

Byron Shire Council

Planning Proposal

Amendment of Byron Local Environmental Plan 2014

Residential Zone Proposal – Lot 261 DP 1262316 & Lot 11 DP 807867

Pre Gateway Version #1

Date: February 2023



**BYRON
SHIRE
COUNCIL**

Planning Proposal – Amendment of Byron LEP 2014 68 Rankin Drive Bangalow
E2023/134194

Document History

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Part 1 Introduction

1.1 Objective and intended outcomes

The objective of this Planning Proposal is to amend the Byron L.E.P. 2014 to extend the existing R2 Low Density Residential Zone in Lot 261, D.P. 1262316 and Lot 11, D.P. 807867, and as well rezone the eastern portion of the land to R3 Medium Density Residential.

The final subdivision of these lands will provide for larger lots on the steeper area of the site, and three lots on the lower slopes for medium density. It is intended that one proposed lot will be provided to Byron Shire Council for affordable housing.

1.2 Subject land

This planning proposal relates to land in Bangalow, legally described as Lot 261 D.P. 1262316 and Lot 11 D.P. 807867, Rankin Drive, Bangalow, as shown below in Figure 1.

The land is on the northern end of Bangalow residential area and is bordered by Satinash Crescent to the west, Hinterland Way to the north and Rankin Drive to the south. The site has a total area of 4.014 ha.

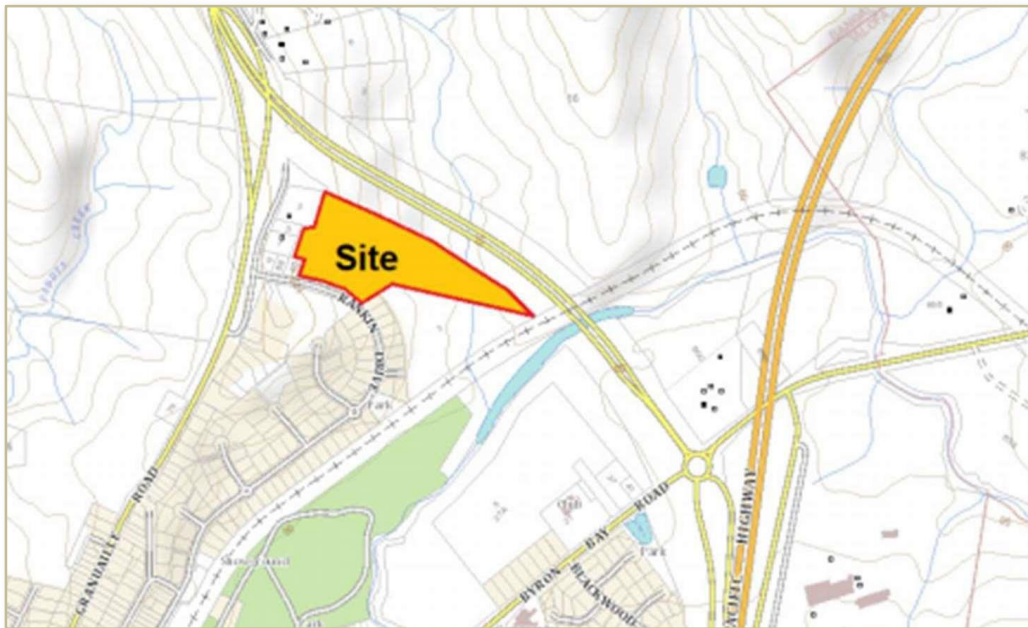


Figure 1: Subject Land

1.3 Background

The lands are owned by Mr Maxwell Campbell via his company Instant Steel Pty Ltd and his family.

Part of the land, previously Lot 107, D.P. 1225545, an area of 0.99 ha has been zoned 2A Residential in the 1988 Bryon L.E.P., and is now R2 Low Density Residential in the

2014 Byron L.E.P. The remainder of the land 3.024 ha is zoned RU1 Primary Production and RU2 Rural Landscape.

In September 2017, the owner Mr Campbell responded to a Council Expression of Interest for

Housing Affordability, and the land, the subject of this Planning Proposal was adopted at the Council meeting of 26th October, 2017 as a “site for affordable housing, and where appropriate invite the lodgement of a development application and/or planning proposal for this purpose”.

Subsequently, the lands in this Planning Proposal were adopted in Council's Residential Strategy on 10 December 2020.

On 14 May 2021 a Planning Proposal for this land was lodged on the NSW Planning Portal

(PP2021-3397), together with a Voluntary Planning Agreement to provide for Affordable Housing.

At Byron Shire Council's Planning Meeting of 5 August 2021, Council resolved to support placing the 2021 Voluntary Planning Agreement on Public Exhibition, subject to further amendments but also resolved:

6. Due to 5, Council does not accept any “urban residential” planning proposal pertaining to a non-Council owned and managed investigation area (as identified in the Residential Strategy, until a statutory AHCS is in place for Byron Shire noting that the timeframe for this may be at least six months away.
7. Requests the Department of Planning, Industry and Environment finalise its approval of the Byron Residential Strategy and corresponding Affordable Housing Contributions Scheme (AHCS) without further delay.

The owners of the land then resubmitted the rezoning application on 7 September 2021 (PP-2021-5540) without a Voluntary Planning Agreement, but still retaining an area for affordable housing on a 1ha lot which would have enable the construction of 15 small houses as well as a community garden.

On 29 November 2021, this Planning Proposal was returned requesting further information regarding traffic, flooding and indicating that Council's Residential Strategy has yet to be endorsed by the Department.

Subsequently the owner has discussed affordable housing opportunities with North Coast Community Housing and then after meeting Council's Strategic Planners on 23 June 2022, the owner of the land wrote to Council to offer Lot 21 of the future subdivision to Council for use as a site for affordable housing.

Finally, on 13 January 2023 the Byron Shire LEP 2014 was amended via Clauses 6.17 and 6.18 to enable Council to pursue the objectives of the Byron Shire Affordable Housing Scheme.

Clause 6.18 provides that Council may impose a contribution on the subdivision of land in accordance with the Affordable Housing Scheme which was adopted by Council 11 August 2022.

The scheme provides at Clause 2.1.4 Affordable housing contributions area: Bangalow On-Site: 20% of the area of upzoned residential lots in the development must be provided as an affordable housing contribution.

The owner will provide to Byron Shire Council Lot 21, of the proposed future subdivision of the land, having an area of 5,645m² developable which will be zoned R3 Medium Density Residential following completion of this Planning Proposal and approval of the subdivision in accordance with the Clause.

The following studies support the Planning Proposal:

1. Aboriginal Cultural Heritage Assessment
2. Acoustic Report
3. Bushfire Report
4. Preliminary Site Investigation - Contamination
5. Flood Risk Management
6. Flora and Fauna
7. Engineering Services
8. Land Use Conflict Risk Assessment
9. Geotechnical Report
10. Traffic Impact Statement

Part 2 Explanation of provisions

The Planning Proposal seeks to amend the Byron L.E.P. 2014 as it applies to this site, by rezoning the Rural Landscape RU2 Zone and the RU1 Primary Production Zones, to R2 Low Density Residential and R3 Medium Density Residential.

The existing R2 Low Density Residential Zone on Lot 261, D.P. 1262316 of 0.99 ha shall remain R2 Low Density Residential.

The lot size Map Sheet LSZ 003 CB of the Byron L.E.P. 2014 will be amended to provide a Minimum Lot size of 800m² (S) for the steeper area of the site, as this lot size already applies to part of the R2 Low Density Residential land on the site.

The R3 Medium Density Zone will have a minimum lot size of 1,000m² allowing for strata title of smaller dwellings that are proposed. An area of proposed Lot 4 will be included as an extension of the 600m² lot size adjacent to the entrance road to the subdivision.

Part 3 Justification

Section A Need for the planning proposal

Q1. Is the planning proposal a result of an endorsed local strategic planning statement, strategic study or report?

Yes. This Planning Proposal is the result of a report to the Byron Shire Council Meeting of 26 October 2017 where Council accepted the land as an opportunity for affordable housing.

As well, the site is identified in Council's Residential Strategy, adopted 10 December 2020, as area 11 Bangalow - 68 Rankin Drive & Granuaille Crescent as below, noting that a small triangular area of Lot 11, at the eastern end of 5,200m², is not in the investigation area below.

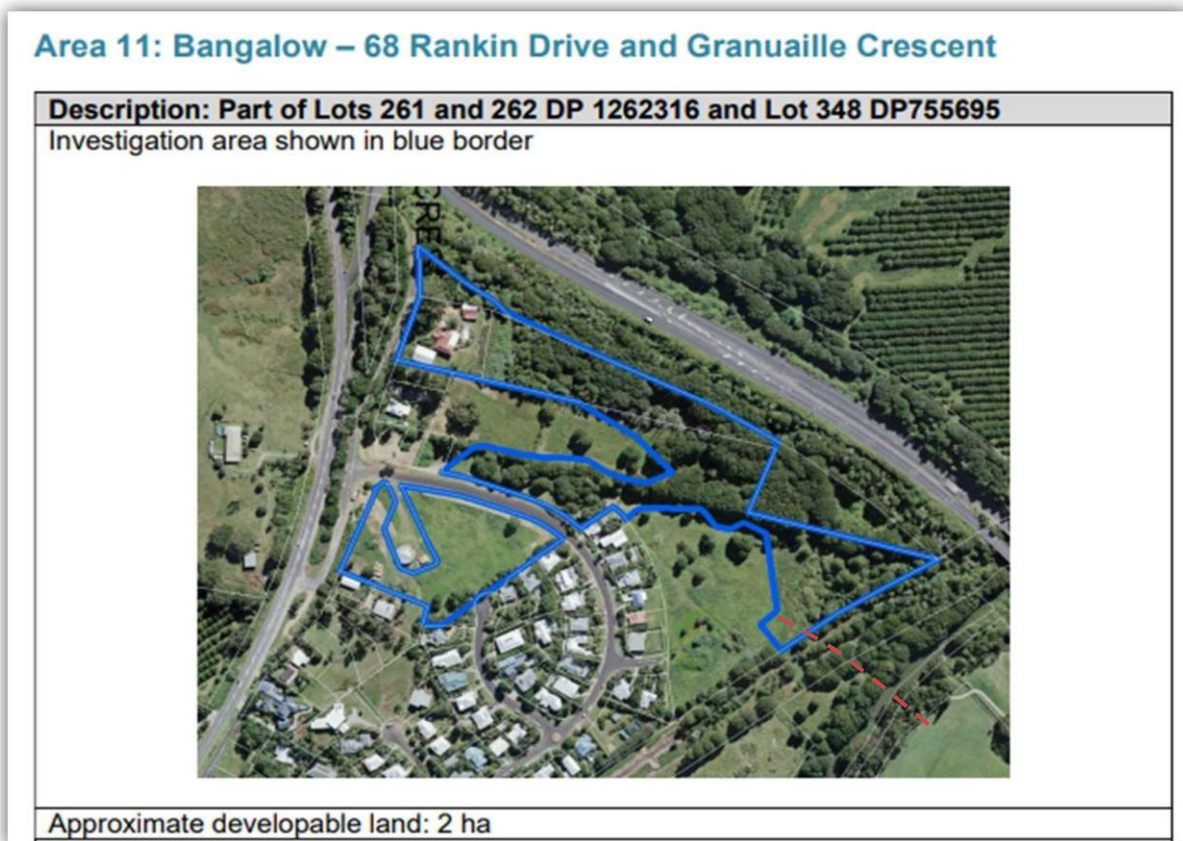


Figure 4: Map of Area

The Strategy outlined the following Strengths/advantages of the site

- adjacent existing residential area
- good proximity to employment area
- proximity to existing public transport route
- determined to be a viable affordable housing contribution area

The Strategy also provided the following criteria which are addressed:

Housing diversity, character and affordability preferred zone

- (i) The Planning Proposal is for the land to be zoned R2 Low Density Residential and R3 Medium Density Residential.

Housing mix and density

- (ii) The site will be developed on the upper slopes, with a minimum lot size of 800m², catering for dwellings compatible with the adjacent residential zones, with the possibility of secondary dwellings under the first floor on the sloping sites. The R3 Zone will exceed the dwelling density suggested in the Strategy, at approximately 30 dwellings per hectare, with an overall density of the site to exceed 15 dwellings per hectare.

Lot size, mix, layout

- (iii) The lot size propose for the site is governed by the engineering report relating to the steeper lands on the site, so that the steeper portion of the site is provided with an 800m² minimum lot size. The gentler slopes will be zoned R3 Medium Density Residential.

Affordable provisions

- (iv) It is proposed that 20% of the land upzoned area be granted to Byron Shire Council for affordable housing in accordance with Council's Policy.

Integration with local character

- (v) The proposed layout for future subdivision is large lots on the sloping sites and medium density on the gentler slopes. The development of future housing on the site will be in accordance with Council's Development Control Plan 2014.

Q2. Is the planning proposal the best means of achieving the objective or intended outcomes, or is there a better way?

Yes. The Planning Proposal is considered the best means of achieving the objective as the land is the last available on the northern extremity of Bangalow. The terrain is typical of this northern end of Bangalow Village, has not been used for any viable purpose for many years and will provide residential lots when rezoned and subdivided. Another urban use on the area would not suit this location and agriculture on the small amount of rural zoned land would be unviable as well as conflicting with adjacent residential zones.

Rezoning to Residential for the parcel is the only option as 0.99 ha in the centre of the site is already R2 Low Density Residential, and subdivision of part of the R2 land for four (4) residential lots, has been approved by Byron Shire Council.

Section B Relationship to strategic planning framework

Q3. Will the planning proposal give effect to the objectives and actions of the applicable regional, or district plan or strategy (in this case the North Coast Regional Plan 2041)?

Yes. The planning proposal is consistent with the North Coast Regional Plan 2041, which is a 20-year blueprint for the future of the North Coast. The NSW Government's vision for the North Coast is healthy and thriving communities supported by a vibrant and dynamic economy that builds on the region's strengths and natural environment.

The subject site is partially within and adjacent the Urban Growth Area for the Village of Bangalow, as per Figure 14 of the North Coast Regional Plan 2041.

On 20 June 2018 the Director Regions, Northern Planning Services wrote to Byron Shire Council advising that this site, on the northern edge of Bangalow Village, is predominantly zoned R2 Low Density Residential, is mostly within the Urban Growth boundary and if Council can satisfy the urban growth variation principles and important interim variation criteria, it may merit consideration. These items are addressed further in this document. Letter attached (D).

The planning proposal is consistent with the following regional priorities, identified for Byron Shire:

- Manage and support sustainable growth.
- Deliver housing equitably to meet the needs of the community.
- Investigate opportunities for increased housing diversity.
- Prioritise the delivery of affordable housing to support the local workforce.

Response: The rezoning of the site will provide additional house sites, typical of this northern residential area of Bangalow, as well as providing for an R3 Medium Density Residential area for approximately 30 units. Part of the medium density area will be granted to Byron Shire Council in accordance with the Affordable Housing Policy.

The Objectives of the North Coast Regional Plan 2041 relating to housing include:

Strategy 1.2

Local Council plans are to encourage and facilitate a range of housing options in well located areas.

Response: The site is partially within the urban growth area for Bangalow, and is bordered on the north by Hinterland Way. The development for housing does not impact on the farmlands surrounding Bangalow. The site will allow for larger allotments on the higher slopes for conventional housing, including secondary dwellings and duplexes, whilst providing for town houses, units and affordable housing on the R3 zoned lots.

Strategy 1.3

Undertake infrastructure service planning to establish land that can be feasibly serviced prior to rezoning.

Response: The Engineering Services Report from SDS Civil Enterprises addresses all services which can be extended through the subdivision following rezoning. The owner has already upgraded the Satinash Crescent pump station to supply the future subdivision in accordance with the Water Analysis (H20MAP) as per Appendix 5.

Strategy 1.4

Councils in developing their future housing strategies must prioritise new infill development to assist in meeting the regions overall 40% multi-dwelling/small lot housing target.

Response: The R3 Medium Density Residential zone will ensure that the 40% target is exceeded on this site.

Table 1

Urban Growth Area Variation Principles		
Policy	The variation needs to be consistent with the objectives and outcomes in the <i>North Coast Regional Plan 2041</i> and should consider the intent of any applicable Section 91 Direction, State Environmental Planning Policies and local growth management strategy.	The objectives of NCRP, Section 9.1 Directions are addressed in this Report.
Infrastructure	The variation needs to consider the use of committed and planned major transport, water and sewerage infrastructure, and have no cost to government. The variation should only be permitted if adequate and cost-effective infrastructure can be provided to match the expected population.	The Engineering Services Report attached provides that all services can be provided on site at no cost to government. Contributions to Byron Shire and Rous Water will also be made as the site is developed following rezoning.
Environmental and heritage	The variation should avoid, minimise and appropriately manage and protect any areas of high environmental value and water quality sensitivity, riparian land or Aboriginal and non-Aboriginal heritage.	There is no detrimental impact on the environment, and water quality in the unnamed water course will be improved and revegetated. Aboriginal and non-Aboriginal heritage has been addressed.
Avoiding Risk	Risks associated with physically constrained land identified as: <ul style="list-style-type: none"> • flood prone; 	The water course through the eastern end of the site is addressed in the Flood Report and all development will be clear

	<ul style="list-style-type: none"> • bushfire-prone; • highly erodible; • having a severe slope; and • acid sulfate soils. 	<p>of that area. All other risks have been addressed in reports.</p> <p>There is no evidence of erosion or landslip on this land, nor of similar lands in this area of Bangalow.</p>
Heritage	<p>The variation must protect and manage Aboriginal and non-Aboriginal heritage.</p>	<p>A Cultural Heritage Advice Report by the TBALC did not identify any registered Aboriginal sites on the land or within proximity to it.</p> <p>The site does not contain any items of European heritage, however adjacent to the site on the western boundary of 26 Satinash Crescent (LOT 348 DP 755695) is Item 1026 House (including fence) listed in Schedule 5 Environmental Heritage of the Byron LEP 2014.</p> <p>The Heritage Inventory Site No. 1260081 lists the Statement of Significance: "Finely proportioned timber residence with high quality Federation style timber detailing located on an elevated site at the north end of the village. The house displays local materials and craftsmanship in carpentry of a very high standard.</p> <p>The residence sits on an area of 4,300m². In 2009 an approved dual occupancy was constructed at the front southern side of the impressive main residence (DA No. 10.2009.270.1). There is a swimming pool and shed at the rear eastern side of the property.</p> <p>The Planning Proposal does not impact on the heritage listed residence. Its primary presentation is to the street,</p>

		including, the front fencing, and the rear aspect is at present fragmented allotments, remnants from the Pacific Highway realignment.
Coastal Strip	Only minor and contiguous variations to urban growth areas in the coastal area will be considered within the coastal strip due to its environmental sensitivity and the range of land uses competing for this limited area.	The land is not located within the coastal strip.
Land Use Conflict	The variation must be appropriately separated from incompatible land uses, including agricultural activities, sewerage treatment plants, waste facilities and productive resource lands.	A LUCRA – Land Use Conflict Assessment has been prepared by HMC Environmental. The assessment found that the Hinterland Way Motorway, including a 30m vegetated buffer in the road reserve is sufficient to reduce the likelihood of any conflict with farming to the east.
Important Farmland	<p>The planning area is contiguous with existing zoned urban land and the need and justification is supported by a sound evidence base addressing agricultural capability and sustainability and is either for:</p> <ul style="list-style-type: none"> • a minor adjustment to ‘round off an urban boundary’, or • if demonstrated through a Department approved local strategy that no other suitable alternate land is available. 	Whilst part of the land is mapped as Regionally Significant Farmland, the land has not supported agriculture for a significant time, due to limited size and shape, as well as being adjacent to residential properties. The site is not occupying productive agricultural land.

Assessment Criteria

(a) Does the proposal have merit? Is it:

- Consistent with the Regional Plan? Yes.

The land is within and adjacent the Bangalow Urban Growth Area.

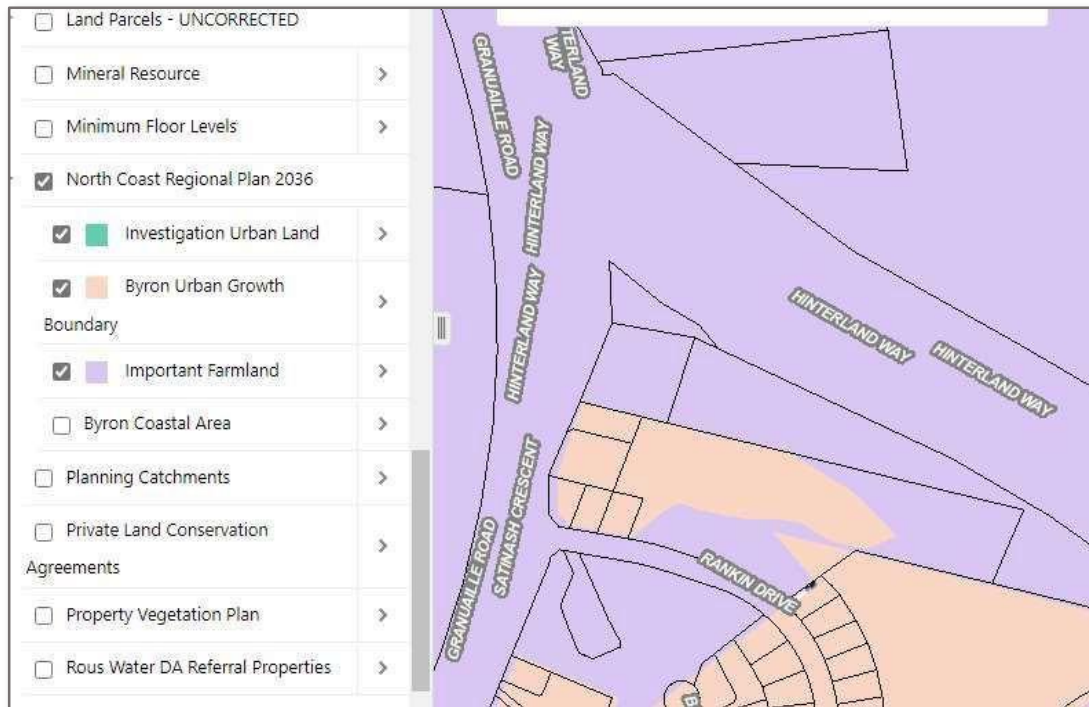


Figure 5: Urban Growth Boundary

- Consistent with a relevant local strategy? Yes.

Most of the land is identified as Site 11 of the Bryon Shire Residential Strategy and is identified as being a site for affordable housing by Byron Shire Council.

(b) Does the proposal have site-specific merit, having regard to the following:

- The natural environment – Yes.
For many years the site has been covered by Camphor Laurel infestation. The site has been cleared of that growth and being adjacent to residential area is only suited that residential use. The proposal will improve the small water course traversing the site.
- The existing uses, approved uses, and likely future uses of land in the vicinity of the proposal - Yes.
 - The site is adjacent to residentially zoned land to its south and residential lots to its immediate west. The northern boundary abuts Hinterland Way. There is no other likely viable use for this parcel of land.
 - The services and infrastructure that are or will be available to meet the demands arising from the proposal.
 - The Water mains will be extended into the subdivision, the owner has already provided for the pump station to enhance pressure and flows to the area. A sewer pump station will be constructed to service the land to Council requirements. All other urban services are available.

Q4. Is the planning proposal consistent with a LSPS that has been endorsed by the Planning Secretary or other local strategy or strategic plan?

Yes. The land is identified in the Byron Residential Land Strategy and noted as a site for Affordable Housing by Byron Shire Council, noting that an area of 5,200m² at the eastern end of Lot 11 is not in the strategy.

Q5. Is the planning proposal consistent with any other applicable State and regional studies or strategies?

The Draft Resilient Lands Strategy dated June 2023, released by the Northern Rivers Reconstruction Corporation identified an area south of Bangalow for new residential housing.

The site of this Planning Proposal is at the northern boundary of Bangalow and will assist the housing needs of Bangalow including affordable housing lots and some medium density lots.

Q6. Is the planning proposal consistent with applicable State Environmental Planning Policies (SEPPs)?

The State Environmental Planning Policies relevant to this Planning Proposal are as follows:

State Environmental Planning Policy (SEPP)	Compliance of Planning Proposal
SEPP (Biodiversity and Conservation) 2021	Complies with the aims and objectives of Chapter 3 of SEPP. An Environmental Assessment has been provided by Peter Parker.
SEPP (Resilience and Hazards) 2021	Complies - See Report by H.M.C. Refer Appendix
SEPP (Primary Production) 2021	The site, while partially zoned RU2 Rural Landscape and RU1 Primary Production is fragmented from the important agricultural lands surrounding Bangalow and cannot be viably used for agriculture.

Q7. Is the planning proposal consistent with the applicable Ministerial Directions (s.9.1 directions)?

Consistency with the Local Planning Directions is assessed in the following tables:

1. Planning Systems

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
1.1 Implementation of Regional Plans	<p>Planning proposals must be consistent with a Regional Plan released by the Minister for Planning.</p> <p>A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Planning Secretary (or an officer of the Department nominated by the Secretary), that:</p> <p>(a) the extent of inconsistency with the Regional Plan is of minor significance, and</p> <p>(b) the planning proposal achieves the overall intent of the Regional Plan and does not undermine the achievement of the Regional Plan's vision, land use strategy, goals, directions or actions.</p>	<p>The land is partially within the Urban Growth Boundary for Bangalow, between Rankin Drive and Hinterland Way.</p> <p>Part of the land is already R2 Low Density Residential. The land is not suitable to farming and the proposal incorporating an R3 Zone will allow for medium density housing and affordable housing.</p>	Consistent
1.2 Development of Aboriginal Land Council Land	Applies when preparing a planning proposal for land shown on the Land Application Map of chapter 3 of the State Environmental Planning Policy (Planning Systems) 2021.	This planning proposal does not apply to Aboriginal Land Council land.	N/A
1.3 Approval and Referral Requirements	<p>A planning proposal must:</p> <p>(a) minimise the inclusion of provisions that require the concurrence, consultation or</p>	This proposal does not involve designated development nor referrals.	

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>referral of development applications to a Minister or public authority, and</p> <p>(b) not contain provisions requiring concurrence, consultation or referral of a Minister or public authority unless the relevant planning authority has obtained the approval of:</p> <p>i. the appropriate Minister or public authority, and</p> <p>ii. the Planning Secretary (or an officer of the Department nominated by the Secretary),</p> <p>prior to undertaking community consultation in satisfaction of Schedule 1 to the EP&A Act</p>		
1.4 Site Specific Provisions	Applies when preparing a planning proposal that will allow a particular development to be carried out.	<p>This Planning Proposal will zone the land R2 Low Density Residential and R3 Medium Density Residential.</p> <p>The proposal will allow for development of residential allotments and dwellings as per existing residential zone of the Byron LEP 2014.</p> <p>The proposal does not contain drawings.</p>	Consistent

3. Biodiversity and Conservation

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
3.1 Conservation Zones	<p>A planning proposal must include provisions that facilitate the protection and conservation of environmentally sensitive areas.</p> <p>A planning proposal that applies to land within an conservation zone or land otherwise identified for environment protection purposes in a LEP must not reduce the environmental protection standards that apply to the land (including by modifying development standards that apply to the land). This requirement does not apply to a change to a development standard for minimum lot size for a dwelling in accordance with clause (5) of Direction 1.5 “Rural Lands”.</p>	<p>This Planning Proposal does not alter or remove any environment protection zone. No environmental standards will be reduced by the proposed LEP changes.</p> <p>The site does not contain environmentally sensitive areas.</p>	Consistent
3.2 Heritage Conservation	<p>A planning proposal must contain provisions that facilitate the conservation of:</p> <p>(a) items, places, buildings, works, relics, moveable objects or precincts of environmental heritage significance to an area, in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item, area, object or place, identified in a study of the environmental heritage of the area,</p>	<p>There are no items of European Heritage nor Aboriginal sites on the land. A report from the Tweed Byron Aboriginal Land Council (TBLALC) provides that no cultural material or objects were observed on the site and the AHIMS search indicates that there are no registered Aboriginal sites on the land or in the proximity.</p> <p>There is a residence at 26 Satinash Crescent listed in Schedule 5 of the Byron LEP 2014 which is on adjacent land on the western boundary of the site.</p>	Consistent

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>(b) Aboriginal objects or Aboriginal places that are protected under the National Parks and Wildlife Act 1974, and</p> <p>(c) Aboriginal areas, Aboriginal objects, Aboriginal places or landscapes identified by an Aboriginal heritage survey prepared by or on behalf of an Aboriginal Land Council, Aboriginal body or public authority and provided to the relevant planning authority, which identifies the area, object, place or landscape as being of heritage significance to Aboriginal culture and people</p>	<p>This residence has an imposing presentation to Satinash Crescent, at its street frontage, but is not impacted at the rear by any future subdivision.</p>	
3.4 Application of C2 and C3 Zones and Environmental Overlays in Far North Coast LEPs	<p>A planning proposal that introduces or alters an C2 Environmental Conservation or C3 Environmental Management zone or an overlay and associated clause must apply that proposed C2 Environmental Conservation or C3 Environmental Management zone, or the overlay and associated clause, in line with the Northern Councils E Zone Review Final Recommendations.</p>	<p>This planning proposal does not introduce or alter an environmental zone on the subject land.</p>	N/A
3.5 Recreation Vehicle Areas	<p>A planning proposal must not enable land to be developed for the purpose of a recreation vehicle area (within the meaning of the Recreation Vehicles Act 1983).</p>	<p>This planning proposal does not enable land to be developed for the purpose of a recreation vehicle area.</p>	N/A

4. Resilience and Hazards

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
4.1 Flooding	This direction applies when preparing a planning proposal that creates, removes or alters a zone or a provision that affects flood prone land.	<p>There is a small un-named intermittent stream through the eastern R3 proposed area. The flow path discharges flow from farmland to the east via a culvert under the Hinterland Way.</p> <p>The Engineering Report provides that a culvert can be constructed at the eastern end of this land, and designed to accommodate access during flooding from this eastern end of the site.</p> <p>All future residential development on the site will not lead to flood impacts on other lands.</p> <p>The proposal is consistent with the Principles of the Flood Planning Development Manual 2005.</p>	Consistent
4.2 Coastal Management	This direction applies when a planning proposal authority prepares a planning proposal that applies to land that is within the coastal zone, as defined under the Coastal Management Act 2016.	The site is not within the Coastal mapped area.	N/A
4.3 Planning for Bushfire Protection	(1) In the preparation of a planning proposal the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under section 3.34 of the Act, and prior to	Peter Thornton of Bushfire Certifiers has determined that the Residential Zoning is appropriate. The report is attached.	Consistent

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>undertaking community consultation in satisfaction of clause 4, Schedule 1 to the EP&A Act, and take into account any comments so made.</p> <p>(2) A planning proposal must:</p> <p>(a) have regard to Planning for Bushfire Protection 2019,</p> <p>(b) introduce controls that avoid placing inappropriate developments in hazardous areas, and</p> <p>(c) ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ).</p>	<p>The proposal is capable of meeting the prevention measures of PBP 2019.</p> <p>APZ's can be provided within the site when developed and this future development will improve the fire protection of adjacent residential zones.</p>	
4.4 Remediation of Contaminated Land	<p>This direction applies to:</p> <p>(a) land that is within an investigation area within the meaning of the Contaminated Land Management Act 1997,</p> <p>(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,</p> <p>(c) the extent to which it is proposed to carry out development on it for residential, educational, recreational or childcare</p>	<p>The report by HMC Environmental found no record of potentially contaminating activities on the site and that the site is suitable for residential development.</p>	Consistent

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>purposes, or for the purposes of a hospital – land:</p> <ul style="list-style-type: none"> i. in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and ii. on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge). <p>(1) A planning proposal authority must not include in a particular zone (within the meaning of the local environmental plan) any land to which this direction applies if the inclusion of the land in that zone would permit a change of use of the land, unless:</p> <ul style="list-style-type: none"> (a) the planning proposal authority has considered whether the land is contaminated, and (b) if the land is contaminated, the planning proposal authority is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes for which land in the zone concerned is permitted to be used, and 		

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>(c) if the land requires remediation to be made suitable for any purpose for which land in that zone is permitted to be used, the planning proposal authority is satisfied that the land will be so remediated before the land is used for that purpose.</p> <p>In order to satisfy itself as to paragraph 1(c), the planning proposal authority may need to include certain provisions in the local environmental plan.</p> <p>(2) Before including any land to which this direction applies in a particular zone, the planning proposal authority is to obtain and have regard to a report specifying the findings of a preliminary investigation of the land carried out in accordance with the contaminated land planning guidelines</p>		
4.5 Acid Sulfate Soils	<p>Applies when preparing a planning proposal that will apply to land having a probability of containing acid sulfate soils as shown on the Acid Sulfate Soils Planning Maps held by the Department of Planning and Environment.</p> <p>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 acid sulfate soils on the Acid Sulfate Soils Planning Maps</p>	The site is not mapped as containing acid sulfate soils.	Consistent

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>unless the relevant planning authority has considered an acid sulfate soils study assessing the appropriateness of the change of land use given the presence of acid sulfate soils. The relevant planning authority must provide a copy of any such study to the Planning Secretary prior to undertaking community consultation in satisfaction of clause 4 of Schedule 1 to the Act.</p>		
4.6 Mining Subsidence and Unstable Land	<p>This direction applies when a relevant planning authority prepares a planning proposal that permits development on land that is within a declared mine subsidence district in the Coal Mine Subsidence Compensation Regulation 2017 pursuant to section 20 of the Coal Mine Subsidence Compensation Act 2017, or has been identified as unstable in a study, strategy or other assessment undertaken by or on behalf of the relevant planning authority or by or on behalf of a public authority and provided to the relevant planning authority.</p>	<p>This planning proposal does not impact on any mine subsidence area.</p> <p>Part of the site is steeper but is not unstable.</p>	Consistent

5. Transport and Infrastructure

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
5.1 Integrated Land Use Transport	<p>This direction applies when preparing a planning proposal that will create, alter or remove a zone or a provision relating to urban land, including land zoned for residential, business, industrial, village or tourist purposes.</p> <p>1) 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:</p> <p>(a) Improving Transport Choice – Guidelines for planning and development (DUAP 2001), and</p> <p>(b) The Right Place for Business and Services – Planning Policy (DUAP 2001).</p>	<p>The proposal will extend the Residential zone by 3.02ha, providing approximately forty-two (42) house sites, when the loop road back to Corliss Avenue is completed through the adjacent residentially zoned land, access via walking, cycling or motor vehicles back to Bangalow Town Centre will be advantaged.</p>	Consistent
5.2 Reserving Land for Public Purposes	<p>A planning proposal must not create, alter or reduce existing zonings or reservations of land for public purposes without the approval of the relevant public authority and the Planning Secretary (or an officer of the Department nominated by the Secretary).</p>	<p>The planning proposal does not alter or reduce land reserved for public purposes.</p>	N/A
5.3 Development Near Regulated	<p>Applies when preparing a planning proposal that will create, alter or remove a zone or a provision</p>	<p>There are no airports or airfields in the vicinity of this planning proposal.</p>	N/A

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
Airports and Defence Airfields	relating to land near a regulated airport which includes a defence airfield.		
5.4 Shooting Ranges	Applies when preparing a planning proposal that will affect, create, alter or remove a zone or a provision relating to land adjacent to and/ or adjoining an existing shooting range	There are no shooting ranges in the vicinity of this planning proposal.	N/A

6. Housing

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
6.1 Residential Zones	<p>Applies when preparing a planning proposal that will affect land within an existing or proposed residential zone (including the alteration of any existing residential zone boundary).</p> <p>(1) A planning proposal must include provisions that encourage the provision of housing that will:</p> <p>(a) broaden the choice of building types and locations available in the housing market, and</p> <p>(b) make more efficient use of existing infrastructure and services, and</p>	<p>The planning proposal will broaden the choice of housing types in Bangalow, which area at present very restricted and primarily unavailable.</p> <p>The land is adjacent existing residential zones and can be easily provided with all urban services.</p>	Consistent

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>(c) reduce the consumption of land for housing and associated urban development on the urban fringe, and</p> <p>(d) be of good design.</p> <p>(2) A planning proposal must, in relation to land to which this direction applies:</p> <p>(a) contain a requirement that residential development is not permitted until land is adequately serviced (or arrangements satisfactory to the council, or other appropriate authority, have been made to service it), and</p> <p>(b) not contain provisions which will reduce the permissible residential density of land.</p>		
6.2 Caravan Parks and Manufactures Home Estates	Applies when a planning proposal affects land for Caravan Parks and Manufactured Home Estates.	This planning proposal will not alter the permissibility of caravan parks or manufactured home estates on any land.	Consistent

7. Industry and Employment

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
7.1 Business and Industrial Zones	<p>This direction applies to all relevant planning authorities when preparing a planning proposal that will affect land within an existing or proposed business or industrial zone (including the alteration of any existing business or industrial zone boundary).</p> <p>A planning proposal must:</p> <ul style="list-style-type: none"> (a) give effect to the objectives of this direction, (b) retain the areas and locations of existing business and industrial zones, (c) not reduce the total potential floor space area for employment uses and related public services in business zones, (d) not reduce the total potential floor space area for industrial uses in industrial zones, and (e) ensure that proposed new employment areas are in accordance with a strategy that is approved by the Planning Secretary. 	<p>This planning proposal will not affect land within an existing or proposed Business or Industrial Zone.</p>	N/A
7.2 Reduction in non-hosted short-term rental	<p>This direction applies to Byron Shire Council when the council prepares a planning proposal to identify or reduce the number of days that non-hosted short-term rental accommodation</p>	<p>This planning proposal will not impact on non-hosted short-term rental accommodation.</p>	N/A

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
accommodation period	may be carried out in parts of its local government area.		
7.3 Commercial and Retail Development along the Pacific Highway, North Coast	Applies to land in the vicinity of the existing and/or proposed alignment of the Pacific Highway.	This planning proposal does not affect commercial, or retail uses in proximity to the Pacific Highway.	N/A

8. Resources and Energy

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
8.1 Mining, Petroleum Production and Extractive Industries	<p>This direction applies to all relevant planning authorities when preparing a planning proposal that would have the effect of:</p> <ul style="list-style-type: none"> (a) prohibiting the mining of coal or other minerals, production of petroleum, or winning or obtaining of extractive materials, or (b) restricting the potential development of resources of coal, other minerals, petroleum or extractive materials which are of State or regional significance by permitting a land use 	This planning proposal will not alter or restrict mining or extractive industries on any land.	N/A

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	that is likely to be incompatible with such development.		

9. Primary Production

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
9.1 Rural Zones	<p>Applies when a planning proposal will affect land within an existing or proposed rural zone (including the alteration of any existing rural zone boundary).</p> <p>A planning proposal must not rezone land from a rural zone to a residential, business, industrial, village or tourist zone</p>	<p>The 3.02ha of fragmented land is disconnected from farmland to the east and west by the Hinterland Way motorway and by adjacent residential development.</p> <p>It has not been used for rural purposes and is not suited due to its location for rural use.</p>	Justifiably Inconsistent
9.2 Rural Lands	<p>Applies when a planning proposal:</p> <p>(a) will affect land within an existing or proposed rural or conservation zone (including the alteration of any existing rural or conservation zone boundary) or</p> <p>(b) changes the existing minimum lot size on land within a rural or conservation zone.</p> <p>A planning proposal must:</p>	<p>The land is only suited to urban purposes. The current minimum lot size is 40ha, whilst the adjacent minimum lot size in the residential zones adjacent is 600m².</p> <p>Part of the land is in the adopted Byron Shire Residential Strategy as well as being identified as a site in Council's Affordable Housing Strategy.</p>	Justifiably Inconsistent

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>(a) be consistent with any applicable strategic plan, including regional and district plans endorsed by the Planning Secretary, and any applicable local strategic planning statement</p> <p>(b) consider the significance of agriculture and primary production to the State and rural communities</p> <p>(c) identify and protect environmental values, including but not limited to, maintaining biodiversity, the protection of native vegetation, cultural heritage, and the importance of water resources</p> <p>(d) consider the natural and physical constraints of the land, including but not limited to, topography, size, location, water availability and ground and soil conditions</p> <p>(e) promote opportunities for investment in productive, diversified, innovative and sustainable rural economic activities</p> <p>(f) support farmers in exercising their right to farm</p> <p>(g) prioritise efforts and consider measures to minimise the fragmentation of rural land and reduce the risk of land use conflict,</p>	<p>There is no viable agricultural use that could be located on the site and primary production would be in conflict with the adjacent residential housing.</p>	

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>particularly between residential land uses and other rural land use</p> <p>(h) consider State significant agricultural land identified in chapter 2 of the State Environmental Planning Policy (Primary Production) 2021 for the purpose of ensuring the ongoing viability of this land</p> <p>(i) consider the social, economic and environmental interests of the community.</p> <p>(2) A planning proposal that changes the existing minimum lot size on land within a rural or conservation zone must demonstrate that it:</p> <p>(a) is consistent with the priority of minimising rural land fragmentation and land use conflict, particularly between residential and other rural land uses</p> <p>(b) will not adversely affect the operation and viability of existing and future rural land uses and related enterprises, including supporting infrastructure and facilities that are essential to rural industries or supply chains</p> <p>(c) where it is for rural residential purposes:</p> <p>i. is appropriately located taking account of the availability of human services, utility</p>		

S. 9.1 Direction	Application	Relevance to this planning proposal	Consistency
	<p>infrastructure, transport and proximity to existing centres</p> <p>ii. is necessary taking account of existing and future demand and supply of rural residential land.</p>		
9.3 Oyster Aquaculture	Applies when preparing a planning proposal in 'Priority Oyster Aquaculture Areas'	The site is within the Wilsons creek Catchment and does not affect Oyster Leases.	Consistent
9.4 Farmland of State and Regional Significance on the NSW Far North Coast	Applies to land mapped as mapped as State significant farmland, regionally significant farmland, or significant non-contiguous farmland.	<p>The land is identified as Regionally Significant Farmland under the Northern Rivers Farmland Protection Project.</p> <p>Table 2 below provides as assessment of Important Farmland Interim Variation Criteria.</p> <p>Part of this site is already zoned R2 Low Density Residential and agriculture is not possible or viable on the 3.02ha zoned RU1 & RU2.</p> <p>In this location the urban bounding is Hinterland Way and the site is appropriate for residential development including affordable housing and medium density.</p> <p>Housing demand in Byron Shire is not being met, and this fragmented site provides an opportunity for some additional supply in Bangalow.</p>	Justifiable Inconsistent

Table 2:

Important Farmland Interim Variation Criteria	
Land may be suitable for uses other than farmland if:	
<p>Agricultural</p> <p>The land is isolated from other important farmland and is not capable of supporting sustainable agricultural production.</p>	<p>The LUCRA found that the nearest agricultural production is a macadamia farm 110m to the north on the opposite side of Hinterland Way. This site, Lot 11 and Lot 261, is detached from all farmland and cannot be effectively used for agriculture, nor grazing. The site has frontage to a residential street, Rankin Drive, bordered on the north by Hinterland Way and by residential housing on the western side.</p>
<p>Land use conflict</p> <p>The land use does not increase the likelihood of conflict and does not impact on current or future agricultural activities in the locality.</p>	<p>The proposed use for residential will not impact on agricultural production on the northern side of Hinterland Way. If this site, Lots 11 and 261, is used for agriculture or grazing it would conflict with the adjacent residential zone.</p>
<p>Infrastructure</p> <p>The delivery of infrastructure (utilities, transport, open space, communications and stormwater required to service the land is physically and economically feasible at no cost to State and Local Government.</p>	<p>The land is located within proximity to all existing services and the land can be easily serviced by water, sewer, telecommunications and electricity.</p>

Important Farmland Interim Variation Criteria (cont'd)	
<p>Environment and Heritage</p> <p>The proposed land uses do not have an adverse impact on areas of high environmental value, Aboriginal or historic heritage significance.</p>	<p>The site does not contain heritage items listed in Schedule 5 of the Byron L.E.P. 2014.</p> <p>There is a residence adjacent at 26 Satinash Crescent, Bangalow that is listed in Schedule 5.</p> <p>The proposed subdivision is at the rear of the item and does not impact.</p> <p>No trees are impacted by the future subdivision.</p> <p>The TBLALC did not identify any registered Aboriginal sites on the land or within proximity to it.</p>
<p>Avoiding risk</p> <p>Risks associated with physically constrained land are identified and avoided, including:</p> <ul style="list-style-type: none"> • flood prone; • bushfire prone; • highly erodible; • severe slope; and • acid sulfate soils. 	<p>The subject land is not mapped as being bushfire prone or having the potential for acid sulfate soils.</p> <p>No evidence of erosion events or land slip are located on the land. The land does not have a severe slope.</p> <p>The Flood Report indicates a small floodway through the proposed Community Title lot to be kept clear of residential uses. Access can be achieved from the most easter area of the site via a designed culvert.</p>

Section C Environmental, social and economic impact

Q8. 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?

No. No trees will be removed from the site. There is no likelihood of any threatened species being affected by the future residential development.

Assessment Criteria

(a) Does it have merit? Is it:

- Consistent with the Regional Plan?
 - o Yes, it is within and adjacent to the Bangalow Urban Growth Area. The lands Lot 11 DP 807867 and Lot 261 DP 1262316 are adjacent existing residential land and bordered on the north by the Hinterland Way.
- consistent with a relevant Local Strategy
 - o Yes, the land is identified in the Byron Residential Strategy being Site 11 at Bangalow. The majority of the site, except for 0.52ha in the eastern triangular area of Lot 11, is within that strategy.

(b) Does the proposal have site-specific merit, having regard to the following?

- the natural environment?
 - o Yes, for many years the land has been unused and covered with Camphor Laurel noxious weeds. Street tree planting and proposed revegetation in the riparian area towards the eastern point of the site will be advantageous.
- the existing uses, approved uses, and likely future uses of land within the vicinity of the proposal?
 - o Yes. The site is adjacent to residentially zoned land. The proposed R3 Medium Density Residential zone at the eastern end of the site will provide sites for town houses and units, as well as an area granted to Council under the Byron Shire Affordable Housing Strategy.
- the services and infrastructure that are or will be available to meet the demands arising from the proposal and any proposed financial arrangement for infrastructure provision.
 - o Yes. Water mains will be extended into the future subdivision as well as sewer mains and a sewer pump station. These will be subject to contributions to Byron Shire Council. All other urban services are available.

Q9. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The development will be connected to urban services, water, sewer, drainage, telephone and electricity. The un-named water course through the property will be enhanced by strategic planting of appropriate vegetation.

Q10. Has the planning proposal adequately addressed any social and economic effects?

The proposal will ensure the future construction of small, more diverse housing in the R3 zone proposed, including the allotment granted to Byron Shire Council for affordable housing. There is an economic benefit with the development and servicing of the residential subdivision. There is a social benefit in providing smaller house sites as Bangalow land prices are now very expensive. The median house price at Bangalow is now \$1.63 million.

Section D Infrastructure

Q11. Is there adequate public infrastructure for the planning proposal?

The net result of this Planning Proposal will be the provision of approximately forty-two (42) house sites, with the possibility of some secondary dwellings or dual occupancies on the larger R2 residential lots.

As previously addressed, all urban services are available to service this small future subdivision. Road access has been allowed for by Byron Shire Council through to Corlis Crescent. Council has strategically required the owner to instal a pump station to supply adequate water pressure and flow to the development area to the required standard.

Section E State and Commonwealth Interests

Q12. What are the views of state and Commonwealth public authorities consulted in order to inform the Gateway determination?

There has been no consultation with State and Commonwealth public authorities to date.

Part 4 Mapping

Amendments will be required to the following Byron LEP 2014 map sheets:

The existing Zone map of the 2014 Byron LEP shows three zones on the site, R2 Low Density Residential, RU2 Rural Landscape and RU1 Primary Production. A draft Zone Map for this proposal shows the site as one zone R2 Low Density Residential, and R3 Medium Density Residential in accordance with this Planning Proposal.

The Byron LEP 2014 lot size map below shows the site containing both 600m² and 800m² minimum lot sizes. It is the intent of this Planning Proposal to provide a minimum lot size of 800 m² for the steeper lands on site, with a minimum lot size of 1000m² in the R3 Zone to enable strata subdivision.

A draft lot size map is included (Refer Appendix 3).

Part 5 Community consultation

The site of this Planning Proposal is included in Council's adopted Residential Strategy being Site 11 Bangalow. There is a triangular area of 5,930m² at the eastern end of Lot 11 that is not in that Strategy, but is suitable for residential use.

The site is low impact, on the northern extremity of Bangalow's Residential area.

It is expected that the Gateway determination will confirm the level of public participation for the Proposal.

Community consultation will be conducted in accordance with the Gateway determination.

Notification of the exhibited planning proposal will include:

- updates to Council's website
- referral to relevant State agencies
- notification in writing to affected landowners

Part 6 Project timeline

The proposed timeline for the completion of the Planning Proposal is as follows:

Plan making step	Estimated completion
Gateway Determination	March 2024
Agency Consultation	May 2024
Public Exhibition Period	May 2024
Submissions Assessment	July 2024
Submission of endorsed LEP to DPIE for finalisation (non-delegated)	October 2024
Submission of endorsed LEP amendment to Parliamentary Counsel for drafting (delegated authority)	October / November 2024

Council to make the LEP amendment (delegated authority)	November 2024
LEP amendment notification	December 2024

Conclusion

This Planning Proposal seeks to amend Byron Local Environmental Plan (LEP) 2014 by rezoning parts of the site that are zoned RU2 Rural Landscape and RU1 Primary Production to R2 Large Lot Residential and R3 Medium Density Residential to include an affordable housing area granted to Byron Shire Council. Part of the site is already zoned R2 Low Density Residential, and this proposal will complete the residential possibilities for the northern extremity of Bangalow Village. The site does not contain viable agricultural land, nor any land of significant environmental value.

Council has strategically planned for the supply of mains pressure water to the development area by requiring the owner to instal a water pump station.

Table 1 in this report addresses the Urban Growth Area Variation Principles whilst Table 2 addresses Important Farmland Interim Variation Criteria.

Appendix

Appendix 1 – Indicative Subdivision Layout

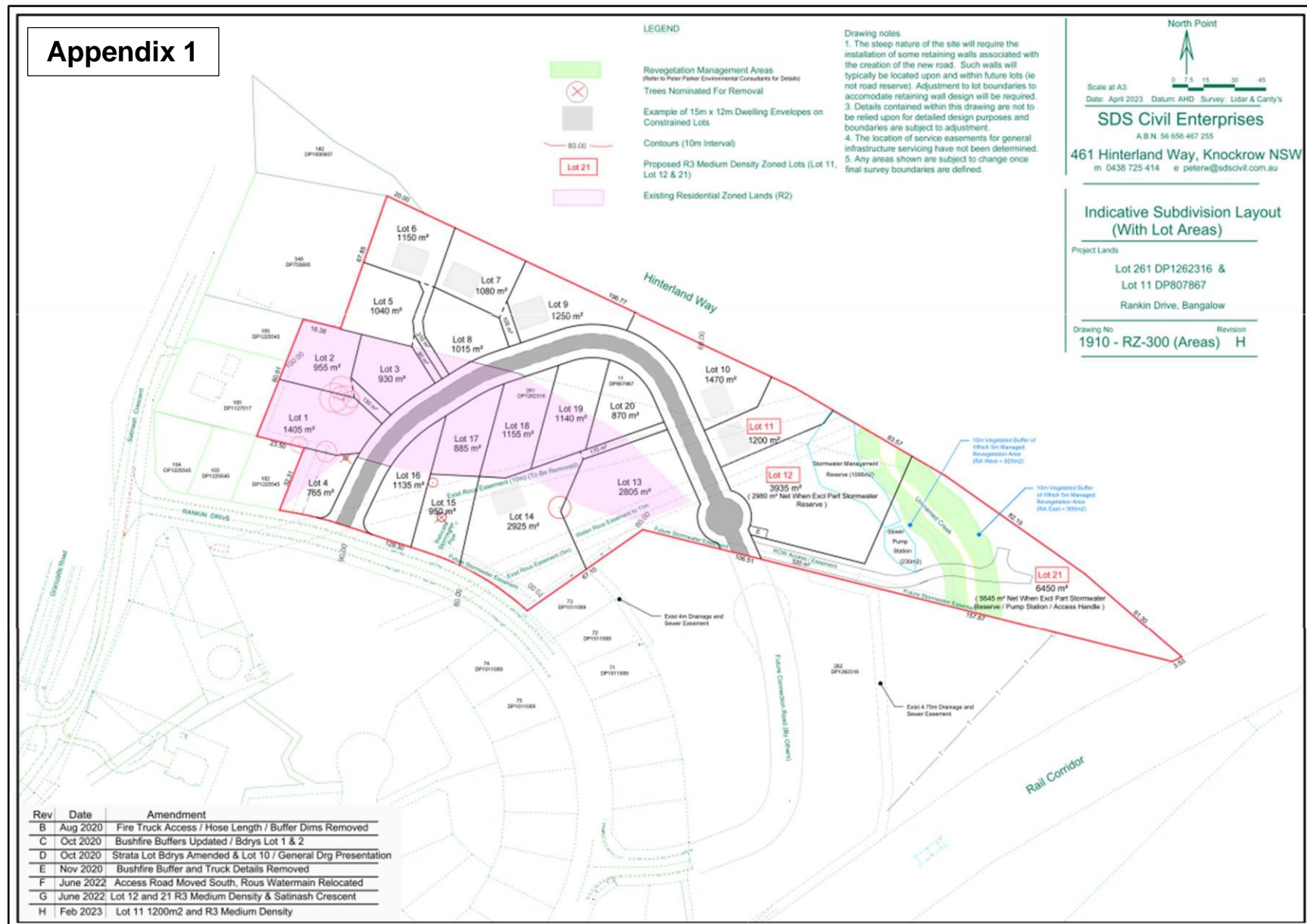
Appendix 2 – Proposed Zone Map

Appendix 3 – Lot Size Map

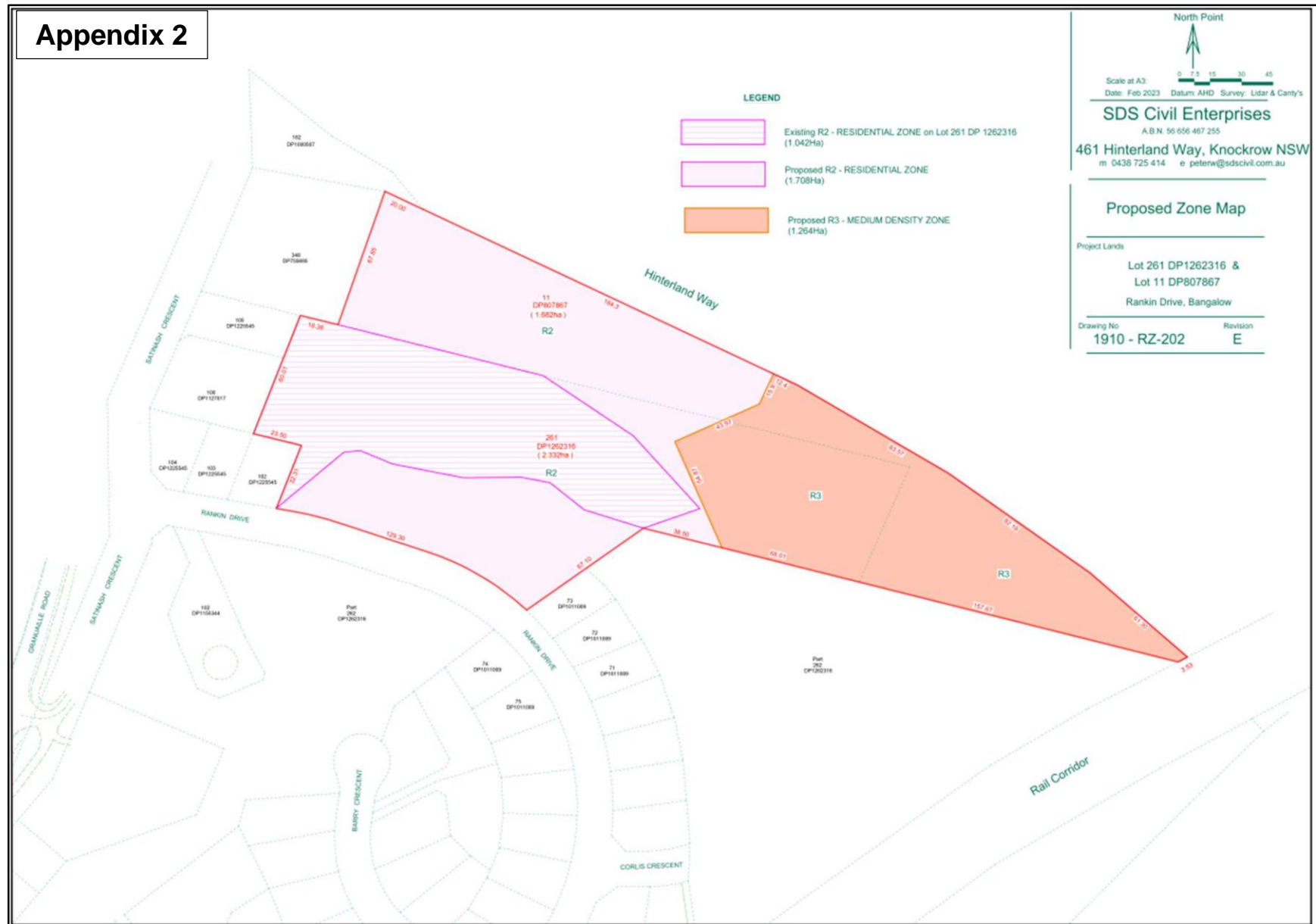
Appendix 4 – Department of Planning Letter (Dated 20/6/2018)

Appendix 5 – Water Analysis by Byron Shire Council

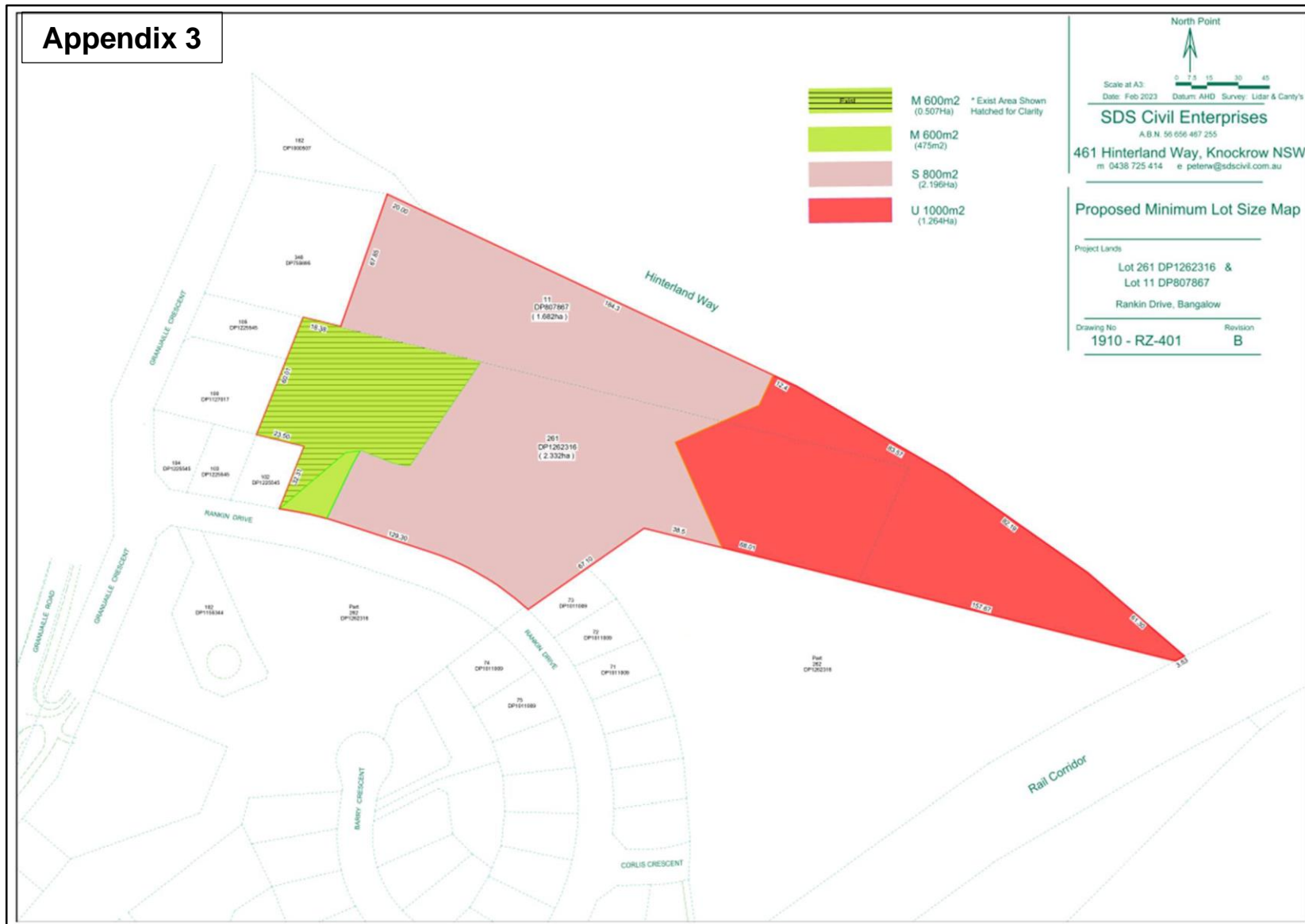
Appendix 1



Appendix 2



Appendix 3



Appendix 4



Planning &
Environment

D

Our ref: IRF18/3180

Mr Mark Arnold
Acting General Manager
Byron Shire Council
PO Box 219
MULLUMBIMBY NSW 2482

Dear Mr Arnold

Thank you for your letter of 5 June 2018 requesting confirmation of the Department's position on Council's proposal to progress the rezoning of land for residential housing ahead of finalisation of Council's draft Residential Strategy.

I appreciate Council's Accessible Housing Project is aiming to provide much needed housing opportunities for low income households in the Byron local government area (LGA). While an initiative which provides for such housing is supported in principle, Council's approach to locate this housing on new release areas, some of which are on constrained land outside of agreed urban growth areas, is inconsistent with the strategic planning framework.

As stated in the Department's letter of 8 January 2018, the Department is committed to a strategic led process in identifying new residential release areas. Council's draft residential strategy is the most appropriate mechanism for directing growth to appropriate locations that can sustainably accommodate residential development and provide necessary services and infrastructure. Ad-hoc proposals for residential land release outside of the strategic planning framework are generally not supported.

However, I note that site 5 on the northern edge of the Bangalow village, is predominantly zoned R2 Low Density Residential and is mostly located within the urban growth area boundary for Bangalow as identified in the North Coast Regional Plan 2036. If Council can satisfy the urban growth area variation principles and important farmland interim variation criteria for the remaining parts of this site, which are currently deferred from the Byron LEP 2014, it may have merit for consideration.

I also note that site 2, while not mapped as important farmland, is flood prone and located outside of the urban growth area boundary for Mullumbimby. I understand Council is preparing a floodplain risk management plan for the area. If the final floodplain risk management plan concludes that the flood affectation of this land can be adequately addressed, Council may be able to satisfy the urban growth area variation principles for this land to also be considered for residential purposes.

While these two identified sites have potential to provide future housing opportunities it is unclear whether these sites best meet the demands being experienced in Byron. Council is encouraged to prioritise the finalisation of its residential strategy to ensure that all land suitable for residential purposes across the LGA is considered in a strategic manner, with consideration of demand helping inform proposed release areas.

Should you have any further questions in relation to this matter, please contact Mr Paul Garnett of the Department's Northern Region Office on 6641 6607.

Yours sincerely



20-6-2018

Jeremy Gray
Director Regions, Northern
Planning Services

Appendix 5



H2OMAP Water Analysis

Review of proposed development Rankin Drive,
Bangalow

Document Identification	
Document name:	H2OMAP Water Analysis - Review of proposed development Rankin Drive BANGALOW
Document number:	E2012/1267
Version:	2.0
Status:	N/A
Date:	27 August 2012
Prepared by:	Jason Stanley, Systems Planning Officer

3.3 Scenario 3 - Proposed development with minimum pump station supply zone

The scenario in which the maximum number of tenements can be supplied with adequate pressures and flows via gravity feed involves construction of a boundary valve in the vicinity of 60 Rankin Drive, as depicted in Figure 6 .

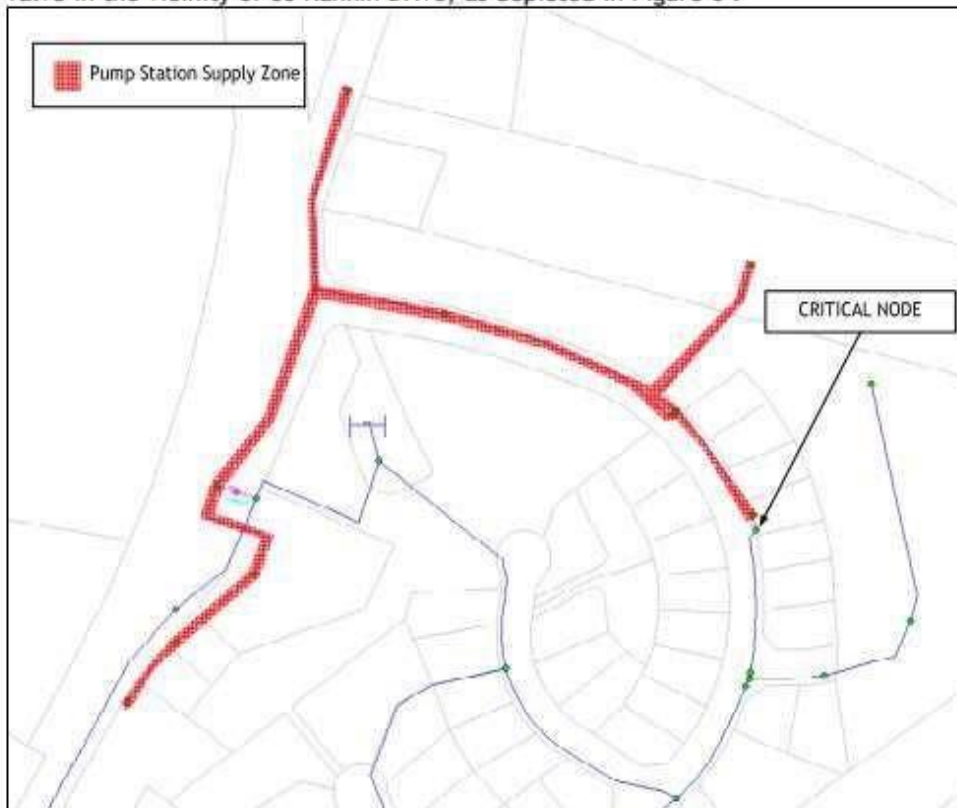


Figure 6 - Scenario 3, Determine minimum pump station supply zone for proposed development

The fireflow analysis of the critical node under this configuration as well as the required minimum pressure and flows are indicated in Figure 7.

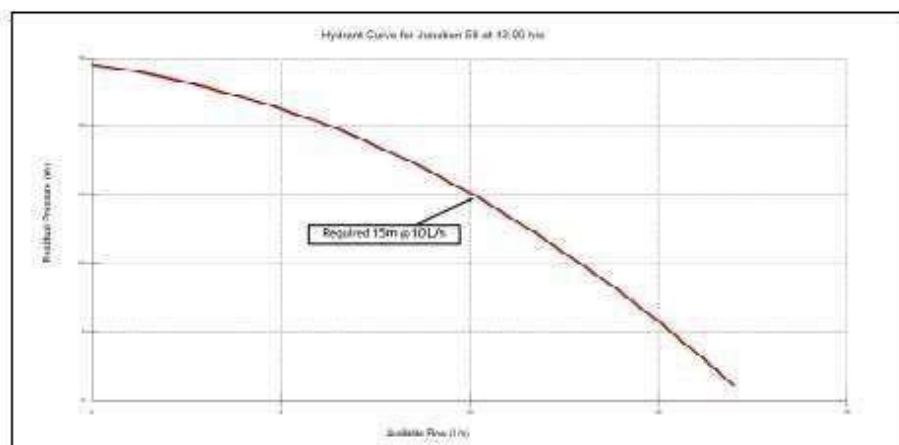


Figure 7 - Fireflow analysis of Scenario 3 critical node

3.4 Design duty of pump station

The Granuaille Street pump station must be designed to adequately supply tenements with water pressures and flows in accordance with Item 5 and Item 11 of the Byron DSP for Water Service.

Design Flow

The configuration outlined in Section 3.3 identifies 24 tenements to be supplied from this pump. Using the maximum instantaneous demand is 0.05 L/s per tenement, this equals a peak instantaneous demand of 1.2 L/s.

The pump must be able to provide at least 10 L/s during this time for fire fighting purposes, thus the minimum flow rate of the pump must be 11.2 L/s

Design Head

The proposed pump supply zone covers an elevation difference of approximately 29 metres, as outlined in Figure 8.

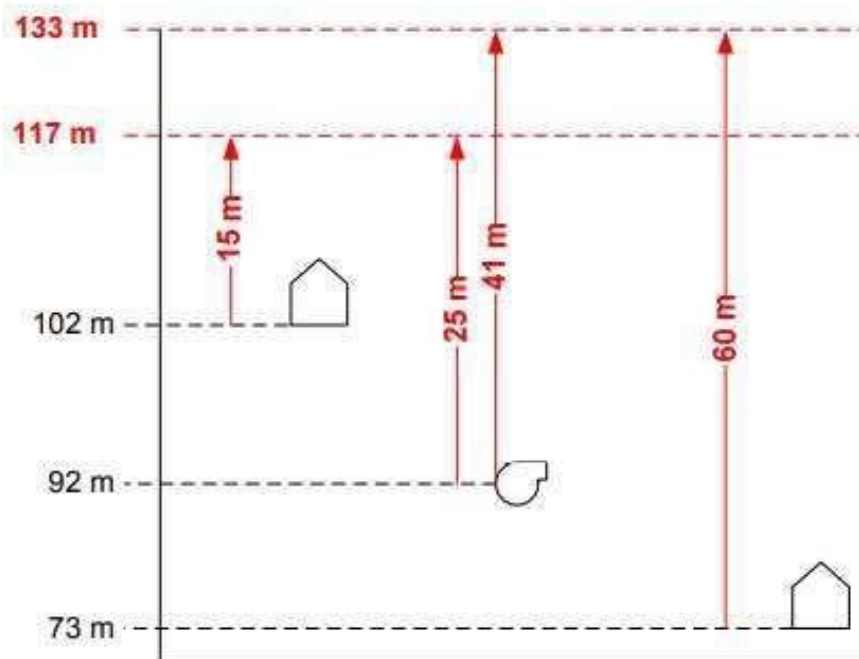


Figure 8 - Elevation profile of pump supply zone

The bottom water level of the Bangalow reservoir is 99.85 m AHD which will provide a minimum of 7.85 m head on the suction side of the pump. Therefore, the duty head of the pump must not exceed 33.15 m

Using a Hazen Williams coefficient of friction of 100 for each of the 100 mm pipes, hydraulic modelling has confirmed that the minimum duty head of the pump must be at least 22 m in order to overcome headlosses in the system.

4 Recommendations

Hydraulic analysis has confirmed that in order to satisfy the required design criteria, the following are to be implemented:

- Construction of a new water pumping station at the existing Granuallie St pump station. The new pump station must be able to supply a minimum duty head of 22 metres and maximum head of 33 m;
- The pump station must be able to provide 11.2 L/s;
- Replacement of the existing Granuaille Crescent water main with a larger diameter water main (at least 100 mm in diameter).