PORT MACQUARIE HASTINGS COUNCIL

PLANNING PROPOSAL

AMENDMENT TO PORT MACQUARIE-HASTINGS LOCAL ENVIRONMENTAL PLAN 2011

HOMEDALE ROAD, KEW

PROPOSED REZONING FOR RESIDENTIAL AND ENVIRONMENTAL PURPOSES

Version 1.0
for Gateway Determination
24/2/2017

Planning Proposal status (for this copy)

Stage	Version Date (blank until achieved)
Reported to Council - sec 55	14/12/2016
Referred to Dept of Planning & Environment - sec 56(1)	24/2/2017
Gateway Panel determination - sec 56(2)	
Revisions required: Yes / No. Completed	
Public Exhibition - sec 57	
For Council review - sec 58(1)	
Adopted by Council for final submission to Dept of Planning - sec 58(2)	

Council reference: PP2014-12.1

Port Macquarie-Hastings LEP 2011 (Amendment No *)

Department of Planning & Environment reference: *

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Adoption of the Planning Proposal

1. For initial Gateway determination

This Planning Proposal was endorsed on 24 February 2017 by the undersigned delegate of Port Macquarie-Hastings Council:

Signed .....

Name Peter Cameron

Position Group Manager Strategic Land Use Planning

2. For section 59 finalisation

This Planning Proposal was endorsed on …… by the undersigned delegate of Port Macquarie-Hastings Council:

Signed .....

Name .....

Position .....

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EXECUTIVE SUMMARY

This planning proposal has been prepared in accordance with section 55 of the *Environmental Planning and Assessment Act 1979* and the Department of Planning and Environment's *A guide to preparing planning proposals 2016*.

The planning proposal explains the intended effects of a proposed amendment to the *Port Macquarie-Hastings Local Environmental Plan 2011* (PMHLEP) to rezone rural land on the western edge of Kew for residential and environmental purposes.

The subject land comprises the residue of the Links Residential Estate to the east and includes unformed Crown road reserve along the western boundary. The land has an area of approximately 9.3ha and is currently zoned partly R1 General Residential and partly RU1 Primary Production.

Figure 1: Locality plan

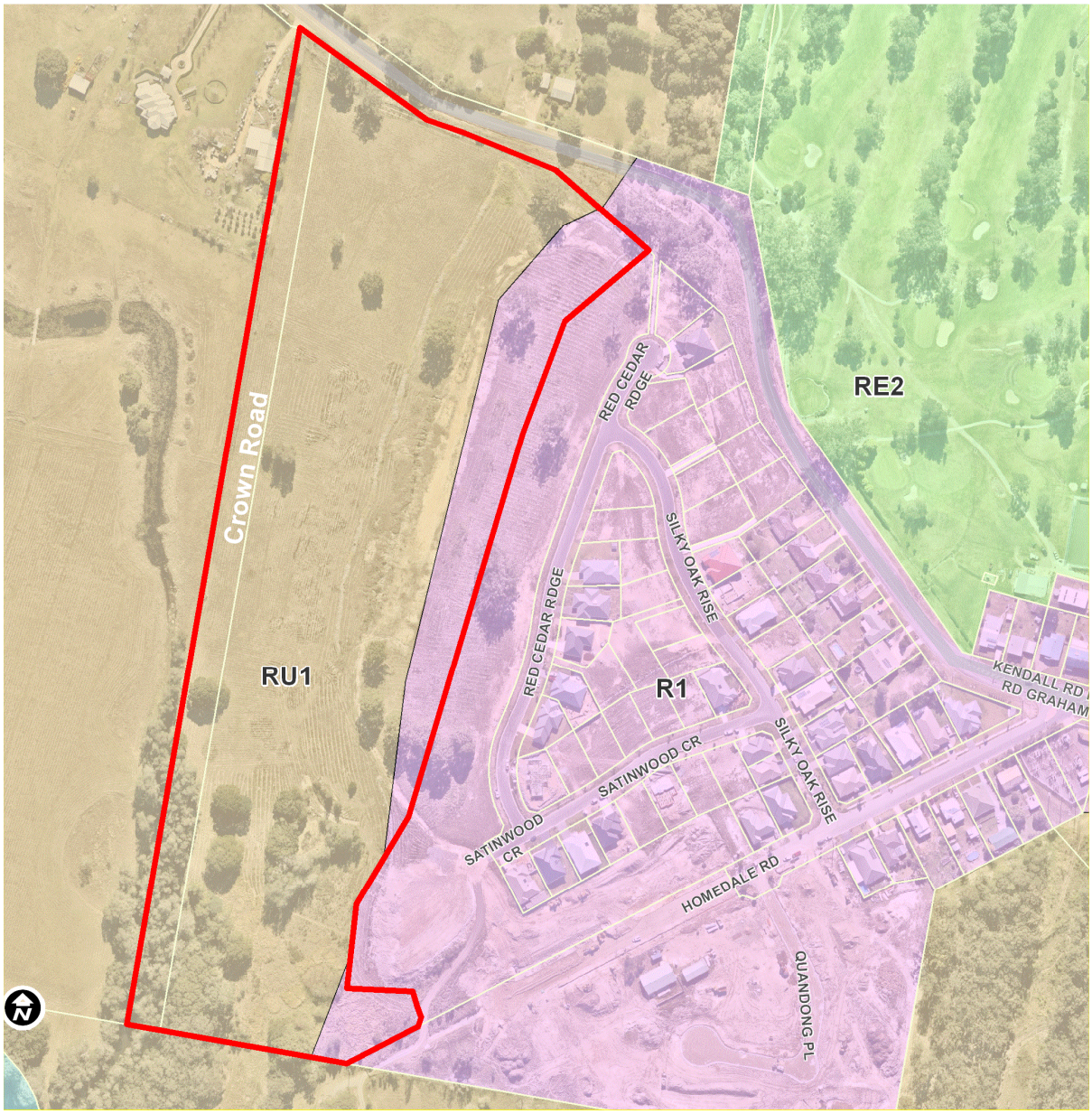

Figure 2: Site plan and existing zoning

The proposal involves an amendment to the PMHLEP to extend the R1 zone over 5.7ha of the site to enable future development for approximately 45 residential lots, including a residue that is proposed to be zoned partly E2 Environmental Conservation and partly E3 Environmental Management.

The proponent (GEM planning consultants) has submitted an indicative lot layout (**Annexure A**) to show the intended land use outcomes, together with plans to demonstrate that road, sewer, water and stormwater infrastructure can be provided to service future development.

Specialist studies in support of the proposal include ecological and agricultural assessments. These studies, based on an earlier concept, suggest that the proposal will have a negligible impact.

The RU1 zoned area of the site contains significant indigenous heritage, riparian buffer, an Endangered Ecological Community (EEC), a small area of Regionally Significant Farmland and is affected (in part) by flooding. The site also adjoins a larger area of Regionally Significant Farmland to the west. These matters are key considerations of this planning proposal.

Figure 3: EEC, flooding & regionally significant farmland constraints

PART 1 - OBJECTIVES OR INTENDED OUTCOMES

This planning proposal aims to amend the *Port Macquarie Hastings Local Environmental Plan 2011* to rezone the rural area of the subject site to facilitate development for residential purposes, to conserve areas of environmental and indigenous significance and to maintain a separation buffer to adjoining Regionally Significant Farmland.

PART 2 - EXPLANATION OF PROVISIONS

The planning proposal seeks to amend the *Port Macquarie Hastings Local Environmental Plan 2011* by:

- Amending the Land Zoning Map **from** RU1 Primary Production **to** partly R1 General Residential, partly E3 Environmental Management and partly E2 Environmental Conservation.
- Amending the Lot Size Map to permit minimum lot sizes of 450 sqm on that part of the site proposed to be zoned R1.
- Amending the Height of Buildings Map to allow a maximum height of 8.5 metres for future development on that part of the site proposed to be zoned R1.
- Amending the Floor Space Ratio Map to allow a maximum floor space ratio of 0.65:1 for future development on that part of the site proposed to be zoned R1.

PART 3 – JUSTIFICATION

In accordance with the Department of Planning and Environment's *A guide to preparing planning proposals*, this Part provides a response to the following issues:

- Section A: Need for the planning proposal
- Section B: Relationship to strategic planning framework
- Section C: Environmental, social and economic impact, and
- Section D: State and Commonwealth interests.

Section A - Need for the planning proposal

1. Is the planning proposal a result of any strategic study or report?

The proposal is not a result of any strategic study or report. At its 20 August 2014 Meeting, Council considered the site for inclusion in its Strategic Planning work program, along with other site specific proposals, and resolved to prioritise rezoning investigations for the land.

2. Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The area proposed for rezoning is currently zoned RU1 Primary Production with a minimum lot size of 40 hectares. For the site to be developed for residential an environmental purposes as intended, it needs to be appropriately zoned.

Section B - Relationship to strategic planning framework

3. Is the planning proposal consistent with the objectives and actions of the Mid North Coast Regional Strategy and Draft North Coast Regional Plan?

Mid North Coast Regional Strategy (MNCRS) 2006

The site is not mapped as an investigation area for urban growth in the MNCRS. Appendix 1 of the MNCRS contains sustainability criteria for proposed development sites outside the mapped growth areas in the MNCRS. Table 1 below provides an assessment of the proposal against the sustainability criteria, demonstrating that the site has merit to be considered even though it is outside the regional strategy process.

Table 1 - Assessment of the proposal against the MNCRS Sustainability Criteria

MNCRS Sustainability Criteria	Response to Sustainability Criteria
1. Infrastructure Provision Mechanisms in place to ensure utilities, transport, open space and communication are provided in a timely and efficient way	The proposal is generally consistent with the objectives of the MNCRS and section 117 directions, as outlined in Table 3 of this report. The provision of infrastructure to the site, including utilities and telecommunications, is technically feasible as demonstrated on the proponent's concept servicing plan. Further consideration to the implementation of a servicing plan for the site will need to be undertaken following the rezoning. Developer contributions will be levied in accordance with existing Plans.
2. Access Accessible transport options for efficient and sustainable travel between homes, jobs, services and recreation to be existing or provided.	Due to its size and inland location, Kew village is largely car dependant. An existing bus route provides access to Laurieton and Port Macquarie, however this service is infrequent. In regional areas services are often underutilised and difficult to maintain on a cost basis. The planning proposal would provide an opportunity for increased population and therefore patronage to help support public transport services in the area. The Pacific Highway is approximately 1 km to the east of the site and the Kendall Railway Station is approximately 2 km to the west. Rail services are available between Sydney and Brisbane on a daily basis with passenger stops at Kendall. Air transport services are available via Port Macquarie to Sydney, Brisbane and Melbourne. The expected increase in traffic movements is considered acceptable and unlikely to create any adverse impacts to the efficiency of the existing transport network.
3. Housing Diversity Provide a range of housing choices to ensure a broad population can be housed.	The proposal represents a minor extension of the existing urban footprint of Kew village and is expected to provide housing choices consistent with existing residential development in the area. The proposed R1 General Residential zoning will also provide opportunities to consider aged, disabled and or affordable housing options for the subject site.
4. Employment Lands Provide regional/local employment opportunities to support the Mid North Coast's expanding role in the wider regional and NSW economies.	The proposal does not involve the provision of employment generating land. However, short-term employment opportunities will be provided during the development phase and incidental job and home occupation opportunities may exist during the post development phase.

MNCRS Sustainability Criteria	Response to Sustainability Criteria
5. Avoidance of Risk Land use conflicts, and risk to human health and life, avoided	The western edge of site is (in part) subject to flooding in the event of a 1:100 year flood. Apart from a small area of Crown road reserve in the north-west and the western fringe of concept lots 124, 125, 130 and 131, all land affected by a 1:100 year flood is proposed to be contained within the environmental zoned areas of the site. Refer to Table 3, assessment against s117 direction 4.3 for more details. The proponent's stormwater servicing strategy (discussed under Section C Question 8) demonstrates that local overland flooding can be adequately managed at the development application stage. The proponent's Agricultural Land Use Assessment report notes that the slope of the site varies from 5% to 30% incline. The concept plans show larger lots for the steeper areas of the site generally consistent with the *Port Macquarie-Hastings Development Control Plan 2013* (PMHDCP). Future applications to develop the steeper areas of the site will need to demonstrate compliance with PMHDCP and include geotechnical investigations and appropriate solutions (eg retaining walls, earthworks) to manage slope limitations. The proposed residential zoning and 450sqm minimum lot size is consistent with adjoining residential development to the east. Adjoining land to the south is listed in schedule 1 of PMHLEP 2011 to permit development of a residential community of up to 66 lots/dwellings, subject to obtaining development consent. The proposed environmental zoning of the residue lands will assist in maintaining an appropriate separation buffer to adjoining Regionally Significant Farmland to the west. The potential for traffic noise nuisance to future residents in proximity to the Kendall Road frontage of the site is an issue that requires detailed investigation to determine whether acoustic treatment of this edge will be required at the time of development. In this regard, the proponent has offered to commission an acoustic assessment prior to exhibition of the planning proposal. The assessment will also take into consideration likely noise impact to future residents of an approved bulk storage (temporary fencing) business adjoining the north western boundary of the subject site. The contamination assessment provided by the proponent indicates that the site is not contaminated and therefore poses no risk to human health or the environment. There are no issues in relation to acid sulfate soils (ASS) for future residential development of the site and therefore, no special considerations are to be applied. Land adjacent to the south western boundary is mapped as Class 2 ASS, however, as this land corresponds with low lying flood prone land and riparian buffer, it will be excluded from future development. A small area at the southern end of the subject site is mapped as bushfire prone land buffer. Requirements for future Asset Protection Zones can be adequately provided within the site and bushfire constraints can be mitigated.
6. Natural Resources Natural resource limits not	Adequate capacity exists for water, sewer, electricity and telecommunications infrastructure to service the proposal and

MNCRS Sustainability Criteria	Response to Sustainability Criteria
exceeded/environmental footprint minimised	there are no issues relating to mining or quarry resource lands. The western boundary of the site contains the fringe (1.78ha) of a larger expanse of Regionally Significant Farmland adjoining to the west. The proponent's Agricultural Land Use Assessment report concludes that the proposed rezoning of the mapped farmland area will have no significant impact on the agricultural production value of the region. Refer to Section C, Question 9 for more details.
7. Environmental Protection Protect and enhance biodiversity, air quality, heritage, and waterway health	The proposed R1 General Residential zoning is restricted to the predominantly cleared areas of the site and significant native vegetation and a 40m wide riparian buffer are proposed to be contained in an E2 Environmental Conservation zone. Issues relating to flora and fauna are discussed in more detail under Section C, Question 7. An area of indigenous significance in the southwest of the site (approx 2,000sqm) is proposed to be zoned E2 Environmental Conservation. It is intended that this area be fenced as required by the Bunyah Local Aboriginal Land Council in historic correspondence dated 17/9/04. This advice was provided by Bunyah in connection with an application to develop the adjoining Links Residential Estate. This matter is discussed in more detail under Section C, Question 9.
8. Quality and Equity in Services Quality health, education, legal, recreational, cultural and community development and other government services are accessible	The subject site is in close proximity to a limited range of services in the villages of Kew and Kendall. A wider range of services are accessible in nearby Laurieton (approx 15 min travel time to the west) and a full range of health, education, legal, recreational, cultural, community and government services are available in Port Macquarie (approx 30 min travel time to the northeast).

Draft North Coast Regional Plan 2016

As per the MNCRS, the subject site is not mapped as an investigation area for urban growth in the Draft North Coast Regional Plan. Proposed variations to growth areas are to accord with the Urban Growth Area Variation Principles specified in the Draft Regional Plan. These principles are consistent with the Sustainability Criteria listed in the MNCRS and therefore have been addressed above.

As previously noted, a small area on the western boundary of the subject site comprises the fringe of a much larger expanse of mapped Regionally Significant Farmland to the west. The Draft Regional Plan has identified that some land currently mapped as Regionally Significant Farmland may be suitable for uses other than farmland and sets out Interim Variation Criteria that can be used to assess the suitability of land for continued rural use.

A number of these criteria overlap with the Urban Growth Area Variation Principles (i.e. infrastructure, environment & heritage, avoiding risk) and are addressed in Table 1 above. The remaining criteria, which relate to agricultural capability and the likelihood of conflict to current and future agricultural activities in the locality, are discussed in more detail under Section C, Question 9. In summary, it is considered that the proposed rezoning of the mapped farmland area on the site will have a negligible impact.

4. Is the planning proposal consistent with Council's local strategy or other local strategic plan?

The proposal has the potential to provide for housing growth, which would assist in accommodating population growth predictions established in the MNCRS and reflected in Council's *Port Macquarie-Hastings Urban Growth Management Strategy* (UGMS*) 2011 - 2031*.

Although the site is not identified in the UGMS, future development as proposed, will reinforce the existing village of Kew, protect significant areas of vegetation and indigenous heritage and preserve a separation buffer to adjoining Regionally Significant Farmland. Also given the scale of the proposal, future development of the site will not affect the hierarchy of centres in the Port Macquarie local government area.

5. Is the planning proposal consistent with applicable State Environmental Planning Policies (SEPPs)?

Table 2 below considers the relevant SEPPs that apply to this planning proposal.

Table 2 - Assessment of the Planning Proposal against SEPPs of relevance

SEPP	Relevance	Reason for inconsistency or comment
SEPP 44 - Koala Habitat Protection	SEPP 44 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. Councils cannot approve development in an area affected by the policy without an investigation of core Koala habitat.	The planning proposal is considered to be **consistent** with SEPP 44. The proponent's Koala habitat assessment identified two preferred Koala food tree species within the subject site (*Eucalyptus microcorys* and *Eucalyptus robusta*). These trees were found to comprise less than 15% of the total number of trees in the upper and lower strata of the tree component. Therefore, the assessment concluded that the site does not quality as Potential Koala Habitat as defined by the SEPP. In addition, no scats or evidence of Koala activity was observed during field surveys carried out as part of the assessment, suggestive of a low probability that Koalas frequent the site.
SEPP 55 - Remediation of Land	SEPP 55 provides state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use if it is contaminated. If the land is unsuitable, remediation must take place before the land is developed.	The planning proposal is considered to be **consistent** with the provisions of SEPP 55. The proponent has advised that a preliminary investigation of the site has been undertaken and that the land has not been used for any of the purposes referred to in Table 1 of the *Contaminated Land Guidelines*. It has also been advised that enquiries of the current owners and a third party person familiar with the site have indicated that: - The previous and current land use has been vacant rural land, although some cattle grazing is thought to have occurred previously. - There is no cattle tick dip or former tick dip site on the site. - The site has not been used for market gardens or orchards. - There are no oil storage depots or former

SEPP	Relevance	Reason for inconsistency or comment
		fuel depots associated with the past or present uses on the site. - There are no refuse or garbage land fill areas on the site. Based on the information provided, it is believed that natural soils within the subject site do not contain contamination.
SEPP (Infrastructure) 2007	This policy includes provisions relating to development with frontage to a classified road. The aim is to maintain the integrity of the classified road and to prevent/reduce the potential impact of traffic noise and vehicle emission on adjacent development.	It is considered that the planning proposal is **consistent** with the provisions of this SEPP. The subject site has frontage to Kew Kendall Road which is classified by the NSW Roads and Maritime Services (RMS) as a regional road under the Roads Act 1993. The proponent's concept plans indicate internal road connectivity to the adjoining Links Estate and access onto Kew Kendall Road via the existing Homedale Road intersection. The proponent has advised that emergency egress only is proposed in the north-western corner of the site onto Kew Kendall Road. Based on the proponent's concept for residential development of up to 45 lots, it is expected that the existing road network has sufficient capacity to accommodate the likely increased traffic volumes. The potential for traffic noise to adversely impact future residential development in proximity to Kew Kendall Road is recognised as an issue that requires further investigation to determine if acoustic treatment of the northern boundary will be required. The proponent has offered to commission an acoustic assessment to address this matter prior to public exhibition of this planning proposal. The RMS will be consulted in relation to the proposal.
SEPP (Rural Lands) 2008	Aims to ensure the orderly and economic use of rural land, protect rural land, reduce land use conflicts and minimise land fragmentation.	The SEPP identifies eight planning principles that need to be considered when assessing any proposed rezoning and/or development of rural land. Whilst the planning proposal will facilitate the provision of residential housing and is therefore **inconsistent** with the SEPP, it also reaffirms the planning principle relating to conservation by proposing environmental lands in the west of the site to help protect significant native vegetation and an existing waterway.

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

Table 3 below considers the relevant s117 directions that apply to this planning proposal.

Table 3 - Assessment of the proposal against s117 directions of relevance

Ministerial Direction & relevance	What a planning authority must do if this Direction applies	Reason for inconsistency or comment
1.2 Rural Zones The aim is to protect the agricultural production value of rural land.	A planning proposal must not rezone land from a rural zone to a residential zone.	The proposal is **inconsistent** with this direction as it seeks to rezone land from RU1 Primary Production to R1 General Residential. This inconsistency is considered to be justifiable on the basis of the proponent's Agricultural Land Use Assessment report, which concludes that because of the size of the site and poor quality soils, it is not economically or environmentally sustainable to use the land for primary production now or in the future. This issue is discussed in more detail under Section C Question 9.
1.5 Rural Lands The aim is to protect the agricultural production value of rural land and to facilitate the orderly and economic development of rural lands for rural and related purposes.	A planning proposal must be consistent with the Rural Planning Principles listed in SEPP (Rural Lands) 2008.	The proposal is **inconsistent** with this direction as it is unable to satisfy all the principles contained in the SEPP. Commentary regarding the consistency of the proposal in relation to SEPP (Rural Lands) 2008 is provided in Table 2.
2.1 Environmental Protection Zones The aim is to protect and conserve environmentally sensitive areas.	A planning proposal must include provisions that facilitate the protection and conservation of environmentally sensitive areas.	The proponent's Preliminary Vegetation Assessment Report prepared for the site, identified flora and fauna issues and recommendations for conservation of an Endangered Ecology Community (EEC). It is proposed to rezone the EEC in conjunction with a 40m wide riparian buffer to an adjoining watercourse. It is considered that the proposal is **not inconsistent** with this direction although consultation will be required with the NSW Office of Environment and Heritage following the issue of a Gateway Determination.
2.3 Heritage Conservation The aim is to conserve items, areas, objects and places of environmental heritage significance and indigenous heritage significance.	A planning proposal must contain provisions that facilitate the conservation of items, places, buildings, works, Aboriginal objects, Aboriginal places, Aboriginal landscapes etc.	It is proposed to protect an area of significant indigenous heritage in the south west of the site in an E2 Environmental Conservation zone. The proponent has advised that this area will be fenced as part of future development, in accordance with correspondence from Bunyah Local Aboriginal Land Council, dated 17 September 2004. This matter is discussed in more detail under Section C Question 9. From a planning perspective, it is considered that the proposal is **not inconsistent** with this

Ministerial Direction & relevance	What a planning authority must do if this Direction applies	Reason for inconsistency or comment
		direction, although consultation will need to occur with the Bunyah Aboriginal Land Council, the NSW Aboriginal Land Council and NSW Office of Environment and Heritage.
3.1 Residential Zones The objectives of this direction are to facilitate housing choice, to make efficient use of infrastructure, and to minimise the impact of residential development on environment and resource lands.	A planning proposal must include provisions that encourage the provision of housing that will: • broaden the choice of building types and locations, • make efficient use of existing infrastructure and services • reduce the consumption of land for housing and associated urban development on the urban fringe, and • be of good design. A planning proposal must: • contain a requirement that residential development is not permitted until land is adequately serviced, and • not contain provision which will reduce the permissible residential density of land.	It is considered that the planning proposal is **not inconsistent** with the objectives of this direction. The site adjoins existing residential development and there is existing residential development in the surrounding locality. Also, schedule 1 of the PMHLEP 2011 permits development of a residential community of up to 66 lots/dwellings on adjoining land to the south (subject to obtaining development consent). As previously noted under the MNCRS Sustainability Criteria assessment, existing infrastructure services are available and of adequate capacity to service future residential development of the site.
3.3 Home Occupations The objective of this direction is to encourage the carrying out of low-impact small businesses in dwelling houses.	Planning proposals must permit home occupations to be carried out in dwelling houses without the need for development consent.	The proposal is **consistent** with this direction. No change is proposed to the current provisions of PMHLEP 2011 which permit home occupations to be carried out in dwelling houses without the need for development consent.
3.4 Integrating Land Use and Transport The direction requires consistency with State policy in terms of positioning of urban land use zones.	A planning proposal must locate zones for urban purposes and include provisions that give effect to and are consistent with the aims, objectives and principles of: • Improving Transport Choice - Guidelines for planning and development (DUAP 2001), and • The Right Place for Business and Services - Planning Policy (DUAP 2001).	It is considered that the proposal is **not inconsistent** with this direction. The site adjoins the existing urban area of Kew village and is located on a designated bus route which provides satisfactory access to jobs, services and facilities in the Port Macquarie area. Council's Bike Plan (2015) includes provision for a future shared path bicycle network along Kendall Road between Kendall and Kew, linking to Lakewood and Laurieton in the east.

Ministerial Direction & relevance	What a planning authority must do if this Direction applies	Reason for inconsistency or comment
4.1 Acid Sulfate Soils The direction applies to land that has been identified as containing potential Acid Sulfate Soils (ASS)	This direction requires that a draft LEP is consistent the ASS component of the model LEP, or such other provisions provided by the Director-General of the Department of Planning and Environment in accordance with the ASS Planning Guidelines. A relevant planning authority must not prepare a planning proposal that proposes an intensification of land uses on land identified as having a probability of containing ASS on the ASS Planning Maps unless the relevant planning authority has considered an ASS study assessing the appropriateness of the change of land use given the presence of ASS.	The proposal is **inconsistent** with this direction as a small area in the southwest of the site contains Class 2 ASS and an ASS study has not been prepared. This inconsistency is considered to be of minor significance as the affected area corresponds with flood prone land and riparian buffer which will be contained in an E2 zone and not disturbed as a result of future residential development.
4.3 Flood Prone Land This direction seeks to ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy.	This direction applies when a relevant planning authority prepares a planning proposal that creates, removes, or alters, a zone or a provision that affects flood prone land.	The proposal is **inconsistent** with this direction as it seeks to rezone land within the flood planning area from RU1 Primary Production to R1 General Residential. This inconsistency is considered to be of minor significance as: - Only the westernmost fringe of concept lots 122 to 131 are marginally affected by the flood planning area. Adequate flood free land is available within these lots for a dwelling. - A small section of Crown road in the northwest of the site is subject to flooding but capable of being raised to the 1:100 year (including climate change) flood level. Any filling of this area is capable of being offset by excavation works to reduce the potential for adverse impact on the floodplain. - The proponent's stormwater servicing strategy (discussed under Section C Question 8) demonstrates that local overland flooding can be adequately managed at the subsequent development application stage. Council will consult with the Office of Environment and Heritage in regard to this matter to confirm the suitability of the site for rezoning and development.

Ministerial Direction & relevance	What a planning authority must do if this Direction applies	Reason for inconsistency or comment
4.4 Planning for Bushfire Protection This direction seeks to discourage incompatible land uses in bush fire prone areas and to encourage sound management of bush fire prone areas.	The relevant planning authority must consult with the NSW Rural Fire Service and must have regard to *Planning for Bushfire Protection 2006*, provide an Asset Protection Zone (APZ) and ensure adequate access and water supply for fire fighting purposes.	A small area at the southern end of the site is mapped as bushfire prone land buffer. Requirements for future Asset Protection Zones can be adequately provided within the subject site and bushfire constraints can be mitigated. Until consultation has occurred with the Commissioner of the NSW Rural Fire Service after the issue of a Gateway Determination, the consistency of the proposal with this direction is **unresolved**.
5.1 Implementation of Regional Strategies The aim is to give legal effect to the vision, land use strategy, policies, outcomes and actins contained in regional strategies.	Planning proposal must be consistent with a regional strategy released by the Minister for Planning.	The proposal is **consistent** with the strategic directions of the Mid North Coast Regional Strategy (MNCRS) to provide additional residential development, where appropriate, to assist with housing targets in the Port Macquarie LGA. The planning proposal also identifies areas of environmental significance to be zoned conservation and will assist in maintaining a suitable buffer to adjoining Regionally Significant Farmland. Appendix 1 of the MNCRS contains sustainability criteria for proposals outside the designated growth areas of the Strategy. Table 1 contains an assessment of the proposal against the sustainability criteria of the MNCRS, demonstrating that the proposal has strategic merit.
6.1 Approval and Referral Requirements The objective of this direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development.	This direction seeks to minimise the inclusion of provisions in planning instruments that require the concurrence, consultation, or referral of development applications to a Minster or public authority. It also sets out consultation and approval requirements, if such provisions are to be included in a planning instrument, or if a planning instrument identifies development as designated development.	None of the provisions in the planning proposal will create excessive concurrence, consultation or referral requirements. In addition, the planning proposal does not identify any development as designated development. Therefore, the planning proposal is considered to be **consistent** with this direction.

Section C - Environmental, social and economic impact

7. 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?

Native vegetation

A Preliminary Vegetation Assessment Report prepared on behalf of the proponent by FloraFauna Consulting (at **Annexure B**), notes that the majority of the site is cleared with seven small isolated patches of remnant vegetation remaining. No visible hollow bearing trees were recorded in any of these areas.

The largest area of remnant vegetation, connected to riparian vegetation associated with a small watercourse on the adjoining land to the west, was identified as an Endangered Ecological Community (EEC) Swamp Oak - Mixed Eucalypt Coastal Floodplain Wetland Forest Complex.

This EEC is located in the south western corner of the subject site and is proposed to be zoned E2 Environmental Conservation in conjunction with a 40m wide riparian buffer to the adjoining watercourse. A Vegetation Management Plan will be required prior to development of the site.

Koala habitat

An Addendum to the proponent's Preliminary Vegetation Assessment Report (also at **Annexure B**), indicates that the site is unlikely to support Koalas.

Two species of Koala food tree, as listed under Schedule 2 of SEPP 44, were recorded within the site. These included a small number of trees identified *Eucalyptus microcorys* (Tallowwood) and a single individual of *Eucalyptus robusta* (Swamp Mahogany), which collectively represented significantly less than 15% of the total number of trees in the upper and lower strata of the tree component on the site.

The report therefore concluded that the site is not considered to be potential Koala habitat for the purposes of SEPP 44. It was also noted that no scats or evidence of Koala activity were observed during field surveys, indicating a low likelihood that Koalas frequent the site.

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

Noise

The potential for traffic noise to adversely impact future residential development in close proximity to Kendall Road is recognised as an issue that requires further investigation to determine whether acoustic treatment of the northern boundary will be required.

The impact of road noise on new residential subdivisions can be considered at the development application stage under clause 7.9 of PMHLEP 2011, if the affected area is shown on the Acoustic Controls LEP Map.

At this stage, it is uncertain whether acoustic controls will be required. Consequently, the proponent has offered to commission an acoustic assessment to address this issue prior to public exhibition of the planning proposal. This assessment will also include an assessment of noise impact associated with an approved bulk storage (temporary fencing) business operating on adjoining rural land in proximity to proposed lots in the north-west of the subject site.

Stormwater Drainage

The proponent's stormwater servicing strategy indicates that all lots will be directed via piped drainage system to a 2,400sqm water quality/detention basin located adjacent to the western

boundary. The proposed basin has been sized to accommodate the residential footprint in terms of water quality. The basin will be designed to retain water (i.e. a dry basin) with a sand filter system. An overflow system will direct treated water into the nearby waterway via an overflow weir with a low flow pipe. A detailed stormwater drainage concept will be required at the time of lodging an application to develop the site.

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

Aboriginal heritage

As previously noted, the local indigenous community has previously identified an area of 2,000sqm in the south west of the subject site as having significant cultural value. This is reflected in the proponent's search of the Aboriginal Heritage Information Management System (AHIMS) which identified one Aboriginal site in proximity to the site.

It is proposed to protect this area of the site in an E2 Environmental Conservation zone. Additionally, the proponent has advised that this area will be fenced as part of future development in accordance with correspondence from Bunyah Local Aboriginal Land Council, dated 17 September 2004. A copy of the AHIMS search and Bunyah correspondence is at **Annexure C**.

Consultation will need to occur with the Bunyah Local Aboriginal Land Council, NSW Aboriginal Land Council and the NSW Office of Environment and Heritage on this aspect of the proposal.

Regionally Significant Farmland

The western boundary of the subject site contains the fringe of a much larger expanse of mapped Regionally Significant Farmland to the west.

An Agricultural Land Use Assessment report, prepared on behalf of the proponent by MNC Agronomy Pty Ltd (at **Annexure D**), concluded that the proposed rezoning of the mapped farmland area, which comprises a narrow band of 1.78ha, would have no significant impact on the agricultural product value of the region. Additionally, it was concluded that because the subject site contains poor quality soils (including the mapped farmland area), it was neither economically nor environmentally sustainable to use the land for primary production now or in the future.

The MNC Agronomy report recommended that the 22m wide Crown road reserve on the western edge of the site be used to provide a buffer between future urban development and the adjoining Regionally Significant Farmland to the west. Based on a more recent Land Use Conflict Risk Assessment prepared by the proponent (at **Annexure E**), a 50m wide buffer is now proposed to the western boundary, extending approximately 415m from the southern boundary.

This buffer coincides with a site of indigenous heritage, an EEC, riparian buffer area, flood-affected land and a proposed stormwater detention basin. It also includes the Crown road reserve and the majority of mapped Regionally Significant Farmland on the site. With exception of the Aboriginal heritage site and riparian buffer, an E3 Environmental Management zone is proposed for this area.

A narrower 22m wide buffer comprising Crown road reserve is proposed for the remainder of the western boundary up to Kendall Road. The proponent's Land Use Conflict Risk Assessment notes that this area of the adjoining property is dominated by dwelling infrastructure (sheds, houses etc) and being such a small part of the farm cannot contribute significantly to any agricultural production system. A bulk storage (temporary fencing) business operates from this part of the adjoining site (approved under DA 2009/93 on 29/5/09).

Consultation will occur with the Department of Primary Industries regarding the agricultural aspects of the proposal and adequacy of the proposed buffer to adjoining Regionally Significant Farmland.

Social and Economic Impact

A change of zone and subsequent development of the site to permit an additional 45 lots as an extension to the adjoining Links Residential Estate as intended, is not expected to have a detrimental social or economic impact on the local community. It is considered that sufficient capacity exists in local social infrastructure (schools, parks, open space) and with a proposed increase in population, the local business community could gain potential economic benefits.

Section D - State and Commonwealth interests

10. Is there adequate public infrastructure for the planning proposal?

The rezoning proposal and subsequent development of up to 45 residential lots is not expected to require significant upgrades to existing public infrastructure in the locality. Reticulated water and sewer services networks currently exist and are of sufficient capacity to cater for future development of the site.

The surrounding locality is serviced by electricity and telecommunications infrastructure and is expected to be satisfactory for future development of the site. Consultation will occur with Essential Energy and Telstra concerning this matter.

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

Should the proposal be supported, the Department of Planning and Environment's Gateway Determination will specify consultation requirements. Prior to public exhibition, it is expected that consultation will occur with the following State public authorities:

- NSW Office of Environment and Heritage
- NSW Rural Fire Service
- Bunyah Aboriginal Land Council
- NSW Aboriginal Land Council
- Department of Primary Industries
- Roads and Maritime Services
- Essential Energy
- Telstra

This section of the planning proposal will be updated prior to public exhibition.

PART 4 – MAPPING

Proposed map amendments to the *PMHLEP 2011*, as outlined in Part 2 of this planning proposal, are illustrated below. The subject site is shown in red outline.

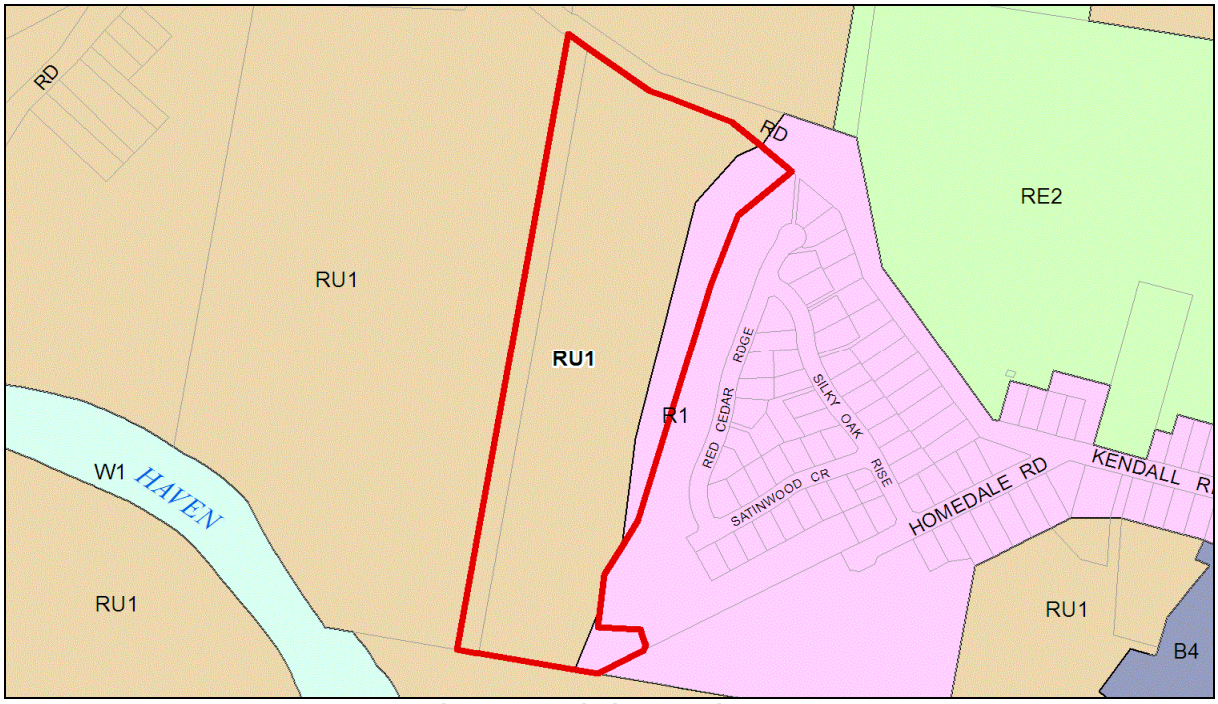

Figure 4 - existing Land Zone

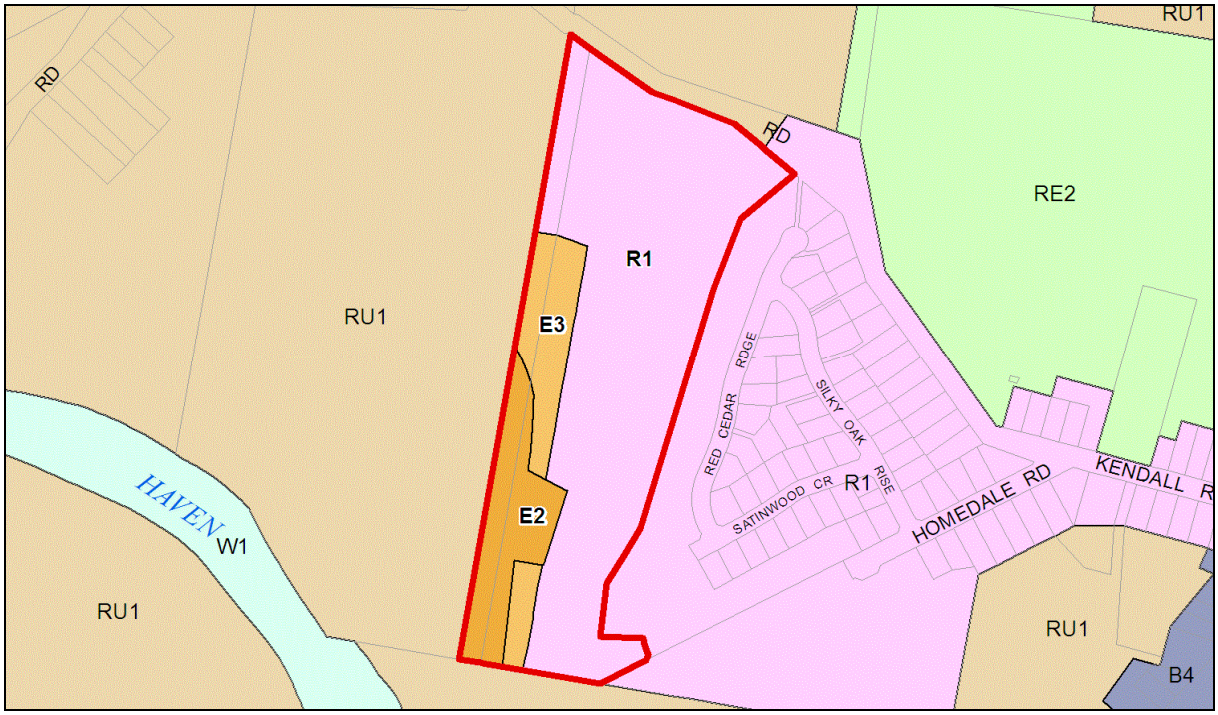

Figure 5 - proposed Land Zone

Zones relevant to the subject site:

- R1 General Residential
- RU1 Primary Production
- E2 Environmental Conservation
- E3 Environmental Management

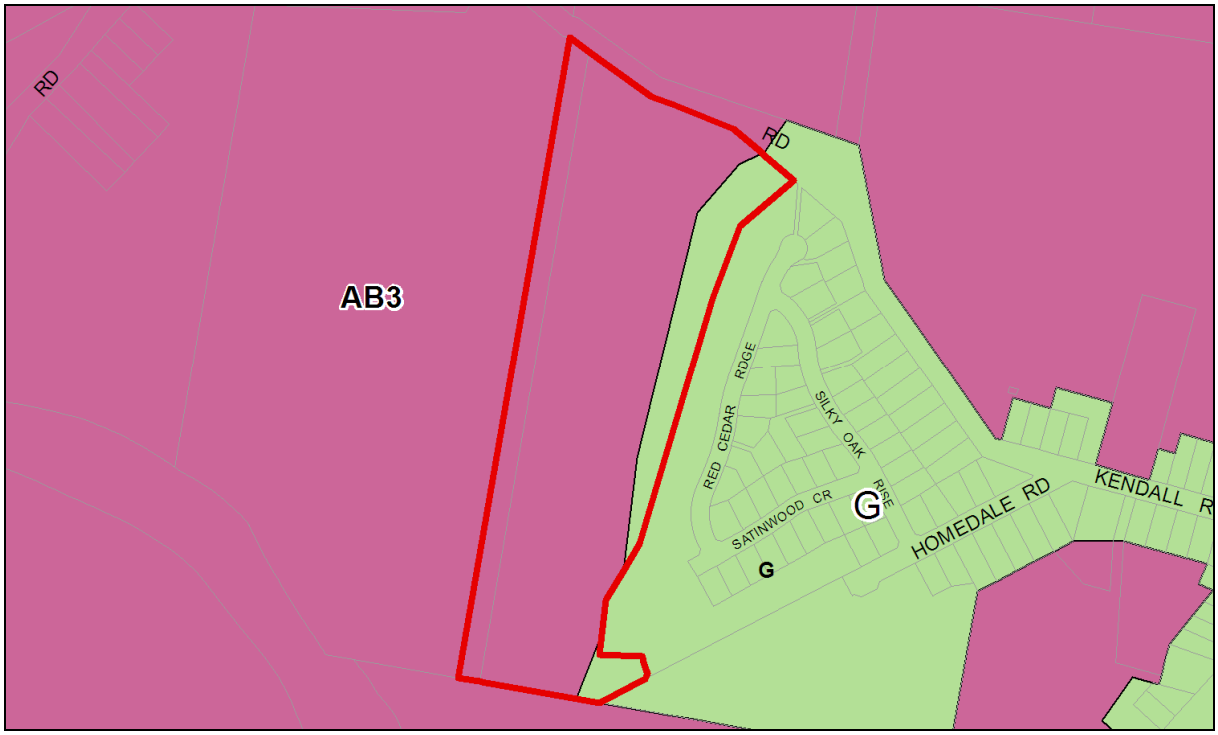

Figure 6 - existing Minimum Lot Size

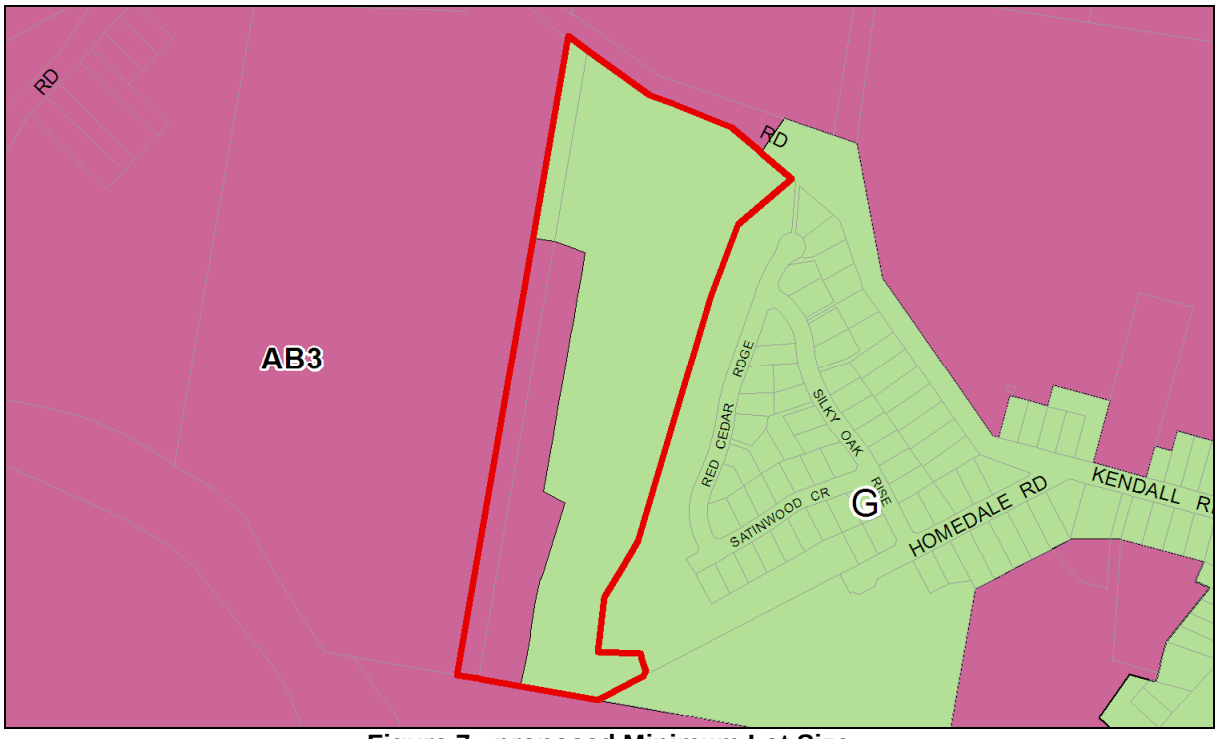

Figure 7 - proposed Minimum Lot Size

Minimum Lot Size:

G	450sqm
AB3	40 hectares

Figure 8 - existing Maximum Height of Buildings

Figure 9 - proposed Maximum Height of Buildings

Maximum Building Height:

I	8.5m
Blank	no maximum

Figure 10 - existing Maximum Floor Space Ratio

Figure 11 - proposed Maximum Floor Space Ratio

Maximum Floor Space Ratio:

G	0.65:1
Blank	no maximum

PART 5 – COMMUNITY CONSULTATION

It is proposed to undertake community consultation for 28 days and include notification in the local press and written notification to adjoining and adjacent landowners. The exhibition material will be available on Council's website and at its Laurieton, Wauchope and Port Macquarie Administration Buildings for the duration.

This section of the planning proposal will be updated following public exhibition.

PART 6 – PROJECT TIMELINE

This project timeline below is based on anticipated dates and timeframes, although it is recognised there can be unexpected delays.

It is assumed that Council will have delegation to carry out certain plan-making functions. Delegation would be exercised by Council's General Manager or the Director of Development and Environment.

Action	Timeframe
Anticipated commencement date (date of Gateway determination)	March 2017
Anticipated timeframe for completion of required technical information (noise impact assessment)	April 2017
Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination)	May 2017 & July - August 2017
Public exhibition period	July - August 2017
Consideration of submissions	September 2017
Post exhibition planning proposal preparation	October 2017
Submission to Dept of Planning and Environment to finalise the LEP	November 2017
Anticipated date Council will make the Plan (if delegated)	December 2017
Anticipated date Council will forward to the Dept for notification (if delegated)	December 2017

ANNEXURE A

Subdivision Concept & Servicing Plans

LEGEND

- REZONING APPLICATION BOUNDARY
- ARCHAEOLOGY SITE BOUNDARY
- Q100 FLOOD BDY - 6.43m AHD
- Q100 plus FREEBOARD - 6.93m AHD
- SIGNIFICANT FARMLAND BUFFER
- CENTRE LINE CREEK
- 40m VEGETATION BUFFER

GRAVEL EMERGENCY ACCESS
(8m WIDE)

KENDALL RD

PROPOSED
DEVELOPMENT

(UNFORMED ROAD)

202

334

EXISTING ARCHAEOLOGY SITE

RED CEDAR RIDGE

SILKY OAK ROAD

EXISTING
DEVELOPMENT

SATINWOOD CRESENT

HOMEDALE RD

CURRENT
DEVELOPMENT

HOMEDALE RD

EXISTING
DEVELOPMENT

0 10 20 40 60
Full Size 1:1000 ; Half Reduction 1:2000
SCALE (m)

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

No.	DATE	REVISIONS	BY
A	12/07/2016	REZONING PLANS	GA

HOPKINS CONSULTANTS PTY LTD
Suite 1 / 109 William Street · PO Box 1556
Port Macquarie NSW 2444 · ABN 27 055 060 878
Telephone: 02 6583 6722 · Facsimile: 02 6584 9009 Email: mail@hopcon.com.au
DEVELOPMENT · MANAGERS · SURVEYORS ENGINEERS · PLANNERS

HOMEDALE - KEW PTY LTD
THE LINKS
LOT 202 DP1133171, LOT 334 DP1204569
KENDALL RD, KEW

LOT 202 & 334 REZONING

SITE CONTEXT AND CHARACTER

Drawing Number/Reference: 6578-0019			Rev.: A
Designer: DG	Origin Of Levels: -		Date: 12/07/2016
Surveyor: GG	Height: -		Sheet Size: A1
Drafting: DG GA	Datum: AHD		Sheet No.: 01
Approved: DG	Scale: 1:1000		Total: 06

Cad File: S:\DWGS\6578\6578-0019.dwg, Layout: 01, Plotted By: gerard, Date: 08/08/16 - 16:15,

LEGEND

- REZONING APPLICATION BOUNDARY
- ARCHAEOLOGY SITE BOUNDARY
- Q100 FLOOD BDY - 6.43m AHD
- Q100 plus FREEBOARD - 6.93m AHD
- ADJUSTED FARMLAND BUFFER
- CENTRE LINE CREEK
- 40m VEGETATION BUFFER

MGA/55

KENDALL RD

RED CEDAR RIDGE

SILKY OAK ROAD

SATINWOOD CRESENT

HOMEDALE RD

(UNFORMED ROAD)

BASIN
2400 m²

50m TO FARMLAND BOUNDARY

PROPOSED DEVELOPMENT

CURRENT DEVELOPMENT

EXISTING DEVELOPMENT

EXISTING DEVELOPMENT

EXISTING ARCHAEOLOGY SITE

91	1506.4 m²	
92	1062.2 m²	
93	949.1 m²	
94	906.5 m²	
95	902.4 m²	
96	864 m²	
97	867 m²	
98	1213.7 m²	
99	1309.1 m²	
100	1012.3 m²	
101	1000 m²	
102	1000 m²	
103	1000 m²	
104	1000 m²	
105	1000 m²	
106	1000 m²	
107	1000 m²	
108	1047.1 m²	
109	1122.2 m²	
110	1108.7 m²	
111	1036.4 m²	
112	1001.6 m²	
113	1008.3 m²	
114	1046.1 m²	
115	1176.5 m²	
116	1520.4 m²	
117	1748.5 m²	
118	3992 m²	
119	3436 m²	
120	803.5 m²	
121	1147.4 m²	
122	1279.2 m²	
123	1219.4 m²	
124	1151.5 m²	
125	1083.7 m²	
126	1064.9 m²	
127	1012.8 m²	
128	1021.6 m²	
129	1047.9 m²	
130	1098.2 m²	
131	1072.1 m²	
119	811.4 m²	
118	811.4 m²	
117	803.5 m²	
116	876.1 m²	
115	792 m²	
112	792 m²	
113	800 m²	
114	800 m²	
81	1008.3 m²	
80	1008 m²	
79	1025.7 m²	
78	1018.6 m²	
77	1000 m²	
68	1000 m²	
67	1000 m²	
66	1000.8 m²	
65	1042.2 m²	
64	1102.1 m²	
63	1073.8 m²	
62	1018.5 m²	
61	1037.4 m²	

0 10 20 40 60
Full Size 1:1000 ; Half Reduction 1:2000
SCALE (m)

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

No.	DATE	REVISIONS	BY
A	12/07/2016	REZONING PLANS	GA

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THE LINKS
LOT202 DP1133171, LOT334 DP1204569
KENDALL RD, KEW

LOT 202 & 334 REZONING

SUBDIVISION CONCEPT

Drawing Number/Reference: 6578-0019			Rev.: A
Designer: DG	Origin Of Levels: -		Date: 12/07/2016
Surveyor: GG	Height: -		Sheet Size: A1
Drafting: DG GA	Datum: AHD		Sheet No.: 02
Approved: DG	Scale: 1:1000		Total: 06

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LEGEND

- CENTRE LINE CREEK
- REZONING APPLICATION BOUNDARY
- ARCHAEOLOGY SITE BOUNDARY
- PROPOSED GRAVITY SEWER
- PROPOSED SEWER RISING MAIN
- PROPOSED WATER RETICULATION
- PROPOSED DRAINAGE STRATEGY
- PROPOSED SEWER PUMP STATION LOCATION

MGA/55

STORMWATER NOTES:

DEVELOPMENT AREA 12ha
WATER QUALITY REQUIRED - AREA 2400m²
PRE - POST DEVELOPMENT
STORAGE VOLUME 2350m³

GRAVEL EMERGENCY ACCESS (8m WIDE)
KENDALL RD
PROPOSED STORMWATER
GRAVITY SEWER
EXSITING BASIN TO BE FILLED
EXISTING STORMWATER
EXISTING STORMWATER
EXISTING STORMWATER
EXISTING STORMWATER
EXISTING STORMWATER
GRAVITY SEWER
SEWER PUMP STATION
HEADWALL
HEADWALL
BASIN 2400 m²
50m TO FARMLAND BOUNDARY
(UNFORMED ROAD)
HEADWALL
EXISTING ARCHAEOLOGY SITE
EXSITING BASIN TO BE FILLED
150 SN8 GRAVITY SEWER
GRAVITY SEWER
EXISTING GRAVITY SEWER
SEWER RISING MAIN
RED CEDAR RIDGE
SILKY OAK ROAD
SATINWOOD CRESENT
HOMEDALE RD
HOMEDALE RD

0 10 20 40 60
Full Size 1:1000 ; Half Reduction 1:2000
SCALE (m)

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

No.	DATE	REVISIONS	BY
A	12/07/2016	REZONING PLANS	GA

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THE LINKS
LOT202 DP1133171, LOT334 DP1204569
KENDALL RD, KEW

LOT 202 & 334 REZONING STORMWATER, WATER AND SEWER STRATEGY

Drawing Number/Reference	6578-0019	Rev.	A
Designer	DG	Origin Of Levels	-
Date	12/07/2016		
Surveyor	GG	Height	-
Sheet Size	A1		
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Total	06		

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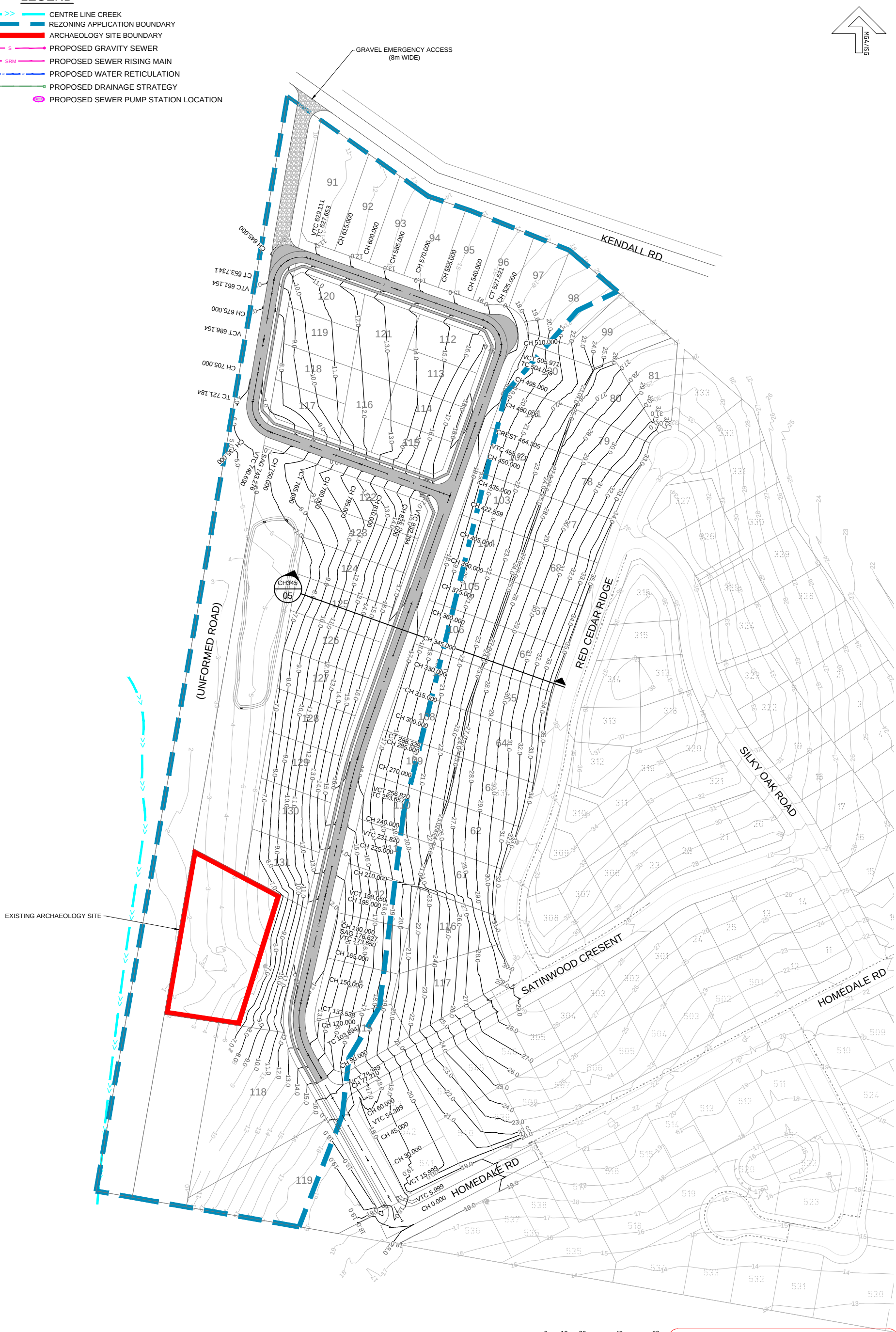
LEGEND

- CENTRE LINE CREEK
- REZONING APPLICATION BOUNDARY
- ARCHAEOLOGY SITE BOUNDARY
- PROPOSED GRAVITY SEWER
- PROPOSED SEWER RISING MAIN
- PROPOSED WATER RETICULATION
- PROPOSED DRAINAGE STRATEGY
- PROPOSED SEWER PUMP STATION LOCATION



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SCALE (m)

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

No.	DATE	REVISIONS	BY
A	12/07/2016	REZONING PLANS	GA

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HOMEDALE - KEW PTY LTD
THE LINKS
LOT202 DP1133171, LOT334 DP1204569
KENDALL RD, KEW

LOT 202 & 334 REZONING STORMWATER, WATER AND SEWER STRATEGY

Drawing Number/Reference: 6578-0019			Rev.: A
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Surveyor: GG	Height: -		Sheet Size: A1
Drafting: DG GA	Datum: AHD		Sheet No.: 04
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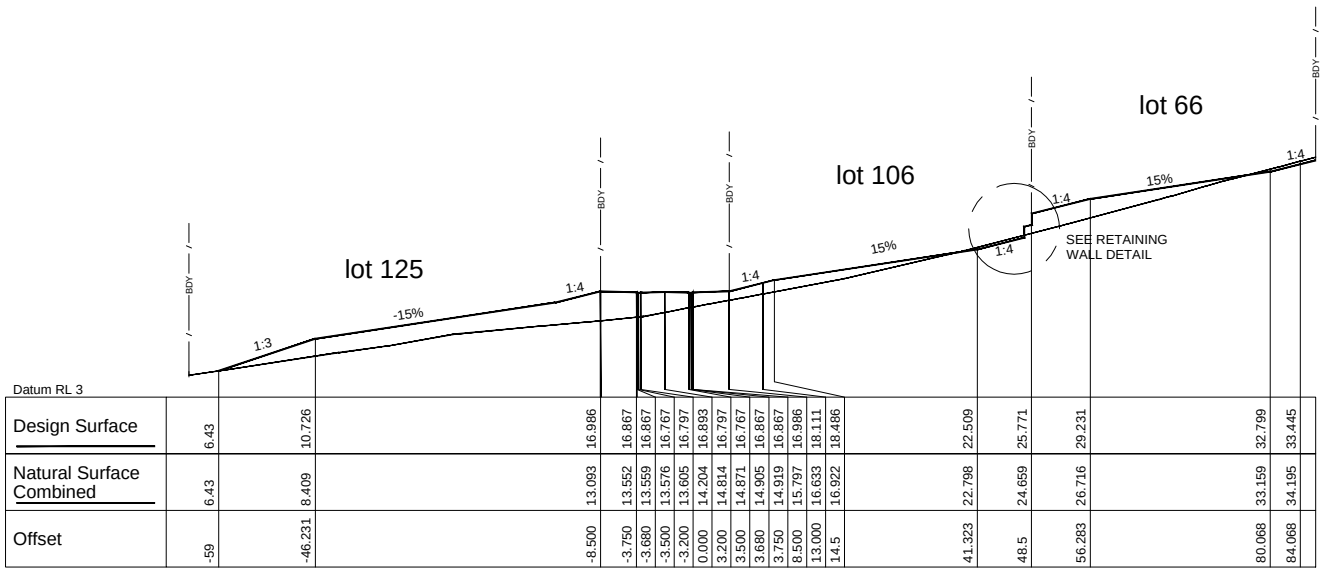

Design Surface	6.43	10.726	16.986	16.867	16.867	16.767	16.797	16.893	16.797	16.767
Natural Surface Combined	6.43	8.409	13.093	13.552	13.559	13.576	13.605	14.204	14.814	14.871
Offset	-59	-46.231	-8.500	-3.750	-3.680	-3.500	-3.200	0.000	3.200	3.500

Design Surface	16.867	16.867	16.986	18.111	18.486	22.509	25.771	29.231	32.799	33.445
Natural Surface Combined	14.905	14.919	15.797	16.633	16.922	22.798	24.659	26.716	33.159	34.195
Offset	3.680	3.750	8.500	13.000	14.5	41.323	48.5	56.283	80.068	84.068

CROSS SECTION @ CH 345.000
SCALE H 1:500 V 1:500

RETAINING WALL DETAIL
SCALE 1:50

Cut/Fill	0.445	0.259	0.127	-0.070	-0.080	-0.480	-0.505	-0.896	-1.211	-1.266	-1.288	-0.575	-0.396
Design Surface	17.843	17.943	18.003	18.045	18.044	17.897	17.878	17.479	17.097	17.003	16.802	16.052	15.921
Natural Surface Combined	17.398	17.685	17.876	18.115	18.124	18.377	18.383	18.375	18.307	18.269	18.089	16.627	16.317
Chainage	440.000	450.000	455.971	464.305	465.000	480.000	480.971	495.000	504.059	505.971	510.000	525.000	527.621

Cut/Fill	-0.055	0.042	0.051	0.138	0.214	0.153	0.121	0.118	0.121	0.042	-0.054	-0.436	-0.451
Design Surface	15.302	14.552	13.802	13.052	12.302	11.552	10.919	10.846	10.801	10.127	9.900	9.251	9.221
Natural Surface Combined	15.357	14.510	13.750	12.913	12.087	11.398	10.798	10.728	10.680	10.086	9.955	9.688	9.672
Chainage	540.000	555.000	570.000	585.000	600.000	615.000	627.653	629.111	630.000	641.611	645.000	653.734	654.111

Cut/Fill	-0.683	-0.729	-0.901	-0.887	-0.547	-0.409	0.177	0.774	0.821	0.218	-0.416	-0.593	-0.710
Design Surface	8.750	8.658	7.861	7.799	7.470	7.413	7.188	6.963	6.945	6.738	6.652	6.636	6.633
Natural Surface Combined	9.433	9.387	8.762	8.686	8.017	7.822	7.011	6.188	6.123	6.519	7.068	7.229	7.342
Chainage	660.000	661.154	673.654	675.000	686.154	690.000	705.000	720.000	721.184	735.000	740.690	742.226	743.276

Cut/Fill	-1.302	-1.492	-1.602	-1.582	-0.918	0.021	0.987	1.888	1.941	1.846	1.654	1.384	0.863	
Design Surface	6.764	6.918	8.001	8.090	9.950	11.900	13.850	15.800	16.761	17.286	17.461	17.561	17.669	
Natural Surface Combined	8.066	8.409	9.603	9.672	10.868	11.879	12.863	13.912	14.820	15.440	15.807	16.177	16.806	
Chainage	750.000	753.190	765.000	765.690	780.000	795.000	810.000	825.000	832.394	837.394	840.000	842.394	845.982	

ROAD 1A LONGITUDINAL SECTION
CH 435.000 TO CH 845.982
SCALE H 1:1000 V 1:200

Cut/Fill	-0.210	-0.918	-1.614	-2.047	-2.139	-3.044	-2.598	-1.890	-1.444	-0.848	-0.365	-0.267	-0.190
Design Surface	18.160	17.980	17.855	17.791	17.780	17.640	17.490	17.396	17.283	16.990	16.425	16.230	16.021
Natural Surface Combined	18.370	18.898	19.469	19.838	19.919	20.684	20.088	19.286	18.727	17.838	16.790	16.497	16.211
Chainage	0.000	5.999	10.999	15.000	15.999	30.000	45.000	54.389	60.000	66.889	75.000	77.210	79.389

Cut/Fill	0.144	0.663	0.682	0.709	1.408	1.869	2.980	3.734	4.236	4.564	2.615	0.647	0.326
Design Surface	14.960	13.571	13.525	13.461	12.556	12.401	12.150	12.108	12.094	11.944	11.794	11.707	11.692
Natural Surface Combined	14.816	12.907	12.843	12.752	11.149	10.532	9.170	8.374	7.858	7.380	9.178	11.060	11.366
Chainage	90.000	103.894	104.350	105.000	116.850	120.000	129.350	133.538	135.000	150.000	165.000	173.650	176.627

Cut/Fill	0.032	-0.419	-0.487	-0.436	-0.033	0.705	1.159	1.618	1.802	2.180	2.215	2.255	2.416
Design Surface	11.711	11.845	12.259	12.507	13.347	14.457	14.962	15.481	15.687	15.967	15.989	16.012	16.143
Natural Surface Combined	11.680	12.263	12.746	12.943	13.380	13.752	13.803	13.863	13.885	13.787	13.774	13.757	13.727
Chainage	180.000	186.150	195.000	198.650	210.000	225.000	231.820	240.000	244.320	253.657	255.000	256.820	270.000

Cut/Fill	2.457	2.460	2.486	2.523	2.734	2.690	2.519	2.107	1.712	1.091	0.926	0.863	0.628	0.445
Design Surface	16.293	16.327	16.443	16.593	16.743	16.893	17.043	17.193	17.343	17.493	17.643	17.669	17.793	17.843
Natural Surface Combined	13.837	13.867	13.957	14.070	14.009	14.204	14.524	15.086	15.632	16.402	16.718	16.806	17.165	17.398
Chainage	285.000	288.328	300.000	315.000	330.000	345.000	360.000	375.000	390.000	405.000	420.000	422.559	435.000	440.000

ROAD 1A LONGITUDINAL SECTION
CH 000.000 TO CH 440.000
SCALE H 1:1000 V 1:200

Full Size 1:200 ; Half Reduction 1:400
SCALE (m)

Full Size 1:500 ; Half Reduction 1:1000
SCALE (m)

Full Size 1:1000 ; Half Reduction 1:2000
SCALE (m)

DEVELOPMENT APPLICATION
NOT FOR CONSTRUCTION

No.	DATE	REVISIONS	BY
A	12/07/2016	REZONING PLANS	GA

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ENGINEERS•PLANNERS

Liability limited by a scheme approved under Professional Standards Legislation

HOMEDALE - KEW PTY LTD
THE LINKS
LOT202 DP1133171, LOT334 DP1204569
KENDALL RD, KEW

LOT 202 & 334 REZONING ROAD LONGSECTION AND CH 345.000 CROSS SECTION

Drawing Number/Reference 6578-0019		Rev. A
Designer DG	Origin Of Levels -	Date 12/07/2016
Surveyor GG	Height -	Sheet Size A1
Drafting DG GA	Datum AHD	Sheet No. 05
Approved DG	Scale AS SHOWN	Total 06

Cad File: S:\DWGS\6578\6578-0019.dwg, Layout: 05, Plotted By: gerard, Date: 08/08/16 - 16:15,

ANNEXURE B

Preliminary Vegetation Assessment Report and Addendum

FloraFauna Consulting

Preliminary Vegetation Assessment Report

Project Number: EA-2015-2303

Proposed Rezoning

Lot 202 DP 1133171
Homedale Road Kew

October 2015

Prepared for:

Homedale – Kew Pty Ltd

PO Box 3212 West Kempsey NSW 2440
Phone: (02) 6566 0975 Mobile: 0429 727 010
mail@florafauna.com.au www.florafauna.com.au
ABN: 22 167 601 074

Title	Preliminary Vegetation Assessment Report
Project	Lot 202 DP 1133171 Homedale Road Kew
Client	Homedale – Kew Pty Ltd
Report No.	EA-2015-2303
Draft/Final	Draft – 29 October 2015 (Revision A)

The preparation of this addendum to the ecological report has been undertaken in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this addendum are prepared for the exclusive use of the client and with respect to the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes other than those stated herein.

Prepared By: **Steve Britt**
BSc. (Botany)
Grad. Dip. Design for Bushfire Prone Areas
Master of Wildlife Mgt. (Habitat)

Signed:

Date: 29 October 2015

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1. Glossary of Terms and Acronyms

AABR: Australian Association of Bush Regenerators

Abundance: Means a quantification of the population of the species or community

Affected species: Means subject species likely to be affected by the proposal

AHD: Australian height datum

APZ: Asset protection zone (for bushfire protection purposes)

Assessment guidelines: Means assessment guidelines issued and in force under Section 94A of the *Threatened Species Conservation Act 1995* or, subject to Section 5C of the *Fisheries Management Act 1994*

CAVS: Census of Australian Vertebrates

Conservation status: Is regarded as the degree of representation of a species or community in formal conservation reserves

Critical habitat: The area declared to be critical habitat under Part 3 of the *Threatened Species Conservation Act 1995*

DBH: Diameter at breast height being the measurement of the tree trunk at 1.3 m above ground level

DCP: Port Macquarie-Hastings Development Control Plan 2013

DECC: Department of Environment, Conservation and Climate Change

Development: The erection of a building on that land, the carrying out of work in, on, over or under that land, the use of that land or of a building or work on that land, and the subdivision of that land

EEC: Endangered Ecological Community

Endangered ecological community: An ecological community specified in Part 1 of Schedule 1 of the *Threatened Species Conservation Act 1995*

Endangered population: A population specified under Part 1 of Schedule 1 of the *Threatened Species Conservation Act 1995*

Endangered species: a species listed under Schedule 1 of the *Threatened Species Conservation Act 1995*

EP&A Act: *Environmental Planning and Assessment Act, 1979*

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999*

Field survey: Means on the ground flora and fauna assessment

Habitat: An area or areas occupied, or periodically or occasionally occupied by a species, population or ecological community and includes any abiotic component

Key Threatening Process: Is a threatening process listed under the *Threatened Species Conservation Act 1995*

LEP: Port Macquarie-Hastings Local Environmental Plan 2011

Locality: the area within a 5 km radius of the study area

NPW Act: *National Parks and Wildlife Act 1974*

OEH: NSW Office of Environment and Heritage

PBP: *Planning for Bushfire Protection 2006*

PCT: NSW Plant Community Type classification

PMHC: Port Macquarie-Hastings Council

PMST: Protected matters search tool

Recovery and threat abatement plan: A plan to promote the recovery of threatened species, population or an ecological community with the aim of returning the species, population, or ecological community to a position of viability in nature

ROTAP: Rare or threatened Australian plant

SEPP: State Environmental and Planning Policy

Subject Site: The identified land (Lot(s) and DP(s)

Study area: The geographic extent of the ecological assessment (may be the subject site or a portion of it)

Threatened species: A species specified in Part 1 or 4 of Schedule 1 or in Schedule 2 of the *Threatened Species Conservation Act 1995*

Threatening process: Means a threatening process that threatens, or could potentially threaten, the survival or evolutionary development of a species, population or ecological community

TSC Act: *Threatened Species Conservation Act 1995*

UIA: Urban Investigation Area

VIS: NSW Vegetation Information System (classification database)

VMP: Vegetation Management Plan

Vulnerable species: A species listed under Schedule 2 of the *Threatened Species Conservation Act 1995* or when a fish, listed under the *Fisheries Management Act 1994*.

2. Introduction

2.1 Background

It is proposed to rezone land identified as Lot 202 DP 1133171, Homedale Road Kew. At a pre-lodgement meeting held on 8 January 2015, Port Macquarie Hastings Council provided the following advice in relation to vegetation within the site:

"Council's records indicate that the site contains an EEC in the south-western corner comprising Swamp Oak - mixed Eucalypt coastal floodplain wetland forest. If the majority of the vegetation in this area of the site is Camphor, Council may concede to relaxing the EEC buffer requirements. Photographic evidence will be required to confirm this is the case."

Subsequent discussions between Council and GEM Planning Projects identified the need for an ecological assessment to determine the extent of weed invasion within the small remnant of vegetation around the farm dam located in the southern part of the site and the remnant vegetation in the south-western corner that is connected to the riparian vegetation associated with the small creek located adjacent to the western boundary. Based on the findings of the ecological assessment a decision would then be made regarding the ecological value of the vegetation and whether it could be removed without significant impact on biodiversity. The provision of an appropriate offset was also identified with the lower banks adjacent to the creek (i.e. within 40 metres of the creek) being maintained and improved by weeding and if necessary enhanced with plantings to establish the creek buffer and to improve the habitat values of the land in the south-western corner of the site. Suitable plantings would also be undertaken in the drainage reserve of the future subdivision.

FloraFauna Consulting has been engaged by Homedale – Kew Pty Ltd to prepare a report in relation to the assessment of the two areas of remnant vegetation.

2.2 Subject Site

The subject site is identified as Lot 202 in DP 1133171, Homedale Road Kew and comprises land of approximately 8.14 hectares located more or less at the margin of the village. Outside of the residential areas of Kew there are large expanses of rural zoned land in which agricultural and forestry activities are carried out. The site adjoins Kendall Road to the north and a recently developed subdivision known as The Links to the east. The southern and western boundaries adjoin rural land that is generally managed for agricultural purposes. There is a second order stream that flows past the site adjacent to the boundary in the south-western corner, which continues southward for approximately 100 metres before joining the Camden Haven River. An image of the subject site and surrounding landscape is provided at Figure 2.1.

Figure 2.1: Aerial image of the subject site and surrounding landscape

2.3 Study Area

The study area comprised the seven (7) patches of remnant vegetation in the southern part of the site including the immediate surrounds of a small farm dam, an area of land

containing remnant vegetation in the south-western corner of the site and five (5) other smaller patches of remnant vegetation as indicated in Figure 2.2.

Figure 2.2: Study area

3. Methodology

3.1 Nomenclature

The names of plants used in this document follow the *Flora of New South Wales* (Harden, 2000) with updates from the PlantNet website (Royal Botanic Gardens Sydney, 2012).

The description of plant communities used in this document follow the Port Macquarie-Hastings Council (PMHC) vegetation community mapping. For clarity a description based on observations recorded during the field survey has also been provided.

Unless otherwise stated, tree growth stage descriptions used in this document are adapted from Jacobs, M.R. (1955) *Growth Habits of the Eucalypts*, Woodgate et al, 1994, *A Study of Old-growth Forests of East Gippsland*, and the Joint Old Growth Forest Project (JOGFP), 1996 as is currently utilised by the NSW Environmental Protection Agency (EPA) for the purposes of old growth forest field verification. Table 3.1 sets out the growth stages adopted for this document:

Jacobs (1955) Growth Stages	Woodgate et al (1994) Growth Stages	Amalgamated Major Growth Stages
Juvenile		
Sapling	Sapling	Regrowth
Pole	Pole	
Mature	Early-mature	Mature
	Mature	
	Late-mature	Senescing
Overmature	Overmature	

Table 3.1: Relationship between growth stage classifications used in this document

The names of vertebrate animals used in this document follow the Census of Australian Vertebrates (CAVS) database maintained by the Department of the Environment and Heritage (2004).

3.2 Licencing

All work in relation to this fauna survey was undertaken with appropriate licences and authorisations including:

- A Scientific Licence for the purpose of ecological survey and consulting issued subject to the provisions of Section 132C of the NPW Act and regulations; and
- An Animal Research Authority issued by the Department of Industries and Investment (formerly the Department of Primary Industries) Director-General's Animal Care and Ethics Committee for the purpose of biodiversity survey and habitat assessment.

3.3 Survey Timing and Weather Conditions

The survey was conducted on Monday, 18 May 2015. Weather conditions at the time were relatively mild with light rain falling during the morning then clearing later.

3.4 Desktop Assessment

The desktop assessment involved database searches as summarised in Table 3.1 were undertaken on 17 May 2015.

Database	Source
Atlas of NSW Wildlife (10 km x 10 km search area)	NSW Government Office of Environment and Heritage
PlantNet: ROTAP/Threatened Species Spatial Search (10 km radius)	Sydney Royal Botanic Gardens
EPBC Act Protected Matters Search Tool (10 km buffer)	Department of Sustainability, Environment, Water, Population and Communities

Table 4.1: Database Searches

3.4.1 Atlas of NSW Wildlife

The Atlas of NSW wildlife database was searched to inform of threatened species records within a 10 x 10 km (default) search area around the study area. This information was used to determine:

- The threatened species recorded; and
- The proximity of any threatened species records to the study area.

3.4.2 EPBC Act Protected Matters Search Tool

The Protected Matters Search Tool (PMST) was utilised to generate a report that provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act around the study area employing a 10 km buffer.

3.5 Field Survey

An investigation of the study area was undertaken Monday, 18 May 2015 for the purpose of conducting an assessment of the flora and habitat as detailed below.

3.5.1 Flora Assessment

Because of the relatively small size of the study area and disturbed condition of the habitat therein, the assessment of the flora was conducted using the random meander method after Cropper (1993). The following tasks were undertaken:

- Identification of the plant communities;
- Assessment of the species assemblage to assist with identification of the plant communities;
- Identification of principal species;

- Spatial distribution of the vegetation in the survey area;
- Assessment of the vegetation's condition; and
- Determination of the vegetation's conservation significance.

For the purposes of this ecological assessment a tree is defined as a perennial plant having a trunk diameter at breast height (DBH) of not less than 100 mm where DBH is the measurement of the trunk at 1.3 metres above ground level.

3.5.2 Habitat Assessment

The habitat within the survey area was assessed to identify any significant habitat features such as hollow-bearing trees and other factors such as habitat connectivity and conservation significance.

3.6 Survey Limitations

Ecological surveys are limited in their capacity to document all of the species of flora and fauna likely or actually occurring at a given site. There are numerous factors that will influence whether a species is detected or not, including climatic and seasonal conditions, the issue of migratory species movements, availability of shelter and food resources, and how readily a species is observed or otherwise recorded given the cryptic nature of some species making them difficult to detect. The absence of a species from survey results does not necessarily indicate that the species is not present. Similarly, there are limitations applicable to the interpretation of records held in databases for the presence or absence of a species at a site. For instance, the Atlas of NSW Wildlife is a database of limited available information and it should not be assumed that the absence of records indicates that a species is not present. Therefore, in order to offset these limitations the habitat components of the study area have been assessed to help predict those species likely to occur within the study area based on habitat preferences.

4. Results

4.1 Flora Survey

4.1.1 Plant Communities

The remnant vegetation located in the south-western corner of the site is mapped under the PMHC vegetation mapping as PMVC 71 Swamp Oak – Mixed Eucalypt Coastal Floodplain Wetland Forest Complex. For the purposes of the PMHC vegetation mapping the other remnant patches that formed the study area have not been assigned to a plant community. The PMHC vegetation community description and field observations for the mapped plant community is provided below.

i. PMHC Vegetation Community Description

Vegetation Formation: Wet Sclerophyll Forests

Sub-formation: Shrubby

Class: North Coast Wet Sclerophyll Forests

Floristic Type: *Eucalyptus pilularis*

Structure: *Eucalyptus pilularis - Glochidion ferdinandi - Imperata cylindrica*

Community Description:

Canopy

Callistemon salignus (Willow Bottlebrush), *Corymbia intermedia* (Pink Bloodwood), *Eucalyptus grandis* (Flooded Gum), *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus robusta* (Swamp Mahogany), *Eucalyptus microcorys* (Tallowwood), *Melaleuca linariifolia* (Flax-leaved Paperbark) and *Melaleuca styphelioides* (Prickly Paperbark). In the long-term absence of fire *Ficus obliqua* (Small-leaved Fig) and *Ficus macrophylla* (Moreton Bay Fig).

Understorey

Alphitonia excelsa (Red Ash), *Casuarina glauca* (Swamp Oak), *Callistemon salignus* (Willow Bottlebrush), *Cordyline stricta* (Slender Palm Lily), *Elaeocarpus obovatus* (Hard Quandong), *Glochidion ferdinandi* (Cheese Tree), *Guioa semiglauca* (Guioa), *Hibiscus heterophyllus* (Native Rosella), *Melaleuca linariifolia* (Flax-leaf Paperbark), *Melaleuca quinquenervia* (Broad-leaved Paperbark), *Melaleuca styphelioides* (Prickly Paperbark). In the decadal absence of fire, rainforest succession progressively allows the following species in a semi or continuous closed canopy beneath emergent layer: *Cryptocarya microneura* (Murrogun), *Cupaniopsis anacardioides* (Tuckeroo), *Cupaniopsis parvifolia* (Small-leaved Tuckeroo), *Cyclophyllum longipetalum* (Coprosma-leaved Coffee), *Jagera pseudorhus* (Foam Bark Tree), *Maclura cochinchinensis* (Cockspur Thorn), *Melicope micrococca* (Hairy-leaved Doughwood),

Myrsine spp., *Pittosporum undulatum* (Sweet Pittosporum), *Ripogonum album* (White Supplejack) and *Smilax australis* (Lawyer Vine).

Groundcover

Doodia aspera (Prickly Rasp Fern), *Gahnia clarkei* (Tall Saw-sedge), *Gahnia melanocarpa* (Black-fruit Saw-sedge), *Carex longebrachiata* (Bergalia Tussock), *Commelina cyanea* (Native Wandering Jew), *Imperata cylindrica* (Blady Grass) and *Oplismenus* spp.

ii. Field Observations

Remnant 1:

Remnant 1, as indicated in Figure 2.2 comprised three (3) isolated 'paddock' trees, which are part of a small group of trees that extend onto 'The Links' subdivision land adjoining the site to the east. These three trees were identified as *Eucalyptus microcorys* (Tallowwood) that were in the mature growth stage. No visible hollows were recorded in any of these trees. As Tallowwood is a Koala food tree species the bases of all of these trees were checked for scats. No scats or other evidence of recent Koala activity was observed.

Remnant 2:

Remnant 2, as indicated in Figure 2.2 comprised regrowth vegetation associated with a small farm dam. Generally the vegetation was confined to the dam wall and water's edge where access to slashing machinery would be difficult thus allowing the regrowth to establish. The canopy was largely composed of *Cinnamomum camphora* (Camphora Laurel) and *Casuarina glauca* (Swamp Oak). The parts of the remnant in which the canopy was dominated by Swamp Oak was generally adjacent to the water's edge and tended to be relatively narrow. The understorey was dominated by juvenile canopy species, particularly Swamp Oak as well as several environmental weeds, including *Lantana camara* (Lantana) *Ligustrum lucidum* (Broad-leaved Privet), *Ligustrum sinense* (Small-leaved Privet) and *Ochna serrulata* (Mickey Mouse Plant). Less abundant native species recorded in the understorey included *Acacia implexa* (Hickory Wattle), *Pittosporum undulatum* (Sweet Pittosporum), *Gahnia clarkei* (Tall Saw-sedge), *Callitris macleayana* (Stringybark Pine), and *Maclura cochinchinensis* (Cockspur Thorn). Beneath the Camphor Laurel the groundcover was relatively sparse with the more common species being *Lomandra longifolia* (Spiny-headed Mat-rush), *Imperata cylindrica* (Blady Grass), *Calochlaena dubia* (Rainbow Fern), *Oplismenus aemulus* (Basket Grass) and *Pratia purpurascens* (Whiteroot). The margins were dominated by species associated with the adjacent derived grassland community including *Setaria sphacelata* (South African Pigeon Grass), *Andropogon virginicus* (Whisky Grass), *Paspalum urvillei* (Vasey Grass), *Sporobolus africanus* (Parramatta Grass) and *Senecio madagascariensis* (Fireweed). Other common species recorded at the margins included *Leptospermum polygalifolium* subsp. *cismontanum* (Tantoon) and *Melaleuca thymifolia* (Thyme Honey-myrtle) which were also widespread across the derived grassland community.

The following images show the typical assemblage of species associated with the dam remnant/regrowth vegetation.

Figure 4.1: View of the dam regrowth vegetation (Remnant 2) from the eastern boundary of the site

Figure 4.2: View of vegetation on the western wall of the dam dominated by Camphor Laurel

Figure 4.3: View of the Swamp Oak regrowth along the southern edge of the dam

Figure 4.4: View looking along the western edge of the dam wall

Figure 4.5: Understorey and groundcover beneath Camphor Laurel on the western wall of the dam

Figure 4.6: View of juvenile Swamp Oak along the dam water's edge

Remnant 3 and Remnant 4:

Remnants 3 and 4 as indicated in Figure 2.2 were both more or less composed entirely of exotic/weed species. The canopy was entirely comprised of *Cinnamomum camphora* (Camphor Laurel) and the understorey consisted of *Ligustrum sinense* (Small-leaved Privet) and *Lantana camara* (Lantana). The following images show the size and species composition of these small remnants.

Figure 4.7: View of Remnant 4

Figure 4.8: View of the understorey in Remnant 4

Figure 4.9: Remnant 3 (right) and Remnant 4 (left) with riparian vegetation on the adjacent land in the background

Remnant 5:

Remnant 5 as indicated in Figure 2.2 was the most significant patch of vegetation within the site. It was part of a more extensive patch of remnant riparian vegetation associated with a second order stream that flows past the site adjacent to the boundary in the south-western corner, which continues southward for approximately 100 metres before joining the Camden Haven River. The canopy was dominated by *Cinnamomum camphora* (Camphora Laurel) with *Casuarina glauca* (Swamp Oak) being the main associate. There was also a small number of individuals of *Melaleuca quinquenervia* (Broad-leaved Paperbark) and single mature individuals of *Corymbia intermedia* (Pink Bloodwood) and *Eucalyptus robusta* (Swamp Mahogany) situated near the margin adjacent to the southern boundary. Outside the western boundary of the site on the lower slopes of the creek bank *Casuarina glauca* (Swamp Oak) became dominant in the canopy and *Cinnamomum camphora* (Camphora Laurel) was less common. No visible hollows were observed in any trees within this remnant vegetation.

Within the site, the understorey of this remnant was dominated by exotic/weed species including *Ligustrum lucidum* (Broad-leaved Privet), *Ligustrum sinense* (Small-leaved Privet), *Lantana camara* (Lantana), and *Senna pendula* var. *glabrata* (Easter Cassia). The most abundant native species was *Acacia implexa* (Hickory Wattle). Other less common species recorded in the understory included *Acacia elongata* (Swamp Wattle), *Ochna serrulata* (Mickey Mouse Plant), *Melaleuca styphelioides* (Prickly-leaved Tea Tree), *Jagera pseudorhus* (Foam Bark Tree), *Maclura cochinchinensis* (Cockspur Thorn), *Pittosporum undulatum* (Sweet Pittosporum), *Alectryon subcinereus* (Wild Quince) and *Cryptocarya microneura* (Murrogun). There was also an exotic species recorded in the understorey from the Fabaceae and in the absence of flowers or fruit was tentatively identified as *Leucaena leucocephala* (Lead Tree).

The groundcover was relatively sparse, most likely as a result of the closed nature of the understorey. The more common groundcover species included *Doodia aspera* (Prickly Rasp Fern), *Lomandra longifolia* (Spiny-headed Mat-rush) and occasionally *Leucopogon juniperinus* (Prickly Beard-heath). Seedlings of the understorey species and in particular the two Privet species were common and widespread in the groundcover. The margins were dominated by species associated with the adjacent derived grassland community including *Imperata cylindrica* (Blady Grass), *Setaria sphacelata* (South African Pigeon Grass), *Andropogon virginicus* (Whisky Grass), *Paspalum urvillei* (Vasey Grass) and *Sporobolus africanus* (Parramatta Grass). The following images show the nature of the remnant and typical assemblage of species.

Figure 4.10: View of the northern end of Remnant 5

Figure 4.11: View of the southern end of Remnant 5

Figure 4.12: View looking along the margin of Remnant 5

Figure 4.13: View of the typical understorey vegetation in Remnant 5

Remnant 6:

Remnant 6 as indicated in Figure 2.2 was also more or less entirely composed of exotic/weed species and is essentially a clump of *Erythrina* x *sykesii* (Coral Tree) with *Solanum mauritianum* (Wild Tobacco Bush) and *Ligustrum sinense* (Small-leaved Privet). An image of this patch of vegetation is provided in Figure 4.9.

Figure 4.14: View of Remnant 6

Remnant 7:

Remnant 7 as indicated in Figure 2.2 was a small remnant comprising a disjunct group of trees, most of which were located on the adjacent land to the south. Part of the remnant including a large mature individual of *Eucalyptus microcorys* (Tallowwood) together with a smaller individual of *Cinnamomum camphora* (Camphor Laurel) and associated understorey dominated by exotic/weed species were located within the site. No visible hollows were recorded in these trees. As Tallowwood is a Koala food tree species the bases of the trees were checked for scats. No scats or other evidence of recent Koala activity was observed. An image of the large Tallowwood within the study area (Remnant 7) is provided at Figure 4.10.

Figure 4.15: View of the large Tallowwood in Remnant 7

The floristic composition of the remnants that formed the study area is summarised in Figure 4.16.

Figure 4.16: Summary of the floristic composition of the remnants (study area)

4.2 Habitat Assessment

The habitat within the study area was assessed during the field survey. Remnant 1 contained three (3) Tallowwood trees in the mature growth stage and Remnant 7 contained one large mature Tallowwood tree. All of these trees and associated trees were checked for signs of Koala activity. No evidence of Koala activity was detected.

All trees within the canopy of the search area were assessed for visible hollows however, none were observed. During the field survey a Common Brushtail Possum (*Trichosurus vulpecula*) was detected in Remnant 5. This individual was found sheltering in dense vegetation of the understorey and climbed a nearby tree when it was inadvertently disturbed. There were no other significant habitat features recorded.

5. Conclusion

This report has been prepared to assess the vegetation in relation to a proposed rezoning of land identified as Lot 202 in DP 1133171, Homedale Road Kew. The study area comprised seven (7) patches of remnant vegetation in the southern part of the site including the immediate surrounds of a small farm dam, an area of land containing remnant vegetation in the south-western corner of the site and five (5) other smaller patches.

Almost all of the remnant patches of vegetation forming the study area were either significantly disturbed or comprised an assemblage of exotic species. Two of the species recorded during the survey including *Lantana camara* (Lantana) and *Senecio madagascariensis* (Fireweed) are listed as weeds of national significance. Other highly invasive weeds recorded during the survey included *Cinnamomum camphora* (Camphor Laurel), *Ligustrum lucidum* (Broad-leaved Privet), *Ligustrum sinense* (Small-leaved Privet), *Senna pendula* var. *glabrata* (Easter Cassia) and *Solanum mauritianum* (Wild Tobacco Bush). Camphor Laurel and the two species of Privet in particular are serious environmental weeds that are often associated with invasion of rainforest and riparian vegetation across the NSW north coast region.

Remnant 1 contained three (3) Tallowwood trees, which are part of a small group of trees that extend onto 'The Links' subdivision land adjoining the site to the east. These trees are preferred Koala food tree species, however their isolated position reduces the likelihood of the trees being browsed by Koalas. Remnants 3, 4 and 6 were primarily composed of exotic/weed species and have little ecological value and in fact the removal of these patches would be beneficial. Remnant 7 contained a single large mature Tallowwood tree that was associated with a small patch of vegetation with an understorey that comprised mostly exotic species. Despite the presence of undesirable species in the understorey, the large Tallowwood retains ecological value both in terms of being a preferred Koala food tree and providing resources for other species generally as well as being a recruitment tree.

Remnant 2 appears to be regrowth associated with a small dam surrounded by a derived grassland community. The 'regrowth' vegetation is confined to the dam wall or water's edge and it is likely that restricted access for slashing machinery has allowed this regeneration to occur. The remnant has a number of species in common with the Swamp Oak mixed eucalypt coastal floodplain wetland forest complex community that is associated with the second order stream on the adjacent land to the west due its proximity. It is noted that the PMHC vegetation mapping indicates that the Swamp Oak mixed eucalypt coastal floodplain wetland forest complex community is mapped as an endangered ecological community (EEC). The colonisation of the dam surrounds may have been facilitated initially by the moist conditions created by the dam that allowed wind dispersed species such as *Casuarina glauca*, which are adapted for such moist conditions to establish. Species such as *Cinnamomum camphora*, which are dispersed by other vectors such as birds may have followed once vegetation was sufficiently established to allow birds to access the area. Although the remnant has some species in common with the nearby EEC it can be argued that the remnant is itself not part of that EEC as the conditions in which it is growing are artificial

and a significant proportion of the species assemblage in all strata are in fact exotic/weed species. During the field survey it was noted that the dam was inhabited by a population of *Gambusia holbrooki* (Plague Minnow), which would reduce its ecological value in terms of frog habitat.

Remnant 5 is an extension of the mapped Swamp Oak mixed eucalypt coastal floodplain wetland forest complex and shares a number of species with that plant community. As detailed in Section 4, this remnant is highly disturbed and contains several of the more serious invasive weeds including *Cinnamomum camphora* (Camphor Laurel) in the canopy and *Ligustrum lucidum* (Broad-leaved Privet), *Ligustrum sinense* (Small-leaved Privet), *Lantana camara* (Lantana), and *Senna pendula* var. *glabrata* (Easter Cassia) in the understorey. Together these weeds comprise the larger proportion of plants within each strata. However, disturbance does not preclude a plant community from being classified as an EEC. As such Remnant 5 is considered to be part of the Swamp Oak mixed eucalypt coastal floodplain wetland forest complex EEC. On this basis Council's advice that the vegetation within 40 metres of the creek should be protected and excluded from the development footprint is supported. It is noted however that the extent of the weed invasion throughout the Swamp Oak mixed eucalypt coastal floodplain wetland forest complex community beyond the site boundaries would make it difficult to undertake any practical ecological improvement particularly as the vegetation overlaps different land tenures.

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Ref: EA-2015-2303

John Harvey
Jojeni Pty Ltd
C/-GEM Planning Projects
PO Box 2068
Port Macquarie NSW 2444

Dear Mr Harvey,

Addendum to Vegetation Assessment Report EA-2015-2303
Lot 202 DP 1133171 Homedale Road Kew

Port Macquarie-Hastings Council has advised that a Koala habitat assessment is required in relation to the proposed rezoning of land identified as Lot 202 DP 1133171, Homedale Road Kew. The site comprises land of approximately 8.14 hectares that adjoins Kendall Road to the north and a recently developed subdivision known as The Links to the east. The southern and western boundaries adjoin rural land that is generally managed for agricultural purposes. There is a small watercourse that flows past the site adjacent to the boundary that joins the Camden Haven River to the southwest of the site.

FloraFauna Consulting previously conducted a vegetation assessment to determine the condition and composition of the remnant vegetation located within the site. The findings of the vegetation assessment indicated that the vast majority of the site had been cleared of native vegetation to form a derived grassland and that seven, mostly small, isolated patches of remnant vegetation remained. The largest area of remnant vegetation was located in the south-western corner of the site. This vegetation is connected to riparian vegetation associated with the small watercourse on the adjacent land to the west of the site and is mapped under the Port Macquarie-Hastings Council (PMHC) vegetation community mapping as Swamp Oak – Mixed Eucalypt Coastal Floodplain Wetland Forest Complex. The other remnant patches of vegetation that formed the study area for the vegetation assessment were not assigned to a plant community under the PMHC vegetation community mapping. The locations of the remnant vegetation within the site is indicated in Figure 1 below.

Figure 1: Remnant vegetation located within the site

The findings of the vegetation assessment are summarised below.

Remnant 1 comprised three (3) isolated 'paddock' trees, which are part of a small group of trees that extend onto 'The Links' subdivision land adjoining the site to the east. These three trees were identified as *Eucalyptus microcorys* (Tallowwood) that were in the mature growth stage. No visible hollows were recorded in any of these

trees. As Tallowwood is a Koala food tree species the bases of all of these trees were checked for scats. No scats or other evidence of recent Koala activity was observed.

Remnant 2 comprised regrowth vegetation associated with a small farm dam. Generally, the vegetation was confined to the dam wall and water's edge where access to slashing machinery would be difficult thus allowing the regrowth to establish. The canopy was largely composed of *Cinnamomum camphora* (Camphora Laurel) and *Casuarina glauca* (Swamp Oak). The parts of the remnant in which the canopy was dominated by Swamp Oak was generally adjacent to the water's edge and tended to be relatively narrow. The understorey was dominated by juvenile canopy species, particularly Swamp Oak as well as several environmental weeds, including *Lantana camara* (Lantana) *Ligustrum lucidum* (Broad-leaved Privet), *Ligustrum sinense* (Small-leaved Privet) and *Ochna serrulata* (Mickey Mouse Plant). Less abundant native species recorded in the understorey included *Acacia implexa* (Hickory Wattle), *Pittosporum undulatum* (Sweet Pittosporum), *Gahnia clarkei* (Tall Saw-sedge), *Callitris macleayana* (Stringybark Pine), and *Maclura cochinchinensis* (Cockspur Thorn). Beneath the Camphor Laurel the groundcover was relatively sparse with the more common species being *Lomandra longifolia* (Spiny-headed Mat-rush), *Imperata cylindrica* (Blady Grass), *Calochlaena dubia* (Rainbow Fern), *Oplismenus aemulus* (Basket Grass) and *Pratia purpurascens* (Whiteroot). The margins were dominated by species associated with the adjacent derived grassland community including *Setaria sphacelata* (South African Pigeon Grass), *Andropogon virginicus* (Whisky Grass), *Paspalum urvillei* (Vasey Grass), *Sporobolus africanus* (Parramatta Grass) and *Senecio madagascariensis* (Fireweed). Other common species recorded at the margins included *Leptospermum polygalifolium* subsp. *cismontanum* (Tantoon) and *Melaleuca thymifolia* (Thyme Honey-myrtle) which were also widespread across the derived grassland community as juvenile plants and resprouts.

Remnants 3 and 4 were both largely composed of exotic/weed species. The canopy was entirely comprised of *Cinnamomum camphora* (Camphor Laurel) and the understorey consisted of *Ligustrum sinense* (Small-leaved Privet) and *Lantana camara* (Lantana). The margins were dominated by species associated with the adjacent derived grassland community including *Imperata cylindrica* (Blady Grass), *Setaria sphacelata* (South African Pigeon Grass), *Andropogon virginicus* (Whisky Grass), *Paspalum urvillei* (Vasey Grass) and *Sporobolus africanus* (Parramatta Grass).

Remnant 5 was the most significant patch of vegetation within the site. It was part of a more extensive patch of remnant riparian vegetation associated with the small watercourse adjacent to the boundary in the south-western corner, which joins the Camden Haven River. The canopy was dominated by *Cinnamomum camphora* (Camphora Laurel) with *Casuarina glauca* (Swamp Oak) being the main associate. There was also a small number of individuals of *Melaleuca quinquenervia* (Broad-leaved Paperbark) and single mature individuals of *Corymbia intermedia* (Pink Bloodwood) and *Eucalyptus robusta* (Swamp Mahogany) situated near the margin adjacent to the southern boundary. Outside the western boundary of the site on the lower slopes of the creek bank *Casuarina glauca* (Swamp Oak) became dominant in the canopy and *Cinnamomum camphora* (Camphora Laurel) was less common. No visible hollows were observed in any trees within this remnant vegetation.

Within the site, the understorey of this remnant was dominated by exotic/weed species including *Ligustrum lucidum* (Broad-leaved Privet), *Ligustrum sinense* (Small-leaved Privet), *Lantana camara* (Lantana), and *Senna pendula* var. *glabrata* (Easter Cassia). The most abundant native species was *Acacia implexa* (Hickory Wattle). Other less common species recorded in the understory included *Acacia elongata* (Swamp Wattle), *Ochna serrulata* (Mickey Mouse Plant), *Melaleuca styphelioides* (Prickly-leaved Tea Tree), *Jagera pseudorhus* (Foam Bark Tree), *Maclura cochinchinensis*

(Cockspur Thorn), *Pittosporum undulatum* (Sweet Pittosporum), *Alectryon subcinereus* (Wild Quince) and *Cryptocarya microneura* (Murrogun). There was also an exotic species recorded in the understorey from the Fabaceae and in the absence of flowers or fruit was tentatively identified as *Leucaena leucocephala* (Lead Tree).

The groundcover was relatively sparse, most likely as a result of the closed nature of the understorey. The more common groundcover species included *Doodia aspera* (Prickly Rasp Fern), *Lomandra longifolia* (Spiny-headed Mat-rush) and occasionally *Leucopogon juniperinus* (Prickly Beard-heath). Seedlings of the understorey species and in particular the two Privet species were common and widespread in the groundcover. The margins were dominated by species associated with the adjacent derived grassland community including *Imperata cylindrica* (Blady Grass), *Setaria sphacelata* (South African Pigeon Grass), *Andropogon virginicus* (Whisky Grass), *Paspalum urvillei* (Vasey Grass) and *Sporobolus africanus* (Parramatta Grass).

Remnant 6 was also more or less entirely composed of exotic/weed species and is essentially a clump of *Erythrina* x *sykesii* (Coral Tree) with *Solanum mauritianum* (Wild Tobacco Bush) and *Ligustrum sinense* (Small-leaved Privet). The margins were dominated by species associated with the adjacent derived grassland community including *Imperata cylindrica* (Blady Grass), *Setaria sphacelata* (South African Pigeon Grass), *Andropogon virginicus* (Whisky Grass), *Paspalum urvillei* (Vasey Grass) and *Sporobolus africanus* (Parramatta Grass).

Remnant 7 was a small remnant comprising a disjunct group of trees, most of which were located on the adjacent land to the south. Part of the remnant including a large mature individual of *Eucalyptus microcorys* (Tallowwood) together with a smaller individual of *Cinnamomum camphora* (Camphor Laurel) and associated understorey dominated by exotic/weed species were located within the site. No visible hollows were recorded in these trees. As Tallowwood is a Koala food tree species the bases of the trees were checked for scats. No scats or other evidence of recent Koala activity was observed.

The site also contains a handful of isolated 'paddock' trees, which were not individually surveyed for the purposes of the vegetation assessment. Some of these trees were identified as *Eucalyptus microcorys* (Tallowwood). However, together these trees represent a small fraction of the remnant vegetation within the study area, which is generally dominated by the native species; *Casuarina glauca* (Swamp Oak) and the exotic species; *Cinnamomum camphora* (Camphora Laurel).

4.6.1 SEPP 44 Considerations

State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44) defines Potential Koala Habitat as:

"*Areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15 % of the total number of trees in the upper or lower strata of the tree component."*

The tree species listed under Schedule 2 of SEPP 44 are provided in the Table below.

SEPP 44 Schedule 2 Koala feed tree species

Scientific Name	Common Name
Eucalyptus tereticornis	Forest Red Gum
Eucalyptus microcorys	Tallowwood
Eucalyptus punctata	Grey Gum
Eucalyptus viminalis	Ribbon or Manna Gum
Eucalyptus camaldulensis	River Red Gum
Eucalyptus haemastoma	Broad-leaved scribbly gum
Eucalyptus signata	Scribbly Gum
Eucalyptus albens	White Box
Eucalyptus populnea	Bimble Box or Poplar Box
Eucalyptus robusta	Swamp Mahogany

Two (2) species of Koala food tree as listed under Schedule 2 of SEPP 44 were recorded within the site. These included a small number of trees identified as *Eucalyptus microcorys* (Tallowwood) and a single individual of *Eucalyptus robusta* (Swamp Mahogany). Collectively, these trees represent significantly less than 15 % of the total number of trees in the upper or lower strata of the tree component. Therefore, the site is not considered to be potential Koala habitat for the purposes of SEPP 44.

EPBC Act Koala Habitat Assessment

The Koala habitat assessment tool was applied to assess the habitat within the site for the purposes of the EPBC Act as per the *EPBC Act referral guidelines for the vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)* (the Guidelines). The assessment is detailed in the following table.

Koala habitat assessment (coastal criteria)

Attribute	Coastal Criteria	Score
Koala occurrence	Atlas of NSW Wildlife Koala records within 5 km	1
Vegetation composition	Does not contain forest or woodland with 2 or more species of known Koala food tree present in the canopy.	0
Habitat connectivity	Study area is not part of a contiguous landscape	0
Key existing threats	Little or no evidence of Koala mortality from vehicle strike or dog attack at present in areas that score 1 or 2 for Koala occurrence.	2
Recovery value	Habitat is unlikely to be important for achieving the interim recovery objectives for the relevant context	0
	Total	**3**

The Koala habitat assessment tool score of three (3) indicates that the habitat within the study area is unlikely to contain habitat critical to the species survival for the purposes of the EPBC Act.

Please do not hesitate to contact me if you require any further information.

Yours faithfully,

Steve Britt

Bachelor of Science (Botany)
Master of Wildlife Management (Habitat)
Graduate Diploma in Design for Bushfire Prone Area

ANNEXURE C

AHIMS Search Result & Bunyah Correspondence

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : HPK 6578

Client Service ID : 215580

GEM Planning Projects Pty Ltd

P O Box 2068
Port Macquarie New South Wales 2444

Attention: Geraldine Haigh

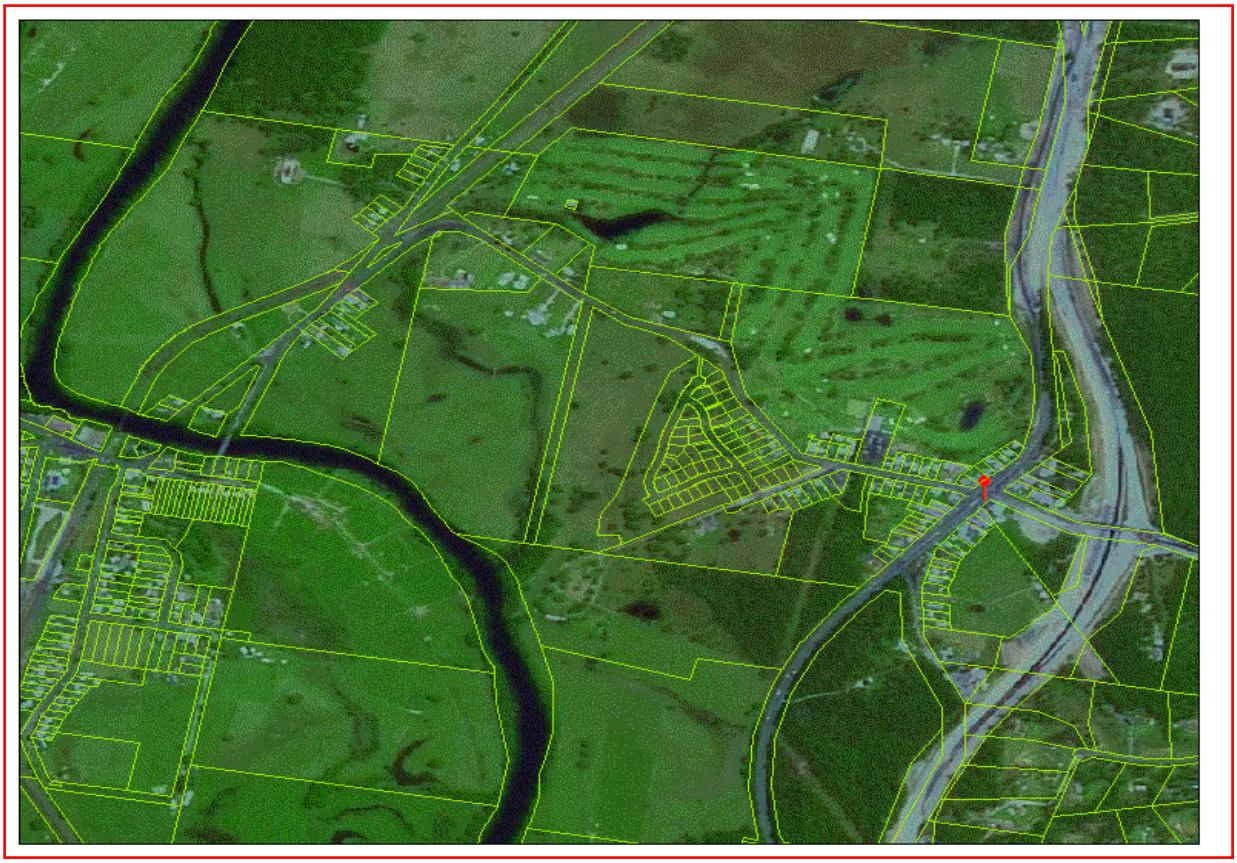
Email: geraldine@gemplanningprojects.com.au

Date: 10 March 2016

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -31.638, 152.7078 - Lat, Long To : -31.6265, 152.7261 with a Buffer of 200 meters, conducted by Geraldine Haigh on 10 March 2016.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

[redacted]

BUNYAH LOCAL ABORIGINAL LAND COUNCIL

[redacted]

17th September 2004

Mr Philip Higgins
73 Bold Street
Laurieton 2443

Re: LOT 2 DP 1019318 – Homedale Road, Laurieton

Dear Sir

The setting aside of 0.2 of one hectare of land, separately fenced, at National Park Site No.30-6-03 as accepted by the owners of LOT 2 DP 1019318 is fully concurred in by the members of the Bunyah Local Aboriginal Land Council.

No signposting is required.

Yours faithfully

.....
Mike Dibbs: Coordinator

P.O. BOX 287, WAUCHOPE 2446. PHONE (02) 6585 3882

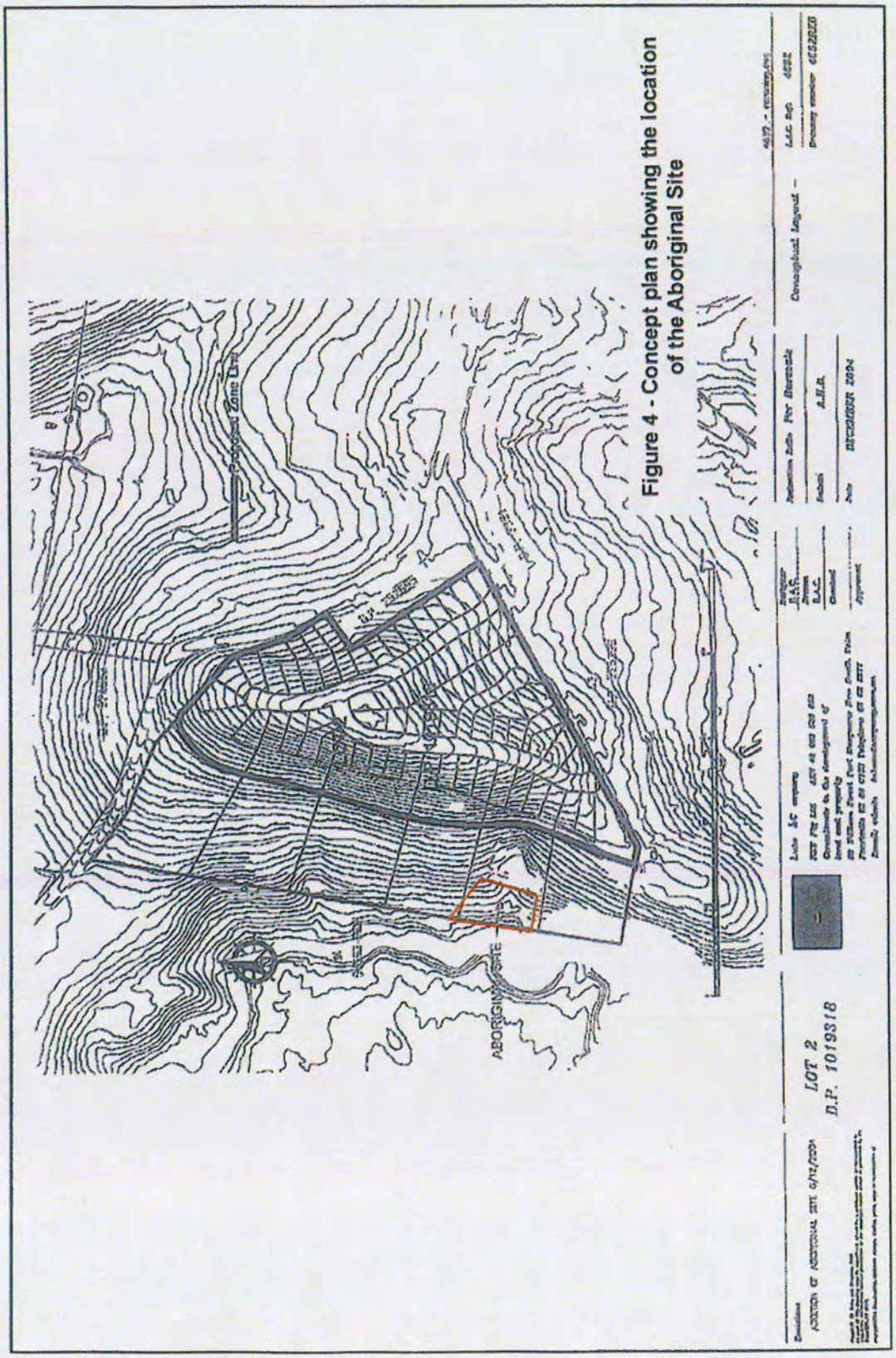


Figure 4 - Concept plan showing the location of the Aboriginal Site

ANNEXURE D

Agricultural Land Use Assessment

Agricultural Land Use Assessment for Lot 202 (DP 1133171) PMHCC

Land Suitability Assessment for Primary Production & Potential Conflict with Adjacent Primary Production Enterprises

Prepared by:
Matt Thompson, MNC Agronomy Pty Ltd
11th November 2015

Table of Contents

1.0 Foreword

I have been contracted by Geraldine Haigh, Director & Senior Planner, GEM Planning Projects, on behalf of Mr John Harvey, C/- Hopkins Consultants Pty Ltd, Port Macquarie, NSW, to provide my professional opinion, as an agronomist, regarding my clients land holding, Lot 202 in DP 1133171, Homedale and Kendall Roads, Kew NSW, and the proposed subdivision of this holding "The Links". Specifically, I have been asked to give a detailed report into the primary production capacity of the 1.78 ha section on the western boundary of the above-mentioned property, as it relates to its description as Regionally Significant Farmland under the 2008 Mid North Coast Farmland Mapping Project. I have also given consideration to potential conflict with adjacent agricultural land should re-zoning of the total 8.3ha lot be allowed, with my expert opinion into the sustainability of primary production enterprises in the region and in this scenario.

My client wishes to seek rezoning of this land in line with the current development area. Briefing notes supplied to me by GEM Planning Projects allows me to ascertain the main issue hindering re-zoning is possible impacts on the adjoining agricultural land, and council does not wish to set a precedent by allowing residential re-zoning of regionally significant farmland. In response, my comments relating to the potential re-zoning of this land address the following issues:

1) Are the owners, or potential future owners, able to utilise the 8.3ha lot (including the 1.78 ha regionally significant farmland) for primary production? And, if not;
2) Will the loss of the 1.78ha of regionally significant farmland in this location be significant?
3) Will utilizing the land for urban development potentially compromise the neighboring farmland? And, if so;
4) What buffers should be incorporated into the development to protect the farmland and its ongoing use for primary production.

The report herein details all aspects impacting on this properties ability to sustain primary production, potential impacts of the proposed residential sub-division on the adjoining agricultural land, and concludes with the properties ability to meet and adhere to the objectives above.

2.0 Site Details

The property is located between Homedale and Kendall Road, Kew NSW. It is identified as Lot 202 DP1133171 Parish of Macquarie and County of Macquarie (Lot 202 is shown in Figure 1 below).

The aspect of the property is to the West overlooking agricultural farmland of Lot 12 DP1041950 (Kendall).

Figure 1: Lot 202 Homedale/Kendall Road Kew

A crown road, running north/south, 1.21ha in area, which separates the proposed development site from the neighboring property, borders the western boundary of the site. A 1.78ha section on the southwest corner of the site, identified in Figure 2 below by the green line and finishing at the junction with the crown road, was identified as Regionally Significant Farmland as part of a NSW State Environment Planning Policy Rural Lands (SEPP) farmland mapping project in 2008 (see section 4.1 below).

Figure 2: Lot 202 illustrating Regionally Significant Farmland (green line) and 1 in 100 year flood zone (blue line)

3.0 Background

3.1 State Environment Planning Policy Rural Lands 2008

In 2008 the NSW Government released the State Environment Planning Policy Rural Lands 2008 (SEPP) with the main purpose of improving planning outcomes in rural areas of NSW. As part of SEPP, the 2008 Mid North Coast Mapping Project identified regionally significant farmland that would not be available for urban or rural residential rezoning. This land was identified on the basis of factors including slope, soil depth, drainage, water holding capacity, soil type and soil structure. Such land was identified as the best farmland in the region and is considered capable of sustained use with a reasonable level of input.

Under the Mid North Coast Regional Strategy of SEPP, only areas highlighted as regionally significant farmland must continue to exist for the main purpose of primary production. Also, urban or rural residential areas expanding towards regionally significant farmland must avoid compromising the farmland. The summary and final recommendations stated that land mapped as regionally significant farmland cannot be considered for urban 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 date of the Mind North Coast Regional Strategy; or
b) part of a Growth Area under the Mid North Coast Regional Strategy; or
c) already zoned, subdivided or approved for an urban or rural residential use under an LEP.

In respect to part b), above, regionally significant farmland cannot be included in a Growth Area unless:

a) the land forms an otherwise logical extension to the major regional centres of Grafton, Coffs Harbour or Port Macquarie, and
b) the land is needed for efficient urban development, and
c) there is no practicable alternative, or
d) where the encroachment onto mapped farmland is minor

3.2 Flood zones

On the Mid North Coast, many areas within, or immediately adjacent to, the 1 in 100 year flood zone were identified as Regionally Significant Farmland, predominantly due to the alluvial nature of soil (being of greatest agronomic potential in the region) but also due to the fact that these areas would not be suitable for residential development anyway (due to the flood risk). Indeed, Figure 1 (above) illustrates the 1 in 100 year flood zone (blue line) running adjacent to the regionally significant farmland boundary (dark green line) on Lot 202. Although the 1 in 100 flood zones do contain a large percentage of the more alluvial agricultural land in this this region, their propensity to flooding greatly restricts the viability of many agricultural enterprises due to the high flooding risk.

3.3 Primary Production

Primary production is the cultivation of plant or animal materials. There are many factors that determine the ability to carry out the business of primary production and the type of primary production suitable to a particular property.

The resources available to any parcel of land are the major determinant of the ability of that land to support and sustain primary production. The soil, climate, water, vegetation, topography, location, accessibility and numerous other factors can limit the ability of land to support primary production. The abundance of these resources, and the ability to utilize them in a sustainable way, determine whether it is economically feasible for land to support primary production. For taxation purposes, and as defined by the Australian Taxation Office (ATO), some indicators of carrying on a business of primary production are:

- Whether the activity has a significant commercial purpose or character
- Whether the taxpayer has more than just an intention to engage in business
- Whether the taxpayer has a purpose of profit as well as a prospect of profit from the activity
- Whether there is repetition and regularity of the activity
- Whether the activity is of the same kind and carried on in a similar manner to that of the ordinary trade in that line of business
- Whether the activity is planned, organised and carried on in a businesslike manner such that it is directed at making a profit
- The size, scale and permanency of the activity
- Whether the activity is better described as a hobby, a form of recreation or a sporting activity

It is important to keep these indicators in mind when determining the primary production potential of a property, as it is not only the environmental (soil, water, climate) factors that have a baring on a properties ability to support primary production.

3.4 Primary Production on the Mid North Coast

On the Mid-North Coast of NSW, climatic conditions are well suited to many primary production enterprises. The sub-tropical environment of Kendall supports year-round production through the growth of tropical (warm climate) species in summer, and temperate (cool climate) plant species in the cooler months. The benefit of such a climate is sub-tropical perennial grass species tend to dominate improved soils, and are only dormant during winter. A negative of this environment is winters are too cold to support year round growth of tropical species, as cold nights often kill tropical species. Due to these outcomes, and a slightly summer-dominant (although essentially year-round) rainfall pattern, pasture production for grazing livestock (beef and dairy) tends to be the most reliable and best-suited industry. Other factors that make a pasture based system ideal in this environment are:

- Permanent ground cover (to avoid erosion of highly weathered soils from high rainfall events)
- Increased competition against tropical and temperate weed species
- Reduced production costs
- Reduced risks (environmental and economic)
- Year-round forage production

Several horticultural industries are also suited to this area, but tend to be suited to only small pockets of alluvial soil types, or utilized as fully controlled systems in green or glasshouse environments. Such enterprises generally are intensive in nature, and as such generally require specific DA approval due to the intensity of their operation.

Given beef and dairy livestock grazing (pasture based) systems are well suited to this environment, and are the most common and least intensive form of primary production in this region, I will base this assessment on the potential of this property to establish and sustain pasture for a beef grazing enterprise.

3.5 Limitations to Primary Production on the Mid North Coast

The pasture improvement required to support the livestock industries varies depending on several factors including, but not limited to:

- Vegetation
- Slope
- Soil – type, depth, drainage, structure, nutrition
- Water
- Property size
- Infrastructure
- Government policy
- Environmental impact

Overwhelmingly, the one aspect that determines the success, or otherwise, of any primary production enterprise on the Mid North Coast is soil health. Being a high rainfall zone, the highly weathered soils tend to be acidic (low in essential cations such as Calcium), low in organic matter, shallow in depth, have poor nutrient and water holding capacity, prone to erosion when de-vegetated, and are expensive to maintain year-round growth (due to the poor natural fertility).

As the soil characteristics of any potential primary production land will be the key driver to its success, determining its limitations tend to be the first point of call before initiating any soil amelioration or far improvement programs. Other factors that impact (or visa versa) on the soil health, such as slope, vegetative species, aspect etc. are also important to the primary production potential of any property.

4.0 Current Site Analysis

A site inspection was carried-out on Thursday 23rd July 2015. The purpose of the inspection was to gather information to form a thorough judgment on the section of the property highlighted as regionally significant farmland, and to assess the property's potential impact on adjacent agricultural land if re-zoned for development. The following factors have the largest bearing on primary production in this instance.

4.1 Vegetation

The land is predominantly west facing with the vegetation fairly sparse, presumably due to exposed nature of this aspect. Figure 3, below, shows the typical pasture species present.

Figure 3 – Typical vegetation of lot 202 (23/7/2015)

The constraints caused by the aspect are evident in not only the soil type, but also the pasture species (i.e. grasses, herbs and legumes) present. Of the small numbers of species found, Whiskey grass (*x*) and Carpet Grass (*x)*, both considered as weed

species of the local pastoral environment, are dominant. Other species noted were Fireweed (*Medicago Sativa*), Wallaby Grass (*Danthonia spp.*), Guildford Grass (*Romulea rosea var. australis),* Rats Tail Grass *(Sporobolus spp)* and Kangaroo Grass (*Themeda trianda)*, Paspallum (*Paspallum Dilatatum).* All of these species are considered weed species of improved pastures of the region. Paspallum, which occurred in very small amounts (< 5% of the pasture species) is the only species noted that would be of any nutritional value to grazing livestock if it were present in much larger quantities.

Given the current vegetation, primary production is not possible without significant pasture improvement.

4.2 Slope

As defined on the topographical maps (Figure 2 for example) the slope of the sight varies from 5% incline to 30% incline, with large variability across the whole area. The variability of slope, combined with the shallow topsoil and fragile soil structure (see 4.3 below), means such land is only suitable for a permanent pasture base, as cultivation of such land will likely lead to erosion and loss of topsoil and further decline the ability of this land to support improved pasture species.

4.3 Soil

Observation of the soil type in the top 300mm (the primary root zone for a sub-tropical pasture based system) indicates a sandy clay soil, with clay content likely to be approximately 40%. The soil surface (top 100mm) has low organic matter (OM) content. The typical characteristics of this soil type in this environment are:

- Moderate dispersability
- Moderate permeability
- Low nutrient holding capacity
- Low to moderate water holding capacity
- Low pH, indicating low cation retention

OM % (and therefore carbon levels) at 100mm and beyond is very low. This indicates a soil with low cation exchange capacity and therefore a low nutrient and water holding capacity.

The soil in its current state is holding very low amounts of macro and micro elements, in particular cations, such as Calcium, that are essential for ensuring plant availability of anions, such as Phosphorus and Nitrogen, and also essential for adequate soil structure. To adequately support the growth of pasture species, significant capital inputs of soil ameliorants (in particular lime and organic matter)

would be required as an initial step of soil improvement. Once soil structure is improved, addition of significant amounts of macro and trace elements would also be required to ensure availability of plant available nutrients to establishing plant species.

An estimated cost of initial soil amendments alone would be in vicinity of $3500/ha, and that's not allowing for associated infrastructural, application and preparation works required before this could occur. In short, this soil in its current state will not support primary production, nor is clearing and improving it an economically viable option.

4.4 Property Size

The property is 8.3 hectares in total. I will address the property size in terms of scale of production for a beef grazing enterprise, to paint a true picture of maximum production possible should primary production commence. More specifically, I will simplify theoretical production to that of weight gains on beef steers.

We will assume the property is 95% cleared for the establishment of improved pastures (5% left for shade and higher erosion risk areas) so the actual land area available for production is approximately 7.9ha. Given the current soil state, and other pre-mentioned issues, in the initial 3 years (if primary production were to commence) it is pertinent to presume no production will occur. After initial capital improvements are made, and pasture established, maximum forage production available on this property in a medium input system is likely to be, in an average year, 6000kg/ha/ dry matter production. In a grazing system on sub-tropical pastures, maximum utilisation of pastures is typically 65% (ingested), so this equates to 3900kg/ha/DM utilized. The typical feed conversion ratio of steers on sub-tropical pastures (with no supplements) is at best 12:1 (i.e. 1kg of live weight gain per 12kg of feed ingested). So, maximum live weight production is 325kg/ha/year. With current live weight prices in the vicinity of $2.50/kg, this equates to maximum production of $812.50/ha/year (minus expenses). Over 7.9ha, the maximum property production is $6418.75/year.

Given this projection, this presents two very strong arguments that this property cannot support primary production:

1) The ATO classifies for a business to be engaged in primary production, it must meet the objective of at least $20,000/year turn-over, an objective which this property clearly cannot meet.

2) There is clearly no prospect for profit from the enterprise; neither initially nor in the future. In fact, the property can only run at a substantial loss in all scenarios.

The small scale of the property clearly limits any potential agricultural activities on this land to that of a hobby, and cannot possibly adhere to the requirements of carrying on a business of primary production.

4.5 Infrastructure

The property currently has no infrastructure available to support primary production. There are numerous capital improvements that would be required before primary production could even be considered for commencement. These include:

- Building structures to house plant and equipment
- Boundary fencing (some fencing was visible on the western and northern boundary but it was not stock proof)
- Internal fencing (to segregate livestock)
- Livestock yards
- Adequate water storage

Given the large amount of capital investment required for such a small area of extremely low production potential, such investment is neither economically sensible, nor does it prescribe to the indicators required for carrying on a business in primary production.

4.6 Land Classification

Given the above observations and explanations, it is pertinent to relate these findings to the NSW DPI's Agricultural Land Classification document (Agfact AC.25) as published by Hulme, Grosskof and Hindle for The State of New South Wales 2002 (Appendix 3). The property clearly can fit only one category, Class 5, as described as:

Land unsuitable for agriculture or at best suited only to light grazing. Agricultural production is very low or zero as a result of severe constraints, including economic factors which preclude land improvement.

Class 5 lands suffer extreme limitations for agricultural production. These limitations may be one of, or a combination of, the following features:

- *Productivity levels for all types of agricultural crops and pastures are very low.*

- *Access to local and export markets may be very restricted by location.*
- *Local infrastructure to support extensive forms of agriculture may be absent, as may suitable labour resources.*
- *Extremes of slope can be expected.*
- *The land is unsuitable for cultivation.*
- *The soil profile is very poorly drained.*
- *Erosion hazard is extreme, and economic control using conventional soil conservation measures is impractical.*
- *Soil physical and chemical properties present an extreme limitation to the growth of agricultural plant species.*
- *Recurrent extremes of climate may seriously affect productivity.*
- *Potential economic losses due to flooding are high, in the long term.*
- *The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is very high to extreme.*

Understanding the current property condition, it is evident that several of these limitations are extremely pertinent to the property in question. Given the land is largely unsuitable for agriculture, the current rural zoning as it relates to its objective to "sustain primary production by maintaining and enhancing the natural resource base" cannot stand.

4.7 The Potential Loss of 1.78ha of Regionally Significant Farmland

Understanding the above points on the agricultural viability of the whole 8.3ha lot, and given only a 1.78ha (21%) section of this lot is identified as regionally significant farmland, the loss of this 1.78ha section of regionally significant farmland will have no significant bearing on agricultural productivity in the area now or in the future. Furthermore, the rezoning of this very small parcel of regionally significant farmland to urban or rural residential can be justified under part b) of the 2008 SEPP Rural Lands (see section 3.1) given it is within a growth area of PMHCC, and:

a) the land forms an otherwise logical extension to the major regional centres of Grafton, Coffs Harbour or Port Macquarie, and
b) the land is needed for efficient urban development, and
c) there is no practicable alternative, or
d) where the encroachment onto mapped farmland is minor

5.0 Potential Impacts on Adjacent Agricultural Land

Concern has been raised by PMHCC on the potential impact of the development on the adjoining agricultural land, which is also zoned as regionally significant farmland. The neighboring property is predominantly in 1 in 100 year flood zone, so intensive agriculture, such as horticulture (vegetables, citrus, stone fruit etc) and intensive livestock production (feedlotting, broiler or egg production, piggeries etc) are not economically viable due to flood risk for infrastructure, stock and vegetation. The section not within the flood zone (northern boundary adjacent to the road) is dominated by dwelling infrastructure (sheds, houses etc) and being such as small part of the farm cannot contribute significantly to any agricultural production system. The alluvial (flat) section of the land could potentially be used for more intensive grazing purposes than current land-use, based on improved pasture or seasonal cropping regimes.

Given the most productive agricultural pursuit on this land would be grazing for beef production (from section 3.4 above and due to the flood zoning) the following points detail the potential impacts to maintaining meaningful agricultural production, in the form of pasture and/or cropping improvements for livestock grazing, on the neighboring property.

5.1 Potential Toxic Backyard Plant Species Encroachment

With all residential development, there is potential for backyard plant species to encroach on the neighboring farmland, either through natural reproductive processes or even as simply as growing over the fence boundary. Only a very small percentage of backyard plant species are toxic to ruminant animals, and in most cases the toxic species need to make-up a large part of the animals daily diet to cause clinical symptoms.

In this case, the proposal of a 22m wide unformed road reserve between the boundary of the neighboring farmland and the fence line of the proposed subdivision blocks provides a large buffer-zone to negate such issues. Provided backyard plant species aren't allowed to spread vegetatively into the 22m wide reserve towards the neighboring properties boundary, there is minimal risk of grazing livestock ever coming in contact with the vegetation. Permanent fencing between the road reserve and the proposed residential block boundaries is recommended to prevent potential weed spread.

Another potential avenue of toxic plant encroachment is by seed (via wind, water, native animals or rodents) into the neighboring property, and germinating and establishing in the crop or pastures. Given the property is within a flood zone, the risk if weed seed deposit from flood events is high. As

flood events will impact the property from upstream, and not the proposed subdivision (see section 5.2 below) weed seed encroachment is unlikely. Other likely factors contributing to weeds species establishing include weeds seeds being inadvertently imported in grain, silage or hay purchased from other properties or areas, as well as on native animals (e.g. wallabies and kangaroos) from other neighboring properties and, in particular, the local waterways.

The most likely way weed seeds could enter the neighboring property is from wind transportation. Again, as there is a proposed road buffer zone, and given this will be maintained by way of fencing on the eastern (residential blocks) boundary and the western (neighboring farmland) boundary, the risk is low. Also, the potential for successful germination and establishment of the weed seeds, should they enter the property, is extremely low if the neighboring management maintains an established pasture cover year-round. The established kikuyu based pasture on the property, even if managed poorly, will largely outcompete most germinating weed species.

5.2 Potential contamination of livestock drinking water from subdivision stormwater

Contamination of the lagoon areas of the neighboring property, presumably currently used for stock drinking water, needs to be considered should stormwater run-off containing chemical or biological toxins enter these areas.

As the stormwater drainage plans (Figure 4 below) illustrate, all stormwater run-off from the proposed subdivision will be diverted into a 4000m^2 drainage reserve in the southwest corner of the proposed development. The discharge (overflow) for the drainage reserve basin will run into the existing natural waterflow channel present within a 40m vegetation buffer zone between the drainage reserve and the neighboring property boundary (to the west). In overflow events, the drainage water will follow into the existing gully to the south, away from the neighboring property. Therefore, no rainfall water runoff will be entering the neighboring property from the residential blocks, and any potential pollution of the livestock stock water has been negated.

Figure 4: Stormwater drainage plans

5.3 Domestic Pets and Animals

The potential for domestic pets and animals to adversely affect the potential for primary production on the neighboring property is real, however the potential existence of pets on the newly proposed subdivision is no more likely to impact a beef grazing enterprise anymore than existing domestic pets and animals already within the Kew district. Domestic animal's chasing, and in rare cases attacking livestock, particularly calves, is always a possibility but is no more enhanced by the proposed subdivision.

Subclinical livestock production losses, due to stress events, can be caused by excessive noise, or startling noise such as dogs barking. In this case, the 22m proposed road buffer zone greatly reduces the potential impact domestic animals could have on livestock grazing the western boundary of the property. Provided fencing, of both the property boundary and the subdivision block boundaries, are maintained, the risk of impact on the agricultural viability of the neighboring property is negligible.

5.4 Animal disease

Residential areas, particularly those poorly maintained, can potentially harbor diseases that could cause sub-clinical production loss, and in extreme cases death of livestock. For example, rodent borne diseases, such as Botulism, have been know to kill livestock on the mid-north coast. However, such issues are just as likely on any farmland from disease vector sources such as silage, hay, imported feed and dead plant and/or animal material. As we have established the property is likely to support a beef grazing enterprise only (as it is currently doing) disease risk from domestic pets is unlikely.

6.0 Summary

The report above has detailed potential agricultural impacts of the proposed subdivision of this holding "The Links", Lot 202 in DP 1133171, Homedale and Kendall Roads, Kew NSW. Addressing the major points potentially impacting this subdivisions approval from an agricultural sustainability perspective, we have come to the following major conclusions:

1) It is not possible, in terms of both economical and environmental sustainability, to utilise the 8.3ha proposed development lot (including the 1.78 ha regionally significant farmland) for significant primary production now or in the future.
2) Re-zoning the 1.78ha of regionally significant farmland will have no significant impact on agriculture on the Mid North Coast or the immediate area.
3) The potential negative impact of the proposed urban development on the neighboring farmland is extremely low.
4) The proposed 22m-road reserve, as well as the storm water catchment plan, offers a sufficient buffer between the proposed development and the farmland for its ongoing use for primary production.

I recommend to PMHCC, as part of the approval guidelines, the 22m proposed road reserve is utilised as a buffer zone, to the prevent establishment of weed species that could potentially encroach on the neighboring farmland. The road reserve area, in its current state of predominantly naturalised grass species, provides an excellent buffer alone provided groundcover is maintained and the proposed residential blocks are fenced off from this area. It is also important that the 40m-vegetation buffer zone (in the south-west corner of the subdivision) is also maintained (through selective weed control processes) so not to harbor noxious weeds species that could encroach on the farmland and/or reduce discharge water flow from the drainage reserve during rainfall events.

Should you have any further questions please contact me.

Regards

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7.0 Appendices

7.1 Appendix 1 – Current CV for Matt Thompson

Matthew Thompson

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MT

Objective

To provide unbiased, independent, innovative advice to primary producers, private enterprise, government and corporate business. Specialising in soil, plant and animal interactions, my advice to primary producers covers pasture, crop and livestock improvements, as well as farm economic and environmental sustainability. To corporate and government bodies, my advice is often in the form of whole area planning, site impact assessments, agricultural feasibility studies, agricultural impact studies, effluent and waste product re-use, and site rehabilitation plans and monitoring. I always provide advice based upon comprehensive knowledge of agricultural systems, their economic and environmental requirements, and I do so impartially at all times.

Experience

Director & Agronomist MNC Agronomy Pty Ltd **September 2009 – Present (5 years & 6 months)**

I established my own private farm consultancy business 5 years ago, servicing predominantly dairy farms on the mid north coast of NSW. In this time, I have established a stable base of clients that I visit predominantly on a monthly basis. Currently I have 25 dairies on annual consultation programs, and up to 40 farms on an as-needs basis, each with slightly different requirements of my services.

I work closely with my clients to ensure their enterprises are economically and environmentally sustainable. Increasingly, I'm engaging with corporate business, providing advice on soils, pastures, crops, improvement strategies, farm and whole enterprise plans and many other aspects of agriculture.

Consulting Agronomist Seedforce Australia **March 2009 – September 2009 (6 months)**

Whilst travelling with my fiancé', I consulted part time to clients of Seedforce across Australia, predominantly in Western Australia and Eastern NSW. This role involved predominantly pasture and crop improvement advice to existing and potential clients of Seedforce.

CRT Taree & Wingham **February 2007 – March 2009 (2 years & 2 months)**

As the sales Agronomist, my role was to provide clients with advice on pasture improvement strategies to ensure they were maximizing production using the most efficient inputs. As part of this role I had to ensure the contracting part of the business was busy at all times through increasing seed, chemical and fertiliser sales. In 2008 we achieved CRT National and NSW store of the year for business growth and productivity.

Elders Ltd **December 2003 -Feb 2007 (3 years & 3 months)**

Initially as part of an Agronomy team in Mt Gambier, I transferred internally to Taree as sales Agronomist. I provided clients with advice on pasture improvement strategies to ensure they were maximizing production using the most efficient inputs.

Independent Fertilisers **October 2003 – Dec 2003 (3 months)**

On a short-term contract out of university, I joined part of an irrigation monitoring team providing advice on irrigation scheduling and water management for crops, pastures and vineyards. Elders purchased this business on December 2003 where I was employed as an agronomist.

Education

Bachelor of Rural Science, University of New England **2000 – 2003 (4 years)**

Rural Science provided me with a solid base of chemistry, biology, animal physiology, economics and holistic farm planning. Majoring in Pastures, my final year involved a thesis in conjunction with Dr John Ayres of NSW DPI Glen Innes, investigating the drought tolerance of several white clover trial lines and commercial cultivars. This experience greatly improved my report, research and negotiation skills.

Singleton High School **1994 – 1999 (6 years)**

In the final years I elected to focus on Engineering Science, Mathematics, Physics, and Agriculture. In Agriculture and Engineering science, I was able to achieve HSC results placing me in the top 1% of students in NSW.

Skills

Initiative to identify, understand and strive towards results for my clients. Challenging my clients to challenge themselves is key to my success. I am constantly pushing my clients to adopt new methods which I feel will enhance the efficiency of their farms. An example of this is the implementation of fodder testing of all conserved feed on many of my clients properties, and allocating these feeds for a strategic purpose; either filing feed quality or quantity gaps, or helping manage milk components. Pushing dairy farmers to identify, prioritize and focus on the most important aspect of their operation at any particular point in time is paramount to their level of success.

Relationships are central to success at all levels of agriculture. Having a practical yet technical approach at the farm level is integral to building strong bonds with primary producers. I thoroughly enjoy listening to my clients, helping them identify and segregate their difficulties, and together put protocols in place to mitigate or manage such issues. I believe my transparent and genuine desire to help my clients forges strong relationships for life. The continued success of MNC Agronomy is proof of my outstanding relationship building skills.

Excellent communication skills with all levels of primary production; from training and communicating of technical concepts to farm employees, to advising corporate business leaders which aspects of their businesses and their associated products require investment and/or alteration. I pride myself with my ability to talk on a practical, problem solving level with my clients, whilst I am equally comfortable engaging with agriculture professionals and corporate business at the boardroom level. Evidence of this is my current negotiation of potential milk contracts for a client with five processors, negotiating with their representatives, the clients bank manager and accountant; whilst on the same day helping the same client formulate his feed ration, alter their pasture rotation, calibrate their contractors precision seeder and give two staff members a lesson on utilizing pasture meters to determine plant growth rates.

Self-driven and motivated, time management is requirement for the success of my current business. Allocating sufficient time to undertake, evaluate and report to my clients, whilst doing so in a cost efficient manner for them, is valuable skill I have developed in recent years. Prioritization and delegation of tasks based upon urgency and importance of outcomes requires continual consideration. My current position often requires long hours and weekend work, but my passion for sustainable agriculture and a drive to provide for my young family always prevails.

Expertise in soil science, and its direct relationship with soil, plant and animal nutrition, is my key point of expertise. Given my clients profitability is driven largely by pasture production, the economics of soil amelioration, plant nutrition, and the management of soils, pastures and livestock, are my major areas of focus.

Project management and monitoring of on-farm projects is relentless in my current position. I'm also involved in the design, methodology, set-up, measurement, management and analysis of several R & D projects both independently, and in conjunction with agricultural industry providers such as seed, chemical and fertiliser companies. For example, I'm currently managing my own independently run pasture varietal trial audited by MLA as part of the PVTN program; I have done this for the past 3 years. This trial requires me to negotiate with seed company representatives, plant breeders, government representatives, independent auditors, contractors, produce stores, seed retailers and my clients to ensure the trial methodology and results are relevant to the farming community.

Involved in the NSW Dairy community since 2005 predominantly on the Mid North Coast. I have a strong network of clients, but also an extensive network of contacts in not only the local dairying community, but also the agricultural community in general. I have been involved in the Mid Coast Dairy Advancement Group intermittently, but have been unable to be fully involved recently due to my current business commitments.

Influence on my clients' decision-making processes continues as I strive to identify opportunities for improvement. As my current business model works on a fee for service arrangement with my clients, I naturally find my business servicing predominantly those that already have the ability to see the economic benefits of external advice in the success in their business. Although my clients and I find this arrangement extremely rewarding, I feel I have much to give the rest of the farming community.

Other Points

Current holder of a NSW Class C and R Drivers License.

Currently resident/owner of a property near Wingham on the Mid North Coast NSW. My current consultancy business is also run from a separate office building at this location.

Referees

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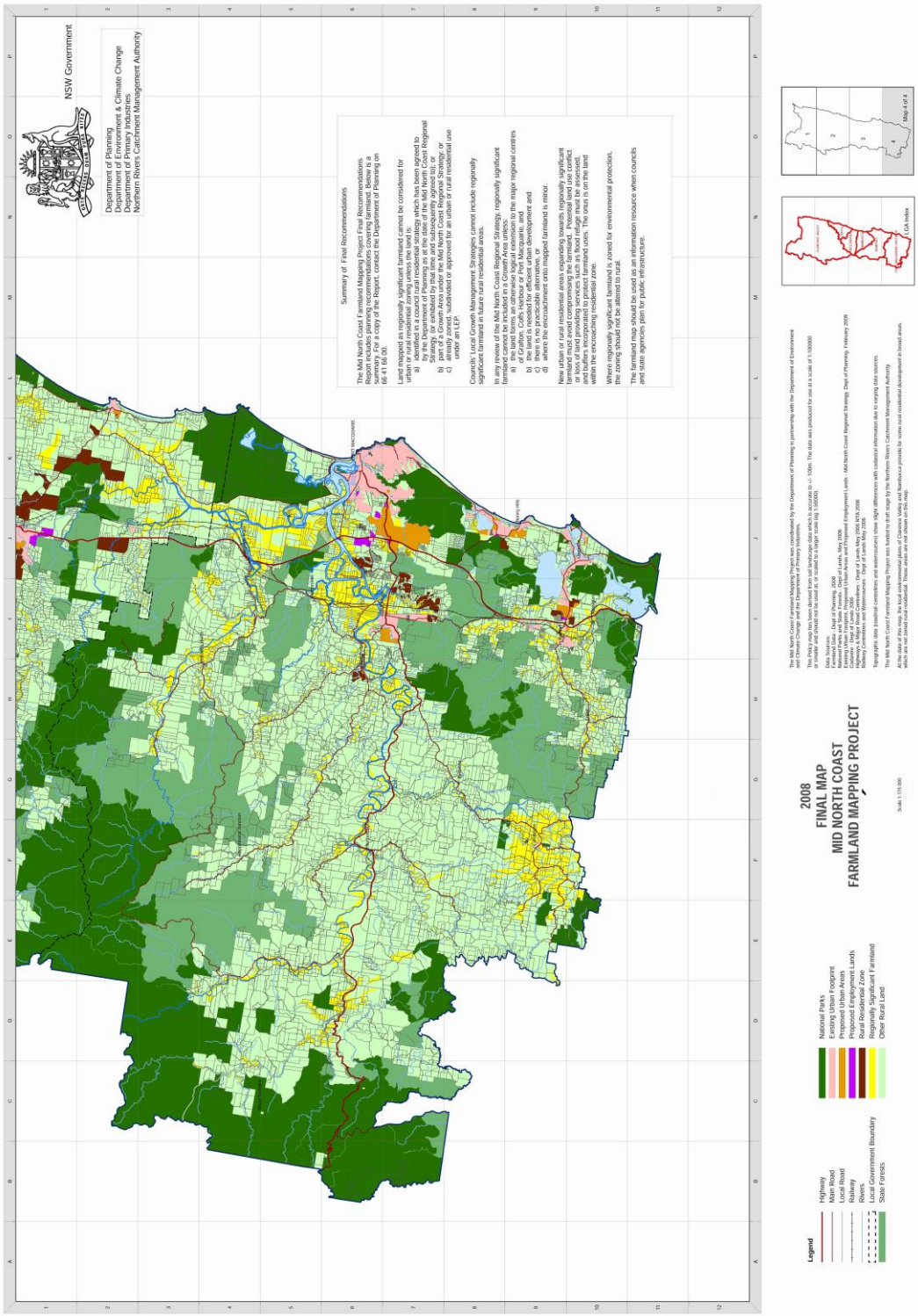
7.2 Appendix 2 - Final Map, Mid North Coast Farmland Mapping Project, 2008



7.3 Appendix 3 - NSW DPI'S Agricultural Land Classification document (Agfact AC. 25)

AGFACTS
AGFACTS
AGFACTS

NSW Agriculture

Agricultural Land Classification

Agfact AC.25

Therese Hulme, Agricultural Environment Officer

Tom Grosskopf,Agricultural Environment Officer

John Hindle, former Land Use Planning Officer (Spatial Information)

Agdex 520

Contents

Acknowledgments

The authors would like to acknowledge Roy Lowrie and Cedric Hawkins for their inputs and comments on drafts of this Agfact

Cover: Agricultural land classes 2,3,4 and 5, Scone. The photo depicts a gradual change from class 2 land (cultivated and cropped river flats in the foreground) to class 3, class 4 (lower slopes) and class 5 (hills in the background). Photographer: John Hindle.

Inset: Class 5 land, Dorrigo, north coast NSW. The steepness of the slope and high erosion hazard are some of the severe constraints preventing agricultural land use.

Photos: Except for the cover photograph (see above), all photographs are from NSW Agriculture's Image Library. Photographers were Graham Johnson, John Gasparotto and Col Beg.

ISSN 0725-7759

Edited by Michel Dignand, NSW Agriculture, Wagga Wagga October 2002

1. Introduction

Land used for agriculture is often taken for granted. The popular belief is that Australia possesses unlimited resources, including land for agriculture.

Yet good quality agricultural land is a limited resource, and is under threat from a variety of sources. Urbanisation and land degradation alienate and deplete agricultural land resources. The reduced availability of lands highly suited to agricultural production reduces the sustainability of existing agricultural systems and encourages the use of more marginal lands for agriculture.

A knowledge of the relative suitability of land for agriculture will help with the development of strategic plans, which protect land highly suited to agriculture and identify land more suited to non-agricultural activities.

NSW Agriculture produces agricultural land classification maps, on a local government area basis, which rank land on its suitability for agricultural production. The maps are produced by evaluating biophysical, social and economic factors that influence the use of land for agriculture.

This publication describes NSW Agriculture's agricultural land classification system. It aims to help natural resource planners and managers in their use and interpretation of agricultural land classification maps. The publication is based on, and updates, information contained in *Rural Land Evaluation: A manual for conducting a rural land evaluation exercise at the local planning level,* revised edition (RLEM) (Department of Planning, 1988). It should be noted that the criteria on which the land classes are based remain unchanged from the RLEM.

2. Techniques for evaluating rural land

There are two techniques currently used to evaluate rural land in NSW: rural land capability and agricultural land classification. Although both systems are used to evaluate agricultural land, a direct comparison is difficult. Each system has a different aim and considers the various factors that influence land use in a different way.

A specific comparison between the systems was never intended and should not be attempted, because each system was established for a different purpose.

2.1 Rural land capability mapping

This eight class system, used by the Department of Land and Water Conservation (DLWC), considers the erosion hazards in the use of the land. It classifies land in terms of its inherent physical characteristics, or physical constraints, and denotes measures needed to protect the land from soil erosion and other forms of land degradation.

For further information on rural land capability, refer to *Rural Land Capability Mapping* (undated), available from the Department of Land and Water Conservation.

2.2 Agricultural land classification

This five class system used by NSW Agriculture classifies land in terms of its suitability for general agricultural use. This system was developed specifically to meet the objectives of the Environmental Planning and Assessment Act 1979, in particular 5(a) (i) 'to encourage the proper management, development and conservation of natural and man-made resources, including agricultural land...for the purpose of promoting social and economic welfare of the community and a better environment'.

Agricultural land is classified by evaluating biophysical, social and economic factors that may constrain the use of land for agriculture. In general terms, the fewer the constraints on the land, the greater its value for agriculture. Each type of agricultural enterprise has a particular set of constraints affecting production. A comprehensive list of all the constraints affecting each form of agriculture would be expensive to compile and unwieldy to use. Consequently, agricultural land classification is based on a set of constraining factors common to most agricultural industries. Section 6.3iii 'Factors that influence agricultural suitability' lists these factors.

Some types of agricultural enterprises do not depend on land suitability and so are not included in this system. Such activities include intensive animal industries (poultry, pig and cattle feedlots) as well as nurseries, glasshouses, hydroponics and mushroom sheds. NSW Agriculture and other agencies produce guidelines that address siting and management issues for these industries. However, many of these industries use agricultural land to manage effluent and provide a buffer zone, so agricultural land classification is still relevant.

It is an inherent feature of agricultural land classification maps that they have a limited life. The life span of the maps depends on changes to the biophysical, social and economic factors. For example, if an area classified as Class 3 agricultural land because of its ability to support occasional cropping becomes affected by salinity, and therefore becomes no longer suitable for cropping, it would need to be reclassified as Class 4 agricultural land.

In practice it takes a significant and widespread change of the factors to affect agricultural land classification maps. This is due to the scale of the mapping and the consideration of future trends at the time of map preparation. The types of changes that affect agricultural land classification maps are usually slow, so the maps produced are suitable for use for a number of years.

Agricultural land classification maps produced at small scales (1:50,000 to 1:100,000) are useful for strategic planning, including regional and local environmental planning instruments, regional economic development and natural resource management. They are inappropriate for making decisions relating to individual development applications or minor rezoning proposals. These types of applications involve decision making at the property level and require information at a scale of greater detail than is available from these agricultural land classification maps. See Section 4 'Limitations of scale' for further information.

In general, for small areas and detailed classification the use of a quantitative approach is appropriate. In order to use such an approach the range of agricultural enterprises to be considered needs to be reduced so that the number of biophysical, social and economic factors taken into consideration is manageable.

3. Agricultural land classification classes

Agricultural land classification maps place land into one of five classes according to its suitability for a wide range of agricultural activities. Class 1 land has few constraints to agricultural production, so a wide range of crops can be profitably grown; while Class 5 land has severe constraints and is, in general, unsuited to agriculture. The essential characteristics of these classes are described below.

Class 1: Arable land suitable for intensive cultivation where constraints to sustained high levels of agricultural production are minor or absent.

Class 2: Arable land suitable for regular cultivation for crops, but not suited to continuous cultivation. It has a moderate to high suitability for agriculture but edaphic (soil factors) or environmental constraints reduce the overall level of production and may limit the cropping phase to a rotation with sown pastures.

Class 3: Grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with sown pasture. The overall production level is moderate because of edaphic or environmental constraints. Erosion hazard, soil structural breakdown or other factors, including climate, may limit the capacity for cultivation and soil conservation or drainage works may be required.

Class 4: Land suitable for grazing but not for cultivation. Agriculture is based on native pastures or improved pastures established using minimum tillage techniques. Production may be seasonally high but the overall production level is low as a result of major environmental constraints.

Class 5: Land unsuitable for agriculture, or at best suited only to light grazing. Agricultural production is very low or zero as a result of severe constraints, including economic factors which prevent land improvement.

An additional class may occasionally be used where land has some special feature which allows a special crop to be grown (eg. bananas and other tropical horticultural tree crops).

Specialist class: Land which, because of a combination of soil, climate and other features, is well suited to intensive production of a crop or a narrow range of crops whose special requirements limit their successful culture to such land. This class includes some lands formerly described as unique.
Refer to Section 7 'Agricultural land class descriptions' for a description of the major attributes, benefits and constraints to production for each of the land classes.

4. Limitations of scale

When using agricultural land classification maps it is important to understand the limitations of the scale at which the maps were produced. In addition, it is essential that the map only be used within the limitations of the scale of mapping reliability.

Map scale is the relationship between a unit of length on a map and the actual length it represents on the ground. This scale is usually expressed as a ratio. A scale of 1:100,000 means that one unit on a map corresponds to 100,000 units on the ground. For example, 1 cm on the map corresponds to 100,000 cm (1 km) on the ground. One square centimetre corresponds to one square kilometre; one square millimetre represents one hectare. The minimum area that can be legibly delineated on a map is usually about 40 square millimetres (a circle of about 7 mm in diameter). At a scale of 1:100,000, this represents an area on the ground of approximately 40 hectares. Table 2 provides a summary of the minimum mappable area for five commonly used scales.

Table 2: Relation between minimum mapable area and scale

Map Scale	Ground distance (metres) represented by 1 mm on the map	Minimum mapable area (ha) represented by 40 mm^2 on a map
1:100 000	100 m	40.0 ha
1:50 000	50m	10.0 ha
1:25 000	25 m	2.5 ha
1:10 000	10m	0.4 ha
1:5 000	5 m	0.1 ha

Source: Riddler 1987

Table 1: Guide to agricultural land classification

Suitability Classes		Land Uses									
Class	Description	Horticulture				Field Crops		Grazing:Pasture			
		Vegetables		Tree Crops				Improved		Native	
		Irrigated	Rainfed	Sensitive	Tolerant2	Irrigated	Rainfed	Irrigated	Rainfed	Seasonal	Light
1	Arable land suited to continuous cultivation[1] for uses such as intensive horticulture and field crops. Constraints to sustained high levels of production are absent or minor.	☆	★	☆	★	★	★	★	★	★	★
2	Arable land suited to regular cultivation for uses such as intensive horticulture and field crops. Constraints to sustained levels of production are minor to moderate.	●	☆	●	★	☆	☆	☆	★	★	★
3	Land suited to cropping but not continuous cultivation. Production risks are managed through: a pasture phase, conservation tillage and/or fallowing. Constraints to sustained levels of production are moderate.	●	●	●	☆	●	●	●	☆	★	★
4	Land suited to grazing but not cultivation. Agriculture is based on native pastures and/or improved pastures established using minimum tillage techniques. Overall level of production is comparatively low due to major environmental constraints.	○	○	○	●	○	○	○	●	☆	★
5	Land not suited for agriculture or only light grazing. Agricultural production, if any, is low due to major environmental constraints.	○	○	○	○	○	○	○	○	○	●

★ Class having requirements in excess of those needed for sustained production from the land use
☆ Class having the minimum requirements for sustained production from the land use
● Class may be suited to the land use depending on the nature of the limiting factors to cultivation and crop production
○ Class not suited to land use because of limiting factors to cultivation and/or production

Notes:
1 The ability to cultivate is a pre-requisite for cropping in this table.
2 Tolerant to changes in soil conditions eg acidity, salinity.

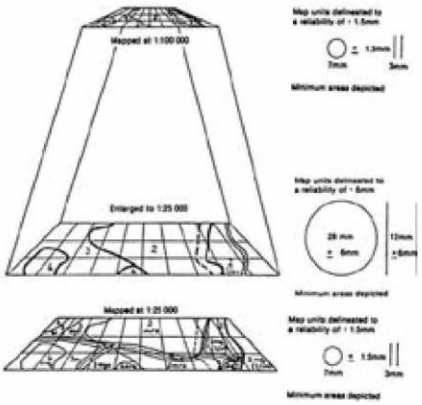
Biophysical features usually have transitional zones between unique groups or classes. In the field, there are few instances where a sharp boundary line divides classes. In the maps, the boundary line represents the best-fit position or a halfway point between the two classes. The accuracy for locating the class boundary lines is expressed as a confidence limit. For a 1:100,000 map this limit is 1.5 mm, representing a confidence limit of 150m in the field (Riddler 1987).

As the boundary precision is a function of the level of detail recorded and observed in the field, the scale of agricultural land classification maps should not be enlarged.

In addition, while the final maps show areas as being divided into discrete classes, in practice nature usually presents a mix of geology, terrain and soils, and sudden changes are unusual. Any map unit will include areas whose characteristics differ from those of the dominant class. For an area less than 40 mm^2 (7 mm diameter) on the map, these inclusions are too small to be legibly shown at the scale of mapping, but they may occupy up to 40% of the unit. This is important to note, as errors in interpretation will occur if the map is enlarged beyond its original scale because these inclusions will not be shown. It is particularly easy and, therefore tempting, to enlarge maps when they are in digital form; however, this should not be done. Figure 1 illustrates the affect of enlarging a map from 1:100,000 to 1:25,000. Note the increased level of detail provided when the area is originally mapped at 1: 25,000.

For further information on the production of agricultural land classification maps and detailed surveys refer to Section 6 'The mapping process'.

Figure 1: Relationship between scale of mapping, enlargement and map reliability (adapted from Riddler 1987) - click for clearer, larger image.



5. Using agricultural land classification maps for land use planning

NSW Agriculture's agricultural land classification maps can be used to recommend the quality and quantity of rural land that should be zoned for agricultural production and protection from incompatible development.

Higher quality lands (Classes 1 and 2) have fewer constraints and a greater versatility for agriculture than the poorer quality lands (see table 1), and their long-term value to the state is often greater than a strict economic appraisal might indicate. Their relative lack of constraints allows greater flexibility in management and enables farmers to more easily adapt to changing economic conditions. The high suitability of these lands, also, significantly reduces the potential for environmental damage from agricultural activities.

Land use planning recommendations need to be drawn up on the basis of local government areas using the principle of protecting the land of greatest agricultural value, and directing nonagricultural uses onto lands less suitable for agriculture. Following are some general principles, which may help in formulating land use planning recommendations.

- Identify the main agricultural industries and their land requirements within the local government area. Many agricultural industries require access to a range of agricultural land classes for good management, to ensure diversity of enterprise and security of production.

  For example, land used for dairy cattle on the coastal plains is often a mix of Class 2 and/or 3 as well as Class 4 agricultural land. The Class 2 and 3 land is used for production of high value pastures or fodder crops, while the Class 4 land is used as the dry-run country. The mixture of land classes used by these industries should be protected.
- Protect highly productive agricultural land (Classes 1,2, 3 and Specialist Class) from competing land uses. It is preferable to use land of lower agricultural quality for incompatible developments where this is available and suitable for the purpose.
- Give priority to protection of Class 1 lands from incompatible development. They are elite, of limited extent and considered to be of significance to the state.
- Class 2 lands are also of superior quality and of limited extent. They are worthy of protection and retention for agriculture because of their state and regional importance.
- Protect Class 3 lands for agricultural production if adequate and suitable areas of Classes 4 and 5 are available for competing uses.
- Specialist Class lands which, by their nature, are unique in the state for agricultural activity need to be protected unless there are strong economic reasons for not doing so. This includes areas which, by virtue of their remoteness or special location, are under cultivation for foundation seed, bud stock or root stock production, or used as quarantine zones.
- Take into consideration social and economic factors when making recommendations about changes to land use in areas of Class 3 or lower quality land currently used for full time agriculture.
- Class 4 lands play an important role in some agricultural industries: for example, fine wool production on the tablelands of New South Wales depends on comparatively large areas of Class 4 agricultural land.
- Class 5 land can be of some value for agriculture: for example it may provide shelter for livestock, or offer flood-free refuge areas.
- When recommending rural lands for non-agricultural uses, the particular requirements for use need to be considered so that land is not inappropriately lost from agriculture. For example, rural residential use may best be located on non-productive land, preferably with trees, (usually Class 4 or 5), while hobby farms may require land with pastures suitable for year round grazing (land of Class 4 may often be suitable). Because of the environmental fragility of Classes 4 and 5 land, care is needed when proposing more intensive uses.
- Irrigated areas are generally recommended for retention in agriculture because of the existing infrastructure (channels, pipes, dams etc.) and relatively high production potential.
- Some farm forestry enterprises require good quality agricultural land, and may need to be situated on agricultural land.
- Agricultural lands that can use organic wastes need to be identified so that agricultural industries are able to use these wastes sustainably.

- Around the perimeter of urban areas where high land prices and small lot sizes are common, even the best agricultural land may have potential conflict with urban neighbours as one constraint, limiting versatility and affecting productivity. However, close proximity to urban markets may outweigh the constraints.

6. The mapping process

Two methods are used to produce agricultural land classification maps: field surveys, and interpretation of remotely sensed data. Both processes require personnel experienced in natural resource survey techniques and with local knowledge of the area to be mapped, particularly the details of agricultural management practice. Agricultural land classification maps are generally produced on a local government area basis. Figure 2 depicts an extract from an agricultural land classification map, while Figure 3 depicts the line work for the same map area laid over a false colour satellite image.

6.1 Field surveys

Using this technique, agricultural land classification maps are produced by mapping directly onto topographic sheets in the field. The scale of the maps used may be 1: 25 000, 1:50 000 or 1:100 000, depending on the scale of the topographic map available for the area. A preliminary investigation of the area identifies key factors such as soil, geology, slope and climatic data using available information and local expertise. If available, recent aerial photographs, photomaps, orthophotomaps and satellite imagery of the area under study may provide useful information.

Knowledge of the agricultural enterprises and estimates of productivity from well-managed farms provide reliable indications of the class of that particular type of land. Lands with similar properties (such as soil, slope and microclimate) are often placed in the same class although management may influence the productivity levels realised. Boundaries of any irrigation areas/districts are identified before mapping.

The field survey often starts in the better known areas, then concentrates on areas for which little information or knowledge is available. The mappers drive over a pre-determined route which, wherever possible, crosses the 'grain' of the country, geology or soils, so that the maximum variability is encountered.This makes it easier to place the boundaries between classes. Where access is poor, class boundaries may be identified using aerial photographs (stereoscopic series) or satellite imagery.

6.2 Remote sensing

Agricultural land classification maps can also be produced by mapping directly onto satellite images, either as hard copies or displayed on computer screens. The agricultural land class boundaries on hard copies of images can be digitised and entered into the computer for production of maps.

Satellite images contain detailed records of ground cover features, land use patterns and quality of agricultural land at the time of exposure. Systematic examination by a skilled interpreter familiar with the area can identify the nature of physical objects and landform features.

There are six characteristics recorded for each landform feature represented on an image. These are size, shape, shadow, tone or colour, pattern and texture. These characteristics are assessed using interpretation strategies such as location and association, temporal change and convergence of evidence to determine the agricultural land class boundaries.

As for field mapping, it is necessary to conduct a field reconnaissance survey of the area. This includes ground truthing the satellite image and acquiring the preliminary information as outlined for the field survey technique: soil, geological, slope and climatic data, relevant topographic map sheets and information on the type and productivity of agricultural enterprises.

6.3 General considerations

Regardless of the method used to produce agricultural land classification maps, the procedures below are followed in the production of the maps.

i. Lands that need not be evaluated

Before mapping begins, all lands that can be clearly excluded from agriculture are identified and marked on the map to reduce the area to be assessed. Such lands include:

- national parks, nature reserves, state recreation areas and other lands reserved under the National Parks and Wildlife Act 1974
- state forests and timber reserves, although sometimes these areas may be suitable and available for grazing
- designated foreshores and foreshores of prescribed streams and lakes where land use restrictions apply
- quarries and mining areas
- areas zoned urban or village
- land with slope greater than 50%, greater than 70% rock outcrop, coastal dunes and beaches, and land subject to permanent inundation (i.e. DLWC's land capability class VIII).

ii. Land management assumptions

In classifying agricultural land the following assumptions are made about agricultural land use:

- Land is managed using a moderate to high level of agricultural management practice.
- Land with constraints that have been modified or removed is assessed on its present status eg. irrigation areas, flood mitigation areas, cleared land.
- Land with constraints that could be economically

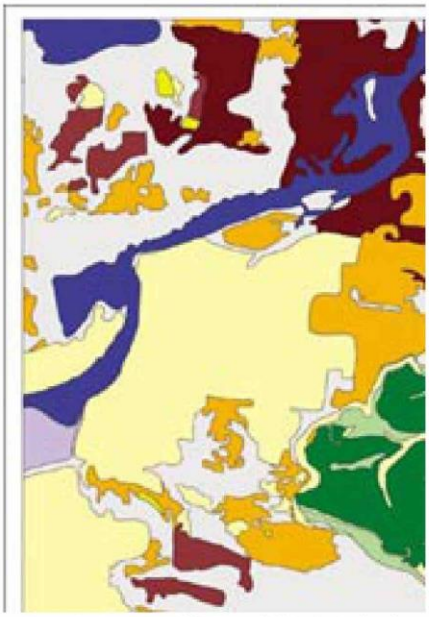


Figure 2: An extract of the Tweed Shire Agricultural Land Classification map - click for clearer, larger image.

Figure 3: The line work for the extract of the Tweed Shire Agricultural Land Classification map used in Figure 2 laid over a false colour satellite image - click for clearer, larger image.

removed (eg. soil acidity, low chemical fertility) is assessed as if they have been removed provided there are no regulatory or legislative constraints.
- Land suited for intensive uses such as cropping is also suited to less intensive land uses such as grazing, forestry etc.
- The assessment reflects long term capacity for sustainable agricultural productivity.
- The assessment reflects the versatility of the land for various agricultural activities (Class 1 is the most versatile, Class 5 the least versatile).
- The assessment may need to be reviewed if technological advances later permanently change the productive potential of the land eg. development of an irrigation area.

Given the above assumptions, existing land use may not always be a good indicator of appropriate land use and hence land class. The system of land classification is aimed at assessing physical, social and economic attributes of land rather than its current use. Nevertheless it must be noted that current land use often reflects land suitability. Where land is used beyond its physical capability land degradation is often evident.

iii. Factors that influence agricultural suitability

Biophysical, social and economic factors are all considered when determining agricultural land classification. These determine the types of agricultural enterprises that are, or could be, adapted to the area. Not all of these factors need to be considered in every assessment, and in some situations key factors may need to be considered in more detail than others are.

It must be recognised that the process of agricultural land classification relies upon interpretation of information by an expert, and that the map marks a point in time reflecting current understanding of agricultural systems, infrastructure, and market and resource conditions.

The following lists are not comprehensive:

Biophysical factors

- environmental impact: fertilisers, pesticides, wastes, erosion, salinisation, siltation, vegetation clearing
- topography: slope (angle and length), erosion hazard, aspect, altitude, flood liability, exposure, land slip, surface drainage
- soil physics: texture, structure, erodibility, depth, water holding capacity, internal and surface drainage, rockiness, stoniness, depth to watertable, permeability, clay type, colour, surface crusting, density, aeration, trafficability, stability under irrigation
- soil chemistry: fertility, toxicity, organic matter, soil reaction, cation exchange capacity, salinity, sodicity, rates of fixation, dispersibility
- climate: length of growing season, temperatures,

rainfall, evaporation, wind, humidity, frost occurrence, irrigation, hail, exposure
- pests and diseases: presence of noxious or pest animals, noxious weeds, insects, plant or animal pathogens (field and storage)

Social factors
- legislative and/or regulatory constraints
- potential conflict with other land users: eg. noise, odour, dust
- availability of permanent or seasonal, skilled or unskilled labour

Economic factors
- regional and local infrastructure to support agriculture
- geographic location
- accessibility and location with respect to transport requirements and costs
- accessibility to local and export markets
- presence of any comparative market advantage
- structure of local farming and marketing, e.g. co-operatives and marketing bodies
- availability and cost of land locally and elsewhere
- costs of removing biophysical constraints
- site contamination from previous land use

iv. Accompanying report

The report accompanying the agricultural land classification map outlines the major constraints and describes how these affect agricultural production. Decision rules used to delineate the agricultural land class boundaries are based on these constraints.

The report supplied with the map should be read in conjunction with the map to help with interpretation. Depending on major agricultural activities in the region, some areas may have been mapped with a different emphasis placed on the factors used in classifying the land.

7. Agricultural land class descriptions

This section describes the major attributes, benefits and constraints to production for each of the agricultural land classes. Appendix 1 includes a selection of photographs depicting examples of each agricultural land classes.

Class 1

Arable land suitable for intensive cultivation where constraints to sustained high levels of agricultural production are minor or absent.

Class 1 lands have all, or nearly all, of the following characteristics:
- Productivity is high to very high for a very wide range of field crops adapted to the area.
- Access to local and export markets is satisfactory.
- Local or regional infrastructure to support intensive forms of agriculture is present and a ready supply of suitable labour is available, if required.
- Potential for land use conflict with neighbours as a result of standard agricultural practices is low.
- Slopes are level to very gently inclined.
- Soils are deep.
- The land is capable of sustaining regular cultivation.
- The soil profile is well drained to moderately well drained.
- Erosion hazard is low, so only simple soil conservation management practices are required to protect the soils from erosion.
- Any soil physical and chemical constraints are capable of being economically overcome for a very wide range of field crops.
- A recurrent extreme of climate does not seriously affect productivity.
- Potential economic losses due to flooding are very low, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is very low.

Class 2

Arable land suitable for regular cultivation for crops but not suited to continuous cultivation. It has a moderate to high suitability for agriculture but edaphic (soil factors) or environmental constraints reduce the overall level of production and may limit the cropping phase to a rotation with sown pastures.

Class 2 lands have all, or nearly all, of the following features:
- Productivity is high to very high for a wide range of field crops adapted to the area.
- Access to local and export markets is satisfactory.
- Local or regional infrastructure to support intensive forms of agriculture is present and a ready supply of suitable labour is available, if required.
- Potential for land use conflict with neighbours as a result of standard agricultural practices is low.
- Slopes are level to gently inclined.
- Soils are deep to moderately deep.
- The land is capable of sustaining regular cultivation; however, conservation tillage practices may be required.
- The soil profile is either moderately well drained or rapidly drained.
- Erosion hazard is low to moderate, so soil conservation measures may need to be adopted to avoid erosion.
- Any soil physical and chemical constraints are capable of being economically overcome for a wide range of field crops.
- Recurrent extremes of climate are unlikely to affect productivity.
- Potential economic losses due to flooding are low, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is low.

Class 3

Grazing land or land well suited to pasture improvement. It may be cultivated or cropped in rotation with sown pasture. The overall production level is moderate because of edaphic factors or environmental constraints. Erosion hazard, soil structural breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required.

Class 3 lands have generally moderate levels of social, economic or physical limitations, restricting the extent of arable agriculture. For example, erosion hazard, soil structural breakdown or other factors including climate may limit the capacity for cultivation, and soil conservation or drainage works may be required. However, a high to very high level of one particular characteristic may result in an area being classified as Class 3 even where other limitations are absent.

Class 3 lands are characteristically lands with the following features:

- Productivity is high for locally adapted pastures and moderate for crops well suited to the area.
- Access to local and export markets is satisfactory.
- Local and regional infrastructure to support extensive forms of agriculture is present, and a ready supply of suitable labour is available.
- Potential for land use conflict with neighbours as a result of standard agricultural practices may restrict agricultural activities.
- Slopes are level to moderately inclined.
- Soils are moderately deep to shallow.
- The land has moderate to limited suitability for cultivation, so cultivation is only sustainable in rotation with pastures.
- The soil profile is well drained to imperfectly drained.
- Erosion hazard is low to high, so intensive measures of soil conservation may be required to control erosion in the long term.
- Soil physical and chemical properties may limit crop and pasture productivity.
- Recurrent extremes of climate may affect productivity.
- Potential economic losses due to flooding are moderate, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is moderate.

Class 4

Land suitable for grazing but not for cultivation. Agriculture is based on native pastures or improved pastures established using minimum tillage techniques. Production may be seasonally high, but the overall production level is low as a result of major environmental constraints.

Class 4 lands have generally moderate to high levels of social, economic or physical limitations, restricting the agricultural productivity. The inability for the preparation of a cultivated seedbed on these lands typifies their limitations. It should be noted that a severe to extreme level of one particular characteristic may result in an area being classified as Class 4 even where other limitations are absent.

Class 4 lands are characteristically lands with the following features:

- Productivity levels for locally adapted pastures are low to moderate; however, productivity for selected tree crops may be high.
- Access to local and export markets may be restricted by location.
- Local infrastructure to support extensive forms of agriculture is present, however suitable labour resources may be limited.
- Potential for land use conflict with neighbours as a result of standard agricultural practices may restrict agricultural activities.
- Slopes are level to steeply inclined.
- Soils are mostly shallow.
- The land is unsuitable for cultivation, but minimum tillage techniques can be used to establish perennial pastures.
- The soil profile is well drained to poorly drained.
- Erosion hazard is low to very high; intensive measures of soil conservation may be required, but erosion may still be significant in the long term.
- Soil physical and chemical properties limit crop and pasture growth, and low productivity levels limit the ability to economically manage this constraint.
- Recurrent extremes of climate are likely to affect productivity.
- Potential economic losses due to flooding are high, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is high.

Class 5

Land unsuitable for agriculture or at best suited only to light grazing. Agricultural production is very low or zero as a result of severe constraints, including economic factors which preclude land improvement.

Class 5 lands suffer extreme limitations for agricultural production. These limitations may be one of, or a combination of, the following features:

- Productivity levels for all types of agricultural crops and pastures are very low.
- Access to local and export markets may be very restricted by location.
- Local infrastructure to support extensive forms of agriculture may be absent, as may suitable labour resources.
- Extremes of slope can be expected.
- The land is unsuitable for cultivation.

- The soil profile is very poorly drained.
- Erosion hazard is extreme, and economic control using conventional soil conservation measures is impractical.
- Soil physical and chemical properties present an extreme limitation to the growth of agricultural plant species.
- Recurrent extremes of climate may seriously affect productivity.
- Potential economic losses due to flooding are high, in the long term.
- The level of economic constraint from factors such as weeds, site contamination, standing timber and feral animals is very high to extreme.

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ANNEXURE E

Land Use Conflict Risk Assessment

Land Use Conflict Risk Assessment & Matrix

Consideration of potential impacts on adjacent agricultural land is discussed below and includes a Land Use Conflict Risk Assessment (LUCRA)

The neighboring property is predominantly in 1 in 100 year flood zone, so intensive agriculture, such as horticulture (vegetables, citrus, stone fruit etc) and intensive livestock production (feedlotting, broiler or egg production, piggeries etc) are not economically viable due to flood risk for infrastructure, stock and vegetation. The section not within the flood zone (northern boundary adjacent to the road) is dominated by dwelling infrastructure (sheds, houses etc) and being such as small part of the farm cannot contribute significantly to any agricultural production system. The alluvial (flat) section of the land potentially used for grazing purposes under the current land-use, based on improved pasture or seasonal cropping regimes.

Given the most productive agricultural pursuit on this land would be grazing for beef production the following points detail the potential impacts to maintaining meaningful agricultural production, in the form of pasture and/or cropping improvements for livestock grazing, on the neighboring property.

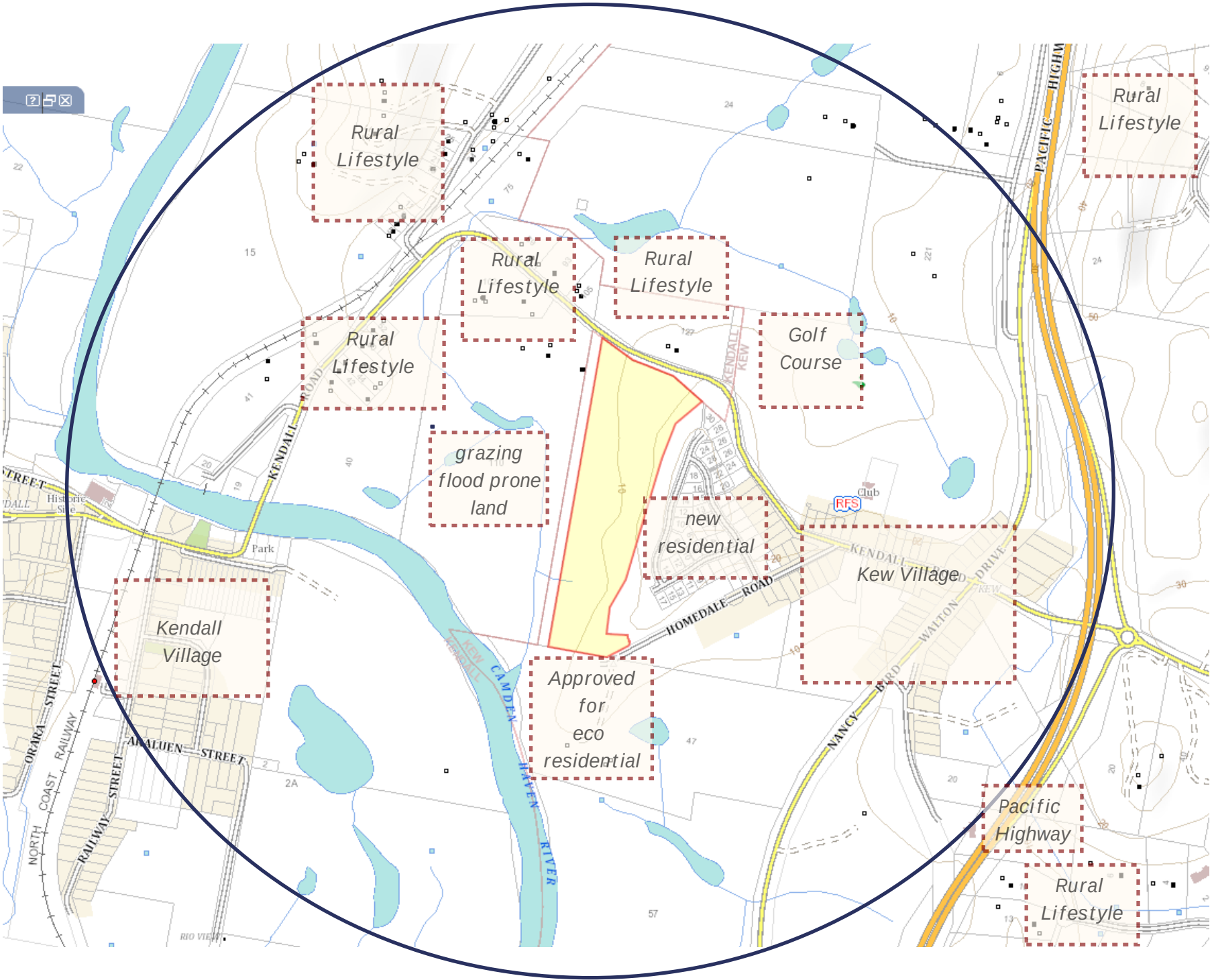
Land Use Conflict Risk Assessment

Consideration	*Response*
The nature of the land use change and development proposed.	General Residential uphill to the east from existing grazing land protected by a 50m buffer zoned E3 Environmental Management.
The nature of the precinct where the land use change and development is proposed.	Adjacent land uses to the site and adjacent agricultural holding, include a Golf Course and rural residential housing to the north of the agricultural land, as well as light industrial and residential occupancy within the adjacent rural land. Further west more rural residential/lifestyle lots. To the east is fairly new residential housing and the village of Kew. Refer Image below of the nature of the uses in the precinct.
The topography, climate and natural features of the site and broader locality which could contribute either to minimising or to exacerbating land use conflict.	The sub-tropical environment of Kendall supports year round production through the growth of warm climate species in summer, and temperate plant species in the cooler months. The benefit of such a climate is sub-tropical perennial grass species tend to dominate improved soils, and are only dormant during winter. A negative of this environment is winters are too cold to support year round growth of tropical species, as cold nights often kill tropical species.

	Due to these outcomes, and a slightly summer-dominant (although essentially year-round) rainfall pattern, pasture production for grazing livestock (beef and dairy) tends to be the most reliable and best-suited industry. In terms of potential conflicting land uses Grazing livestock industries raise potential for conflict in terms of noise from cattleyards such as calves separated from their mothers, pumps and engines starting early, fenceline weed spraying and the like.
The typical industries and land uses in the area where the development is proposed. This provides for a broad test of compatibility with the dominant existing land uses in the locality.	The typical land uses in the area proposed for rezoning is general residential adjacent to the east and existing Kew Village, rural residential and grazing land to the west and north west. Kew golf course and Kew-Kendall road adjoin the site to the north.
The land uses and potential land uses in the vicinity of the proposed development or new land use. Identifying and describing what's happening within a minimum 1km radius of the subject land and development site helps to establish the specific land uses in the locality that are most likely to have some effect on and be affected.	Refer to figure below identifying land uses within 1 km radius.
Describe and record the main activities of the proposed land use and development as well as how regular these activities are likely to be. Note infrequent activities can create conflict.	Proposed land use is general residential. A 50m wide buffer to the adjacent grazing land is proposed to be zoned environmental management in the vicinity of the farmland mapped sections.
Describe and record the main activities of the adjoining and surrounding land uses as well as how regular these activities are, including periodic and seasonal activities that have the potential to be a source of complaint or conflict.	Adjoining agricultural land use activities to the west appear to be cattle grazing and a light industrial shed storing port a loos and fencing materials. To the east is general residential land uses.
Compare and contrast the proposed and adjoining/surround land uses for incompatibility and conflict issues.	Potential impacts on adjacent agricultural uses identified by MNC Agronomy include: a) Section 5.1 of the MNC Agronomy report identifies Potential backyard plant species to encroach on the neighbouring farmland either through natural reproductive processes or even as simply as growing over the fence boundary. Only a very small percentage of backyard plant species are toxic to ruminant animals, and in most cases the toxic species need to make-up a large part of the animals daily diet to cause clinical symptoms.

	The proposal now includes a 50m buffer. MNC Agronomy confirmed that a previously proposed 22m wide buffer was considered sufficient to negate those potential impacts, provided backyard vegetation weren't to spread into that buffer. The provision of an environmental management zone over the 50 m buffer is considered further support that protection. b) Section 5.2 of the MNC Agronomy report identifies Contamination of the lagoon areas of the neighboring property, presumably currently used for stock drinking water, needs to be considered should stormwater run-off containing chemical or biological toxins enter these areas. The intended outcome/ concept subdivision plans demonstrate a stormwater drainage solution directing all stormwater run-off through a purpose built water quality management basin prior to discharge into nearby water courses. In addition, the proposal is for fully serviced general residential use on large allotments, not industrial or other potentially contaminating land use. c) Domestic Pets and Animals Section 5.3 of the MNC Agronomy report identifies that the potential for domestic pets and animals to adversely affect the potential for primary production on the neighboring property is real, however the potential existence of pets on the newly proposed subdivision is no more likely to impact a beef grazing enterprise anymore than existing domestic pets and animals already within the Kew district. Domestic animal's chasing, and in rare cases attacking livestock, particularly calves, is always a possibility but is no more enhanced by the proposed subdivision. Subclinical livestock production losses, due to stress events, can be caused by

	excessive noise, or startling noise such as dogs barking. In this case, the 22m proposed road buffer zone (now 50 m E3 zone) greatly reduces the potential impact domestic animals could have on livestock grazing the western boundary of the property. Provided fencing, of both the property boundary and the subdivision block boundaries, are maintained, the risk of impact on the agricultural viability of the neighboring property is negligible. d) Section 5.4 of the MNC Agronomy report identifies **Animal disease** as a potential risk. It states that Residential areas, particularly those poorly maintained, can potentially harbor diseases that could cause sub-clinical production loss, and in extreme cases death of livestock. For example, rodent borne diseases, such as Botulism, have been known to kill livestock on the mid-north coast. However, such issues are just as likely on any farmland from disease vector sources such as silage, hay, imported feed and dead plant and/or animal material. As we have established the property is likely to support a beef grazing enterprise only (as it is currently doing) disease risk from domestic pets is unlikely. Further, new residential lots and housing similar to that adjacent to the east is proposed and is of good quality and well maintained by home owners. There is no reason to expect the same standard of estate construction and home maintenance from the proposal. The proposed 50 m buffer as an Environmental Management zone and northern perimeter road sections would be expected to mitigate any potential risk.


Rural Lifestyle
Rural Lifestyle
Rural Lifestyle
Rural Lifestyle
Rural Lifestyle
Golf Course
grazing flood prone land
new residential
Kew Village
Kendall Village
Approved for eco residential
Pacific Highway
Rural Lifestyle
KENDALL ROAD
HOMEDALE ROAD
KENDALL KEW
KEW KENDALL
CAMDEN HAVEN RIVER
PACIFIC HIGHW
NANCY BIRD WALTON DRIVE
ORARA STREET
NORTH COAST RAILWAY
RAILWAY STREET
ANAIUEN STREET
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