ecological value of the land and made recommendations regarding a suitable environmental zone and the use of biodiversity overlay mapping. In addition Regionally Significant Farmland has been excluded from R5 except where it was contained in the candidate areas under the existing Rural Residential Strategy.

Considering the way in which the E2 zone has been applied to the Coffs Harbour LGA, the E2 zone is a suitable zone for the areas identified as EEC or as having vegetation significant, high value and extent as well as 3rd order stream riparian buffers. Remnant vegetation and corridors as well as 1st and 2nd order streams are to be identified on the LEP 'Terrestrial Biodiversity Map, Drinking Water Catchment Map, Riparian Lands and Watercourses (overlay) Map'

7. EXPLANATION OF THE PROVISIONS

The subject site-specific Planning Proposal and subsequent draft LEP amendment will amend the Coffs Harbour LEP 2013 under a separate LEP amendment or series of amendments.

This section sets out the proposed draft LEP amendment controls.

7.1. LEP Provisions and Maps

The Bonville Rural Residential Planning Proposal will involve amendments to the follow map sheets in the Coffs Harbour LEP 2013:

- Land Zoning Map – Sheet LZN_006
- Land Zoning Map – Sheet LZN_006B
- Land Zoning Map – Sheet LZN_006C
- Lot Size Map – Sheet LSZ_006
- Lot Size Map – Sheet LSZ_006B
- Lot Size Map – Sheet LSZ_006C
- Terrestrial Biodiversity Map; Drinking Water Catchment Map; Riparian Lands and Watercourses Map – CL2_006
- Terrestrial Biodiversity Map; Drinking Water Catchment Map; Riparian Lands and Watercourses Map – CL2_006B
- Terrestrial Biodiversity Map; Drinking Water Catchment Map; Riparian Lands and Watercourses Map – CL2_006C

The Planning Proposal will not result in any amendments to the LEP instrument.

8. JUSTIFICATION

The section of the Planning Proposal sets out the justification for changing the zones of the land affected by the proposed LEP.

As discussed in Part 3 *Background,* this Planning Proposal provides the specific detailed environmental studies necessary to progress the strategic land use recommendations of the Rural Residential Strategy 2009 for the rural residential candidate areas into a draft LEP.

The Rural Residential Strategy (RRS) was publicly exhibited and was presented to Council for adoption on three separate occasions. Council finally resolved to adopt the RRS on 26 November 2009. The Department of Planning (now Department of Planning and Infrastructure) endorsed the strategy on 3 May 2010.

The LEP amendments recommended in this Planning Proposal will be made under the 'gateway determination' plan making provisions.

8.1. Need for a Planning Proposal

This section describes the reasons for the Planning Proposal (PP). The following questions are set out in the Department of Planning's *A Guide to Preparing Planning Proposals* and address the need for the PP, its strategic planning context, the environmental, social and economic impacts and the implications for State and Commonwealth government agencies.

Is the Planning Proposal a result of any strategic study or report?

This PP was initiated by resolution of Council on 26 November 2009 following the adoption of the Coffs Harbour RRS. The RRS was publicly exhibited from 11 December 2008 to 27 February 2009 with 82 submissions received. The Department of Planning endorsed the strategy on 3 May 2010.

Not all of the submissions to the RRS relate to the Bonville area. The issues raised in submissions were addressed prior to the adoption of the RRS. Matters raised in submissions that are relevant to this PP include:

- *Suggest a 6,000 m² minimum lot size.*
  Land capability investigations for the wastewater assessment found that the area could sustain one aerated on-site wastewater system per 4,000 m². At this stage, the minimum lot size (MLS) for R5 zoned land is 1 ha. Council may consider re-assessing the MLS in a separate process, particularly for R5 zoned land adjacent to the Bonville future urban area as a means of increasing residential densities to support the Bonville urban area and infrastructure extensions.

- *Constraints need to be ground-truthed*
  Environmental investigations carried out for this PP and the Class 5 Vegetation Mapping ground truthed a large percentage of the key ecological constraints.

- *Conflict between rural residential and agricultural practices.*
  The candidate areas are located within fragmented farmland that is predominantly used for rural living purposes. Cattle grazing, rural small holdings and small-scale horticulture will continue in and around the CAs, and will be protected from land use conflicts by the application of the recommended buffers in the DPI resource, Living and Working in Rural Areas.

There were many other matters raised in submissions to the RRS that were considered prior to the endorsement of the final strategy. The final recommendations put to Council included:

- *A LES is to be prepared for the Bonville short term release areas*
- *Areas deemed suitable for rural residential housing be zoned R5 Large Lot Residential under future Coffs Harbour LEPs*
- *Any areas within the candidate areas with significant environmental constraints should be protected by relevant environmental protection zones under future LEPs.*

The subject PP has been prepared in response to these recommendations.

A further two separate submissions were made to this Planning Proposal concerning specific parcels of land. These submissions were considered as follows:

Lot 127 DP 755536 (now Lot 92 DP 1063289) – 162 North Bonville Road

This land is located within the recommended expanded boundary of Candidate Area 2 and will be rezoned R5 and E2 using the same criteria adopted for all other land in the candidate areas.

Lot 202 DP 842149 – 16 Forest Oak Drive

This land is not located in a Candidate Area and is within the Bonville Possible Future Urban area – see image below. Whilst this land is relatively unconstrained and adjoins an existing rural residential area, it cannot be considered for rezoning under this Planning Proposal as it is not within the scope of this study. This land can be reconsidered as part of considerations for the urban investigation area in the future.

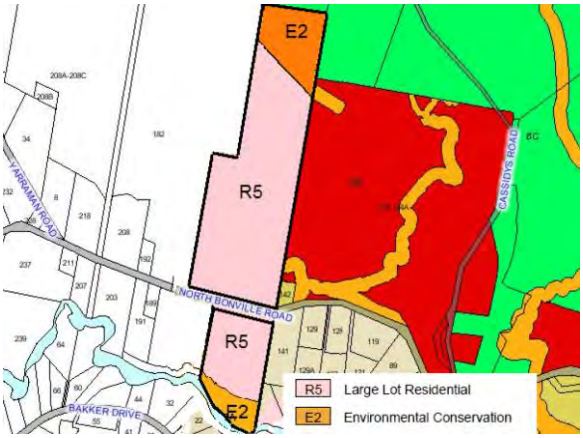
Refer to **Illustration 8.1** for a locality plan of the submission lands.

Overall, this Planning Proposal meets the requirements of the brief to progress the land use recommendations for the Bonville rural residential candidate areas of the Rural Residential Strategy 2009 into draft LEP amendments based on sound environmental assessment and consideration of relevant environmental planning instruments and plans.

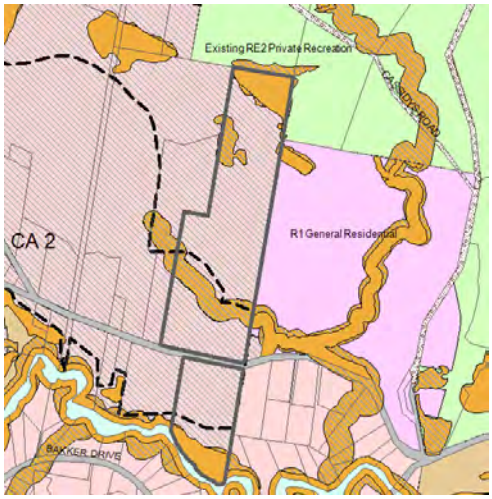
Illustration 8.1 Submissions

162 North Bonville Road

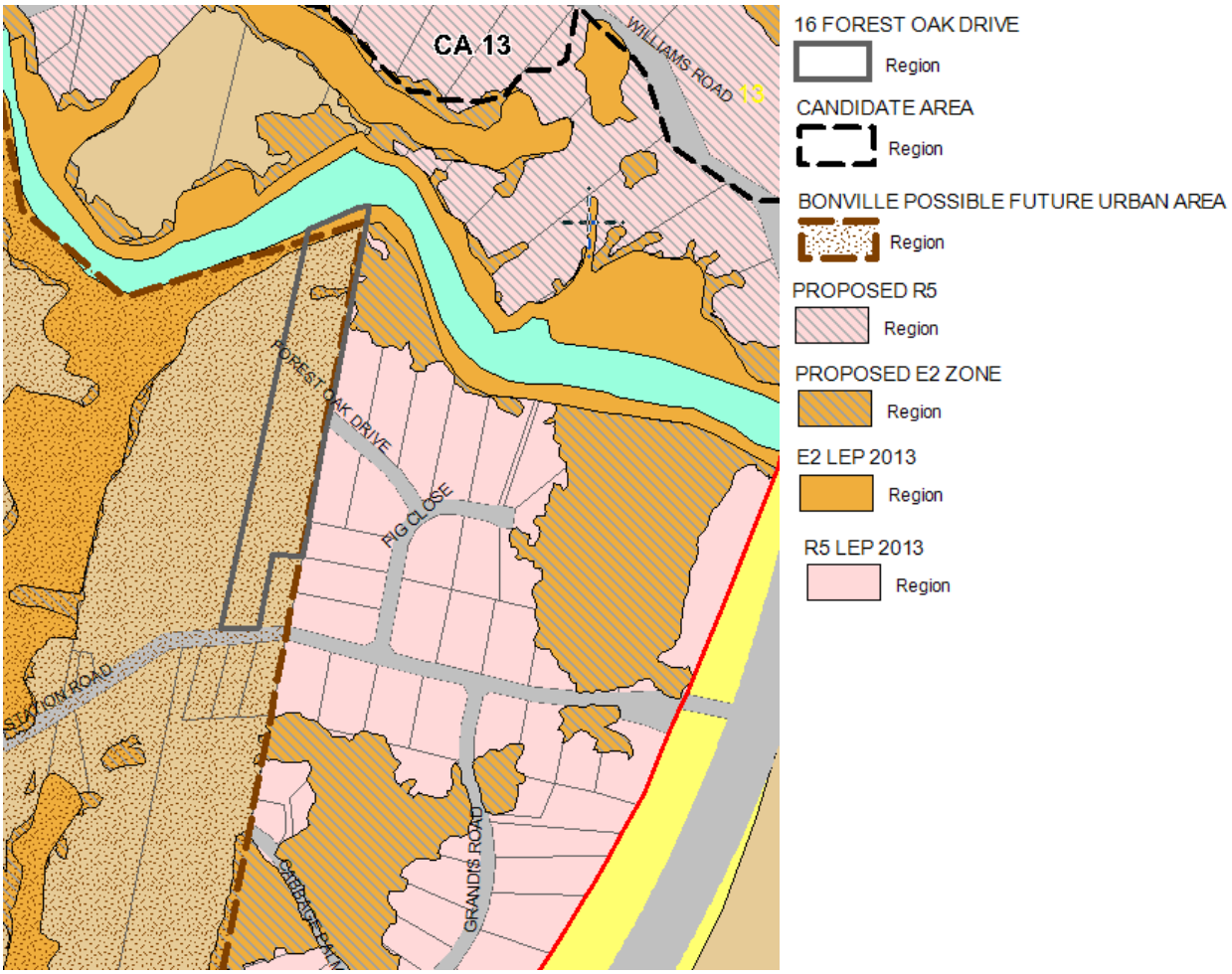
Submission – recommended zone amendment



Planning Proposal – recommended zone amendment



16 Forest Oak Drive



Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The Planning Proposal is the appropriate means of documenting the amendments to the Coffs Harbour LEP 2013 to enable rural residential development to proceed within the Bonville candidate areas. Land rezoned as a result of this Planning Proposal will deliver rural residential land resources in appropriate locations to support the future Bonville urban area and to meet demand for rural living lots. Growth cannot proceed in this Bonville area under its present land zonings.

Is there a net community benefit?

The Planning Proposal will deliver a net community benefit, inclusive of:

- Rezoning of 254 ha of additional environmental protection zoned land.
- Protection of additional terrestrial biodiversity value land and watercourses that will improve habitat corridors and linkages and further protect riparian land.
- Provision of land for rural residential housing that is well located in terms of highway access to Sawtell and Coffs Harbour and where there is a strong demand for rural lifestyle living opportunities.
- The Planning Proposal will make the best use of cleared former farm land that is fragmented below viable farm sizes.
- Over time, the land release areas will provide housing for people that will support the Bonville future urban area and the existing public school.
- Costs for road upgrading and strategic planning will be met by the developers through the provisions of a Developer Contributions Plans and will not be a burden on public resources.

9. RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK

The Department of planning has a strategic planning framework relating to the preparation of Planning Proposals

This section details how this framework has been complied with.

9.1. Regional or Sub-Regional Strategies

Is the planning proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy?

NSW State Plan

The NSW Government has prepared a State Plan for a new direction for NSW. The purpose of the State Plan is to deliver better results for the NSW community from government services. The State Plan focuses on five areas of activity of the NSW government:

- rights, respect and responsibility – the justice system and services to promote community involvement and citizenship;
- delivering better services – key services to the whole population including health, education and transport;
- fairness and opportunity – services that promote social justice and reduce disadvantage;
- growing prosperity across NSW – activities that promote productivity and economic growth, particularly in rural and regional NSW; and
- environment for living, planning for housing and jobs, environmental protection, arts and recreation.

There are a number of goals within the State Plan that are generally relevant to this Planning Proposal and to future development and conservation of the site. A priority of the plan is to improve urban environments through improving housing ability by ensuring a supply of land and a mix of housing that's meets demand.

The Planning Proposal will result in the protection of an additional 254 ha of high ecological value land under the E2 Environmental Conservation zone whilst providing an additional 499 ha of large lot residential land that will contribute to the range of rural lifestyle living opportunities in the Coffs Harbour area.

Mid North Coast Regional Strategy 2009

The primary purpose of the Regional Strategy is to ensure that adequate land is available and appropriately located to accommodate the projected housing and employment needs of the Region's population over the next 25 years.

The Strategy sets the policy to govern where and how growth can occur. While it is clear that expected growth can be accommodated in the Region, the Strategy places limits on growth in some areas where the value of environmental/cultural assets and natural resources is high.

The draft strategy outlines a range of actions that will guide strategic planning decisions. Relevant aims of the Strategy to the Bonville rural residential release area are:

- *protect high value environments, including significant coastal lakes, estuaries, aquifers, threatened species, vegetation communities and habitat corridors by ensuring that new urban development avoids these important areas and their catchments;*

  The proposed rezoning will result in the protection of an additional 254 ha of high ecological value land under the E2 Environmental Conservation zone and the identification of terrestrial biodiversity and watercourse lands within an 'overlay' map. Land identified as having terrestrial biodiversity and/or watercourse values is afforded additional protection under Clauses 7.4 and 7.6 of the CHLEP 2013.

- *cater for a housing demand of up to 59,600 new dwellings by 2031 to accommodate the forecast population increase of 94,000 and any anticipated growth beyond this figure arising from increased development pressures in the southern part of the Region;*

  The proposed rezoning will result in an additional 499 ha of land available for large lot residential development.

- *ensure that new housing meets the needs of smaller households and an ageing population by encouraging a shift in dwelling mix and type so that 60 % of new housing will be in greenfield locations and 40 % in existing urban areas;*

  Families and rural 'life-stylers' are the groups that tend to dominate large lot residential areas. Providing rural residential living opportunities in planned and appropriate areas reduces development pressure on other areas within the urban peripheries for ad-hoc rural residential development. Unplanned ad-hoc rural residential development reduces opportunities for higher density development of urban growth areas.

- *ensure an adequate supply of land exists to support economic growth and the capacity for an additional 48,500 jobs in the Region by protecting existing commercial and employment areas and securing sufficient land to support new employment opportunities;*

  The proposed rezoning excludes a 16 ha area of land located within CA 8 identified in the Industrial Lands Strategy as a future industrial investigation area.

- *encourage the growth and redevelopment of the Region's four major regional centres and six major towns through urban design and renewal strategies as a means of protecting sensitive coastal and natural environments and strengthening the economic and administrative functions of these centres as well as meeting increased housing density targets;*

  The proposed rezoning supports the growth and redevelopment of Coffs Harbour.

- *limit development in places constrained by coastal processes, flooding, wetlands, important farmland and landscapes of high scenic and conservation value;*

As stated earlier, the proposal will result in the protection of an addition 254 ha of land under the E2 Environmental Conservation zone and additional land under the clauses relevant to the Terrestrial Biodiversity and Watercourses overlay.

- *protect the cultural and Aboriginal heritage values and visual character of rural and coastal towns and villages and surrounding landscapes; and*

  An Aboriginal and European Cultural assessment and a Visual Assessment were carried out within the study area to inform the Planning Proposal. The assessments found that '*it is unlikely that Aboriginal use of the study area- being 'away from the littoral'- was either intensive or likely to be represented through archaeological evidence*'.

  A range of Visual Enhancement Strategies to protect the unique visual values of the Bonville area are included in Appendix E of this study.

- *where development or rezoning increases the need for State infrastructure, the Minister for Planning may require a contribution to the infrastructure having regard to the NSW Government State Infrastructure Strategy and equity considerations.*

  The Planning Proposal does not increase the need for State infrastructure.

9.2. Local Growth Management Strategy

Is the planning proposal consistent with the local council's Community Strategic Plan, or other local strategic plan?

Local Growth Management Strategy for Coffs Harbour City to 2031

Our Living City Settlement Strategy 2008

The Our Living City Settlement Strategy (OLCSS) 2008 is the urban lands component of the Local Growth Management Strategy for Coffs Harbour City.

The OLCSS 2008 was endorsed by Council on 5 July 2007 pursuant to the requirements of the deemed State Environmental Planning Policy (SEPP) - North Coast Regional Environmental Plan. The OLCSS Interim 2008 supersedes the Coffs Harbour Urban Development Strategy 1996 and will guide future development within the Coffs Harbour LGA to 2031.

The OLCSS provides a framework for economically, environmentally and socially sustainable growth and expansion of the Coffs Harbour LGA until 2031. The OLCSS identifies that the LGA will experience considerable population growth by 2031. The strategy included the identification of rural residential candidate areas based on locations within 2 kilometres of village centres and recognized rural residential areas previously identified in a Rural Residential Strategy of 1999.
An extract from *Map 8 'Sawtell/Toormina/Boambee East/West Boambee/Bonville* is shown at Illustration 9.1.

The OLCSS is of relevance to the Bonville Study area in that it identifies land for future residential development surrounding an identified urban village centre at Bonville. While the area is only identified as Possible Future Urban Investigation with a potential for 2,187 dwellings it must be excluded from rural residential consideration until further investigations are completed at some future time and are beyond the scope of this current study.

In addition, The OLCSS identified two areas for investigation for residential purposes to the east and west of Bonville International Golf Club. These areas have subsequently been rezoned for residential use under the Coffs Harbour Local Environmental Plan 2013.

The Bonville Candidate Areas (CAs) were identified the OLCSS as 'Investigation Areas for Rural Residential Purposes' for medium term release (2011 – 2016). Priority Areas (1) 'Investigation Areas for Residential Purposes' have already been rezoned under a separate LEP amendment. The Bonville 'Possible Future Urban Investigation' area remains under its present rural and environmental protection zonings.

Illustration 9.1 Our Living City Settlement Strategy

Key Strategies of the OLCSS for Bonville are:

Develop as a Coastal Hinterland area.	Consistent.
Undertake environmental studies to determine appropriate zonings (environmental constraints) and action accordingly	Consistent. Planning Proposal meets these criteria.
Enhance riparian corridors to provide ecological links between coast and hinterland.	Riparian corridors have been zoned E2 or mapped as 'watercourse' on the biodiversity overlay map.
Maintain and enhance the rural residential character.	A range of Visual Enhancement Strategies are provided in Appendix E of this study. Council may consider preparing an information sheet to guide rural residential development.
Ensure development addresses impacts of Pacific Highway and Pacific Highway Strategy.	Component E13 of the Coffs Harbour DCP 2013 provides controls for development of land adjacent to the Pacific Highway.
Ensure new development areas have regard to topography, access and other environmental constraints.	Rezoning recommendation within and surrounding the Candidate Area boundaries have considered land constraints.
Recognise holiday, tourism and recreation appeal.	Bed and breakfast and Farmstay accommodation are permitted with consent in the R5 zone.
Prepare Place Management Plan.	As mentioned earlier, the Bonville Rural Residential Visual Analysis (Appendix E) provides strategies for future development in Bonville, including consideration of visual elements within the future Bonville urban investigation area.

The proposed rezoning is therefore considered to be consistent with the aims and objectives of and the strategic actions contained within the OLCSS 2008.

Coffs Harbour Rural Residential Strategy 2009

The Rural Residential Strategy (RRS) was adopted at Council's meeting of 26 November 2009 with Bonville as the priority release area. The Department of Planning, endorsed the Strategy on 3 May 2010.

The RRS updated a previous Rural Residential Strategy of 1999 and included areas of Red Rock, Corindi and Corindi Plateau that were added as a result of a Local Government Area boundary adjustment. The Strategy concluded that the Bonville area has sufficient potential rural residential land for the first stage release to accommodate demand for some 10 years with a potential for 441 lots.

Candidate Areas (CAs) at Bonville were determined based on the following 'hard' land constraints that were considered prohibitive to the sensible and sustainable development of rural residential housing:

- land identified in the Our Living City Settlement Strategy for urban purposes;
- land mapped as regionally significant farmland;
- land within the 1 in 100 year flood extent;
- land mapped as Class 1 and 2 acid sulfate soils;
- land of ecological significance;
- land with a slope in excess of 20%.

The Strategy summarized the main constraints at Bonville as follows:-

> *"Only a small part of the candidate area south of North Bonville Road is identified as being flood prone.*
>
> *Scattered parts of the candidate area are identified as being of ecological significance, including areas containing riparian vegetation along waterways.*
>
> *Significant parts of the candidate area are identified as being bushfire prone.*
>
> *Only a small part of the candidate area is identified as having a slope greater than 20%.*
>
> *Land previously used for banana growing is identified as potentially contaminated land.*
>
> *Significant parts of the candidate area are identified for urban investigation purposes, in the longer term under the OLC including along Bonville Station Road, North Bonville Road, Glennifer Road and Irvines Road.*
>
> *While a large part of the candidate area is identified as containing regionally significant farmland this is excluded because the area is identified under the existing Strategy.*
>
> *Small parts of the candidate area adjoin State Forest, while the Pacific Highway Upgrade adjoins eastern parts of the area: the upgrade is complete."*

The boundaries of the CAs appear to be only broadly based on the foregoing constraints. Further refinement is required to define 'hard' constraint boundaries and to consider cadastral boundaries for the purpose of defining zone boundaries. The CAs identified in the Rural Residential Strategy (RRS) are reproduced at **Illustration 2.1**.

Site investigations carried out for this Planning Proposal have refined the 'hard' constraints and determined that the land within and immediately adjacent to the CA boundaries is suitable for rural residential land use provided high ecological value land is protected under the E2 Environmental Conservation zone and the relevant clauses of the CHLEP 2013. 254 ha of land within the Bonville study area is recommended to be rezoned E2. Not of all this land is located within the CA boundaries. Additional land with terrestrial biodiversity values and watercourse values is mapped for inclusion on the biodiversity overlay mapping.

The CA boundaries have been adjusted to recognise the nearest cadastral boundary or E2 zone boundary (existing or proposed) and to exclude Regionally Significant Farmland. In this way the yield (in hectares) varies slightly from the estimated area of unconstrained land shown in Figure 22 of the RRS. This is shown in Table 9.1 below:

Table 9.1 RRS and PP Candidate Area yield (ha)

CA	RURAL RESIDENTIAL STRATEGY AREA (HA)	PLANNING PROPOSAL AREA (HA)
1	32.5	nil
2	115.8	164
3	3.9	40.6
4	29.5	*
5	11.7	25
6	26.7	27
8	29.7	24
9	19	20.3
10	6.3	16.5
11	9.7	*
13	26.5	46
14	14.5	17.5
15	101.9	103.7
16	10.3	14.4
TOTAL AREA	**438**	**499**

* 3 and 4 combined

* 10 and 11 combined.

*7 and 12 are excluded as they are within the possible urban investigation area.

As the table demonstrates, the final yield, in hectares, of land suitable to be rezoned for rural residential purposes is consistent with the estimates of the RRS, however, has been adjusted spatially to better align with cadastral, zone boundaries and Regionally Significant Farmland.

Settlement Planning Guidelines 2007

These guidelines were prepared to assist Councils in preparing a local growth management strategy to achieve the planning outcomes and actions in the Mid North Coast Regional Strategy. These guidelines were considered in the preparation of the Rural Residential Strategy 2007. These guidelines required an assessment of the LGA from a physical, social and servicing catchment perspective and required a consideration of demand and supply for rural residential development. The Guidelines also required a consideration of the settlement hierarchy and settlement patterns.

The Bonville Rural Residential Candidate Areas were derived from the settlement planning guidelines.

9.3. State Environmental Planning Policies

Is the planning proposal consistent with applicable state environmental planning policies?

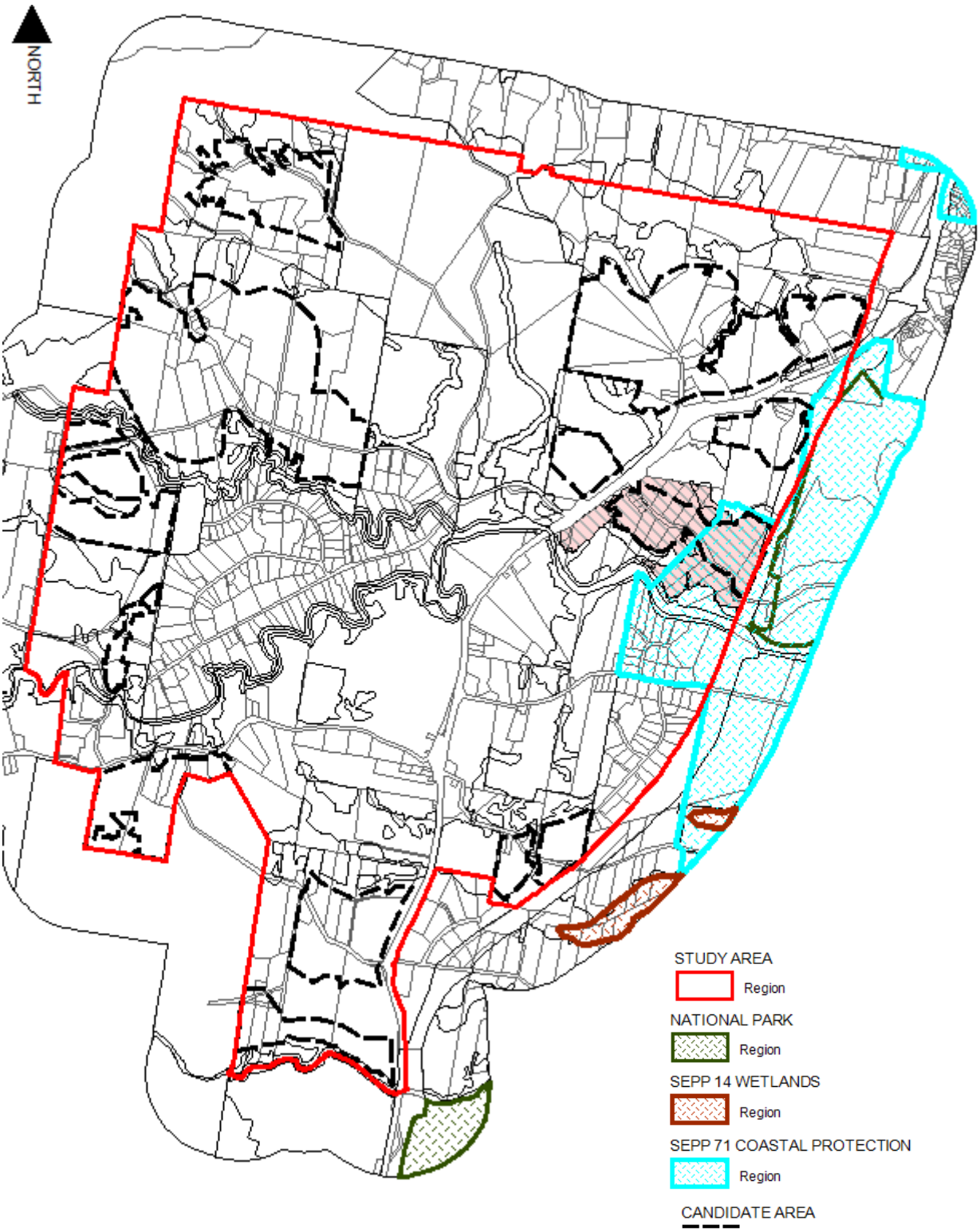
Key issues relevant to the Planning Proposal	Comments
SEPP (Affordable Rental Housing) 2009	
Permissibility of group homes; development standards for various forms of affordable housing.	The SEPP will operate where secondary dwellings are permissible with consent in the R5 zone. The PP is consistent with this SEPP.
SEPP (Exempt and Complying Development Codes) 2008	
Streamlines assessment processes for development that complies with specified development standards.	No additional exempt or complying uses have been included in the draft Plan.
SEPP (Rural Lands) 2008	
The aim of this policy is to facilitate the orderly and economic use and development of rural lands for rural and related purposes. *The Rural Planning Principles are as follows:* *(a) the promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas,* *(b) recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State,* *(c) recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development,* *(d) in planning for rural lands, to balance the social, economic and environmental interests of the community,* *(e) the identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land,* *(f) the provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities,* *(g) the consideration of impacts on services and infrastructure and appropriate location when providing for rural housing,* *(h) ensuring consistency with any applicable*	The draft LEP is consistent with the Rural Planning Principles of the SEPP in that: • The Bonville candidate areas (CAs) are excluded from Regionally Significant Farmland considerations as the land is identified in an endorsed rural residential strategy. Recommended expanded CAS to cadastral boundaries exclude Regionally Significant Farmland. • The CAs are comprised of fragmented former farmland land where the predominant land-use is rural lifestyle living. All of the CAs are within a 2 km radius of the future Bonville urban area. • The draft PP is consistent with the Mid North Coast Regional Strategy principles. • Increasing the amount of rural residential zoned land in the Bonville area will reduce the demand for this form of land use in other less suitable locations. • The proposed R5 areas will provide for additional housing to support the future Bonville urban area. • The CAs are endorsed in a local and state endorsed strategy. • The PP includes an addition 254 ha of E2 zoned land as well as the identification and mapping of land with terrestrial and watercourse biodiversity values in an overlay map.

Key issues relevant to the Planning Proposal	Comments
regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.	
SEPP (Infrastructure) 2007	
Provides a consistent planning regime for infrastructure and the provision of services across NSW.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP (Temporary Structures) 2007	
Provides for the erection of temporary structures while protecting public safety and local amenity.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	
Provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. *The SEPP requires a compatibility test to be undertaken by council planners when assessing any proposed development in the vicinity of existing mines, quarries and petroleum production facilities or resources identified as being of state or regional significance.*	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP (Building Sustainability Index: BASIX) 2004	
The implementation of BASIX throughout the State by overriding competing provisions in other environmental planning instruments and development control plans, and specifying that SEPP 1 does not apply in relation to any development standard arising under BASIX.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP (Housing for Seniors or People with a Disability) 2004	
The SEPP intends to encourage the development of high quality accommodation for an ageing population and for people who have disabilities while providing housing that is in keeping with the local neighbourhood.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP No. 71 – Coastal Protection	
Encourages a strategic approach to coastal management and identifies considerations for certain coastal development	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP. This is further discussed in **117 Direction 2.2 Coastal Protection.**
SEPP No. 65 - Design Quality of Residential Flat Development	
Raises the design quality of residential flat development across the state through the	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP. Residential flat buildings are prohibited in the

Key issues relevant to the Planning Proposal	Comments
application of a series of design principles.	R5 and E2 zones.
SEPP No. 64 - Advertising and Signage	
Aims to ensure that outdoor advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations and is of high quality design and finish.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP. Advertising structures are controlled by Component C4 Signage Requirements of DCP 2013.
SEPP No. 62 – Sustainable Aquaculture	
Encourages the sustainable expansion of the industry in NSW	The draft LEP is generally consistent with the SEPP.
SEPP No. 60 - Exempt and Complying Development	
Provides a more efficient and effective approval process for certain classes of development. It applies to areas of the State where there are no such provisions in the council's local plans	SEPP 60 has no effect.
SEPP No. 55 - Remediation of Land	
Introduces state-wide planning controls for the remediation of contaminated land.	A soil sampling, testing and analysis was undertaken and previous banana cultivation areas mapped. Soil sampling for potential acid sulfate soils has also been undertaken. The assessment found that minor isolated contamination arising from previous banana cultivation is present. Further investigation of each development site will occur as part of the Development Application process. Contamination risks are considered minimal and manageable with recognised remediation procedures available.
SEPP No. 44 - Koala Habitat Protection	
Encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range.	The PP is consistent with the SEPP in that additional areas of E2 zoned land and a terrestrial biodiversity overlay will provide additional protection for biodiversity corridors and habitat links for Koala and other threatened species. The Council has an adopted Koala Plan of Management for the City.
SEPP No. 36 – Manufactured Home Estates	
Helps establish well-designed and properly serviced manufactured home estates (MHEs) in suitable locations.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP No. 21 - Caravan Parks	
Ensures that where caravan parks or camping grounds are permitted under an environmental planning instrument, movable dwellings, as	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.

Key issues relevant to the Planning Proposal	Comments
defined in the Local Government Act 1993, are also permitted	
SEPP No. 33 - Hazardous and Offensive Development	
Provides new definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP No. 32 – Urban Consolidation (Redevelopment of Urban Land)	
States the Government's intention to ensure that urban consolidation objectives are met in all urban areas throughout the State.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP No 30—Intensive Agriculture	
Requires development consent for cattle feedlots having a capacity of 50 or more cattle or piggeries having a capacity of 200 or more pigs. The policy sets out information and public notification requirements to ensure there are effective planning control over this export-driven rural industry.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP No. 22 - Shops and Commercial Premises	
Permits within a business zone, a change of use from one kind of shop to another or one kind of commercial premises to another, even if the change of use is prohibited under an environmental planning instrument.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.
SEPP No. 6 - Number of Storeys in a Building	
Sets out a method for determining the number of storeys in a building.	The PP is either consistent with the SEPP or has no clauses with material effect on the SEPP.

Illustration 9.2 SEPP Boundaries



Is the planning proposal consistent with applicable Ministerial Directions (s.117 directions)?

When preparing a draft LEP, Council is required to consider the directions of the NSW Government as issued under section 117 of the Environmental Planning and Assessment Act (EP&A Act). The following section addresses consistency with these directions.

EMPLOYMENT AND RESOURCES

Direction 1.1 Business and Industrial Zones

This direction applies when a relevant planning authority prepares a planning proposal that will affect land within an existing or proposed business or industrial zone (including the alteration of any existing business or industrial zone boundary).

This direction does not apply.

Direction 1.2 Rural Zones

The objective of this direction is to protect the agricultural production value of rural land. A draft LEP shall:

(a) not rezone land from a rural zone to a residential, business, industrial, village or tourist zone.

(b) not contain provisions that will increase the permissible density of land within a rural zone (other than land within an existing town or village).

The draft LEP is inconsistent with this direction, however, those inconsistencies are supported by the Coffs Harbour Rural Residential Strategy (RRS) 2009, endorsed by Council on 26 November 2009, and endorsed by NSW Planning and Infrastructure (NSW P&I) on 3 May 2010.

Minor justifiable inconsistencies involve the mapped location of Candidate Area boundaries as discussed in Section 4 of this report.

Direction 1.3 Mining, Petroleum Production and Extractive Industries

This direction applies when a council prepares a draft LEP that would have the effect of:

(a) prohibiting the mining of coal or other minerals, production of petroleum, or winning or obtaining of extractive materials, or

(b) restricting the potential development of resources of coal, other minerals, petroleum or extractive materials which are of State or regional significance by permitting a land use that is likely to be incompatible with such development.

The draft LEP is inconsistent with this direction. The candidate areas identified for rural residential and environmental protection rezoning are currently zoned RU2 Rural Landscape. Extractive industries and open cut mining are permissible with consent pursuant to the LEP and the Mining SEPP, however, will no longer be permissible under either EPI under a R5 or E2 zone.

This direction requires that the Planning Proposal is notified to the Director General of the Department of Primary Industries.

Direction 1.4 Oyster Aquaculture

There are no potential or existing oyster cultivation areas within the draft LEP area or within any drainage area downstream of this area likely to be affected by future development.

Direction 1.5 Rural Lands

This direction applies when:

(a) *a council prepares a draft LEP that affects land within an existing or proposed rural or environment protection zone (including the alteration of any existing rural or environment protection zone boundary) or*

(b) *a council prepares a draft LEP that changes the existing minimum lot size on land within a rural or environment protection zone.*

The Planning Proposal affects existing RU2 zoned land and involves rezoning land for rural residential and environmental protection purposes, therefore this direction applies.

The inconsistency is justified by a Council and Department of Planning & Infrastructure endorsed strategy.

ENVIRONMENT AND HERITAGE

Direction 2.1 Environment Protection Zones

The direction requires that *a draft LEP shall include provisions that facilitate the protection and conservation of environmentally sensitive areas.*

A draft LEP that applies to land within an environment protection zone or land otherwise identified for environment protection purposes in a LEP shall not reduce the environmental protection standards that apply to the land (including by modifying development standards that apply to the land).

The draft LEP is consistent with this direction in that all of the existing environmental protection zoned land is retained. Additional areas of high ecological value land will be rezoned E2 or identified in a terrestrial biodiversity and watercourse overlay map.

Direction 2.2 Coastal Protection

A very small portion of the study area is located on the edge of the coastal zone, east of Pine Creek Way surrounding Williams Road and Bonville Station Road. This area is located within 100m of Bongil Bongil National Park and the tidal section of Bonville Creek and will be subject to the considerations under State Environmental Planning Policy 71 – Coastal Protection.

The eastern part of Candidate Area (CA) 13 is within the coastal zone and will be rezoned from RU2 to R5 and E2 with areas identified as terrestrial biodiversity included on the overlay map. Future development within the R5 area for rural residential purposes will include onsite wastewater disposal areas. Site investigations and modelling carried out for the Wastewater Assessment indicates that the land is capable of providing for a dwelling and wastewater area per 4,000 m^2. The R5 areas have a minimum lot size of 10,000 m^2 (1 ha) therefore providing a safe and conservative buffer to surrounding drainage lines and watercourses, significantly reducing any possibility of adverse impacts to water quantity and quality entering surrounding drainage lines and watercourses.

Areas of high ecological value land within the coastal zone land outside of the CA boundary will be rezoned E2 or identified on the biodiversity overlay.

The proposed rezoning will increase the area of land protected under an environmental conservation zone or biodiversity overlay and has a very conservative minimum lot size for the small area of land to be zoned R5. It is therefore considered that the planning proposal is consistent with:

a) the NSW Coastal Policy: A Sustainable Future for the New South Wales Coast 1997, and
b) the Coastal Design Guidelines 2003, and
c) the manual relating to the management of the coastline for the purposes of section 733 of the Local Government Act 1993 (the NSW Coastline Management Manual 1990).

Additionally, the proposed rural residential rezoning is justified by an endorsed strategy.

Direction 2.3 Heritage Conservation

There are no heritage items currently identified in the draft LEP area. Further assessment has been undertaken and no new items have been identified.

Direction 2.4 Recreation Vehicle Areas

The draft LEP is consistent with this direction in that there are no clauses or provisions that enable land to be developed for the purpose of a recreation vehicle area (within the meaning of the *Recreation Vehicles Act 1983*).

HOUSING, INFRASTRUCTURE AND URBAN DEVELOPMENT

Direction 3.1 Residential Zones

This direction applies when a council prepares a draft LEP that affects land within:

(a) an existing or proposed residential zone (including the alteration of any existing residential zone boundary),
(b) any other zone in which significant residential development is permitted or proposed to be permitted.

The planning proposal provides for an addition 499 ha of R5 Large Lot Residential zoned land. This direction requires that *a draft LEP shall include provisions that encourage the provision of housing that will:*

(a) broaden the choice of building types and locations available in the housing market, and

Consistent. The provision of additional rural residential land will broaden lifestyle choices in a suitable location.

(b) make more efficient use of existing infrastructure and services, and

The land is not serviced with sewer and water, however there is existing public road access to all CAs. The cost of upgrading the public road system is included in the draft Bonville Rural Residential Developer Contributions Plans.

(c) reduce the consumption of land for housing and associated urban development on the urban fringe, and

The Bonville candidate areas are located on the fringe of the "future possible Bonville urban area". The land is within a rural lifestyle area and is a different land resource to greenfield urban land. The proposed R5 land within the CAs does not impact on the land identified for future urban use.

(d) be of good design.

Design principles are identified in the Development Control Plan for the area that reflect the rural character of the area, the visual amenity and environmental values of the area.

A draft LEP shall, in relation to land to which this direction applies:

(a) contain a requirement that residential development is not permitted until land is adequately serviced (or arrangements satisfactory to the council, or other appropriate authority, have been made to service it), and

(b) not contain provisions which will reduce the permissible residential density of land.

Rural residential development within the rezoned land does not require water and sewerage services. Telecommunications and electricity will be extended to the CAs gradually as the land is re-subdivided. Recommendations for on-site wastewater management disposal are found in the Bonville LES Wastewater Assessment at Appendix D.

The adopted density of rural residential land in the Coffs Harbour LEP is 1 ha. The wastewater land capability investigations indicated that the land is capable of increased density, however, R5 zoned land will be mapped with a minimum lot size (MLS) of 1 ha.

Direction 3.2 Caravan Parks and Manufactured Home Estates

This direction applies and requires that:

In identifying suitable zones, locations and provisions for caravan parks in a draft LEP, council shall:

(a) retain provisions that permit development for the purposes of a caravan park to be carried out on land, and

(b) retain the zonings of existing caravan parks, or in the case of a new principal LEP zone the land in accordance with an appropriate zone under the Standard Instrument (Local Environmental Plans) Order 2006 that would facilitate the retention of the existing caravan park.

There are no existing caravan parks in the candidate areas. Caravan parks are not permitted in RU2, R5 or E2 zone under the CHLEP 2013. A manufactured home estate (MHE) is located within the land identified as the Bonville future urban investigation area and is not impacted by this Planning Proposal.

Direction 3.3 Home Occupations

This direction applies. The draft LEP is consistent with this direction – home occupations are permitted without consent in the R5 and E2 zones.

Direction 3.4 Integrating Land Use and Transport

The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives:

(a) improving access to housing, jobs and services by walking, cycling and public transport, and

(b) increasing the choice of available transport and reducing dependence on cars, and

(c) reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and

(d) supporting the efficient and viable operation of public transport services, and

(e) providing for the efficient movement of freight.

This direction applies when a council prepares a draft LEP that creates, alters or removes a zone or a provision relating to urban land, including land zoned for residential, business, industrial, village or tourist purposes.

This direction applies as the draft LEP creates additional R5 Large Lot Residential zoned land. The draft LEP is generally consistent with the objectives of this direction. Increasing rural residential development within an area served by an existing public road network will support the local school bus service and may lead to additional transport services in the area. The former Pacific Highway (Pine Creek Way) is already a popular cycling area and is well connected to the Bongil Bongil National Park and forestry trails in the Pine Creek area.

Direction 3.5 Development Near Licensed Aerodromes

This direction applies when a council prepares a draft LEP that creates, alters or removes a zone or a provision relating to land in the vicinity of a licensed aerodrome.

This direction does not apply.

HAZARD AND RISK

Direction 4.1 Acid Sulfate Soils

Consistent broad sampling has been undertaken to identify areas likely to contain acid sulfate soils. These areas are mapped as part of the draft LEP. Guidelines are available for the management of acid sulfate soils within the mapped areas.

Direction 4.2 Mine Subsidence and Unstable Land

There are no known areas of mine subsidence or unstable land in the draft LEP area. Broad assessment has been undertaken to identify steep lands that may require construction management to avoid any instability.

Direction 4.3 Flood Prone Land

This direction applies when a council prepares a draft LEP that creates, removes or alters a zone or a provision that affects flood prone land.

This direction applies. Model clauses *Flood planning* and *Floodplain Risk Management* are included in the LEP 2013. These Model Clauses are consistent with the objectives of this direction. The areas likely to be flood prone have been mapped.

Direction 4.4 Planning for Bushfire Protection

This direction applies when a council prepares a draft LEP that affects, or is in proximity to land mapped as bushfire prone land.

Areas of the draft LEP are mapped as Bush Fire Prone Land.

In the preparation of a draft LEP a Council shall consult with the Commissioner of the NSW Rural Fire Service under section 62 of the EP&A Act, and take into account any comments so made,

Consistent. Consultation will be undertaken as part of the LEP preparation process.

A draft LEP shall:
(a) have regard to Planning for Bushfire Protection 2006,

Consistent. Asset Protection Zones are identified in the draft Bonville Rural Residential Development Control Plan.

(b) introduce controls that avoid placing inappropriate developments in hazardous areas, and ensure that bushfire hazard reduction is not prohibited within the APZ.

Future subdivision and development in bushfire prone land in the candidate areas will be referred to the RFS as required under s100B of the Rural Fires Act 1997 and s79BA of the *EP&A Act 1979*. The draft LEP allows bush fire hazard reduction work authorised by the *Rural Fires Act 1997* to be carried out on any land without development consent.

The draft LEP is consistent with this direction.

REGIONAL PLANNING

Direction 5.1 Implementation of Regional Strategies

The Planning Proposal is consistent with the Mid North Coast Regional Strategy (MNCRS) in that the proposed rezoning does not impact on the land identified in the MNCRS as proposed future urban area (Bonville).

Direction 5.2 Sydney Drinking Water Catchments

Does not apply.

Direction 5.3 Farmland of State and Regional Significance on the NSW Far North Coast

As discussed in Section 4.13 of this report, Regionally Significant Farmland within the CAs of the endorsed RRS are excluded. Exclusion of those areas of farmland is consistent with Section 4 of the report titled *Northern Rivers Farmland Protection Project - Final Recommendations, February 2005*, held by the Department of Planning. Where Candidate areas are recommended to expand to cadastral boundaries the Regionally Significant Farmland is excluded.

Direction 5.4 Commercial and Retail Development along the Pacific Highway, North Coast

Consistent. No commercial or retail development is proposed along the Pacific Highway realignment route.

Direction 5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)

Does not apply

Direction 5.6 Second Sydney Airport Badgerys Creek

Does not apply.

Direction 6.1 Approval and Referral Requirements

This direction aims to minimise concurrence and referral application to Ministers and public authorities and not classify designated development unless significant impact is likely.

Consistent. The Planning Proposal does not include and additional referral requirements.

Direction 6.2 Reserving Land for Public Purposes
This direction requires land to be reserved for public purposes in accordance with the latest directions of the relevant authority.

Consistent. Draft LEP includes standard public reserve provisions from standard LEP template.

Direction 6.3 Site Specific Provisions
This direction discourages unnecessarily restrictive site controls.

Consistent. Draft LEP adopts recommended provisions from standard LEP template and existing Coffs Harbour provisions.

Direction 7.1 Implementation of Metropolitan Strategy
Does not apply.

9.4. Environmental, Social and Economic Impact

Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

Part 5A of the EP&A Act requires consideration of the likely impacts of the draft LEP on threatened species, populations or ecological communities, or their habitats. There are a number of threatened species known to occur in the study area including Endangered Ecological Communities (EECs).

Significant areas of native vegetation; regrowth and remnant natural habitats occur throughout the study area. These provide a range of habitats for a limited number of threatened fauna species including areas of mapped Endangered Ecological Communities (EECs). Significant environmental values for the Bonville study area are:

- Vertebrate animal species recorded - 170
- Vascular plant species - 197
- Threatened plants - 1 (from previous study)
- Threatened animals species recorded during current survey - 8
- Threated animals recorded from all studies - 18
- Native vegetation cover - 25 % of study area
- Exotic vegetation cover - 15 % of study area
- Hardwood plantation cover - 10% of study area
- Mapped Endangered Ecological Communities approximately - 38 ha
- Mapped Rainforest - < 2 ha

Environmental values collated from this study have been combined with data from statutory planning requirements such as existing environmental protection zones, koala habitat and drainage buffers in an environmental constraints analysis process. Approximately 38 ha of EECs, high value Class 5 vegetation mapped land and riparian buffers (3rd order and greater) have been recommended for conservation in the E2 Environmental Conservation zone.

Remnant vegetation and corridor linkages have been identified on the biodiversity overlay as 'terrestrial biodiversity' and stream orders 3 and above identified as 'watercourse'. Terrestrial biodiversity and watercourses trigger additional consideration under Clauses 7.4 and 7.6 of the CHLEP 2013. Existing E2 zoned land retains its current zoning.

The draft LEP zonings recommended in this Planning Proposal improve on existing habitat corridors and linkages and will not adversely impact on critical habitat or threatened species, populations or ecological communities, or their habitats. Therefore this proposal does not trigger the need for consultation under section 34A of the EP&A Act with the Director General of the Department of Environment and Climate Change or the Director General of the Department of Primary Industries (for impacts to fish or marine vegetation).

Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The following is a summary of the other likely environmental effects or constraints on the site.

Bushfire

Asset Protection Zones (APZs) for vegetation areas within the study area have been identified. Controls for vegetation management for subdivisions and dwellings within the rural residential candidate areas have been provided in the Bushfire Assessment at Appendix C.

Site Contamination

Arsenic contamination is present across former banana land consistent with similar banana land across the Coffs Harbour region. Council's existing land contamination policies should be applied to any proposed development within the release area. All proposed development within present and past cultivated areas should be subject to soil contamination assessments and where contamination is identified a remediation plan prepared. As has been found in other areas, it is anticipated that the arsenic contamination can be readily remediated, generally through on-site vertical mixing. The cost of further investigation, and remediation if required, will fall to the developer. While an additional burden, it is not expected to significantly constrain the land's development potential.

Acid Sulfate Soils

Class 3, 4 and 5 Acid Sulfate Soils are present with the eastern portion of the site in the vicinity of Bonville and Pine Creeks. Due to flood constraints, any proposed development in these areas will require filling which is unlikely to expose any potential acid sulfate soils to oxidation. However, some excavation of floodways and deeper excavation for servicing trenching will be required. These works should be managed in accordance with Council's current policies and are not a significant constraint to development in this area.

Geotechnical

The geotechnical conditions across the proposed development areas do not pose a major constraint. Slope will have the greatest impact on development. The residual soils will typically yield an M classification in accordance with AS2870 although this will give way to a P classification on the steeper slopes.

This investigation is general in nature and, apart from limited field work, relies on local experience in the design and construction of residential footings throughout the Coffs Harbour region over the Brooklana Formation. This investigation does not obviate the need for site specific investigations as part of individual development.

It is recommended that Council retain existing policies that require individual site classifications and the engineering design of slabs and footings, plus compaction control of subdivision earthworks. No additional planning and policy requirements are recommended.

How has the planning proposal adequately addressed any social and economic effects?

Social and economic effects arising from the Planning Proposal will be positive in terms of the provision of rural residential land for new housing and the identification of high ecological value land for conservation.

Based on housing supply data for the Coffs Harbour LGA from 2007 to 2012, there is a genuine demand for 42 rural residential lots per annum and a scant supply of vacant rural residential to meet that demand. As discussed in Section5.3, the 'genuine' annual demand estimate may be flawed due to the low quantity and range of suitable rural residential lots available to the market over the last 7 years. The Planning Proposal will result in the rezoning of 499 ha of rural land to R5 Large Lot Residential with a minimum lot size of 1 ha across 14 separate candidate areas. Whilst this land is generally unconstrained and suitable for rural residential subdivision, a range of factors will influence the supply of that land to the rural residential market, including land-owner reluctance to subdivide and competition for that land for blueberry production.

It is estimated that the Bonville rural residential release areas will yield approximately 340 lots overall and will provide up to ten year's supply of rural residential land for the LGA. Subdivision within the Bonville release areas is likely to be gradual as most of the land is fragmented and is held in multiple ownerships.

Overall, the gradual subdivision of land for rural residential purposes will have a positive impact on the social fabric of the Bonville area as additional households contribute to supporting local community organisations, the local general store and service station and the Bonville Primary School.

9.5. Section D – State and Commonwealth Interests

Is there adequate public infrastructure for the planning proposal?

State or Commonwealth public infrastructure within the Bonville Rural Residential release area is adequate to cater for the gradual growth in the area. The electrical network is adequate to cater for the subdivision of land within the candidate areas for rural residential purposes. The National Broadband (NBN) is underway in the area and will provide wireless internet services to subscribers who wish to connect.

What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

This section of the planning proposal will be completed following consultation with the State and Commonwealth Public Authorities identified in the gateway determination. This section will summarise any issues raised by public authorities not already dealt with in the planning proposal, and will address issues as required.

9.6. COMMUNITY CONSULTATION

The draft Rural Residential Strategy was exhibited from 11 December 2008 to 27 February 2009 with 82 submissions received including five agency submissions. A community engagement meeting was conducted at Bonville Hall on 7 March 2009 with 30 people registered. The draft strategy was put before Council on three separate occasions before it was finally endorsed on 26 November 2009. Matters raised in submissions and during the Council meetings concerned all of the candidate areas within the LGA.

The community, stakeholders and government agencies will have a further opportunity to make submissions to the Planning Proposal for the Bonville Rural Residential release area during the exhibition phase of the process.

This Planning Proposal has been prepared in accordance with the NSW Department of Planning 'A guide to preparing planning proposals', and is based on the findings of environmental studies carried out by the project team as required in accordance with Coffs Harbour City Council's brief for the Bonville Rural Residential Planning Proposal.

Yours faithfully

GEOFF SMYTH CONSULTING

GEOFF SMYTH

APRIL 2014

DE GROOT & BENSON PTY LTD

ROB DE GROOT

APRIL 2014

APPENDIX A – Flora and Fauna Assessment