NSW GOVERNMENT Public Works Advisory

Planning Proposal

Rezoning for Water and Sewerage Infrastructure

Bega Valley Shire Council

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Abbreviations

BVSC	Bega Valley Shire Council
LEP	Local Environmental Plan
PP	Planning Proposal
PS	Pumping Station
RWPS	Raw Water Pump Station
SEPP	State Environmental Planning Policy
SPS	Sewage Pumping Station
STP	Sewage Treatment Plan

1. Background

This Planning Proposal has been prepared by NSW Public Works Advisory on behalf of Bega Valley Shire Council (BVSC).

BVSC is seeking to rezone multiple land parcels via an amendment to the *Bega Valley Local Environmental Plan 2013* (Bega Valley LEP) to facilitate the management and development of existing and planned water and sewer infrastructure under the provisions of the *State Environmental Planning Policy (Infrastructure) 2007.*

A recent review of zonings by Council has identified a number of inconsistencies in the application of the SP2 Infrastructure zoning throughout the Shire including:

- Bega Sewage Treatment Plant (STP) – A large part of the existing Bega STP is zoned R2 Low Density Residential. Council has identified the need to expand the existing STP plant to the west to accommodate forecast population growth. This site is also zoned R2. All other expansion opportunities are limited as the surrounding land is within a flood zone. The R2 is not a prescribed zone under *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) and sewage treatment plants are prohibited within the R2 land zone under the Bega Valley LEP. An amendment to the Bega LEP is the only option to facilitate any future upgrade of the Bega STP.
- Bega Water Treatment Plant (WTP) – The current zoning of IN2 allows for the construction of a water treatment plant only with development consent. Rezoning this land would enable the streamlined approval pathway of the Infrastructure SEPP to be applied for any future upgrade or ongoing maintenance works.
- Zoning anomalies at other sites where water and sewerage infrastructure currently exist or where infrastructure has been identified to meet future needs. Whilst uses are not necessarily prohibited within the land zones, changes to definitions of what is prohibited in the Standard Instrument or Infrastructure SEPP could impact upon the feasibility of these sites to be used for their current or future purpose. A recent example, was the change to the definition of 'water reticulation' under the Standard Instrument (Principal LEP) in February 2019, which removed water reservoirs.

This Planning Proposal seeks to address the above anomalies by rezoning these land parcels to SP2 Infrastructure to provide for increased planning certainty and to more accurately reflect their current and future land use purposes.

2. Part 1 – Objectives or Intended Outcomes

To amend the *Bega Valley Local Environmental Plan 2013* by rezoning twenty-three (23) land parcels owned by Bega Valley Shire Council to accurately reflect the existing or intended use of the land for water and sewerage infrastructure and to enable a streamlined approval pathway for essential public infrastructure facilities.

A location map of the sites proposed for rezoning is provided in Figure 2-1.

Figure 2-1: Location map of proposed rezoning sites

Source: NGH Environmental Pty Ltd (2019)

3. Part 2 – Explanation of Provisions

This planning proposal seeks to amend the Bega Valley LEP 2013 to rezone twenty-three (23) parcels of land as presented in Table 3-1 below.

Table 3-1: Proposed Rezoning

Site	Asset	Lot & DP	Current Zoning	Proposed Zoning	Land Classification	How it would be achieved
1	Bega STP	9//DP804885	RU1/R2	SP2	Operational	Amend Map Sheet LZN_011B by applying SP2 Infrastructure (Sewerage System)
2	Bega SPS9	21//DP1214150	RU1	SP2	Operational	Amend Map Sheet LZN_011C by applying SP2 Infrastructure (Sewerage System)
3	Land Adjacent to Bega STP	13//DP813625	R2/RU1	SP2	Operational	Amend Map Sheet LZN_011B by applying SP2 Infrastructure (Sewerage System)
4	North Bega Reservoir	31//DP1209807	RU4	SP2	Operational	Amend Map Sheet LZN_011B by applying SP2 Infrastructure (Water Supply System)
5	Future Bega WTP	297//DP728021	IN2	SP2	Operational	Amend Map Sheet LZN_011C by applying SP2 Infrastructure (Water Supply System)
6	Bemboka WTP/RWPS	W//DP392614	RU1	SP2	Operational	Amend Map Sheet LZN_003A by applying SP2 Infrastructure (Water Supply System)
7	Bemboka WTP	12//DP1093627	RU1	SP2	Operational	Amend Map Sheet LZN_003A by applying SP2 Infrastructure (Water Supply System)
8	Bermagui SPS9	86//DP831143	E4	SP2	Operational	Amend Map Sheet LZN_017C by applying SP2 Infrastructure (Sewerage System)
9	Bermagui SPS7	306//DP735144	R2	SP2	Operational	Amend Map Sheet LZN_017C by applying SP2 Infrastructure (Sewerage System)
10	Bermagui SPS8	51//DP834169	R2	SP2	Operational	Amend Map Sheet LZN_017C by applying SP2 Infrastructure (Sewerage System)

Site	Asset	Lot & DP	Current Zoning	Proposed Zoning	Land Classification	How it would be achieved
11	Brogo River RWPS	11//DP735675	RU2	SP2	Operational	Amend Map Sheet LZN_010 by applying SP2 Infrastructure (Water Supply System)
12	Future Brogo WTP	12//DP1110585	RU1	SP2	Operational	Amend Map Sheet LZN_010 by applying SP2 Infrastructure (Water Supply System)
13	Eden SPS7	31//DP703279	R2	SP4	Operational	Amend Map Sheet LZN_021A by applying SP2 Infrastructure (Sewerage System)
14	Palestine PS	1//DP606678	E4	SP2	Operational	Amend Map Sheet LZN_021 by applying SP2 Infrastructure (Water Supply System)
15	Eden SPS4	1//DP623694	RE1	SP2	Operational	Amend Map Sheet LZN_021A by applying SP2 Infrastructure (Sewerage System)
16	Kalaru Standby PS	1//DP249826	E3	SP2	Operational	Amend Map Sheet LZN_019B by applying SP2 Infrastructure (Water Supply System)
17	Kiah Bore No 8	4//DP570278	E3	SP2	Operational	Amend Map Sheet LZN_013 by applying SP2 Infrastructure (Water Supply System)
18	Kiah Borefields	231//DP1076252	E3	SP2	Operational	Amend Map Sheet LZN_013 by applying SP2 Infrastructure (Water Supply System)
19	Kiah Bore No 10	5//DP259732	E3	SP2	Operational	Amend Map Sheet LZN_013 by applying SP2 Infrastructure (Water Supply System)
20	Merimbula SPS3	2//DP221261	RE1	SP2	Operational	Amend Map Sheet LZN_020B by applying SP2 Infrastructure (Sewerage System)
21	Merimbula SPS18	100//DP1192435	SP3	SP2	Operational	Amend Map Sheet LZN_020 by applying SP2 Infrastructure (Sewerage System)
22	Berambool Reservoir	83//DP739561	RE1	SP2	Operational	Amend Map Sheet LZN_020B by applying SP2 Infrastructure (Water Supply System)

Site	Asset	Lot & DP	Current Zoning	Proposed Zoning	Land Classification	How it would be achieved
23	South Wolumla Reservoir	1//DP391694	RU1	SP2	Operational	Amend Map Sheet LZN_012 by applying SP2 Infrastructure (Water Supply System)

4. Part 3 – Justification

Section A – Need for the planning proposal

Q1. Is the planning proposal a result of any strategic study or report?

The need for the Planning Proposal is not the direct result of any strategic study or report however the proposal can be linked to the directions contained within the *Bega Valley Water Supply and Sewerage Strategic Business Plan* (BVSC, 2014) (Strategic Business Plan).

The Strategic Business Plan is the principal planning tool for water supply and sewerage service delivery within the Bega Valley Shire and provides the framework within which Council provides water and sewerage services efficiently and sustainably. The purpose of the plan is to provide the strategic direction for the delivery of water supply and sewerage services with some of the main aims being:

- outlining the key existing issues that affect the delivery of water supply and sewerage services, now and into the future
- identifying the financial and other resources required to operate water supply and sewerage services on a commercial basis
- assisting in the delivery of a long-term capital works program with an affordable price path for services
- demonstrating to customers and stakeholders that water supply and sewerage service delivery is well managed

Specifically, the Strategic Business Plan identifies the need for major capital works for water supply across the LGA to meet the needs of the community and improve service levels. Many of these capital works include assets subject to this Planning Proposal, as detailed in the table below.

Proposed Capital Work	Year	Justification
Nutley Creek Reservoir and Quaama duplicate main	2013 - 2016	Service level improvement and servicing growth
Tarraganda Reservoir upgrade	2013 - 2014	Asset renewal and capacity enhancement for servicing growth
Bemboka WTP (0.4 ML/day)	2014 - 2017	Improved Levels of Service
Upgrade of transfer main for proposed Yellow Pinch Dam WTP	2015 - 2021	Improved Levels of Service and capacity enhancement for servicing growth
Bega-Tathra WTP (10 ML/day)	2020 - 2026	Improved Levels of Service and for servicing growth
Yellow Pinch Dam WTP (17 ML/day)	2020 - 2026	Improved Levels of Service and for servicing growth
Bermagui WTP (4 ML/day)	2022 - 2026	Improved Levels of Service and for servicing growth
Renewal of civil, electrical & mechanical components of system assets	2012 onwards	Renewal of ageing assets

Source: Table 3-2 Bega Valley Water Supply and Sewerage Strategic Business Plan (2014)

The report identifies that new and changing legislation for water supply and sewerage services are inevitable and states that Council will take advantage of opportunities to seek changes to existing legislation and guidelines within a view to improving outcomes and limiting the potential impact on the local community.

This Planning Proposal is in keeping with this statement as it seeks to amend the existing Bega Valley LEP which will;

(i) improve outcomes by facilitating the planning process to enable a more streamlined approval process for critical public infrastructure, particularly where changes to current legislation may restrict or inhibit such development; and

(ii) reduce potential impacts on the local community by reducing potential land use conflicts through the clear identification of existing and future land uses.

The Planning Proposal is consistent with and will facilitate the key aims of the Strategic Business Plan.

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

Yes. It is considered that this Planning Proposal is the most appropriate and available means of achieving the objective.

The Planning Proposal will provide for a consistent zoning of existing and future water and sewerage infrastructure sites within the Bega Valley thereby providing the community with certainty of land uses and reducing the potential for land use conflicts in the future. It will allow for Council's development assessment planners to use the visual cue on the land zoning maps to ensure that consideration is given to potential impacts such as odour, noise, security and safety issues etc rising from SP2 zoned land on adjacent developments and will also provide accurate land use information for prospective purchasers of nearby land.

A consistent land use zoning across all water and sewerage infrastructure sites will also provide for a more streamlined approval process for the construction, upgrade and maintenance of these essential infrastructure facilities by removing any anomalies associated with activities within the prescribed land use zones contained within the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). This would also reduce the risk to the approval process in the event that provisions of the Infrastructure SEPP or other environmental planning instrument changes, as per the recent example where the definition of 'water reticulation' under the Standard Instrument (Principal LEP) was changed to remove water reservoirs. Multiple changes like this one add up over time and can lead to financial and legal implications later.

Despite the provisions of the LEP Practice Note (DoP, 2010), this Planning Proposal is considered consistent with the strategies undertaken by a number of Councils, including both Wagga Wagga and Albury Council, who have mapped their infrastructure facilities as SP2 Infrastructure in their Standard Instrument LEP's for similar reasons.

Section B – Relationship to strategic planning framework.

Q3. Is the planning proposal consistent with the objectives and actions of the applicable regional, subregional or district plan or strategy (including any exhibited draft plans or strategies)?

South East and Tablelands Regional Plan 2036

The South East and Tablelands Regional Plan 2036 (DoP, 2017) reflects the community and stakeholders' aspirations and opportunities for balanced growth, while protecting the South East and Tablelands region's natural environment. The Plan aims to leverage the region's significant infrastructure assets. The Plan provides a guide to the NSW Government's land use planning priorities and decisions over the coming 20 years to achieve the following main goals:

- A connected and prosperous economy;
- A diverse environment connected by biodiversity corridors;
- Healthy and connected community; and
- Environmentally sustainable housing choices.

The Plan is considered as an overarching framework that guides more detailed land use plans, development proposals and infrastructure funding decisions. The implementation plans that accompany the South East and Tablelands Regional Plan provides a series of priority actions and identifies medium and longer term actions to coincide with population and economic growth.

The South East and Tablelands Regional Plan acknowledges the importance of providing services and infrastructure required to support the housing delivery and the ultimate economic growth in the region.

The Plan sets out a total of 28 directions to achieve the four main goals of the Plan. Each Direction is underpinned by number of actions to assist in achieving each goal.

The following directions are considered relevant to this planning proposal:

- Direction no. 25: *Focus housing growth in locations that maximise infrastructure and service;*
- Direction no. 26: *Coordinate infrastructure and water supply in cross-border setting.*

These directions and associated actions aim to achieve Goal no. 4 '*Environmentally Sustainable Housing Choices'.*

The actions addressed under these two directions include the planning for, and prioritise services and infrastructure investment to maximise cost efficiencies and coordinate the delivery of the different assets as well as develop a coordinated strategic approach to water supply and investigate water supply options for growth areas.

The proposal is considered consistent with the South East and Tablelands Regional Plan as it will seek to reduce future land use conflicts by setting the priorities for water and wastewater infrastructure and services, and clearly identifying the planned and intended use of land for water and sewerage infrastructure.

Additionally, in rezoning the identified sites, water and wastewater infrastructure can be more efficiently delivered through a more streamlined planning process utilising the provisions of Part 5 of the *Environmental Planning and Assessment Act* 1979. This would be more cost effective overall, avoiding development application fees and associated administrative and resources costs, which

is also considered consistent with the Direction no. 25 and 26 of the Plan. The Planning Proposal would facilitate the upgrade and augmentation of existing infrastructure, thereby reducing the need to establish large critical infrastructure in new locations (as in the case of the Bega STP). This would provide certainty and enabling lower risk construction timetables.

Q4. Is the planning proposal consistent with a council's local strategy or other local strategic plan?

Bega Valley Shire Land Use Planning Strategy 2008

The Land Use Planning Strategy was prepared by Bega Valley Shire Council in 2008 to develop a long-range vision and set of strategies for the future development of the Bega Valley Shire over a 20 year period. It recognises the need for growing localities to plan for and rationalise their infrastructure services.

Theme 5 (Infrastructure) of the Strategy identifies the need to *construct, operate and maintain water and wastewater infrastructure to provide efficient delivery of services to our communities.*

This Planning Proposal seeks to achieve a correct and consistent zoning for water and sewerage infrastructure throughout the Bega LGA. This will provide for a more streamlined approval pathway and will reduce the impact future changes in the provisions of the Infrastructure SEPP may have on Council's ability to determine or enable infrastructure facilities on these lands. This will ensure that Council can continue to provide the efficient delivery of water and wastewater infrastructure to the community and ensures consistency with the Land Use Planning Strategy.

It will enable Council to readily upgrade existing water and wastewater treatment facilities to cater for the predicted growth in the region, in line with the Land Use Planning Strategy.

Community Strategic Plan 2040

The Bega Valley Community Strategic Plan 2040 is a long-term visionary plan that aims to define the community's priorities and aspirations for the future, and it is for the use of individuals, Council and other level of government to help build a stronger and better Bega Valley Shire.

After an extensive community engagement, the Community Strategic Plan sets out six outcomes which reflect the priorities of the community of Bega Valley Shire, these outcomes are:

- Active and healthy communities;
- Employment and learning opportunities;
- Sustainable living;
- Liveable places;
- Connected communities; and
- Strong, consultative leadership.

A number of goals are sitting under each outcome, and a number of strategies have been developed to assist in achieving these outcomes.

This Planning Proposal is considered to be consistent with the six outcomes of the community Strategic Plan of Bega Valley Shire, and in particular the 'Liveable Places" outcome, Goal no. 8: *'Our places retain their character and scale development is well planned, and range of goods and services are available within our shire that meet the local needs"*, Strategy no. 18:

'*To provide infrastructure and services to meet the ranging needs of residents in our towns, villages and rural areas*', as this Planning Proposal seeks to achieve a correct and consistent zoning for water and sewerage infrastructure throughout the Bega LGA, in order to facilitate the provision of water and sewerage infrastructure and services that would meet the needs of the residents of the Bega LGA.

Q5. Is the planning proposal consistent with applicable State Environmental Planning Policies?

The Planning Proposal is consistent with the applicable State Environmental Planning Policies (SEPPs) as detailed in Table 4-1.

Table 4-1: Consistency with SEPP's

State Environmental Planning Policy (SEPP)	Statement of Consistency
SEPP 1 – Development Standards	**Not Applicable** – replaced by clause 4.6 of Bega Valley LEP as the mechanism for any variation to development standards
SEPP 19 – Bushland in Urban Areas	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP 21 – Caravan Parks	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP 33 – Hazardous and Offensive Development	**Consistent** – the Planning Proposal may result in development requiring assessment under this SEPP. This would be addressed during the environmental assessment phase.
SEPP 36 – Manufactured home estates	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP 44 – Koala habitat protection	**Consistent -** There are no provisions arising from this Planning Proposal that contravene this SEPP. An assessment of each site's potential impact on koala habitat would be required as part of future development proposals.
SEPP 47 – Moore Park Showground	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP 50 – Canal Estate Development	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP 55 – Remediation of Land	**Consistent** – future developments would need to consider and comply with this SEPP however the SEPP does not inhibit the proposed developments occurring on the sites
SEPP 64 – Advertising and Signage	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP

State Environmental Planning Policy (SEPP)	Statement of Consistency
SEPP 65 – Design Quality of Residential Apartment Development	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP 70 – Affordable Housing (Revised Schemes)	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Aboriginal Land	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Affordable Rental Housing	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Building Sustainability Index: BASIX	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Coastal Management	**Consistent** - future developments would need to consider and comply with this SEPP however the SEPP does not inhibit the proposed developments occurring on the sites.
SEPP Concurrences	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Education Establishments and Child Care Facilities	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Exempt and Complying Development	**Consistent** – future developments would need to consider and comply with this SEPP however the SEPP does not inhibit the proposed developments occurring on site.
SEPP Gosford City Centre	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Housing for Seniors or People with a Disability	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Infrastructure	**Consistent** – The Planning Proposal will ensure the stated aim of the SEPP - *improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services* – will be achieved by providing for consistent land use zonings for all water and sewerage infrastructure in the BVSC.
SEPP Kosciuszko National Park – Alpine Resorts	**Not Applicable** – does not apply to Bega Valley Shire Council

State Environmental Planning Policy (SEPP)	Statement of Consistency
SEPP Kurnell Peninsula	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Mining, petroleum Production and Extractive Industries	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Miscellaneous Consent Provisions	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Penrith Lakes Scheme	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Primary Production and Rural Development	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP State and Regional Development	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP State Significant Precincts	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Sydney Drinking Water Catchment	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Sydney Region Growth Centres	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Three Ports	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Urban Renewal	**Consistent** – the Planning Proposal will not result in any development applicable under this SEPP
SEPP Vegetation in Non-Rural Areas	**Consistent** – future developments would need to consider and comply with this SEPP however the SEPP does not inhibit the proposed developments occurring on site.
SEPP Western Sydney Employment Area	**Not Applicable** – does not apply to Bega Valley Shire Council
SEPP Western Sydney Parklands	**Not Applicable** – does not apply to Bega Valley Shire Council

Q6. Is the planning proposal consistent with applicable Ministerial Directions (s.9.1 directions)?

This section addresses consistency with applicable Section 9.1 Ministerial Directions. A summary of the consistency is provided in Table 4-2.

Table 4-2: Consistency with s.9.1 Directions

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
1.1 Business and Industrial Zones	To encourage employment growth in suitable locations; To protect employment land; To support viability of identified centres.	Site 3	This direction applies when a planning proposal affects land within an existing or proposed business or industrial zone. The planning proposal is inconsistent with this direction (in the case of the Bega WTP site only) because it seeks to remove the existing industrial zoning of this land. However, as stated in Clause 5 a proposal may be inconsistent with the s.117 direction if it satisfies any of the sub-clauses in Clause 5. The proposal satisfies sub-clause 5(c) since the proposal is in accordance with the South Coast Regional Strategy 2006-31 prepared by the Department of Planning that aims to achieve efficient and cost-effective supply of water and sewerage services to the community. The proposal also satisfies Clause 5(d) of the s.117 direction because the inconsistency is of minor significance. The lot to be rezoned is approx. 2ha while the entire area of IN2 land of which the lot is a part is approx. 11ha. There are four other areas of IN2 land in the township of Bega. The total area of IN2 land within the Bega township is approximately 24ha.	Yes
1.2 Rural Zones	To protect the agricultural production value of rural land	Sites 1, 2, 3, 4, 6, 11, 12, 23	This direction applies when a planning proposal affects land within an existing or proposed rural zones. The planning proposal is consistent with this direction as it does not seek to rezone land from rural to any of the stated zones (i.e. residential, business, industrial, village or tourist zones), rather it seeks to rezone the land from rural to SP2 Infrastructure.	Yes

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
			The sites located in rural lands subject to this planning proposal all contain existing water or sewerage assets and are not currently used for rural purposes.	
1.3 Mining, Petroleum Production and Extractive Industries	To ensure future extraction of State or regionally significant coal etc are not compromised	None	This direction is not applicable to the planning proposal	N/A
1.4 Oyster Aquaculture	To protect oyster aquaculture areas ensure they are adequately considered in planning proposals	None	This direction is not applicable to the planning proposal	N/A
1.5 Rural Lands	To protect the agricultural production value of rural land and facilitate the development of rural land for rural purposes	Sites 1, 2, 3, 4, 6, 7, 8, 11, 12, 14, 16, 17, 18, 19	This direction applies when a planning proposal affects land within an existing or proposed rural or environmental protection zone. This direction requires planning authorities to ensure planning proposals are consistent with the aims of SEPP Primary Production and Rural Development 2019. The proposal is consistent with these principles because it provides the infrastructure necessary to facilitate the orderly economic use and development of land for primary production. The planning proposal also meets Clause 6(a) of the direction which allows for inconsistencies as it is consistent with the Department of Planning's South East and Tablelands Regional Plan 2036. The sites located in rural lands subject to this planning proposal all contain existing water or sewerage assets and are not currently used for rural purposes.	Yes

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
2.1 Environment Protection Zones	To protect and conserve environmentally sensitive areas	Sites 8, 14, 16, 17, 18, 19	This direction applies to land within an environment protection zone. The planning proposal is inconsistent with this direction for the six identified sites as the proposal seeks to rezone the land from E4 or E3 to SP2, thereby reducing the environmental protection standard that applies to that land. However, as stated in Clause 6 a proposal may be inconsistent with the direction if it satisfies any of the sub-clauses in Clause 6. The proposal satisfies sub-clause 6(c) since the proposal is in accordance with the South East and Tablelands Regional Plan 2036 prepared by the Department of Planning that gives consideration to protecting and conserving environmentally sensitive areas. The sites located in environmental protection zones subject to this planning proposal all contain existing water or sewerage infrastructure.	Yes
2.2 Coastal Management	To protect and manage coastal areas of NSW	Sites 8, 9, 13, 14, 15, 20, 21	This direction applies when a planning proposal affects lands that is within the coastal zone comprising the coastal wetlands and littoral rainforests area, coastal vulnerability area, coastal environment area and coastal use area. This planning proposal is inconsistent with this direction as it enables the rezoning of land within a coastal vulnerability area / coastal hazard area which would enable increased development or more intensive land uses on the land. However, as stated in Clause 7 a proposal may be inconsistent with the direction if it satisfies any of the sub-clauses in Clause 7. The proposal satisfies sub-clause 7(c) since the proposal is in accordance with the South Coast Regional Strategy 2006-31 prepared by the Department of Planning that gives consideration to the protection and management of coastal areas. The planning proposal would also meet the requirements of sub-clause 7(d) being of minor	Yes

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
			significance as the affected land parcels are small and there will be no significant increase in development or intensive land uses.	
2.3 Heritage Conservation	To conserve items, area, objects and places of environmental significance and indigenous heritage significance.	Sites 1, 3, 4, 5, 6, 7, 8, 11, 12, 17, 18, 19, 20, 23	This direction applies to all planning proposals and requires provision to be made that facilitate the conservation of heritage items. The proposal is consistent with these principles as any future development on these sites will be subject to further Aboriginal and historic heritage assessments as part of the environmental approval process. A summary of heritage risk assessment for each is provided in Table 4-3. Further details are provided in Appendix A.	Yes
2.4 Recreation Vehicle Areas	To protect sensitive land from adverse impacts from recreational vehicles.	None	This direction is not applicable to the planning proposal	N/A
2.5 Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEP's	To sure a balanced and consistent approach is taken when applying environmental protection zones on land in Far North Coast	None	This direction is not applicable to the planning proposal	N/A

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
3.1 Residential Zones	To encourage a variety and choice of housing types To make efficient use of existing infrastructure To minimise impacts of residential development on the environment	Sites 1, 3, 9, 10, 13	This direction applies when planning proposal affects land within a residential zone. The planning proposal is inconsistent with this direction because rezoning these lots to SP2 Infrastructure will reduce the permissible residential density of the land. However, as stated in Clause 6 a proposal may be inconsistent with the direction if it satisfies any of the sub-clauses in Clause 6. The proposal satisfies sub-clause 6 (c) since the proposal is in accordance with the South East and Tablelands Regional Plan 2036 prepared by the Department of Planning (as discussed above) that gives consideration to housing needs.	Yes
3.2 Caravan Parks and Manufactured Home Estates	To provide for a variety of housing types To provide opportunities for caravan parks and manufactured home estates	None	This direction is not applicable to the planning proposal	N/A
3.3 Home Occupations	To encourage the carrying out of low impact small business in homes	None	This direction is not applicable to the planning proposal	N/A

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
3.4 Integrating Land Use and Transport	To ensure that urban structures and land uses provide improved access choices.	None	This direction is not applicable to the planning proposal	N/A
3.5 Development near Licensed Aerodromes	To ensure the safe operation of aerodromes	None	This direction is not applicable to the planning proposal	N/A
3.6 Shooting Ranges	To maintain public safety and amenity, reduce land use conflict and identify issues when rezoning land for shooting ranges	None	This direction is not applicable to the planning proposal	N/A
4.1 Acid Sulfate Soils	To avoid significant adverse environmental impacts from acid sulfate soils	Sites 9, 15, 20	This direction applies to land identified as containing acid sulfate soils. The planning proposal is inconsistent with this direction because it will affect three sites that are mapped as containing actual or potential acid sulfate soils. The planning proposal is however considered to satisfy sub-clause 8(b) as having minor significance given the small size of the lots and future purpose of these sites (i.e. limited development). Any future development proposals would verify the presence of acid sulfate soils and would need to ensure acid sulfate soils are adequately addressed in the environmental assessment.	Yes

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
4.2 Mine Subsidence and Unstable Land	To prevent damage to life, property and the environment on land identified as unstable or subject to mine subsidence	None	This direction is not applicable to the planning proposal	N/A
4.3 Flood Prone Land	To ensure development of flood prone land is consistent with NSW policy To ensure the provisions of an LEP on flood prone land include consideration of the potential flood impacts	Sites 20, 21 and other sites as per relevant flood studies	This direction applies when a planning proposal creates, removes or alters a zone or a provision that affects flood prone land. Some of the land parcels are or could be affected or partially affected by flooding. The planning proposal is inconsistent with this direction as it plans to rezone land from Recreation, Rural or Environmental to Special Purpose (SP2). It would also permit development without consent for any future works on these sites. The planning proposal is however considered to satisfy sub-clause 9(b) as, due to the small size of the land parcels and type of development / activity on the site, any inconsistences would be of minor significance. It is further noted that any future developments would require detailed assessment of flooding as part of the environmental assessment process and design considerations.	Yes

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
4.4 Planning for Bushfire Protection	To protect life, property and the environment from bushfire hazards To encourage sound management of bush fire prone areas	Sites 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 21, 22, 23	This direction applies to a planning proposal that will affect, or is in proximity to land mapped as bushfire prone land. This Planning Proposal is considered consistent within this direction as it meets the following requirements: • Consultation with the Commissioner of the NSW RFS, as part of the consultation, a bushfire assessment would be submitted for each site to demonstrate compliance with s9.1(2) Directions and *Planning for Bushfire Protection Guidelines* 2018. Wherever possible, this should take place prior to the proposal being submitted to the Gateway process in order to identify key bush fire issues upfront. • Any future development on these sites will consider asset management zones and fire management measures. • Any future development on these sites will consider bushfire planning, hazards and controls • The proposed developments at the sites is not anticipated to increase the level of bush fire risk to the existing community.	Yes
5.1 Implementation of Regional Strategies	Revoked	-	-	-
5.2 Sydney Drinking Water Catchment	To protect water quality in the	None	This direction is not applicable to the planning proposal	N/A

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
	Sydney drinking water catchment			
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	To ensure that the best agricultural land will be available for current and future generations	None	This direction is not applicable to the planning proposal	N/A
5.4 Commercial and Retail Development along the Pacific Hwy, North Coast	To manage commercial and retail development along the Pacific Hwy	None	This direction is not applicable to the planning proposal	N/A
5.5 – 5.7	Revoked	-	-	-
5.8 Second Sydney Airport: Badgerys Creek	To avoid incompatible development in the vicinity of the second Sydney airport	None	This direction is not applicable to the planning proposal	N/A
5.9 North West Rail Link Corridor Strategy	To promote transit-oriented development around the NWRL	None	This direction is not applicable to the planning proposal	N/A

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
5.10 Implementation of Regional Plans	To give legal effect to the vision, land use strategy, goals, directions and actions contained in Regional Plans	All sites	This direction applies to land to which a Regional Plan has been released by the Minister for Planning. This planning proposal is consistent with this direction as it meets the provisions of the South East and Tablelands Regional Plan 2036.	Yes
6.1 Approval and Referral Requirements	To ensure that LEP provisions encourage the efficient and appropriate assessment of development	All sites	This direction applies when preparing a planning proposal. This planning proposal is meets the requirements of this direction.	Yes
6.2 Reserving Land for Public Purposes	To facilitate the provision of public services and facilities	All sites	This direction applies when preparing a planning proposal. This planning proposal is consistent with the provisions of this direction as all lots are proposed to be rezoned for a public purpose.	Yes
6.3 Site Specific Provisions	To discourage unnecessarily restrictive site-specific planning controls	All sites	This direction applies when a planning proposal allows a particular development to be carried out. This planning proposal is consistent with this direction as it will rezone the lots to an existing zone (SP2) already applying in the environmental planning instrument without imposing any additional development standards or requirements	Yes

S9.1 Direction	Objective	Relevant Sites (see Table 3-1)	Assessment	Consistency
7 Metropolitan Planning	Relate to Sydney Metropolitan Area	None	These directions are not applicable to the planning proposal.	N/A

Section C – Environmental, social and economic impact

Q7. 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?

An Environmental Constraints Assessment was undertaken by NGH Environmental in June 2019 to inform the Planning Proposal and specifically to identify whether any of the 23 land parcels are likely to contain critical habitat or threatened species populations or ecological communities, or their habitats. A copy of this report is provided in Appendix A.

The study included a review of previous literature and database searches as well as site inspections of individual land parcels where considered necessary. All sites were broadly categorised as containing either a high, moderate or low biodiversity constraint based on the existence of nearby threatened species and communities, the presence of habitat on or near the site and evidence of clearing and disturbance on the site. The biodiversity constraints have been defined as follows;

- high biodiversity constraint - indicates that there is potential that the site could provide important habitat values to threatened species and any future development on these sites would be subject to a detailed assessment including further site inspections and targeted surveys in accordance with the relevant legislation.
- moderate biodiversity constraint – indicates that the sites are considered to contain some habitat value for which further investigation and assessment would be required. The level of assessment required would be limited a short technical report, rather than a more detailed assessment.
- Low biodiversity constraints indicate that the site retains limited habitat value and works are unlikely to require further assessment.

A summary of the outcomes from the report is provided in Table 4-3.

The majority of land parcels subject to this Planning Proposal have not been identified for future development, but rather have been identified as zoning anomalies, in that they contain water and sewerage infrastructure which is not reflected by the current land zone (refer Table 4-3 below). Rezoning these sites would facilitate ongoing maintenance and minor upgrades through a streamlined planning process.

Sites identified for future development include Site 3 (future expansion of the Bega STP) and Site 5 (future expansion of the Bega WTP). Both these sites are disturbed, entirely cleared of vegetation and have low biodiversity constraints. It is considered that utilising adjacent disturbed sites to expand the two treatment plants would result in a better environmental outcome than development of new treatment facilities on entirely new sites.

Any future development on the sites would be subject to an environmental assessment under the provisions of Part 5 of the EP&A Act in which consideration of impacts on critical habitat, threatened species and ecological communities would be undertaken.

It is not considered that the Planning Proposal would result in any adverse impact to critical habitat or threatened species populations or ecological communities, or their habitats

Q8. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The proposed rezoning of the sites will allow developments that may generate a range of environmental impacts including impacts to heritage, water quality, soils etc. It is noted that almost all sites have been subject to previous disturbance to allow for the development of existing infrastructure assets. It is further noted that for the most part, no major upgrades are planned. Any future use of the sites for infrastructure purposes would require a detailed environmental assessment to support the development.

The Environmental Constraints Assessment undertaken by NGH Environmental included an assessment of the European and Aboriginal heritage sensitivity of the 23 land parcels. A summary of the outcomes from the report is provided in Table 4-3.

A search of the State and Commonwealth Heritage Registers identified that none of the subject sites contained heritage listings. Aboriginal heritage constraints were determined for each site based on database searches, reviews of previous studies and consideration of surrounding landforms and the extent of disturbance at each site.

Whilst the Planning Proposal may facilitate development which will result in potential environmental effects, it is considered that impacts could be adequately managed through environmental assessment in accordance with the provisions of the EP&A Act and other relevant environmental legislation including the *National Parks and Wildlife Act* 1979, which verify potential site constraints and offer measures to manage any identified impacts.

Q9. Has the planning proposal adequately addressed any social and economic effects?

The proposed rezoning will allow developments that may generate a range of environmental impacts which may in turn, impact on the community such as through the generation of noise, odour, and traffic. It is noted that almost all sites are isolated from residential or community developments and that most sites include existing infrastructure where no major upgrades or change of use are planned (see Table 4-3). It is noted that the reduction of RU1 land use zones in the LGA would result in a negligible impact to overall rural land use due to these sites currently being used for infrastructure.

The Planning Proposal would allow for the expansion of the Bega WTP which has limited potential to impact on the community due to its generally isolated location and surrounding industrial land uses. It would also reduce the area of IN2 land use zones in the Shire. Given the very small reduction (approximately 2 ha) this is not considered to result in a significant or noticeable reduction in light industrial land use in the area or impact on future economic potential.

The upgrade of Bega STP into the adjacent (western) site would reduce the buffer to existing residential lots. This may result in elevated noise and odour impacts to the community which would need to be addressed through the environmental assessment and design considerations including supporting technical studies, in order to avoid any potential land use conflicts. It is noted that the Bega STP site is constrained to the north, south and east due to flooding risks (and the incompatibility of developing the STP on flood prone land).

The augmentation of the Bega WTP and STP will safeguard against potential negative public health impacts and will ensure compliance with regulatory water and waste water obligations (i.e. NSW EPA and Department of Planning, Industry and Environment (DPIE-Water) requirements). Additionally; it is considered that facilitating the expansion of the Bega WTP and STP will enhance

the economic development of the Bega Valley by servicing the existing and forecasted population growth in strategic centres as per the Regional Plan.

The proposed rezoning will have a positive social and economic effect for Bega by correctly identifying land for water and sewerage infrastructure. This will enable the community to understand the likely future uses of the land and allow Council to follow a streamlined assessment pathway, reflective of the nature of this critical infrastructure, which is enabled through the State Environmental Planning Policy (Infrastructure) 2007.

In rezoning the identified sites, water and wastewater infrastructure can be more efficiently delivered through a streamlined planning process utilising the provisions of Part 5 of the *Environmental Planning and Assessment Act* 1979. This would be more cost effective overall, avoiding development application fees and associated administrative and resources costs. The Planning Proposal would facilitate the upgrade and augmentation of existing infrastructure, thereby reducing the need to establish large critical infrastructure in new locations (as in the case of the Bega STP). This would provide certainty and enabling lower risk construction timetables.

It is considered that the social and economic effects arising from the Planning Proposal would be limited and mostly positive as discussed above.

Section D – State and Commonwealth interests

Q10. Is there adequate public infrastructure for the planning proposal?

Not applicable. The Planning Proposal will provide for essential public infrastructure to meet the future development requirements of the Bega Valley.

Q11. What are the views of state and Commonwealth public authorities consulted in accordance with the Gateway determination?

Both the NSW EPA and NSW Health were consulted with as part of the proposal by BVSC to construct a new water treatment plant on Lot 297 DP 728021 (Site 2) and the associated rezoning from IN2 to SP2 to allow for *water treatment works* to be undertaken as development without consent. Copies of the correspondence is contained in Appendix B.

A letter of response from NSW Health was provided to BVSC on 15th April 2019 stating that they fully support the construction of the proposed water treatment plant and associated facilities.

The NSW EPA did not provide a response.

Further consultation required with relevant agencies and government departments would be confirmed in the Gateway Determination.

The government agencies identified for further consultation with regard to the Planning Proposal include:

- NSW Health
- NSW EPA
- Office of Environment and Heritage
- NSW Rural Fire Service

Table 4-3 Summary Table

Site	Asset	Zone	Site Notes		Veg EEC / TEC	Bushfire Prone	AHIMS site within 1km	Archaeological sensitivity	Disturbance	Biodiversity constraint level	Heritage constraint level	Aboriginal Heritage constraint level
1	Bega STP	Part R2 part RU1	Existing STP Cleared and highly disturbed		N/A	Vegetation Buffer Vegetation Category 3	295m SW. Potential Archaeological Deposit	High Elevated slope leading down to the banks of Bega River, <100m to waterwater	Yes	Low	Low	Moderate
2	Bega SPS9	RU1	Existing SPS on site Disturbed. Cleared agricultural land, tanks and tracks present.		N/A	Vegetation Category 3	160m SW. isolated artefact	High Terminal Slope above creek, <100m to water	Yes	Low	Low	Low
3	Land Adjacent Bega STP	Part R2, part RU1	Future STP site Disturbed. Primarily cleared pasture. Possibly two remnant trees, unlikely to be native.		N/A	Vegetation Buffer	160m SW Potential Archaeological Deposit.	High Ridgeline and slope leading to the Bega River and adjacent tributary creeks, <100m to water	No	Mostly low some moderate	High to moderate	High
4	North Bega Reservoir	RU4	Existing Reservoir on site Site disturbed. Some native vegetation on site. High-threat exotic weeds, no mature trees.		EEC + TEC Lowland Grassy Woodland	Vegetation Category 3	None	High Located on a ridgeline <100m to water	Yes	Low	Moderate	Moderate
5	Future Bega WTP	IN1	Site designated for future WTP (expansion). Cleared agricultural land with some trees (likely planted). Potential for remnant native		EEC +TEC Lowland Grassy Woodland known to occur nearby	Vegetation Category 3	210m W -Potential Archaeological	Low to Moderate Undulating ground >200m to water	Yes	Low	Low	Moderate
6	Bemboka WTP/RWPS	RU1	Existing RWPS on site Cleared, exotic grasses Site contains some native vegetation.		N/A	Vegetation Category 3	none	High Gentle slope to the banks of the Bemboka River <50m from water	Yes	Moderate	Moderate	Moderate
7	Bemboka WTP	RU1	Existing WTP on eastern portion of lot. Contains native vegetation, including EEC. Some kangaroo grass patches Invasive weeds		EEC +TEC Lowland Grassy Woodland	Vegetation Category 3	none	High Hillcrest and gentle slope to the banks of the Bemboka River <100m from water	Yes	High	High	High

Site	Asset	Zone	Site Notes		Veg EEC / TEC	Bushfire Prone	AHIMS site within 1km	Archaeological sensitivity	Disturbance	Biodiversity constraint level	Heritage constraint level	Aboriginal Heritage constraint level
8	Bermagui SPS9	E4	Existing SPS on site. Site generally cleared. Weeds present, close to wetland		N/A	Vegetation Category 3	none	Moderate to High Undulating ground <100 m to water	Yes	Low	Moderate	Moderate
9	Bermagui SPS7	R2	Existing SPS on site. Site generally cleared with some large trees surrounding. No native vegetation (tree overhanging), close to wetland		N/A	Vegetation Category 3	75m S artefact scatter.	High Base terminal slope adjacent to creek <100m from water.	Yes	Low	Low	Low
10	Bermagui SPS8	R2	Existing SPS on site Site partially cleared. Non-conservation significant native vegetation half of site, Close to wetlands		N/A + EEC River flat eucalypt forest	Vegetation Category 3	520m E isolated artefact	High Base terminal slope adjacent to water <20m.	Yes	Moderate and low areas	Low	Low
11	Brogo River RWPS	RU2	Existing RWPS on site Site is primarily cleared, with some vegetation, likely all native. Located within 45m of Brogo River	 	N/A	Vegetation Category 1	100m SW- isolated artefact located on a hill crest within 100m of water.	High Sloping banks of the Brogo River <60m from water.	Yes	Moderate	Moderate	Moderate
12	Future Brogo WTP	RU1	Existing reservoir on site. Site is primarily cleared. Some native vegetation and some areas of scattered trees.		EEC Brogo Wet Vine Forest	Vegetation Category 3 Vegetation Category 1	none	High Hillcrest, <200 m from creek	Yes	High, moderate and low	High	High
13	Eden SPS7	Part R2, part RE1	Existing SPS on site Drainage line, native veg		EEC: River-flat Eucalypt forest	Vegetation buffer	330m SE -shell midden 930m SW shell midden	High Elevated flat adjacent to creek, <100m to water	Yes	High and low	Low	Low
14	Palestine PS (Eden)	E4	Previously disturbed. Partially cleared. Part contains native vegetation.		N/A	Vegetation Category 1	835m SE- Potential Archaeological Deposit	Low Undulating ground <100m of water, on a steep slope >50m below the hill crest. The landform is sloping south to south-east towards the drainage lines and Palestine	Yes	Moderate	Low	Low

Site	Asset	Zone	Site Notes		Veg EEC / TEC	Bushfire Prone	AHIMS site within 1km	Archaeological sensitivity	Disturbance	Biodiversity constraint level	Heritage constraint level	Aboriginal Heritage constraint level
15	Eden SPS4	RE1	Existing PS on site. Site cleared of native vegetation, from previous land development activities		N/A	None	765m SE open camp site.	High Flat ground, slightly elevated <200m lagoon and 100m drainage line	Yes	Low	Low	Low
16	Kalaru Standby PS	E3	Existing PS on site Large areas of previous disturbance. Single tree and native understorey. Areas of EEC nearby.		EEC Freshwater wetlands (unlikely to be onsite)	Vegetation Category 1	none	High Flat ground associated with drainage line <100m from water.	Yes	Moderate and low	Low	Low
17	Kiah Bore No 8	E3	Existing bore on site Majority of site cleared, with limited native vegetation No values; mowed native grass		N/A	Vegetation Category 3	none	High Very gently sloping flats associated with the banks of Towamba River <50m from water.	No	Low	High	High
18	Kiah Borefields	E3	Site cleared.		part EEC lowland Grassy Woodland, part River-flat Eucalypt forest	Vegetation Category 3	none	High Very gently sloping flats associated with the banks of Towamba River <50m from water.	No	Moderate (and low)	High	High
19	Kiah Bore No 10	E3	Existing bore on site Site cleared. Low values; mowed grass		N/A	Vegetation Category 3	none	High Very gently sloping flats associated with the banks of Towamba River <50m from water.	No	Low	Moderate	High
20	Merimbula SPS3	RE1	Existing SPS on site. Site contains hardstand areas, other structures, pathways. Original native vegetation removed.		Adjacent EEC Banjalay Sand Forest	None	Two sites potentially significant sites within 100m.	High Peninsula between Boggy Creek and Merimbula Bay <50m from water	Yes	Low	Moderate	High
21	Merimbula SPS18	Part E2, Part SP3	Existing SPS on site. Site contains native vegetation as well as areas of existing disturbance.		Cleared	Vegetation buffer	310m E - a low density surface artefact scatter.	Moderate Basal slope, very slight gradient <100m water	Yes	Moderate and low.	Low	Low

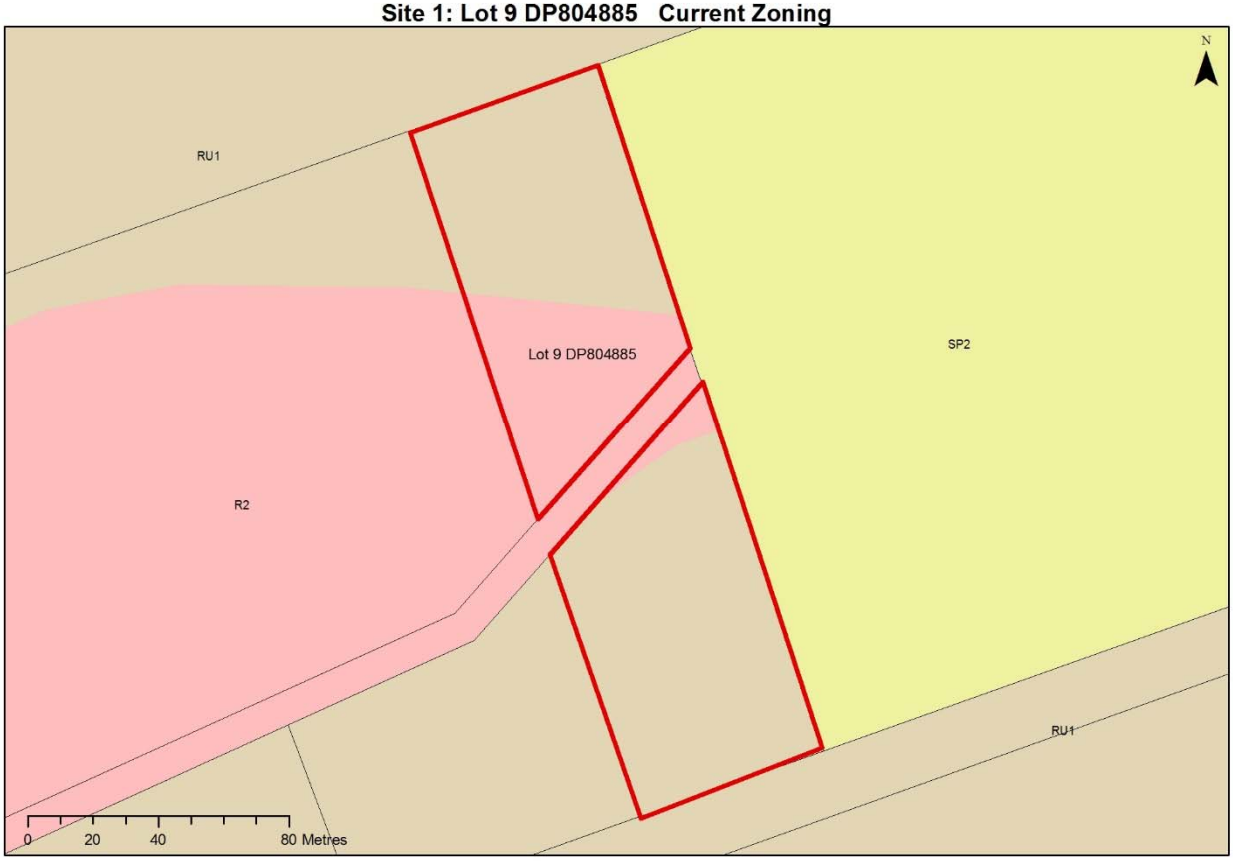
Site	Asset	Zone	Site Notes		Veg EEC / TEC	Bushfire Prone	AHIMS site within 1km	Archaeological sensitivity	Disturbance	Biodiversity constraint level	Heritage constraint level	Aboriginal Heritage constraint level
22	Berrambool Reservoir	RE1	Existing reservoir on site Original native vegetation removed. Young native regeneration within parcel boundary		N/A	Vegetation buffer	none	Moderate Slope to non- perennial drainage line <200m to water	Yes	Moderate	Low	Low
23	South Wolumla Reservoir	RU1	Existing reservoir on site. Cleared and subject to agricultural use.		nearby EEC Lowland Grassy Woodland	Vegetation Category 3	none	High Ridgeline crest <100m to non-perennial drainage line	Yes	Low	Moderate	Moderate

5. Part 4 – Maps

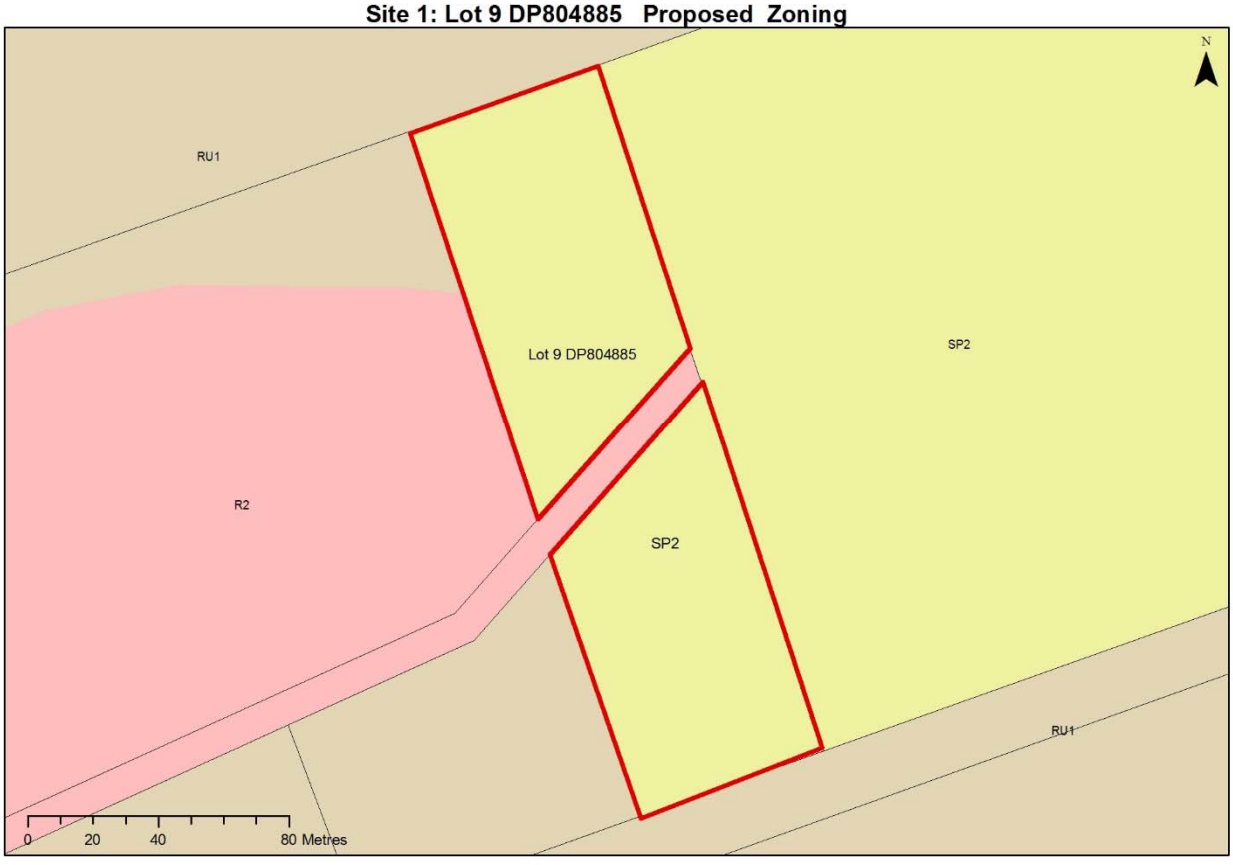
Changes to the proposed map sheets will be undertaken in a suitable format for public exhibition once the Gateway Determination is issued.

This Planning Proposal will result in changes to the Bega Valley LEP 2013 maps as described in Table 3-1.

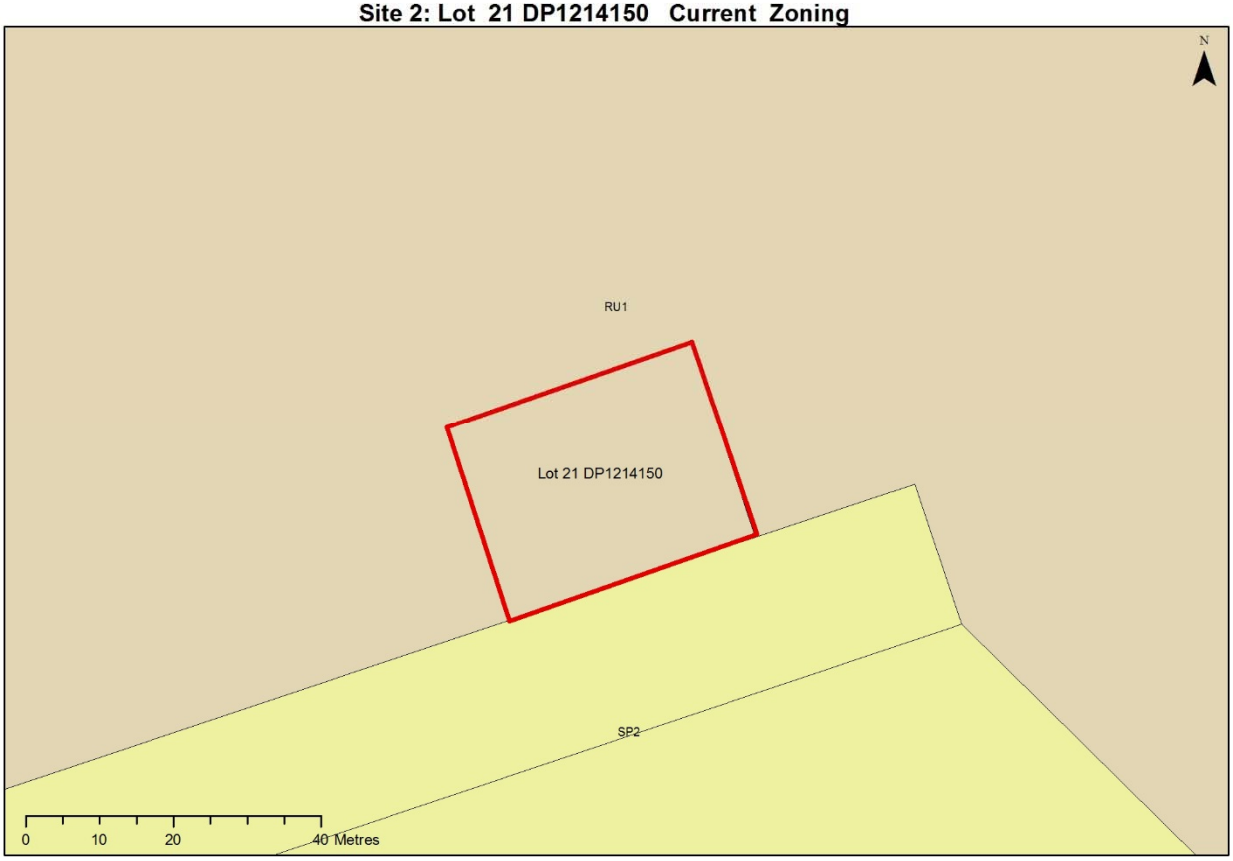
Site 1: Lot 9 DP804885 Current Zoning



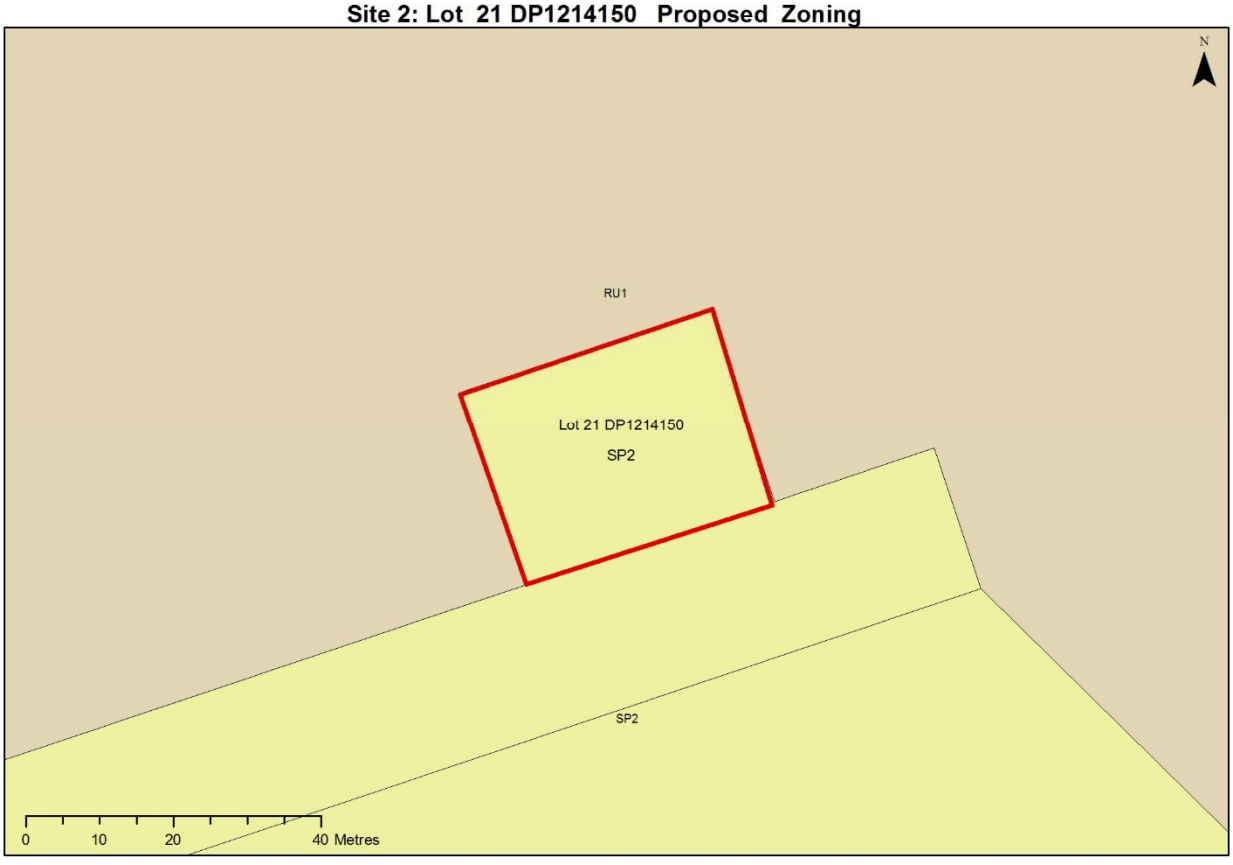
Site 1: Lot 9 DP804885 Proposed Zoning



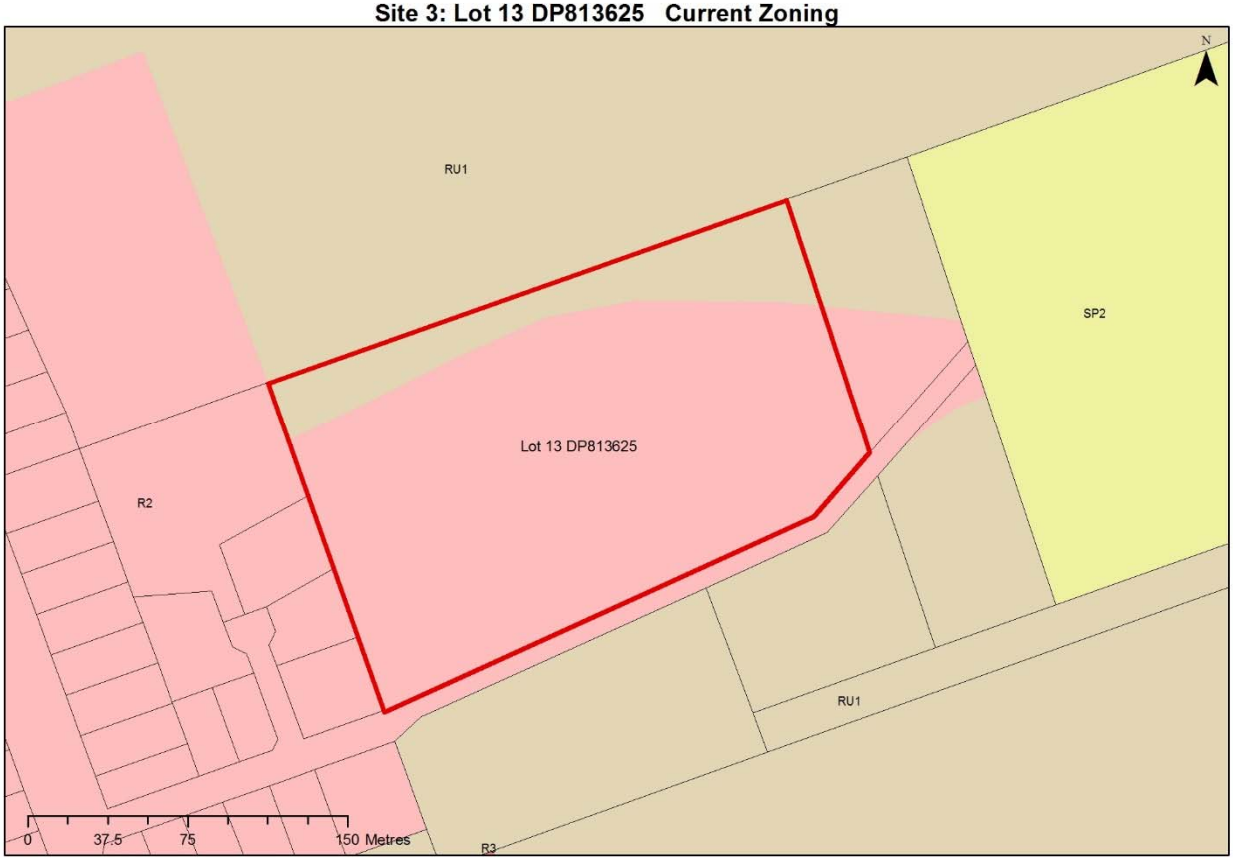
Site 2: Lot 21 DP1214150 Current Zoning



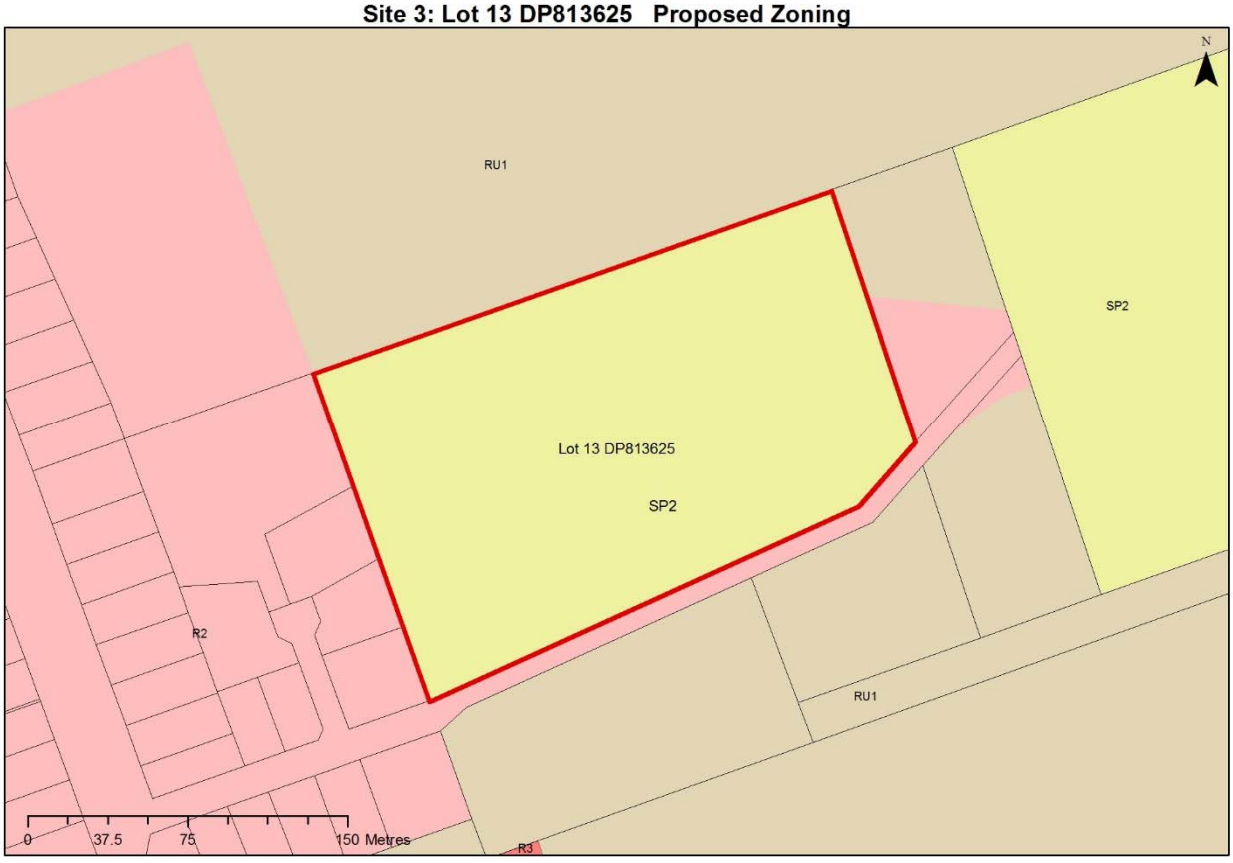
Site 2: Lot 21 DP1214150 Proposed Zoning



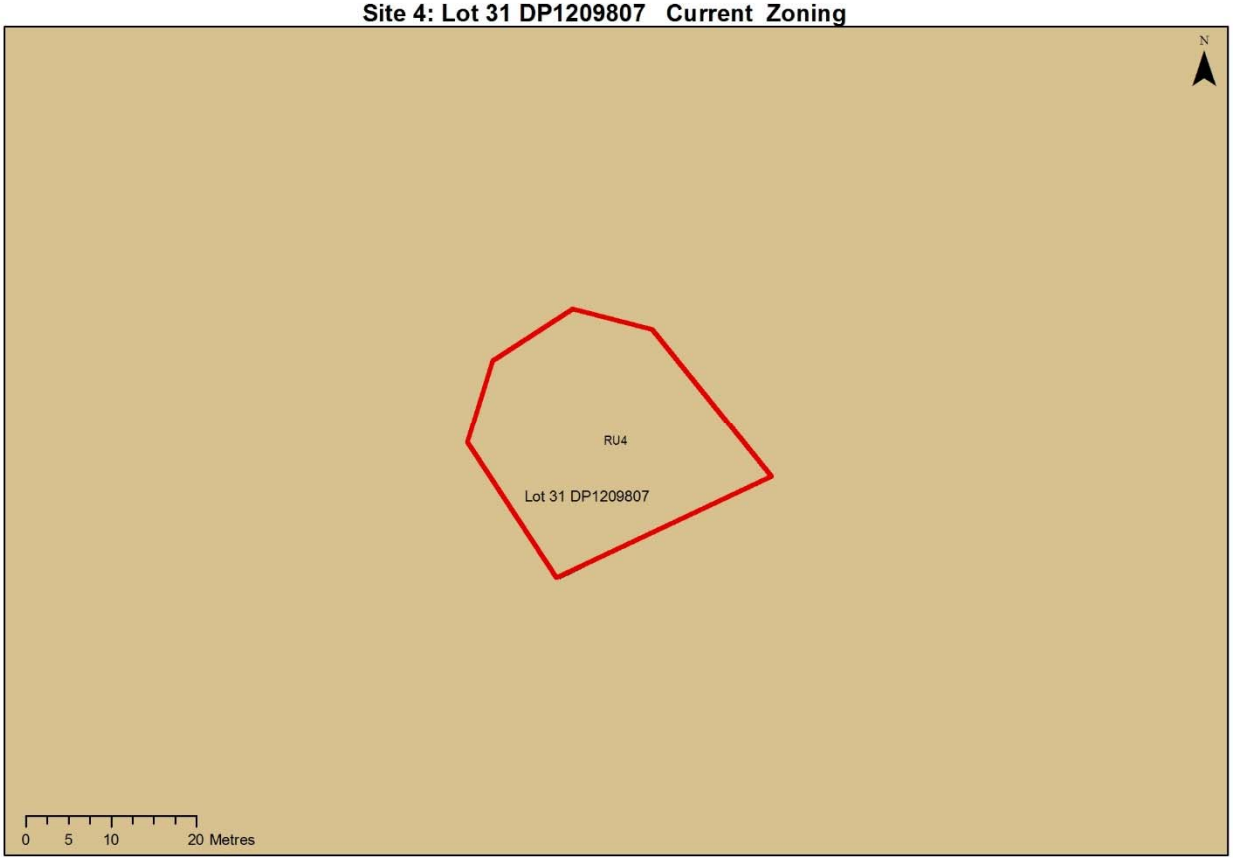
Site 3: Lot 13 DP813625 Current Zoning



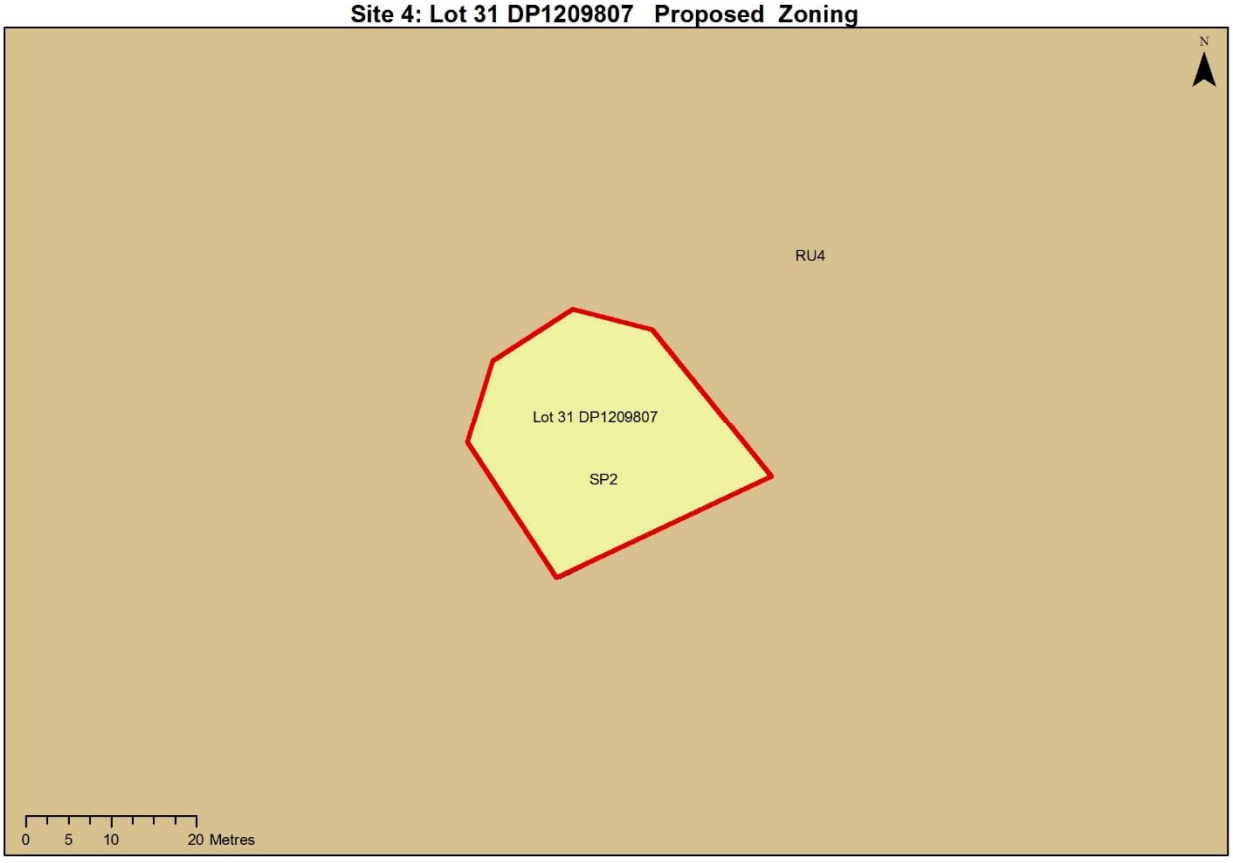
Site 3: Lot 13 DP813625 Proposed Zoning



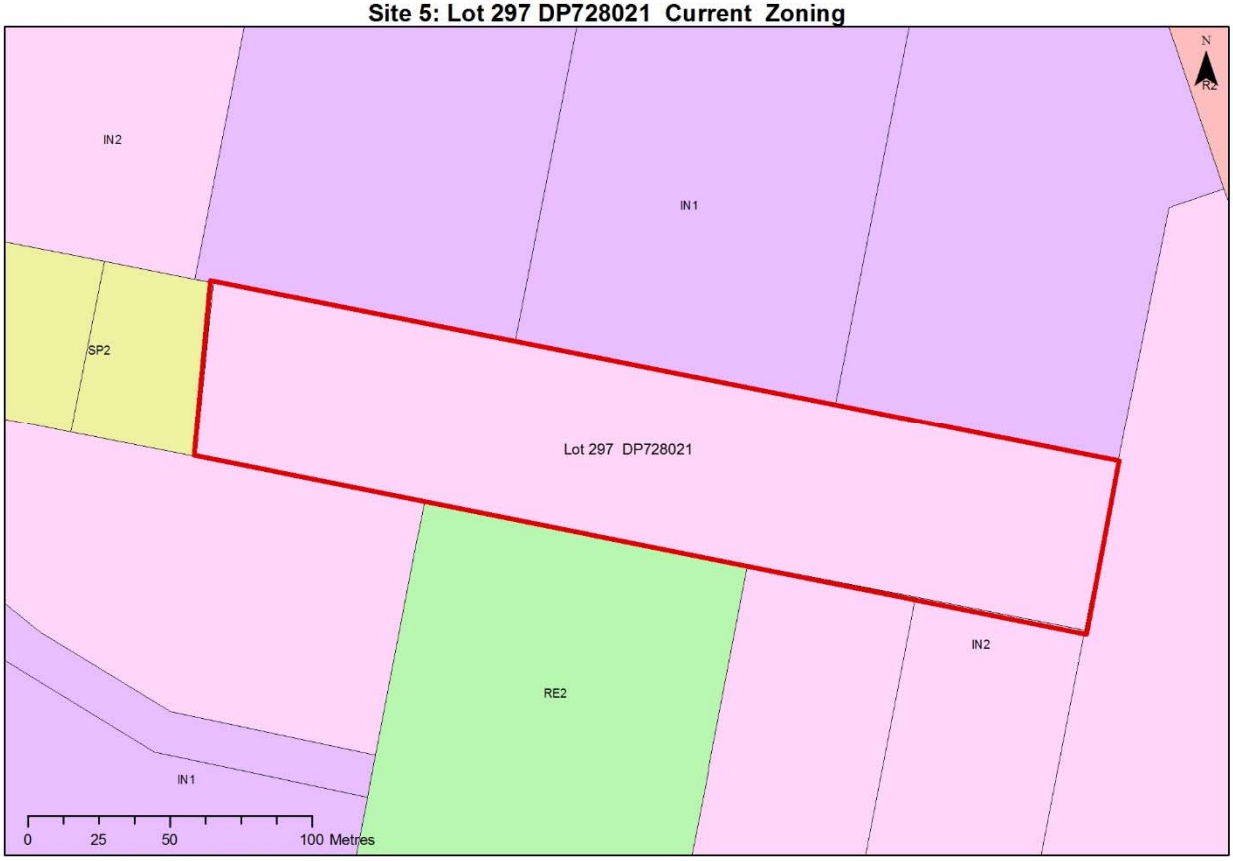
Site 4: Lot 31 DP1209807 Current Zoning



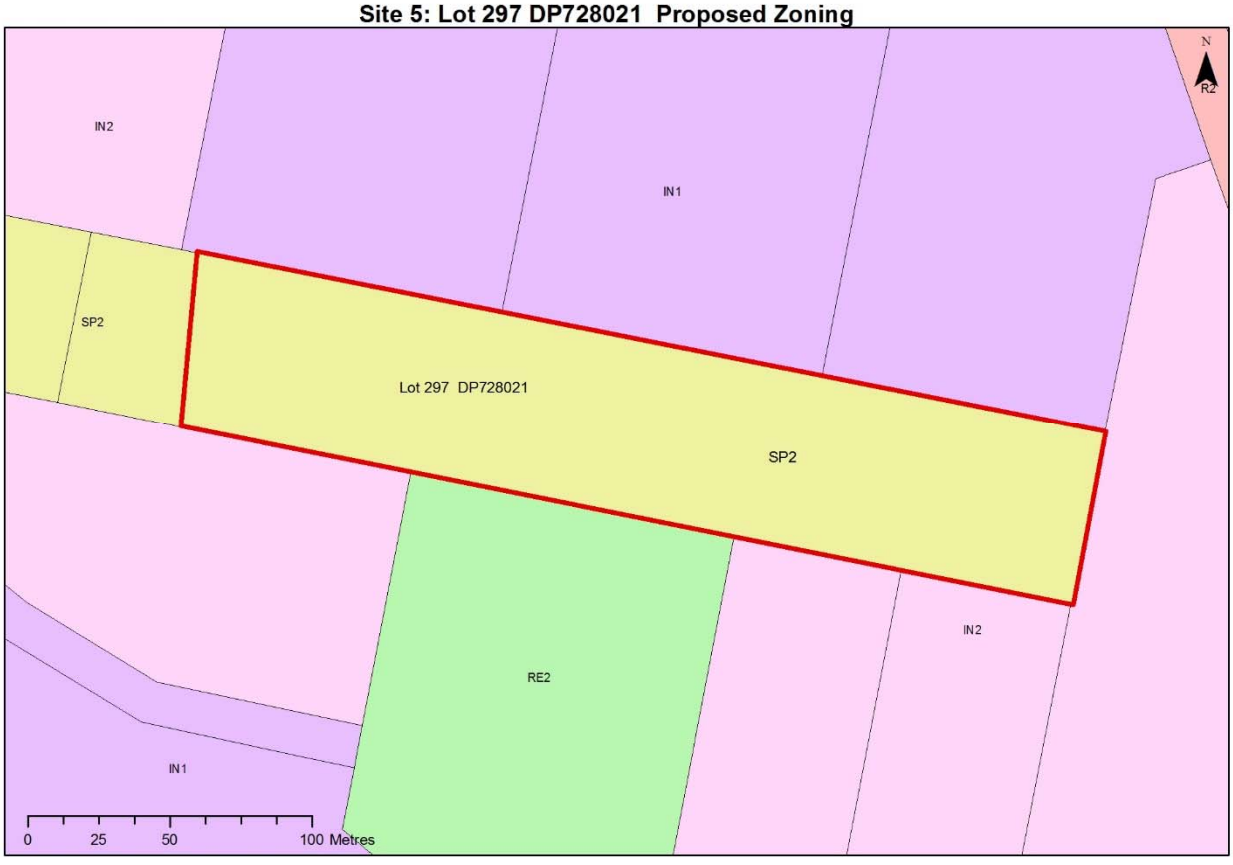
Site 4: Lot 31 DP1209807 Proposed Zoning



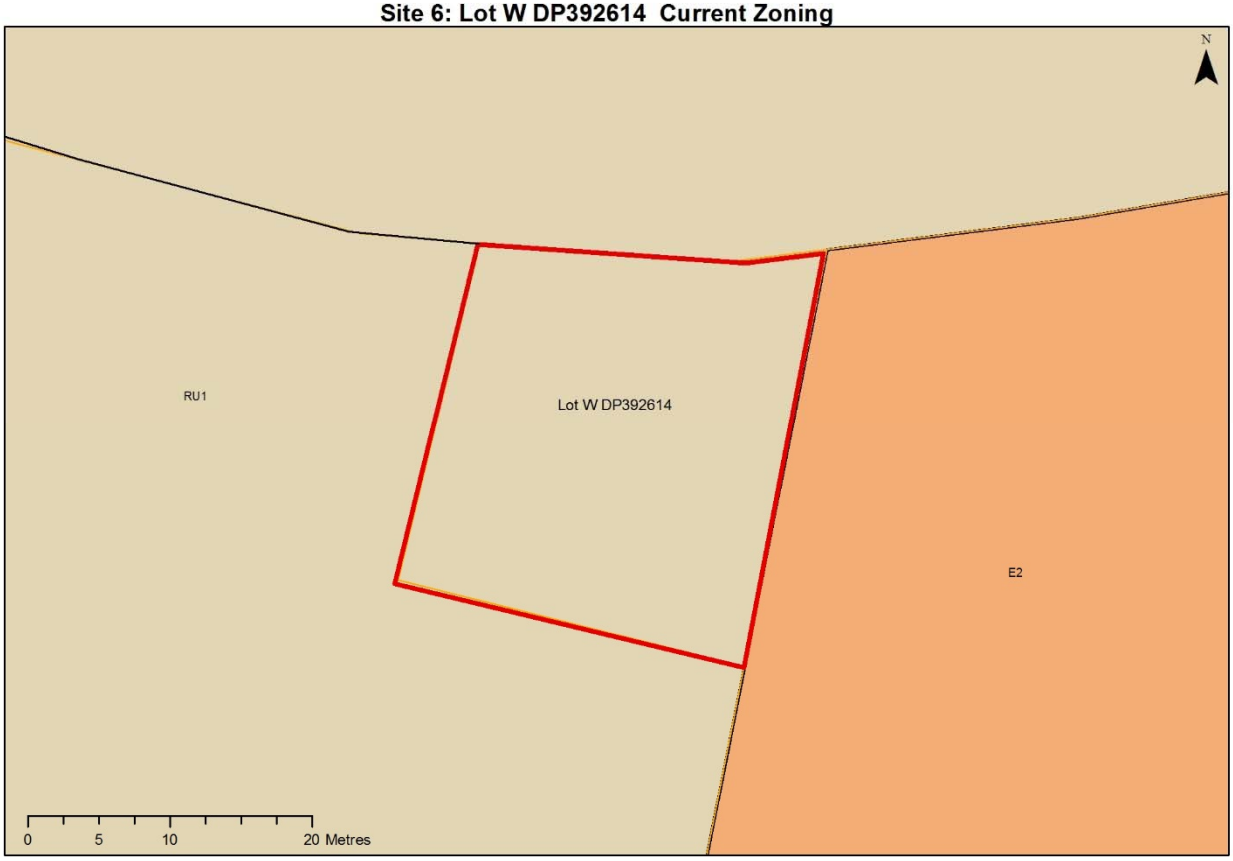
Site 5: Lot 297 DP728021 Current Zoning



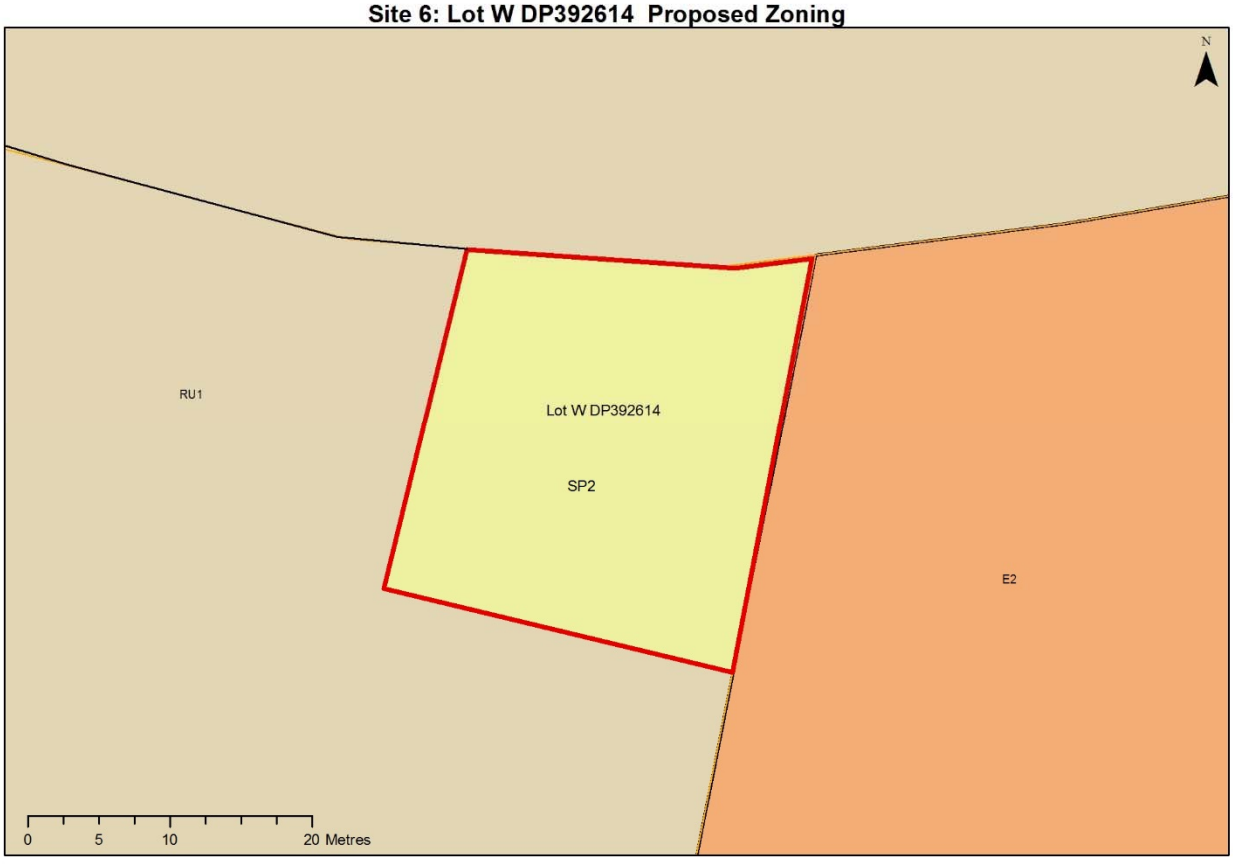
Site 5: Lot 297 DP728021 Proposed Zoning



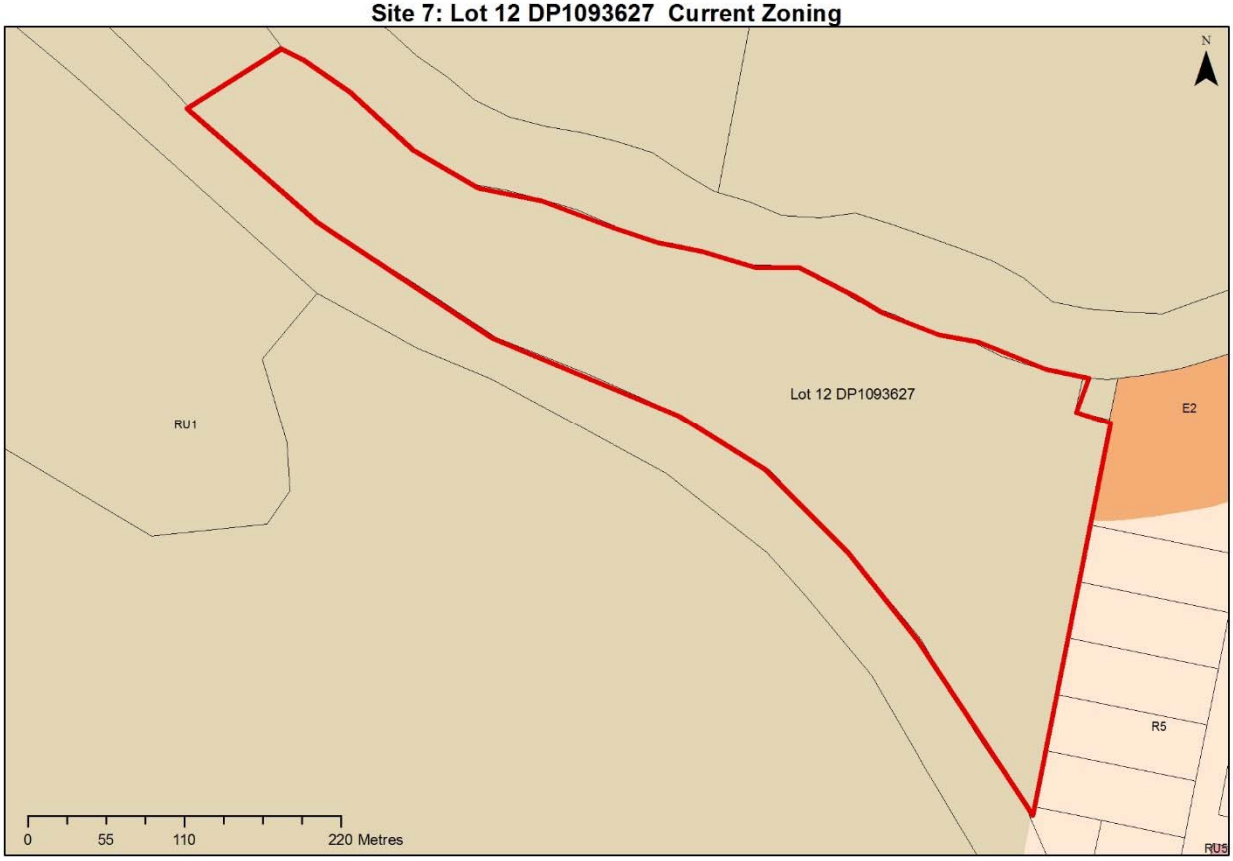
Site 6: Lot W DP392614 Current Zoning



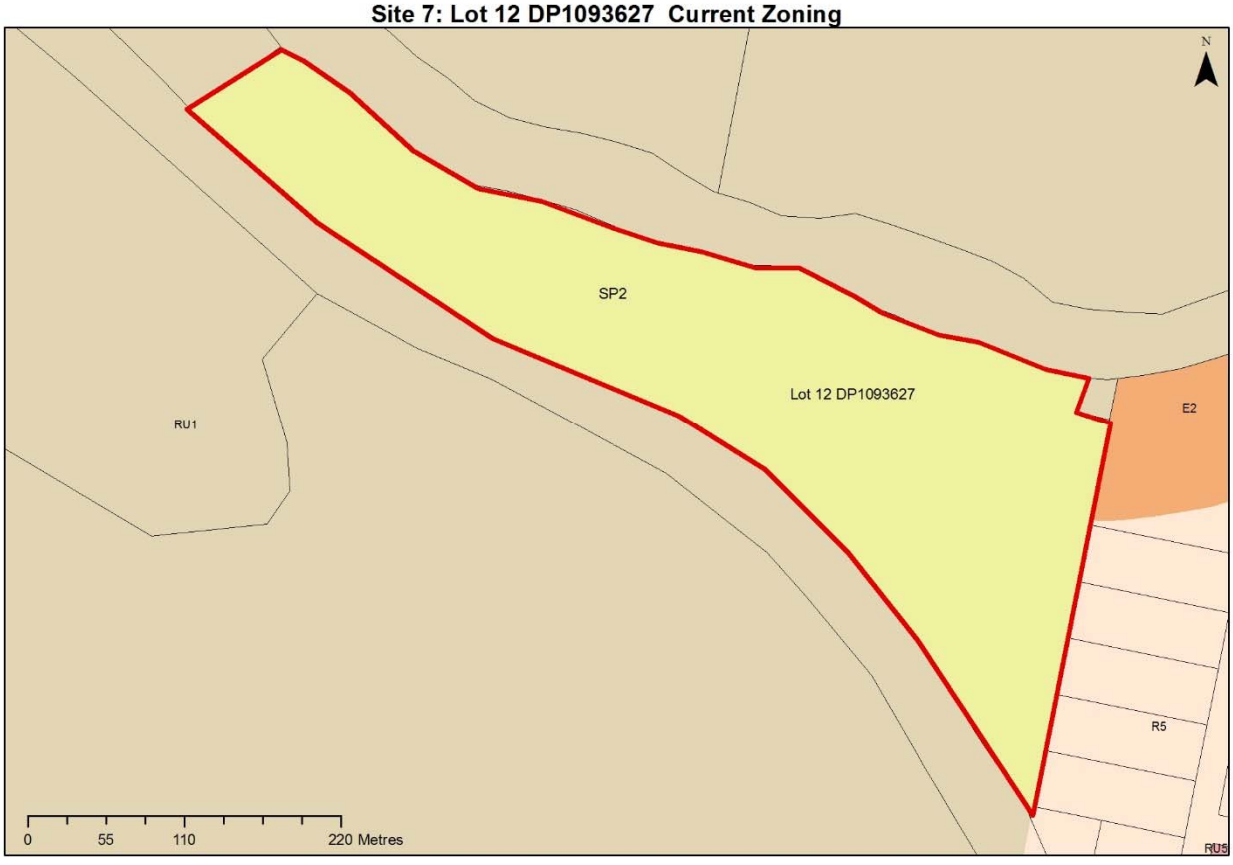
Site 6: Lot W DP392614 Proposed Zoning



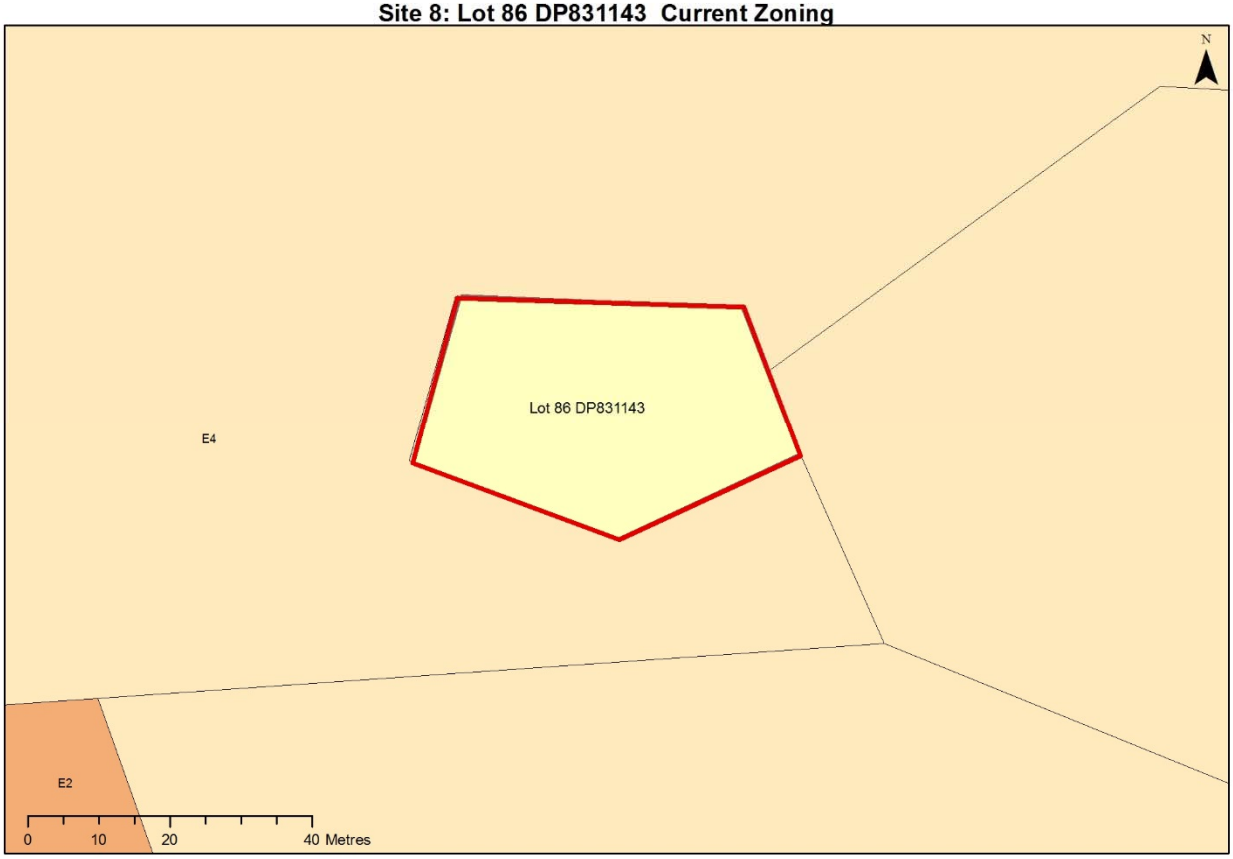
Site 7: Lot 12 DP1093627 Current Zoning



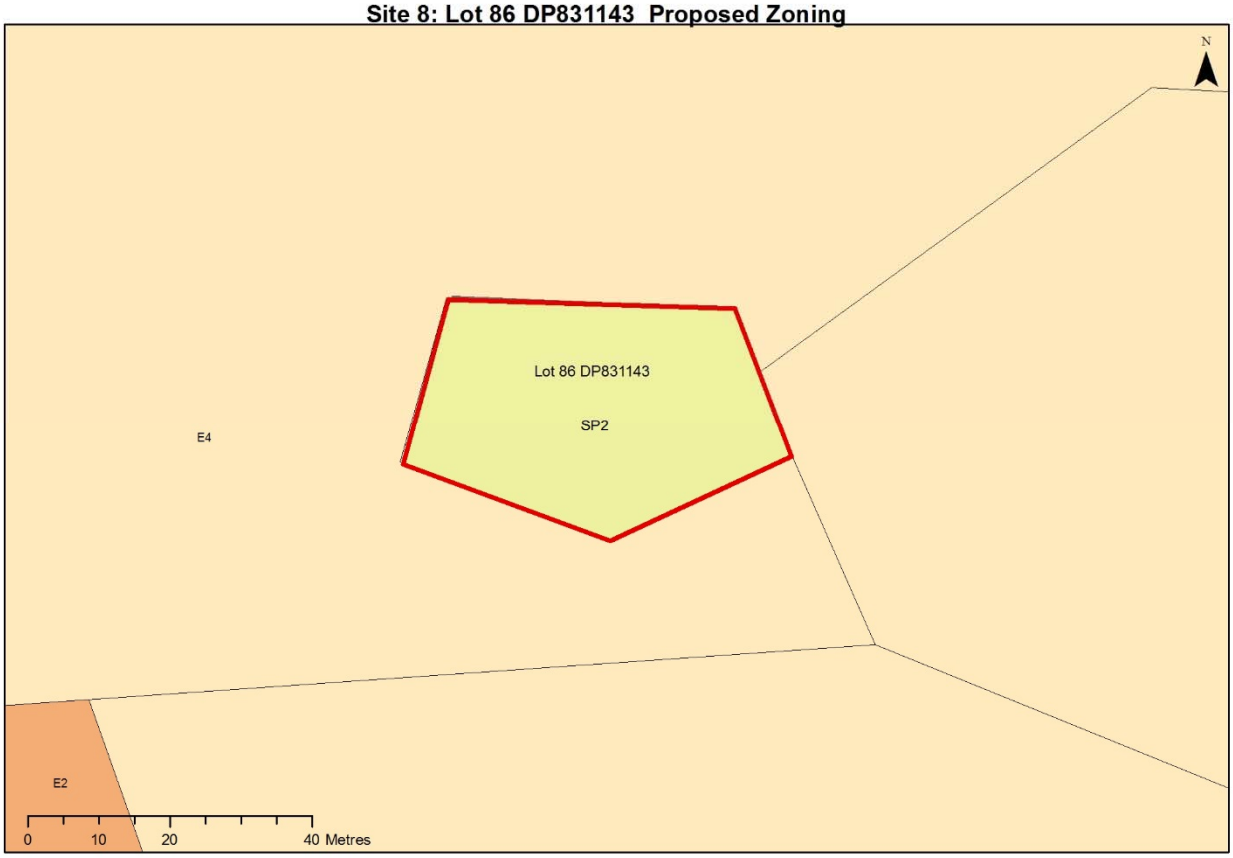
Site 7: Lot 12 DP1093627 Current Zoning



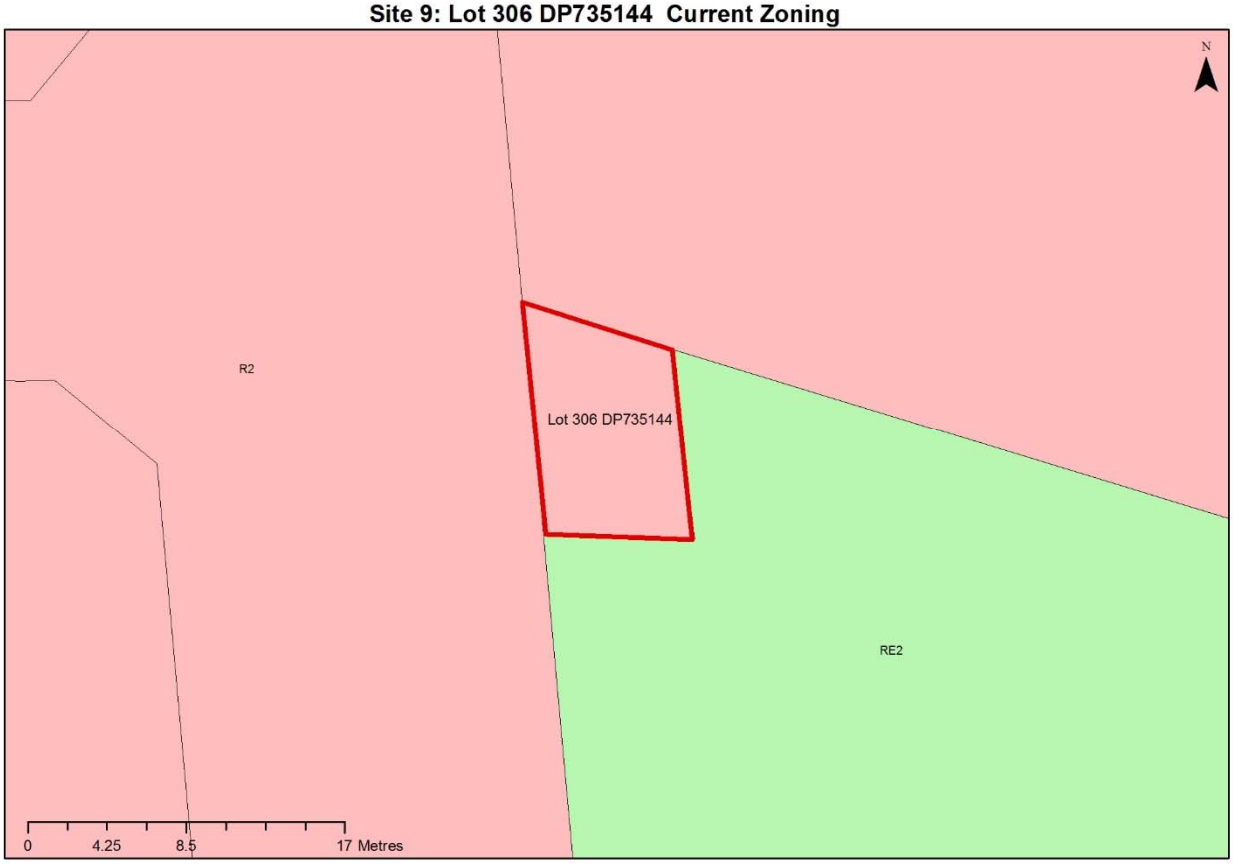
Site 8: Lot 86 DP831143 Current Zoning



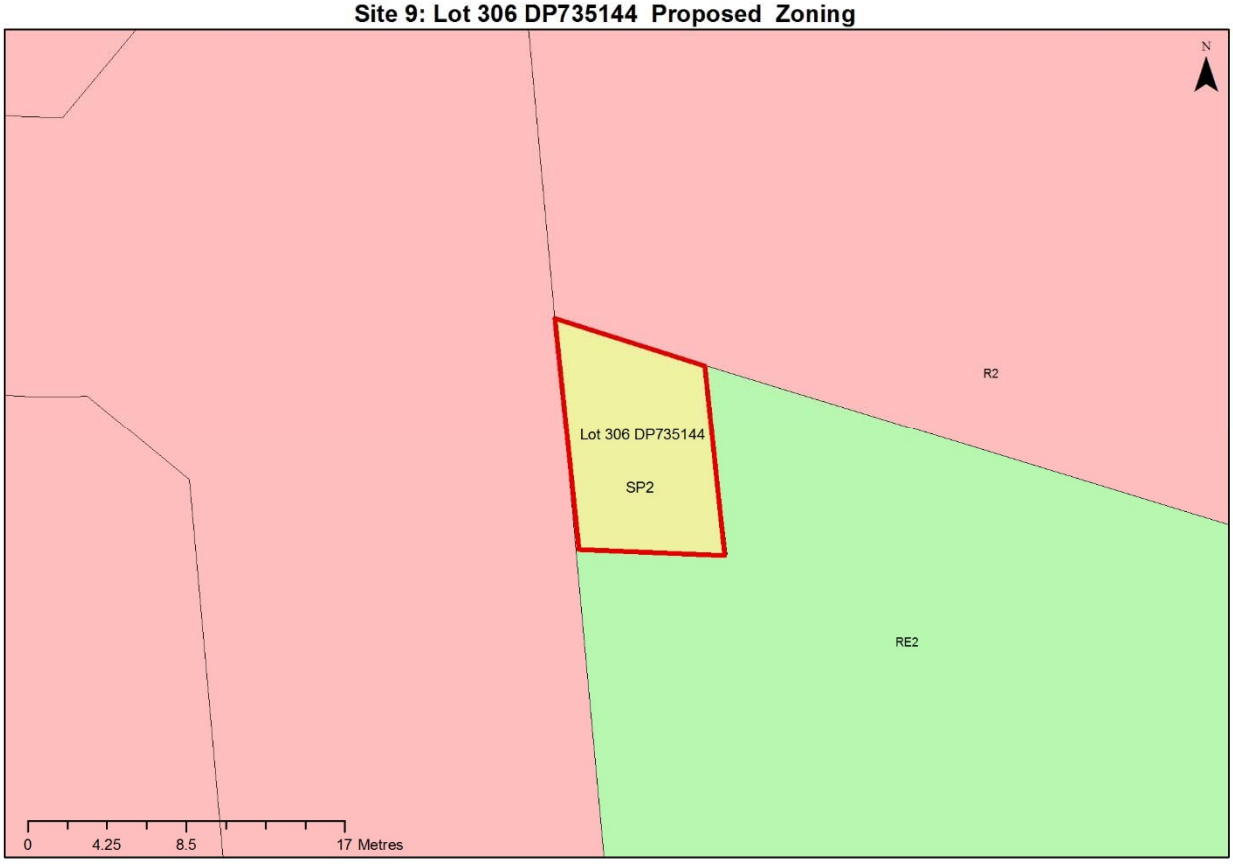
Site 8: Lot 86 DP831143 Proposed Zoning



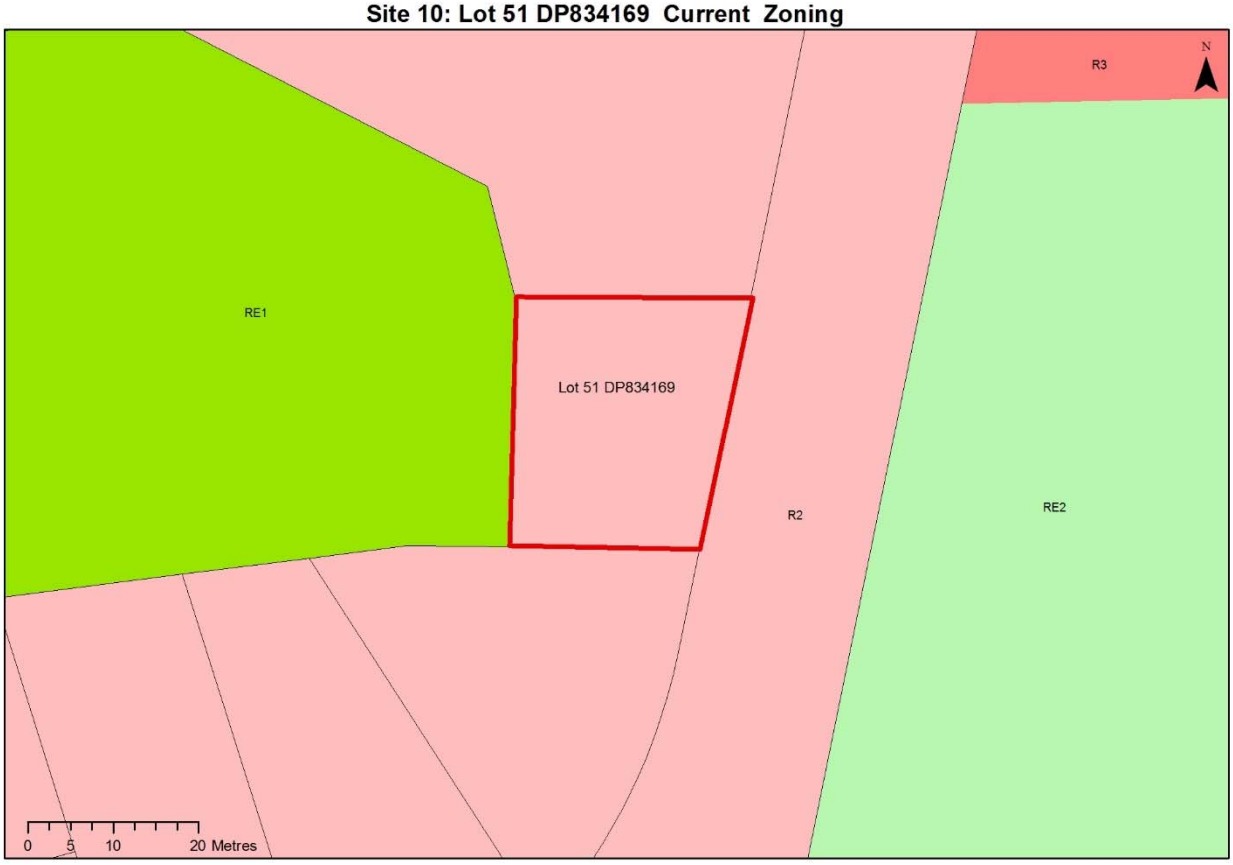
Site 9: Lot 306 DP735144 Current Zoning



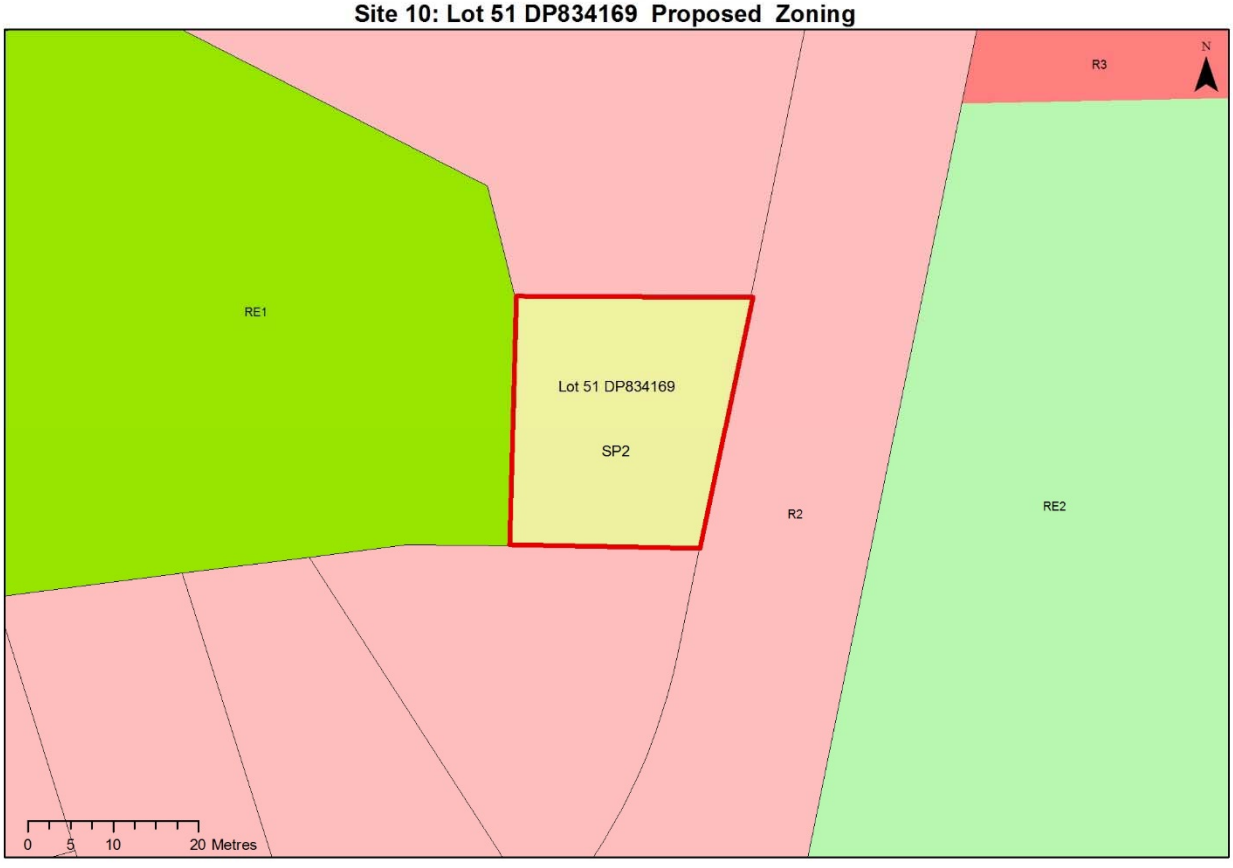
Site 9: Lot 306 DP735144 Proposed Zoning



Site 10: Lot 51 DP834169 Current Zoning



Site 10: Lot 51 DP834169 Proposed Zoning



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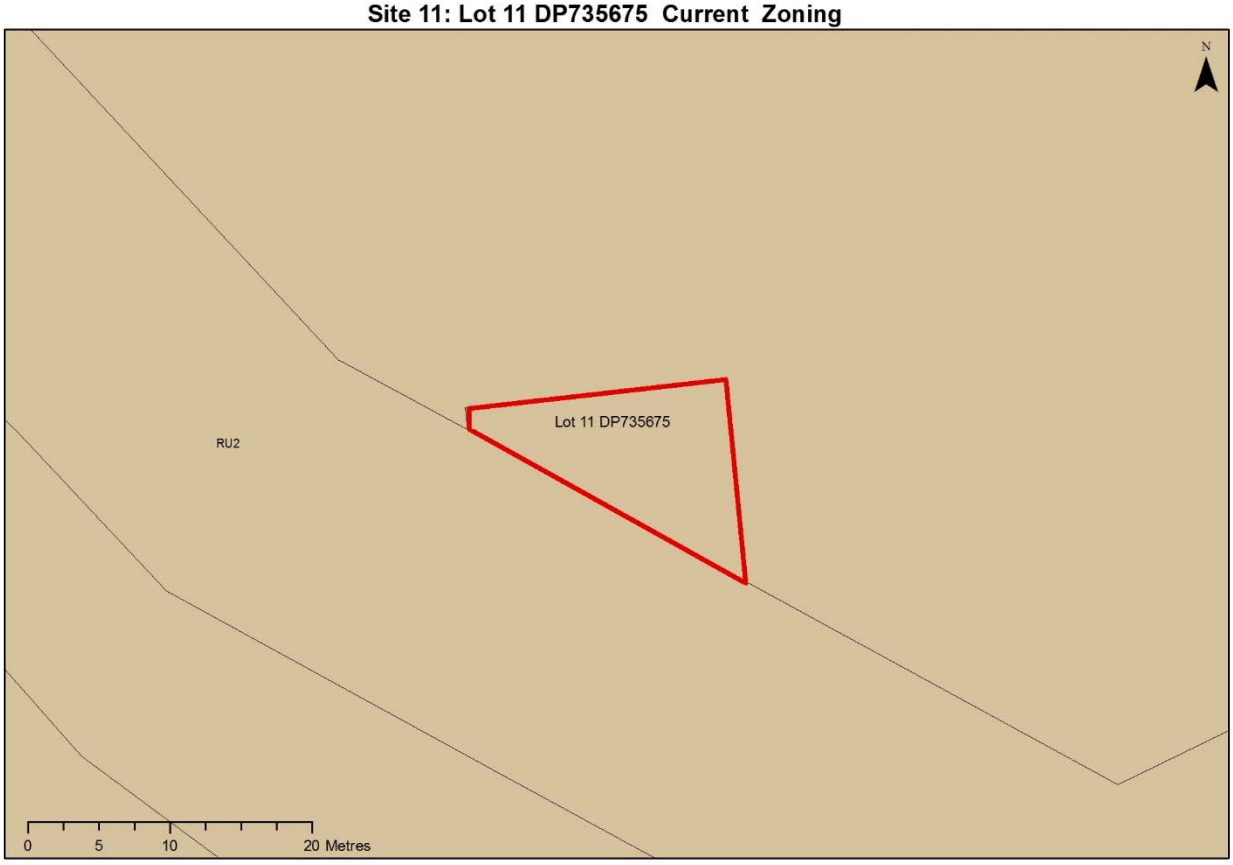

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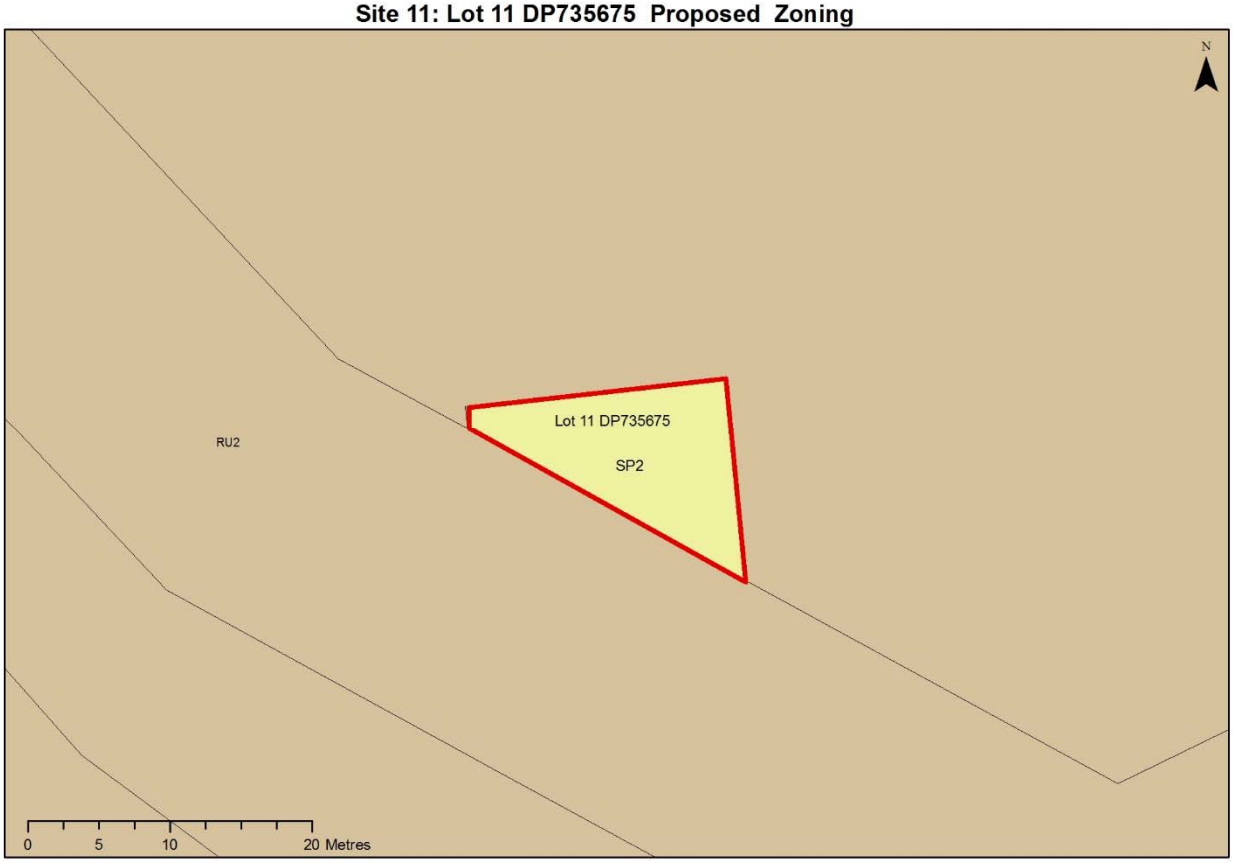

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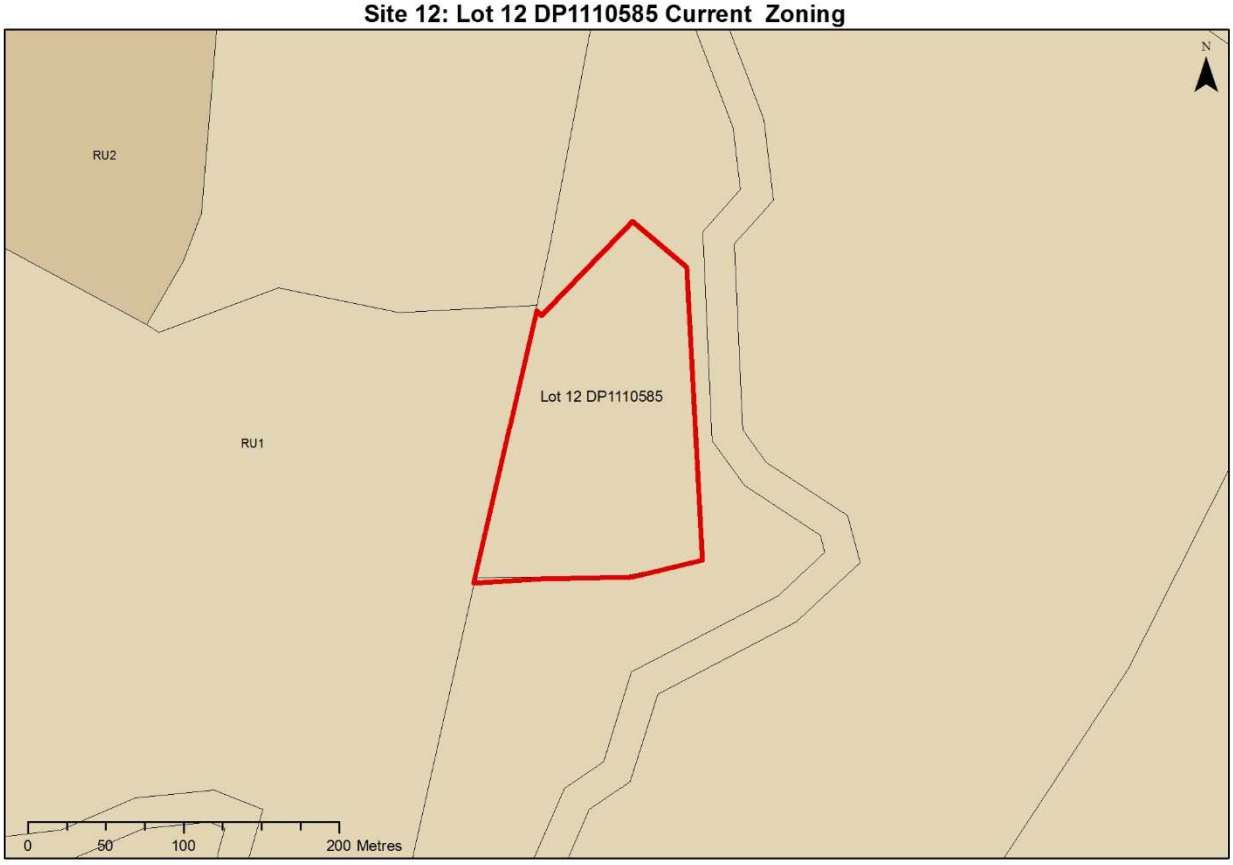
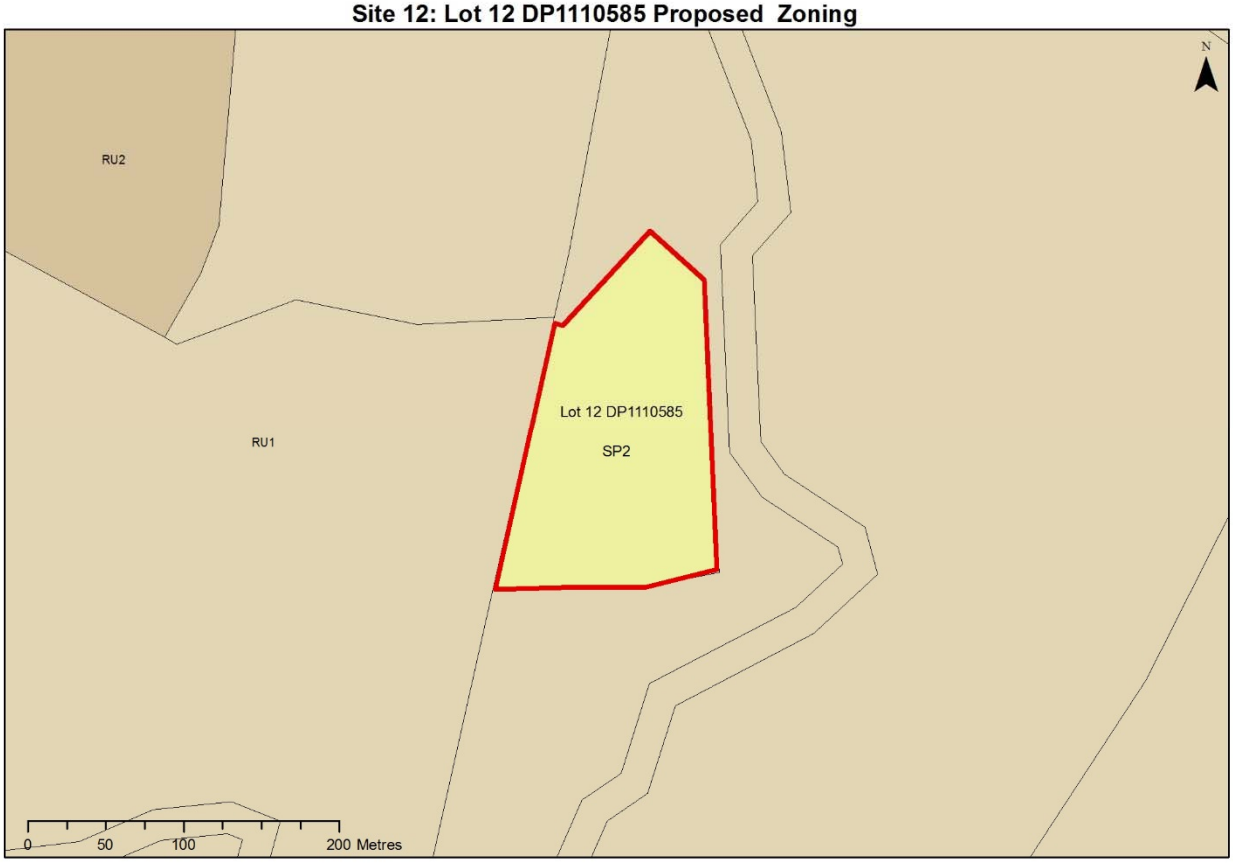


Site 12: Lot 12 DP1110585 Proposed Zoning



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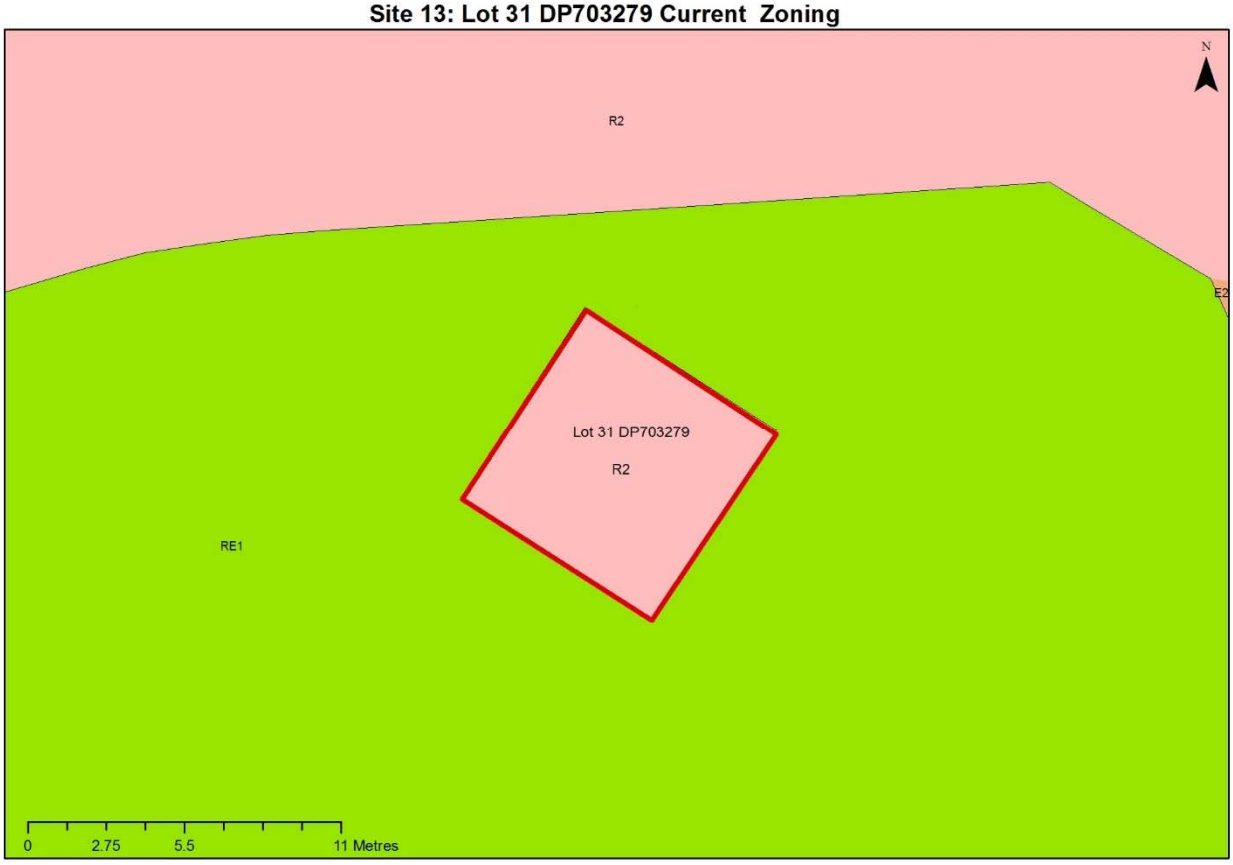

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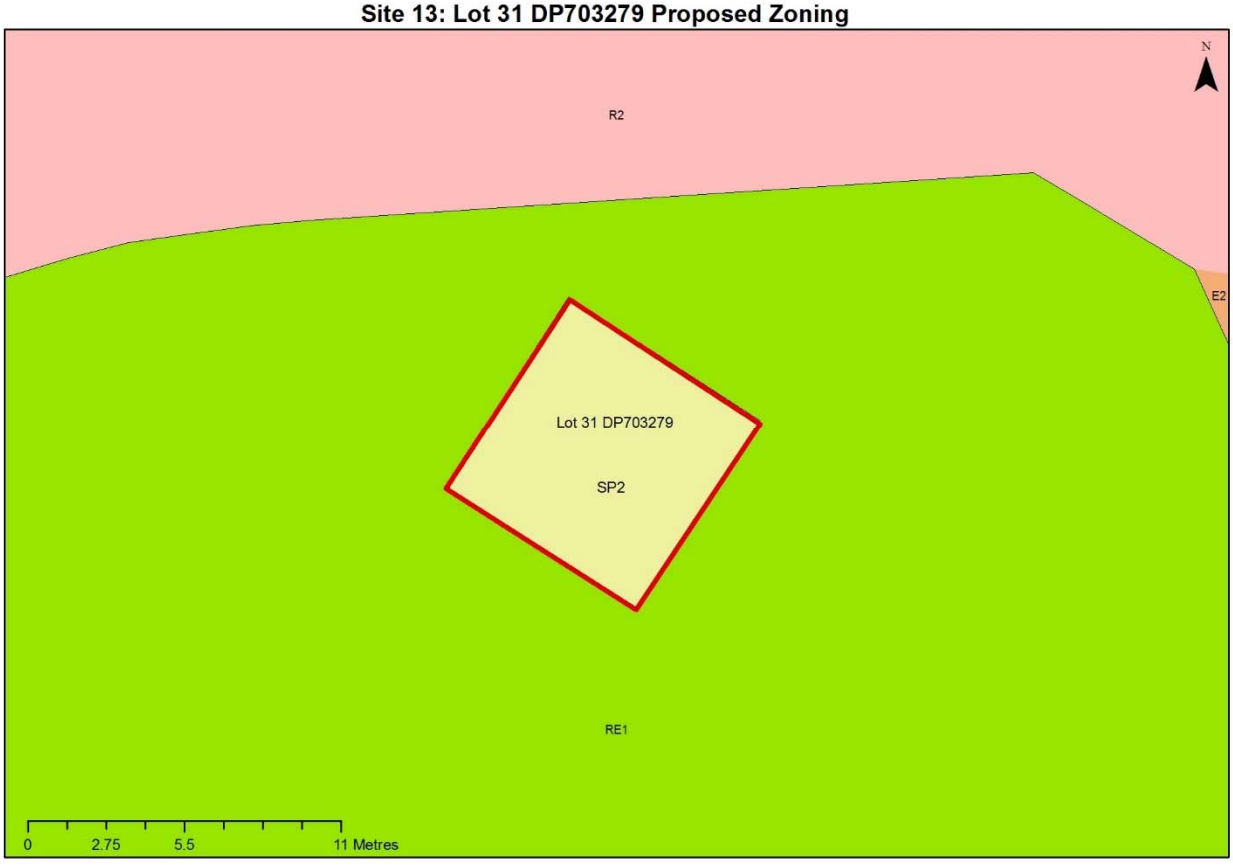

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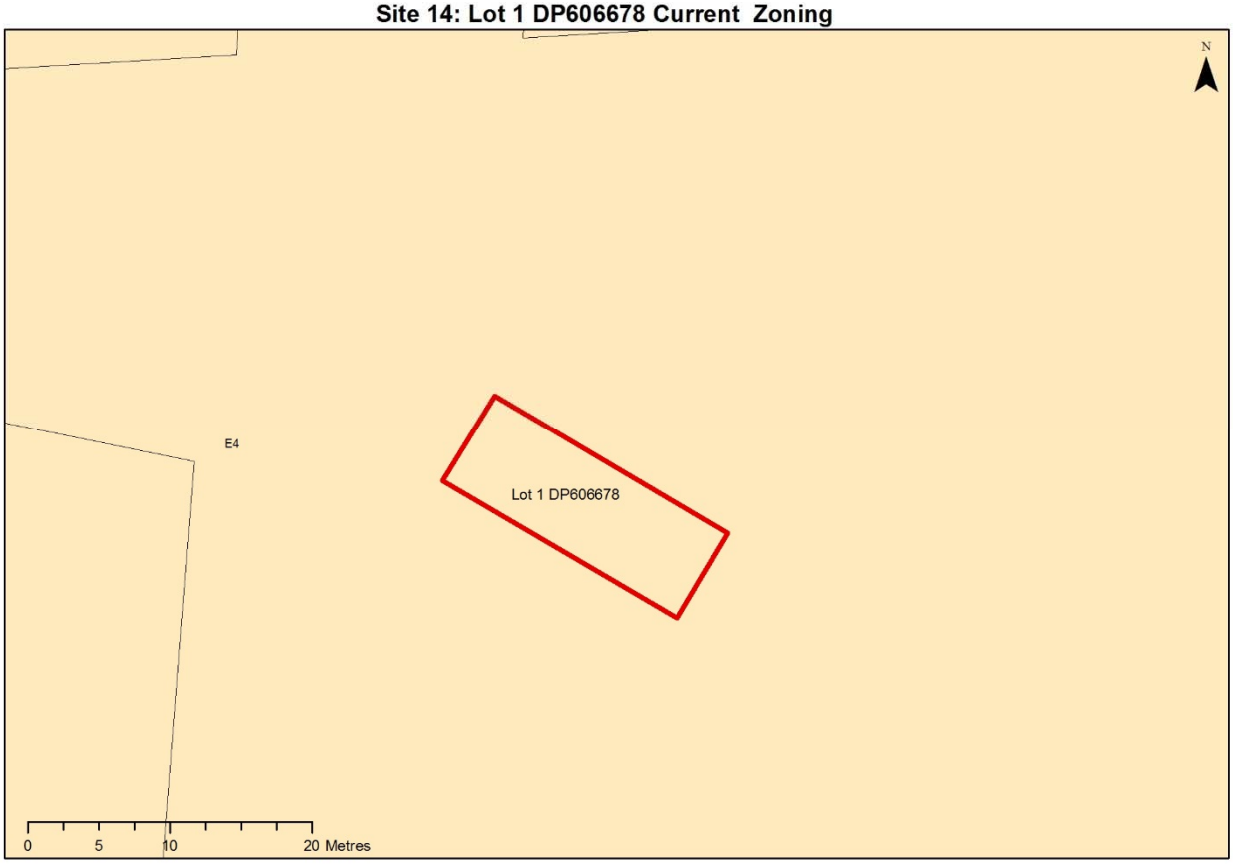

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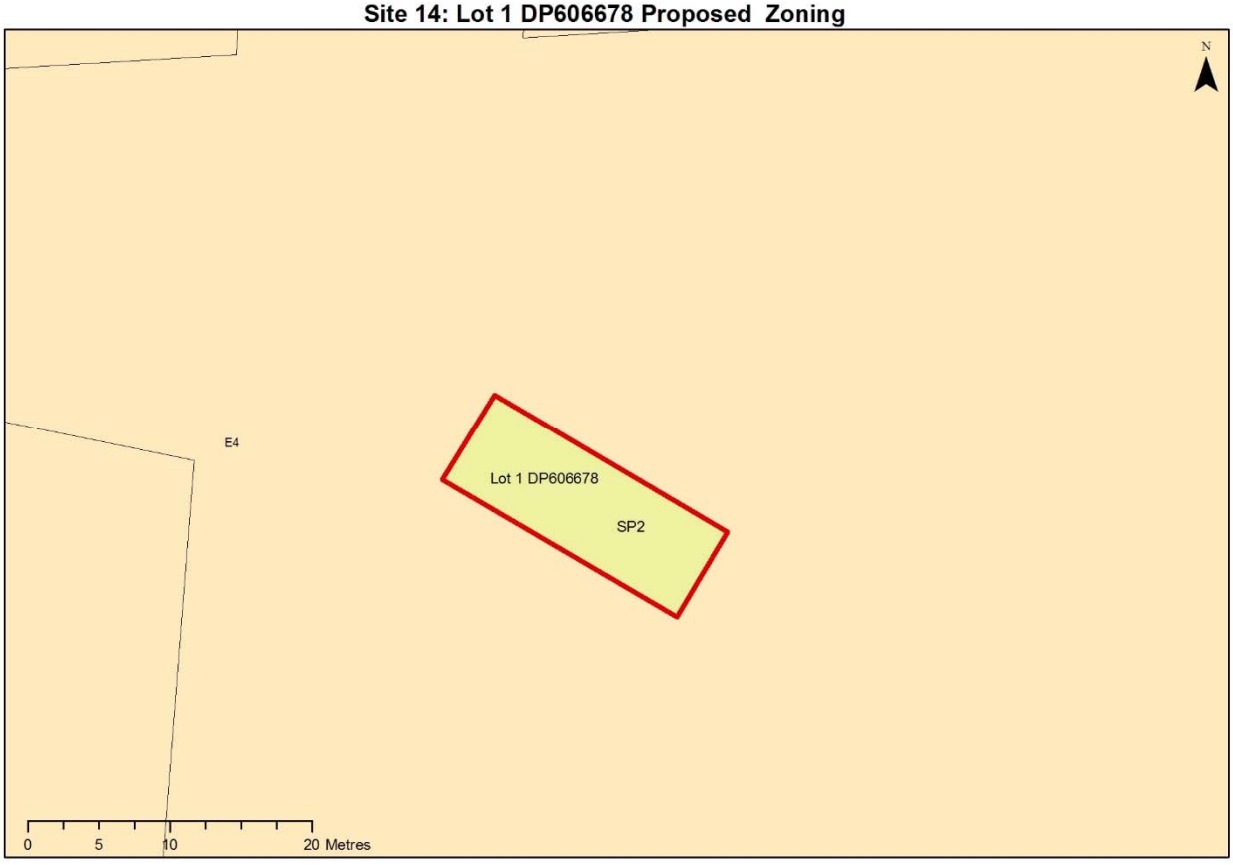

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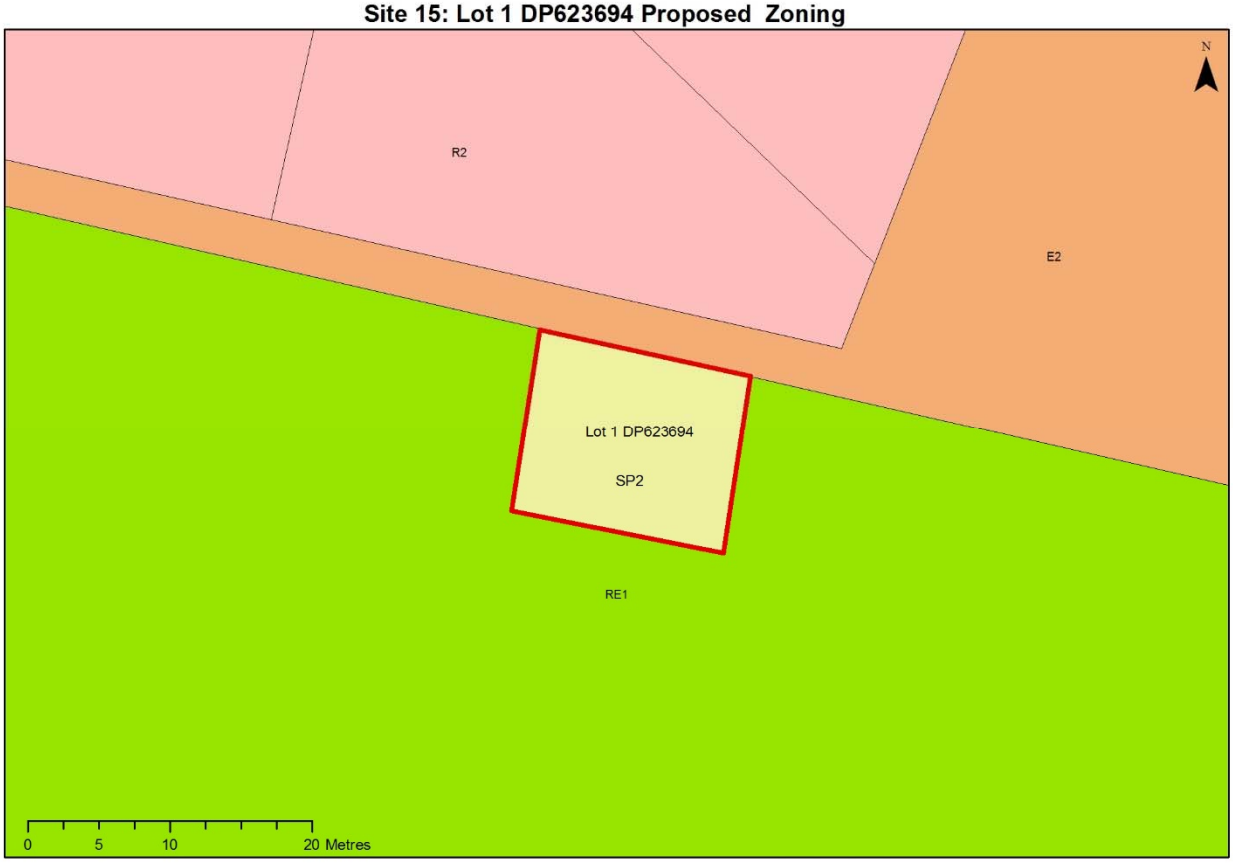
Site 15: Lot 1 DP623694 Proposed Zoning



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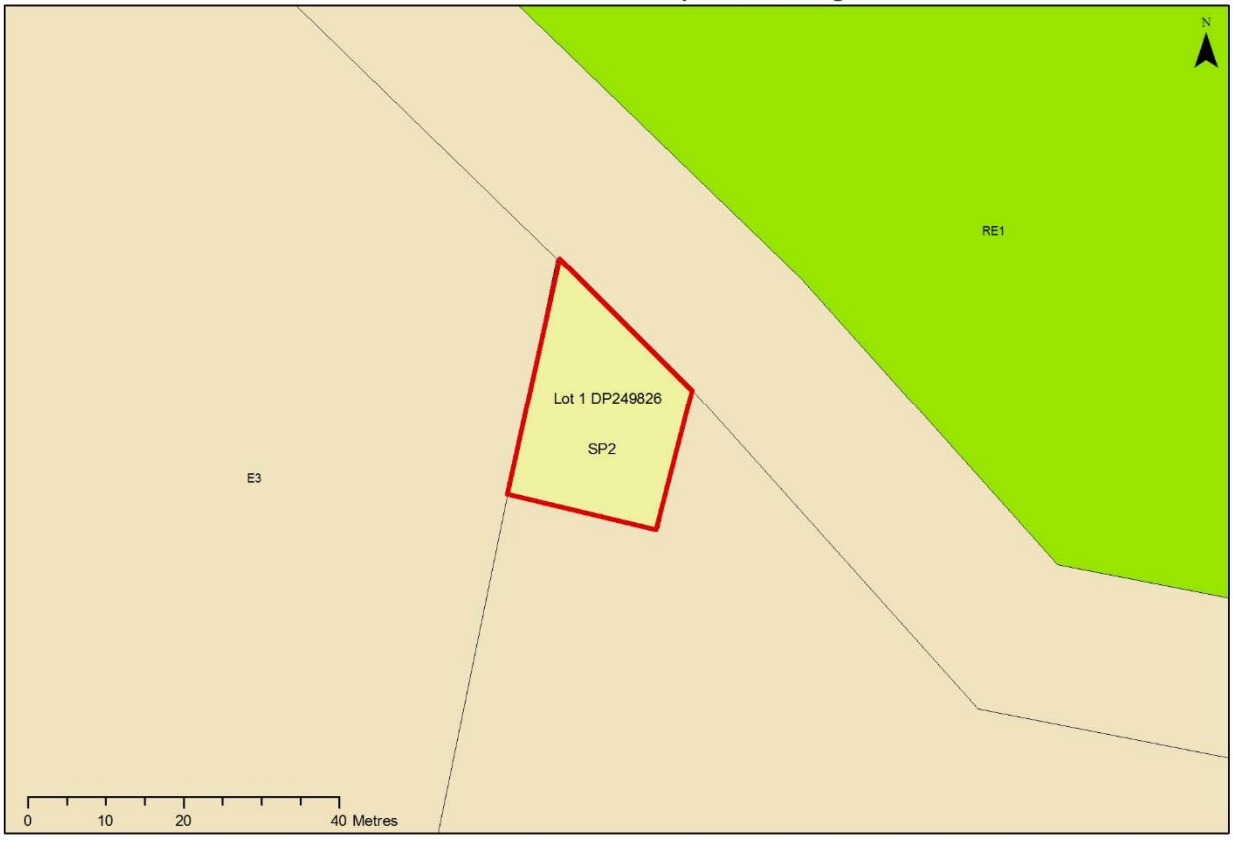
Site 16: Lot 1 DP249826 Proposed Zoning



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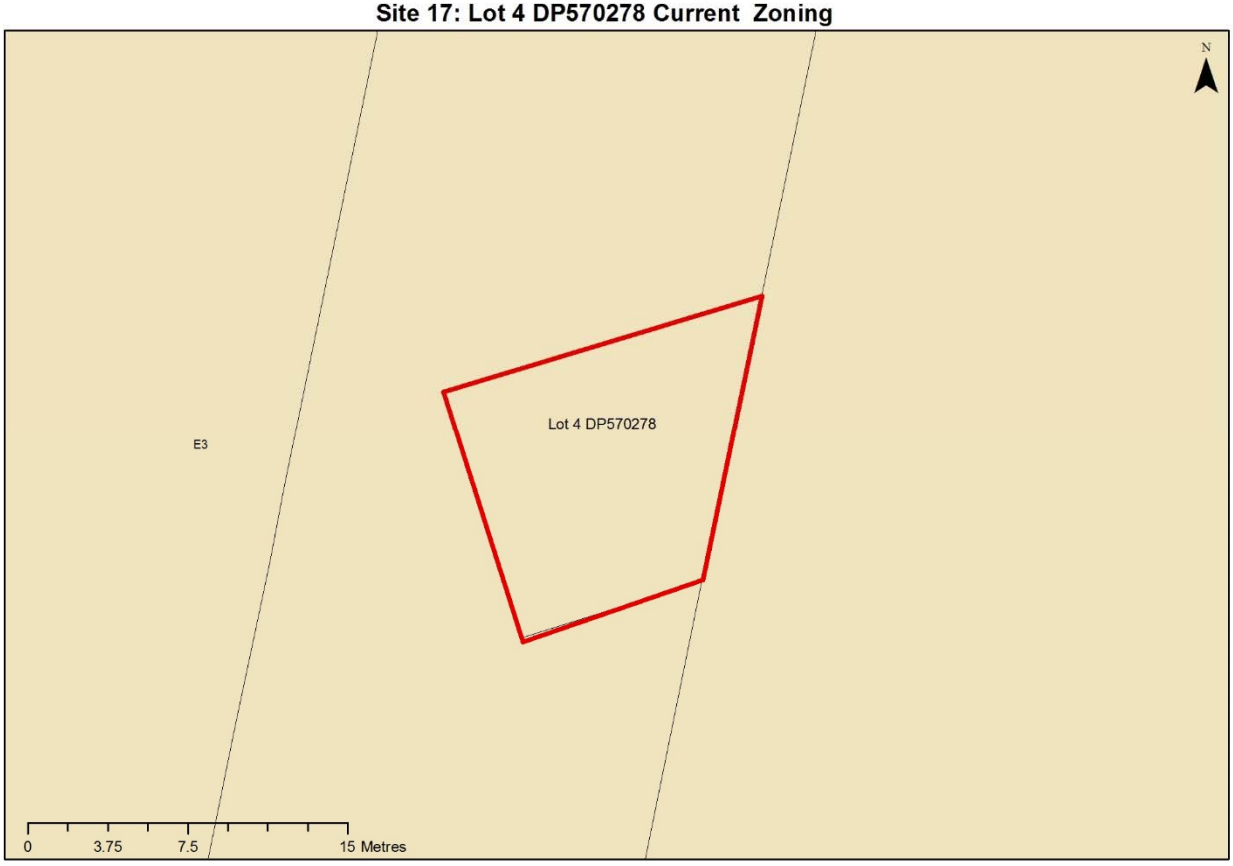
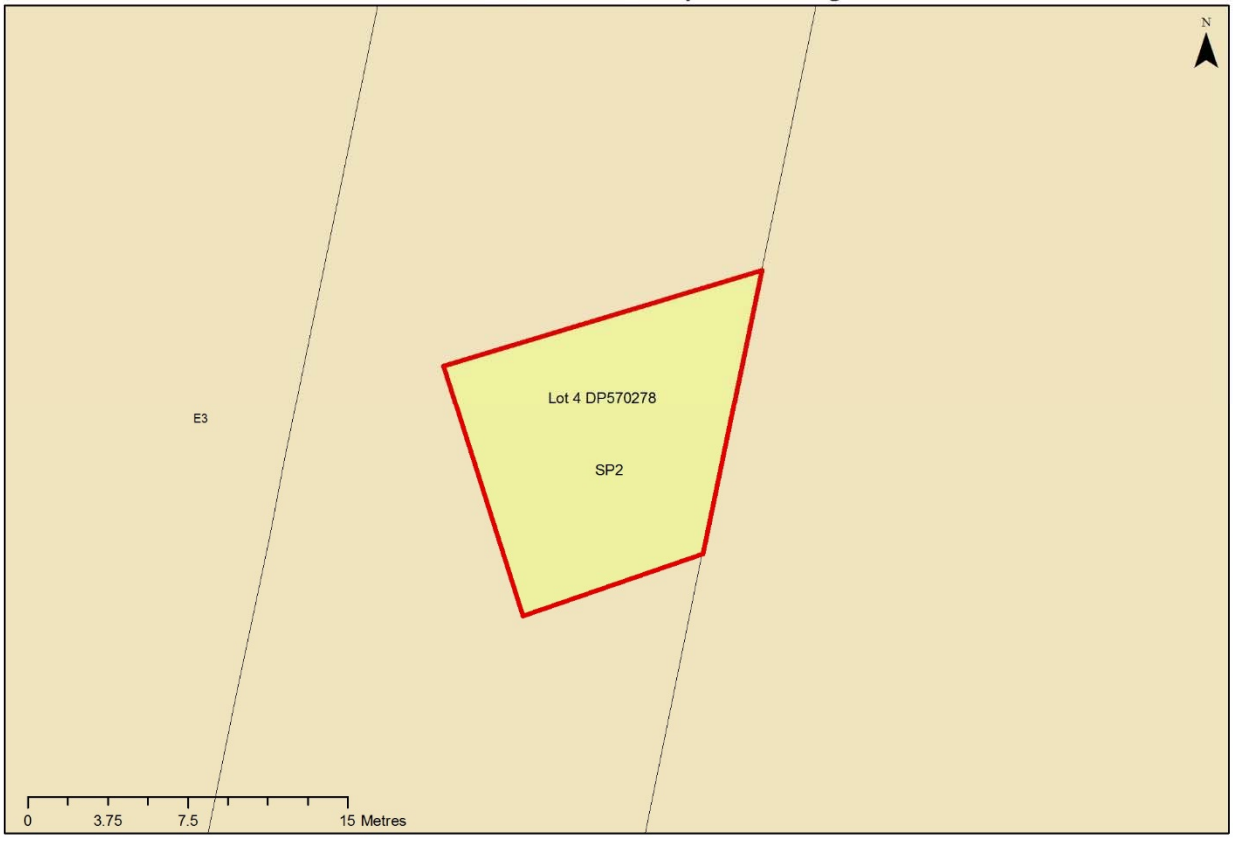
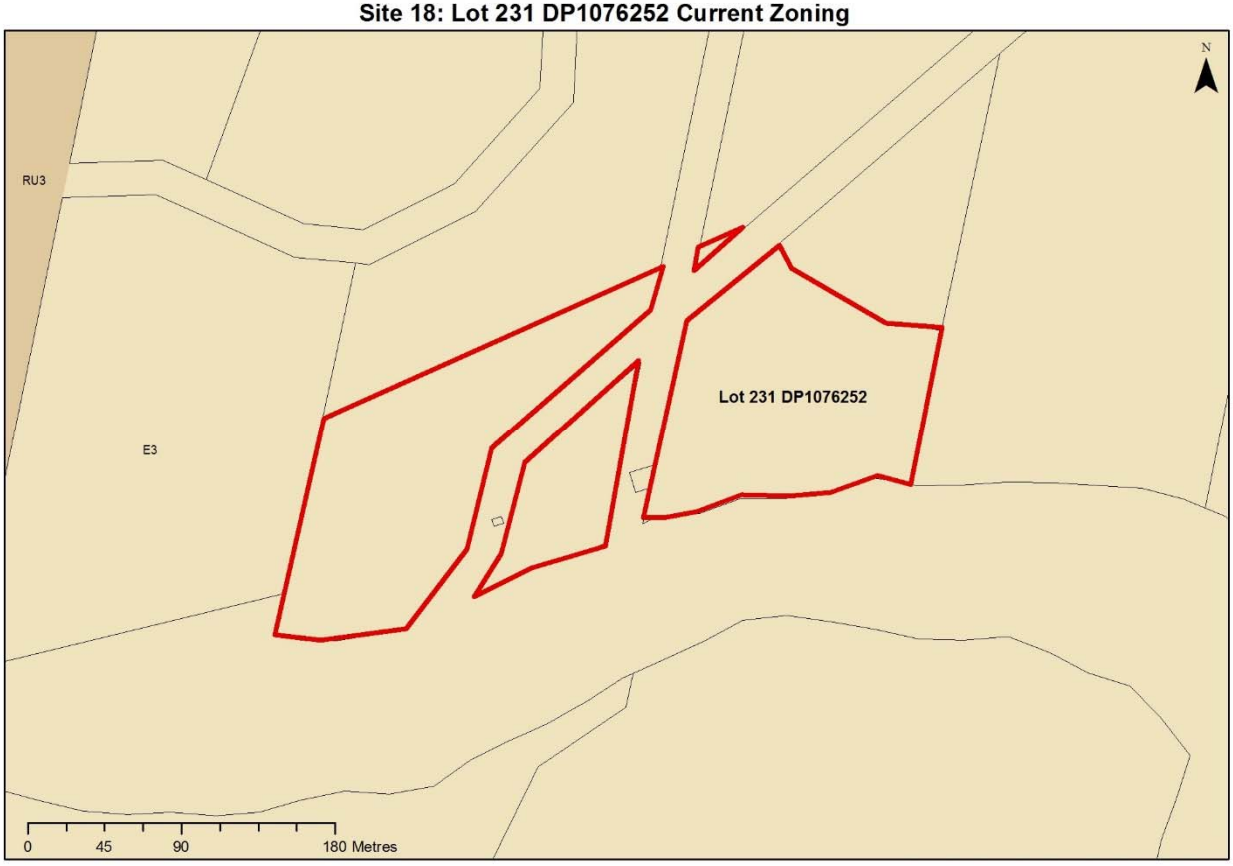


Site 17: Lot 4 DP570278 Proposed Zoning



Site 18: Lot 231 DP1076252 Current Zoning



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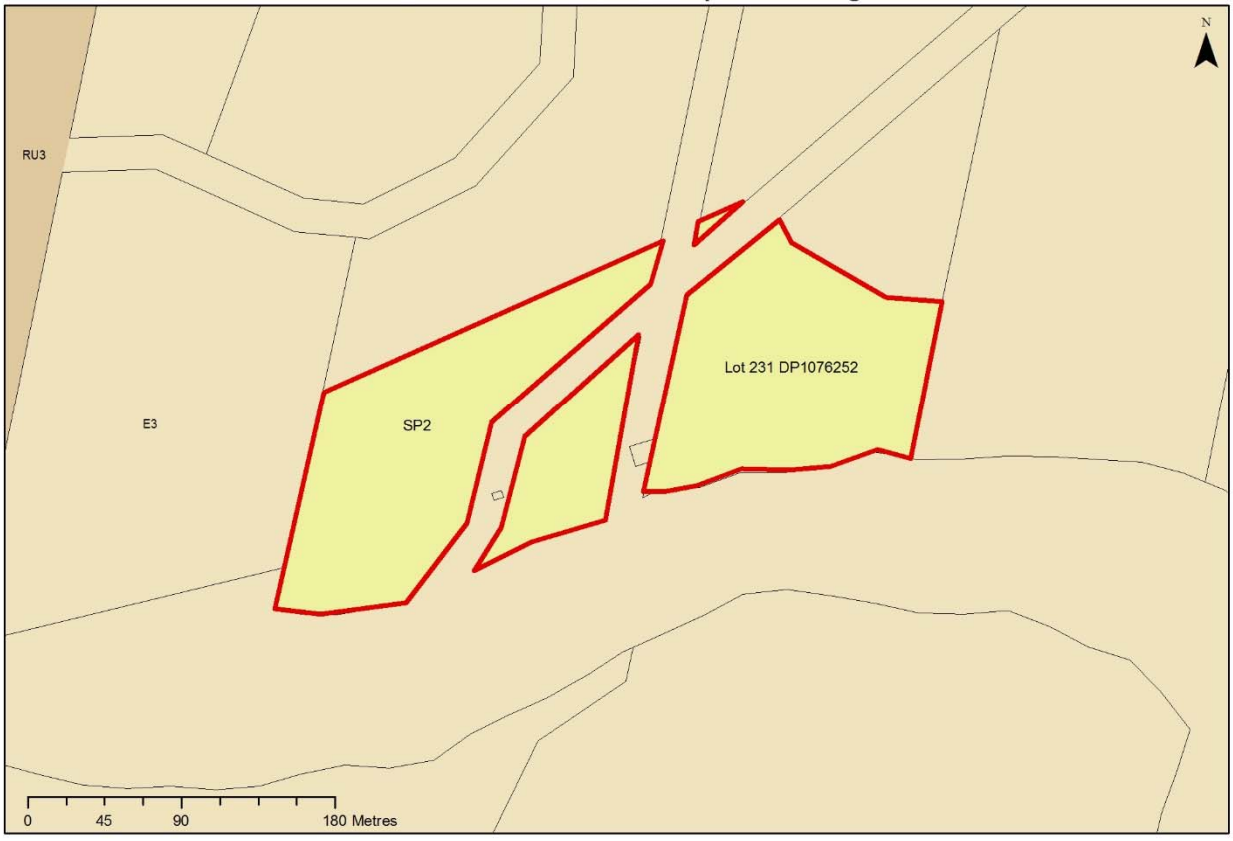

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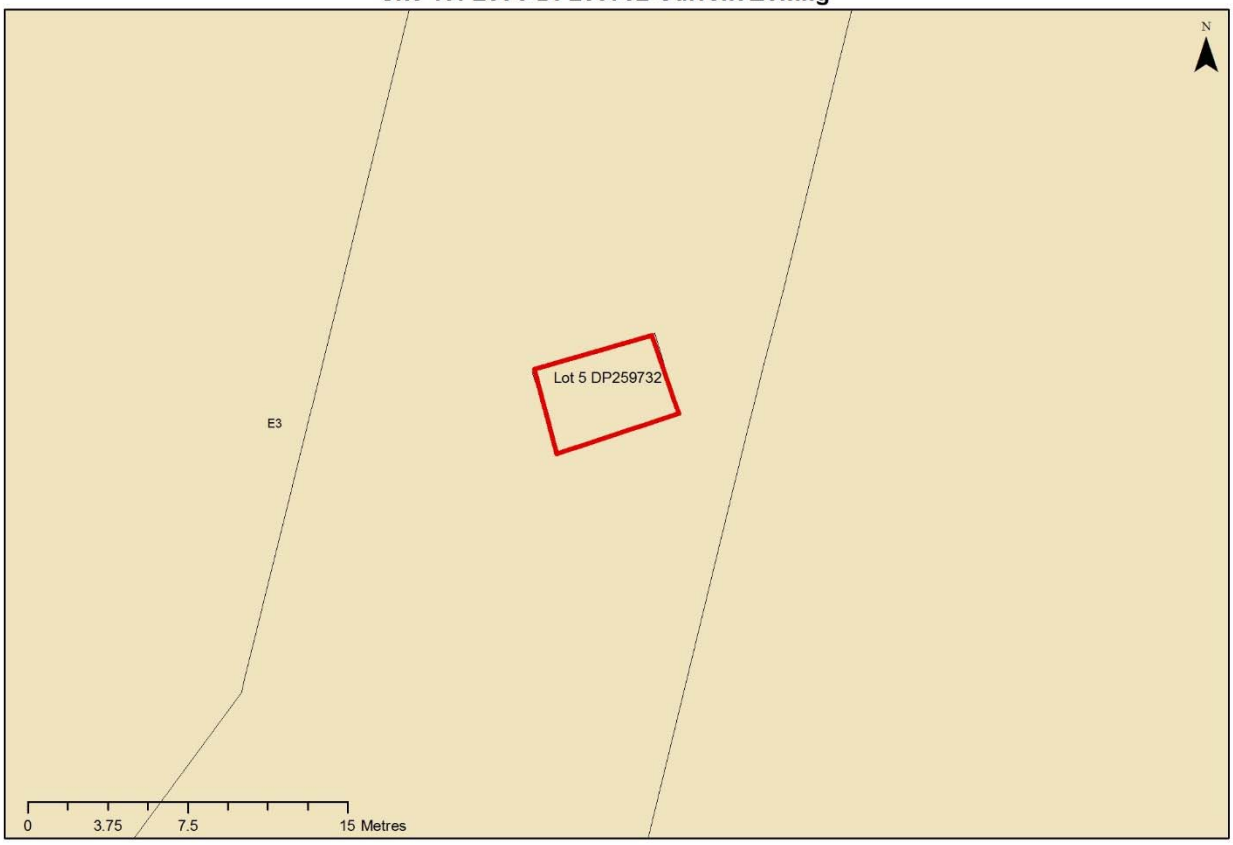
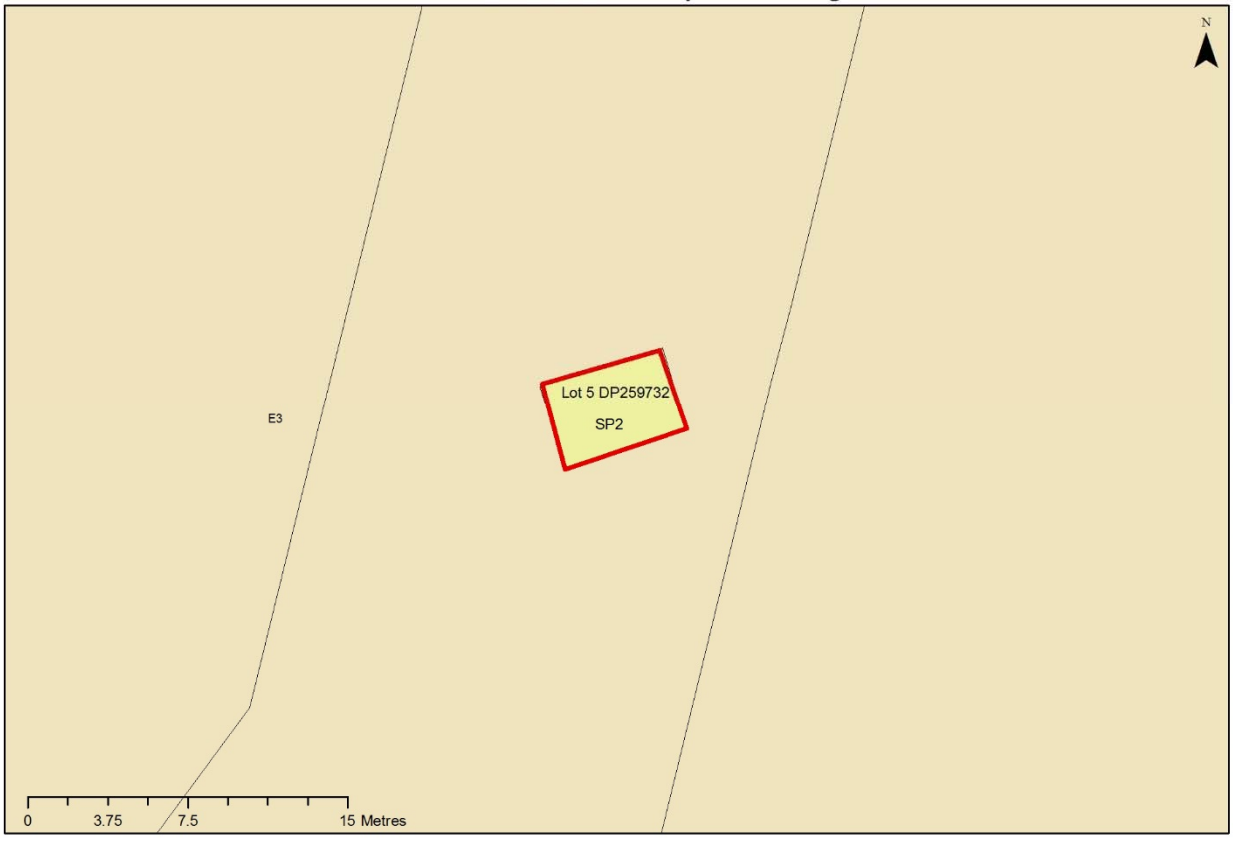


Site 19: Lot 5 DP259732 Proposed Zoning



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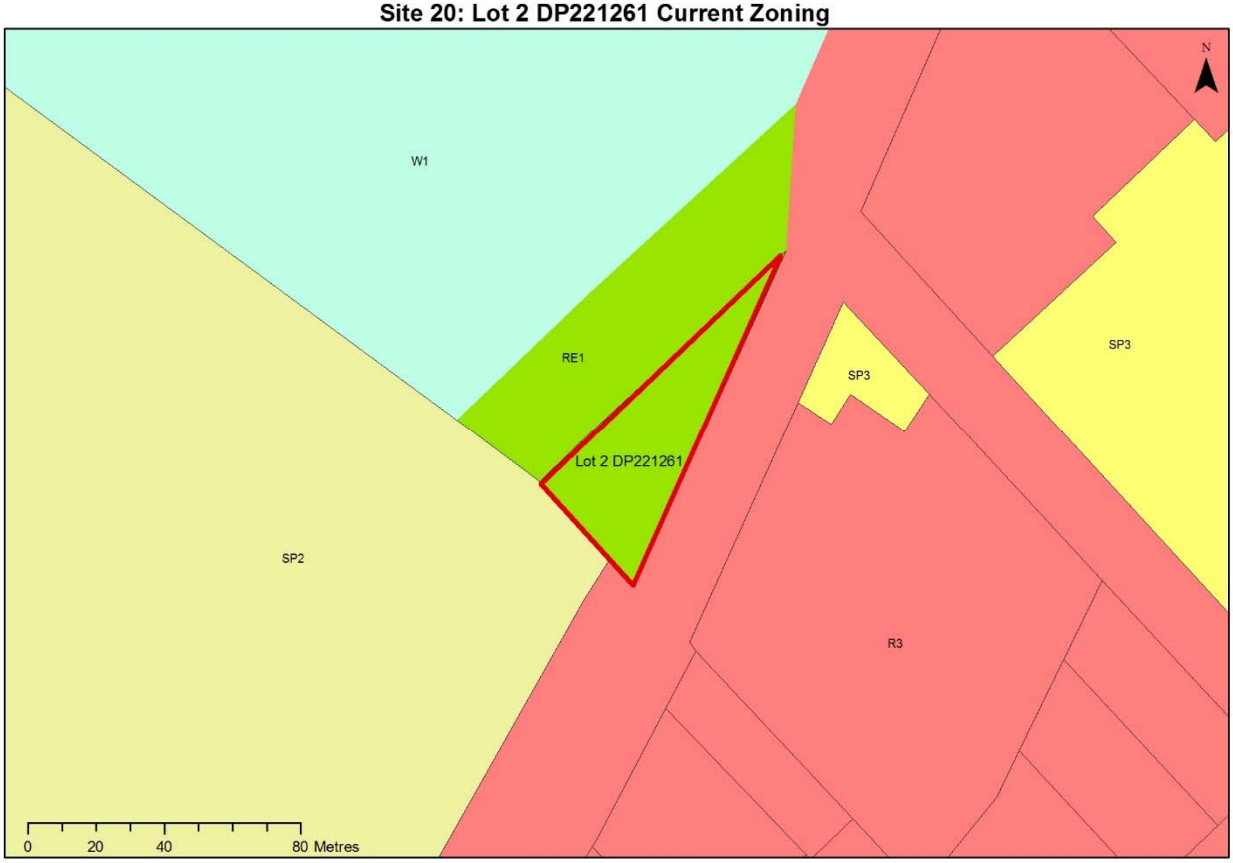

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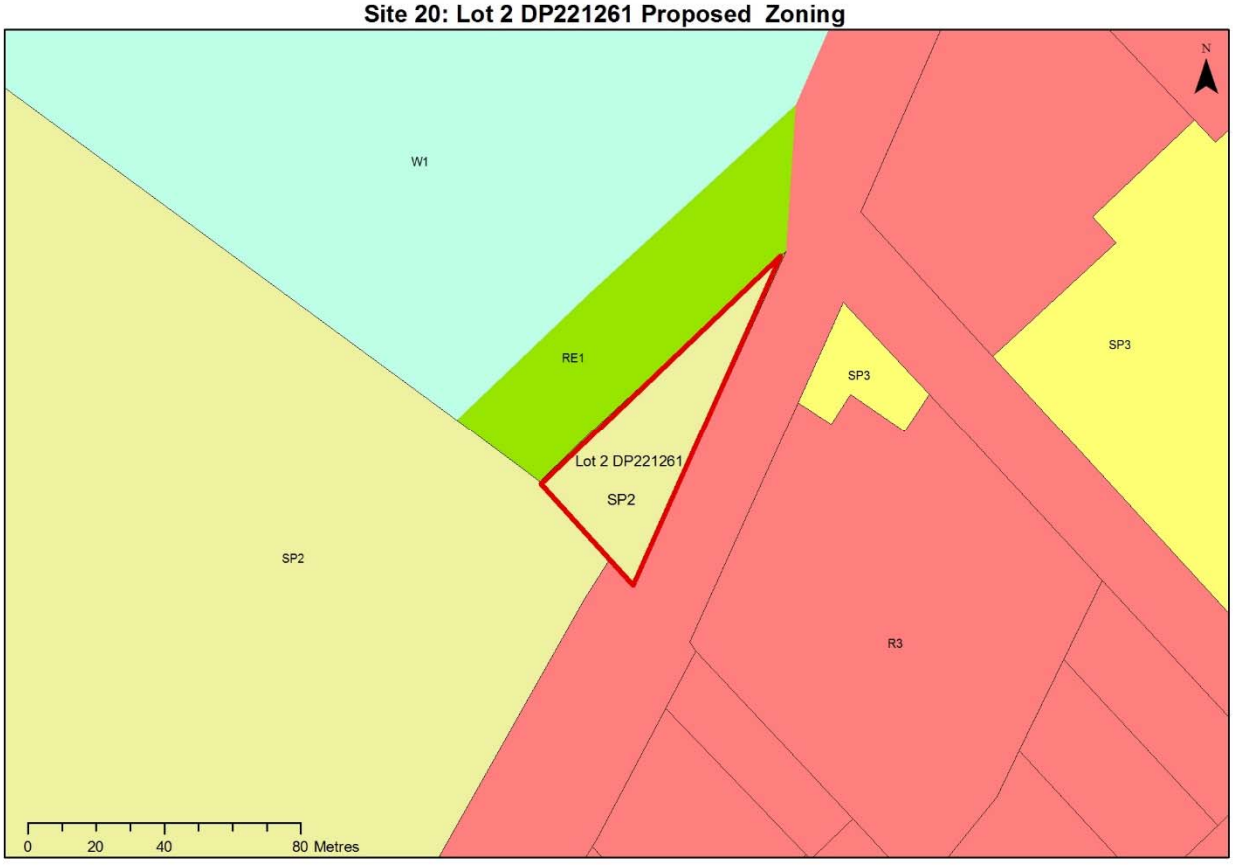

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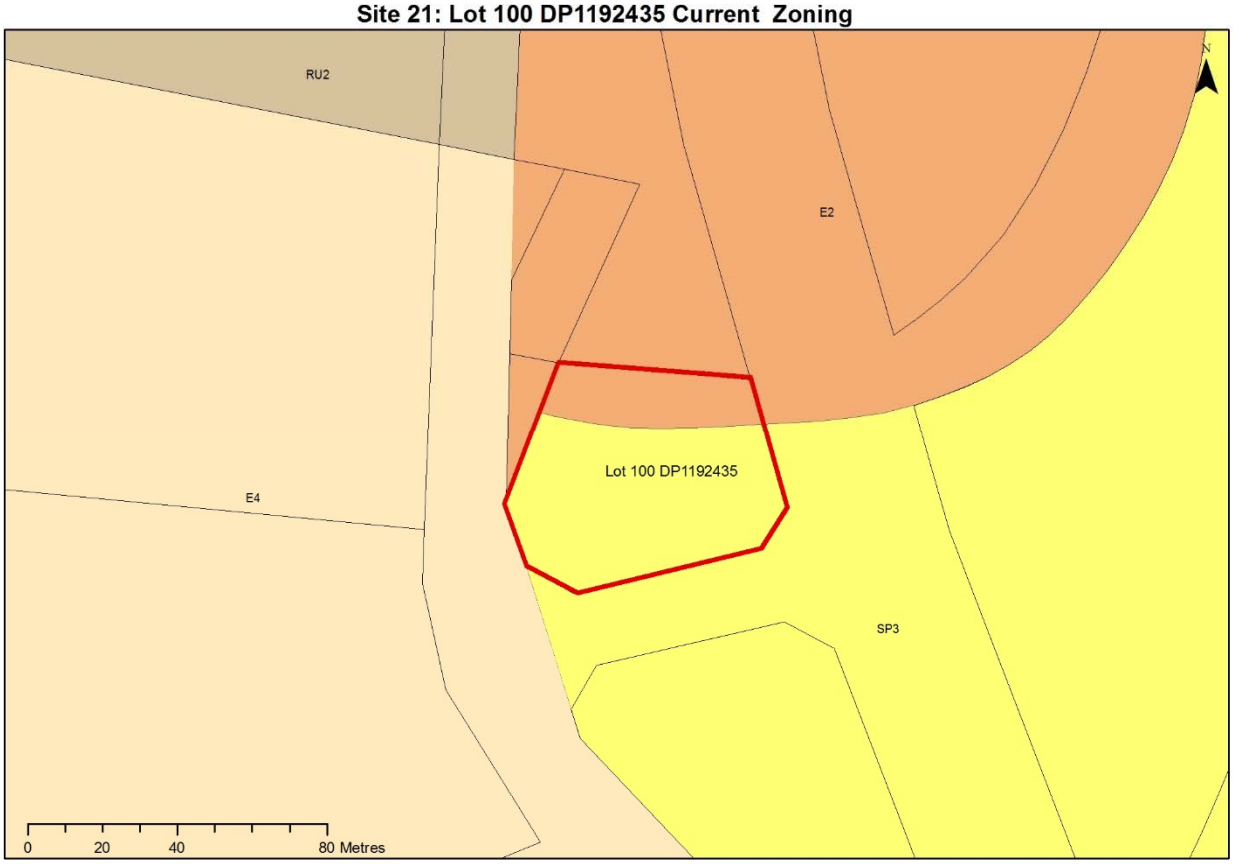

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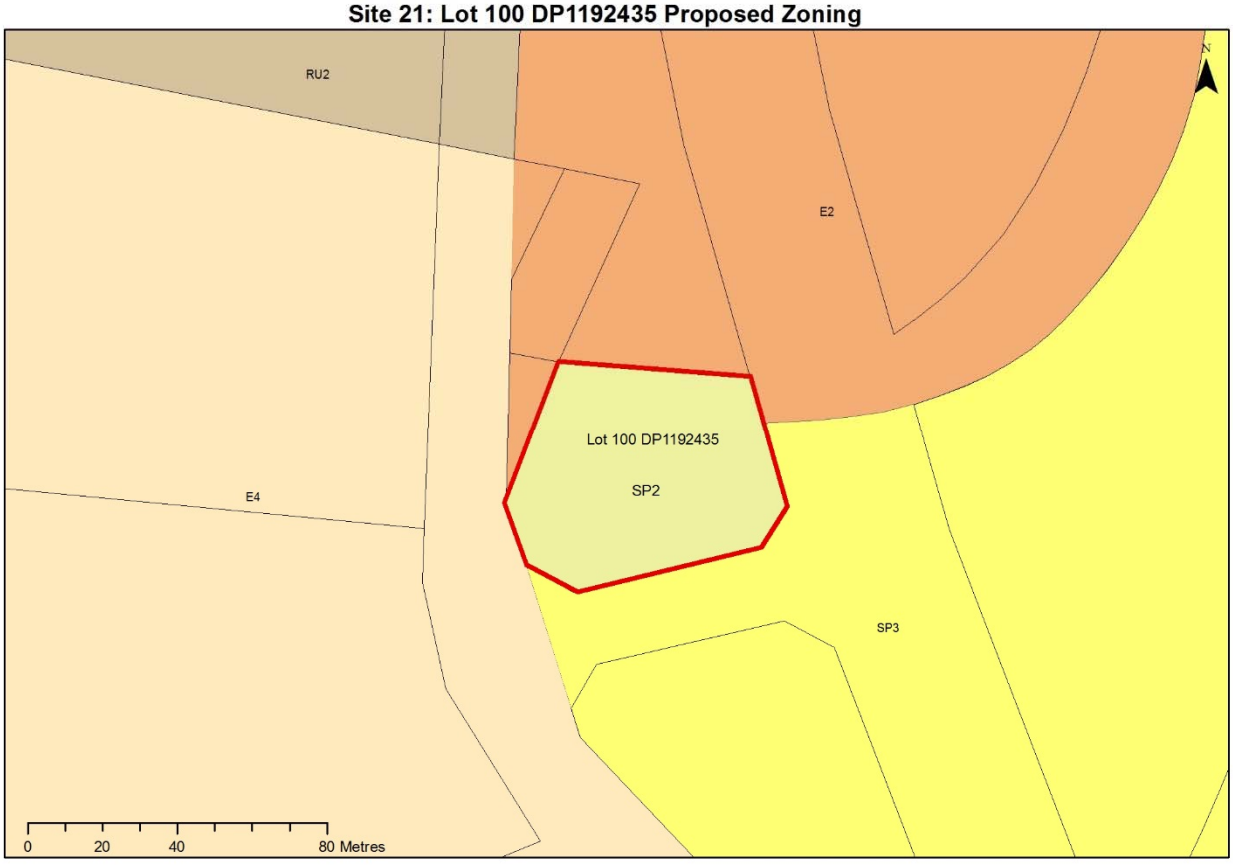
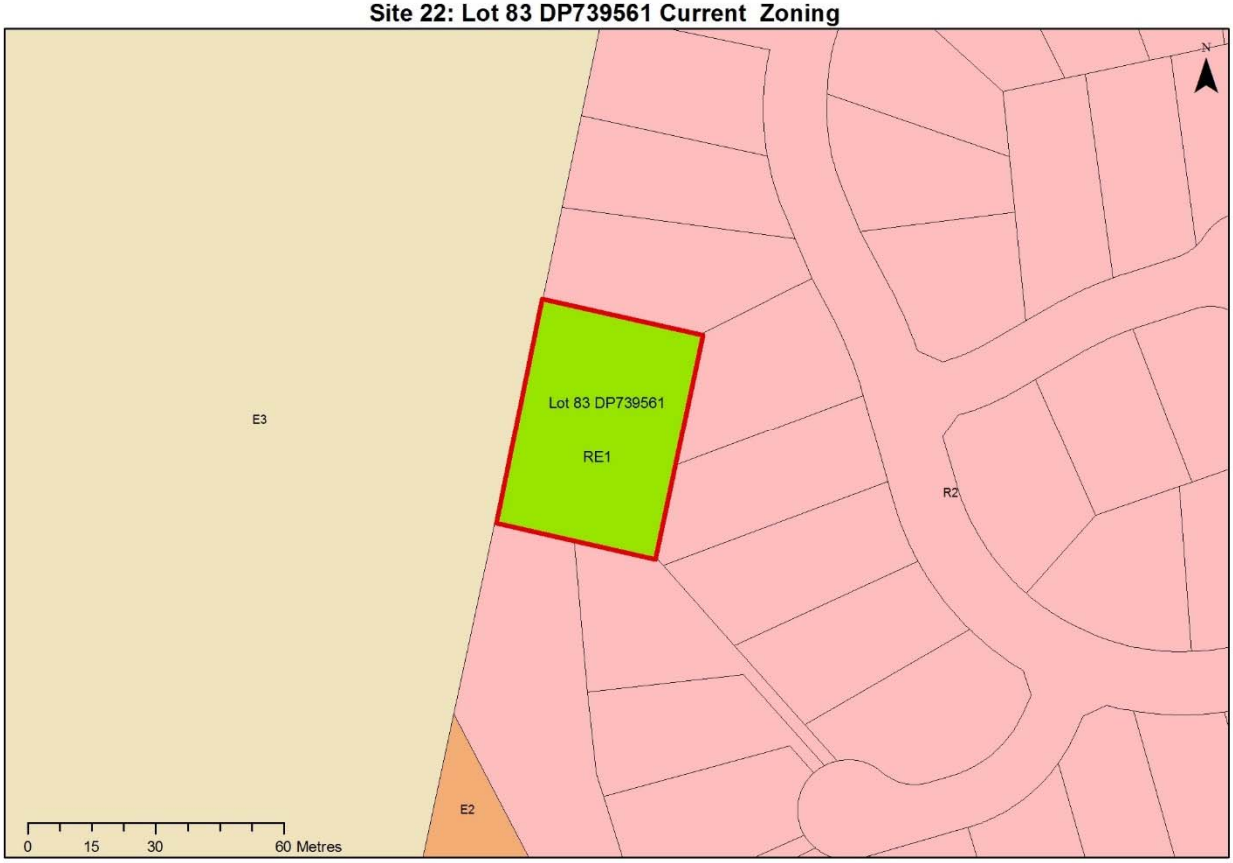


Site 22: Lot 83 DP739561 Current Zoning



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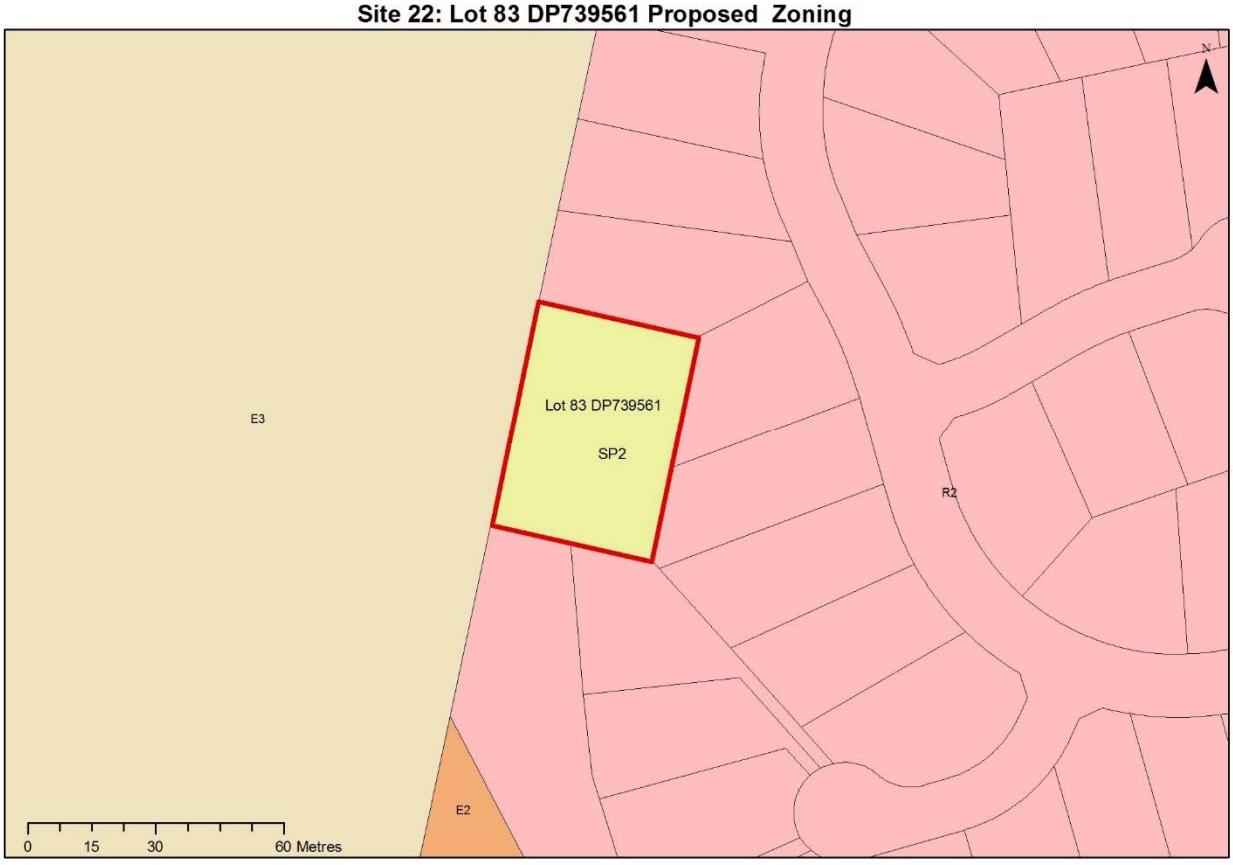
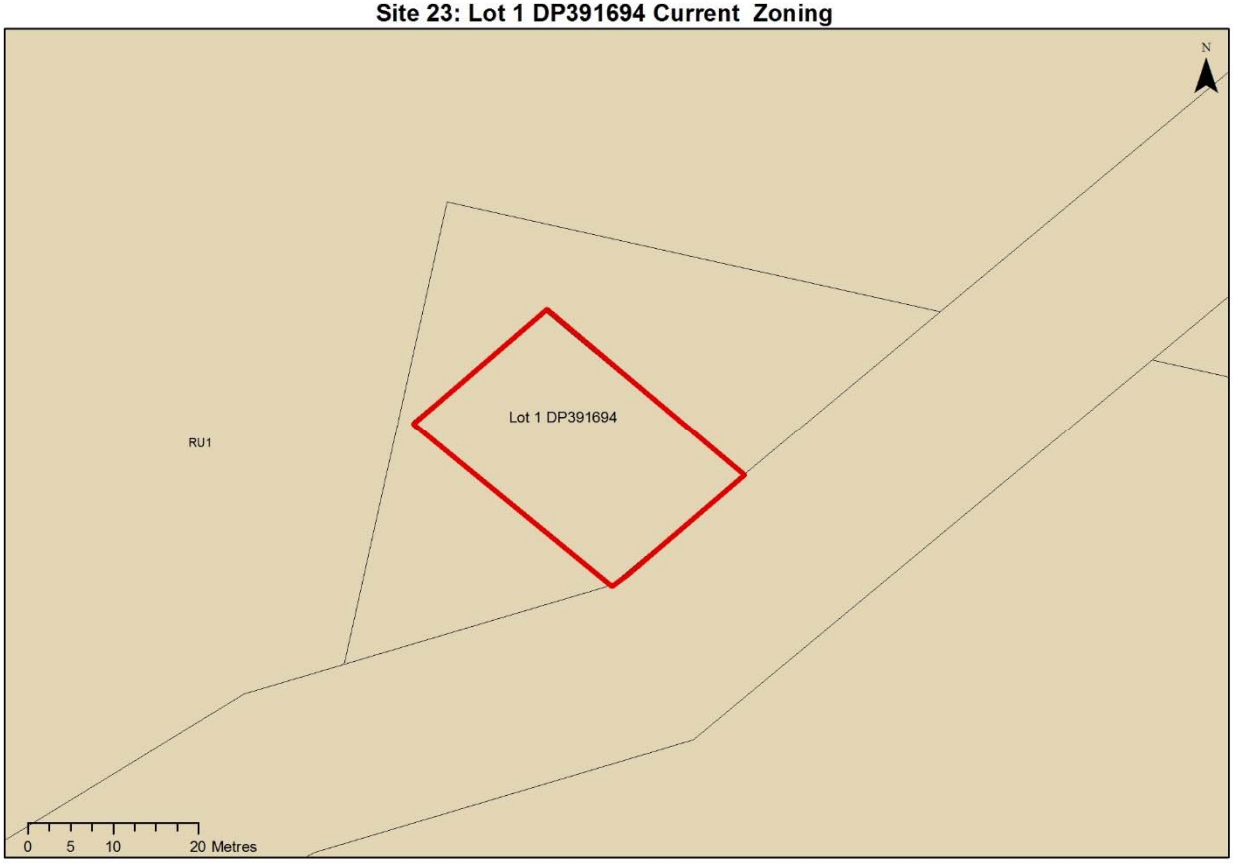


Site 23: Lot 1 DP391694 Current Zoning



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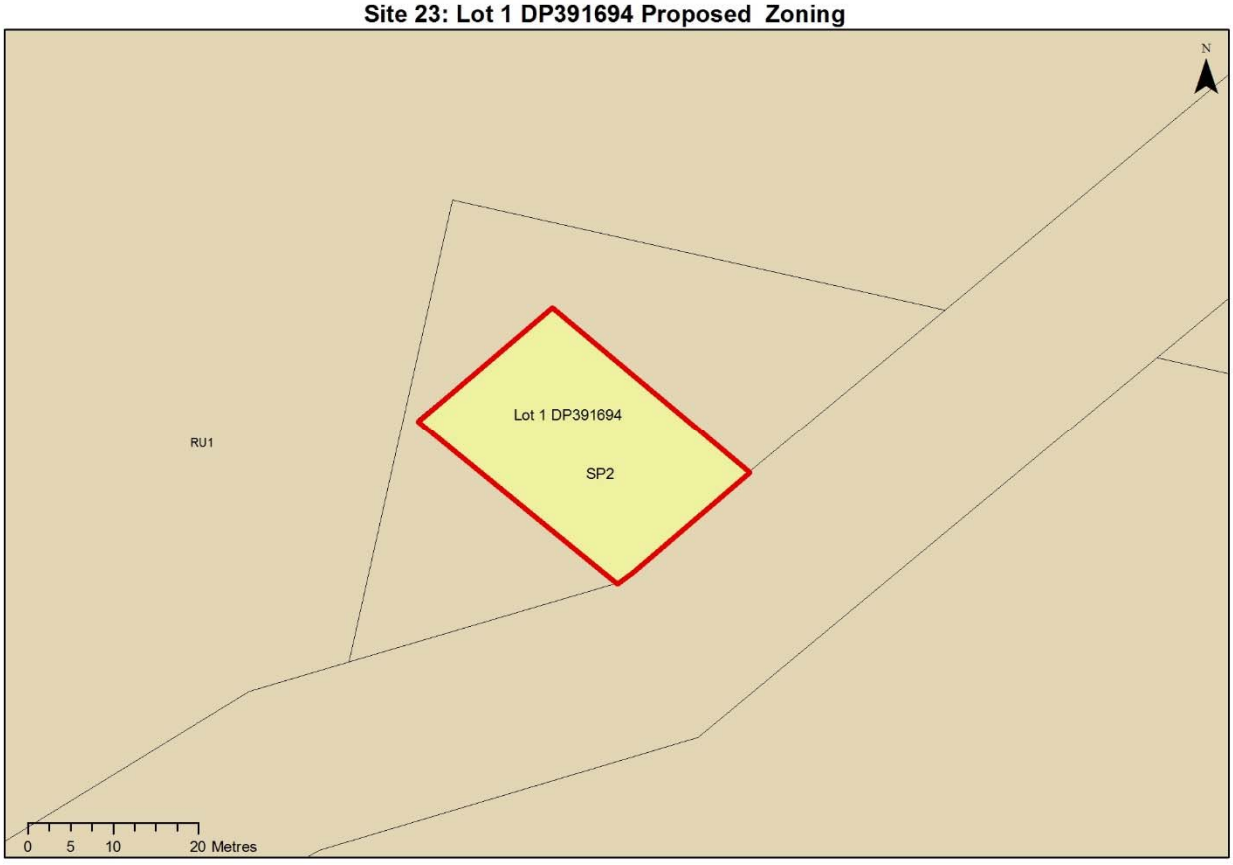

6. Part 5 – Community Consultation

The Gateway Determination will confirm community consultation requirements. It is likely that the Proposal will be exhibited as a 'low' impact proposal for a period of not less than 14 days in accordance with Section 5.5.2 of *A Guide to Preparing LEP's.*

Public exhibition of the Planning Proposal will include notification on the BVSC website, notification in the newspapers that circulate widely in the area (Merimbula News Weekly, Eden Magnet and Bega District News) and in writing to affected and adjoining landowners.

Information relating to the Planning Proposal will also be on display at the following BVSC customer service centres:

Place	Address
Bega	Zingel Place, Bega NSW 2551
Merimbula	Market St, Merimbula NSW 2548
Eden	Cnr Imlay and Mitchell St, Eden NSW 2550
Bermagui	Bunga St, Bermagui NSW 2546

7. Part 6 – Project Timeline

The Project timeline will assist with tracking the progress of the Planning Proposal through the various stages of consultation and approval. It is estimated that this amendment to *Bega Valley Local Environmental Plan 2013* will be completed by April 2021.

Council requests delegation to carry out certain plan-making functions in relation to this proposal. Delegation would be exercised by Council's General Manager or Group Manager Planning and Environment.

Key Stages of Consultation and Approval	Estimated Timeframe
STAGE 1 – Submit Planning Proposal to the Department	June 2019
STAGE 2 – Receive Gateway Determination	July 2020
STAGE 3 – Preparation of documentation for Public Exhibition	September 2020
STAGE 4 – Public Exhibition of the Planning Proposal (28 days)	October 2020
STAGE 5 – Review / consideration of submissions received	November 2020
STAGE 6 – Council Report	December 2020
STAGE 7 – Date of submission to the Department to finalise the LEP	February 2021
STAGE 8 – Date Council will make the Plan (if delegated), including any required consultation with the Parliamentary Counsel	March 2021
STAGE 9 – Anticipated date Council will forward Plan to the Department for notification.	April 2021

8. References

Bega Valley Shire Council (2013) “Bega Valley Local Environmental Plan 2013”

Bega Valley Shire Council (August 2008) “Bega Valley Land Use Planning Strategy”

Bega Valley Shire Council (2014) “Bega Valley Water Supply and Sewerage Strategic Business Plan”

Department of Planning (2010) “LEP Practice Note – Zoning for Infrastructure in LEPs”

Department of Planning and Environment (August 2016) “A Guide to Preparing Local Environmental Plans”

Department of Planning and Environment (August 2016) “A Guide to Preparing Planning Proposals”

Department of Planning and Environment (2006) “South Coast Regional Strategy 2006 – 31”

NGH Environmental (June 2019). “Environmental Constraints Assessment - Bega Local Environmental Plan Amendment”

Appendix A Environmental Site Constraints – NGH Environmental Pty Ltd

NSW GOVERNMENT | Public Works Advisory

Environmental Constraints Assessment

BEGA LOCAL ENVIRONMENTAL PLAN AMENDMENT

JUNE 2019

ngh environmental

Document Verification

Project Title: Environmental Constraints Assessment

Bega Local Environmental Plan Amendment

Project Number:	19-239
Project File Name:	19-239 Bega LEP constraints Final v1.1

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Draft v1	25/06/19	T Hastings, E Larsen Bronwyn Partell, Ingrid Cook	Brooke Marshall	Brooke Marshall
Final v1.1	15/07/19	T Hastings, Bronwyn Partell, Ingrid Cook	Brooke Marshall & Matthew Barber	Brooke Marshall & Matthew Barber

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CONTENTS

FIGURES

TABLES

ACRONYMS AND ABBREVIATIONS

AHIMS	Aboriginal heritage information management system
ACHA	Aboriginal Cultural Heritage Assessment
AHD	Australian Heritage Database
Burra Charter	Refers to The Burra Charter prepared by Australia ICOMOS
BV	Biodiversity Values, as mapped by the Office of Environment and Heritage
BVSC	Bega Valley Shire Council
CHL	Commonwealth Heritage List
Cwth	Commonwealth
DPI	Department of Primary Industries (NSW)
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cwth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
FM Act	*Fisheries Management Act 1994* (NSW)
ha	hectares
Heritage Act	*Heritage Act 1977* (NSW)
ICOMOS	International Council on Monuments and Sites
SEPP	*State Environmental Planning Policy (Infrastructure) 2007* (NSW)
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
MNES	Matters of National environmental significance under the EPBC Act (*c.f.*)
NGH	NGH Environmental Pty Ltd
NHL	National Heritage List
Noxious Weeds Act	*Noxious Weeds Act 1993* (NSW)
NPW Act	*National Parks And Wildlife Act 1974* (NSW)
NSW	New South Wales
NV Act	*Native Vegetation Act 2003* (NSW)

OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PCT	Plant Community Type
REF	Review of Environmental Factors
REP	Regional Environmental Plan
SEPP	State Environmental Planning Policy (NSW)
SHR	State Heritage Register
SIS	Species Impact Statement
sp/spp	Species/multiple species
STP	Sewerage Treatment Plan
RNE	Register of the National Estate
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHL	World Heritage List
WTP	Water Treatment Plant

1 INTRODUCTION

1.1 BACKGROUND

It is understood that Bega Valley Shire Council (BVSC) plans to amend the Bega Local Environmental Plan (LEP) by spot-rezoning 23 parcels of land in the Bega Valley local government area. The sites would be well located to extend municipal service infrastructure. The Public Works Advisory (PWA) has been engaged by BVSC to prepare a proposal to support a submission to the NSW Department of Planning and Environment to carry out the spot-rezoning.

This assessment aims to inform the planning proposal document by providing preliminary environmental constraints advice, regarding the development of infrastructure on each of these 23 land parcels.

1.2 SCOPE OF THIS ASSESSMENT

The objective of the environmental constraints assessment is to highlight constraints associated with areas of biodiversity and Aboriginal or historic heritage sensitivity, to assess the compatibility of the land with the proposed rezoning of the land parcels for the provision of future water and sewer infrastructure.

It has been informed by desktop and limited field inspections of specific sites. It includes mapping of key constraints identified at each site and explanatory text to:

1. Understand the specific constraints identified for each site
2. Rank the suitability of each site, in terms of the constraints to development identified.

1.3 STUDY AREA

The study area is defined as 23 discrete sites. Using GIS, the cadastre layer was used to delineate each lot boundary. This was the investigation area at each site. The site identification codes, site names and lots numbers are shown on Table 1 (below). Figure 1 provides an overview map of their locations.

Table 1-1: Title numbers of the proposed spot rezoning land parcels

Site number	Asset	Land Parcel title number
1	Bega STP	9//DP804885
2	Bega SPS9	21//DP1214150
3	Land Adjacent Bega STP	13//DP813625
4	North Bega Reservoir	31//DP1209807
5	Future Bega WTP	297//DP728021
6	Bemboka WTP/RWPS	W//DP392614
7	Bemboka WTP	12//DP1093627
8	Bermagui SPS9	86//DP831143
9	Bermagui SPS7	306//DP735144
10	Bermagui SPS8	51//DP834169
11	Brogo River RWPS	11//DP735675
12	Future Brogo WTP	12//DP1110585

Site number	Asset	Land Parcel title number
13	Eden SPS7	31//DP703279
14	Palestine PS	1//DP606678
15	Eden SPS4	1//DP623694
16	Kalaru Standby PS	1//DP249826
17	Kiah Bore No 8	4//DP570278
18	Kiah Borefields	231//DP1076252
19	Kiah Bore No 10	5//DP259732
20	Merimbula SPS3	2//DP221261
21	Merimbula SPS18	100//DP1192435
22	Berambool Reservoir	83//DP739561
23	South Wolumla Reservoir	1//DP391694

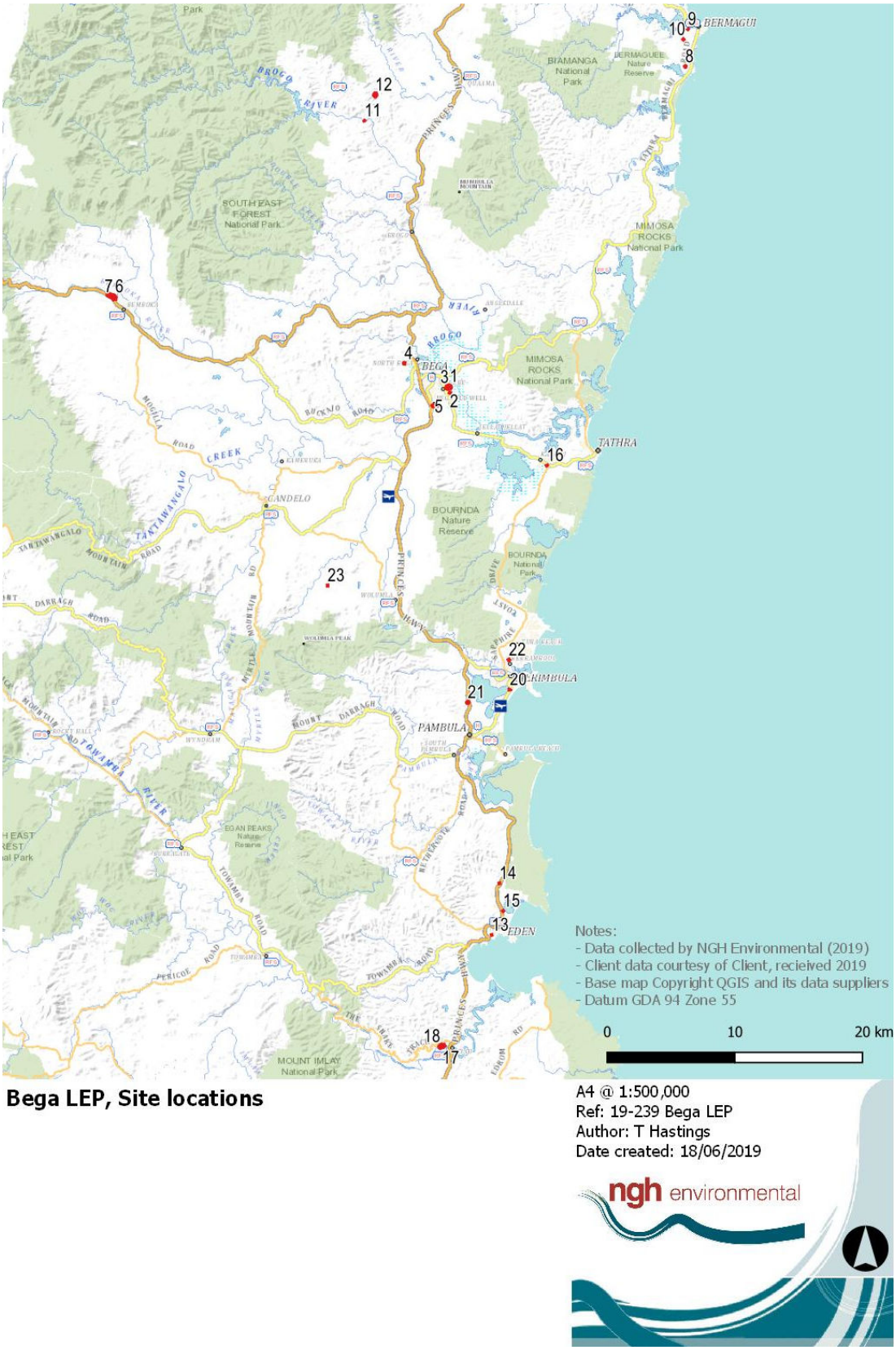

Figure 1-1; Map showing site locations

2 APPROACH AND METHODS

2.1.1 Legislative review

A review of legislation was performed to identify laws relevant to developing or rezoning the Bega LEP sites. This is presented in Section 3.1.

2.1.2 Database searches

Biodiversity and heritage searches were undertaken as follows:

AHIMS

AHIMS searches were undertaken for each site and its surrounds. Basic searches were first performed, and the search parameters for each site were adjusted to produce as many results as possible; generally 80 to 100 results per search. Once a satisfactory search area was established, an extensive search was completed.

The resulting data was compiled on a spreadsheet and manipulated to form a single table that could be mapped in the GIS to understand the proximity of records to the study areas.

Literature review

Reports prepared for the Bega Valley Shire Council that were undertaken or held by NGH Environmental and that were of relevance to the sites were accessed. Thirteen reports were accessed, spanning from 2014 to 2018, of which five had direct relevance to the sites. These are summarised in Section 4.2 and cited in full in References.

Relevant information regarding native vegetation and heritage constraints were noted in 7Appendix A.

2.1.3 Biodiversity field inspection

Where desktop information was not sufficient to inform the biodiversity constraint level, a field inspection was undertaken. 10 sites were inspected by a senior ecologist. The following information/data was collected:

- Plant species (stratified into top canopy, middle, and ground cover species layers). Using this information, the PCTs were identified, where possible.
- The condition/habitat quality, including negative human, impacts such as weeds, intense fire, and feral animals.

The presence of significant habitat features were also considered for these sites, including:

- Senescent trees with visible hollows;
- Mature trees with potential hollows;
- Dead and fallen timber with hollows, coarse woody debris;
- Waterways, soaks and pools;
- Scats, tracks, runways and nesting habitat for wildlife, including;
    - Feed trees of the Glossy Black Cockatoo (*Calyptorhynchus lathami*)
    - Yellow-bellied Glider (*Petaurus australis*) feed and den trees
    - Potoroo/bandicoot diggings
    - Rocky outcrops that could provide reptile habitat

- Spotted-tail Quoll (*Dasyurus maculatus*) scats/latrine sites
- Owl roosts and nests (pellet/whitewash search)
- Stick nests and dreys

No targeted searches for threatened flora and fauna species were carried out as part of this field survey.

2.1.4 Constraints analysis

Constraints, with reference to Biodiversity and heritage, are defined as follows in this report:

Constraint categories

HIGH CONSTRAINT

High constraint areas contains important values, would require more detailed assessment of any proposed development. This land should be considered for avoidance of development impacts where possible.

- The biodiversity values considered include; threatened ecological communities (listed under the Biodiversity Conservation Act 2016 (NSW), endangered ecological communities (listed under the Environment Protection Biodiversity Conservation Act 1999 (C'th), threatened species habitat, threatened flora records, biodiversity values mapping, proximity to wetlands, mapped fish habitat and mapped groundwater ecosystems.
- High level heritage constraints sites cover areas that are of a high archaeological sensitivity, based on predictive modelling and past research results with little to no prior ground disturbances.

MODERATE CONSTRAINT

Moderate constraint areas contain some level of values, may require more detailed assessment of any proposed development.

- Biodiversity values considered include presence of native flora, proximity to waterways, mapped threatened and endangered communities, and mapped groundwater ecosystems. These were not considered high constraint due to site degradation.
- Moderate level heritage constraints sites cover areas that are moderate archaeological sensitivity based on predictive modelling and past research results; or high archaeological sensitivity based on predictive modelling but have faced significant levels of prior ground disturbance to half or less of the area.

LOW CONSTRAINT

Low constraint areas contain limited values, detailed assessment of any proposed development unlikely to be required. This land is most suited to development.

- Low level biodiversity constraints include areas that are highly disturbed / modified and no longer retain important habitat values. Exotic vegetation or highly maintained native pastures were assessed as low constraints.
- Low level heritage constraints sites cover areas that are; moderate to high archaeological sensitivity based on predictive modelling and past research results but have faced significant prior ground disturbance that has reduced the likelihood for heritage sites to

occur; or low archaeological sensitivity based on predictive modelling and past research results.

Constraints evaluation

Based on the desktop and limited field inspections of specific sites:

1. A detailed Constraints Summary table was used to summarise the key features and their level of constraint (Appendix A).
    a. For biodiversity: this is informed by a field inspection where required.
    b. For heritage: a predictive model based on past research results was defined and an assessment of the landscape, archaeological sensitivity and prior ground disturbance at each site was undertaken.
2. A discussion of key constraints and opportunities was prepared with input from heritage and ecology specialists (Section 5).
3. Key constraints were mapped for each site (Appendix B).

2.1.5 Limitations

This high level constraints assessment has the following limitations:

- This report relies heavily on existing data base records. Database searches are based on survey work undertaken to date and do not infer that additional species / heritage artefacts or values are not present in an area. Targeted surveys and consultation are required to obtain this certainty.
- Biodiversity field surveys were undertaken at only a limited number of sites to obtain confidence in the broad biodiversity constraints ratings. Follow up surveys for moderate biodiversity constraint sites, may down grade this constraint classification.

3 LEGISLATIVE REVIEW

3.1 NSW

3.1.1 Environmental Planning and Assessment Act 1979

Development in NSW is subject to the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations and planning instruments. Part 3 of the Act, at section 3.14, (3A) includes provisions for any zoning of land, and at (4) authorising the Council (or other person or body) to determine the trees or other vegetation included or excluded from the relevant provisions. Developments requiring consent under a planning instrument are assessed under Part 4 of the Act. Development by the crown (such as undertaken by public authorities) is assessed under Part 5 of the Act.

3.1.2 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* repeals the *Threatened Species Conservation Act 1995*, the *Nature Conservation Trust Act 2001* and the animal and plant provisions of the *National Parks and Wildlife Act*

1974. The purpose of the Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community consistent with the principles of the ecological sustainable development.

The Act establishes a new regulatory framework for assessing and offsetting the biodiversity impacts of proposed developments and activities. It contains provisions relating to flora and fauna protection, threatened species and ecological communities listing and assessment, a Biodiversity Offsets Scheme (BOS), a single Biodiversity Assessment Method (BAM), calculation and retirement of biodiversity credits and biodiversity assessment and planning approvals. The Act is supported by the Biodiversity Conservation Regulation 2017.

Species and communities listed under the BC Act were considered in assigning constraints.

Part 5 assessments under the Environmental Planning and Assessment Act 1979 are not required to utilise the BOS unless a significant impact is anticipated. In these cases a Biodiversity Development Assessment Report or Species Impact Statement must be prepared. Biodiversity offsets liabilities can be very large and should be aimed to be minimised early in the planning process, by avoiding high constraint lands.

3.1.3 Biosecurity Act 2015

Schedule 1 of the *Biosecurity Act 2015* (NSW) imposes obligations to control weeds on land managers. Priority weeds for the South East, including the Bega Valley (DPI 2019), are listed in Appendix C.

3.1.4 Heritage Act 1977

This Act aims to conserve heritage values. The Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts listed in the Local or State Heritage Significance. A property is a heritage item if it is listed in the heritage schedule of the local Council's Local Environmental Plan or listed on the State Heritage Register, a register of places and items of particular importance to the people of NSW. A permit under the Heritage Act would be required if impacts are proposed to heritage items.

3.1.5 National Parks and Wildlife Act 1974

The Act establishes the National Parks and Wildlife Service, and provides for the protection, regulation and management of native wildlife (excluding fish). All fauna is deemed to be 'protected' under the Act unless included on Schedule 11 (which lists introduced species).

Sections 84 and 90 of the Act (as amended) provide statutory protection for any physical/material evidence of Aboriginal occupation of NSW and places of cultural significance to the Aboriginal community. The implementation of the Aboriginal heritage provisions of the NPWS Act is the responsibility of the NSW Office of Environment and Heritage (OEH). It is an offence to knowingly disturb an Aboriginal object, irrespective of its nature or significance, without the prior written consent of the Director-General of the Office of Environment and Heritage.

The Act defines an Aboriginal 'object' as:

> *"any deposit, object or material evidence (not being a handicraft for sale) relating to indigenous and non-European habitation of the area that comprises New South Wales, being habitation before or concurrent with the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains."*

3.1.6 Other NSW instruments

Other NSW instruments that may have relevance, depending on the nature of the development and its scale, include:

- State Environmental Planning Policy (State and Regional Development) 2011 (NSW)
- State Environmental Planning Policy (Infrastructure SEPP) 2007 (NSW)
- State Environmental Planning Policy 44 (Koala Habitat Protection) 2016 (NSW)

3.2 COMMONWEALTH

3.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of the Environment and Energy (DEE). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minster.

The Constraints Summary table in Appendix A lists species or communities which are covered by the EPBC Act that have been recorded on or near to each site.

3.3 HISTORIC HERITAGE LEGISLATIVE CONTEXT

The historic heritage constraints analysis associated with each site has been completed based upon information available in heritage registers and lists administered by both statutory and non-statutory bodies. Places of heritage value can be subject to different levels of recognition and protection. This protection (at local, state and national levels) includes specific measures for the protection of heritage items. The text below provides a summary of the legislative framework at each level of government.

3.3.1 Environmental Protection and Biodiversity Conservation Act 1999 (Cwth)

The EPBC Act provides a legal framework for the protection and management of places of national environmental significance. The heritage lists addressed by the EPBC Act include the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List (WHL), National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

All WHL properties in Australia are protected and managed under the EPBC Act. The NHL protects places that have outstanding value to the nation. The CHL protects items and places owned or managed by Commonwealth Government agencies. The Commonwealth Department of Environment is responsible for the implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage and to promote Australian arts and culture. The Minister's approval is required for controlled actions which would have a significant impact on items and places included on the WHL, NHL or CHL.

The Australian Heritage Database (AHD) includes the National Heritage List, which includes the natural, historic and indigenous places that are of outstanding national heritage value to the Australian nation. The AHD also contains the Commonwealth Heritage List, which comprises those places on Commonwealth lands and waters, or under Australian Government control which possess heritage value. Items on both of

these lists are protected under the EPBC Act. The AHD also includes places listed as World Heritage value by UNESCO.

References to the Register of the National Estate (RNE) were removed from the EPBC Act in 2012. The RNE is no longer a statutory list but remains an archive of information about more than 13,000 places throughout Australia.

There are no items listed within 1km of the subject sites and none include Commonwealth land. As such, there are no EPBC considerations which apply to this constraints analysis.

3.3.2 Heritage Act 1977 (NSW)

State Heritage Register

Natural, cultural and built heritage is protected in NSW under the *Heritage Act* 1977 (The Act). The Act is administered by the Heritage Division, a State government agency currently within the Office of Environment and Heritage, Department of Planning and Environment.

The Act creates the State Heritage Register (SHR) which provides permanent protection for a State significant heritage item or place. Items of State heritage significance are defined as a place, building, work, relic, moveable object or precinct which is of historical, scientific, cultural, social, archaeological or natural significance to the State (Section 4A(1) of the Act). The effect of SHR listing is that a person cannot damage, destroy, alter or move an item, building or land without approval from the Heritage Council.

The Heritage Council of NSW, constituted under the *Heritage Act 1977*, is appointed by the Minister for Heritage (currently the Minister for Energy and Environment) and is responsible for heritage in NSW. The Council reflects a cross-section of community, government and conservation expertise with the Heritage Division being the operational arm of the Council.

The 2001 NSW Heritage Manual Update, published by the NSW Heritage Office (now the 'Heritage Division') provides guidelines for 'Assessing Heritage Significance'. The Manual includes specific criteria for assessing heritage significance and the significance assessment within this report has been completed in accordance with these guidelines.

When items are listed on the State Heritage Register (SHR) applications to carry out works on those items need to be made to the Heritage Council under Section 60 of the Act.

State Agency Heritage Registers

Under Section 170 of the Heritage Act, State agencies and authorities in NSW are required to keep a register of heritage places for which they are responsible. These registers are referred to as 's.170 registers' and are also held in the NSW Heritage Division's (OEH) State Heritage Inventory (SHI), an electronic database of statutory listed heritage items in NSW.

While there are listings held on the s.170 register within the region of the subject sites, there are no listings within 1km of any of these locations. It has been assessed that there is no potential impact to s.170 registered sites across any of the 23 BVSC site locations.

3.3.3 Environmental Planning & Assessment Act 1979 (NSW)

The *Environmental Planning & Assessment Act 1979* (EP&A Act) controls land use planning in NSW. The planning system established by the EP&A Act requires that local authorities prepare an LEP and associated DCP under Part 3. These planning instruments include provisions relating to the management and protection of heritage and in particular, the LEP contains a schedule of all known heritage items within an LGA which are subject to these protections. Heritage items are added to the heritage schedule of a LEP often following identification and assessment from a local shire heritage study. The SHI also holds local heritage items listed by local councils in NSW. These items are then given protection by the heritage provisions within the relevant plan, which will then require consent of Council for certain developments.

3.3.4 Bega Valley Local Environmental Plan 2013 (NSW)

The BVSC LEP (2013) stipulates a provision for heritage conservation under Part 5 clause 10. Clause 5.10 refers to the protection of historic heritage items, and more specifically development within the vicinity of these.

Clause 5.10 Heritage conservation:

Note. Heritage items (if any) are listed and described in Schedule 5. Heritage conservation areas (if any) are shown on the Heritage Map as well as being described in Schedule 5.

(1) **Objectives** The objectives of this clause are as follows:

(a) to conserve the environmental heritage of Bega Valley,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

(2) **Requirement for consent** Development consent is required for any of the following:

(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):

(i) a heritage item,

(ii) an Aboriginal object,

(iii) a building, work, relic or tree within a heritage conservation area,

(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,

(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,

(d) disturbing or excavating an Aboriginal place of heritage significance,

(e) erecting a building on land:

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,

(f) subdividing land:

(i) on which a heritage item is located or that is within a heritage conservation area, or

(ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.

(3) **When consent not required** However, development consent under this clause is not required if:

(a) the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development:

(i) is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and

(ii) would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or

(b) the development is in a cemetery or burial ground and the proposed development:

(i) is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and

(ii) would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or

(c) the development is limited to the removal of a tree or other vegetation that the Council is satisfied is a risk to human life or property, or

(d) the development is exempt development.

(4) **Effect of proposed development on heritage significance** The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the proposed development on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6).

(5) **Heritage assessment** The consent authority may, before granting consent to any development:

(a) on land on which a heritage item is located, or

(b) on land that is within a heritage conservation area, or

(c) on land that is within the vicinity of land referred to in paragraph (a) or (b), require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.

(6) **Heritage conservation management plans** The consent authority may require, after considering the heritage significance of a heritage item and the extent of change proposed to it, the submission of a heritage conservation management plan before granting consent under this clause.

(7) **Archaeological sites** The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the *Heritage Act 1977* applies):

(a) notify the Heritage Council of its intention to grant consent, and

(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.

3.3.5 The Burra Charter

The Australia ICOMOS (International Council on Monuments and Site) Charter for the conservation of places of cultural significance (the Burra Charter) (current edition 2013) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians. The Charter is not a statutory document, but does provide specific guidance for physical and procedural actions that should occur in relation to significant places. A copy of the charter can be accessed at http://icomos.org/australia. This assessment has been prepared in accordance with the Burra Charter.

An appreciation of landscape is highlighted in the 1999 revision of the Burra Charter of Australia ICOMOS, placing greater emphasis on 'setting'. Article 8 of the Burra Charter now reads:

"*Conservation* requires the retention of an appropriate visual *setting* and other relationships that contribute to the *cultural significance* of the *place*. New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate".

4 RESULTS

4.1 DATABASE SEARCHES

The results of the data base searches have been summarised in Appendix A, with a column providing the results of each search specific to the 23 sites considered. The exception is items listed on the State and Commonwealth Heritage Registers, of which none found at any of the sites.

In summary:

- Aboriginal artefacts have been recorded at 0 sites.
- Threatened species have been recorded at 0 sites. The Green and Golden Bell Frog, *Litoria aurea,* was considered to have the potential to occur at 1 site (Kiah).
- Native vegetation was identified as likely to occur on 17 of the 23 sites.
- Native vegetation they may qualify as TEC was identified as likely to occur on 3 of the 17 sites.
- Biodiversity Values mapping was relevant to 4 sites.
- Items listed on State or Commonwealth Heritage Register occurred at 0 sites.

4.2 LITERATURE REVIEW (BIODIVERSITY AND HERITAGE)

Five reports found to be directly relevant to the Bega LEP sites accessed, spanning from 2014 – 2018. Information relevant to sites 6, 7, 11, 12, 17, 18, 19 and 20 was identified and is set out below and incorporated where relevant into the in the Constraints Summary table, Appendix A.

4.2.1 Sites 6 & 7 Lot 12, Bemboka

Bemboka sites were partially assessed by NGH previously (2016, 2018). These ecological surveys found 1 Brushtail Possum and 1 microbat, and no expectation of significant impacts on listed species (NGH 2018). An area of "endangered ecological community – moderate to good condition" was identified, and classified as Lowland Grassy Woodland (NGH 2016). This occurred at the eastern end of Lot 12, DP392614, and did not occur within Lot W, DP392614.

4.2.2 Sites 11 & 12, Brogo

The values of sites 11, Brogo River RWPS, Lot 11, DP735675, and 12 Future Brogo WTP, Lot 12, DP1110585, are included in a report NGH (January 2005) *Installation of a High Voltage Electricity Supply on the Brogo-Bermagui Water Supply Route*.

At poles 11 and 12, in the proximity of LEP site 11, there is reference to dense tea-tree, young black wattle and one dead peppermint. While no targeted surveys were performed, no listed species were found or anticipated to occur. The threatened ecological community of Bega Dry Grass Forest was identified nearby, approximately 330m north-north-east of the site. At pole 1, inside LEP site 12, the report notes several mature white stringybarks, none of which have hollows or high habitat value. No listed species or threatened communities were found at the site or anticipated to occur or be impacted.

The proposed route, including Bega LEP sites 11 and 12, were inspected in 2004 (NGH 2005), with no Aboriginal sites found, and advice provided that no further actions were necessary with regard to Aboriginal heritage, unless Aboriginal materials surfaced during the works. Bega Local Aboriginal Land Council representatives requested further involvement if upgrade of the facility occurs, in order to thoroughly assess the area surrounding the balance tank (BBT1) for artefacts.

Site 12 is specifically assessed within EcoLogical (2017) *Flora and Fauna Assessment, Brogo Bermagui Water Treatment Plant,* prepared for NSW Public Works. The survey identified the threatened flora community of Brogo Wet Vine Forest, which occupies the treed areas on the south-west end of the site. Species of regional conservation significance detected were Speargrass, *Austrostipa scabra* subsp *scabra,* and Golden Mistletoe, *Notothixos* subaureus. The remainder of the site was dominated by exotic plants and high-threat weeds. No threatened fauna were detected, and none were expected to occur.

4.2.3 Sites 17, 18 & 19, Kiah

The Kiah Borefield was the subject of a NGH 2006; *Kiah borefield: water extraction under a range of flow conditions, review of environmental factors*. This study described the Bega LEP sites 17, 18 and 19 as cleared, with exotic trees and weeds, with few eucalypts. This description was based from the river, and does not describe the northern edges of the sites. No rare or threatened species were found. The threatened fauna species; Green and Golden Bell Frog, *Litoria aurea,* was considered to have the potential to occur.

4.2.4 Site 20, Merimbula

Site 20, Merimbula SPS3 Lot 2, DP221261, is assessed in NGH (2017) *Review of environmental factors, Merimbula backup generator enclosure replacement*. The site is described as being highly disturbed, with planted native trees and exotic grasses. The site is considered to have some foraging value for birds, mostly its proximity to Merimbula Lake creating risk to fauna through any site works.

The soil on site was not considered to be natural, no Aboriginal site or places had been previously recorded. No heritage items were found to occur within or in close proximity to the works site.

Other factors noted as likely to constrain development in this location included that the site is in a highly visible, highly trafficked area, and just past the end of the airport runway, under the flightpath.

4.3 BIODIVERSITY FIELD INSPECTIONS

4.3.1 Site selection

Of the 23 land parcels, the following 10 were identified to require an on-site inspection by an ecologist to better inform biodiversity constraints:

- Site 4, North Bega Reservoir, Lot 31, DP1209807
- Site 6, Bemboka WTP/RWPS, Lot W, DP392614
- Site 7, Bemboka WTP, Lot 12, DP1093627
- Site 8, Bermagui SPS9, Lot 86, DP831143
- Site 9, Bermagui SPS7, Lot 306, DP735144
- Site 10, Bermagui SPS8, Lot 51, DP834169
- Site 17, Kiah Bore No 8, Lot 4, DP570278
- Site 18, Kiah Borefields, Lot 231, DP1076252
- Site 19, Kiah Bore No 10, Lot 5, DP259732
- Site 22, Berrambool Reservoir, Lot 83, DP739561

Information obtained from these inspections is set out below and used to determine the constraint level, as summarised in Appendix A.

4.3.2 Site 4, Bega

The site is dominated by introduced grasses, with some planted small trees and native shrubs (*Banksia spp)*. The land parcel is located in a cleared landscape used for cattle grazing. Ground cover is dominated by pasture grasses and African lovegrass (*Eragrostis curvula*). There are a number of paddock trees scattered in the landscape, including two mature *Angophora floribunda* and one mature *Eucalyptus tereticornis* within 10m of the parcel boundaries.

The lack of endemic native vegetation means that no PCT can be assigned; the site is classified as exotic dominated.

The site had low habitat quality, with no hollows or other features found. Three mature trees with potential hollows are located within 10m of the parcel boundaries.

No threatened or endangered species or ecological communities were detected or considered likely to occur on site.

4.3.3 Sites 6 & 7, Bemboka

The majority of these sites have been cleared, except for a few mature paddock trees, and a large part of it (>60%), is being used for active cattle grazing. The remainder consists of the industrial area occupied by the WTP, and the vegetated depression/creek line downhill and west of the WTP. The parcel drains into the Bemboka River, which runs along the parcel boundary to the north.

In and around the WTP, vegetation consists of closely mowed/slashed introduced grasses. Seven remaining mature paddock trees (*Angophora floribunda*) – some with visible hollows - are located around the WTP settling ponds (see GPS coordinates in notes).

In and adjacent to the creek line west of the WTP, vegetation consists of a variety of native grasses, pasture grasses, weeds (blackberry) and moisture tolerant sedges. Small patches of native grassland (dominated by *Themeda australis*) are found on either side of the creek line. The native grassland patches and the grove of remnant mature *Angophora floribunda* indicate that in its natural state, the ecological community on site would most probably be the EEC 'Lowland Grassy Woodland in the South East Corner Bioregion'. However, the vegetation community is now much modified by grazing and invasion of pasture grasses and weeds.

The site has remnants of PCT834, Forest Red Gum - Rough-barked Apple - White Stringybark grassy woodlands on hills in dry valleys, southern South East Corner Bioregion.

The grazing paddock is dominated by African lovegrass (>80%) and other introduced pasture grasses. There is a running creek at the far western end of the paddock, with a few willows along its degraded banks (creek accessed by cattle). One mature *A. floribunda* with potential hollows sits on the western bank.

The eight mature paddock trees - some of them with visible hollows - have high habitat value and should be protected (see GPS coordinates in notes).

No individual threatened or endangered species were observed on site. There were indicative species, such as the *Angophora floribunda* and *Themeda australis,* of the listed EEC 'Lowland Grassy Woodland in the South East Corner Bioregion'.

Table 4-1: Trees found on site at Bemboka site, during field inspection

ID	DBH (m)	Location (GDA94, z55, E and N[1])	Species	Hollows	Waypoint
1	1.2	0729077, 5944283	*Angophora floribunda*	Visible	006
2	1.2	0729060, 5944285	*Angophora floribunda*	Spouts	007
3	1.0	0729066, 5944277	*Angophora floribunda*	Spouts	008
4	0.7	0729067, 5944257	*Angophora floribunda*	None	009
5	0.7	0729062, 5944225	*Angophora floribunda*	Spouts	010
6	1.0	0729048, 5944205	*Angophora floribunda*	Large hollow, spouts	011

[1] Eastings and Northings.

7	1.0	0729024, 5944209	*Angophora floribunda*	None	013
8	1.2	0728547, 5944528	*Angophora floribunda*	None	015

4.3.4 Site 9, Bermagui

No native vegetation was found within the lot boundaries. One mature tree (*E. maculata*) with potential hollows is located within 10m of the parcel boundaries.

The site is in close proximity (<10m) to wetland area to the south-east.

No threatened or endangered species or ecological communities were detected or considered likely to occur on site.

4.3.5 Site 10, Bermagui

The site is partially cleared, consisting mostly of mowed grass; Kikuyu. It is located next to residential housing and a golf course. To the north is a vegetated creek bed, and the edge of this creek bed is partly within the boundaries of the site. The vegetation on site consists of mowed grass in the cleared area, and common sedges, rushes, shrubs and small trees in the vegetated creek bed (*Pittosporum undulatum, Myoporum acuminatum, Acacia mearnsii, Pteridium esculentum, Typha dominigensis*). Canopy trees are absent in the location, except for one notable mature *E. baueriana* (DBH >1.2m), situated just outside the parcel boundary to the east.

No threatened or endangered species or ecological communities were detected or considered likely to occur on site. The absence of native grass and overstorey trees means that the site does not meet the any EEC definitions.

The lack of endemic native vegetation means that no PCT can be assigned; the site is classified as exotic.

No significant habitat features were recorded within the site boundaries.

4.3.6 Site 8, Bermagui

This is a cleared site in a rural-residential area, consisting mostly of mowed grass and planted introduced small trees (*Pinus sp*) and shrubs. A small mound (dam wall) within the boundary of the parcel is heavily infested by blackberry.

The lack of endemic native vegetation means that no PCT can be assigned; the site is classified as exotic. No threatened or endangered species or ecological communities were detected or considered likely to occur on site.

4.3.7 Site 16, Kalaru

The site is mostly cleared, with the following species occurring along the fence link; *Eucalyptus botryoides, Allocasuarina littoralis, Acacia mearnsii, Pittosporum revolutum, Pittosporum undulatum.* These species do not indicate the prevalent PCT; the area around the site is PCT828 Floodplain wetlands of the coastal lowlands, southern South East Corner Bioregion.

No threatened or endangered species or ecological communities were detected or considered likely to occur on site.

4.3.8 Site 17 & 19, Kiah

These two sites consists entirely of introduced grasses, mostly Kikuyu, *Pennisetum clandestinum*. The lack of endemic native vegetation means that no PCT can be assigned; the site is classified as exotic dominated. No threatened or endangered species or ecological communities were detected or considered likely to occur on site.

4.3.9 Site 18; Kiah Borefields (Lot 231, DP107652)

This larger site encompasses the two smaller lots listed above, and consists of three separate sections (western, middle, eastern).

WESTERN SECTION

The western section is dominated by introduced grasses (mowed, slashed, fenced paddocks grazed by horses). There are some mature canopy trees (DBH approx. 50-80cm) remain along the boundaries to the west (housing block) and north (hillside with open dry sclerophyll forest), including *Eucalyptus elata, E. bosistoana, E. muellerana,* and – downslope - *E. cypellocarpa.* The understorey has largely been removed and ground cover (*Pteridium esculentum, Dichondra repens, Senecio linearifolius*) is kept low by slashing. The introduced weed Periwinkle (*Vinca major*) is widespread in lower, moister sections.

The PCT is likely to be PCT1149 Silvertop Ash - Blue-leaved Stringybark shrubby open forest on hinterland hills, far southern South East Corner Bioregion. Not enough species occurred on site to confirm this classification.

MIDDLE SECTION

Introduced grasses only (mowed grass) occur in this section; this area is classified as exotic vegetation.

EASTERN SECTION (AND THE VERY SMALL NORTHERN PARCEL)

This section consists of mowed grassed areas and densely vegetated drainage lines and moist depressions draining south to the Kiah River. The mowed grassed areas occupy approximately 80% of the site. Overstorey species consist of a small grove (<10 stems, <10m tall) of moisture tolerant young Eucalypts (*E. baueriana, E. smithii, E. elata*). Ground cover is dominated by introduced grasses (mostly kikuyu), and - in wet areas - the native Common reed (*Phragmites australis*) and introduced weeds, mainly Periwinkle, Cape ivy (*Delairea odorata*) and Blackberry.

While the species present were insufficient to classify the site as a PCT, mapping (EcoLogical 2014) indicates that adjacent is PCT1108 River Peppermint - Rough-barked Apple - River Oak herb/grass riparian forest of coastal lowlands, southern Sydney Basin Bioregion and South East Corner Bioregion, which also forms the TEC: River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Equivalent). A detailed flora study would be required to confirm whether this TEC occurs on the site.

The densely vegetated drainage lines provide refuge, foraging areas and nesting habitat for wetland dependent biota and for a range of small woodland birds. On the site visit, a family party of approx. 15

Superb fairy wrens (*Malurus cyaneus*) were observed on site. A large burrow in the open grassed area and many distinctive scats indicated the active presence of the Common wombat (*Vombatus ursinus*).

Invasive weeds, in particular periwinkle and Cape ivy are widespread in the unmown areas. Anecdotally, introduced deer were noted as common on site and this was confirmed by the large number of deer tracks. Illegal hunting has been reported on site.

4.3.10 Site 22, Merimbula

The site been cleared and consists of native regrowth (<5 years old). The parcel is located on the southern edge of a residential area ('Mirador'), with cleared housing blocks to the north, east and west. The forest cover to the south consists of a mixed open dry sclerophyll forest typical of the area, with the top canopy dominated by Red Bloodwood (*Corymbia gummifera*) and Silvertop Ash (*Eucalyptus sieberi*). Common species in the understorey are *Allocasuarina littoralis, Acacia longifolia, and Exocarpos cupressiformis.* Ground cover consists of common native shrubs and some weeds.

The PCT is mapped as PCT891 Ironbark - Woollybutt - White Stringybark open forest on coastal hills, South East Corner Bioregion, which is supported by the species found on site.

Two mature trees with potential hollows are located on the edge of the land parcel; one Red Ironbark (*Eucalyptus sideroxylon*) (DBH approx. 1.0m, GPS coord. #016) and one Woollybutt (*E. longifolia*) (DBH approx. 1.2m, GPS coord. #017). The mature Red Ironbark is notable – these are very rare in the locality, probably due to selective harvest for railway sleepers and bridge timber since European settlement.

No habitat features were recorded within the parcel boundaries. No threatened or endangered species or ecological communities were detected or considered likely to occur on site.

4.4 HISTORIC HERITAGE CONTEXT

A search of the study area and surrounds indicated only one place listed on the SHR was within 650 m of the 23 subject sites and therefore there are no foreseen heritage constraints associated with NSW state heritage items.

Table 4-2. Places listed under the NSW Heritage Act.

Item name	Location and proximity to the proposal site	SHR Listing ID
Courunga (Munn's Tower House, Pacific Heights (adjacent apartment complex))	Monaro Street, Merimbula – 650m north-west of site 20.	00235

Local Environmental Plan, 2002

The Bega Valley Shire Council LEP (2002) identifies and protects heritage conservation areas and listed buildings/items, identifies environmentally sensitive land, and prescribes land use practices. Heritage items (if any) are listed and described in Schedule 5. Heritage conservation areas are shown on the Heritage Map as well as being described in Schedule 5.

There are a large number of local heritage items in the Bega Valley area, five of which are located within 500 m of the subject sites, and one which is listed within subject site 23. The heritage items and subject sites are included in the maps attached in 7Appendix B.

Table 4-3. LEP listed heritage items within close proximity to the subject sites

Item name	Location and proximity to the proposal site	Listing ID
South Wolumla Butter Factory Complex	Lot 1, DP 1036239. Subject site 23 is located within the boundaries of this listing	I189
Old Bega Hospital (main building and outbuildings)	Lot 296, DP 728021. This local heritage item lies immediately adjacent to the south of subject site 6.	I009
Farmhill Homestead 'Clydebank'	Lot 137, DP 1125126 – 3120 Snowy Mountains Highway, Bemboka. This site is located within 250m west of subject site 7 and 850m west of subject site 6.	I109
Kenya Homestead	Lot 1, Section 1, DP 943 – 134 Loftus Street, Bemboka. This site is 100m south-east of subject site 7 and 350m south-east of subject site 6.	I119
Trolley Way, Miradoor Tramway and Pages Creek Dam	Lot 388, DP 1124839 – off Miradoor Drive, Merimbula. This site is immediately adjacent to the north of subject site 22.	I734
Orana House	Lot 1, DP 708174 – 34 Tathra Road, Bega. This listing lies within 150m south-west of subject site 1. There are multiple urban developments between the two areas and there is no foreseeable impact to this listing if works were to occur at subject site 1.	I015
House (former rectory)	Lot 61, DP 516828 – 26 Glebe Avenue. This listing lies within 250m west of subject site 1. There are multiple urban developments between the two areas and there is no foreseeable impact to this listing if works were to occur at subject site 1.	I022

4.5 ABORIGINAL HERITAGE CONTEXT

Aboriginal occupation of the Australian continent has been dated to at least 40,000 years at Lake Mungo in New South Wales (Bowler et al. 2003). This site, located in the semi-arid interior of Australia is also the earliest evidence of inland human occupation consequently, it is expected that coastal occupation occurred much earlier. Due to the change in water level roughly 6,000 years ago, there is a lack of evidence for Pleistocene occupation along the NSW South Coast, presumably due to these sites being currently under the water level. Three Pleistocene sites at Burrill Lake, Bass Point and Wallen Wallen Creek have been identified however, all three are problematically dated (Bowdler 2010). It is not until the mid-Holocene when sea levels reached their present level that we begin to see an increase in Aboriginal occupation of the region. The earliest carbon dates currently available for the region come from the 1970 archaeological excavations at the Burrill Lake rock shelter conducted by Lampert. As noted above, this date has proven problematic in terms of reliability, however it serves to provide loose evidence for the occupation of the South Coast during the Pleistocene.

The lower sea levels associated with the Pleistocene are suggested to have limited the intertidal zone due to the reduced area of submerged continental shelf (Lampert & Hughes 1974). This would have resulted in longer sandy beaches, fewer rocky expanses and smaller estuaries than present day. These changes would have severely limited the economic productivity of the shoreline during the Pleistocene, particularly during the Last Glacial Maximum, and consequently limited the human population (Lampert & Hughes 1974; Attenbrow 2004).

Australia's eastern coastline during the Last Glacial Maximum would have been cold, dry, sparsely vegetated and prone to dust storms (Bowdler 2010). This is in stark contrast to the well-watered, resource-

rich coasts and rivers of the Holocene period. Consequently, most archaeological sites identified in this region today represent more recent coastal occupation under present sea level conditions.

There has been extensive archaeological work undertaken along the south coast generally concentrated around Merimbula, Bournda, Widgeran and Bega.

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. It is to be noted that a register search is not conclusive, as it reflects only those areas that have been surveyed and that sites recorded are added to the register. As a starting point the search will indicate whether any sites are known within or adjacent to the investigation area. The Aboriginal Heritage Information Management System (AHIMS) is maintained by OEH and provides a database of Aboriginal heritage sites registered previously. The results of the search are able to be relied upon for 12 months for the purposes of a due diligence level assessment.

As this constraints analysis includes the consideration of 23 sites spread over the Bega Valley Shire Council area, all 23 sites have been spilt into (nine) groups based upon general landscape areas and proximity.

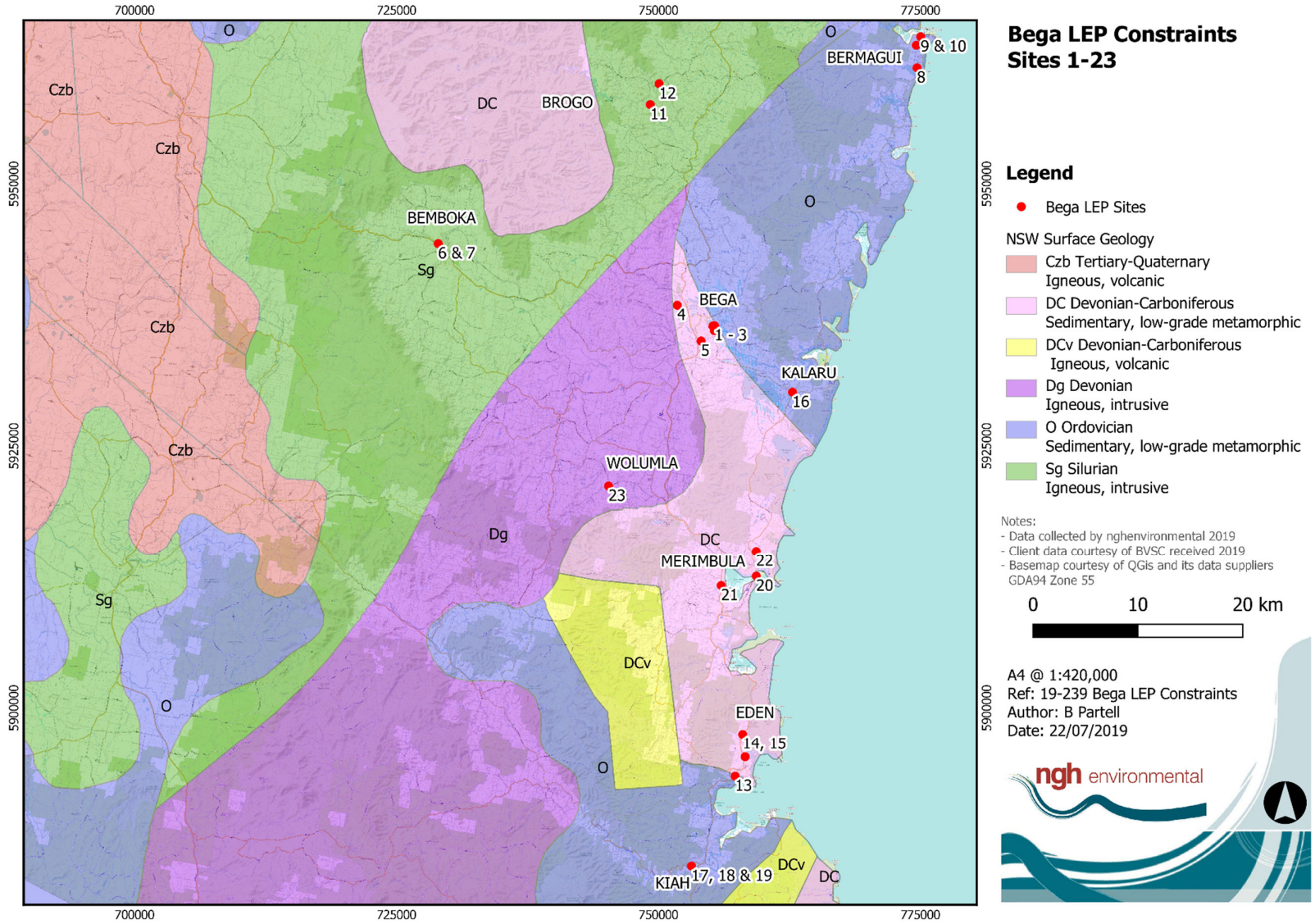

Figure 4-1 Geological Map of the BVSC area encompassing the 23 LEP sites for constraints analysis.

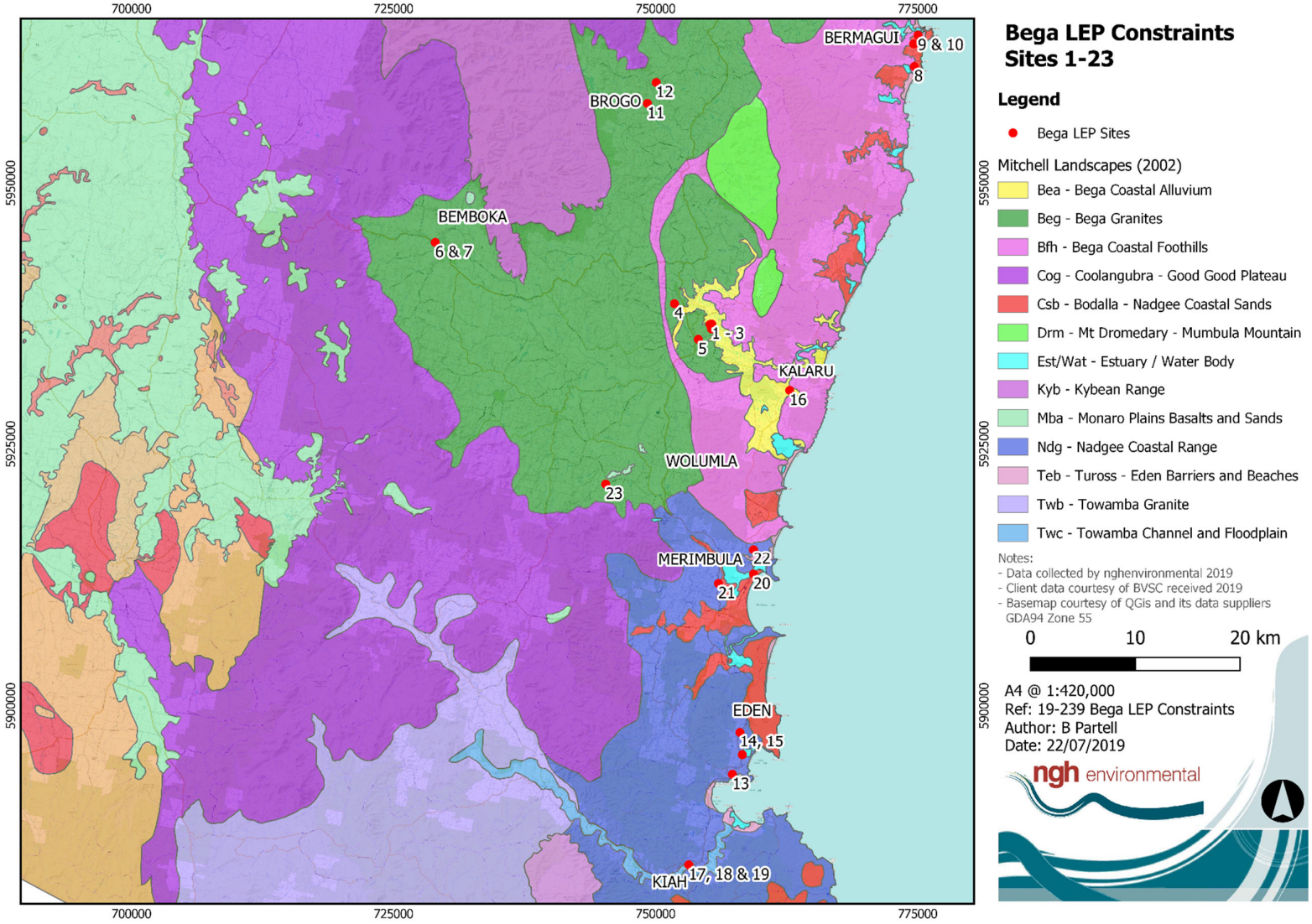

Figure 4-2 Mitchell Landscapes across the BVSC area, showing the 23 LEP sites for constraints analysis.

4.5.1 Sites 1, 2, 3, 4 & 5, Bega

AHIMS Register Search results

There were 74 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 4-4 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of sites 1, 2, 3, 4, or 5.

Table 4-4 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Potential Archaeological Deposit	40
Potential Archaeological Deposit and Artefact	9
Artefact	12
Scarred Tree	7
Bora / Ceremonial	6
TOTAL	**74**

Predictive Model

A number of studies have been undertaken in the Bega area from the 1980s. Based off of these assessments Dibden (2005) formed a predictive model for the area of Bega. Dibden suggested in coastal environments on the far south coast midden and stone artefact scatters were the most commonly recorded sites. Ceremonial places, human burials and scarred trees have also been recorded, albeit in lower numbers.

Open artefact scatters can be located either on the surface and/or in subsurface contexts, with the raw materials used for artefact manufacture will commonly be silcrete, quartz, chert and volcanics. Within the local area stone artefacts will be widely distributed across the landscape in a virtual continuum but will be greater near reliable sources of water (c. 100 metres of the highest order streams).

Landscape Assessment

Landscapes present within the area of Bega for locations 1, 2, 3, 4 and 5 as defined by Mitchell (2002) are outlined below and shown on figure 4-2.

Definition of Bega Granites Relevant to site locations 1, 2, 3, 4, and 5:

Depressed basin of rolling hills and wide sandy or swampy valleys with dendritic drainage below the Great Escarpment on a large batholith of Silurian-Devonian granite and granodiorite. Elevation 50 to 500m, local relief to 250m. Rounded tors and rock outcrop common near the granite margin where a metamorphic contact ridge with steep slopes is found. Coarse uniform sands on steep slopes grade to red and yellow gritty texture-contrast soils on the central hills and slopes and deep, dark organic sands in the swampy valley floors. Streams often incised and carry abundant coarse sand as bedload. Mostly cleared formerly open woodland with forest red gum (Eucalyptus tereticornis), rough-barked apple (Angophora floribunda) and grasses (Mitchell 2002:130).

Analysis of the Bega Granites area displays that the area includes branching waterways and drainage lines, with varied local relief including valleys and ridgelines. The surface geology of the Bega area is characterised as Devonian-Carboniferous sedimentary and low-grade metamorphics (lithic symbology DC, refer to figure 4-2). The existence of metamorphic rock in the region suggests the possibility of

stone tool manufacture. As the area has been mostly cleared from natural vegetation, the potential for culturally modified trees is reduced. As identified in the predictive modelling there is potential for stone artefacts to occur throughout the coastal hinterland environment in '*virtual continuum*', with a particularly high archaeological sensitivity within 100m of high order watercourses (such as the Bega River), landform features that occur throughout this landscape.

Definition of Bega Coastal Alluvium Relevant to site locations 1, 2 and 5:

Channel, floodplain and terraces of the widening alluvial valley of Quaternary alluvium of the Bega River from the coast to the base of the Great Escarpment. Elevation 0 to 200m. Extensive freshwater swamps and billabongs, stunted grey mangrove (Avicennia marina) at the mouths of estuaries. Small patches of temperate rainforest with sassafras (Doryphora sassafras) and lilly pilly (Acmena smithii) in gully heads and as a gallery forest along major streams in sheltered locations (Mitchell 2002:130).

Analysis of the Bega Costal Alluvium area displays that the area includes floodplains surrounding the Bega River. Numerous freshwater areas are present across the project area, with low local relief. Remains of native vegetation is concentrated along the major streams in the landscape. The predictive modelling is largely based on proximity to water, highlighting the archaeological sensitivity of this landscape.

4.5.2 Sites 6 & 7, Bemboka

AHIMS Register Search results

There were 95 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 2-2 below shows the breakdown of site types recorded.

Table 4-5 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	57
Isolated Artefact	36
Scarred Tree	2
TOTAL	**95**

There are no registered AHIMS sites located within 100m of sites 6 and 7.

Predictive Model

Archaeological studies of the area of Bemboka highlight that the area is relatively undulating, impacting on the predictive model for the area. It was noted by both Byrne (1983) and Byrne and Smith (1987) that sites will most likely be situated on low spurs within proximity to water and riverbeds on flat landforms such as saddles and along the spine of ridges.

Landscape Assessment

Landscapes present within the area of Bemboka:

The Mitchell Landscapes Definition of Bega Granites (Mitchell 2002, 130) is outlined in Section 4.5.1.

Analysis of the Bega Granites area displays that the area includes branching waterways and drainage lines, with varied local relief including valleys and ridgelines. The surface geology of the Bemboka area is characterised by Silurian igneous, intrusive granites (lithic symbology Sg, refer to figure 4-2). As the

area has been mostly cleared from natural vegetation, the potential for culturally modified trees is reduced to the remnant natural vegetation surrounding the Bemboka River. The predictive modelling for the region highlights areas of high archaeological sensitivity as the low spurs, saddles and flats within close proximity to watercourses and riverbeds, landforms identified within this landscape.

4.5.3 Sites 8, 9 & 10, Bermagui

AHIMS Register Search results

There were 74 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 2-3 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of sites 8 or 10. Site 9 has one registered AHIMS site, 62-7-0304 within 100m south of the location. This site is an artefact scatter featuring 13 stone artefacts. The site is located on a similar landform sloping towards the water, approximately 75m south on the opposing side of an unnamed non-perennial watercourse.

Table 4-6 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	21
Isolated Artefact	11
Scarred Tree	1
Midden	19
Water Hole / Well	1
Shelter with Deposit	1
Burial/s	1
Potential Archaeological Deposit + Shell / Artefacts	4
Restricted Access	3
TOTAL	**62**

Predictive Model

Within the Wallaga Lake lies the first Aboriginal Places to be gazetted in NSW under the National Parks and Wildlife Act 1974, Merrimans Island Aboriginal Place (the former Wallaga Lake Aboriginal Reserve; NPW Act Gazette number 145) . Owned by the Merrimans Local Aboriginal Land Council (LALC), the Wallaga Lake cemetery is just one site complex within a significant cultural landscape. Other significant sites in the area include the Wallaga Lake, Mount Dromedary, and the Bermagui Waterhole. Wallaga Lake (and its surrounding shores) is noted as a significant resource for the Yuin people, providing a constant source of traditional foods and medicine, with evidence from midden sites along the lake shore indicating at least 6,000 years of occupation (BVSC, 2006). The eastern shore of Wallaga Lake was identified as a sensitive and significant landscape to the Aboriginal culture, with multiple midden deposits occurring along the shoreline, however, all the midden deposits identified in this study have been described as being disturbed by urban development. Within the Bermagui area, known culturally significant sites include burials, stone arrangements, sacred or scarred trees, coroboree ground, burials, several midden sites and lithic deposits.

While there are no comprehensive predictive models regarding archaeological sensitivity in the Bermagui region, it is possible to ascertain that proximity to water sources, raw materials and traveling routes

between the coast and hinterlands in the area is a key factor in the location of Aboriginal sites. It is also reasonable to expect that Aboriginal people ventured away from these resources and transitional routes to utilise the broader landscape, but the current archaeological record of that activity is limited.

Landscape Assessment

Landscapes present within the area of Bermagui as described by Mitchell (2002) are outlined below and shown on figure 4-2.

The Mitchell Landscapes Definition of Tuross – Eden Barriers and Beaches Region (Mitchell 2002, 127-8) Relevant to site location 9:

Beach, dune and lagoon complex of Quaternary quartz sands, elevation 0 to 20m. Moderate carbonate content in frontal dune transitions to simple podsols with organic pan and diffuse iron pans on the most inland dunes. Organic silty sand in lagoons and estuary. Coast spinifex (Spinifex hirsutus) and mat-rush (Lomandra sp.), at the rear of the beach, coast tea-tree (Leptospermum laevigatum), coast banksia (Banksia integrifolia) and coast wattle (Acacia longifolia ssp. Sophorae) on the frontal dune, old man banksia (Banksia serrata), red bloodwood (Corymbia gummifera) on inland dunes. Swamp paperbark (Melalleuca sp.), swamp oak (Casuarina glauca) and rushes on margins of lagoons in brackish sectors giving way to common reed (Phragmites australis) in freshwater areas. Southern mahogany (Eucalyptus botryoides) and blackbutt (Eucalyptus pilularis) around swamp margin.

Analysis of the Tuross – Eden Barriers and Beaches Region reveals that the area is predominately comprised of sand dunes, a sensitive landscape for cultural material with subsurface potential. Some native vegetation remains within the landscape, with concentrations along waterways. All three sites in Bermagui fall within 100m of a watercourse. The surface geology across Bermagui is Ordovician sedimentary and low-grade metamorphics (lithic symbology O, refer to figure 4-1), indicating a potential for raw material resources appropriate for stone tool production to occur. This landscape falls in an area that would provide any occupants with access to both marine and estuarine resources, further highlighting the archaeological sensitivity of the region.

The Mitchell Landscapes Definition of Bodalla - Nadgee Coastal Sands (Mitchell 2002, 128) Relevant to site location 10:

Beach, dune and lagoon complex of Quaternary quartz sands, elevation 0 to 20m. Moderate carbonate content in frontal dune transitions to simple podsols with organic pan and diffuse iron pans on the most inland dunes. Organic silty sand in lagoons and estuary. Coast spinifex (Spinifex hirsutus) and mat-rush (Lomandra sp.), at the rear of the beach, coast tea-tree (Leptospermum laevigatum), coast banksia (Banksia integrifolia) and coast wattle (Acacia longifolia ssp. sophorae) on the frontal dune, old man banksia (Banksia serrata), red bloodwood (Corymbia gummifera) on inland dunes. Swamp paperbark (Melaleuca sp.), swamp oak (Casuarina glauca) and rushes on margins of lagoons in brackish sectors giving way to common reed (Phragmites australis) in freshwater areas. Stunted silvertop ash (Eucalyptus sieberi) and red bloodwood clumps close to the coast becoming taller inland with, southern mahogany (Eucalyptus botryoides), blackbutt (Eucalyptus pilularis), roughbarked apple (Angophora floribunda), river peppermint (Eucalyptus elata), coast grey box (Eucalyptus bosistoana), black she-oak (Casuarina litoralis) and blue gum (Eucalyptus globulus).

Analysis of the Bodalla – Nadgee Coastal Sands landscape reveals that the area is predominately comprised of sand dunes and a lagoon, a sensitive landscape for cultural material with subsurface potential. Some native vegetation remains within the landscape, with concentrations along waterways. The landforms present within this landscape are all of a high archaeological sensitivity.

The Mitchell Landscapes Definition of Bega Coastal Foothills (Mitchell 2002, 128) Relevant to site location 8:

Low hills with general slope toward the coast on Ordovician quartzite, slate, chert, phyllite. General elevation 0 to 520m, local relief 250m. Thin stony red and red-yellow texturecontrast soils. Open forest of tall spotted gum (Corymbia maculata), grey ironbark (Eucalyptus paniculata), red bloodwood (Corymbia gummifera), white stringybark (Eucalyptus globoidea), blackbutt (Eucalyptus pilularis) with blady grass (Imperata cylindrica), bracken (Pteridium esculentum) and burrawang (Macrozamia sp.) in the understorey, shrubs limited. On headlands heaths of bushy needlewood (Hakea sericea), giant honey-myrtle (Melaleuca armillaris), coast rosemary (Westringia friticosa) and dwarfed red bloodwood occur in shallow soils subject to high salt spray input and frequent fire.

Analysis of the Bega Coastal Foothills region based on the predictive modelling has identified that the landscape is located on an area with materials that are commonly used for stone tool production. The presence of shallow soils reduces the subsurface potential of the area. Some native vegetation remains in the area, resulting in potential for culturally modified trees to occur where mature trees are remnant.

4.5.4 Sites 11 & 12, Brogo

AHIMS Register Search results

There were 90 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 2-4 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of sites 6 or 7.

Table 4-7 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	62
Isolated Artefact	15
Scarred Tree	1
Shelter with Art	1
Shelter with Deposit	1
Bora / Ceremonial	2
Restricted Access	8
TOTAL	90

Predictive Model

There is no predictive model for the area specific to Upper Brogo, with only limited documented archaeological investigations occurring. However, it is possible to ascertain that proximity to water sources, raw materials and traveling routes between the coast and hinterlands in the area is a key factor in the location of Aboriginal sites. The landscape of Upper Brogo is within the Bega Granites, the predictive model for the area of Bemboka also located within the Bega Granite landscape can be used as a guide:

Archaeological studies of the area of Bemboka highlight that the area is relatively undulating, impacting on the predictive model for the area. It was noted by both Byrne (1983) and Byrne and Smith (1987) that sites will most likely be situated on low spurs within proximity to water and riverbeds on flat landforms such as saddles and along the spine of ridges.

Landscape Assessment

Landscapes present within the area of Upper Brogo as described by Mitchell (2002) are shown on figure 4-2. **The Mitchell Landscapes Definition of Bega Granites (Mitchell 2002, 130) is outlined in Section 4.5.1.**

Analysis of the Bega Granites area displays that the area includes branching waterways and drainage lines, with varied local relief including valleys and ridgelines. The surface geology of the Brogo area is characterised by Silurian igneous, intrusive granites (lithic symbology Sg, refer to figure 4-2). As the area has been mostly cleared from natural vegetation, the potential for culturally modified trees is reduced to the remnant natural vegetation surrounding the Brogo River (site 11). The predictive modelling for the region highlights areas of high archaeological sensitivity as the spurs and flats within close proximity to watercourses and riverbeds, landforms identified within this landscape.

4.5.5 Sites 13, 14 & 15, Eden

Eden is located approximately 40km south of Bega. Within the wider Eden Region BVSC has requested a constraints assessment of the following three lots:

AHIMS Register Search results

On the 6th of June 2019 a search of the AHIMS database was undertaken from latitude -37.1823, longitude 149.7566 to latitude -37.0203, longitude 150.0136, centred over the Eden area. The AHIMS Client Service Number was 426129. There were 113 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 2-5 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of sites 13, 14 and 15.

Table 4-8 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	48
Isolated Artefact	21
Scarred Tree	2
Midden	23
Axe Grinding Groove	1
Stone Arrangement	1
Midden, Open Camp Site	2
Shelter with Midden	1
Potential Archaeological Deposit	4
Burial with Deposit	2
Restricted Access	8
TOTAL	**113**

Predictive Model

Previous studies in the Eden region, J Dibden (2013, 2017) have outlined that the most likely location of Aboriginal sites within the area will be located on ridges and flats with a slopes of 10° or less, all elevations

below 1300m above sea level, areas of granite and sedimentary geology, areas that once contained lowland and mid altitude forests, and in areas presently vegetated with dry forest and woodland.

Landscape Assessment

Landscapes present within the area of Eden as described by Mitchell (2002) are outlined below and shown on figure 4-2.

The Mitchell Landscapes Definition of Nadgee Coastal Range (Mitchell 2002, 129):

Coastal ranges and hills on middle Devonian sandstone, quartzite, conglomerate and siltstone, and Ordovician sandstone, quartzite and phyllite with some granite. Elevation 0 to 550m. Thin stony soils on ridges, deeper red-yellow texture-contrast profiles on Ordovician rocks. Forest of silvertop ash (Eucalyptus sieberi), mountain grey gum (Eucalyptus cypellocarpa), gully gum (Eucalyptus smithii), white ash (Eucalyptus fraxinoides), messmate (Eucalyptus obliqua), prickly stringybark (Eucalyptus consideniana) and red bloodwood (Corymbia gummifera). Gullies with cool temperate and sub-tropical rainforest species such as; eastern leatherwood (Eucryphia moorei), prickly tree-fern (Cyathea leichardtiana), bolwarra (Eupomatia laurina), lilly pilly (Acmena smithii) and sweet pittosporum (Pittosporum undulatum). Open coastal headland heaths on shallow stony soil of bushy needlewood (Hakea sericea), giant honey-myrtle (Melaleuca armillaris), coast rosemary (Westringia friticosa) and dwarfed red bloodwood on shallow soils subject to high salt spray input and frequent fire. Wet button grass (Gymnoschoenus sphaerocephalus) swamps on high peaks.

Analysis of the Nadgee Coastal Range landscape outlined that some native mature vegetation remains sporadically. Sites 14 and 15 has a surface geology of Devonian-Carboniferous sedimentary and low-grade metamorphics (lithic symbology DC, refer to figure 4-1), containing raw materials that are commonly used in stone tool production. The surface geology present at site 13 is Ordovician sedimentary and low-grade metamorphics (lithic symbology O, refer to figure 4-1), also providing potential raw material resources for stone tool production. The shallow soils present near the coast reduce the potential for subsurface deposits in this area. This region is located in an area of transition between the coast and hinterland, characterised by gullies and ridgelines. Sites 13, 14 and 15 lie on low gradient slopes to flats at lower elevations (below 1300m) between the mountain range and coastal region, an area that would once have contained lowland forests. As identified in the predictive modelling for the region, these landforms highlight a high archaeological sensitivity.

4.5.6 Site 16, Kalaru

AHIMS Register search results

There were 17 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 4-9 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of site 16.

Table 4-9 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	8
Isolated Artefact	7
Scarred Tree	1
Shell Midden / Deposit	1

TOTAL	17

Predictive Model

Previous investigations by Hughes (1982a-c) in the area surrounding Kalaru and Tathra have concluded that archaeological sites in the region are most likely to be artefacts and artefact scatters, and of the four surface artefacts identified all were located on flat to low gradient ground. Hughes general findings suggested that areas of medium to his archaeological sensitivity were most likely to be found in association with water on low gradient elevated landforms.

Landscape Assessment

Landscapes present within the area of Kalaru as described by Mitchell (2002) are shown on figure 4-2.

The Mitchell Landscapes Definition of Bega Coastal Alluvium (Mitchell 2002, 130) is outlined in Section 4.5.1.

The landform present at site 16 is low gradient slope elevated above drainage lines, situated between Blackfellows Lagoon (off the Bega River) and Horseshow Lagoon and associated swamp areas. Numerous freshwater resources are present across the project area, with remains of native vegetation is concentrated along the major streams in the landscape. The predictive modelling is largely based on proximity to water, highlighting the archaeological sensitivity of this landscape.

4.5.7 Sites 17, 18 & 19, Kiah

AHIMS Register search results

On the 6th of June 2019 a search of the AHIMS database was undertaken from latitude -36.1823, longitude 149.7566 to latitude -37.0203, longitude 150.0136, centred over the Kiah area. The AHIMS Client Service Number was 426129. There were 113 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 4-10 below shows the breakdown of site types recorded near Bega LEP constraints sites. There are no registered AHIMS sites located within 100m of sites 17, 18 or 19.

Table 4-10 Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	48
Isolated Artefact	21
Scarred Tree	2
Midden	23
Axe Grinding Groove	1
Stone Arrangement	1
Midden, Open Camp Site	2
Shelter with Midden	1
Potential Archaeological Deposit	4
Burial with Deposit	2
Restricted Access	8
TOTAL	113

Predictive Model

A detailed understanding of Aboriginal land use of the region is lacking, as few in depth studies have been completed in close proximity to the proposal area. It is possible however, to ascertain that proximity to water sources, raw materials and traveling routes between the coast and hinterlands in the area is a key factor in the location of Aboriginal sites. It is also reasonable to expect that Aboriginal people ventured away from these resources and transitional routes to utilise the broader landscape, but the current archaeological record of that activity is limited.

Landscape Assessment

Landscapes present within the area of Kiah as described by Mitchell (2002) are outlined below and shown on figure 4-2.

The Mitchell Landscapes Definition of Towamba Channel and Floodplain (Mitchell 2002, 129-30):

Channel, floodplain and terraces of the deep, narrow valley of Quaternary alluvium of the Towamba River from the coast to the base of the Great Escarpment. Elevation 0 to 200m. Deep loamy sand with little profile development. River oak (Casuarina cunninghamiana) along the banks. Small patches of temperate rainforest with sassafras (Doryphora sassafras) and lilly pilly (Acmena smithii) in gully heads and as a gallery forest along major streams in sheltered locations.

Analysis of the Towamba Channel and Floodplain landscape suggests that small areas of native vegetation remain around the main streams in the area. The presence of the floodplain and the alluvium surrounding the river reduces the subsurface archaeological potential to low. The surface geology across Kiah is Ordovician sedimentary and low-grade metamorphics (lithic symbology O, refer to figure 4-1), indicating a potential for raw material resources appropriate for stone tool production to occur. While the area has been largely cleared, there remains potential for mature native vegetation to occur along the banks of the Towamba River. This region is located in an area of transition between the coast and hinterland, characterised by gullies and ridgelines. Sites 17, 18 and 19 lie on low gradient slopes to flats adjacent to the Towamba River, an area that would once have contained lowland forests. As identified in the predictive modelling for the region, these landforms highlight a high archaeological sensitivity.

4.5.8 Sites 20 & 21, Merimbula

AHIMS Register search results

There were 98 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 4-11 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of sites 21 and 22. Site 20 has two registered AHIMS sites within 100m. The first 62-6-0542 is immediately adjected to site 20 at the northern point of the lot (within 5m) and is listed as a shell midden containing a burial. Site 62-6-0544 is also within 15m (east of the northern point of the lot) and marks the location of another burial. Both of these sites, as well as another shell midden 135m to the south occur within the same landform as site 20.

Table 4-11 Breakdown of previously recorded Aboriginal sites in proximity to the project area.

Site Type	Number
Open Camp Site	35
Isolated Artefact	11
Scarred Tree	4

Site Type	Number
Midden	13
Midden with Artefacts	19
Shell, Art	1
Potential Archaeological Deposit	3
Burial	3
Potential Archaeological Deposit with Artefact(s)	7
Burial, Midden	2
TOTAL	**98**

Predictive Model

The results of previous archaeological surveys in the region show that there are sites and artefacts present throughout the landscape, albeit concentrated closer to water sources. Aboriginal occupation sites within the Merimbula area tend to be situated on flats and/or low gradient slopes along spur-crests and ridgelines elevated above the Merimbula Lake and in most cases, within 100 metres of water (NGH Environmental, 2019). Merimbula Lake and the areas surrounding it tend to be dominated by middens, most likely due to the high amount of edible estuarine seashell species present within the lake and along its associated tributaries (Hughes 1983), and artefact scatters. Artefact scatters in many cases are found in close association with midden sites (NGH Environmental, 2019). Burials are also present around the lake, with a burial site (#62-6-0173) recorded in the dune system between the lake and Merimbula Beach. Other burials are also recorded in the general area, including two within close proximity to Site 20 (#62-6-0542 and #62-6-0544).

A detailed understanding of Aboriginal land use of the region is lacking, as few in depth studies have been completed in close proximity to the proposal area. It is possible however, to ascertain that proximity to water sources, raw materials and traveling routes between the coast and hinterlands in the area is a key factor in the location of Aboriginal sites. It is also reasonable to expect that Aboriginal people ventured away from these resources and transitional routes to utilise the broader landscape, but the current archaeological record of that activity is limited.

Landscape Assessment

Landscapes present within the area of Merimbula as described by Mitchell (2002) are shown on figure 4-2.

The Mitchell Landscapes Definition of Bodalla - Nadgee Coastal Sands (Mitchell 2002, 128) is outlined in Section 4.5.3.

The Mitchell Landscapes Definition of Nadgee Coastal Range (Mitchell 2002, 129) is outlined in Section 4.5.5.

The Merimbula region lies on a surface geology of Devonian-Carboniferous sedimentary and low-grade metamorphics (lithic symbology DC, refer to figure 4-1), containing raw materials that are commonly used in stone tool production. The predictive modelling for the Merimbula area highlights the proximity to water as a driving factor when considering archaeological sensitivity with potential across associated flats, low gradient slopes, spurs and ridgelines. Analysis of the landscape reveals that the area is predominately comprised of sand dunes and a lagoon, leading into the ridgelines and gullies of the coastal ranges, a

sensitive landscape for cultural material with subsurface potential. Some native vegetation remains within the landscape, with concentrations along waterways. The landforms present within this landscape are all of a high archaeological sensitivity.

4.5.9 Site 23, South Wolumla

AHIMS Register search results

There were 65 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 2-9 below shows the breakdown of site types recorded. There are no registered AHIMS sites located within 100m of site 23.

Table 4-12; Breakdown of previously recorded Aboriginal sites in close proximity to the project area.

Site Type	Number
Open Camp Site	38
Isolated Artefact	18
Scarred Tree	2
Bora / Ceremonial	1
Potential Archaeological Deposit with Artefact(s)	1
Potential Archaeological Deposit	3
Restricted Access	2
TOTAL	**65**

Predictive Model

There is no predictive model for the area specific to Wolumla, with only limited documented archaeological investigations occurring. However, it is possible to ascertain that proximity to water sources, raw materials and traveling routes between the coast and hinterlands in the area is a key factor in the location of Aboriginal sites. The landscape of Wolumla is within the Bega Granites and the predictive model for the area of Bemboka also located within the Bega Granite landscape can be used as a guide:

Archaeological studies of the area of Bemboka highlight that the area is relatively undulating, impacting on the predictive model for the area. It was noted by both Byrne (1983) and Byrne and Smith (1987) that sites will most likely be situated on low spurs within proximity to water and riverbeds on flat landforms such as saddles and along the spine of ridges.

Landscape Assessment

Landscapes present within the area of Wolumla as described by Mitchell (2002) are shown on figure 4-2.

The Mitchell Landscapes Definition of Bega Granites (Mitchell 2002, 130) is outlined in Section 4.5.1.

Analysis of the Bega Granites area displays that the area includes branching waterways and drainage lines, with varied local relief including valleys and ridgelines. This area lies on a surface geology of Devonian igneous, intrusive granites (lithic symbology Dg, refer to figure 4-1). As the area has been mostly cleared from natural vegetation, the potential for culturally modified trees is low. The predictive modelling for this landscape identifies low spurs and flat landforms within proximity to water as being highly sensitive. The landform present at site 23 is a ridgeline crest within 100m of multiple non-perennial drainage lines.

5 CONSTRAINTS EVALUATION

5.1 BIODIVERSITY

A summary of the likely biodiversity constraints associated with each site has been incorporated into the Constraints Summary table, 7Appendix A. The existence of nearby threatened species and communities, the presence of habitat on and near the site and evidence of clearing and disturbance has been considered and consequently a high, moderate or low biodiversity constraint is determined.

A higher biodiversity constraint indicates that there is potential that the site provides important habitat values to entities listed under the BC Act. A site inspection and targeted surveys may be required to define this importance. Where significant impacts may result from impacts of development (such as removal of habitat that may lead to the long term decline of vegetation, flora or fauna of conservation significance), a Biodiversity Development Assessment Report or Species Impact Statement must be prepared under NSW legislation and a referral under the EPBC Act may also be required. Both acts require offsets for significant impacts. Biodiversity offsets liabilities can be very large and should be minimised early in the planning process, by avoiding high constraint lands where possible.

These sites present opportunities for conservation, depending on their location. Protection mechanisms to conserve and manage threats to the habitat values and restorative actions may be appropriate (such as stabilising river banks, preventing future erosion and increasing biodiversity values). Set up as stewardship sites under the BC Act, these sites can generate funds for management in perpetuity.

Sites that have been assessed as having moderate biodiversity constraints will require further investigation and assessment. It is likely the vegetation holds some habitat value and steps to minimize impacts and demonstrate that significant impacts on entities listed under the BC Act will not occur will be required. this can likely be done as a short technical report, with reference to the BOS criteria, rather than a detailed assessment.

A lower biodiversity constraint value suggests that the site retains limited habitat value. Its removal is highly unlikely to require further detailed assessment and would not be likely to lead to a significant impact on entities listed under the BC Act. These sites are the most suitable for development. The costs of assessment will be minimized on these sites.

The constraints rating and key features of each site are noted below.

5.1.1 High constraint - Biodiversity

Four of the sites are rated as High level constraint, due to the potential to impact on a Threatened Ecological Community.

Site 6 is located near, Bemboka in close proximity to the Bemboka River. Biodiversity Values mapping covers the site.

Site 7, also located near Bemboka, in close proximity to the Bemboka River and with Biodiversity Values mapping, has the potential for Lowland Grassy Woodland. This would occur on parts of the site where native grasses are dominant; a detailed floristic survey is required to determine where this occurs. Several hollow-bearing trees have been recorded on the site.

Site 12, in the Brogo region, has had the endangered ecological community of Brogo Wet Vine Forest identified in previous surveys, which is likely to persist at the site.

Site 13, in the south of Eden, appears to include a drainage line with dense native vegetation, that is likely to comprise the EEC Rover Flat Eucalypt Forest. A detailed flora study of the site and adjacent area would be required to confirm this.

5.1.2 Moderate constraint - Biodiversity

Nine of the sites are rated as Moderate constraint.

Site 3, in east Bega, has some native trees that would require inspection prior to development. This may result in the site becoming classified as low constraint.

Site 5, in east Bega, has some trees (may be planted) and the potential for remnant native grassland, and overlaps with Biodiversity Values mapping. A detailed site survey would be required to map any native grassland, identify the trees, and check the trees for hollows.

Site 10, at Bermagui, is close to wetlands.

Site 11, near Brogo River, is likely to have native vegetation. A site inspection would be required to assess habitat values prior to any development.

Site 14, in Eden, is likely to have native vegetation. A site visit to assess biodiversity values may re-classify the site to low constraint.

Site 16, at Kalaru, has some native vegetation, is near EEC Freshwater wetlands, is mapped as possible fish habitat and is mapped as part Terrestrial GDE: Floodplain wetlands.

Site 18, the Kiah Borefields, is part EEC lowland Grassy Woodland, part River-flat Eucalypt forest, mapped as Terrestrial GDE: far south coast grassy woodland, wet areas & drainage lines have native spp & habitat, some mature trees, potential Green & Golden Bell Frog. Possible TEC: River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions (Equivalent); a detailed flora study would be required to confirm whether this occurs on the site.

Site 21, Merimbula, contains some native vegetation. A detailed site survey would be required to map any native grassland, identify the trees, and check the trees for hollows.

Site 22, at Berrambool, has young native regeneration.

5.1.3 Low constraint - Biodiversity

Eleven sites are rated as Low level constraint; no biodiversity or heritage values have been identified. A more detailed site inspection is recommended before any site works commence.

Site 1, in east Bega, has been cleared and developed.

Site 2, in east Bega, has been cleared and developed.

Site 4, at North Bega, has planted ornamental natives, potential habitat trees nearby that may require consideration before any development occurs.

Site 8, at Bermagui, is cleared and dominated by exotic plants, is also close to wetlands.

Site 9, at Bermagui, has no native vegetation, is close to wetlands.

Site 15, at. Eden, has been cleared and developed.

Site 17, at the Kiah Borefield, is dominated by exotic, mown grass.

Site 19, at the Kiah Borefield, is dominated by exotic, mown grass.

Site 20, at Merimbula, has been cleared and developed.

Site 23, at South Wolumla, has been cleared and is unlikely to contain any native vegetation.

5.2 HISTORIC HERITAGE

A summary of the historic heritage sensitivities of the landforms associated with each site has been incorporated into the Constraints Summary table, 7Appendix A. The extent of previous ground disturbance is also considered and consequently a high, moderate or low to negligible heritage constraint is determined.

A high historic heritage constraints value indicates that any proposed works at this location may require assessment under a Statement of Heritage Impact.

A moderate historic heritage constraints value indicates that further assessment is likely to be necessary, however, this constraints level will be largely based upon the proposed scope of works at each individual location. The sites attributed with this constraints value will have locally listed items of heritage significance immediately adjacent, or within 500m of the subject site. If any proposed works have the potential to visually impact the adjacent or nearby historic heritage listings it may trigger the need for a Statement of Heritage Impact assessment before development can commence.

A low or negligible historic heritage constraint indicates that no further assessment for historic heritage would be required for development works to continue at these sites. The majority of the BVSC subject sites (18 of 23) have no recorded historic heritage items within the surrounding vicinity.

5.2.1 High constraint – Historic heritage

There is one site that has been assessed as holding a high level of historic heritage constraints. Any proposed works at this location will require assessment under a Statement of Heritage Impact to ensure the historic heritage values of the site will not be impacted upon.

Site 23 falls within the boundary of the locally listed (I189) South Wolumla Butter Factory Complex.

5.2.2 Moderate constraint – Historic heritage

Four sites have been identified as holding a moderate level of historic heritage constraints.

Site 5 has the locally listed (I009) Old Bega Hospital (main building and outbuildings) adjacent to the subject site in the south.

Site 6 has two locally listed items within 200m. The Farmhill Homestead 'Clydebank' (I109) is located within 850m to the west, and Kenya Homestead (I119) is within 350m to the south-east.

Site 7 has two locally listed items within 200m. The Farmhill Homestead 'Clydebank' (I109) is located within 250m to the west, and Kenya Homestead (I119) is within 100m to the south-east.

Site 22 has the locally listed (I734) Trolley way, Miradoor Tramway and Pages Creek Dam adjacent to the north of the subject site. While this site has undergone significant disturbances during the construction of the Pages Creek dam there is moderate historic heritage constraints associated with the site.

5.2.3 Low constraint – Historic heritage

There following eighteen sites have been assessed as having no identified historic heritage constraints:

- Site 1
- Site 2
- Site 3
- Site 4
- Site 8
- Site 9
- Site 10
- Site 11
- Site 12
- Site 13
- Site 14
- Site 15
- Site 16
- Site 17
- Site 18
- Site 19
- Site 20
- Site 21

5.3 ABORIGINAL HERITAGE

A summary of the Aboriginal heritage sensitivities of the landforms associated with each site has been incorporated into the Constraints Summary table, 7Appendix A. The extent of previous ground disturbance is also considered and consequently a high, moderate or low heritage constraint is determined.

A higher heritage constraint value indicates that there is potential that surface or subsurface Aboriginal Cultural heritage material may occur and would require further investigations. For these sites, a full Due Diligence analysis including site visit is considered necessary to inform if further assessment is required. It is considered possible that an Aboriginal Cultural Heritage Assessment (ACHA) will be required and consultation be completed in accordance with the OEH (2010b) publication *Aboriginal cultural heritage consultation requirements for proponents 2010*.

Sites that have been assessed as having moderate heritage constraints are likely to require further steps in the due diligence process, including a site visit to determine the level of potential impact any works may have on Aboriginal heritage. Depending upon the results of a site inspection and assessment, further investigations in the form of an Aboriginal Cultural Heritage Assessment (ACHA) may be required.

A lower heritage constraint value suggests that a desktop Due Diligence style assessment would likely be appropriate prior to any form of disturbance occurring at the location, it is fairly unlikely that Aboriginal Cultural Heritage would be located within the site boundary. Even where deemed to be a low constraint, these areas are recommended to require a desktop due diligence assessment that provides BVSC with a defence against harm in accordance with the NSW Office of Environment and Heritage's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (OEH 2010a). This report, depending on the timing (data base searches should be updated every 12 months), will provide useful information to support such an assessment.

The constraints rating and key features of each site are noted below.

5.3.1 High constraint – Aboriginal heritage

Seven of the sites are rated as having high level constraint.

Site 3 . is on a ridgeline and slope leading to the Bega River and adjacent tributary creeks (within 100m of water), in a high archaeological sensitivity zone as outlined by the predictive model with the closest registered AHIMS site a PAD located on a similar ridgeline landform sloping off towards waterways only 160m south-west. No ground disturbance has occurred in the area, maintaining the sensitivity of the landscape and a high heritage constraints level.

Site 7 is located across a hill crest and gentle slopes leading to multiple small spurs along the banks of the Bemboka River, an archaeologically sensitive area as defined by the predictive modelling. Site 7 also has two non-perennial waterways or drainage lines running into the Bemboka River. The closest AHIMS site

lies 1.45km away but presents a similar depositional environment on an elevated landform sloping towards a water source. No significant ground disturbance has occurred in the area, maintaining the archaeological sensitivity as high.

Site 12 is located on a hillcrest less than 200m from a creek line, over an area of high archaeological sensitivity. No substantial ground disturbance has occurred in the lot, leaving a high heritage constraints level for site 12.

Site 17 is located on very gently sloping flats associated with the banks of Towamba River, less than 50m from water. Site 17 lies across an area of high archaeological sensitivity due to the proximity to water and gentle sloping landform. The closest registered AHIMS site is 2.2km south-east, an isolated artefact located on a flat associated with a drainage line less than 20m from the water source. There is no evidence of prior ground disturbance across site 17, providing a final heritage constraints level of high.

Site 18 is located on very gently sloping flats associated with the banks of Towamba River less than 50m from water, in an area of high archaeological sensitivity due to the proximity to water and gentle sloping landform. The closest registered AHIMS site is located 2.1km south-east, an isolated artefact located on a flat associated with a drainage line less than 20m from the water. There is no evidence of prior ground disturbance across site 18, resulting in a high heritage constraints level.

Site 19 is located on very gently sloping flats associated with the banks of Towamba River less than 50m from water, in an area of high archaeological sensitivity due to the proximity to water and gentle sloping landform. The closest registered AHIMS site is located 2.15km south-east, an isolated artefact located on a flat associated with a drainage line less than 20m from the water. There is no evidence of any significant prior ground disturbance, giving site 19 a high heritage constraints level.

Site 20 is located on a peninsula between Boggy Creek and Merimbula Bay within 50m of water, an area of high archaeological sensitivity area based on the predictive model. The closest registered AHIMS site is located 135m south, a shell midden with artefacts that is located on the same landform. Site 20 has undergone some ground disturbance, providing a heritage constraints level of moderate to high.

5.3.2 Moderate constraint - Aboriginal heritage

Seven of the sites are rated as moderate constraint.

Site 1 is located on the banks of Bega River in a high archaeological sensitivity zone as outlined by the predictive model. The site covers two parcels of land on an area elevated above the Bega River, with the slope to the east leading down to the banks of the river, within 100m of the watercourse. Some ground disturbance has occurred on both parcels of land, reducing the heritage constraints of the site to a moderate level.

Site 4 is located on a ridgeline less than 100m from water, a sensitive landform as outlined by the predictive model for the area. Although site 4 has a high level of archaeological sensitivity, the area has undergone some ground disturbance that reduces the heritage constraints level to moderate.

Site 5 is located on undulating ground adjacent to Bega hospital more than 200m from water, a low-moderate area of sensitivity according to the predictive model for the area. No ground disturbance has taken place across the area, with the heritage constraints level between low and moderate.

Site 6 is located on a gently sloping landform leading into a small spur in the bank of the Bemboka River, an area with high archaeological sensitivity within 50m of the water. While the closest registered AHIMS site may be a distance away at 1.7km, it must be noted that the archaeological investigations within the wider region are largely development driven and thus provide a bias in the results leaving gaps across large

areas. Despite the lack of proximity, the closest registered AHIMS site is located on a crest and sloping landform over a waterway presenting a similar depositional environment. Some ground disturbance has occurred in the area, which reduces the heritage constraints level to moderate.

Site 8 is located on very gently undulating ground, within 100m of non-perennial watercourses or drainage lines, 750m of the coastline, and 500m of Baragoot Lake. This designates site 8 as an area with a moderate to high level of archaeological sensitivity. Site 8 has, however, been subject to ground disturbance in some places, giving the site a heritage constraints level of moderate.

Site 11 is located on the sloping banks of the Brogo River within 60m of water, in an area of high archaeological potential based on the predictive model for the area. The closest registered AHIMS site is an isolated artefact located on a hill crest within 100m of water. Site 11 has undergone some ground disturbance in places, reducing the heritage constraints level to moderate.

Site 23 is located on a ridgeline crest less than 100m from water (non-perennial drainage line), across a sensitive landscape as outlined in the predictive model. The closest registered site lies 3.45km north-west, an open camp site occurring on a similar landform and proximity to water (although at a higher elevation). Some ground disturbance has occurred at site 23 and although it holds a high level of archaeological sensitivity, the heritage constraints level is moderate.

5.3.3 Low constraint - Aboriginal heritage

Nine of the sites are rated as low constraint.

Site 2 is located on a terminal slope above a creek in a high archaeological sensitivity area. Site 2 is within 100m of water and presents a similar depositional environment to the closest registered AHIMS site. The site has, however, undergone significant ground disturbance that has reduced the heritage constraints level to low.

Site 9 is located on a base terminal slope adjacent to a non-perennial watercourse or drainage line, 150m north-west of a freshwater lagoon and 500m south of Bermagui Harbour in a high archaeological sensitivity area. The closest registered AHIMS site lies 75m south, an artefact scatter also located on a slope less than 50m from the creek line. Site 9 has been subject to significant levels of ground disturbance that reduces the heritage constraints level to low.

Site 10 is located on a base terminal slope adjacent to a non-perennial watercourse or drainage line, 350m north-west of a freshwater lagoon and just over 1km from the coastline in a high archaeological sensitivity area. The closest registered AHIMS site is an isolated artefact located on a similar slope towards a watercourse but is at a higher elevation further from the water line. Site 10 has, however, been subject to significant levels of ground disturbance, giving the site a heritage constraints level of low.

Site 13 is located on an elevated flat adjacent to a small non-perennial creek or drainage line leading into a lagoon area (lagoon approximately 100m south-east of site 13), approximately 350m from the coastline. The closest registered AHIMS site is a shell midden site located on Cocora Beach. The shell midden lies 930m south-west and is located on a similar elevated flat adjacent to a creek. Site 13 is in an area of high archaeological sensitivity but has been subject to significant prior ground disturbance across the area. This gives site 13 a heritage constraints level of low.

Site 14 is located on undulating ground within 100m of water, on a steep slope over 50m below the hill crest. The landform is sloping south to south-east towards the drainage lines and Palestine Creek (350m south) and reflects a low level of archaeological sensitivity based upon predictive site modelling. Site 14 has been subject to prior ground disturbances and presents a low level of heritage constraints.

Site 15 is located on flat, slightly elevated ground less than 200m from a lagoon and 100m from a drainage line. Site 15 presents a landform with a high level of archaeological sensitivity based on the predictive model, however, significant ground disturbance to the site has reduced the heritage constraints level to low.

Site 16 is located on flat ground associated with a drainage line, less than 100m from water in an area of high archaeological sensitivity according to the predictive model of the area. However, site 16 has been used for residential/farming structures and activities, resulting in significant ground disturbance and providing a low level of heritage constraints.

Site 21 is located on a basal slope with a very low gradient at a low elevation, less than 100m from water in an area of moderate archaeological sensitivity. The closest registered AHIMS site is 310m east, located within a similar proximity to water but a slope with higher gradient. Significant ground disturbance has occurred in the area, providing a low heritage constraints level.

Site 22 is located on a slope towards a non-perennial drainage line within 200m of water, a moderate archaeologically sensitive landform based on the predictive model for the area. The closest registered AHIMS site is 1.1km south-east, an open camp site located at a similar elevation on a high gradient slope within 200m of water. Site 22 has undergone significant ground disturbance for Pages Creek dam, reducing the heritage constraints level to low.

6 CONCLUSION

This environmental constraints assessment has highlighted constraints associated with areas of biodiversity, Aboriginal or historic heritage sensitivity, to assess the compatibility of the land with the proposed rezoning of the land parcels for the provision of future water and sewer infrastructure.

It has been informed by desktop and limited field inspections of specific sites. It includes mapping of key constraints identified at each site and explanatory text to understand the specific constraints identified for each site and rank their suitability in terms of development.

Of the 23 sites, 3 have been identified as low constraint for both biodiversity and heritage. They would be the most suitable for development, with regard to these values. Further investigation will be required for moderate and high constraint sites. This would be more onerous for the high constraint sites and these are recommended to avoid or unless further, more detailed investigation can downgrade the constraint levels applied.

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APPENDIX A CONSTRAINTS SUMMARY

This table presents a summary of values identified in database searches and site inspections, which determined the biodiversity and heritage constraint for each site. Note marine and pelagic species excluded from BIonet records unless relevant.

Acronyms used in this table are noted in the Acronyms and Abbreviations, Page iv.

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
1	Bega STP	Lot 9, DP804885	Existing STP. Disturbed	No	None available, exotic adjacent	N/A	N/A	1 TEC, 21 TS, 14 MS	295m south-west. 62-6-0778 is a Potential Archaeological Deposit on a similar rise in a sloping landform leading to a waterway.	Elevated slope leading down to the banks of Bega River, <100m to water	High	Yes	Flame Robin (500m W), Grey-headed Flying Fox (200 - 360m SW), Southern Myotis (620m S), Squirrel Glider (260m NW)	None	None	No	Part R2 Low Density Residential, part RU1 Primary Production		Low	Moderate	Low
2	Bega SPS9	Lot 21, DP1214150	Cleared agricultural land, tanks and tracks present.	No	None available	N/A	N/A	1 TEC, 21 TS, 14 MS	160m south-west. 62-7-0776 was an isolated artefact located at a higher elevation on the same sloping landform.	Terminal Slope above creek, <100m to water	High	Yes	Eastern Freetail bat (250m S), Grey-headed Flying Fox (600m WSW), Southern Myotis (290m S)	None	None	No	RU1 primary production		Low	Low	Low
3	Land Adjacent Bega STP	Lot 13, DP813625	Primarily cleared pasture. Disturbed. Possibly 2 remnant trees, unlikely to be native dominant.	No	None available	N/A	N/A	1 TEC, 21 TS, 14 MS	160m south-west. 62-7-0779 is a Potential Archaeological Deposit located on a similar ridgeline landform sloping off towards the waterways.	Ridgeline and slope leading to the Bega River and adjacent tributary creeks, <100m to water	High	No	Flame Robin (500m W), Grey-headed Flying Fox (200 - 360m SW), Southern Myotis (620m S), Squirrel Glider (260m NW)	None	None	No	Part R2 Low Density Residential, part RU1 Primary Production		Moderate (mostly low)	High	Lowl
4	North Bega Reservoir	Lot 31, DP1209807	Site disturbed, while a small lot it has some native vegetation present.	Yes	SR544 Forest Red Gum	834	EEC + TEC Lowland Grassy Woodland	1 TEC, 21 TS, 13 MS	1.6km south. 62-7-0054 is a ceremonial site located on the edge of a watercourse.	Ridgeline <100m to water	High	Yes	Grey-headed Flying-Fox (950m E)	None	None	No	RU4 Primary Production & Small Lots	High-threat exotic weeds, no mature trees	Low	Moderate	Low

[2] Where the site was inspected.

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
5	Future Bega WTP	Lot 297, DP728021	Cleared agricultural land with some trees (likely planted). Potential for remnant native grassland vegetation and hollows.	No	None available,	N/A	EEC +TEC Lowland Grassy Woodland known to occur nearby	1 TEC, 18 TS, 13 MS	210m west. 62-6-0714 is a Potential Archaeological Deposit located on a similar sloping landform associated with a watercourse.	Undulating ground >200m to water	Low to Moderate	No	Koala (800m S), Grey-headed Flying-Fox (760m N)	None	None	part	part IN1 General Industrial, part DM Deferrd Matter		Moderate	Moderate	Moderate
6	Bemboka WTP/RWPS	Lot W, DP392614	Site contains native vegetation. Subject to recent assessment.	Yes	None available	N/A	EEC Lowland Grassy Woodland	2 TEC, 18 TS, 12 MS	1.7km north-east. 62-6-0384 is an open camp site located on a similar crest and slope over a waterway.	Gentle slope to the banks of the Bemboka River <50m from water	High	Yes	Grey-headed Flying-Fox (600m S)	None	part Aquatic GDE: River	Yes	RU1 primary production	Cleared, exotic grasses	High	Moderate	Moderate
7	Bemboka WTP	Lot 12, DP1093627	Site contains native vegetation. Subject to recent assessment. Trees = EEC. Some kangaroo grass patches	Yes	Part SR544, Forest Red Gum	834	EEC +TEC Lowland Grassy Woodland	2 TEC, 18 TS, 12 MS	1.45km north-west. 62-6-0727 is an isolated artefact located on an elevated ridge-line >100m from water.	Hillcrest and gentle slope to the banks of the Bemboka River <100m from water	High	No	Grey-headed Flying-Fox (350m S)	None	Part Terrestrial GDE: Far south coast grassy woodland, part Aquatic GDE: River	Yes	RU1 primary production	EEC in areas of native grass and HBTs observed, invasive weeds	High	High	Moderate
8	Bermagui SPS9	Lot 86, DP831143	Site partially cleared	Yes	None available	N/A	N/A	2 TEC, 60TS, 47 MS	1.7km south-east. 62-7-0137 is an open camp site at the Wagonga Inlet.	Undulating ground <100 m to water	Moderate to High	Yes	Narrow-leafed Wilsonia (700m W)	None	None	No	E4 Environmental Living	Cleared, weeds, close to wetland	Low	Moderate	Low
9	Bermagui SPS7	Lot 306, DP735144	Site appears to be vegetated with native vegetation adjacent to wetland.	Yes	SR559 Ironbark Woolybtt	891	N/A	3 TEC, 60 TS, 50 MS	75m south. 62-7-0304 is an artefact scatter also located on a slope less than 50m from the creek line.	Base terminal slope adjacent to creek <100m from water.	High	Yes	Koala (400m NW), Southern Brown Bandicoot (900m ESE), Grey-headed Flying-Fox (70m E), Pied Oystercatcher (375m N)	None	No values on site, close to wetlands	No	R2 Low density Residential	No native vegetation (tree overhanging), close to wetland	Low	Low	Low

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
10	Bermagui SPS8	Lot 51, DP834169	Site partially vegetated	Yes	SR533 Coast Grey Box - Mountain Grey Gum / SR608 River pepperment	777	N/A + EEC River flat eucalypt forest	2 TEC, 40 TS, 32 MS	520m east. 62-7-0293 is an isolated artefact located on a similar slope towards a watercourse but is at a higher elevation further from the water line.	Base terminal slope adjacent to water <20m.	High	Yes	Grey-headed Flying Fox (750m S)	None	None	No	R2 Low density Residential	Non conservation significant native vegetation half of site, Close to wetlands	Moderate (and low areas)	Low	Low
11	Brogo River RWPS	Lot 11, DP735675	Site is primarily cleared, with some vegetation, likely all native. Located within 45 metres of Brogo River. Existing report	No	SR583 Mountain Grey Gum	948	N/A	2 TEC, 22 TS, 13 MS	.1km south-west. 62-7-0438 is an isolated artefact located on a hill crest within 100m of water.	Sloping banks of the Brogo River <60m from water.	High	Yes	Glossy Black Cockatoo (930m SE)	None	None	No	RU2 Rural landscape		Moderate	Moderate	Low
12	Future Brogo WTP	Lot 12, DP1110585	Native vegetation with some areas of disturbance and some areas of scattered trees. Existing report	No	SR543 Forest Red Gum	829	EEC Brogo Wet Vine Forest	2 TEC, 22 TS, 13 MS	1.8km north-east. 62-7-0541 is an open camp site located at a lower elevation closer to the waterline.	Hillcrest, <200 m creek	High	Yes	Spot-tail Quoll (760m W)	None	part Terrestrial GDE: Brogo Wet Vine Forest	No	RU1 Primary production		High (and moderate and low constraint)	high	Low
13	Eden SPS7	Lot 31, DP703279	Drainage line, native veg	No	SR608 River Peppermint - Rough barked apple	1108	EEC: River-flat Eucalypt forest	2 TEC, 57 TS, 44 MS	330m south-east. 62-3-0029 is a shell midden site located on Cocora Beach. The shell midden registered 62-3-0085 lies 930m south-west and is located on a similar elevated flat adjacent to a creek.	Elevated flat adjacent to creek, <100m to water	High	Yes	Grey-headed Flying Fox (640m NE), Koala (750m WNW), Little Lorrikeet (990m SW), Long-nosed Potoroo (650m NE), Square-tailed Kite (390m NNE)	None	None	No	Part R2 Low Density Residential, part RE1 Public Recreation		High (and low constraint)	Low	Low

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
14	Palestine PS (Eden)	Lot 1, DP606678	Likely all native vegetation.	No	SR630 Silvertop Ash - Rough-bakred apple	1157	N/A	1 TEC, 28 TS, 15 MS	835m south-east. 62-3-0252 is a Potential Archaeological Deposit located on a similar sloping landform but in closer proximity to water.	Undulating ground <100m of water, on a steep slope >50m below the hill crest. The landform is sloping south to south-east towards the drainage lines and Palestine Creek (350m south)	Low	Yes	Koala, Sooty Owl, Southern Brown Bandicoot, Swift Parrot (90m N), yellow-bellied Glider	None	None	No	E4 Environmental Living		Moderate	Low	Low
15	Eden SPS4	Lot 1, DP623694	Site appears to be cleared of native vegetation, from previous land development activities	No	SR612 Rough-barked apple	1119	N/A	2 TEC, 58 TS, 44 MS	765m south-east. 62-3-0505 is an open camp site located on sloping coastal landform, within a similar proximity to water but a differing landform.	Flat ground, slightly elevated <200m lagoon and 100m drainage line	High	Yes	Eastern Pygmy Possum (520m NNW), Swift Parrot (90m N)	None	None	No	RE1 Public Recreation		Low	Low	Low

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
16	Kalaru Standby PS	Lot 1, DP249826	Large areas of existing disturbance. Single tree and native understorey. Areas of EEC nearby.	No	SR542 Floodplain wetlands	828	EEC Freshwater wetlands (unlikely to be onsite)	1 TEC, 29 TS, 16 MS	1.7km east. 62-6-0501 is a shell deposit located on an elevated hill crest 100-150m from water.	Flat ground associated with drainage line <100m from water.	High	Yes	barking Owl (460m N), Diamond Firetail (480m NNE), Eastern Pygmy Possum (240m NW), Glossy Black Cockatoo (300m SW), Grey-headed Flying Fox (320m NW), Little Eagle (480m NNE), Little Lorrikeet (480m NNE), Powerful Owl (550m E), Scarlet Robin (500m NNE), Spot-tail Quoll (290m NW), Swift Parrot (550m NE), Yellow-bellied Glider (60m E)	Possible	Part Terrestrial GDE: Floodplain wetlands	No	E3 Environmental Management		Moderate (and low constraint)	Low	Low
17	Kiah Bore No 8	Lot 4, DP570278	Majority of site cleared, with limited native vegetation	Yes	None available	N/A	N/A	1 TEC, 48 TS, 32 MS	2.2km south-east. 62-3-0293 is an isolated artefact located on a flat associated with a drainage line <20m from the water.	Very gently sloping flats associated with the banks of Towamba River <50m from water.	High	No	Barking Owl (600m W), Gang gang Cockatoo (910m NE), Golden-tipped Bat (670m WNW), Green and Golden Bell Frog (880m SE), Grey-headed Flying-fox, Koala (200m N, 470m SE), Powerful owl (650m W), Sooty Owl (650m W, 620m SSW),	None	None	No	E3 Environmental Management	No values; mowed native grass	Low	High	Low
18	Kiah Borefields	Lot 231, DP1076252	Site cleared. Adjacent to Lot 4, DP570278 directly above. Existing report for river & banks	Yes	Part SR623 Silvertop Ash, part SR544 Forest Red Gum, part SR608 River-peppermint rough barked apple, part SR672 yellow stringybark	1149, 834, 1337	part EEC lowland Grassy Woodland, part River-flat Eucalypt forest	1 TEC, 48 TS, 32 MS	2.1km south-east. 62-3-0293 is an isolated artefact located on a flat associated with a drainage line <20m from the water.	Very gently sloping flats associated with the banks of Towamba River <50m from water.	High	No		None	Terrestrial GDE: far south coast grassy woodland	South of site only	E3 Environmental Management	Wet areas & drainage lines have native spp & habitat. Some mature trees	Moderate (and low)	High	Low

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
19	Kiah Bore No 10	Lot 5, DP259732	Site cleared. Adjacent to Lot 4, DP570278 directly above.	Yes	None available	N/A	N/A	1 TEC, 48 TS, 32 MS	2.15km south-east. 62-3-0293 is an isolated artefact located on a flat associated with a drainage line <20m from the water.	Very gently sloping flats associated with the banks of Towamba River <50m from water.	High	No	Southern Brown Bandicoot (400m E), Square-tailed Kite (650m S), White-bellied Sea Eagle (760m NW)	None	None	No	E3 Environmental Management	Low values; mowed grass	Low	High	Low
20	Merimbula SPS3	Lot 2, DP221261	Site is developed, original native vegetation removed. Existing report	No	Adjacent SR512 Bangalay - Banksia	659	Adjacent EEC Banjalay Sand Forest	3 TEC, 58 TS, 48 MS	2 sites within 200m. The first 62-6-0542 is immediately adjected to at the northern point of the lot (within 5m) and is listed as a shell midden containing a burial. Site 62-6-0544 is also within 15m (east of the northern point of the lot) and marks the location of another burial. Both of these sites, as well as another shell midden (62-6-0795 is a shell midden with artefacts) 135m to the south occur within the same landform as site 20.	Peninsula between Boggy Creek and Merimbula Bay <50m from water.	High	Yes	Barking Owl (750m NW), beach Stone-curlew (550m W), Black-tailed Godwit (340m SW), Bodalla Pomaderris (500m WNW), Eastern Curlew (75m SW), Eastern Freetail Bat (400m SW), Gibson's Alatross (700m E), Grey-headed Flying-fox (850m WNW), Little Tern (440m NE), Masked Owl 9770m SSW), Red Knot 9700m E), Pied Oystercatcher (70m SW), Swift Parrot (200m E), Sperm Whale (785m SW)	None	None	No	RE1 Public Recreation		Low	High	Low
21	Merimbula SPS18	Lot 100, DP1192435	Site contains native vegetation as well as areas of existing disturbance.	No	Part SR596 Red Bloodwood - Silvertop Ash, part SR649 Swamp Oak - Prickly Tea tree	1084, 1232	Cleared	2 TEC, 49 TS, 37 MS	310m east. 62-6-0570 is a low density surface artefact scatter, located within a similar proximity to water but a slope with higher gradient.	Basal slope, very slight gradient <100m water	Moderate	Yes	Dusky Woodswallow (590m E), Yellow-bellied Glider (750m NNE)	None	None	No	Part E2 Environmental Conservation, Part SP3 Tourist		Moderate (and low)	Low	Low

Site	Asset	Lot & DP	Notes	Field inspection?	Biomet Veg type or other mapped veg	PCT	Veg EEC / TEC	MNES	Closest AHIMS site	Landform	Archaeological sensitivity	Disturbance	BioNet	Fish habitat	Groundwater ecosystems	BV map	Zone & use	Biodiversity field notes [2]	Biodiversity constraint level	Aboriginal Heritage constraint level	Historic Heritage constraint level
22	Berrambool Reservoir	Lot 83, DP739561	Site is developed, original native vegetation removed.	Yes	Adjacent SR559 ironbark - Woolybutt	891	N/A	2 TEC, 29 TS, 20 MS	1.1km south-east. 62-6-0302 is an open camp site, located at a similar elevation on a high gradient slope within 200m of water.	Slope to non-perennial drainage line <200m to water	Moderate	Yes	Bodalla Pomaderris (60m S), Greater road-nosed (850m NE), Glossy Black cockatoo (450m S), Koala (780m S), Scarlet Robin (960m SW), Square-tailed Kite (720m W), Swift Parrot (450m NE), Yellow-bellied Glider (750m NE)	None	None	No	RE1 Public Recreation	Young native regeneration within parcel boundary	Moderate	Low	Moderate
23	South Wolumla Reservoir	Lot 1, DP391694	Cleared and subject to agricultural use. Understorey only. South Wolumla Butter Factory Complex is listed	No	nearby SR544 Forest Red Gum	834	nearby EEC Lowland Grassy Woodland	2 TEC, 23 TS, 13 MS	3.45km north-west. AHIMS site 62-6-0331 is an open camp site occurring on a similar landform and proximity to water (although at a higher elevation).	Ridgeline crest <100m to non-perennial drainage line	Moderate	Yes	N/A	None	None	No	RU1 primary production		Low	Moderate	High

APPENDIX B SITE MAPS

Sites 1, 2 & 3, Bega

Bega LEP sites

Biodiversity constraint level

- High
- Moderate
- Low

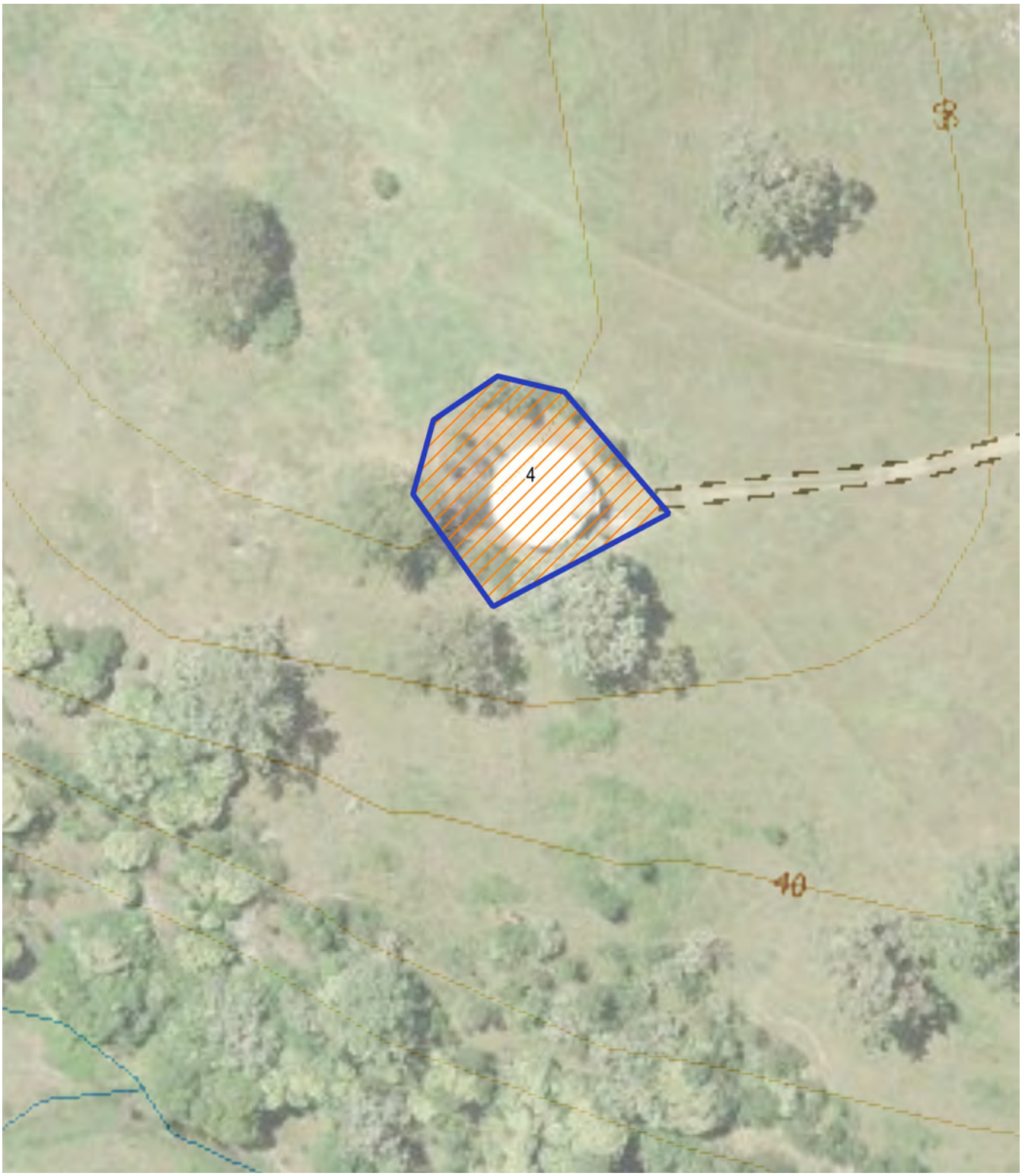
Aboriginal heritage constraint level

- High
- Moderate
- Low

0 50 100 150 200 m

A4 @ 1:5000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental



Site 4, North Bega Reservoir

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 10 20 30 40 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Site 5, Bega

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint l
- High
- Moderate
- Low

Historic constraint level
- High
- Moderate

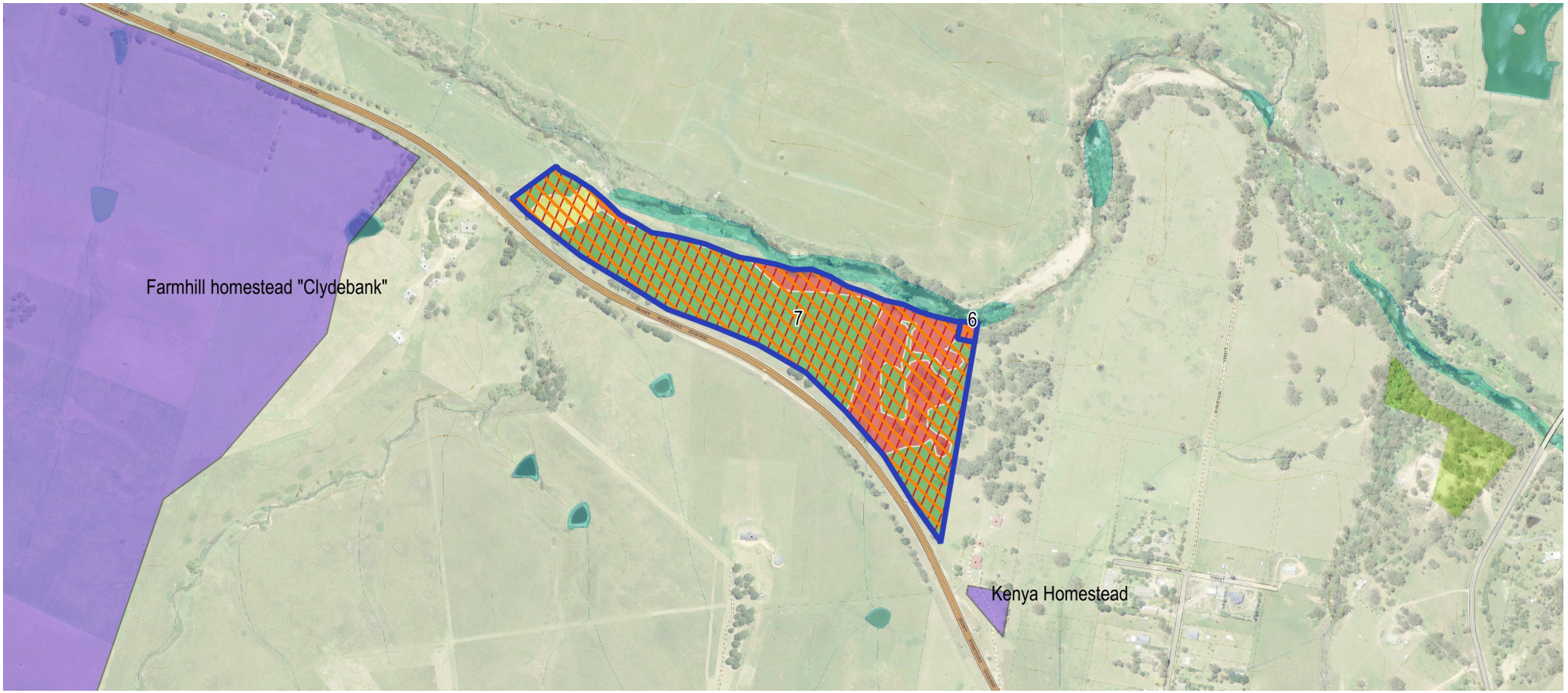
Historic heritage

Notes:
- Data collected by NGH Environmental (2019)
- Client data courtesy of Client, recieived 2019
- Base map Copyright QGIS and its data suppliers
- Datum GDA 94 Zone 56

0 50 100 150 200 m

A4 @ 1:5000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 23/7/2019

ngh environmental



Sites 6 and 7, Bemboka WTP / RWPS

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

Historic constraint level
- High
- Moderate

Historic heritage

Notes:
- Data collected by NGH Environmental (2019)
- Client data courtesy of Client, recieived 2019
- Base map Copyright QGIS and its data suppliers
- Datum GDA 94 Zone 55

0 100 200 300 400 m

A4 @ 1:10,000
Ref: 19-239 Bega LEP
Author: T Hastings
Date created: 08/07/2019

ngh environmental

Site 8, Bermagui SPS9

Bega LEP sites

Biodiversity constraint level

- High
- Moderate
- Low

Aboriginal heritage constraint level

- High
- Moderate
- Low

0 10 20 30 40 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Site 9, Bermagui SPS7

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 5 10 15 20 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Site 10, Bermagui SPS8

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 10 20 30 40 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Notes:
- Data collected by NGH Environmental (2019)
- Client data courtesy of Client, recieived 2019
- Base map Copyright QGIS and its data suppliers
- Datum GDA 94 Zone 56

Site 11, Brogo River RWPS

Bega LEP sites

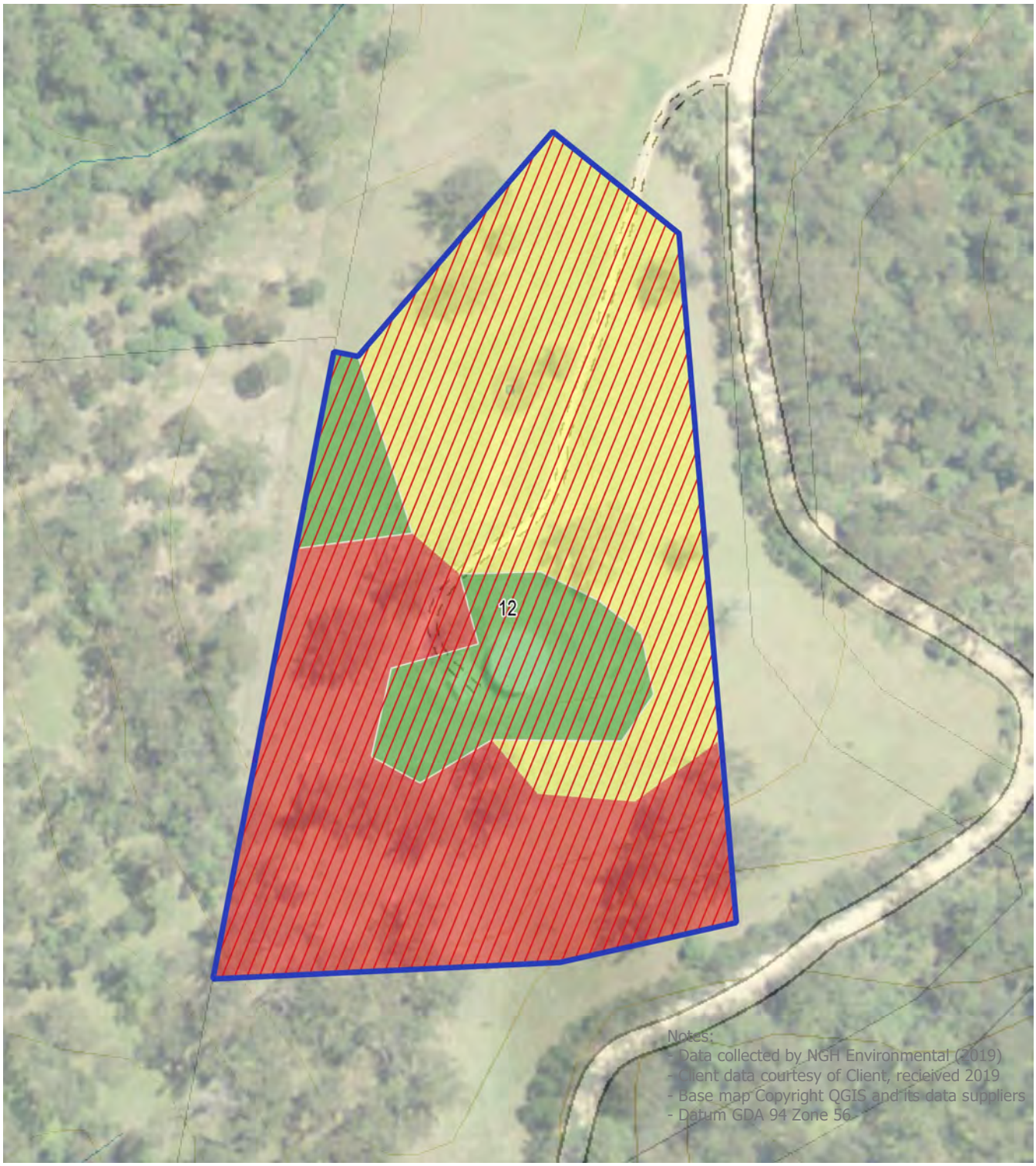
Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 10 20 30 40 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental



Site 12, Future Brogo WTP

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 25 50 75 m

A4 @ 1:2000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

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Site 13, Eden SPS7

Bega LEP sites

Biodiversity constraint level

- High
- Moderate
- Low

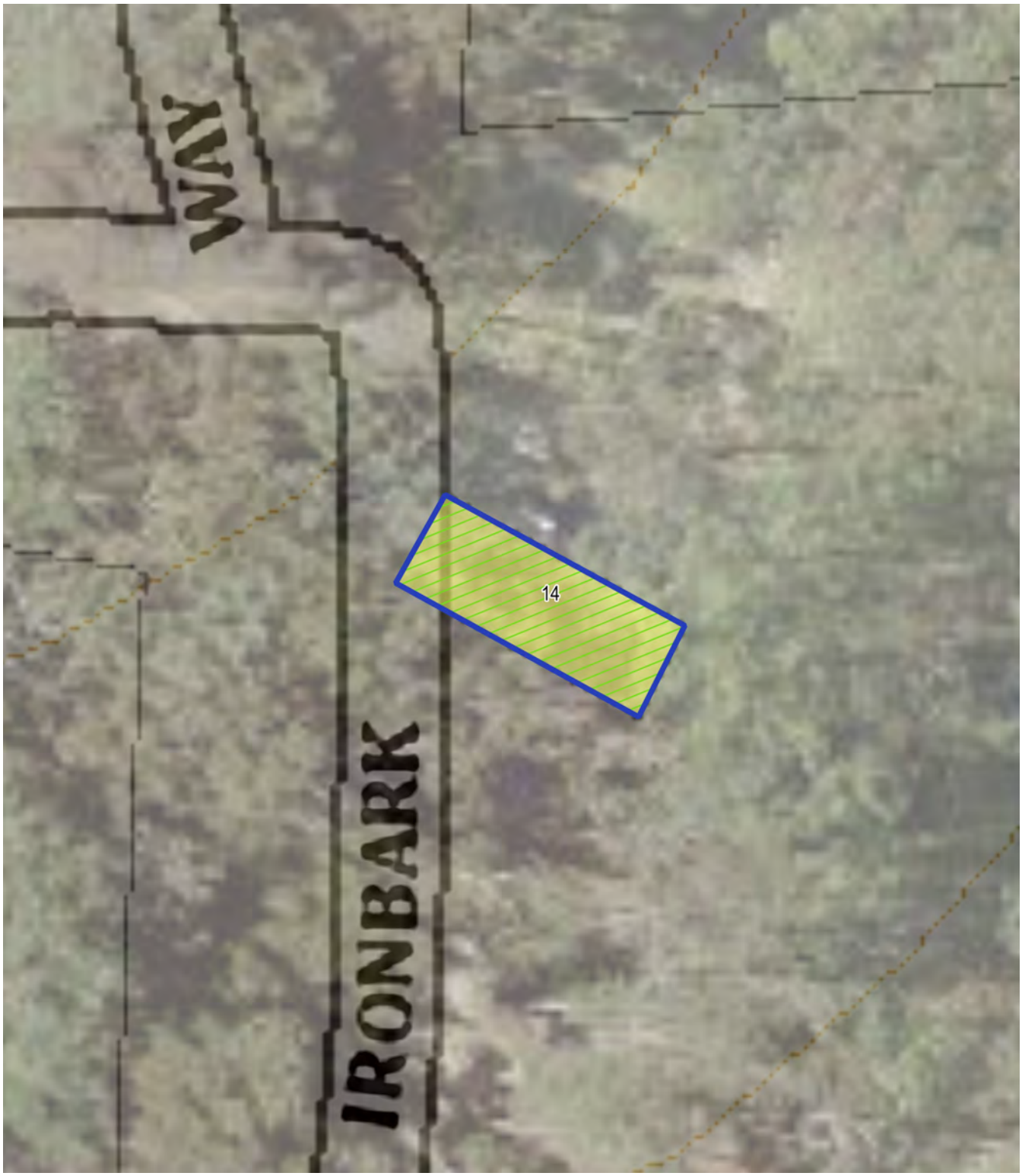
Aboriginal heritage constraint level

- High
- Moderate
- Low

0 5 10 15 20 m

A4 @ 1:500
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental



Site 14, Palestine PS (Eden)

Bega LEP sites

Biodiversity constraint level

High

Moderate

Low

Aboriginal heritage constraint level

High

Moderate

Low

0 5 10 15 20 m

A4 @ 1:500
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Site 15, Eden SPS4

Bega LEP sites

Biodiversity constraint level

High

Moderate

Low

Aboriginal heritage constraint level

High

Moderate

Low

0 5 10 15 20 m

A4 @ 1:500
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Site 16 Kalaru standby PS

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 5 10 15 20 m

A4 @ 1:500
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

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Sites 17, 18 & 19, Kiah borefield

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

Biodiversity Values
- Biodiversity Values
- Biodiversity Values added in the last

Notes:
- Data collected by NGH Environmental (2019)
- Client data courtesy of Client, recieived 2019
- Base map Copyright QGIS and its data suppliers
- Datum GDA 94 Zone 55

0 50 100 m

A4 @ 1:3,000
Ref: 19-239 Bega LEP
Author: T Hastings
Date created: 26/06/2019

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Site 20 Merimbula SPS3

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 10 20 30 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental

Site 21 Merimbula SP18

Bega LEP sites

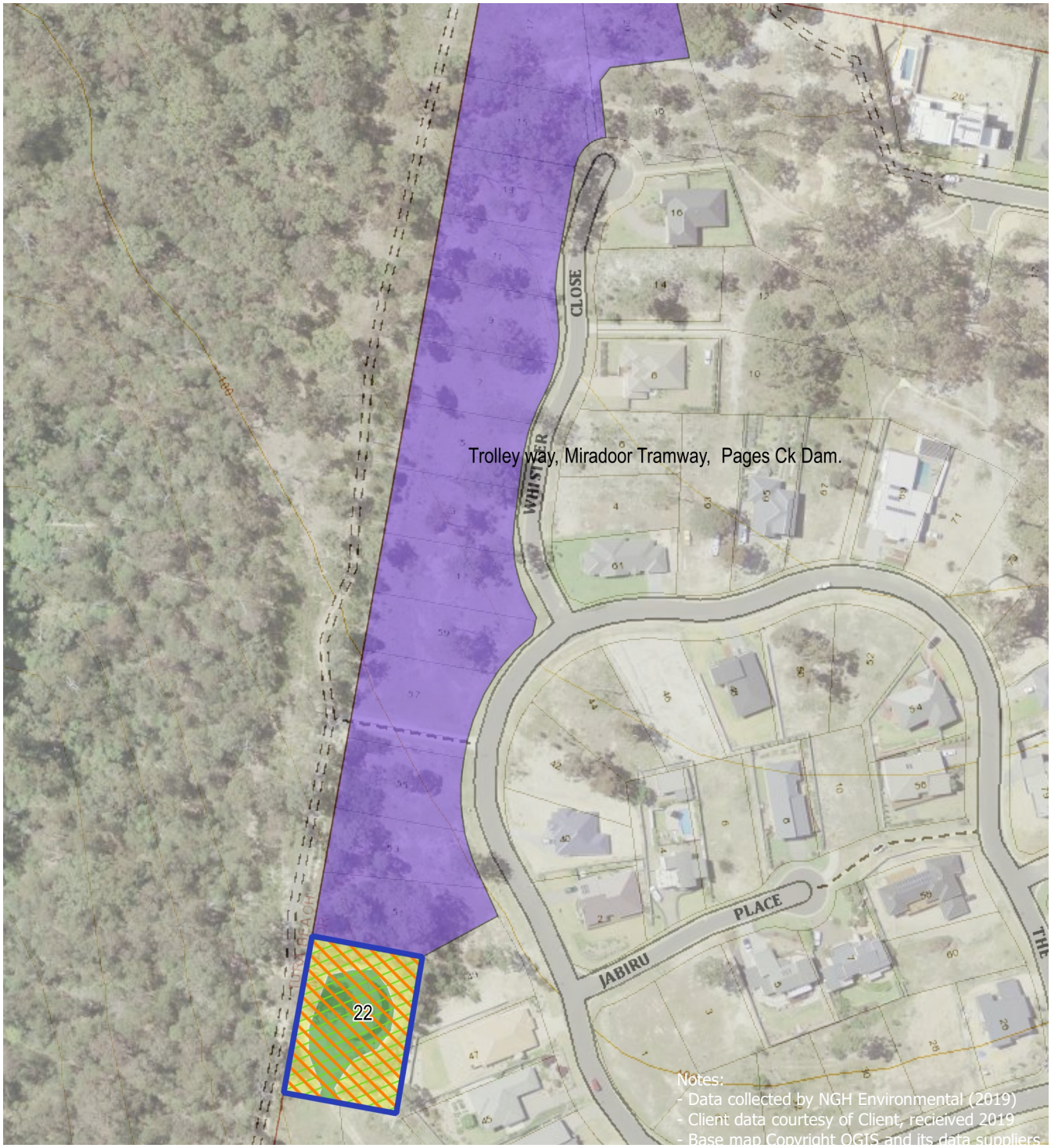
Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

0 10 20 30 m

A4 @ 1:750
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 26/6/2019

ngh environmental



Site 22 Berrambool reservoir

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

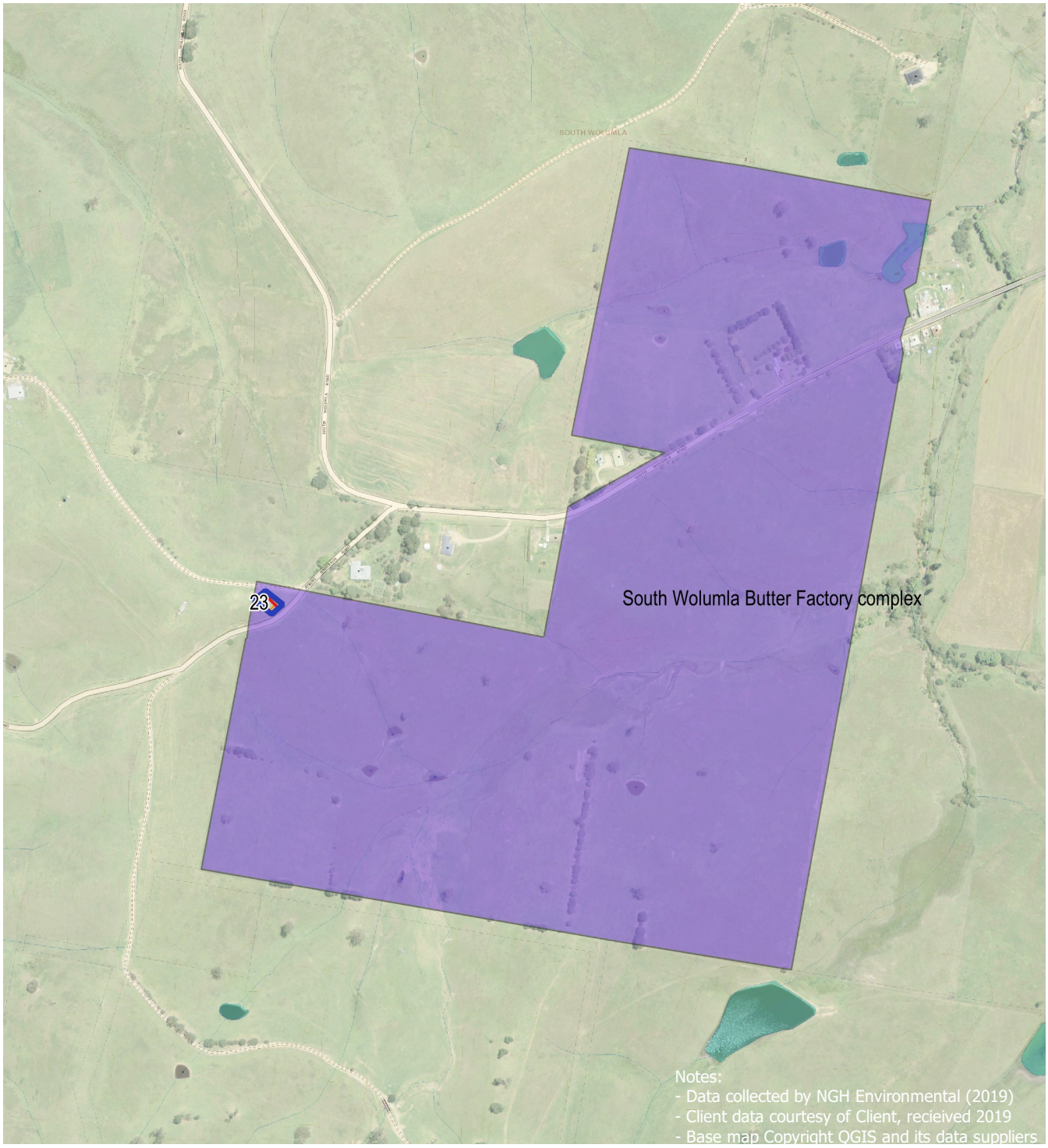
Historic constraint level
- High
- Moderate

Historic heritage

0 50 100 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 23/7/2019

ngh environmental



Site 23 South Wolumla Reservoir

Bega LEP sites

Biodiversity constraint level
- High
- Moderate
- Low

Aboriginal heritage constraint level
- High
- Moderate
- Low

Historic constraint level
- High
- Moderate

Historic heritage

0 100 200 300 400 m

A4 @ 1:1000
Ref: 19-239 Bega LEP
Author:T Hastings
Date created: 23/7/2019

ngh environmental

APPENDIX C PRIORITY WEEDS

Priority weeds for the South East, including the Bega Valley (DPI 2019), are:

African boxthorn
Lycium ferocissimum

African lovegrass
Eragrostis curvula

Alligator weed
Alternanthera philoxeroides

Alligator weed
Alternanthera philoxeroides

Anchored water hyacinth
Eichhornia azurea

Athel pine
Tamarix aphylla

Bellyache bush
Jatropha gossypiifolia

Bitou bush
Chrysanthemoides monilifera subsp. *rotundata*

Bitou bush
Chrysanthemoides monilifera subsp. *rotundata*

Black knapweed
Centaurea X moncktonii

Black willow
Salix nigra

Blackberry
Rubus fruticosus species aggregate

Blue hound's tongue
Cynoglossum creticum

Boneseed
Chrysanthemoides monilifera subsp. *monilifera*

Boneseed
Chrysanthemoides monilifera subsp. *monilifera*

Boxing glove cactus
Cylindropuntia fulgida var. *mamillata*

Bridal creeper
Asparagus asparagoides

Bridal creeper
Asparagus asparagoides

Bridal veil creeper
Asparagus declinatus

Broomrapes
Orobanche species

Cabomba
Cabomba caroliniana

Cabomba
Cabomba caroliniana

Cane cactus
Austrocylindropuntia cylindrica

Cane needle grass
Nassella hyalina

Cape broom
Genista monspessulana

Cape broom
Genista monspessulana

Cat's claw creeper
Dolichandra unguis-cati

Cat's claw creeper
Dolichandra unguis-cati

Chilean needle grass
Nassella neesiana

Chilean needle grass
Nassella neesiana

Climbing asparagus
Asparagus africanus

Climbing asparagus
Asparagus africanus

Climbing asparagus fern
Asparagus plumosus

Climbing asparagus fern
Asparagus plumosus

Common pear
Opuntia stricta

Common pear
Opuntia stricta

Coolatai grass
Hyparrhenia hirta

Eurasian water milfoil
Myriophyllum spicatum

Fireweed
Senecio madagascariensis

Fireweed
Senecio madagascariensis

Flax-leaf broom
Genista linifolia

Flax-leaf broom
Genista linifolia

Frogbit
Limnobium laevigatum

Gamba grass
Andropogon gayanus

Giant devil's fig
Solanum chrysotrichum

Giant Parramatta grass
Sporobolus fertilis

Giant rat's tail grass
Sporobolus pyramidalis

Gorse
Ulex europaeus

Gorse
Ulex europaeus

Grey sallow
Salix cinerea

Ground asparagus
Asparagus aethiopicus

Ground asparagus
Asparagus aethiopicus

Groundsel bush
Baccharis halimifolia

Hawkweeds
Hieracium species

Holly leaved senecio
Senecio glastifolius

Horsetails
Equisetum species

Hudson pear
Cylindropuntia rosea

Hydrocotyl
Hydrocotyle ranunculoides

Hygrophila
Hygrophila costata

Hymenachne
Hymenachne amplexicaulis and hybrids

Karroo thorn
Vachellia karroo

Kidney-leaf mud plantain
Heteranthera reniformis

Kochia
Bassia scoparia

Koster's curse
Clidemia hirta

Lagarosiphon
Lagarosiphon major

Lantana
Lantana camara

Lantana
Lantana camara

Long-leaf willow primrose
Ludwigia longifolia

Ludwigia
Ludwigia peruviana

Madeira vine
Anredera cordifolia

Mesquite
Prosopis species

Mexican feather grass
Nassella tenuissima

Miconia
Miconia species

Mikania vine
Mikania micrantha

Mimosa
Mimosa pigra

Ming asparagus fern
Asparagus macowanii var. *zuluensis*

Mysore thorn
Caesalpinia decapetala

Pampas grass
Cortaderia species

Parkinsonia
Parkinsonia aculeata

Parkinsonia
Parkinsonia aculeata

Parthenium weed
Parthenium hysterophorus

Parthenium weed
Parthenium hysterophorus

Pond apple
Annona glabra

Prickly acacia
Vachellia nilotica

Prickly pears - Austrocylindropuntias
Austrocylindropuntia species

Prickly pears - Cylindropuntias
Cylindropuntia species

Prickly pears - Opuntias
Opuntia species

Prickly pears - Opuntias
Opuntia species

Rope pear
Cylindropuntia imbricata

Rubber vine
Cryptostegia grandiflora

Sagittaria
Sagittaria platyphylla

Sagittaria
Sagittaria platyphylla

Salvinia
Salvinia molesta

Salvinia
Salvinia molesta

Scotch broom
Cytisus scoparius subsp. *scoparius*

Scotch broom
Cytisus scoparius subsp. *scoparius*

Sea spurge
Euphorbia paralias

Senegal tea plant
Gymnocoronis spilanthoides

Serrated tussock
Nassella trichotoma

Serrated tussock
Nassella trichotoma

Siam weed
Chromolaena odorata

Sicklethorn
Asparagus falcatus

Silverleaf nightshade
Solanum elaeagnifolium

Smooth tree pear
Opuntia monacantha

Smooth tree pear
Opuntia monacantha

Snakefeather
Asparagus scandens

Spanish broom
Spartium junceum

Spanish heath
Erica lusitanica

Spongeplant
Limnobium spongia

Spotted knapweed
Centaurea stoebe subsp. *micranthos*

St. John's wort
Hypericum perforatum

Tiger pear
Opuntia aurantiaca

Tiger pear
Opuntia aurantiaca

Tropical soda apple
Solanum viarum

Velvety tree pear
Opuntia tomentosa

Velvety tree pear
Opuntia tomentosa

Water caltrop
Trapa species

Water hyacinth
Eichhornia crassipes

Water hyacinth
Eichhornia crassipes

Water lettuce
Pistia stratiotes

Water soldier
Stratiotes aloides

Willows
Salix species

Witchweeds
Striga species

Yellow burrhead
Limnocharis flava

Appendix B Correspondence

NSW GOVERNMENT | Health
Murrumbidgee
Local Health District

15th April 2019

RECEIVED
24 APR 2019
BY: .....

Ms Leanne Barnes
General Manager
Bega Valley Shire Council
PO Box 492
BEGA NSW 2550

Dear Ms Barnes

BEGA WATER TREATMENT PLANT
SUPPORT LETTER

REF: D19/27617

NSW Health recognises the responsibility for water utilities to provide safe and secure drinking water to their local communities.

In line with this NSW Health has been working closely with Bega Valley Shire Council to ensure safe water is provided to communities within Council's area.

It is noted that further to previous support projects Council has now been awarded funding to design and construct a water treatment plant for the Bega -Tathra water supply system.

This opportunity will further consolidate Council's ability in providing safe and secure water to these communities.

The construction of the water treatment plant and associated facilities are fully supported by NSW Health.

Yours faithfully

Alison Nikitas
Acting Director
Public Health Unit

Murrumbidgee Local Health District – Public Health Unit
ABN 71 172 428 618

PO Box 3095, Albury, NSW 2640
Tel 02 6080 8900 Fax 02 6080 8999
Website www.mlhd.health.nsw.gov.au

PO Box 492, Bega NSW 2550
P. (02) 6499 2222
F. (02) 6499 2200
E. council@begavalley.nsw.gov.au
www.begavalley.nsw.gov.au
ABN. 26 987 935 332
DX. 4904 Bega

Ref: D19/27617

4 April 2019

By email only to: Tracey.Oakman@health.nsw.gov.au

cc: Peter.Harrington@gsahs.health.nsw.gov.au

Dear Mrs Oakman,

Request for letter of support for the construction of Bega Water Treatment Plant

As you are probably aware, Bega Valley Shire Council has been successful in being awarded 100% of the funds required to design and construct a water supply quality upgrade for the Bega-Tathra Water Supply System under the Safe and Secure Water Program. Council recognise the role that NSW Health played in the recognition of the need for water treatment in the Bega-Tathra system – thank you for your help so far.

As part of a review of our infrastructure land zonings we are seeking to update the zoning of the land on which we plan to build a new water treatment plant. We are seeking a letter of support from NSW Health for the construction of a water treatment plant on Lot 297, DP728021, and by extension the implied support for our proposed rezoning to a special purpose zone or other suitable zone for which water treatment is prescribed under the *State Environmental Planning Policy (Infrastructure) 2007.* Council identified the need for this facility in 1984 and purchased the subject site in 1996 for this specific purpose. A map is attached.

Your support for our planning process in this regard will reaffirm the assessment pathway, providing certainty and potentially enabling a faster construction timetable. This is because Council will be able to follow a streamlined assessment pathway, reflective of the nature of this critical infrastructure, which is enabled through the *State Environmental Planning Policy (Infrastructure) 2007.*

Rezoning also enables all required future works on the site to be carried out with no planning delay where they relate to the water supply system.

We understand that planning matters are complicated and are asking for agency input as a matter of strengthening our already strong planning proposal. Should our planning proposal be unsuccessful for any reason we are able to lodge a development application for the proposed site and intend to deliver the treatment infrastructure under that model.

Thank you for your support. If you have any questions then please direct them to Chris Best, our Water and Sewerage Assets Coordinator at cbest@begavalley.nsw.gov.au or 0450 161 029.

Yours sincerely

Leanne Barnes

General Manager

PO Box 492, Bega NSW 2550
P. (02) 6499 2222
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www.begavalley.nsw.gov.au
ABN. 26 987 935 332
DX. 4904 Bega

Ref: D19/27617

4 April 2019

By email only to: Matthew.Rizzuto@epa.nsw.gov.au

cc: Nigel.Sargent@epa.nsw.gov.au, Queanbeyan@epa.nsw.gov.au

Dear Mr Rizzuto,

Request for letter of support for the upgrade of Bega Sewage Treatment Plant

As you are aware, Bega Valley Shire Council licence EPL4120 for Bega Sewage Treatment Plant has conditions U1 and U2 as PRP licence conditions. These refer to *Adequacy of Sludge Handling* and *High Flow Treatment* respectively. We are working towards addressing these conditions as quickly as possible and are near completion of an updated process capability and hydraulic capacity assessment.

Our consultant has highlighted to us that there is likely to be an upgrade required for the plant to meet the licence conditions. For this to occur then our plant footprint is likely to be required to increase, on flood free land.

Since our STP is constrained to the North, East and South by flood zone we have always planned to utilise Lot 13, DP813625 for any expansion. A map is attached showing the flood model completed in 2018 for the Bega River, as well as the zones for the land. The majority of the expansion parcel is in R2 *Low Density Residential* zone. In this zone sewage treatment plant infrastructure is not prescribed and is prohibited by omission. The remainder is RU1 *Primary Production*. Sewage treatment plants are a prescribed zone in RU1 Primary Production, and so this zone is not an issue, except for that in this case there is no flood free land for utilisation.

As part of a review of our infrastructure land zonings we are seeking to rationalise the zone for the land on which we plan to expand our sewage treatment plant. We are seeking a letter of support from NSW EPA for the construction of sewage treatment plant infrastructure on Lot 13, DP813625.

Your support for this infrastructure, and by extension the implied support for our proposed rezoning to a special purpose, primary production zone, or other suitable zone for which sewage treatment is prescribed under the *State Environmental Planning Policy (Infrastructure) 2007* will enable rational upgrade of this works to occur and protect the environment from the risk of an at-capacity treatment works.

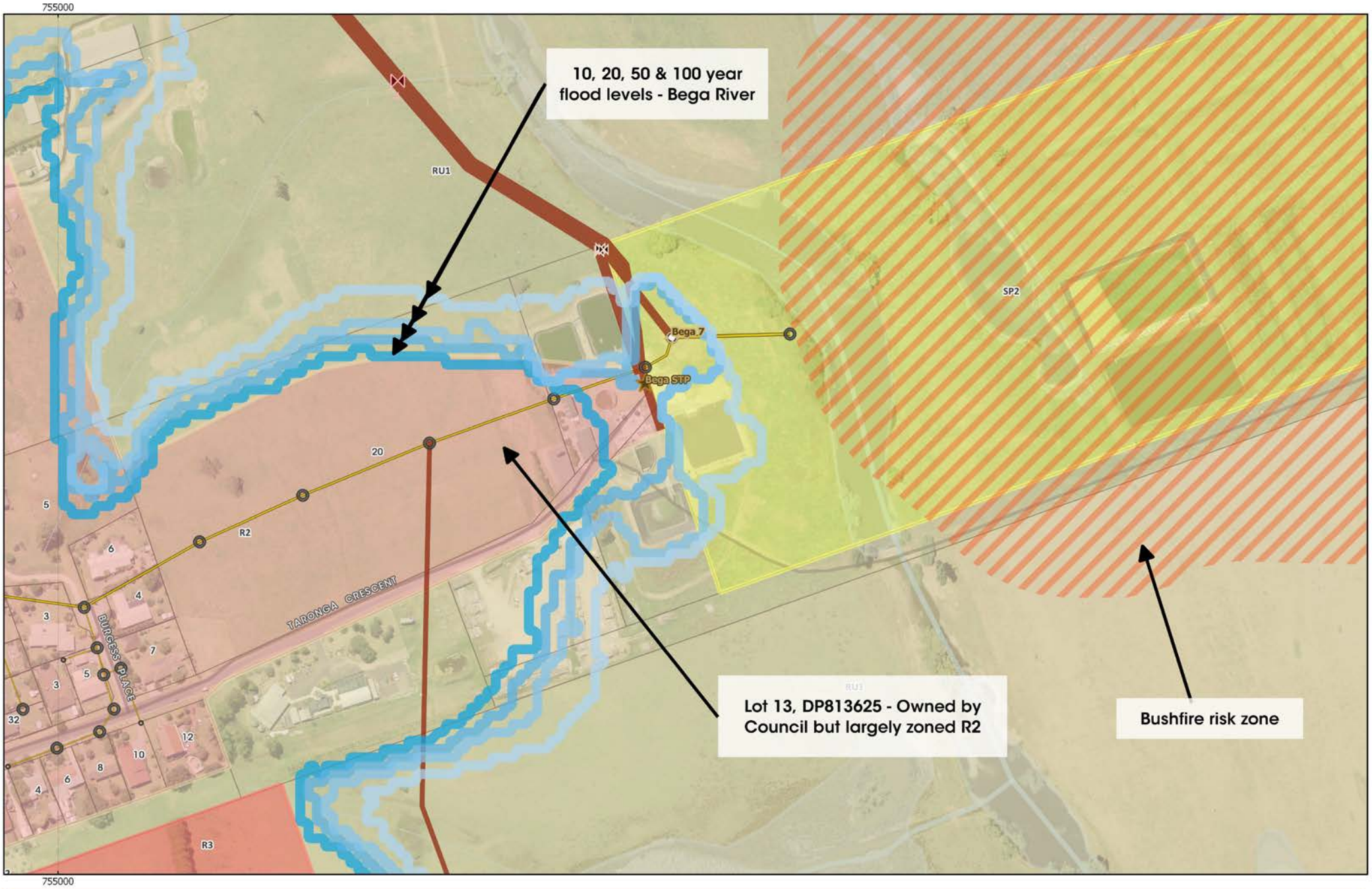
We understand that planning matters are complicated and are asking for agency input as a matter of strengthening our already strong planning proposal. Should our planning proposal be unsuccessful for any reason we will assess our options for other sites, significant process changes and filling of the existing land or the filling of other existing land to increase our supply of flood free land.

Thank you for your support. If you have any questions then please direct them to Chris Best, our Water and Sewerage Assets Coordinator at cbest@begavalley.nsw.gov.au or 0450 161 029.

Yours sincerely

Leanne Barnes

General Manager



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1:2,000
Created by: Best, Chris
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
MGA zone 55, EPSG:28355

N

bega valley shire council

NSW GOVERNMENT Land & Property Information

BVSC LEP Rationalisation | Project
12/2/2019 | Date

Bega STP flood and planning constraints

Disclaimer: This map is a representation of the information currently held by Bega Valley Shire Council. While every effort has been made to ensure the accuracy of the product, Council accepts no responsibility for any errors or omissions. C:\Users\chris.best\BVSC\IW6S Assets - Documents\2018 1PLAO.WSS.2018.5386 - Bega WTP\001

NSW GOVERNMENT Public Works Advisory

66 Harrington Street, Sydney NSW 2000
PO Box N408, Grosvenor Place NSW 1220
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