Item 15.03 PA2018 0190

Planning Scheme Amendment

Attachments

LITCHFIELD COUNCIL
Community effort is essential

12 July 2019

Lands Planning
Department of Infrastructure, Planning and Logistics
GPO Box 1680
Darwin NT 0801

RE: Letter of Comment Planning Scheme Amendment Application

PA2018/0190
Section 5758, Section 5761, Section 5827, Section 507
(905 Redcliffe Road, 580 Alverly Road, Monaghan Road, and 800 Freds Pass Road),
Lloyd Creek, Hundred of Strangways
Planning Scheme Amendment to
Rezone from Zone RL (Rural Living) and Zone R (Rural) to a Specific Zone Use to Facilitate the Development of a Master Planned Rural Lifestyle Estate Structured around up to Two Rural Activity Centres and Accommodating a Range of Lot Sizes (Noonamah Ridge)

Thank you for the Planning Scheme Amendment Application referred to this office on 04/06/2019, concerning the above. This letter will be tabled at Litchfield Council's next Council Meeting. Should this letter be varied or not endorsed by Council, you will be advised accordingly.

The following issues are raised for consideration by the Authority:

Council has provided the following detailed comments on the extensive application indicating specifically where Council supports the proposed amendments and areas where Council does not support the amendment and recommends changes or requires additional information to be able to offer support for a particular point.

Council does not support the application in its current form based on the information provided.

Specifically, Council does not support the absence of clarity and information in relation to:

- the process of utilising a Master Plan not included as part of the zone or a Development Permit for the site as a guiding document for the development,
- the expected extent of multiple dwelling developments,
- how independent units may be treated within the Specific Use Zone when size is typically regulated by a standard NT Planning Scheme zone,
- the understanding of proposed setbacks for any residential lots within the subdivision against which a future building setback plan would be assessed,
- the lack of requirements in the specific use zone text related to the purported covenants that would control aspects of the proposed development,

- the expectation of any land in Zone CN (Conservation) within the site and that such land would not be expected to be part of Council's open space network,
- the absence of a restriction on buildings greater than two storeys in height, and
- an approved water licence for the ability to service the first stage of the development.

However, it is considered that the areas of non-support are not insurmountable and the overall principles behind the development can be supported. The design philosophy appears sound and Council acknowledges the detailed technical studies and investigations provided to date and committed to in the proposed amendment. There are several development requirements and design features that Council strongly supports within the application, which are also detailed in the following comments.

Should Council's concerns be addressed, Council would welcome the opportunity to review revised proposals and reconsider overall support for the development.

Council offers the following specific comments regarding the granting of a Planning Scheme Amendment for the subject application:

a) Strategic Planning
The subject site is designated for "Urban/Peri-Urban" development in the Darwin Regional Land Use Plan and Litchfield Subregional Land Use Plan, not Rural Living; the application would comply with the land use designation within those documents.

From a planning perspective, master planned development would be preferred to numerous smaller ad-hoc subdivisions, which would be less likely to lead to coordinated development. Smaller ad-hoc subdivisions often leave the burden of road upgrades to Council and result in no provision of community facilities.

b) Master Plan Approval
It is unclear how the practice of approving a Master Plan that is not part of a Development Permit or ensconced as part of the zoning for the site would be recorded as an ongoing policy document for this site. If it were included, the developer would be required to go through a planning scheme amendment process to amend the Master Plan if any changes were made over time. However, it is unclear how the DCA would give consent to a Master Plan that is not part of a Development Application.

It is unclear how the Master Plan document would be enforceable or be interpreted and used by the DCA when evaluating future subdivision and development applications. It is unclear where the document would "live" and who would be its "owner". Typically, policy documents such as the Darwin Regional Land Use Plan or Litchfield Subregional Land Use Plan are government documents that can be modified by the government while master plans are the preferred intent of the developer and modified in future by the developer. If the proposal is for the master plan to sit as an ongoing policy document, it is unclear if only the developer would be able to modify in the future or if other parties could propose modification.

It is unclear how the public would be able to readily view the Master Plan. Typically, Development Permits have a standard process for obtaining and the NT Planning Scheme is readily available. If the government is not the owner of the Master Plan, it would seem that the government should not be the responsible party for providing public access to the Master Plan as a policy document.

Additional clarification on the process of the Master Plan as a guiding document for the development is requested.

c) Number of Lots and Dwellings

Under the current zoning of the site and current legislation, the site could be subdivided for approximately 1,500 to 2,000 dwellings and all lots would have rights to individual bores. The addition of uncoordinated development of 2,000 two hectare lots with no community services in this locality could be considered sprawl-type development.

However, while the application limits the number of lots, it is noted that the number of dwellings within those lots is not capped. Specifically, the proposal does not address any expectations of independent units within the zone. It is unclear whether independent units would be allowed within the Specific Use Zone, as regulations for sizes of permitted independent units are currently controlled by the zone, which would not be applicable within the Specific Use Zone. More information on how the proposal relates to independent units is required.

d) Multiple Dwellings and Building Height

While the application indicates no intention to have development of multiple dwellings at three storeys, there is no restriction within the Specific Use Zone text on the number of storeys or the density of multiple dwellings permitted within the site.

Council cannot support the proposal without clarification within the Specific Use Zone text of no building height over two storeys and no dwelling density for individual lots beyond that currently permitted by Zone MD (Multiple Dwelling) within the NT Planning Scheme.

e) Dwelling Density

The proposed zone caps the dwelling density for the entire site at 1.62 dwellings per hectare. As a comparison, typical urban density for 800m2 lots is approximately 14 dwellings per hectare and for 300m2 lots (for multiple dwellings or small lot development such as in Zuccoli) is approximately 25 dwellings per hectare. While the development includes some smaller lots, it is not expected to be a Zuccoli or Palmerston-type development.

Council supports the opportunity for smaller, more affordable lots within the rural area. However, if this type of development is to occur, the provision of that development in conjunction with commercial and community facilities is preferred.

f) Buffers to Existing Development

Buffers have been provided to existing lots so that the outlook from those existing lots outside the development remains the same as what could be developed today. This provision can be strongly supported by Council to protect the streetscape amenity of existing residents.

g) Future Subdivision and Covenants

The application proposes to require covenants on titles to limit further re-subdivision of sites beyond the initial subdivision of the area. However, the requirement for covenants is not reflected in the Specific Use Zone text. If the use of covenants is not required by the Specific Use Zone, it will not be enforceable to require the developer to put the covenants in place as stated.

As this proposal is a major part of the development and expected future development of the area, Council cannot support the development unless this requirement is included in the Specific Use Zone text.

h) Building Setbacks

Support can be provided to limitations to building envelopes and clearing of the sites in order to preserve the rural amenity of the blocks. However, as no specific setbacks are proposed, it is difficult to support an unknown provision for setbacks within the development. It is unclear from the current proposal whether the existing setbacks in the NT Planning Scheme still apply unless altered, as it seems the expectation is that the setbacks will be altered with the setback plan and again it is unclear against what measure the DCA would evaluate the proposed building setback plan.

If the intent is that, at a minimum, the current building setbacks in the NT Planning Scheme would continue to apply and any additional setback plan would propose setbacks in excess of the NT Planning Scheme requirements, the Specific Use Zone text should state that intent. Without any intent or measurements for proposed building setbacks, it is unclear how the DCA could evaluate whether the proposed setbacks met the zone.

Council strongly supports appropriate buffers to neighbouring lots to maintain the rural amenity and that these should be defined and reflect a minimum of the current NT Planning Scheme requirements.

The proposed approach for a building setback plan as part of the subdivision application combines a permit for subdivision (creation of new lots) with a permit for development (building setback plan for buildings on those new lots). Under a subdivision permit, the issuing of titles for the new lots concludes the purpose of the permit and the permit duration is expected to conclude in four years. However, in this proposal, the intent is for the building setback plan to continue to apply to the lots in perpetuity. Further details on the appropriateness of the continuing applicability of the subdivision permit to enforce the building setback plan should be investigated.

i) Community and Commercial Facilities

The requirement for community facilities and social infrastructure included in Stage 1 of the development, and for two activity centres to service the development, is supported. Additional commercial and appropriately located industrial facilities and the associated contribution to local jobs and economy is supported and encouraged. Appropriate public transport to service the site should be addressed at subdivision stage to ensure best practice mobility and access for residents.

j) Roads and Drainage

Council can address proposals for roads and drainage at subdivision and development stages; at this time, no insurmountable issues are foreseen. With new developments, the cost for all new internal roads are required to be covered by the developer, as are the costs for any upgrades required to existing Council roads as a result of the development. Further discussion with Council at subdivision stage would be required to examine how stormwater drainage may be managed on the smaller lots if clearing of the site is restricted. It is expected that an acceptable drainage solution can be reached.

k) Public Open Space

For public open space, the application proposes a minimum 15% of the site as public open space network (open space, creeks, drainage, wetlands, environmental lands) with

10% of that space for public open space recreation activities. Currently the NT Planning Scheme requires 10% of an urban subdivision site as open space unencumbered by drains; there is no requirement for public open space for rural subdivisions.

The provision of public open space to service the smaller lots and community in general is supported and can be managed by Council, provided Council's Standards are met. It is acknowledged that the rural-sized lots would not typically require a public open space contribution under the NT Planning Scheme. Should any of the public open spaces be proposed to be located in Zone PS (Public Open Space) and dedicated to Council at the time of subdivision, the developer would be required to adhere to Council's standards for development of the public open space area.

l) Conservation Land

The proposed Specific Use Zone text makes reference to land in Zone CN (Conservation) which does not currently exist on the site. It is therefore assumed that the development would be expected to rezone some portions of the subject site to Zone CN (Conservation) at some later date. It is unclear in what ownership that conservation land would be expected to site in the future. Council does not consider conservation land to be equal to land in Zone PS (Public Open Space), which may be expected to be handed over to Council. Council's Development and Subdivision Standards do not support conservation land being dedicated to Council, as Council has no responsibilities or expertise in relation to management of such land; those responsibilities sit with the NT Department of Environment and Natural Resources.

m) Environmental Impact Assessment

Council can support the requirements of the Specific Use Zone for future subdivision and development applications to be required to address the recommendations of the EIA; Council is not the appropriate authority to assess the suitability of those requirements.

n) Availability of Water

It is noted that the provision of water for the development has been discussed throughout the life of this proposal. It is considered that proposals related to water should be appropriately evaluated against the scientific evidence by experts in the relevant professional fields. The NT Department of Environment and Natural Resources (DENR) is the body suitable to review and comment on the information provided, rather than Council.

Of note, in the application's discussion of groundwater, there is a stated "standard water consumption figure per lot of 1.4 ML/annum" which is different to the figure of 3.5 ML/year for a rural lot typically used by DENR.

An application has been made for a water licence for the site. It is unknown where the application for the water licence, which is required to service the first stage of site as currently proposed, is at in the approval process.

Council can support the proposed rezoning provided that the water licence is granted prior to the rezoning or additional information be provided to ensure that water is available to service the unique development as proposed.

o) Zone Text Formatting

It appears the numbering/lettering within the zone is off under Section 3 Master Plan xi. "The master plan required at clause 3.1 is to:". The numbering in this section should be

reworked to ensure clarity on what the master plan must include. Currently, it is unclear where the requirements for the master plan end and other requirements begin.

If you require any further discussion in relation to this application, please contact **Litchfield Council's Planning and Development division** on 08 8983 0600 and you will be directed to the appropriate officer to address your query.

Yours faithfully

Wendy Smith
Planning and Development Manager

NORTHERN TERRITORY OF AUSTRALIA

PROPOSAL TO AMEND NT PLANNING SCHEME
PA2018/0190

The Minister for Infrastructure, Planning and Logistics has accepted an application to amend the NT Planning Scheme made by Elton Consulting for exhibition. The application seeks to rezone Sections 5827, 507, 5758 and 5761 Hundred of Strangways from Zones RL (Rural Living) and R (Rural) to a Specific Use Zone.

The proposed amendment is intended to facilitate the development of a master planner rural lifestyle estate structured around up to two rural activity centres and accommodating a range of lot sizes.

Attached are:

- a locality map
- extracts from the NT Planning Scheme relating to Zones RL (Rural Living) and R (Rural);
- extracts from the NT Planning Scheme relating to the proposed Specific Use Zone; and
- a copy of the application.

Period of Exhibition and Lodging a Submission
The exhibition period is Friday 14 June 2019 to Friday 12 July 2019.

The suitability of the subject site for uses in accordance with the proposed zone is the primary consideration in the assessment of proposals to amend the NT Planning Scheme. Matters relating to the intended development of the site are addressed in the development application and assessment processes.

Written submissions about the proposed planning scheme amendment are to be received by 11.59pm on Friday 5 July 2019 and addressed to:

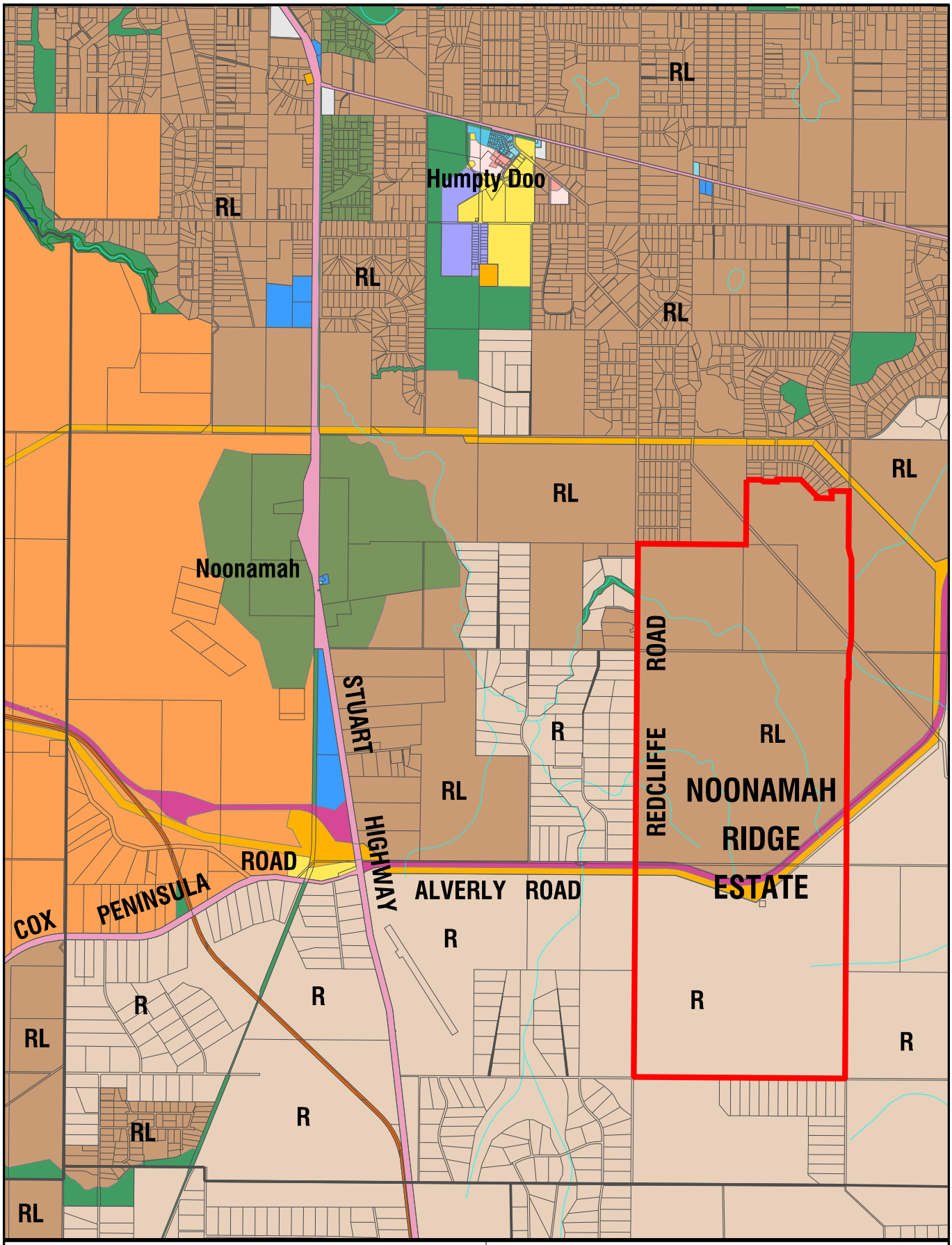
NT Planning Commission
GPO Box 1680
DARWIN NT 0801; or

Email: planning.ntg@nt.gov.au; or

Fax: (08) 8999 7189; or

Hand delivered to Energy House, Level 1, 18-20 Cavenagh Street, Darwin 0801.

For more information please contact Del Batton, Lands Planning on telephone (08) 8999 3901.



LOCALITY PLAN

Northern Territory Government

Department of Lands, Planning and the Environment

0 800 1600 2400 3200 4000m

Scale 1: 80000 @ A4

Date: 11 March 2016

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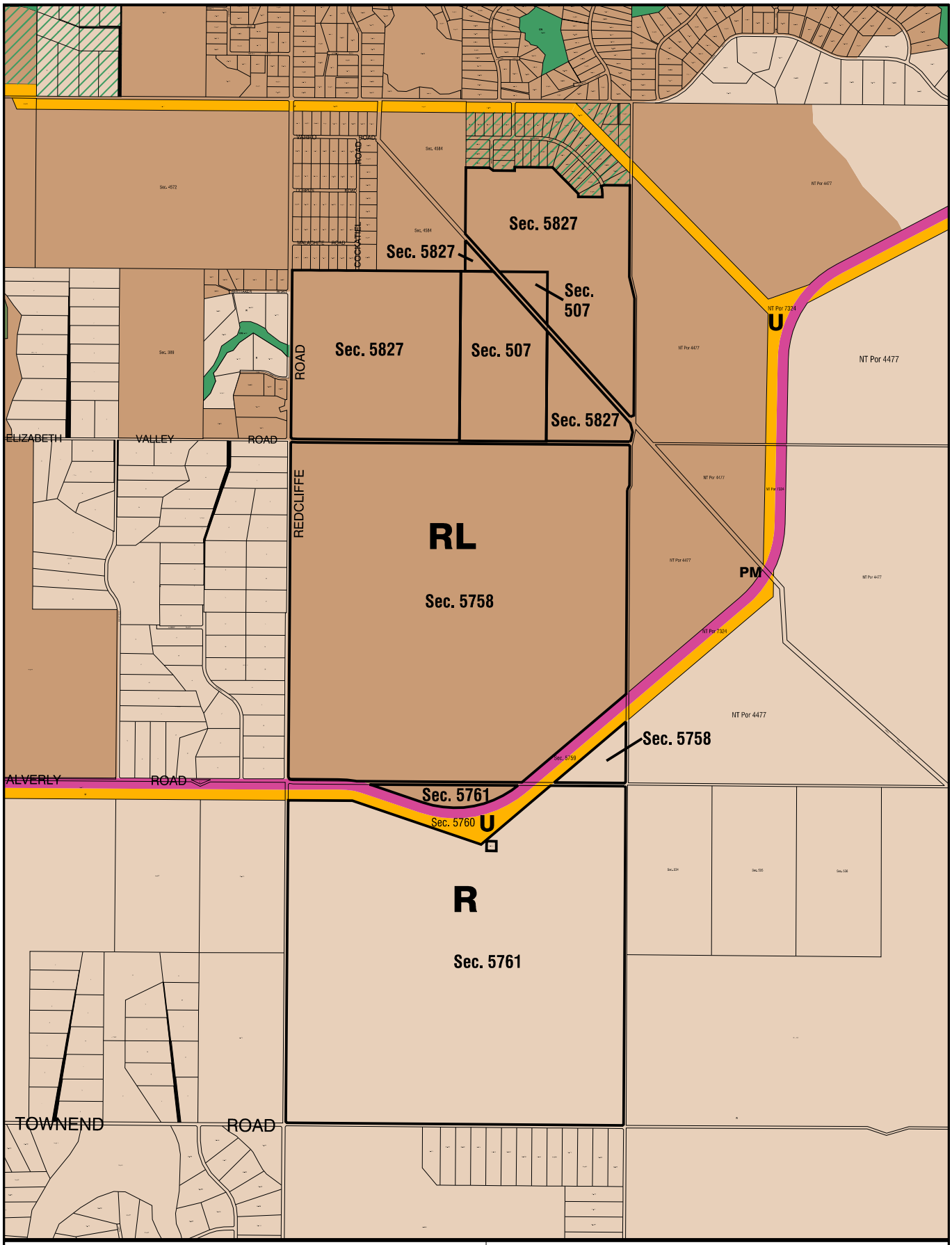

EXISTING ZONING PLAN
NT PLANNING SCHEME
AMENDMENT PA2018/0190
REZONE SECTIONS 5827, 507, 5758 & 5761
HUNDRED OF STRANGWAYS
From Zone RL (Rural Living) and R (Rural)
to Zone SU (Specific Use)

NORTHERN TERRITORY GOVERNMENT

Department of Infrastructure, Planning and Logistics

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File No.: PA2018/0190
Date: 8-May-19
Drawing Name: Sec 5827, 507, 5758 and 5761 Strangways.dgn

5.19 Zone RL – Rural Living

1. The primary purpose of Zone RL is to provide for low-density rural living and a range of rural land uses including **agriculture** and **horticulture**.
2. If lots are unsewered, provision for the disposal of effluent must be made on-site so that the effluent does not pollute ground or surface waters.

Clause 6.8 refers to **Demountable Structures**.

Clause 6.2 limits the height of buildings within the Municipality of Alice Springs.

Clause 6.9 controls the use and development of land within the ANEF 20 unit value contour adjacent to airports.

Clause 6.14 refers to land subject to flooding and storm surge.

Clause 7.10.2 refers to **caravans**.

Clause 10.2 refers to the **clearing of native vegetation**.

Clause 11.1.1 refers to subdivision lot sizes and clause 11.4 to subdivision standards.

Clause 13.5 refers to the erection of mobile telephone communications towers.

Areas potentially of environmental significance within the Shire of Litchfield are identified on the map "Priority Environmental Management Areas – Litchfield Shire" produced by the former Department of Infrastructure, Planning and Environment, see clause 2.8.

ZONING TABLE – ZONE RL

abattoir	x	
agriculture	**D**	6.1, 10.1, 10.2
animal boarding	**D**	6.1, 6.5.1, 10.1, 10.2
business sign	**P**	6.7
caravan park	x	
caretaker's residence	x	
car park	x	
child care centre	**D**	6.1, 6.5.1, 8.1.5, 10.2
community centre	**D**	6.1, 6.5.1, 10.2
domestic livestock	**P**	6.1, 10.1, 10.2
education establishment	x	
fuel depot	x	
general industry	x	
group home	**P**	7.1, 7.3, 7.10.5
helicopter landing sites	**D**	7.10.10
home based child care centre	**P**	6.5.1, 7.10.6
home based contracting	**P**	7.10.8, 10.2
home based visitor accommodation	**S**	7.10.1
home occupation	**P**	7.10.7
horticulture	**D**	10.2
hospital	x	
hostel	x	
hotel	x	
independent unit	**P**	6.5.1, 7.1, 7.3, 7.5, 7.10.4
intensive animal husbandry	**D**	6.1, 10.1, 10.2
leisure and recreation	x	
licensed club	x	
light industry	x	
medical clinic	x	
medical consulting rooms	**P**	6.5.1, 7.10.9
motel	x	
motor body works	x	
motor repair station	x	
multiple dwellings	x	
office	x	
passenger terminal	x	
place of worship	x	
plant nursery	**D**	6.1, 6.5.1, 10.2
promotion sign	x	
recycling depot	x	
restaurant	x	
retail agricultural stall	**P**	6.1, 10.2
rural industry	**D**	6.1, 6.5.1, 10.2, 10.6
service station	x	
shop	x	
showroom sales	x	
single dwelling	**P**	6.5.1, 7.1, 7.3
stables	**D**	6.1, 6.5.1, 10.1, 10.2
supporting accommodation	**D**	6.5.1, 7.1, 7.3, 7.5, 7.6, 7.7, 7.8, 10.2
transport terminal	x	
vehicle sales and hire	x	
veterinary clinic	**D**	6.1, 6.5.1, 10.2
warehouse	x	

P = Permitted **S** = Self Assessable **D** = Discretionary x = Prohibited

Amendment No. 494 published in the NT News on 22.02.2019 introduces 'helicopter landing sites' to the table

5.20 ZONE R – RURAL

1. The primary purpose of Zone R is to provide for a range of activities including residential, agricultural and other rural activities.
2. The larger lot sizes in this zone facilitate the separation between potentially incompatible uses and restrict closer settlement.
3. If lots are unsewered, provision for the disposal of effluent must be made on-site so that the effluent does not pollute ground or surface waters.

Clause 6.8 refers to **Demountable Structures**.

Clause 6.2 limits the height of buildings within the Municipality of Alice Springs.

Clause 6.9 controls the use and development of land within the ANEF 20 unit value contour adjacent to airports.

Clause 6.14 refers to land subject to flooding and storm surge.

Clause 7.10.2 refers to **caravans**.

Clause 10.2 refers to the **clearing of native vegetation**.

Clause 11.1.1 refers to subdivision lot sizes and clauses 11.4 to subdivision standards.

Clause 13.5 refers to the erection of mobile telephone communications towers.

Areas potentially of environmental significance within the Shire of Litchfield are identified on the map "Priority Environmental Management Areas – Litchfield Shire" produced by the former Department of Infrastructure, Planning and Environment, see clause 2.8.

ZONING TABLE – ZONE R

abattoir	x	
agriculture	**P**	6.1, 10.1, 10.2
animal boarding	**D**	6.1, 10.1, 10.2
business sign	**P**	6.7
caravan park	x	
caretaker's residence	x	
car park	x	
child care centre	**D**	6.1, 6.5.1, 8.1.5, 10.2
community centre	**D**	6.1, 6.5.1, 10.2
domestic livestock	**P**	6.1, 10.1, 10.2
education establishment	**D**	6.1, 6.5.1, 10.2
fuel depot	x	
general industry	x	
group home	**P**	7.1, 7.3, 7.10.5
helicopter landing sites	**D**	7.10.10
home based child care centre	**P**	6.5.1, 7.10.6
home based contracting	**P**	7.10.8, 10.2
home based visitor accommodation	**S**	7.10.1
home occupation	**P**	7.10.7
horticulture	**P**	6.1, 10.2
hospital	x	
hostel	x	
hotel	x	
independent unit	**P**	6.5.1, 7.1, 7.3, 7.5, 7.10.4
intensive animal husbandry	**D**	6.1, 10.1, 10.2
leisure and recreation	x	
licensed club	x	
light industry	x	
medical clinic	x	
medical consulting rooms	**P**	6.5.1, 7.10.9
motel	x	
motor body works	x	
motor repair station	x	
multiple dwellings	x	
office	x	
passenger terminal	x	
place of worship	**D**	6.1, 6.5.1, 10.2
plant nursery	**P**	6.1, 6.5.1, 10.2
promotion sign	x	
recycling depot	x	
restaurant	**D**	6.1, 6.5.1, 6.6, 10.2
retail agricultural stall	**P**	6.1, 10.2
rural industry	**D**	6.1, 6.5.1, 10.2, 10.6
service station	x	
shop	x	
showroom sales	x	
single dwelling	**P**	6.5.1, 7.1, 7.3
stables	**D**	6.1, 6.5.1, 10.1, 10.2
supporting accommodation	**D**	6.5.1, 7.1, 7.3, 7.5, 7.6, 7.7, 7.8, 10.2
transport terminal	**D**	6.1, 6.5.1, 6.6, 10.1, 10.2, 10.5
vehicle sales and hire	x	
veterinary clinic	**D**	6.1, 6.5.1, 10.2
warehouse	x	

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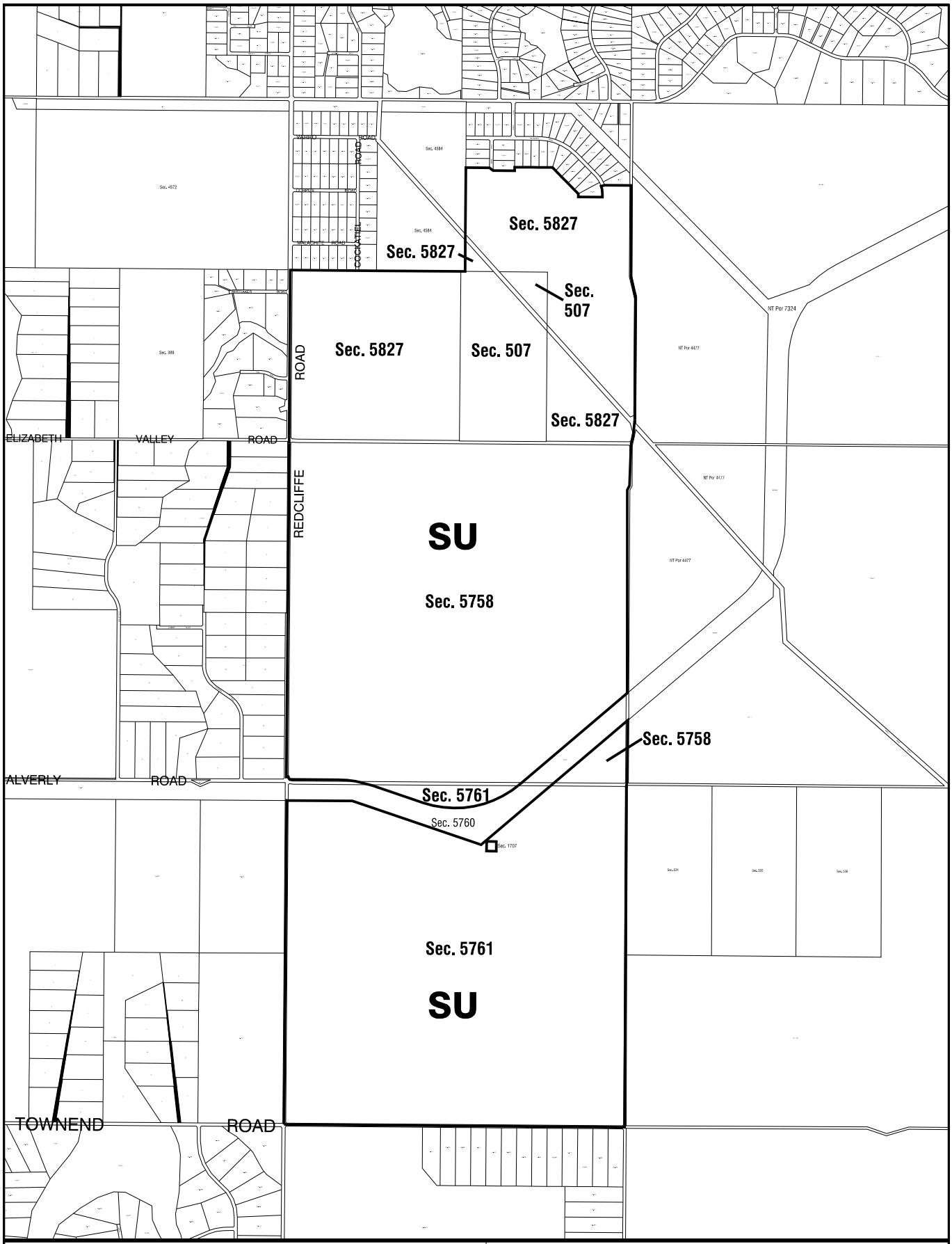

PROPOSED NT PLANNING SCHEME
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SLXX | Sections 0507, 5827, 5758 and 5761, Hundred of Strangways.

1. PURPOSE

1. The purpose of this zone is to:
   (a) inform detailed planning for the future subdivision, use and development of the land as a rural character estate in a manner which will facilitate integration with development on adjoining land and the broader locality;
   (b) establish a framework for sustainable water supply to support the overall development;
   (c) ensure that future development responds to the physical attributes of the land and protects areas of environmental sensitivity; and
   (d) facilitate the delivery of the necessary service infrastructure required to support each stage of the intended development within the context of the strategy for infrastructure for the overall site.

2. DEVELOPMENT DESIGN AND PHILOSOPHY

1. Subdivision and development is to be designed to respond to:
   (a) the land form and the suitability of the land for the intended future use;
   (b) areas of environmental and heritage significance including the recommendations within the Assessment Report No. 82 prepared by the NT EPA;
   (c) natural drainage and the potential impacts of development;
   (d) Darwin's tropical climate; and
   (e) the regional context of the locality and the existing amenity of the area.
2. The overarching design principles are to:
   (a) create a rural character estate providing amenity for residents via a range of residential options, two rural activity centres, an employment area, social infrastructure, an open space network incorporating public open space, areas of environmental and historical significance and natural areas;
   (b) complement and reflect the existing character of the broader locality by providing for urban / peri-urban development transitioning to existing rural lifestyle areas;
   (c) structure development around two rural activity centres, that provide a range of retail, commercial, community facilities and residential uses to create a high quality community focused environment;
   (d) facilitate a range of residential lots including an appropriate transition of densities from urban lots within the activity centres through rural residential to larger lots on the boundaries of the development to create an appropriate interface with established rural lifestyle areas;
   (e) provide a hierarchy of roads and an efficient movement network to facilitate integration with the immediate and broader road network; and
   (f) facilitate the provision of sustainable infrastructure options for water supply, wastewater treatment and disposal and power supply.

3. MASTER PLAN

i. Future development or subdivision within this zone is to be generally consistent with an endorsed master plan for the land; and

ii. An application for subdivision or development cannot be considered by the consent authority until it has endorsed a master plan for the land, however the first stage subdivision application and master plan can be considered simultaneously.

iii. The owner of land within this zone, or a person authorised by the owner may request the consent authority to endorse a master plan.

iv. A request under sub clause 3 is to be accompanied by a fee equivalent to that required to be paid for Planning Scheme Amendment.

v. If the consent authority is of the opinion that the masterplan may have strategic planning implications it may ask the Minister to request the Northern territory Planning Commission to provide a significant development report in relation to the masterplan under section 50B(5) of the *Planning Act.*

vi. Following lodgment of the master plan, the consent authority shall determine an appropriate consultation program consisting of, at a minimum:

   a. Public notification and exhibition of the draft master plan for 28 days, including referral to relevant government agencies inviting written submissions;

   b. Provision of the opportunity for those who have made submissions to be heard in relation to the issues raised.

vii. The consent authority is to endorse the master plan as a framework for future development, only if it is satisfied, on the advice of the relevant government agencies, service authorities and (if relevant) the NT Planning Commission, that the master plan establishes an appropriate framework to guide future development, provides the information required by clause 3.11 and that development will not:

   a. detrimentally impact on opportunities for integrated development of the broader locality particularly with respect to the provision of appropriate infrastructure and services to meet the needs of future residents of the overall development

   b. result in unreasonable costs to Government or service authorities; and

   c. detrimentally impact on the environment.

viii. The Development Consent Authority may endorse an amendment to the master plan endorsed in accordance with clause 3.7 without further exhibition if it is satisfied that the proposed amendment is not so significant as to require exhibition.

ix. If the consent authority considers that the amendment is significant it must re-exhibit the amendment in accordance with clause 3.5 prior to endorsement of the amendment in accordance with 3.7.

x. An amendment to the master plan must be endorsed by the Development Consent Authority prior to the lodgement of any development or subdivision

application that relies on the amendments to the master plan.

xi. The master plan required at clause 3.1 is to:

xii. respond to the design principles identified in Clause 2 above;

xiii. identify the principles and the likely future layout and distribution of land uses including:

a. two rural activity centres that provide a range of retail, commercial and community uses to meet the needs of future residents of the development and the broader locality;

b. a core development area surrounding the activity centres with lots a minimum size of 800m² to provide a population to support the viability of the centre;

c. transition areas around the activity centres with lots a minimum size of 1ha

d. A rural area with lots of 1ha or larger

e. Lots of 2 ha or larger as a transition to established rural living areas;

f. an employment area; and

g. the likely staging of the intended development.

xiv. illustrate how the proposed development will integrate with the broader locality with a focus on the measures to be utilised to buffer established adjoining rural lifestyle areas;

xv. establish local road networks to facilitate interconnectivity and convenient access to local facilities and services;

xvi. identify the principles that will ensure future development of areas identified as being of Environmental Significance on Diagram A to this clause;

a. will not detrimentally impact on environmental values that informed the identification of these areas as significant in the EIS;

b. preserve and enhance drainage areas within the context of the protection of environmental significance to facilitate an interconnected open space network providing for passive and active recreation.

xvii. Be accompanied by high level principles to provide a framework for the consideration of future applications for consent to ensure future development responds to the outcomes of detailed investigations including (but not necessarily limited to):

xviii. an assessment of the ability of the land to accommodate the intended development;

xix. information included in the Environmental Impact Statement;

xx. an assessment by a suitably qualified person, experienced in the investigation and assessment of contaminated land, that provides clearance that the site is free from contaminants;

xxi. a flood and inundation study that demonstrates that land intended to be developed for residential purposes is not constrained by riverine or local stormwater flooding, waterlogging or seasonal inundation;

xxii. a concept stormwater management plan demonstrating that the master planned development will not adversely impact on stormwater management within the site or on neighbouring land and roads including upstream and downstream flows identifying, where appropriate, mitigation measures that

will require detailed design at the subdivision stage of the development. The study shall be completed to the satisfaction of Litchfield Council;

xxiii. a Transport Impact Assessment, within the context of the Strategic Traffic Model for Darwin and to the satisfaction of the Department of Transport and the Litchfield Council, which assesses:

xxiv. the impacts of development on both the regional and local road network;

xxv. the public transport infrastructure requirement; and

xxvi. the staging of the road infrastructure;

xxvii. a Social infrastructure and Open Space Strategy which includes, but is not limited to, the following:

xxviii. identification of the range of facilities and services required to meet the need of the future residents and the broader community; and

xxix. the principles that will guide the future provision (including staging), ownership and management of suitable sites to accommodate the required facilities and / or protect and manage the natural environment and wildlife corridors;

xxx. A water supply plan that includes technical investigations outlining:

a. The continuity of the aquifers, groundwater flow regime and discharge areas.

b. Quantitative information establishing the sustainability of the groundwater resource.

c. Baseline monitoring data assessing resource behaviour, including the recharge and discharge processes and the resource response to rainfall quantifying recharge.

d. Quantifying recharge for each of the groundwater compartments in which the production bores will be located.

e. Modelling predictions of pumping impact on the environmental assets.

f. An on-going monitoring scheme designed to inform possible impacts on areas of concern.

g. Analytical modelling outlining the seasonal and long-term (100-year) impact on the resource and sustainability of supply.

xxxi. A sewerage servicing plan established within the context of regional infrastructure strategy, and a long-term sustainable strategy for the provision of sewerage infrastructure (private, public or communal) necessary to support development in the broader Hughes / Noonamah locality and ensure coordination and staging of sewerage infrastructure.

xxxii. An electricity network plan established within the context of regional infrastructure strategies, and a long-term sustainable strategy for the provision of infrastructure (private, public or communal) necessary to support development in the broader Hughes / Noonamah locality, and ensure coordination and staging of electricity infrastructure.

xxxiii. a biting insect management strategy for managing biting insects within the site as well as to manage the impact of identified biting insect breeding sites within 1.6 km of the site.

PART 2 – SUBDIVISION REQUIREMENTS

4. SUBDIVISION APPLICATIONS

1. With **consent** land within this zone may be subdivided if the application:
   (a) accords with the overall master plan and associated strategies and reports referred to in Clause 3.1; and
   (b) is accompanied by a detailed land use plan that identifies:
      i. the intended future use of land including the intended zone that will apply and the distribution of the various residential and rural densities;
      ii. the boundaries of the activity centres and associated rural residential transition zones;
      iii. the maximum building envelope for each residential lot as outlined in Clause 6 of this zone; and
      iv. forms part of any development permit for subdivision.

5. SUBDIVISION DESIGN

1. The subdivision design shall accord with Part 5 of the NT Planning Scheme and the following provisions:
   (a) Provide a network of corridors incorporating:
      i. all areas with significant conservation values and appropriate buffers within Zone CN (Conservation) to the satisfaction of NT EPA and the relevant government agencies;
      ii. identified cultural heritage sites, including the identified aircraft wreck and the restricted works area in the south-east of the project area, as identified by the Aboriginal Areas Protection Authority Certificate; and
      iii. a minimum of 15% of the site area for an open space network and associated linkages (public open space, creeks, drainage, wetland, environmental lands), of which 10% of the site is unconstrained and available for public open space purposes (active and passive space);
   (b) incorporate a rural activity centre within Stage One of the development, reserving land for residential, community facilities, retail, education and commercial purposes;
   (c) demonstrate that the principles of 'Crime Prevention Through Environmental Design' have been applied;
   (d) manage noise sensitive development adjacent to the proposed arterial road by considering the NT Department of Transport's "Road Traffic Noise on Controlled Roads" Policy;
   (e) provide an interconnected road network and hierarchy of roads within the site and to the surrounding area to the satisfaction of the relevant Government agencies and the Litchfield Council; and
   (f) Provide reticulated services (water and sewerage) and appropriate trunk corridors to enable future integration of interim infrastructure in accordance with the regional infrastructure strategies, and to the satisfaction of the relevant agencies and service authorities.

6. LOT SIZES AND CONFIGURATION

1. The purpose of this clause is to ensure that the size, configuration and orientation of lots are suitable for urban and rural residential purposes within the context of the proposed future development and characteristics of the broader locality and provide:

   (a) up to a total of 4 200 residential, rural residential, rural living and rural lots, at a Gross Dwelling Density of 1.62 dwellings per hectare.

   (b) Opportunities for a variety of housing types on a range of lot sizes and including:

      i. Areas of lots of a minimum size of 800m²

      ii. Areas of lots of a minimum size of 4,000m²

      iii. Areas of lots of a minimum size of 1ha

   (c) Lots on the subdivision plan shall provide a maximum building envelope plan, that will:

      i. create appropriate setbacks and separation from adjacent lot boundaries and buildings, to enhance the rural character of the development;

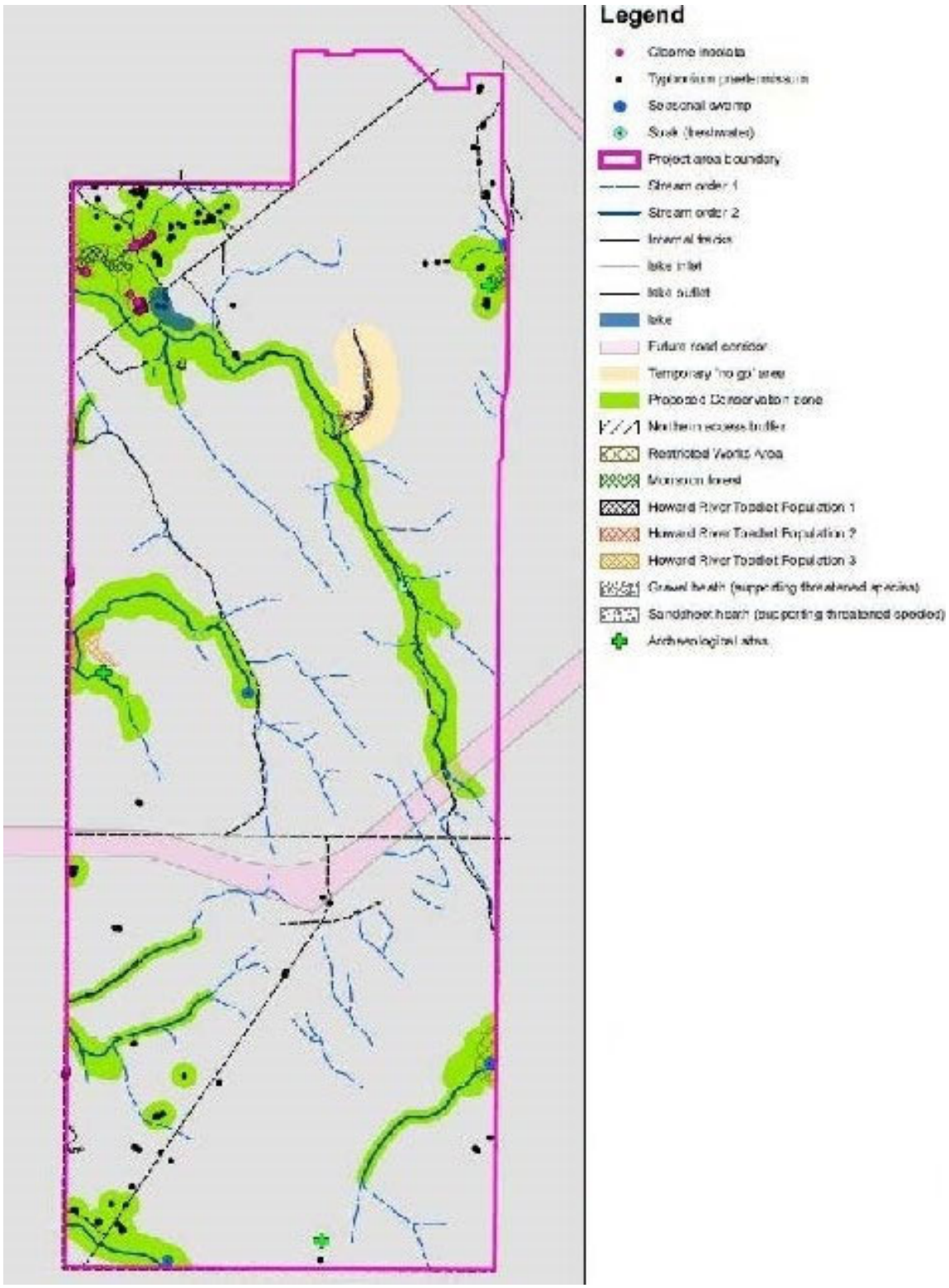
      ii. limit native vegetation clearing to those areas set aside for residential development and ancillary uses (outbuildings, private amenity space, bushfire protection, etc.); and

      iii. establish a building envelope for lots greater than 2 000 m² for the construction of dwellings, outbuildings, driveway and associated infrastructure that is no more than 25% of the lot area with a further area, being not more than 15% of a lot, that can be cleared, without a permit, for the creation of a formal landscaped garden, bushfire protection and private amenity.

7. DEVELOPMENT

Development of land subject to this zone shall be in accordance with the provisions applicable to the intended zone identified on the land use plan required at clause 4.1(b) and the building envelope requirements at clause 6.1 (c).

DIAGRAM A


Legend
Project area boundary
Stream order 1
Stream order 2
Future road corridor
Temporary 'no go' area
Proposed Conservation zone
Restricted Works Area
Howard River Toadlet Population 1
Howard River Toadlet Population 2
Howard River Toadlet Population 3
Sandsheet heath (supporting threatened species)
Archaeological site

Noonamah Ridge Estate

Application for Rezoning - Sections 5827, 507, 5758 & 5761 (Lloyd Creek) Hundred of Strangways

Client: Intrapac Property
Date: 14 March 2019

A Veris Company

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Date	14 March 2019
Version	14 March 2019

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FIGURES

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APPENDICES

1 Introduction

1.1 Purpose of this Report

Elton Consulting has been engaged by Intrapac Property to prepare a planning scheme amendment application for Sections 5827, 507, 5758 & 5761 Hundred of Strangways to achieve a rezoning of the site to a specific use zone.

The underlying premise of the proposed specific use zone is a framework to inform detailed planning for the future subdivision, use and development of the land as a rural character estate, in a manner that will facilitate integration with development on adjoining land. The Specific Use Zone also:

» Establishes a framework for sustainable water supply to support the overall development.

» Ensures that future development responds to the physical attributes of the land and protects areas of environmental sensitivity.

» Facilitates the delivery of the necessary service infrastructure required to support each stage of the intended development within the context of the strategy for infrastructure for the overall site.

The Specific Use Zone contained in this application is considered to give certainty to the proponent, community and Government regarding the intended future subdivision applications, and ultimately the development and use of the land.

The planning scheme amendment and associated specific use zone have been informed by the Environmental Impact Assessment (EIA) and its recommendations completed by the NT Environment Protection Authority.

This report has been updated to reflect the current status of the project and its assessment. This report supersedes early Planning Scheme Amendment reports placed on public exhibition under the *Planning Act*.

The specific use zone attached to this planning scheme amendment places specific requirements on the proponent to:

- Deliver the project in accordance with the Environmental Impact Assessment.
- Prior to approval of the first stage subdivision application, or commencement of works on site, prepare a master plan for the development of the site, supported by a number of specialist studies, including a sustainable water supply strategy for the overarching development, demonstrating that it is practicable to deliver water to the whole site.

1.2 The Project Proponent

The intended developer of Noonamah Ridge Estate is Intrapac Property, an established and experienced property development company. Formed in 1984, Intrapac has built up a track record of nearly 30 years of creating high quality residential developments, with a focus on establishment of communities with a high level of amenity.

Intrapac takes pride on taking a best practice approach to urban planning and environmentally sustainable design, in the recognition that their projects are differentiated through an appreciable display of quality. They have experience in residential and industrial land development projects and have been recognised for business success and excellence in property development by the property development industry's peak body, the Urban Development Institute of Australia's (UDIA). Intrapac Property are seeking to develop a unique and exciting development that sensitively interacts with the environment and the existing amenity of the area and fosters a strong sense of community.

2 Background to this Application

In December 2013, a simultaneous Significant Development Application and Notice of Intent (NOI) was lodged with the then Minister for Lands, Planning and the Environment, and the NT Environment Protection Authority (NT EPA).

As a result of these applications:

» Correspondence was received from the then Minister for Lands, Planning and the Environment confirming that the proposal has merit, subject to due process.

» The NT EPA confirmed that a full Environment Impact Statement (EIS) process was required.

From this advice, the proponent undertook an Environmental Impact Statement and Assessment Process and Planning Scheme Amendment Process.

In summary, since inception this project has followed the appropriate legislative environmental and planning pathways. The processes undertaken as well as an update on environmental studies completed are outlined below.

2.1 Environmental Impact Statement & Assessment

2.1.1 Background

Following lodgement of the NOI and acknowledgement from the NT EPA that a full EIS would be required, the proponent undertook a comprehensive EIS process.

The matters relating to the environment the NT EPA considered necessary to be dealt with in the EIS for the Project were identified in the Terms of Reference (NT EPA, 2015) in accordance with clause 8(3) to (6) of the Environmental Assessment Administrative Procedures.

A draft EIS was subsequently prepared in accordance with the TOR. The draft EIS for the Project underwent a 12-week public exhibition period between 28 November 2015 and 19 February 2016. Thirteen submissions on the draft EIS were received from Government agencies and 17 from members of the public. All submissions were forwarded to the Proponent and were responded to individually in the Supplement to the EIS.

The NT EPA assessed the potential environmental impacts and risks associated with the Project in accordance with the requirements under the EA Act, and issued the Environment Impact Assessment Report on 28 September 2018.

The Environment Impact Assessment Report concluded that there was a reasonable basis for the proposal to proceed, subject to implementation of environmental commitments via the planning scheme amendment, and raised several recommendations. Most notably it outlines that:

"Occurring before the Planning Scheme Amendment, this assessment has been strategic in nature, in that it has identified site constraints and significant environmental values across the entire site, and has conceptualised a master planned development accordingly. In doing so, the Proponent has established a systematic basis for sequential subdivision. As a staged development, the Project would be developed incrementally, providing a gradual, buffered transition of land use both spatially and temporally."

The current planning scheme amendment application, and refined vision, specific use zone and planning process continues to reflect the EIA outcomes and recommendations. A copy of the recommendations of the EIA are provided at Appendix A.

The full EIS process is outlined in Table 1, below.

Table 1 EIS Process Timeline

Date	Stage
22/12/2013	Receipt of Notice of Intent
7/04/2014	NT EPA decision Environmental Impact Statement issued
03/11/2014	Draft Terms of Reference (ToR) released for public comment
28/11/2014	Final ToR issued to proponent
28/11/2015	Draft EIS released for public comment
4/03/2016	NT EPA direction to prepare EIS Supplement issued
17/6/2016	EIS Supplement received
8/7/2016	Additional information requested
15/02/2017	Additional information received
9/03/2017	Additional information requested
17/08/2017	Additional information received
28/09/2017	Assessment Report issued

2.1.2 Environmental work to date

The EIS process finished in late September 2017. Since then, the proponent has commissioned a number of studies to address NT EPA recommendations and to inform the design of the development. These are summarised below. In preparation for these studies, the proponent acquired 20 cm contours for the northern section of the development site.

The outcomes of these surveys and findings described below will inform the development of the management framework, required under Recommendation 4 and incorporated into the proposed Specific Use Zone, in order to protect significant environmental values on site.

Howard River Toadlet investigation

To address NT EPA Recommendation 6 and to inform Recommendation 7, between March and May 2018, an investigation into the movements of the threatened Howard River Toadlet (*Uperoleia daviesae*) was undertaken by EcOz Environmental Consultants.

The survey was designed in collaboration with the Flora and Fauna Division of DENR, and involved the installation and checking of pitfall traps. More than ten people were involved in this survey at various times. A number of amphibian species were captured in the buckets; and subsequent DNA testing has occurred. All the information necessary to finalise and prepare a report that addresses the information requirements within Recommendations 6 and 7 of the NT EPA Assessment Report of the Noonamah Ridge EIS has been collected. The genetic results indicate that the Howard River Toadlet did not move in the direction of the proposed lake. Nevertheless, the survey report needs to be sufficiently detailed in its description of the survey methodology and results to satisfy DENR and the NT EPA.

Consultation has been undertaken with Graeme Gillespie (Director of Flora and Fauna Division, DENR), and he has advised on the standard and level of information required for reporting. Accordingly, the main components necessary to complete the report are:

» Background research and references to inform the report

» Data analysis

» Consultation/correspondence with collaborators (genetics, occupancy analyses)

» Mapping

» Report write-up including discussion of findings and responses to EPA recommendations

» Internal review

» Animal ethics reporting

» Allowance for minor comments from DENR and associated editing

Investigation into the hydrology supporting significant sandsheet heath

To address NT EPA Recommendation 5 and to inform Recommendation 7, in early 2018, an investigation into the surface and sub-surface hydrology in the north-western corner of the development was undertaken by EnviroConsult Australia. The purpose of the study was to determine the potential impact of proposed infrastructure such as roads and a lake on the hydrology of an area sandsheet heath that supports threatened species. The study identified flow accumulation and catchment boundaries in the area of interest, and provided design recommendations that would minimise the impacts of infrastructure on the sandsheet's hydrology.

Survey of the threatened flora species – *Cleome insolata*

Although already known to occur in the site, during fieldwork for the two studies mentioned above, ecologists noted a wider prevalence and greater number of the threatened plant, *Cleome insolata*. In conjunction with botanists from the NT Herbarium, EcOz Environmental Consultants re-mapped the local occurrence of the species, noting a significant proportion occur in areas to be zoned Conservation.

Groundwater levels

Since December 2016, the six bores located on site have been equipped with water level loggers that provide a continuous measure of groundwater levels. One bore also has a barometric pressure logger to contextualise the results. In December 2017, the proponent installed a rainfall monitoring station immediately to the south of the site. The information from these monitoring devices give a clear picture of the recharge behaviour of the bores which may be extrapolated into other areas within the development site. All bores exhibit very rapid recharge response to rainfall events, reaching early Dry season equilibrium levels prior to halfway through the Wet season. It is apparent that even in a relatively poor Wet season, the aquifers would reach Dry season equilibrium levels readily.

Stream gauging

Stream gauging of the main creek that flows through the development site Noonamah where it intersects Redcliffe Road commenced at the start of 2018. Gauge board reading and flow velocities were collected manually. The data collected were used to develop a rating curve at the gauge site. This information can be used to calibrate future stormwater modelling for the development, and design stormwater management measures.

2.2 Planning Process

2.2.1 Significant Development Application

The Significant Development Application was lodged based on the rationale that a development of this scale will have significant benefits to the greater Darwin region, through the provision of

» Much needed residential opportunities

» A range of lot typologies in a rural setting providing alternatives to a rural lifestyle that does not currently exist

» The creation of a new rural activity centre within the rural area accommodating retail and commercial land uses, a new regional school and a variety of recreation actives

» The creation of a regional open space network providing opportunities for the retention of ecological corridors and natural drainage systems, as well as for the creation of active and passive recreation areas.

2.2.2 Initial Planning Scheme Amendment

A planning scheme amendment application was lodged with the Department in March 2016. The Planning Scheme Amendment application contained substantial background information including an engineering services report, and all specialist reports prepared to support the EIS discussed under section 2.1, above.

The planning scheme amendment application included three components:

» Rezoning the site from Rural and Rural Living to Specific Use Zone.

» Introduction of draft master plan.

The application was placed on public exhibition for 28 days between 29 April 2016 and 27 May 2016. 369 public submissions were received, including:

» 331 Identical form letters.

» 27 Individual submissions

» 11 Identical form letters, with individual comments.

A summary and response to submissions was provided to the Department at the time, and this is attached at Appendix B.

The application was subsequently heard at a Reporting Body Hearing in July 2016. In August 2016 consideration of the application was placed on hold by the then responsible Minister in advance of the 2016 Territory elections.

2.2.3 Revised Planning Scheme Amendment

Following the elections, the application was held in abeyance due to ongoing Territory led community consultation and strategic planning for Darwin's rural area.

During this time, the proposal for Noonamah Ridge has been reassessed, and revised by the proponent to ensure it accords with relevant strategic planning including the Litchfield Subregional Land Use Plan and the vision aligns with Governments Planning for a Vibrant Future document.

The 2016 Planning Scheme Amendment application has consequently been superseded by this report.

2.2.4 Community Consultation

As part of the initial application the applicant undertook extensive community consultation, including two community information sessions, a series of newsletters, a website and one-on-one briefings, site visits and discussions

An outline of the community consultation process and outcomes is attached at Appendix C to this report.

The current application has been significantly influenced by the community consultation outcomes, with the following key areas directly reflecting community aspirations for the area:

Table 2 Summary of outcomes & changes made to development comments

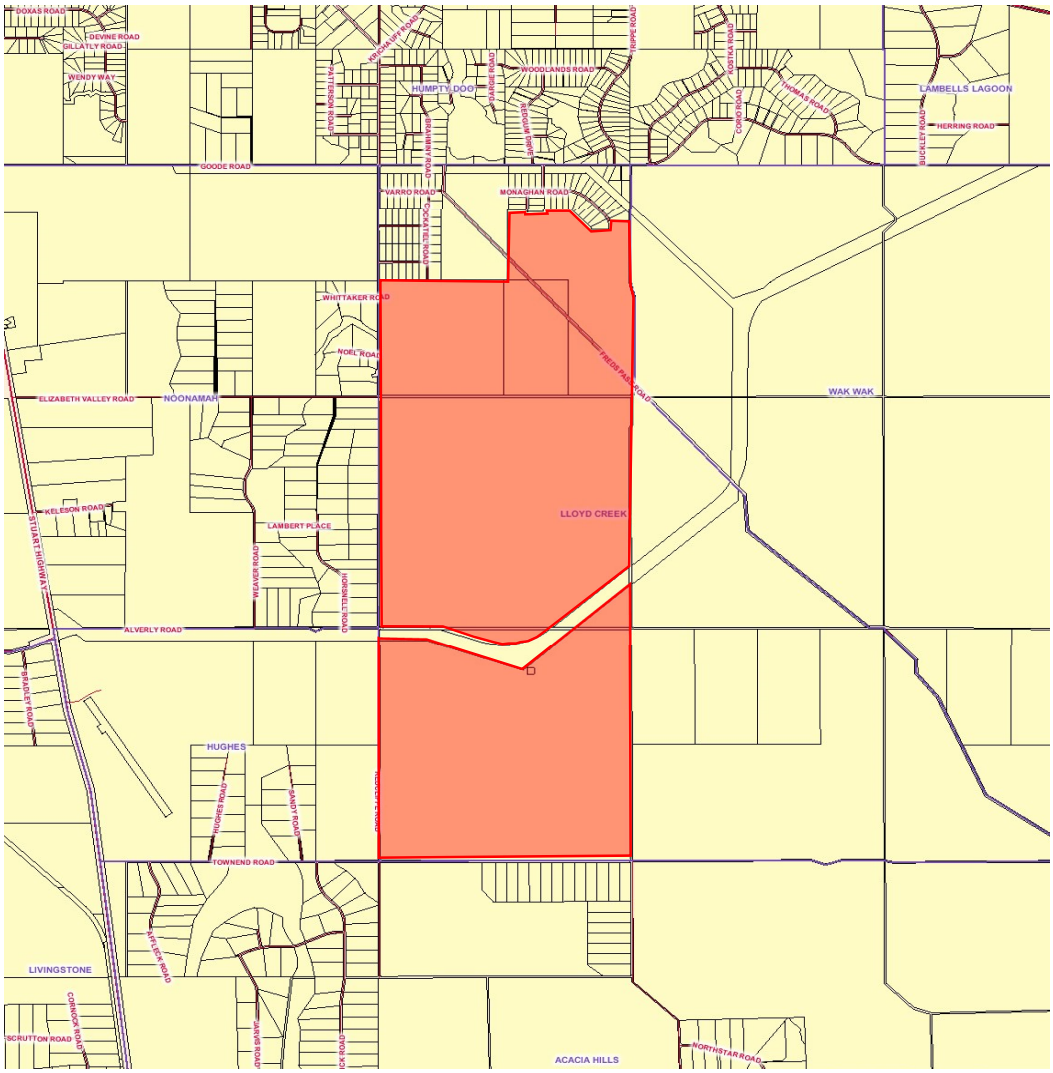
Comments	Changes / Response
Lots should be no smaller than 2ha	» The aim is a rural development, with a range in lot sizes, with smaller lots structured around a rural village(s) and at key locations. The majority of the site will comprise larger rural lots. » The total number of lots has been capped.
There needs to be more opportunities for first home buyers, and people wanting to downsize as well as for retirement living	» A range in lot sizes in proposed, with smaller lots and retirement living to be provided at the rural village.
Existing lots should be buffered	» A larger buffer has been included along all boundaries that abut or are opposite existing larger lots, to ensure that the visual amenity and character is protected.
There are too many rural villages	» The amount of villages has been reduced from five to two.
Concern relating to ground water	» Significant water quality and availability testing has been undertaken. The updated specific use zones requires approval for water supply from the responsible authority before subdivision can occur.
Concern relating to stormwater	» A range of stormwater management devices will be utilised to ensure that stormwater management is controlled. » The aim is to improve stormwater management in the broader region.
Need better access to shops and quality produce	» The rural village will provide opportunity for new shops. » A local fresh produce community garden will be provided.
Need better access to medical facilities	» The developer will work with the Department of Health to identify opportunities to improve medical facilities in the region.
Need better access to community facilities, including schools, child care, and for ageing residents	» The rural village will provide childcare, a site for a new school, and other amenities and community facilities as required.
The environment should be protected (fauna and flora)	» The proposal incorporates the retention of existing open space and natural areas as environmental corridors. » Key sites of environmental concern have been identified to be retained or investigated further. » A full EIS process has been followed, and an Environmental Impact Assessment Report issued by the Minister for the Environment.

3 The Subject Site

3.1 Site Locality

The proposed Noonamah Ridge subdivision is located in Lloyd Creek in the Greater Darwin region, approximately 36km south east of Darwin CBD, 37km from Darwin International airport, and 23km south east of Palmerston CBD. The Humpy Doo Local Town Centre is located roughly 7km to the north west of the site, while the Noonamah Tavern and service station are located 6km directly to the West on Stuart Highway. The location is illustrated below in Figure 1.

Figure 1 Location



Source: NT Atlas and Spatial Data Directory

3.2 Site Details

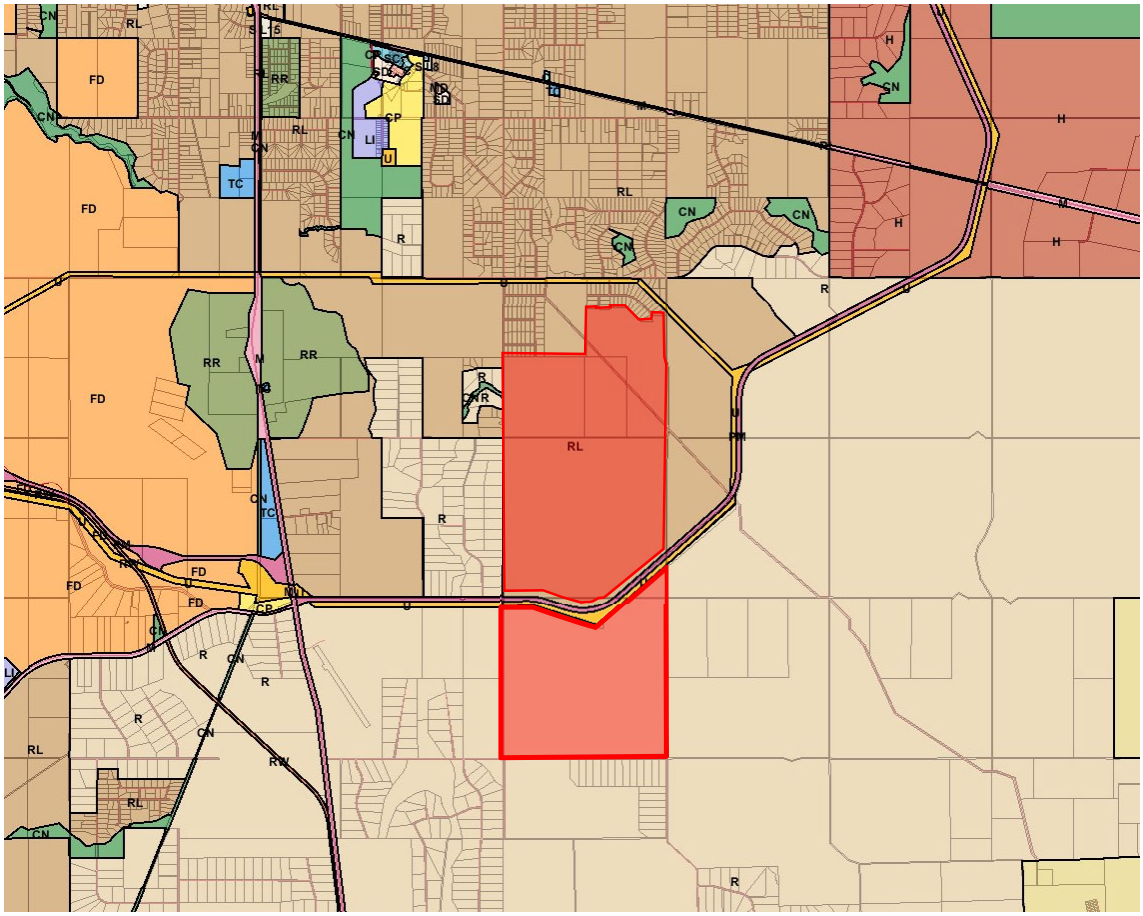
The development proposal comprises four land parcels as follows in Table 3 over page.

Table 3 Property Details

Registered Description	Section 5827 Hundred of Strangways	Section 507 Hundred of Strangways	Section 5758 Hundred of Strangways	Section 5761 Hundred of Strangways
Address	Monaghan Road, Lloyd Creek, NT	800 Freds Pass Road, Lloyd Creek, NT	905 Redcliffe Road, Lloyd Creek, NT	580 Alverly Road, Lloyd Creek, NT
Area	523.1 hectares	129.5 hectares	1008 hectares	980.8 hectares
Current Zoning	Zone RL (Rural Living)	Zone RL (Rural Living)	Zone RL (Rural Living) Zone R (Rural)	Zone RL (Rural Living) Zone R (Rural)
LGA	Litchfield Council			

A copy of the current zoning map for the locality is at Figure 2 below. The site is outside of the Interim Development Control Order NO.22 relating to the Berry Springs Dolostone.

Figure 2 Current Zoning Map



Source: NT Atlas and Spatial Data Directory

3.3 Site Characteristics

The site comprises a vast amount of undisturbed native vegetation including dominant Eucalypt woodlands. Areas of the site have been disturbed for construction of tracks and a telecommunication facility as well as some areas of extractive industry. Small weed infestations are present and are usually associated with the areas of disturbance or water courses. Field work and mapping have identified populations of threatened species and sensitive vegetation types assessed as part of the Environmental Impact Assessment. Management of these are discussed later in this report.

The land is undulating with some minor water courses, gully's and other drainage features. There is some 50m of fall over the site with lower areas tapering towards the edge of the site to varying degrees.

Lot 5759 Hundred of Strangways bisects the site and is owned by the Northern Territory Government. The lot is located in Zone U (Utilities) and Zone PM (Proposed Main Road) and is set aside for a future transport and utilities corridor associated with the future development of Glyde Point and other strategic industry areas.

3.4 Site Selection

Intrapac Property are seeking to develop a unique, high quality and community-based development that is rural in character. They recognise that housing needs are changing and with the growth in the Darwin Region population also has come a larger aging population sector. Intrapac Property believes there is an acknowledged demand for an alternative housing product in the rural area that provides community connectedness as well as linkages to the land and rural amenity.

The site has been selected because it is well located with respect to road and transport infrastructure, with existing connections to the Stuart Highway, and other local distributors. In a broader context the site is readily accessible to local employment opportunities, and existing social and physical infrastructure. Being held in its entirety in private ownership with a limited number of parties is also advantageous.

Largely unconstrained compared to other site is the region, the site also has two of the highest points in the area providing opportunities for the placement of regional infrastructure and to accommodate gravity fed water and sewer infrastructure. The undulating topography falling away from the high points provides an ideal opportunity to create high amenity housing enjoying vistas over the area as well as climatically responsive housing designs that capture breezes.

The site has unique geology and the aquifers beneath it are different to those utilised by neighbouring properties to the west and north. Preliminary investigations of the the chemistry of the groundwater from bores of neighbouring properties to the west and that from the bores within Noonamah Ridge indicates it is unlikely that there is significant connectivity between the aquifers on the Noonamah Ridge site and aquifers to the west. This provides the potential for the sustainable extraction of groundwater to service the subdivision subject to further studies. Requirements for sustainable water extraction are discussed elsewhere in this report.

4 Development Outline

4.1 Vision and Concept for the Site

The vision for Noonamah Ridge is to create a high-quality **rural character development** that provides a range of lot sizes and typologies, with an emphasis on retaining and enhancing the rural character and amenity of the area. The development will aim to connect to the surrounding rural area, providing the opportunity to create a strong sense of community.

Noonamah Ridge will provide a rural lifestyle estate, distinct from the existing rural areas through the provision of a master planned approached to rural subdivision. The subdivision will align with the Litchfield Subregional Land Use Plan and support a range of lot sizes as well as increased provision of social infrastructure and land set aside for conservation and active recreation purposes.

It is envisaged that the master planned development will include two rural activity centres in addition to an employment area. These rural activity centres, also known as a district centre or village centre, a place with vital community services and facilities to meet day to day needs. They could include shops, banks, offices, restaurants, cafes, parks, schools and a variety of housing types.

The concept is based on the principles of the Litchfield Subregional Land Use Plan including the overarching land use structure identified in the document. This identifies the site for urban/peri-urban development. Rural activity centres will be included in the development as a critical part of the infrastructure. The maximum total number lots in the subdivision is 4,200 and the size of the activity centres will reflect this and support this population. Within the rural activity centres, and other rural/residential areas no MR (Medium Density Residential) zones are proposed, and therefore precludes the development of three storey walk-up apartments.

The land use structure will largely reflect the urban/peri-urban status with the inclusion of vital activity centres. There will be a transitioning to the adjoining and adjacent Zone RL and Zone R development as is prevalent in the current activity centres and is further reflected in the area planning for these.

The extensive open space network will respond to physical land constraints, heritage and environmental considerations of the site and provide a high level of amenity to future residents. Fostering nature and an outdoor lifestyle is a central focus of the development. It is considered that this goes hand in hand with integrating and connecting the development to the surrounding development and community.

Noonamah Ridge – What will the development include:

- A rural activity centre of a scale relatable to Howard Springs / Humpty Doo.
- Single Residential lots within the rural activity centre ranging between 800m² and 3,999m².
- Multiple Dwelling lots within the rural activity centre to a maximum size of 1,200m². These will accommodate duplex, single dwellings and aged care development.
- Rural Residential lots between 4,000m² and 1.99ha.
- Rural Living lots between 2ha and 7.99ha
- Rural lots of 8ha and above.
- A maximum of 4,200 residential lots with an average lot size of 1.5ha across the site area.
- Approximately 875ha of natural area (33% of site area), including 500ha of open space (18% of the site).

Intrapac is committed to the principles of ecologically-sustainable development. This has been reflected in the commitments made as part of the EIS. In particular there will not be any strip clearing of sites as part of subdivision works. A sustainable approach to water supply and groundwater extraction will also implemented and supported by in-depth investigations and following the correct legislative process under the *Water Act*.

Indicative timing and staging shows development to occur over the next 30 years and the creation of up to 4,200 housing sites.

4.2 First Stages

A key component of the proposed Specific Use Zone is the requirement that prior to lodgement of the first subdivision application, a master plan be prepared addressing the overarching development design and philosophy, as well as the technical and supporting studies required to address service provision, roads, infrastructure and social infrastructure for the overall development.

This master plan will accompany, and be exhibited for public comment, as a component of the first subdivision application. This planning structure is discussed in more detail in Sections 5.2 and 5.3 of this report.

Noting the above requirement, it is envisaged that the first stages of development will be in the northern part of the site and will be centred around a manmade lake and a large amount of proposed conservation land that will be protected as part of this development.

The land use structure of the first stage will mimic that of the Litchfield Subregional Land Use Plan and comprise:

1. **CORE AREA:** This is the activity centre comprising a convenience store, school and local amenities and a manmade lake (approximately 6 hectares in size) and supported by around 400 lots (for comparison sake, Howard Springs urban development around its activity centre is upwards of 160 urban lots) a minimum size of 800m².
2. **TRANSITION AREA:** This is the beginning of the buffer area to rural areas outside of the site. This area will provide lots with a minimum lots size of 4,000m².
3. **RURAL AREA:** This is the last of the buffer area to the rural areas outside of the subject site. It will include lots range of 1ha to 8ha and reflect Zone RR, Zone RL and Zone R.

Social infrastructure will also be provided for in the early stages such as a land for a primary school, aged care, community centre, open space and community garden. There will be some opportunities for small scale multiple dwelling development (duplex and triplex style) in the area immediately adjacent to the village.

Delivery of social infrastructure and public transport will be delivered in discussion with the Northern Territory Government, and to the satisfaction of the relevant authorities, at subdivision application stage.

A large proportion of the site to be protected due to its high conservation value is located in the northern area. The first stages of development will achieve formalising their protection. In the long-term responsibility for these areas will be subject to a management strategy that Intrapac Property is committed to negotiating with stakeholders. It is noted that the NT Environment Protection Authority considers that all safeguards and mitigation measures outlined in the EIS are binding commitments.

This land use structure has been developed with a view to reflect the principals and policies in the Litchfield Subregional Land Use Plan. The total development of up to 4,200 lots will be supported by two activity centres and the size of these will reflect the infrastructures and services that are needed for associated population. A detail analysis of the proposal against the Litchfield Subregional Land Use Plan is in Section 6.8.3 below.

Maintaining Rural Character Through Design

Incorporated into the Noonamah Ridge proposal is the implementation of intended design considerations that will require:

» Compliance with **building envelope plans** to limit the location and extent of built form, and ensure suitable separation of homes within small lot typologies.

» Compliance with **native vegetation clearing limitations** to ensure the suitable retention of native vegetation on all lots, including those of urban typology, and maintain the rural character of the estate.

» Compliance with **high level architectural guidelines** to ensure the appropriate climate responsive design of new dwellings, and maintain the rural character of the estate.

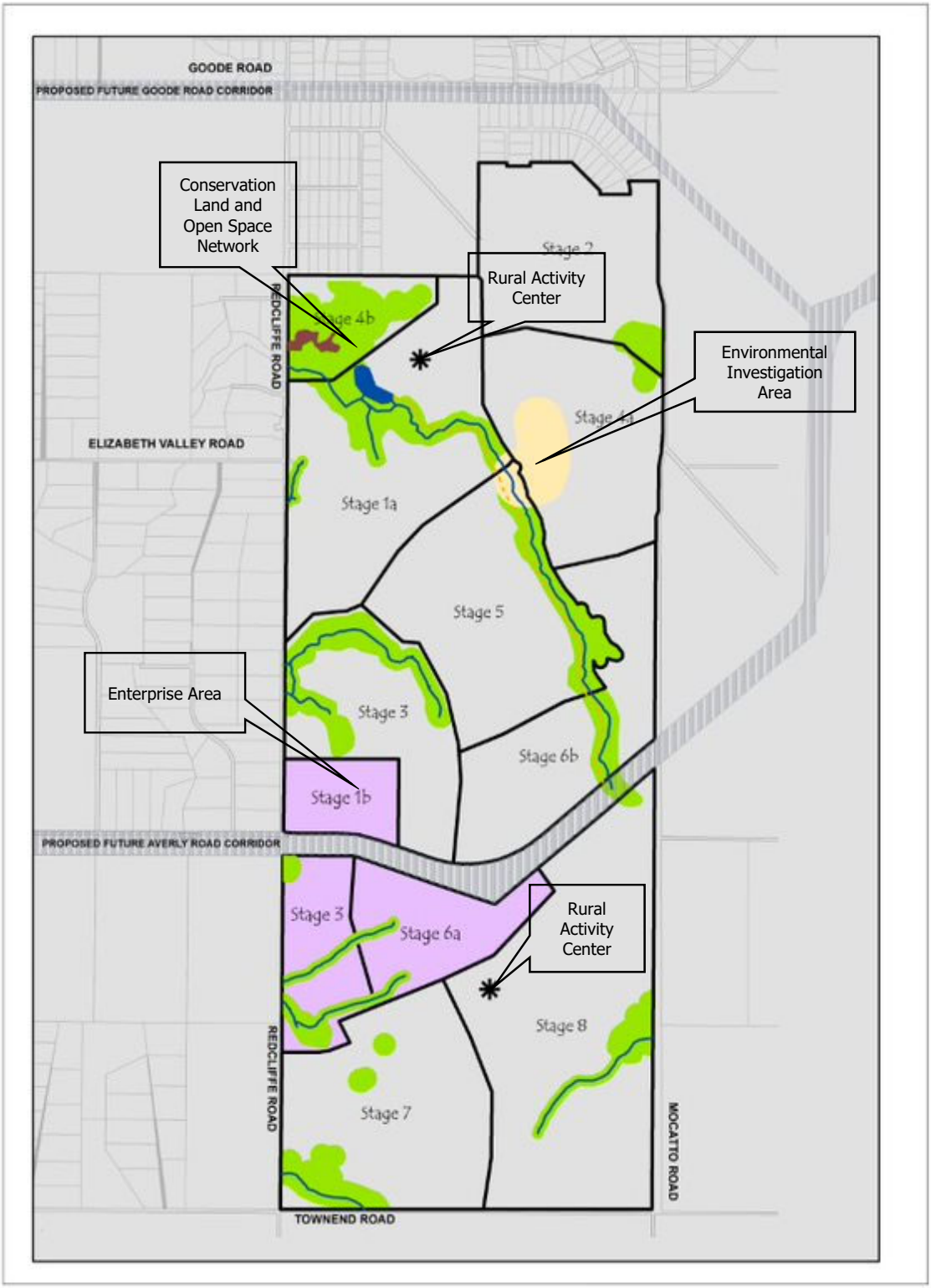
» Limiting **further subdivision** of lots zoned single residential, rural residential and rural living, where these exceed the minimum lot size prescribed by the Northern Territory Planning Scheme, to maintain the rural character of the estate and limit the total number of housing lots that can be developed into perpetuity.

The above will be enforced through the specific use zone, and covenants imposed on titles as discussed in more detail under Section 5 of this report.

Figures 4 and 5 Provide an artist's impression of the rural activity centre and higher density component of the development:

Figure 3 Noonamah Ridge will have a Rural Residential Character

Figure 4 Land Use Structure



Post EIS Area Plan

4.3 Environmental Approvals

As discussed in Section 2.1 above, the NT Environment Protection Authority issued its assessment report (Assessment Report No. 82) under the *Environmental Assessments Act*. This report concluded that there was a reasonable basis for the proposal to proceed, subject to implementation of environmental commitments via the planning scheme amendment.

The report made 11 recommendations to avoid and mitigate environmental impacts and risks associated with the development. Intrapac Property is committed to fulfilling the recommendations and NT Environment Protection Authority considers that all safeguards and mitigation measures made as part of the EIS process as binding commitments. Where appropriate the recommendations are proposed to be incorporated into the proposed specific use zone.

It is envisaged that future development permits for land use and development will also reflect the recommendations where necessary. Furthermore, it is legislated that future decisions of the responsible Minster or Development Consent Authority must be consistent with the recommendations.

The proponent has commenced work to address the Recommendation 5. 6 and 7. Details of this are discussed in Section 2.1.2 of this report.

4.4 Planning Scheme Amendment

The land is currently located in Zone RL (Rural Living) and Zone R (Rural) which allows for subdivision to 2ha and 8ha lots respectively, under the Northern Territory Planning Scheme. The proposed development is currently not possible under this zone however is foreshadowed under the Litchfield Subregional Land Use Plan.

It is proposed to rezone the site to a Specific Use Zone to accommodate the particular details of the proposal, reflect the recommendations of the EIA and unsure consistency with the Litchfield Subregional Land Use Plan.

The proposed specific use zone will set the framework for future assessment of the development, including environmental safeguards, further studies and master planning process and will provide surety to the community, proponent and Government about the development proposed.

The proposed specific use zone will describe the purpose of the zone as well as the development design and philosophy. The proposed specific use zone embodies the vision to create lots with a variety of sizes to meet market demand and provides prospective purchasers with an alternative not currently provided in a rural setting whilst responding to the character of the locality and environmental considerations.

More specifically, the purpose of the specific use zone is to:

» Inform detailed planning for the future subdivision, use and development of the land as a rural character estate in a manner which will facilitate integration with development on adjoining land and the broader locality.

» Establish a framework for sustainable water supply to support the overall development.

» Ensure that future development responds to the physical attributes of the land and protects areas of environmental sensitivity.

» Facilitate the delivery of the necessary service infrastructure required to support each stage of the intended development within the context of the strategy for infrastructure for the overall site.

A key component of the proposed Specific Use Zone is the requirement that prior to lodgement of the first subdivision application, a master plan be prepared addressing the overarching development design and philosophy, as well as the technical and supporting studies required to address service provision, roads, infrastructure and social infrastructure to service the overall development. This will provide an overarching guiding layer of information with respect to the proposal and will help to balance the expectations of all the stakeholders.

The specific use zone is provided at Appendix D.

4.5 Masterplan Application

The proposed specific use zone outlines that a subdivision or development cannot be considered by the consent authority until it has endorsed a master plan for the land and that all development or subdivision is to accord with the endorsed master plan.

The proposed specific use zone also sets out a process for endorsing the master plan including public exhibition.

The master plan is to ensure future development responds to the outcomes of detailed investigations that have already occurred including the EIS and its recommendations and future studies to inform development.

4.6 Subdivision Application

Subdivision applications will be undertaken on a staged basis across the site, with the size of each stage, and number of proposed allotments directly informed by feasibility assessments, as well as land capability. The subdivision will be consistent with the Specific Use Zone and the Endorsed Master Plan.

4.7 Future Development of Lots

The proposed specific use zone includes the requirement to develop building envelope plans to create appropriate setbacks and limit clearing of native vegetation.

Covenants will be placed on titles to prevent the further subdivision of land, following zoning normalisation. For example, a lot normalised to zoned SD (Single Dwelling) measuring 2000m² will not be permitted to be further subdivided in accordance with the NT Planning Scheme minimum lot size provisions. This will protect the rural character of the development into perpetuity.

5 Assessment against Relevant Legislation and Strategies

5.1 *Planning Act*

The object of the *Planning Act* is to plan for, and provide a framework of controls for, the orderly use and development of land. The objects to achieve this include strategic planning, effective controls and guidelines for the appropriate use of land, sustainability, protection of the environment, minimising adverse impacts, engagement with the community and fair and open processes. The Northern Territory Planning Scheme is the principle document for the delivery of these mechanisms.

Part 2, Divisions 2 to 5 of the Planning Act outline the manner of how the Northern Territory Planning Scheme can be amended.

Assessment

In accordance with the *Planning Act* it is requested that the amended proposal be placed on exhibition for a period of 28 days. This will allow the community and services authorities to make any further comments in relation to the proposal.

5.2 *Heritage Act*

The Northern Territory contains a rich and diverse range of Aboriginal cultural heritage places, many of which are highly significant to contemporary Aboriginal culture.

Assessment

An archaeological survey of the site has been undertaken provided as part of the EIS which revealed a WWII bomber crash site and several stone artefact scatters. There are currently no declared places or objects listed in the Northern Territory Heritage Register located on the subject land although the WWII bomber crash site is being considered for listing. The WWII bomber crash site regardless of the outcome of heritage listing will be protected by a 200m buffer around the debris.

5.3 *Northern Territory Aboriginal Sacred Sites Act*

Sacred sites are places that have special meaning or significance under Aboriginal tradition.

Assessment

There is a registered sacred site on the adjoining land with a restricted works area extended along the eastern side of the site. A copy of the Aboriginals Area Protection Authority certificate is provided at Appendix E. It is proposed to incorporate the restricted works area into the conservation network which will provide suitable protection.

5.4 *Environmental Assessment Act*

Assessment under the *Environmental Assessments Act* is a process for identifying the potential environmental impacts and risks of a proposal, evaluating the significance of those impacts and risks and determining appropriate avoidance, minimisation/mitigation measures to reduce those potential impacts and risks to acceptable levels.

Assessment

On 28 September 2017 the NT Environment Protection Authority issued its assessment report under the *Environmental Assessments Act* recommending approval of the proposal. The report made 11 recommendations to avoid and mitigate environmental impacts and risks associated with the development. Intrapac Property is committed to fulfilling the recommendations and NT Environment Protection Authority considers that all safeguards and mitigation measures made as part of the EIS process as binding commitments. Where appropriate the recommendations are incorporated into the proposed specific use zone. It is envisaged that future development permits for land use and development will also reflect the recommendations where necessary. Future decisions of the responsible Minster or Development Consent Authority must be consistent with the recommendations. The proponent has commenced work to address the recommendations, a list of the recommendations is provided at Appendix A.

5.5 *Northern Territory Aboriginal Sacred Sites Act*

Sacred sites are places that have special meaning or significance under Aboriginal tradition.

Assessment

There is a registered sacred site on the adjoining land with a restricted works area extended along the eastern side of the site. A copy of the Aboriginals Area Protection Authority certificate is provided at Appendix E. It is proposed to incorporate the restricted works area into the conservation network which will provide suitable protection.

5.6 Northern Territory Economic Development Framework

In 2017, the Northern Territory Government, released the Northern Territory Economic Development Framework (Framework). This Framework contains a work program for the Northern Territory Government to deliver policy and regulatory certainty for investors. The Northern Territory Government recognises in the Framework that strong private investment is critical to a modern, healthy economy and should be supported by government activity.

Assessment

Intrapac Property proposal is considered to support ongoing private investment and growth in the economy in line with the Framework.

5.7 Planning for a Vibrant Future

To allow the Northern Territory Government to actively plan for the future, they released the Planning for a Vibrant Future document. This document contains a discussion on Darwin's Rural Areas and the potential rural centres and rural lifestyle areas of Hughes-Noonamah. It advised that private proposals for the Hughes/Noonamah locality will continue to be assessed in line with existing planning and environmental legislation.

Assessment

The Planning for a Vibrant Future document acknowledges the challenges of preserving rural character and amenity, providing housing choice and supporting a growing population. The Noonamah Ridge Estate is mentioned in the Planning for a Vibrant Future document as a way to extend the rural area south and contribute to housing choice. The document highlights the importance of due process in the assessment of applications for the Hughes-Noonamah area.

Noonamah Ridge has followed the required process under the Environmental and Planning legislation. Importantly, in response to the EIS, the NT Environment Protection Authority issued its assessment report under the *Environmental Assessments Act* recommending approval of the proposal.

5.8 The Northern Territory Planning Scheme

5.8.1 Planning Principles and Frameworks

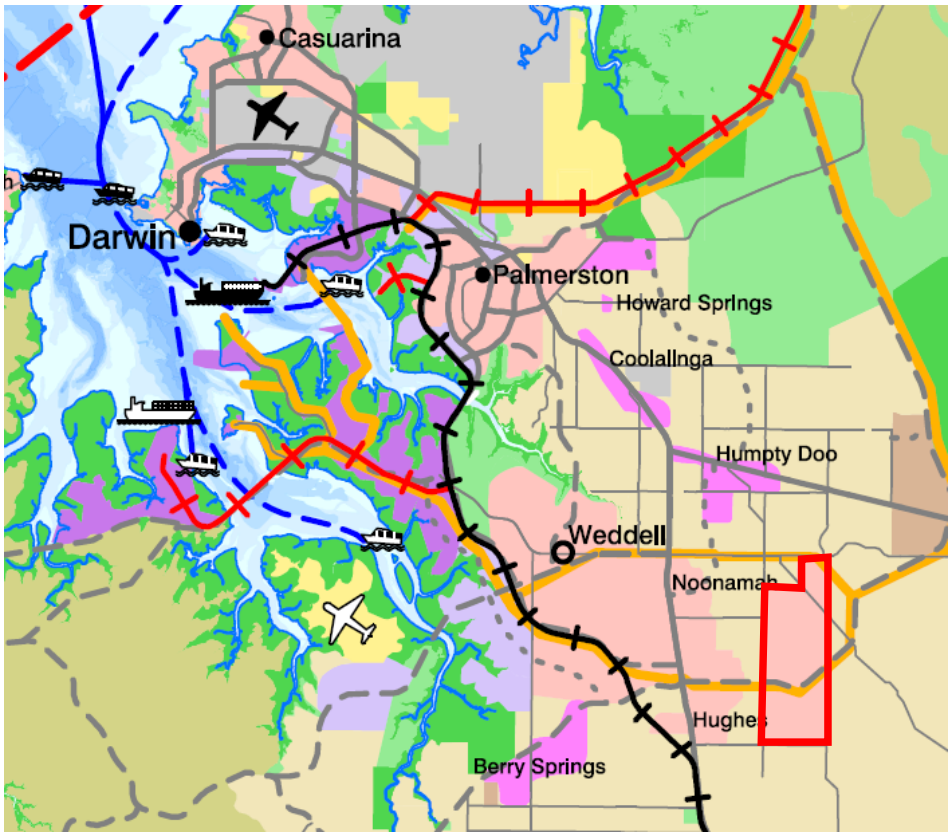
The Northern Territory Planning Scheme contains in Part 2 overarching planning principles and frameworks that use and development should have regard to (as informed by the Darwin Regional Land Use Plan 2015). These are relevant to considering a request for a planning scheme amendment as it can be demonstrated that future development that is expected to occur as a result of the amendment will be consistent with them.

For example, Northern Territory wide principles and framework include aspects such as promoting economic development, sustainable land use and maintaining amenity. It is considered that supporting the proposal will foster economic development with appropriate inclusions to protect the environment and amenity.

5.8.2 Darwin Regional Land Use Plan

The Darwin Regional Land Use Plan (2015), designates Noonamah Ridge for Urban / Peri-urban Development (shown in pink). The DRLUP acknowledged that development in the Hughes / Noonamah area could provide a range of residential opportunities including urban lots and a range of peri-urban, rural residential and rural lifestyle lots providing a transition to the surrounding existing rural lifestyle areas.

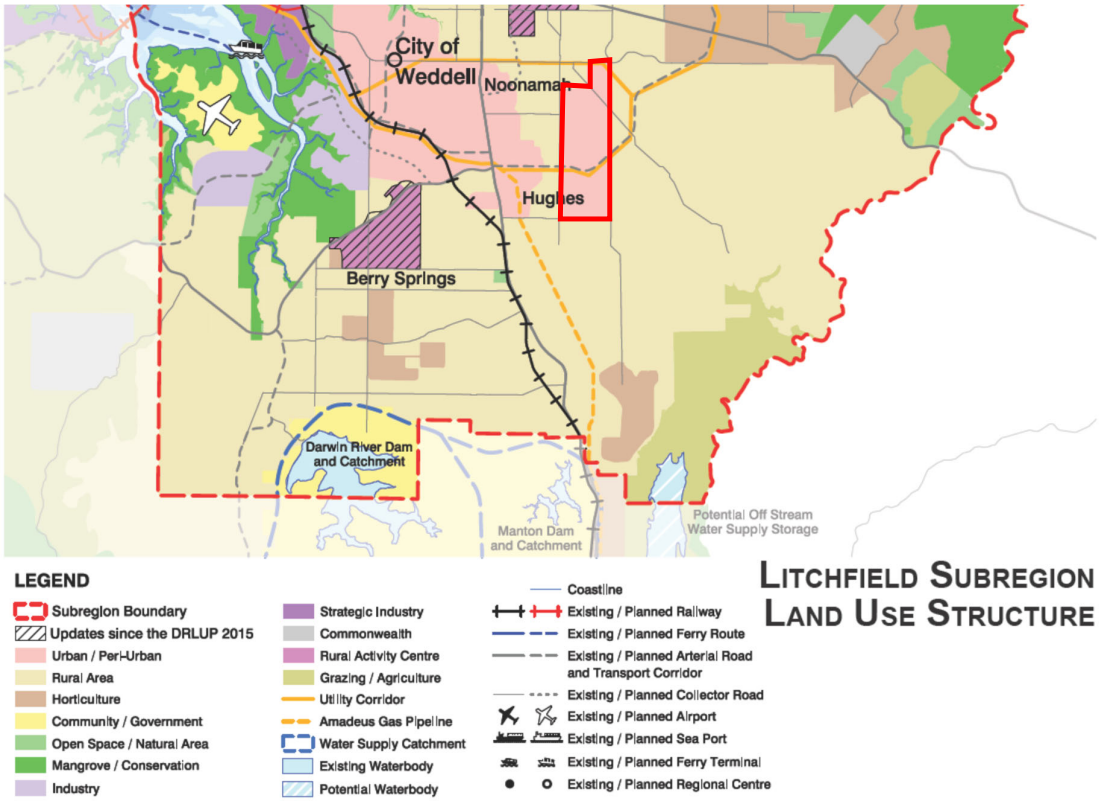
Figure 5 Extract from Darwin Regional Land Use Plan



5.8.3 Litchfield Subregional Land Use Plan

The Noonamah Ridge proposal has been designed to reflect the principles and policies contained within the Litchfield Subregional Land Use Plan 2016 (LSLUP). As with the DRLUP, the LSLUP also identifies the site as Urban Peri-Urban as shown in pink in the figure below.

Figure 6 Extract from Litchfield subregional Land Use Plan



The following key policy principles of the Litchfield Subregional Plan further support the proposed development of Noonamah Ridge:

Rural Activity Centres

The LSLUP notes that rural activity centres provide the opportunity for expanded local facilities and services, with a range of residential options decreasing in density from urban residential within the core area, transitioning to larger lots as a buffer to rural areas. The benefit of this, is increasing the population in the core areas, thereby supporting the sustainability of larger rural lots by reducing the reliance on natural resources, particularly groundwater.

It will also support housing choice, particularly for new entrants to the housing market, and for residents wishing to downsize, by remaining in their local communities.

Rural Residential

Noonamah Ridge will support the policy statements contained in the LSLUP in relation to Rural Residential Living by:

» Locating Zone RR (Rural Residential) either within, or close to, peri-urban areas and rural residential transition areas.

» Ensuring lots are serviced through reticulated power, noting that the specific use zone, and provisions of the completed EIA require the applicant to demonstrate this at the time of subdivision.

» Requiring that all lots proposed for zone RR (Rural Residential) outside of the defined boundaries of peri-urban areas and rural residential transition areas to be in close proximity to community facilities, and be no less than 1ha in extent.

» Supporting the provision of an integrated road network, linking the site to the surrounding areas.

Rural Area

The LSLUP makes the following key policy statements that support the development of Noonamah Ridge:

» Maintaining rural amenity, and supporting lifestyle choice – the proposed Noonamah Ridge will result in a high amenity rural area, with supporting social infrastructure and an integrated open space and conservation network. In addition, housing choice in the rural area will be enhanced.

» Continue to support the subdivision of suitable land outside rural activity centres into 2ha lots in Zone RL and 8ha in Zone R – Rural – the proposed Specific Use Zone provides for lots ranging between 4000m² and 1.99ha to be zoned RR, between 2ha and 7.99ha to be zoned RL (Rural Living), outside of the proposed rural activity centres. This amendment to the provisions of the Rural Living Zone within Noonamah Ridge will facilitate the provision of formal conservation, increased public open space and recreation land and social infrastructure, while the lot size across the site remains at an average of 1.5ha – which is of a rural character.

» Require reliable water supply, stormwater drainage and provision of roads and infrastructure to the requirements of the responsible authorities. These issues were investigated in detail through the Noonamah Ridge EIS, and embedded as requirements into the proposed Specific Use Zone to ensure that a master plan addressing these is provided before approval of the first stage of subdivision.

» Provide opportunity for residential land uses in the Rural Area to meet market demand. Noonamah Ridge aims to meet market demand for well-planned rural and rural lifestyle living. The proposed specific use zone, and vision of Noonamah Ridge supports the policy statements within the LSLUP, specifically the transition of residential density from rural land uses to rural activity centres, the requirement to demonstrate land capability at each stage of subdivision, and providing an integrated road network.

6 Servicing and Infrastructure

6.1 Water infrastructure

There is no water infrastructure within the property boundaries. Residential allotments in the vicinity of the site are serviced with individual bore holes. The release of land will be staged over an estimated period of 30 years, or longer. The staging plan will be developed in line with the ultimate detailed water supply strategy and the approval from Power and Water Corporation and Litchfield Council, as a requirement of the Specific Use Zone prior to lodgement of the first stage subdivision plan.

The proposed specific use zone includes the requirement for the master plan to be accompanied by high level principles informed by a detailed water supply investigation which establishes a long-term sustainable strategy for the provision of water infrastructure (private, public or communal) necessary to support development in the broader locality.

All water supply infrastructure will be in accordance to PWC guidelines, standards and specifications. It should be noted that Intrapac has applied for a water extraction licence as their preferred option, and it is expected that should this be issued that Intrapac or nominee will act as the water utility provider.

The applicant notes, following discussion with DENR Water Resources that the current water reform process is not a factor in approval of a water extraction licence. Rather the availability and assessment will provide assurance to neighbours and the community of a secure water supply in the future.

6.2 Water Supply

The sustainability of greater Darwin's groundwater extraction is coming under increasing scrutiny, with the effect that stricter licensing requirements have been introduced. As a consequence, current and future applications by Intrapac to extract groundwater for use in Noonamah Ridge will be assessed with unprecedented rigor to ensure the volumes to be extracted are sustainable. It will also be progressed following the rezoning before lodgement of the first stage development application, by undertaking a detailed hydrological study, as outlined by Department of Environment and Natural Resources.

Water supply will be sustainably provided through the following approaches:

» Utilisation of the existing un-utilised aquifer, as outlined below, to provide water supply to up to the first 800 lots.

» Detailed water analysis as a requirement of the specific use zone, prior to lodgement of the first stage subdivision application.

» Based on this detailed water analysis there are three possible options for the provision of reticulated water supply to be investigated and resolved prior to endorsement of the master plan for Noonamah Ridge, as required under the Specific Use Zone:

  > Ongoing utilisation of groundwater through the existing aquifer.

  > Potential utilisation of the un-studied aquifer within Koolpinyah.

  > Potential upgrade and connection to reticulated water supply, including cost sharing by Intrapac.

Sustainable extraction

In deciding whether or not to investigate utilising groundwater for the project, Intrapac has been guided by the NT Water Allocation Planning Framework, which requires that for Top End aquifers:

» At least 80 per cent of annual recharge is allocated as water for environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level equivalent to 20 per cent of annual recharge.

» For the greater Darwin region, an approximate estimate of 200mm rainfall per m² land area per annum is commonly used by the Water Division. Sustainable extraction for consumptive use is therefore considered the extraction of not more than the 20% of estimated annual recharge, which equates to 40mm/annum. The volume of groundwater that can be sustainably extracted from the aquifers in the project area can therefore be calculated by multiplying this amount by the land area of the development (40mm multiplied by 28,000,000 m²), which equates to 1,120 ML a year.

To further inform sustainable extraction rates, as a requirement of the Specific Use Zone, prior to lodgement of the first stage subdivision application, a detailed hydrogeological/ water analysis will undertake to support the staged and full development of the site, and the following comprehensive work:

» Understanding of continuity of the aquifers, groundwater flow regime and discharge areas.

» Securing quantitative information to establish sustainability of the groundwater resource (as opposed to bore pumping sustainability).

» Obtaining baseline monitoring data to assess resource behaviour, including understanding the recharge and discharge processes and the resource response to rainfall with the aim of quantifying recharge.

» Quantifying recharge for each of the groundwater compartments in which the production bores will be located.

» Modelling predictions of pumping impact on the environmental assets.

» On-going monitoring scheme designed to inform possible impacts on areas of concern.

» Analytical modelling required to inform seasonal and long-term (100-year) impact on the resource and sustainability of supply.

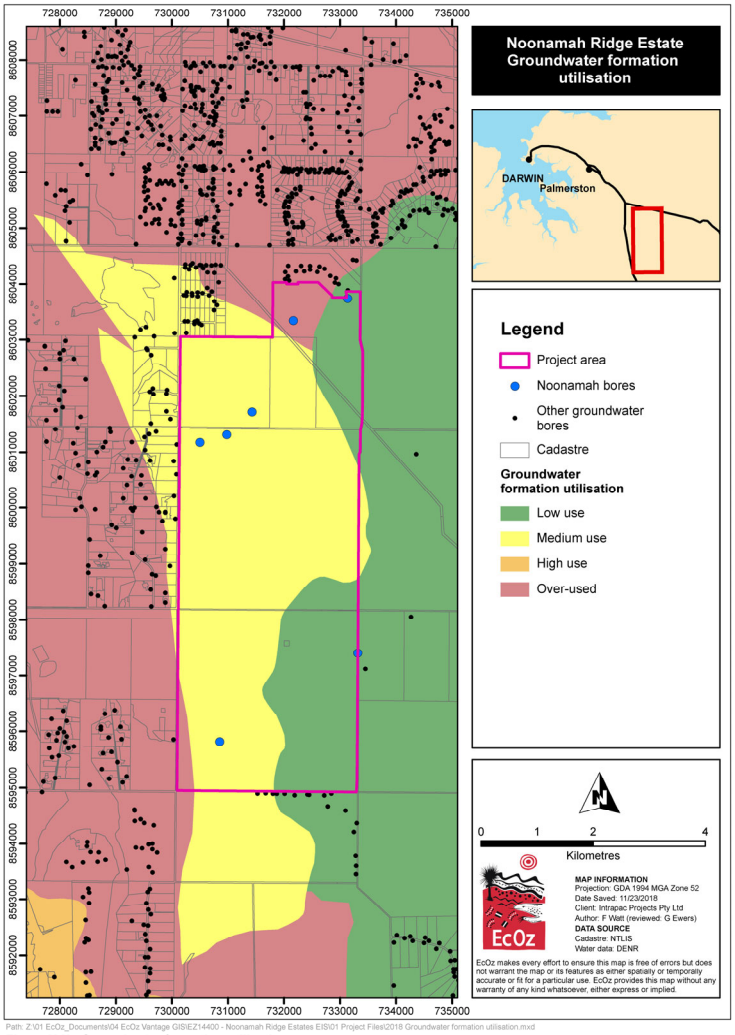
Local hydrogeology

What groundwater lies beneath Noonamah Ridge?

The Noonamah Ridge site mostly lies above groundwater management zones that occur within what is known as the Mount Partridge resource, apart a small area which lies above the South Alligator resource. The Water Resources Division of the Department of the Environment and Natural Resources has assessed the status of each management zone based on whether groundwater is being extracted sustainably. The map below shows that for most of the Noonamah Ridge site, groundwater allocation is low or medium. This is considered by the Water Resource Division as being sustainable.

The ridge lines of the Noonamah Ridge site are clearly different from the flatter surrounds. The unique geology of the site means that aquifers beneath are different to those used by neighbouring properties to the west and north. They are not the standard Cretaceous and/or dolostone aquifers found in the Darwin region. – instead they are fractured rock aquifers, with the fractures occurring during the faulting that created the rugged landscape of the site.

Figure 7 Noonamah Ridge Groundwater Formation Utilisation



Path: Z:\01 EcOz_Documents\04 EcOz Vantage GIS\EZ14400 - Noonamah Ridge Estates EIS\01 Project Files\2018 Groundwater formation utilisation.mxd

Figure X-X. Groundwater formation utilisation

What do we know about that groundwater?

For the Environment Impact Statement (EIS), there was a study of the hydrogeology of the site which included drilling six test bores. The depths at which the bores drilled first encountered water was greater than 25 metres below ground level, except in the south-west where there was a modest flow of probably ephemeral groundwater.

Three of those bores are highly productive and have very good quality drinking water. They were pump-tested to see the effect extracting water had on nearby bores. The results a negligible reduction ('drawdown') in the water levels of nearby bores. That could be the result of either high connectivity within a modest aquifer, or a significantly larger aquifer.

Since December 2016, all six bores have been equipped with water level loggers that provide a continuous measure of groundwater levels. In December 2017, Intrapac installed a rainfall monitoring station on an adjacent block. The information from these monitoring devices give a clear picture of the recharge behaviour of the bores. All the bores exhibit very rapid recharge response to rainfall events, reaching early Dry season equilibrium levels prior to halfway through the Wet season. It is apparent that even in a relatively poor Wet season, the aquifers would reach Dry season equilibrium levels readily.

What further studies will be done to get a better understanding of the groundwater

The six bores that were drilled on the site have provided some insight into the groundwater resource, but further work needs to be done to adequately define it. A few sites have been identified as focus for the next stage of investigation – these sites are in the yellow or green areas shown in the map above.

However in order to demonstrate there will be no or minimal impacts on the environment or other water users for the different stages and full development, a hydrogeological assessment is a requirement of the specific use zone and will be undertaken prior to Stage One commencing.

Who currently uses that groundwater?

There are groundwater users immediately to the north, west and south of the Noonamah Ridge site. As unlikely as this may sound, most of them do not extract their groundwater from the same aquifers as are intended to be used for the Noonamah Ridge project.

Scientists use the water chemistry and the lithology (the visible physical characteristics of rock that comes up when the bore is drilled) to determine whether bores at different sites are tapping into the same aquifer. A comparison has been made between the water chemistry of the high yield Noonamah Ridge bores and that in the bores of surrounding properties. The results suggest that the aquifers the Noonamah Ridge bores tap into are almost certainly not connected to the aquifers used by surrounding properties.

That result confirms what is shown in the map at Figure 7.

What ecosystems depend on the groundwater

Ecosystems that depend on groundwater are called groundwater-dependent ecosystems (GDE's). There are many types of GDE's. When it comes to groundwater extraction from deep aquifers (such as is proposed for Noonamah Ridge), it is necessary to be aware of the differences between a GDE that relies on an aquifer rising every Wet season to supply the ecosystem with water or is fed by a spring, compared with an ecosystem that gets its water from sideways water flows in the soil and/or because not far below the surface there is a waterproof layer (such as clay) that causes rainfall to water-log the soil. The latter is more accurately described as an 'inflow-dependent ecosystem' and is not affected by taking water from a deep aquifer. A local example is the sandsheet heath ecosystem that occurs in the north-west of the site.

In terms of GDE's that get their water from an aquifer, there is only one freshwater soak in the centre of the site which may fit that description. The EIS groundwater study stated that the underlying clay beds suggest that this is a 'perched soak' rather than spring-fed, although further study would be required to definitively establish whether there is a connection to the aquifer below. Regardless, the EIS concluded that the soak is not considered to be a significant groundwater-dependant ecosystem as it is of small size, does not contain unique

species, and is currently highly impact by a range of feral animals (such as Feral Pigs and Water Buffalo). The NT EPA in their assessment report for the EIS did not have an issue with this conclusion.

Moving forward – delivering sustainable water supply to Noonamah Ridge

How much water is Noonamah Ridge entitled to extract

The NT Water Allocation Planning Framework which requires that for Top End aquifers:

At least 80 per cent of annual recharge is allocated as water for environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level equivalent to 20 per cent of annual recharge.

Put simply, 'annual recharge' is the amount of surface water that seeps into the aquifer each year.

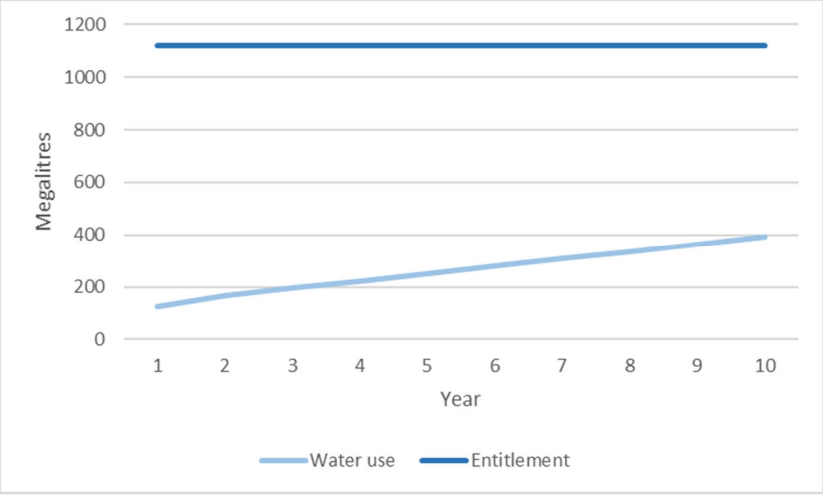
For the greater Darwin region, an approximate estimate of annual recharge 200 mm per m² of land area per year is commonly used by the Water Division of DENR. Sustainable extraction for consumptive use is therefore considered the extraction of not more than the 20 % of estimated annual recharge, which equates to 40 mm per m² per year. The volume of groundwater that can be sustainably extracted from the Noonamah Ridge aquifers can therefore be calculated by multiplying this amount by the land area of the development, which equates to 1,120 ML a year.

How does the Noonamah Ridge project intend to use local groundwater?

It has never been the intention to supply the whole development with groundwater extracted from beneath the site. Instead, the goal has always been to supply **the first one or two stages with local groundwater**, and then source additional water elsewhere (as discussed below).

Based on the standard water consumption figure per lot of 1.4 ML/annum, a **sustainable extraction of local aquifers could support up to 808 lots**. This is more than sufficient to supply Stage 1 and maintain the water level of the proposed lake. Stage 1 will be based on a design that has approximately 300 lots ranging in size from 800 m2 to 20,000 m2. Depending on demand, 20 to 30 lots will likely be released per year – see graph below for the extraction requirements over the first decade.

Figure 8 Graph of water extraction requirements for the first decade



How will Noonamah Ridge ensure sustainable water extraction?

First and foremost, the number of lots using bore water will be limited to that which can be supported by the available groundwater resources. That is Intrapac's commitment and as a requirement of the Specific Use Zone will be undertaken in consultation with the Controller of Water Resources.

It is proposed the large majority of lots in Stage 1 will be serviced with potable water piped from bore-fields located within the project area. Each bore-field will comprise a number of bores extracting from the same aquifer (with sufficient distance between them to avoid interference). Water extracted from the bore-fields would be pumped to a holding tank located on a high point within the project area and then piped to properties. The bore-field will be 'gauged' in order to monitor water extraction and ensure extraction is within sustainable limits as defined by the licencing process under the Water Act. Intrapac plan to be the water utility. As such, and by using borefields, Intrapac can keep a close eye on utilisation.

The remaining lots of Stage 1 will be sized and located in areas in which it is possible for each lot to have its own bore (or for a number of lots to share a bore). In the event that some of these larger lots are unable to access sufficient potable groundwater, the abovementioned bore-fields will be able to accommodate these (possibly requiring the drilling of an extra bore within them). In order to best ensure sustainable groundwater extraction by the larger lots, Intrapac will investigate the possibility of having multiple lots connected to a single bore (e.g. three lots to a bore), as well as other ways to manage and monitor water extraction by individual lots.

The active management of water resources presents an improvement on existing water usage, and provides a structure to anticipate and resolve water supply issues.

What approvals will Noonamah Ridge need before it can extract groundwater?

Prior to the approval of the first stage of subdivision, the master plan required under the specific use zone will each subdivision (stage) of Noonamah Ridge, the developer will have to demonstrate to the Controller of Water Resources (as well as both Power and Water Corporation and Litchfield Council) that there is sufficient drinkable water to supply that new subdivision without affecting the supply to existing users and/or the environment. The Development Consent Authority will not approve a subdivision application for any stage without it first being demonstrated by Intrapac that there is a sustainable water supply strategy for the overarching development, and that this strategy is endorsed by the relevant referral agencies.

For Stage One, Intrapac has applied for a Water Extraction License to extract 571 ML/yr. This is 10 % of the estimated annual recharge (remembering that up to 20 % extraction is considered sustainable).

What other options does Noonamah Ridge have for sourcing water?

When the Noonamah Ridge development reaches a size such that the onsite groundwater supply of water needs be supplemented, Intrapac propose to install and monitor a borefield that extracts groundwater from an un-used part of the Koolpinyah aquifer to the east of the project site.

This potential resource is very under-explored, and so Intrapac propose to undertake a desk-based investigation leading to an exploratory program. This program would consist of at least four targeted exploratory bores with automated loggers which would be pump tested, and the draw-down and connectivity evaluated. If the targeted bores are unsuccessful, then further exploratory bores would be drilled in the vicinity of the targets. There may be a need for some monitoring bores to evaluate drawdown during pump testing and for long term monitoring.

As this potential resource is probably of the classical Darwin region Cretaceous and dolostone aquifer type, there is less emphasis in the proposed exploratory program on structural detail, and more on determining the areal extent of the resource. Therefore, bores would be located at reasonable distances from one another.

If the Koolpinyah Aquifer does not present a feasible water supply for the project, Intrapac proposes to enter into an agreement with PWC to connect Noonamah Ridge to mains water supply. This agreement could include cost-sharing or development contributions/levies. Section 2.8.5 of the EIS contains more detail.

6.3 Sewer Infrastructure

Reticulated municipal sewer treatment services are not proposed for the area in the foreseeable future, therefore a community scale onsite treatment solution is the preferred method to allow the development of this site.

The proposed specific use zone includes the requirement for the master plan to be accompanied by high level principles informed by sewerage servicing plans which establishes a long-term sustainable strategy for the

provision of sewer infrastructure (private, public or communal) necessary to support development in the broader locality. This provisions also applies to water supply.

6.4 Electrical services

To enable an electrical supply from the grid, Power and Water have advised that upgrades will be required. It is expected that these works could occur post the planning scheme amendment process.

The development will also look for opportunities to use solar energy to reduce the demand for electricity across the project, and options to be off-grid with sustainable electricity production and battery storage alternatives.

The proposed specific use zone includes the requirement for the master plan to be accompanied by high level principles informed by an electricity network plan which establishes a long-term sustainable strategy for the provision of electricity infrastructure (private, public or communal) necessary to support development in the broader locality.

6.5 Stormwater Management

Stormwater will be captured and appropriately managed to ensure the quality of the water leaving the site as well as water flows. A sensitive approach will be taken noting the sites stormwater can ultimately the Darwin Harbour and Adelaide River floodplains.

The proposed specific use zone includes the requirement for the master plan to be accompanied by a flood and inundation study that demonstrates that land intended to be developed for residential purposes is not constrained by riverine or local stormwater flooding, waterlogging or seasonal inundation.

The proposed specific use zone also includes the requirement for a concept stormwater management plan demonstrating that the master planned development will not adversely impact on stormwater management within the site or on neighbouring land and roads including upstream and downstream flows. This will be undertaken in consultation with and to the satisfaction of Litchfield Council.

It is expected that erosion and sediment control will be managed as part of subdivision or land use permit conditions.

6.6 Communications

Telstra and NBN Corporation are responsible for approving the telecommunication infrastructure works required to service the development.

The project will coordinate with the authorities to provide a system of pipe and pit throughout the subdivision area to enable NBN Corporation to pull through fibre optic cable as part of individual stage of works.

6.7 Roads, Access and Traffic

Roads and accesses will be informed by a Transport Impact Assessment, undertaken in consultation with and to the satisfaction of the Department of Infrastructure, Planning and Logistics and Litchfield Council. Upgrades to roads infrastructure to accommodate increased traffic demand will need to be demonstrated. This is a requirement of the proposed specific use zone.

7 Summary and Conclusion

Elton Consulting has been engaged by Intrapac Property to prepare a planning scheme amendment application for Sections 5827, 507, 5758 & 5761 Hundred of Strangways to achieve a rezoning of the site to a specific use zone. The specific use zone will inform, control and manage the future development of the site for the development of a rural character estate.

The vision for Noonamah Ridge Estate is to create a high-quality development that provides a range of lot sizes and typologies, with an emphasis on retaining and enhancing the rural character and amenity of the area. The development will aim to connect to the surrounding rural area, providing the opportunity to create a strong sense of community.

The proposed specific use zone will describe the purpose of the zone as well as the development design and philosophy. The proposed specific use zone embodies the vision to create lots with a variety of sizes to meet market demand and provides prospective purchasers with an alternative not currently provided in a rural setting whilst responding to the character of the locality and environmental considerations. Restrictive covenants will be placed on the title of lots to ensure the requirements of the specific use zone and EIA recommendations are implemented into perpetuity, this would include limiting further subdivision of lots.

The planning scheme amendment and associated specific use zone have been informed by the Environmental Impact Assessment and its recommendations completed by the NT Environment Protection Authority. Intrapac Property acknowledges its environmental commitments and agrees that all safeguards and mitigation measures made as part of the EIS process as binding commitments.

This application has demonstrated that the proposal complies with the objectives of relevant strategic planning documents as well as Territory Government policies and strategies. Importantly this proposal seeks to realise the policies included in the Litchfield Subregional Land Use Plan which show the Noonamah Ridge Estate site as an urban/peri-urban area to facilitate urban residential uses, and to provide lower scale activity centres and a transition from the future suburban edge of Weddell to existing rural areas. While the proposal varies from provisions of the Litchfield Subregional Plan in terms of minimum lot sizes in some instances, this is viewed as appropriate given the site's location and context, noting that it is located on the periphery of the existing subdivided area. In essence, the proposal introduces a lot size to bridge the gap between RR (Rural Residential) and RL (Rural Living), as a way to provide alternate lot sizes and more options for new entrants into the rural property market, as well as those wishing to scale back but remain in their community. The marginally increased density is offset by the provision of open space, conservation and social infrastructure. At the same time, the overarching character of the development remains rural.

The proposal provides the opportunity to provide a well-planned, and considered rural subdivision, supported by social infrastructure that underpins a strong community. At the same time, the comprehensive Environmental Impact Assessment, reflected in the specific use zone, will ensure improved natural and social environmental outcomes for the development and region.

The form of development provided for in the proposed specific use zone (a transition of residential density from rural land uses to rural activity centres) is also a principle that is fostered by the Litchfield Subregional Land Use Plan.

It is therefore recommended that the proposed rezoning of the site be supported.

Appendices

A EIA Recommendations

B Response to Submissions

C Community Consultation Outcomes

D Proposed Specific Use Zone

E AAPA Certificate

A EIA Recommendations

Northern Territory Environment Protection Authority

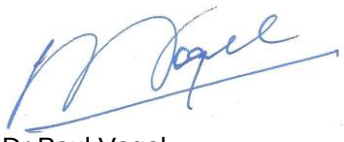
ASSESSMENT REPORT 82

INTRAPAC PROJECTS PTY LTD
NOONAMAH RIDGE ESTATE

September 2017

Environmental impact assessment process timelines

Date	Progress stage
22/12/2013	Receipt of Notice of Intent
7/04/2014	NT EPA decision Environmental Impact Statement issued
03/11/2014	Draft Terms of Reference (ToR) released for public comment
28/11/2014	Final ToR issued to proponent
28/11/2015	Draft EIS released for public comment
4/03/2016	NT EPA direction to prepare EIS Supplement issued
17/6/2016	EIS Supplement received
8/7/2016	Additional information requested
15/02/2017	Additional information received
9/03/2017	Additional information requested
17/08/2017	Additional information received
28/09/2017	Assessment Report issued



Dr Paul Vogel
Chairman

28 September 2017

Northern Territory Environment Protection Authority
GPO Box 3675
Darwin
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Important Disclaimer

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Contents

Abbreviations and glossary

Advisory bodies	Agencies having administrative responsibilities in respect of the proposed action
draft EIS	Draft Environmental Impact Statement
DCA	Development Consent Authority
EA Act	*Environmental Assessment Act*
EAAP	Environmental Assessment Administrative Procedures
EIS	Environmental Impact Statement
Environment	All aspects of the surroundings of man including the physical, biological, economic, cultural and social aspects (Section 3 of the *Environmental Assessment Act*)
ESD	Ecologically Sustainable Development
NOI	Notice of Intent
NT EPA	Northern Territory Environment Protection Authority
Relic	Aboriginal archaeological object as per Section 8 of the *Heritage Act*
Responsible Minister	Northern Territory Minister for Infrastructure, Planning and Logistics
The Minister	Minister for Environment and Natural Resources
The Project	Noonamah Ridge Estate
The Proponent	Intrapac Projects Pty Ltd
The Supplement	The Supplement to the draft EIS
the/this Report	This Assessment Report 82, for the Noonamah Ridge Estate Project
TPWC Act	*Territory Parks and Wildlife Conservation Act*

Summary and recommendations

Environmental impact assessment (EIA) is a process for identifying the potential environmental impacts and risks of a proposed action, evaluating the significance of those impacts and risks and determining appropriate avoidance, minimisation/mitigation measures to reduce those potential impacts and risks to acceptable levels. This Assessment Report (the Report) examines the EIA of the Noonamah Ridge Estate proposed by Intrapac Projects Pty Ltd (the Proponent). This Report marks the end of the assessment process by the Northern Territory Environment Protection Authority (NT EPA).

This Report is provided to the Northern Territory Minister for Environment and Natural Resources (the Minister) who must provide the report to the Minister for Infrastructure, Planning and Logistics (the responsible Minister) to be taken into account in decisions made by the Territory Government. This Report is not intended to provide an environmental approval.

The Proponent is proposing to develop the Noonamah Ridge Estate (the Project) at Lloyd Creek in the Northern Territory. The Project is situated approximately 36 km south-east of Darwin and 7 km east of Noonamah. The Project would be built over a period of 30 years and provide an orderly expansion of the rural subdivision pattern, clustered around neighbourhood/activity centres. The Project would provide up to 4200 residential lots, a new local town centre and associated services and infrastructure. The NT EPA has assessed the Project at the level of an Environmental Impact Statement (EIS) under the *Environmental Assessment Act* (EA Act).

The NT EPA initially identified that potential environmental impacts and risks to flora/fauna species and vegetation with conservation significance; groundwater and surface water quantity and quality; historic and culturally significant sites and socio-economic environment and public amenity, contributed to the decision to assess the Project at the level of an EIS:

In making this Report, the NT EPA had regard to the information provided by the Proponent, submissions on the draft EIS and Supplement, advice from specialists from across the NT Government, and relevant guidelines and standards. The NT EPA assessed the Project against the NT EPA's objectives for the key environmental factors of: Terrestrial Flora and Fauna, Hydrological Processes, Inland Water Environmental Quality, Air Quality and Greenhouse Gases and Social, Economic and Cultural.

Occurring before the Planning Scheme Amendment, this assessment has been strategic in nature, in that it has identified site constraints and significant environmental values across the entire site, and has conceptualised a master planned development accordingly. In doing so, the Proponent has established a systematic basis for sequential subdivision. As a staged development, the Project would be developed incrementally, providing a gradual, buffered transition of land use both spatially and temporally.

The proponent's EIS presents aspirational goals for the development to protect and maintain areas of high conservation value, including areas that support significant populations of threatened species that are found only in Darwin's surrounds. While the Proponent has presented its aspirational goals as commitments, there is uncertainty about how these goals will be achieved, with the NT EPA noting that the protection and management arrangements for environmental values still need to be finalised. In particular, there is residual uncertainty relating to:

- the surface and groundwater hydrology of the Project area
- the surface and sub-surface hydrology of the sandsheet heath and habitat for *Cleome insolata* and *Uperoleia daviesae*
- the dispersal distance and Dry season habitat use by *U. daviesae*
- initial and ongoing management arrangements for protection of significant environmental values
- the source and sustainability of potable water for the Project
- long-term effects of on-site and community sewage discharges
- the risks associated with the recreational lake.

These uncertainties are largely due to the strategic and conceptual nature of the development and the need for additional time to undertake technical/scientific studies and negotiate/finalise management arrangements. The Proponent has committed to undertaking further investigations, and to further develop arrangements to implement its commitments to address these residual uncertainties.

The NT EPA recommends that the Planning Scheme amendment includes the requirement for the development and implementation of a management framework. The management framework should detail how the results of the above investigations will be incorporated into the Masterplan, and the subsequent development of management arrangements that are to be detailed in each Development Application.

The management framework is to provide for the finalisation of funding provisions, person(s) or entity responsible, management actions and monitoring provisions, prior to the submission of each Development Application. The inclusion of feedback mechanisms into the management framework for Water Sensitive Urban Design (WSUD) would introduce further checks and balances that the design of each stage is meeting the Proponent's commitments. The inclusion of the feedback mechanisms into subsequent stages of the Project would facilitate continual improvement and progressively better environmental outcomes.

The NT EPA considers that this assessment provides a reasonable basis for the Project to proceed in a manner in which potentially significant environmental impacts are acceptable. The NT EPA emphasises that the environmental commitments, safeguards and recommendations detailed in the EIS, this Assessment Report and in the final management plans, must be implemented to deliver acceptable environmental outcomes. Furthermore, the Proponent will be required to monitor the performance of safeguards and management actions against agreed objectives, and ensure that this information informs the design and management of future stages.

The NT EPA makes 11 recommendations as an outcome of the EIA of the Project. These recommendations are for the Proponent and decision-makers to consider in future approval processes and for the execution of the proposed action.

List of recommendations

Recommendation 1

The Proponent shall ensure that the Noonamah Ridge Estate proposal is implemented in accordance with all environmental commitments and safeguards:

- **identified in the Environmental Impact Statement for the Noonamah Ridge Estate (draft Environmental Impact Statement, Supplement and additional information)**
- **recommended in this Assessment Report 82.**

The Northern Territory Environment Protection Authority considers that all safeguards and mitigation measures outlined in the Proponent's Environmental Impact Statement are binding commitments made by the Proponent.

Recommendation 2

The Proponent shall provide written notice to the Northern Territory Environment Protection Authority and the responsible Minister if it alters the Project and/or the master plan and/or environmental commitments in such a manner that the environmental significance of the action may change, in accordance with clause 14A of the Environmental Assessment Administrative Procedures.

Recommendation 3

The areas of high conservation value, (or an area that the NT EPA agrees is adequate to protect those values, such as the agreed integrated conservation network identified at Figure 3), is to be appropriately formalised in the NT Planning Scheme.

Recommendation 4

The Planning Scheme Amendment shall include a requirement to develop and implement a management framework to protect the significant environmental values on the site that describes:

a) measures to protect the identified significant environmental values on the Project site, informed by Recommendation 4 (b) below

b) the systems to ensure significant environmental values are protected, including: studies, investigations, monitoring and control systems including reporting arrangements to support adaptive management of emerging risks to significant environmental values

c) the entity accountable for implementation of systems outlined in Recommendation 4 (b)

d) the site selection criteria for each component of Project infrastructure located within and/or adjacent to the agreed integrated conservation network

e) options for appropriate funding arrangements to achieve an agreed level of environmental management over the long term, one or a

number of which need to be agreed prior to implementation of the Project.

The management framework is to be prepared to the satisfaction of the NT EPA, Department of Infrastructure, Planning and Logistics, and Department of Environment and Natural Resources prior to implementation of the first Development Application.

Recommendation 5

The Proponent shall define and fund an investigation to understand the pre-development hydrology of the sandsheet heath associated with supporting *C. insolata*. The investigation should be designed in a manner that would inform the Development Consent Authority of the risks and potential impacts of siting a lake near the heath habitat.

Recommendation 6

The objectives, scope, timing and design of the study to identify the Dry season dispersal and habitat use by the Howard River toadlet (*U. daviesae*) should be identified in the management framework outlined in Recommendation 4. The study should be adequate to justify the use of adjacent land so that unacceptable impacts to hydrology and *U. daviesae* are avoided.

Recommendation 7

Outcomes of the study of *U. daviesae* Dry season habitat and hydrology requirements of seasonally inundated habitat are to inform the boundaries of the agreed integrated conservation network. Revision of the conservation network should incorporate the Dry season habitat for *U. daviesae* and be sufficient to maintain the surface/sub-surface hydrology of breeding habitat.

Recommendation 8

In accordance with Recommendation 4, the Proponent shall design and implement a Water Quality Monitoring Plan. The Water Quality Monitoring Plan shall include provisions to monitor the performance of WSUD and stormwater basins during the first stages of the Project. The results of the monitoring shall be used to inform the design of subsequent stages to improve the management of stormwater and improve the quality of run-off from the site.

Recommendation 9

The Proponent shall prepare and implement an Erosion and Sediment Control Plan (ESCP) for each stage of the Project. Each ESCP should:

- **be prepared by a suitably qualified and experienced professional in erosion and sediment control planning; and be reviewed and approved by a Certified Professional in Erosion and Sediment Control**
- **be prepared in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines 2008, as amended from time to time (or higher standard)**
- **be the final environmental management plan to be prepared (as it relies on completion of final design) and be a stand-alone document which**

contains all necessary information to facilitate its implementation without requiring the user to reference other documents

- **be cross-referenced with other relevant environmental management plans to ensure consistency (e.g. plans relating to water management, stormwater management, site rehabilitation, etc.)**
- **include details of both temporary and permanent erosion and sediment control methods and treatments to be implemented for all stages of the project (pre, during and post works)**
- **comprise an over-arching strategic document outlining the principles, practices and methods to be implemented, as well as site-specific dimensioned plans identifying the location of works and prescribed controls; and be accompanied by relevant Standard Drawings and Construction Notes**
- **include information regarding proposed timing and staging of works, site manager contact details, maintenance and monitoring requirements, and reporting procedures.**

Implementation of the ESCP should be regularly monitored by a suitably qualified third party auditor, to the satisfaction of the Consent Authority.

Recommendation 10

The Proponent shall include the historical aircraft wreckage within a conservation reserve with a 200 m buffer around the centroid of the debris.

Recommendation 11

Prior to the commencement of the first subdivision, the Proponent must undertake a full archival photographic record of the WWII aircraft wreck. The full archival photographic record must be consistent with the Queensland Government's 'Guideline: Archival Recording of Heritage Places'.

The full archival photographic record must be undertaken by a suitably qualified professional with experience in the preparation of archival recordings. The archival record must be submitted to the Department responsible for administering the *Heritage Act* within three months of commencing construction.

1 Introduction and background

1.1 Purpose of this report

Intrapac Projects Pty Ltd (the Proponent), proposes to develop the Noonamah Ridge Project (the Project) at Lloyd Creek in the Northern Territory. The Project is largely a staged residential estate which will be constructed over a period of 30 years. The Project is situated approximately 36 km south-east of Darwin and 7 km east of Noonamah and involves the development of up to 4200 residential lots, two rural activity centres and associated services and infrastructure.

The Project has been assessed by the Northern Territory Environment Protection Authority (NT EPA) at the level of Environmental Impact Statement (EIS) under the *Environmental Assessment Act* (EA Act).

The NT EPA has prepared this Assessment Report (this Report) in accordance with section 7(2)(g) of the EA Act and clause 14(3) of the Environmental Assessment Administrative Procedures (EAAP). The purpose of this Report is to ensure that matters affecting the environment to a significant extent are fully examined and reported. This Report is provided to the Northern Territory Minister for the Environment (the Minister), the Minister for Infrastructure, Planning and Logistics (the responsible Minister) and the Development Consent Authority to be considered in decisions made by the Territory Government; it is not intended to provide an environmental approval.

1.2 Scope of the assessment

The NT EPA assessed the potential environmental impacts and risks associated with the Project in accordance with the requirements under the EA Act.

The matters relating to the environment the NT EPA considered necessary to be dealt with in the EIS for the Project were identified in the Terms of Reference (NT EPA, 2015) in accordance with clause 8(3) to (6) of the Environmental Assessment Administrative Procedures.

The draft EIS for the Project underwent a 12-week public exhibition period between 28 November 2015 and 19 February 2016. Thirteen submissions on the draft EIS were received from Government agencies and 17 from members of the public. All submissions were forwarded to the Proponent and were responded to individually in the Supplement to the EIS.

In preparing this Report, the NT EPA has considered each of the submissions where the comments related to the Project's potential environmental impacts and risks.

1.3 Approval and regulatory framework

The approving legislation for the Project is the *Planning Act*. For the Project to proceed, the NT Planning Scheme needs to be amended to rezone the site from 'Rural' and 'Rural Living' to a 'Specific Use Zone'. The Planning Scheme Amendment would include the planning principles for the site which will inform the concept master plan and subsequent Area Plans and Principles for the development.

The NT EPA provides this Report to the Minister for the Environment (the Minister). The Minister for the Environment is required to provide a copy of the Report to the responsible Minister (the Minister for Infrastructure, Logistics and Planning). The responsible Minister, taking into consideration this Report, will then decide whether to approve the Planning Scheme Amendment under the *Planning Act*.

Section 8A(2)of the EA Act requires the responsible Minister to give the NT EPA notice of the decision as soon as practicable, but within seven days, after making the decision. Alternatively, if the decision by the responsible Minister is contrary to this Report, the responsible Minister must comply with reporting obligations to the NT EPA and the Legislative Assembly in accordance with Section 8A(3) of the EA Act.

Following a decision on the Planning Scheme Amendment and the issuing of this Report, each stage of the Project will require the submission of staged Development Applications under Section 46 of the *Planning Act*. The Proponent has prepared a 'framework for achieving conservation goals'. The framework outlines how the environmental values of the site will be avoided, mitigated or managed to meet the NT EPA's objectives. If the framework becomes a requirement with the Masterplan for the Project, each Development Application will need to identify how it has addressed the identified commitments.

2 The project

2.1 Proponent

The Proponent is Intrapac Projects Pty Ltd (ABN: 107 291 805). Intrapac Projects Pty Ltd was established in 1984 and is a privately-owned property development company. The company has developed properties in Victoria, Queensland, Western Australia and New South Wales. The Proponent states in the draft EIS that it possesses the capacity to fund projects in excess of $1 billion gross realisation value.

The Proponent states that it has not been subject to any proceedings under Commonwealth, State or Territory law with respect to the protection of the environment or the conservation and sustainable use of natural resources.

2.2 Project description

The Project is located on 2800 ha of land in the greater Darwin rural area 7 km south east of Humpty Doo and 7 km east of the Noonamah Tavern (Figure 1). The Project area is private freehold land with the majority of the site owned by Koolpinyah Station Pty Ltd. Section 507, is owned by Norama Enterprises Inc.

The Project area is located on the following parcels of land:

- Section 5827 Monaghan Road, Lloyd Creek, Hundred of Strangways
- Section 5758, 905 Redcliffe Road, Lloyd Creek, Hundred of Strangways
- Section 5761, 580 Alverly Road, Lloyd Creek, Hundred of Strangways
- Section 507, 800 Freds Pass Road, Lloyd Creek, Hundred of Strangways.

Lot 5759 runs through the centre of the Noonamah Ridge site and is owned by the Northern Territory Government. The Lot is intended for future use as a transport corridor linking Alverly Road with an extension of Goode Road. The transport corridor will eventually become the Glyde Point corridor which would provide road access from the East Arm port and future industrial areas (Northern Territory Planning Commission, 2016). Lot 5759 and the Alverly Road extension is not part of the Project.

The Proponent plans to construct the Project over eight stages with an annual release of between 150-200 lots per year over the next 20-30 years. A map identifying the layout of each stage of the Project is at Figure 2 of this Report.

The boundary of the Project is shown in Figure 2 and delineated by the coordinates provided in Appendix 1 of this Report.

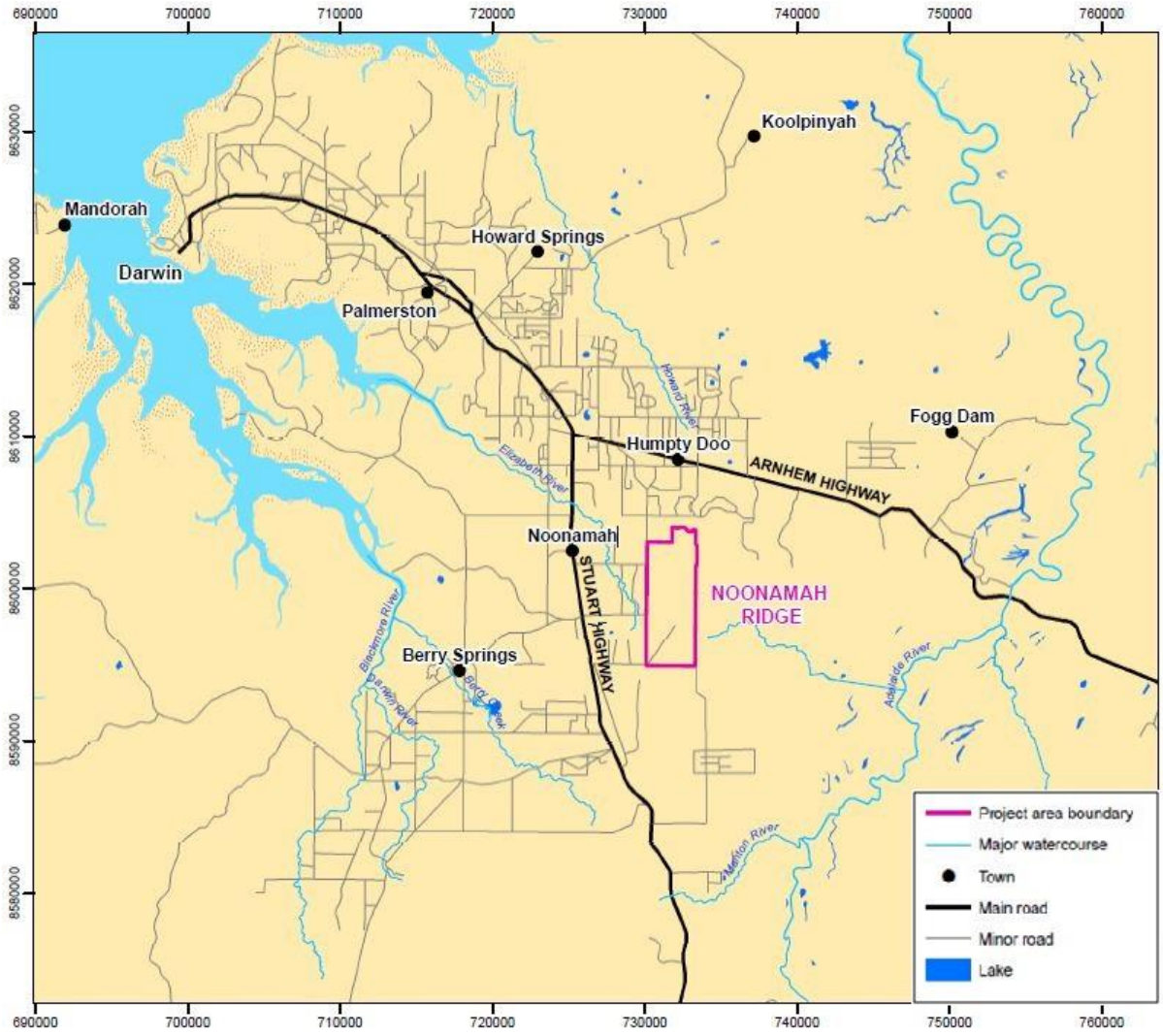

Figure 1. Map of the location of the project area within Darwin region

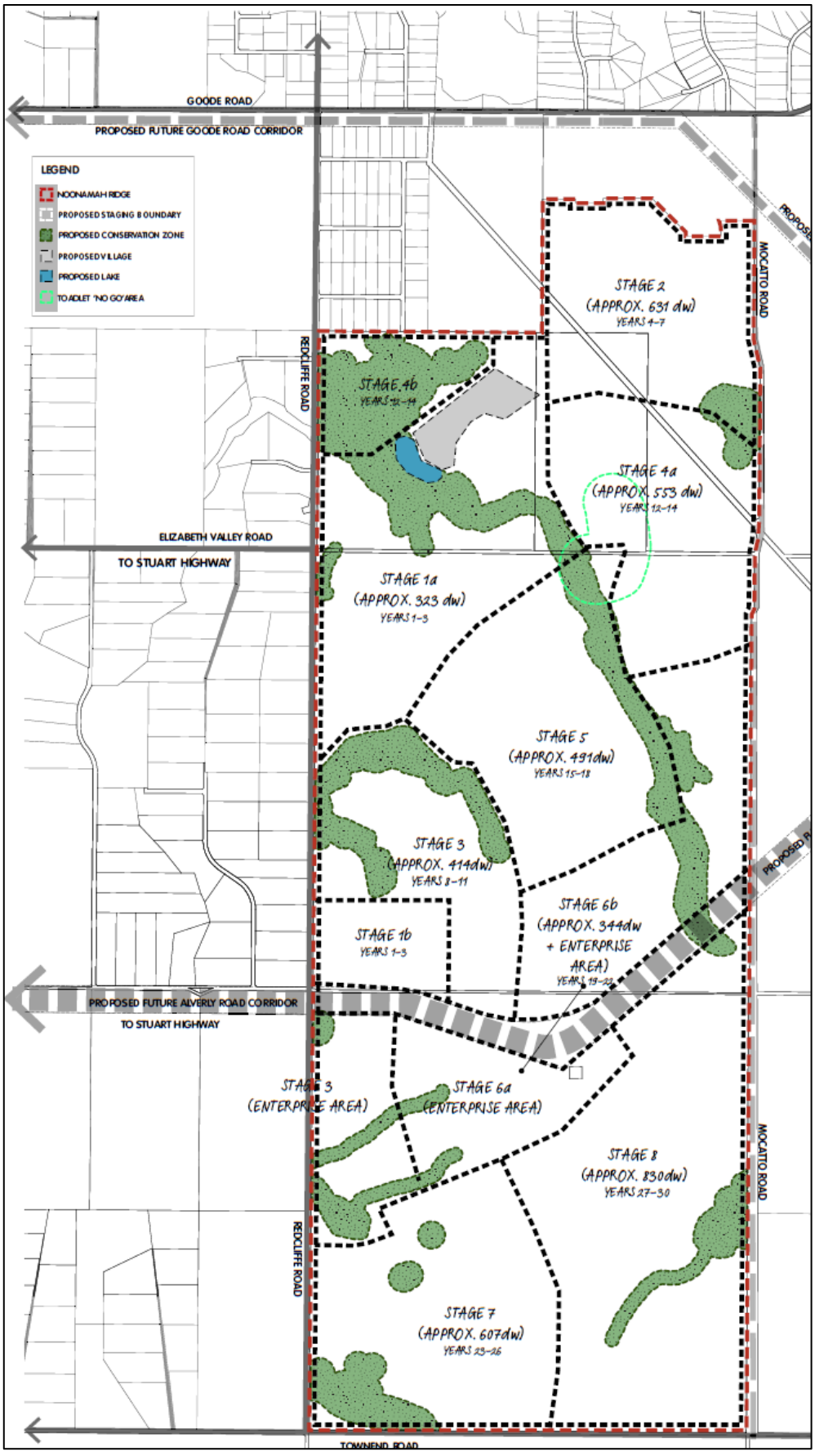

Figure 2. Map showing indicative staging of the development (Post SEIS Response 2017)

2.2.1 Residential development

The Project would be a master-planned 'rural character' community with a maximum of 4200 lots. It is estimated that the Project would accommodate around 11 000 people. The Project will include a range of different sized residential lots which would be zoned the following:

- SD (Single Dwelling) 800 m^2 3999 m^2
- RR (Rural Residential) or Restricted Rural Residential 4000 m^2 9999 m^2
- RL (Rural Living) 1 ha - 7.9h a
- R (Rural) >8 ha.

The smaller lots would be located around the two rural activity centres and would be configured in a way that reflects an 'urban setting' with a tighter network of streets/blocks with wide footpaths, aligned tree planting and buildings close to the street frontage.

Lots will be subject to a maximum building envelope. For lots greater than 2000 m^2, the building envelope will be up to 25% for the purposes of constructing dwellings, outbuildings and other infrastructure. A further 15% of each lot can be cleared without a permit for the creation of formal landscaped gardens.

Development at the site would include provision of community facilities including:

- primary, middle and high schools
- family services hub, early childhood services and childcare centres
- neighbourhood meeting rooms
- multi-purpose community centres.

2.2.2 Commercial and industrial components

Two areas have been identified for commercial development in the Project area. The first area is a rural activity centre (village) which will accommodate retail, office space, health services and entertainment activities. This would be developed as part of Stage 1 of the development in the northwest portion of the site.

The second commercial area is located in the north-west portion of section 5761, Redcliffe Road, Hundred of Strangways, Lloyd Creek. The area has been identified as an enterprise district which may include the following industries:

- light or general industry
- transport-related industry
- transport hub
- science and technology-related industry.

The enterprise area is located close to land which has been set aside for a future arterial road connecting Glyde Point with the East Arm precinct. The intent of establishing an enterprise area is to establish local businesses and activities that would provide employment opportunities.

2.2.3 Open space

The Project would include areas of open space which will be broken down into four broad categories:

- land requiring active management because it is identified as having significant conservation values, such as land critical to the conservation of threatened species including relevant buffers (identified as a proposed conservation network)
- land containing environmental values (such as along creek lines), but not requiring active management in the proposed conservation network
- public open space would be provided at the rate required under the NT Planning Scheme (and where this formal/active open space does not include conservation land), and would be zoned as Public Space
- land set aside for stormwater management may fall into the conservation areas, however it would not include land set aside for active management of threatened species.

Further clarification around the location and extent of the open space framework is proposed to be provided in a master plan which would be submitted with the first stage subdivision application.

2.2.4 Utilities

Roads

An indicative plan for the internal road network was provided in the EIS. The design of the road will be finalised at a future design stage. Traffic generated from the Project will require additional external road infrastructure to be upgraded or built.

The Proponent notes that road upgrades external to the Project area are the responsibility of the Northern Territory Government and have not been included in the scope of the Project or this assessment.

Electrical infrastructure

The Proponent is planning to provide power to the site through the provision of three dedicated feeders (one overhead and two underground). The requirement for the second underground feeder would be considered at a later stage of the development. It is proposed that power will be connected to the new Strangways Zone Substation which has capacity for at least two feeders. Alternative sources of electricity (solar etc.) would be investigated for servicing schools, dwellings, commercial buildings and recreational areas.

Water infrastructure

The Proponent is planning to service the first 300 lots (Stage 1) with potable water sourced from bore-fields onsite. Water extracted from the bore-field would be pumped to a holding tank and then piped to properties. Water supply for future stages of the development would be determined through ongoing investigations into the viability of the Koolpinyah Aquifer as an ongoing water supply for the development. If the Koolpinyah Aquifer is not viable as a water supply, the Proponent intends to enter into an agreement with Power and Water Corporation to connect the site to mains water.

Wastewater treatment

The Proponent notes in its draft EIS that reticulated municipal sewer treatment services are not proposed for the area for the foreseeable future. The development would be serviced using Kele Effluent Wastewater Treatment System (KEWT). The KEWT system would operate under a staged wastewater treatment approach to produce Tertiary Quality (Class A) effluent. Treated effluent from the facility would be reused onsite for irrigation. The KEWT systems would service the parts of the development where the lots are relatively close together. Larger lots would have their own on-site wastewater treatment system.

Stormwater infrastructure

Stormwater infrastructure would be constructed to manage surface run-off from the site. The drainage management system would be designed to maintain pre-development flows and reduce the discharge of pollutants from the development. Infrastructure that is being considered for the development includes grassed swales, detention basins, gross pollutant traps and porous pavement. The final design and location of water management infrastructure would be determined at the detailed subdivision stage once more detailed hydrology modelling is complete.

Recreational lake

The conceptual masterplan for the Project includes a recreational lake adjacent to the first rural activity centre. The lake would be 6 ha in size and is proposed to be constructed north of the main creek in the north-west portion of the site (Figure 2).

The Proponent is proposing to cut the lake into the ground with a cut-batter on the north-eastern side of the lake. Water during the Wet season would be diverted from the main creek line through an inlet on the southern side of the lake. An outlet is proposed to be constructed which would discharge water from the lake back into the main creek. During the Dry season, the lake would need to be topped up using groundwater. The Proponent estimates that this would require 83 ML of groundwater per year. Additional water may be required if there is some water loss from the lake through soil seepage.

3 Key environmental factors

Having regard to the Notice of Intent, the draft EIS and Supplement, and comments from the public and advisory bodies during the EIS review, the NT EPA identified the following key environmental factors that may be impacted by the Project:

- Terrestrial flora and fauna
- Hydrological processes
- Inland water environmental quality
- Social, economic and cultural surroundings.

The NT EPA has considered the importance of other environmental factors during the course of its assessment. Those factors that were not identified as key environmental factors are summarised at Appendix 2 of this Report.

The key environmental factors are discussed in sections 4.1 to 4.4 of this Report. The description of each factor shows why it is relevant and how it would be affected by

the Project. The assessment of the factors is where the NT EPA decides whether or not the Project is likely to meet the NT EPA's environmental objective for each factor.

The NT EPA identified the following potential environmental impacts and risks that contributed to the decision to assess the Project at the level of an EIS:

- limited availability of existing services and infrastructure, particularly main roads, water and electricity supply
- potential impacts to groundwater quality from septic/sewage discharge and changes to hydrology
- potential for inadequate stormwater and effluent disposal strategies to create mosquito breeding sites and impact on the waterways via erosion, sedimentation and increased nutrients and pathogens
- land constraints associated with areas that have a moderate to high degree of erosion vulnerability with lowland areas at risk of periodic inundation
- potential impacts to areas that contain significant conservation and biodiversity values including listed threatened species
- disturbance to and potential loss of individuals of species listed under the *Environment Protection and Biodiversity Conservation Act 1999* and the *Territory Parks and Wildlife Conservation Act*
- spread or introduction of weed/pest species
- limited availability of public transport, waste and recycling collection and emergency services as well as the risk that poorly planned road networks will limit the ability of these services to access the site
- potential impacts to historic and culturally significant sites
- changes to the existing socio-economic environment and public amenity
- cumulative impacts of the development in the context of existing, proposed and future developments in the Noonamah/Humpty Doo region.

Information requirements based upon identified potential environmental impacts and risks were described in the Terms of Reference for the Project (NT EPA, 2015). The Proponent submitted the EIS to address the NT EPA's requirements.

4 Environmental impact assessment

The purpose of this section is to evaluate the Project and to present the view of the NT EPA on the environmental acceptability of the Project. The environmental acceptability of this Project is based on an analysis of:

- the proposed action (particularly which components or activities are likely to significantly impact the environment)
- the existing environment (particularly environmental values and sensitivities)
- the potential environmental impacts and risks of the Project and the evaluation of the significance of those impacts and risks

- proposed avoidance or minimisation/mitigation measures to reduce potential impacts and risks to acceptable levels and to meet NT EPA objectives.

Conclusions drawn and recommendations made in this Report are derived from consultation on the final EIS with advisory bodies, the NT EPA's examination of the EIS and responses from the Proponent to comments/consultation. Recommendations are made in this Report to add, emphasise or clarify any commitments made by the Proponent, where the proposed avoidance or minimisation/mitigation measures are considered insufficient or where a safeguard is deemed particularly important.

In this Report, the recommendations (in **bold**) are preceded by text that identifies issues and undertakings associated with the Project. For this reason, the recommendations should not be considered or read in isolation.

The NT EPA acknowledges that the Project is still at a preliminary planning stage. This Report will inform the decision on the initial Planning Scheme Amendment, the detailed master plan and the subdivision design for each stage. It is likely that there will be minor and insubstantial changes in the Project following the conclusion of the EIA process. It will be necessary for approval mechanisms to accommodate subsequent changes to the environmental safeguards described in the final EIS and recommendations in this Report. Provided the Proponent is able to demonstrate that changes are unlikely to significantly increase potential impacts on the environment, an adequate level of environmental protection can still be achieved by modifying the conditions attached to relevant statutory approvals governing the Project. Otherwise, further environmental assessment may be required.

Recommendation 1

The Proponent shall ensure that the Noonamah Ridge Estate proposal is implemented in accordance with all environmental commitments and safeguards:

- **identified in the Environmental Impact Statement for the Noonamah Ridge Estate (draft Environmental Impact Statement, Supplement and additional information)**
- **recommended in this Assessment Report 82.**

The Northern Territory Environment Protection Authority considers that all safeguards and mitigation measures outlined in the Proponent's Environmental Impact Statement are binding commitments made by the Proponent.

Recommendation 2

The Proponent shall provide written notice to the Northern Territory Environment Protection Authority and the responsible Minister if it alters the Project and/or the master plan and/or environmental commitments in such a manner that the environmental significance of the action may change, in accordance with clause 14A of the Environmental Assessment Administrative Procedures.

The remainder of this section of this Report discusses the key environmental factors and potential impacts and risks to those factors based on likely significance, and the Proponent's investigations and studies and/or commitments to identify, avoid, mitigate, monitor and manage the potentially significant environmental impacts and

risks. For each key environmental factor, the NT EPA assesses whether or not the proposal meets its environmental objective for that factor.

4.1 Terrestrial flora and fauna

4.1.1 NT EPA objective:

Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained

4.1.2 Terrestrial flora and vegetation

Noonamah Ridge is largely undisturbed with intact vegetation communities. An area of approximately 17.7ha was disturbed previously through the construction of tracks, telecommunication infrastructure and use of the site for extractive operations. The site is relatively free of weeds.

Surveys of the site identified infestation of gamba and mission grass along access tracks and areas that have been previously disturbed. The site has medium density infestations of hyptis (10-30% cover) along some drainage lines and in the northwest and south west portions of the site. Snakeweed was identified on the site in high and medium densities within the creeks along the western side of the site.

Vegetation surveys were undertaken between April and May 2015 in accordance with the Northern Territory Guidelines and Field Methodology for Vegetation Survey (Brocklehurst, et al., 2007).

4.1.3 Significant or sensitive vegetation

4.1.3.1 Environmental values

The Darwin Regional Land Use Plan 2015 identifies the areas that are significant for concentrations of threatened species and establishes those as localities where an emphasis should be placed on the assessment of potential impacts of development. Vegetation on the site was described in the EIS in accordance with Level 4 of the National Vegetation Information System (NVIS). Ecoz (2015) identified 12 vegetation communities with three of those communities defined as 'significant or sensitive vegetation types.

Significant or sensitive vegetation types identified on the site includes riparian vegetation types (open and rainforest) sandsheet heath and monsoon rainforest. The significant and sensitive vegetation types correspond with the following vegetation communities identified by EcOz (2015):

Sandsheet heath:

- *Melaleuca viridiflora* +/- *Grevillea pteridifolia* mid high open shrubland, over *Eriachne burkittii* and *Rhynchospora logisetis* mid high tussock grassland.

Monsoon Rainforest:

- *Lophostemon grandifloras*, *Erythrophleum chlorostachys* and *Acacia auriculiformis* mid high open forest, over *Canarium australianum*, *Carpentaria acuminate* and *Clerodendrum floribundum* mid high shrubland over *Mnesithea rottboellioides* and *Cheilanthes tenuiflora* mid high tussock grassland.

Riparian Vegetation:

- *Lophostemon grandifloras*, *Erythrophleum chlorostachys* and *Acacia auriculiformis* mid high open forest, over *Canarium australianum*, *Carpentaria acuminata* and *Clerodendrum floribundum* mid high shrubland, over *Mnesithea rottboellioides* and *Cheilanthes tenuiflora* mid high tussock grassland.
- *Eucalyptus alba* var. *australasica* and *Melaleuca viridiflora* +/- *Corymbia polycarpa* mid high woodland, over *Lophostemon lactifluus* and *Pandanus spiralis* mid high shrubland over *Ischaemum austral* mid high tussock grassland.

4.1.3.2 Potential impacts

Construction and occupation of the site has the potential to directly impact on significant or sensitive vegetation through clearing, including for:

- road corridors
- service infrastructure
- detention and water management basins
- firebreaks and boundary fencing
- building envelopes.

There is also potential for indirect impacts on vegetation through:

- altered hydrology
- erosion and sedimentation
- dust
- introduction and spread of weeds
- altered fire regime
- edge effects.

4.1.3.3 NT EPA assessment

Clearing of native vegetation

Development of the site would result in the direct removal of up to 1570 ha of vegetation. Most of the vegetation that would be cleared are eucalyptus dominated vegetation communities which are common across the Top End of the Northern Territory. The final extent of clearing has not been quantified and would depend on the final alignment of each stage of the Project. The final alignment of each stage may be further refined in a master plan and subdivision design process.

The clearing of vegetation on the site would be regulated under Clause 10.2(5) of the NT Planning Scheme, which sets out the land-clearing regulations for lots 2 ha and larger. For lots less than 2 ha in size, the Proponent has committed to including a new clause in its Planning Scheme Amendment which requires landholders to obtain a permit to clear native vegetation >1000 m^2 (excluding the assigned building envelope).

The NT EPA supports the inclusion of appropriate mechanisms to encourage the retention of native vegetation within individual lots.

Conservation of significant or sensitive vegetation

The EIS has identified significant or sensitive vegetation on the Project site. The NT EPA considers that an appropriate extent of these vegetation types require conservation and management as a component of the Project.

The Proponent recognises the value of these vegetation types, and has worked closely with the Flora and Fauna Division of the Department of Environment and Natural Resources (DENR) to identify the spatial extent of the significant or sensitive vegetation that should be protected to achieve acceptable conservation outcomes. The proposed conservation network is presented at Figure 3.

The NT EPA has considered the proposed conservation area and notes that the area includes the following vegetation types:

- sandsheet heath - 15.4 ha of the 46.18 ha identified within the Project area
- monsoon forest (1.89 ha)
- riparian vegetation (91.83 ha)

The NT EPA notes that the Proponent's proposed conservation area, in addition to protecting each significant or sensitive vegetation type, largely overlaps with mapped **areas of high conservation value** (mapped by the DENR, at Appendix 3) for other significant environmental values (threatened flora species, threatened fauna species and appropriate buffers) creating an **integrated conservation network**.

The NT EPA agrees that the **integrated conservation network** covers a specific spatial area that maximises retention of significant or sensitive vegetation and threatened species habitat, in an efficient and practical area. The NT EPA agrees that the **integrated conservation network** conserves an adequate spatial extent of the **areas of high conservation value**, including an appropriate area of each significant or sensitive vegetation type.

The Proponent has committed to proposing a future amendment to the NT Planning Scheme to rezone the **agreed integrated conservation network** to Zone CN (Conservation) under the NT Planning Scheme

Recommendation 3

The areas of high conservation value, (or an area that the NT EPA agrees is adequate to protect those values, such as the agreed integrated conservation network identified at Figure 3), is to be appropriately formalised in the NT Planning Scheme.

The appropriate long-term management of the **agreed integrated conservation network** has not been finalised. It is currently proposed that Principles of the Specific Use Zone will require preparation of a master plan for the development that establishes principles to ensure the **agreed integrated conservation network** will be appropriately protected from the identified impacts of the development of the project. Conditions attached to any future development permits will provide a mechanism to ensure these principles are satisfied. The Proponent has committed to a range of measures and is negotiating with a range of stakeholders (landowners, Litchfield Council and DENR) to finalise the arrangements, however in the absence of

clear management actions and identification of the person(s) or entity responsible for maintaining the conservation network there is still considerable uncertainty around how effective management of the conservation network will be maintained over time, who will undertake the activities and to what standard. Until the long-term management of the conservation network is resolved, there is considerable risk that the conservation network and the associated sensitive vegetation types will be degraded over the life of the Project.

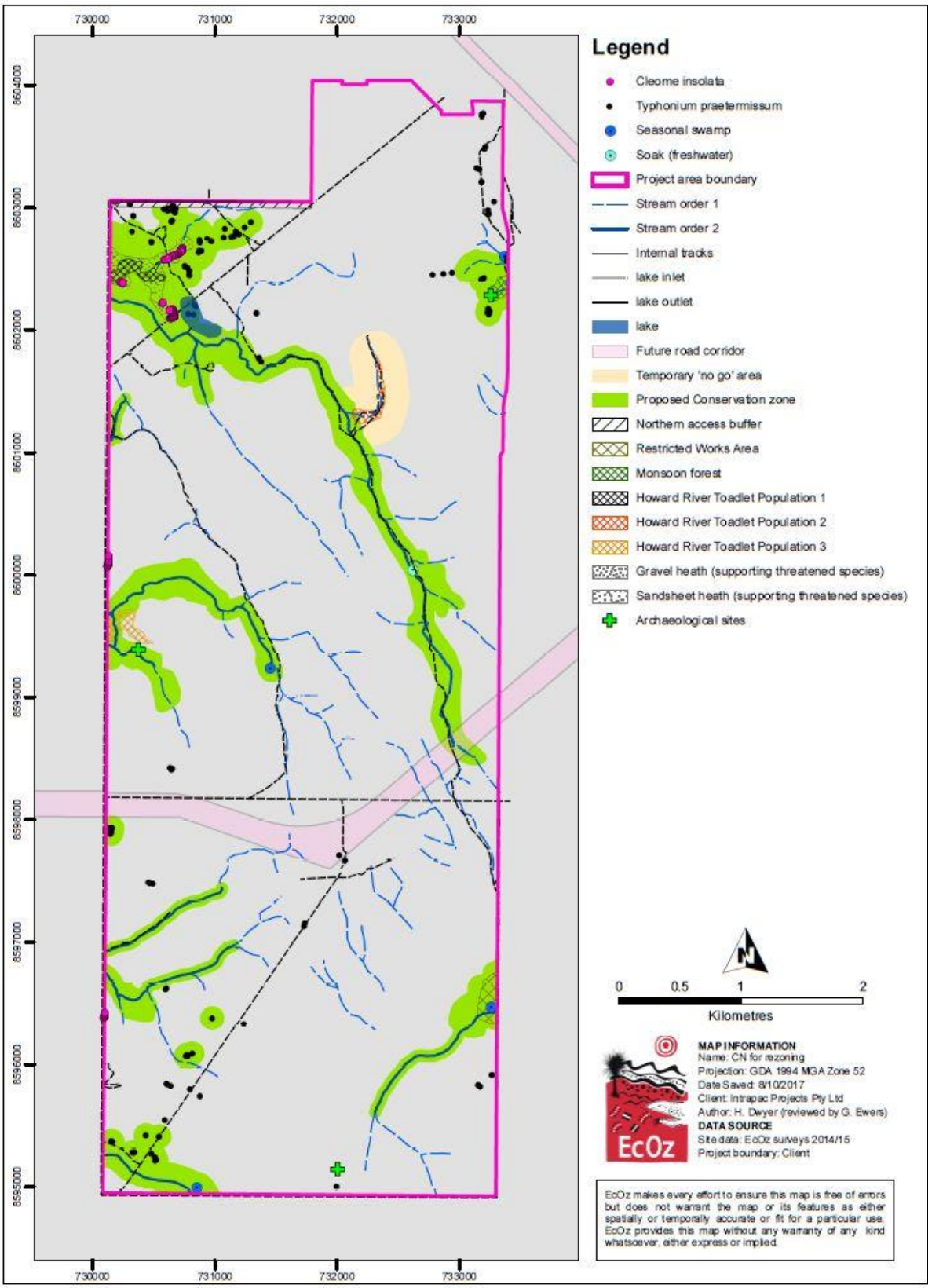

Figure 3. Agreed integrated conservation network to protect the significant environmental values of the Project area

Management of significant or sensitive vegetation types

The NT EPA considers that the appropriate mechanism to address the uncertainties around the future management of the site would be to include a requirement in the initial Planning Scheme Amendment to present a framework that outlines the studies, investigations, monitoring plans, and details that are necessary to inform decisions on how the proponent will meet its commitments to design and implement the Project in a manner that maintains the environmental values protected in the **agreed integrated conservation network**. The management framework will establish the process for developing specific management arrangements for the **agreed integrated conservation network**. This would allow the resultant specific management arrangements to be presented with each future Subdivision or Development application for the Project (as required in proposed Principles for the Specific Use Zone).

The Proponent states that some essential infrastructure may need to be constructed through the **agreed integrated conservation network**. It is important that the management framework addresses infrastructure planning so that decisions on future infrastructure appropriately respond to environmental values protected within the conservation network by not having a direct or indirect impact on any threatened species area or significant or sensitive vegetation protected within the **agreed integrated conservation network**. Further, where essential infrastructure needs to cross riparian vegetation, the Proponent should demonstrate in each Development Application that the crossing site is appropriate and that the impacts to riparian vegetation have been minimised to the greatest extent practicable.

Recommendation 4

The Planning Scheme Amendment shall include a requirement to develop and implement a management framework to protect the significant environmental values on the site that describes:

a) measures to protect the identified significant environmental values on the Project site, informed by Recommendation 4 (b) below

b) the systems to ensure significant environmental values are protected, including: studies, investigations, monitoring and control systems including reporting arrangements to support adaptive management of emerging risks to significant environmental values

c) the entity accountable for implementation of systems outlined in Recommendation 4 (b)

d) the site selection criteria for each component of Project infrastructure located within and/or adjacent to the agreed integrated conservation network

e) options for appropriate funding arrangements to achieve an agreed level of environmental management over the long term, one or a number of which need to be agreed prior to implementation of the Project.

The management framework is to be prepared to the satisfaction of the NT EPA, Department of Infrastructure, Planning and Logistics, and Department of

Environment and Natural Resources prior to implementation of the first Development Application.

Indirect impacts – weeds and bushfires

The arrangement of the lots would be determined in the Development Application for each stage. The Proponent suggests that some lots could be configured to include some of the conservation area under 'split zoning'. As this configuration may make it possible for clearing to occur within the **agreed integrated conservation network** (such as for boundary fencing, firebreaks and/or asset protection zones) this is not supported by the NT EPA. To ensure the values associated with the conservation areas are protected, it is recommended that each stage is designed to ensure that the property boundaries and firebreaks are located outside the **agreed integrated conservation network**.

The Project will require considerable ground disturbance during the construction of each stage. The disturbance of the site and construction activity provides a potential vector for the introduction and spread of weeds. The significant or sensitive vegetation within the Project area are vulnerable to weed invasion, particularly gamba grass, mission grass and humidicola. Without appropriate management and control, severe infestations can form monocultures which compete with native species and increase the risk of serious fire events.

The Project would increase the potential for weed invasion by disturbing the site and facilitating propagule transport during construction and occupation. During construction activities, the contractor will be the person responsible for implementing the Weed Management Plan. The Plan will include appropriate weed hygiene measures as well as the protocols for identifying and controlling any weed incursions. Development of the Weed Management Plan should be considered in context of Recommendation 4 above.

Once the site has been constructed and occupied, the responsibility for the ongoing management of weeds will become the responsibility of individual landholders under the *Weeds Management Act*.

Bushfires are an annual occurrence in the Top End of the Northern Territory and the increased frequency and/or intensity is linked to a reduction in the diversity and changes to the structure of vegetation communities. To address the potential impacts from bushfires on sensitive vegetation, the Proponent has committed to preparing a Bushfire Management Plan which will set out the fire control procedures and responsibilities for the site. Development of the Bushfire Management Plan should be considered in context of Recommendation 4 above.

4.1.3.4 NT EPA conclusion

The Proponent, in consultation with DENR, has identified an **agreed integrated conservation network** that is considered to be sufficient to protect three significant or sensitive vegetation types present on the Project site. Principles of the Specific Use Zone will require each Development Application submitted under the *Planning Act* to demonstrate how the **agreed integrated conservation network** will be appropriately protected from the identified impacts of the development of the project. The Proponent proposes to zone the **agreed integrated conservation network** as Conservation under the NT Planning Scheme when the lots are normalised.

The management framework outlined in Recommendation 4 of this Report would outline the process for making decisions regarding the siting and design of service infrastructure and the ongoing management arrangements for the **agreed integrated**

conservation network. The framework is to be prepared by the Proponent to inform the Planning Scheme Amendment. The resultant management arrangements would be submitted with each Development Application, consistent with the Principles for the Specific Use Zone.

4.1.4 *Typhonium praetermissum*

4.1.4.1 Environmental values

Typhonium praetermissum is listed as vulnerable under the *Territory Parks and Wildlife Conservation Act*. Surveys identified 183 (revised from 193 due to the incorrect identification of 10 plants) individual plants across the Noonamah Ridge site between 2014-15. An assessment of the species against the IUCN Criteria for subpopulations found that the site contained two distinct subpopulations ('Noonamah north' and 'Noonamah south').

4.1.4.2 Potential impacts

Construction and occupation of the site has the potential to result in the following impacts to *T. praetermissum*:

- clearing of habitat/individual *T. praetermissum*
- competition from invasive flora
- degradation of habitat through intense fires
- degradation of habitat as a result of inappropriate development of adjacent land

4.1.4.3 NT EPA assessment

The Proponent has committed to conserving 120 of the 183 known *T. praetermissum* within the **agreed integrated conservation network**. The **agreed integrated conservation network** was mapped in consultation with the Flora and Fauna Division of the DENR. The **agreed integrated conservation network** includes the largest patches of *T. praetermissum* and incorporates a minimum 100 m buffer around each plant.

The total area of *T. praetermissum* habitat that is proposed to be conserved within the **agreed integrated conservation network** area is 72 ha of land units 2a1 and 3c. Where *T. praetermissum* occurs outside of the **agreed integrated conservation network**, the Proponent may retain the occurrence in-situ. The NT EPA notes that the translocation of *T. praetermissum* has no demonstrated benefit to the conservation of the species and should not be considered a 'mitigation measure'.

The Proponent has committed to managing the indirect impacts associated with weeds and fire through long-term management plans which will be developed in consultation with the DENR. To ensure the ongoing management of the remnant *T. praetermissum* patches, the NT EPA considers it appropriate that the ongoing management arrangements are presented for each stage of the development, including the ongoing management, funding and monitoring arrangements for this species, in accordance with the provisions of Recommendation 4.

4.1.4.4 NT EPA conclusion

The NT EPA considers that the inclusion of 120 *T. praetermissum* within the **agreed integrated conservation network** is reasonable. Further, the inclusion of a 100 m minimum buffer around each patch of *T. praetermissum* within the **agreed integrated**

conservation network would provide some protection from indirect impacts, particularly anthropogenic disturbance, weeds and fire.

The ongoing management of the **agreed integrated conservation network** would be achieved by identifying specific management arrangements in accordance with the agreed management framework identified in Recommendation 4.

4.1.5 Cleome insolata (yellow spiderflower)

4.1.5.1 Environmental values

Surveys of the site located 247 *C. insolata* within and immediately adjacent to the Project area were conducted. The largest patch (207 plants) occurs within the sandsheet heath in the north-west portion of the site. Two smaller patches were identified outside the Project area but within the Redcliffe Road corridor. The patches outside the Project area are not considered further in this assessment.

4.1.5.2 Potential impacts

Construction and occupation of the site has the potential to result in the following impacts to *C. insolata*:

- clearing of habitat and/or individual plants
- changes to the hydrology of *C. insolata* habitat
- indirect impacts associated with changes to the fire regime, invasive flora/fauna
- degradation of habitat as a result of inappropriate development of adjacent land.

4.1.5.3 NT EPA assessment

The Proponent proposes to avoid the direct impacts of the Project on *C. insolata* through the inclusion of all occurrences within the **agreed integrated conservation network** at Figure 3.

The Proponent has identified an option to construct a recreational lake approximately 50 m from the southern boundary of the *C. insolata* patch in Stage 1 of the Project. The lake has the potential to significantly alter the local hydrology by capturing surface run-off and potentially altering sub-surface flows through seepage into soils. The extent of any changes to the local hydrology, as a result of the construction of a lake is unknown.

The location of habitat for *C. insolata* (in sandsheet heath) indicates that the species is likely to have specific hydrological requirements. However, such hydrological requirements are largely unknown.

The Proponent has committed to undertaking further investigations and studies to better understand the hydrology of sandsheet heath. The scope and purpose of the further investigations has not yet been fully defined, but it appears that the outcomes of the hydrological investigations would be completed to inform Stage 4B of the Project. Given the potential for the construction of a lake in Stage 1 to impact on the habitat requirements of *C. insolata*, it is recommended that the investigations about the hydrological requirements of *C. insolata* be completed to inform the design of the lake (and any other nearby infrastructure) that has the potential to impact on the species. The investigation should be considered a component of the framework outlined in Recommendation 4.

Recommendation 5

The Proponent shall define and fund an investigation to understand the pre-development hydrology of the sandsheet heath associated with supporting *C. insolata*. The investigation should be designed in a manner that would inform the Development Consent Authority of the risks and potential impacts of siting a lake near the heath habitat.

The potential indirect impacts relating to weeds and fire would be managed through the development and implementation of management arrangements in accordance with Recommendation 4 for the **agreed integrated conservation network**.

4.1.5.4 NT EPA conclusion

The Proponent has suitably avoided the direct impacts on *C. insolata* associated with clearing through the inclusion of relevant areas within the **agreed integrated conservation network**.

The uncertainty of potential impacts and risks associated with the development of a proposed recreational lake in close proximity to the known habitat for the species requires additional investigation.

Ongoing risks associated with indirect impacts (weeds, fire) will need to be finalised by the development of suitable ongoing management arrangements for the **agreed integrated conservation network**, to the satisfaction of the DENR, before each Development Application is approved.

4.1.6 *Cycas armstrongii*

4.1.6.1 Environmental values

The site contains ~2677 ha of suitable habitat for *C. armstrongii* with an estimated 789 500 individual plants occurring on the site. Much of the site (2223.06 ha) contains low-medium density habitat (200-400 cycads per hectare). Two areas (~63.11 ha) were mapped as having high densities (>400 cycads per hectare) of *C. armstrongii*.

4.1.6.2 Potential impacts

Construction and occupation of the site has the potential to result in the following impacts to *C. armstrongii*:

- clearing of habitat and loss of individual plants
- changes to fire regime
- invasive species.

4.1.6.3 NT EPA assessment

The Proponent has not identified specific mitigation measures for *C. armstrongii*. However, some *C. armstrongii* are likely to occur within **agreed integrated conservation network**. Furthermore, the retention of vegetation within individual lots is likely to reduce the loss of individual plants across the site. Additional management plans (fire and invasive weeds) will further reduce the threats to the species onsite.

4.1.6.4 NT EPA conclusion

The NT EPA considers that the impacts to the population of *C. armstrongii* at Noonamah Ridge will not affect the regional population to the extent that the species

will be eligible for listing as either endangered or critically endangered species (under the IUCN Criteria and Categories - Version 3.1).

While the Project will contribute to the ongoing loss of habitat and decline of the species, the NT EPA notes that the commitment to minimise the overall loss of cycads from the development site through the retention of native vegetation in larger lots and in open space networks is generally consistent with the 'principles' outlined in the Management Program for the species (Liddle, 2009). The NT EPA is satisfied that the environmental objective in relation to potential impacts and risks to *C. armstrongii* is likely to be met.

4.1.7 Threatened fauna

4.1.7.1 Introduction

Fauna surveys were undertaken between October 2015 and March 2015 and provided as an appendix (Appendix I) to the draft EIS. The surveys and vegetation mapping were generally consistent with the Guidelines for Assessment of Impacts on Terrestrial Biodiversity (Version 2.0). The NT EPA considers that there is sufficient information provided in the EIS to adequately assess the impacts of the development on biodiversity and threatened fauna species.

An assessment of the species habitat requirements suggest that the following species are likely to occur on the site and could be impacted by the Project:

- Howard River toadlet *(Uperoleia daviesae*)
- Partridge pigeon (*Geophaps smithii*)
- Black-footed tree rat (*Mesembriomys gouldii*).

4.1.8 Howard River toadlet (*Uperoleia daviesae*)

4.1.8.1 Environmental values

The vulnerable Howard River toadlet (*Uperoleia daviesae*) is a small myobatrachid frog which is endemic to the Top End region and is restricted to sand sheet heathland within the Howard River and the Elizabeth River catchments (Anstis, 2013).

U. daviesae was found at nine locations within the site with a further 14 incidental records along the western boundary of the Project area. Two of the locations (Populations 1 and 2) are considered to be the largest known sub-populations. A third site (Population 3), situated along the western boundary of the site provides a breeding site for a smaller sub-population (Figure 3).

4.1.8.2 Potential impacts

Construction and occupation of the site has the potential to result in the following impacts to *U. daviesae*:

- clearing and degradation of calling, breeding and Dry season habitat for *U. daviesae*
- mortality of *U. daviesae* where infrastructure crosses Dry season habitat
- changes to the hydrology of the sandsheet heath may impact the triggers and duration of annual breeding activity as well as potentially increasing the level of mortality for eggs and tadpoles

- indirect impacts on suitable habitat associated with fire, weeds and disturbance.

4.1.8.3 NT EPA assessment

The habitat preferences of *U. daviesae* are largely unknown except that it is known to breed during the Wet season in seasonally inundated sandsheet heath. The unknowns about the species ecology and habitat requirements make assessing the potential impacts of the Project difficult.

Surveys identified the 'calling habitat' for Population 1 which is associated with the sandsheet heath in the north-west part of the site. The 'calling habitat' was defined by Ecoz (2015) as the area that *U. daviesae* were actively calling from during targeted surveys. The calling habitat for Population 1 has been protected within the **agreed integrated conservation network**.

The calling habitat for Populations 2 and 3 have been inferred based on the available habitat. The inferred calling habitat for Population 2 has been identified as a 'no-go area' pending the results of a study investigating the Dry season habitat use and dispersal of the species away from the calling habitats.

The results of the study will be used to determine the extent of habitat used by *U. daviesae* during the Dry season and incorporate that habitat into the **agreed integrated conservation network**. It is noted that the results of the study may require the existing protected area for Population 1 to be increased to accommodate the required Dry season habitat.

The Proponent proposes that the study of the habitat requirements of *U. daviesae* would investigate and define:

- the pre-development hydrology of the sandsheet heath and the seasonally inundated habitat used by Population 2
- a hydrological model of the two areas (Populations 1 and 2) to inform whether components of the Project can be constructed without altering the hydrology of the habitat
- the dispersal of *U. daviesae* when not calling/breeding, and Dry season habitat requirements
- the extent (if any) that the **agreed integrated conservation network** requires amendment to incorporate Dry season habitat of *U. daviesae*.

The Proponent proposes to commence the studies within the first two Wet seasons after a decision has been made on the Planning Scheme Amendment. Given the significance of the *U. daviesae* population, it is important that the dispersal and hydrology studies are robust and accurately reflect the ecological requirements of the species. The results of the studies would identify significant areas of habitat which need protection as well as inform the management arrangements that need to be developed in accordance with the framework required in Recommendation 4. The studies would inform further development/identification of management measures in the relevant management framework.

The Proponent has committed to retaining the pre-development hydrology for the sandsheet heath and breeding habitat for 'Population 2'. As the construction of services and infrastructure has the potential to change the hydrology, it will be important that planning for the location of infrastructure takes the outcomes of the

hydrology study into account. The investigation and details around how the hydrological requirements of the habitat would be retained should be included in the framework outlined in Recommendation 4.

Recommendation 6

The objectives, scope, timing and design of the study to identify the Dry season dispersal and habitat use by the Howard River toadlet (*U. daviesae*) should be identified in the management framework outlined in Recommendation 4. The study should be adequate to justify the use of adjacent land so that unacceptable impacts to hydrology and *U. daviesae* are avoided.

Recommendation 7

Outcomes of the study of *U. daviesae* Dry season habitat and hydrology requirements of seasonally inundated habitat are to inform the boundaries of the agreed integrated conservation network. Revision of the conservation network should incorporate the Dry season habitat for *U. daviesae* and be sufficient to maintain the surface/sub-surface hydrology of breeding habitat.

There is little information about other threats to *U. daviesae*, however it is likely that weeds would alter the habitat species composition and microhabitat of the breeding habitat for the species. The ongoing management arrangements of the **agreed integrated conservation network** to reduce ongoing threats to the species would need to be developed in accordance with the framework outlined in Recommendation 4 of this Report. The management actions should include specific requirements for the funding and person(s) or entity responsible for the long-term management of threats to *U. daviesae*.

The Proponent has not identified specific measures for maintaining the hydrology or amending the agreed integrated conservation network around Population 3. The NT EPA considers this to be a smaller and less significant breeding site for *U. daviesae*. The NT EPA considers that formal protection of Population 3 is not required at this time, due to the late stage of development in the vicinity of that population. Further, the outcomes of investigations and monitoring of Populations 1 and 2 will inform whether the agreed integrated conservation network sufficiently protects the species.

4.1.8.4 NT EPA conclusion

The NT EPA acknowledges that there are knowledge gaps with respect to the ecology and habitat requirements of *U. daveisae*. The Proponent has been proactive in identifying the knowledge gaps and has proposed two studies which will inform the detailed design of the relevant stages.

There are still substantial uncertainties around the ongoing management arrangements for the **agreed integrated conservation network**. The requirement to submit a Management Framework (Recommendation 4) will ensure that the management actions, funding and person(s) or entity responsible have been agreed prior to the submission of the relevant Development Application.

The NT EPA considers that the avoidance of important habitat for *U. daviesae* as well as the implementation of ongoing management of habitat for the species is likely to meet the NT EPA's environmental objective for this factor.

4.1.9 Black-footed tree rat (*Mesembriomys gouldii*)

4.1.9.1 Environmental values

Suitable habitat for the vulnerable black-footed tree-rat (*Mesembriomys gouldii*) occurs through much of the Noonamah Ridge site with areas of suitable foraging habitat identified along the creeks and associated riparian habitat. Habitat in the north-west portion of the site is contiguous with tributaries of the Elizabeth River where *M. gouldii* have been recorded recently.

4.1.9.2 Potential impacts

Construction and occupation of the site has the potential to result in the following impacts to *M. gouldii*:

- clearing of suitable habitat for *M. gouldii* is likely to reduce the occupancy of the site
- introduction and spread of invasive weeds is likely to degrade suitable habitat and alter the fire regime (intensity and duration)
- increased mortality associated with road-strike.

4.1.9.3 NT EPA assessment

The riparian habitat within Noonamah Ridge is linked to other areas of riparian habitat to the west and north-west of the site where black-footed tree-rats have been found previously. The **agreed integrated conservation network** identified in the EIS will include and protect some of the areas, including riparian vegetation associated with stream order 2 and some stream order 1 watercourses.

The assessment of the potential impacts to the species assumed that the species is restricted to riparian vegetation which is not necessarily correct. *M. gouldii* uses these areas for denning and foraging habitat, however suitable habitat for the species includes Eucalyptus woodland which occurs across much of the site.

While the Project will require some clearing of suitable habitat for *M. gouldii*, the land clearing restrictions under the NT Planning Scheme (Clause 10.2(5)) limit clearing on lots zoned Rural, Rural Living and Rural Residential to one hectare unless consent has been provided. For lots less than 2 ha, the Proponent is also proposing to introduce a new clause to the NT Planning Scheme requiring landholders to seek consent to clear more than 1 000 m^2 of native vegetation (excluding the building envelope).

The change in land use to residential will reduce the frequency and intensity of fires through the requirement for asset protection zones on individual lots. A reduction in the fire frequency in the area may favour *M. gouldii*. This has been observed in other parts of the Darwin rural area particularly from heterogeneous habitats with few fire events (Price, et al., 2005).

It is acknowledged that there is likely to be mortality of *M. gouldii* associated with attacks from domestic pets and road-strike. These impacts are likely to be incidental and largely unavoidable. It should be noted that sub-populations of *M. gouldii* still persist in some Darwin suburbs and in the greater Darwin rural area despite these threats.

The ongoing management of the **agreed integrated conservation network** will need to be resolved through the development and implementation of the Management Framework identified in Recommendation 4.

4.1.9.4 NT EPA conclusion

Suitable foraging and denning habitat for the species was identified as being the riparian vegetation along the main watercourses of the site. The Proponent has committed to protecting these areas from clearing by including them within the **agreed integrated conservation network**. The ongoing management of these areas would be resolved before the approval of each Development Application.

Fire frequency and intensity is likely to be reduced across the Project area through early Dry season burning, the network of roads, residential areas as well as the requirements for asset protection zones around each rural lots. The reduced fire risk has the potential to improve the habitat within the site for the species.

The NT EPA considers that the protection of *M. gouldii* habitat within the **agreed integrated conservation network** is likely to meet the NT EPA's environmental objective for this factor.

4.1.10 Partridge pigeon (*Geophaps smithii*)

4.1.10.1 Environmental values

Targeted surveys for the partridge pigeon were undertaken by the Proponent using a mixture of transects and camera trapping. The targeted survey for the species as outlined in the Flora and Fauna Report did not meet the Australian Government's minimum standard for surveying for the species in an area over 20 ha in size (DEWHA, 2010). Despite the inadequate survey effort, the species was recorded on seven occasions (six incidental and one camera trap record). All sightings of the species were of pairs with all but one sighting being made along established tracks.

4.1.10.2 Potential impacts

The Project has the potential to directly and indirectly impact approximately 2040 ha of partridge pigeon habitat across the site due to:

- clearing of vegetation
- changes to fire regimes
- introduction and spread of invasive fauna/flora.

4.1.10.3 NT EPA assessment

The Project area provides suitable habitat for *G. smithii*, however the importance of the site and density of the species is unknown. A regional assessment of the species suggests that *G. smithii* from the site are part of the larger Berry Springs/Litchfield sub-population which is significant from a national perspective.

The Proponent has predicted that ~2040 ha of the site will no longer be suitable for *G. smithii* once the Project has been constructed. This is due to the removal of habitat through land clearing, weeds and changes to the fire regime. The Proponent has assessed the risks to the species and concludes that *G. smithii* is unlikely to persist on the site once the Project has been constructed.

The NT EPA notes that a number of the mitigation/management measures proposed may favour the species and make degraded habitat more favourable. In particular, the adoption of early Dry season burning and the inclusion of asset protection zones will reduce the frequency of burning. Provided the burning regime is suitable, there may be an increase in foraging habitat and a reduction in fire related mortality.

While weeds are not currently a threat to the species on the site, the Project will introduce new vectors for introducing and spreading invasive pasture grasses. These grasses compete with native seed species which are preferred by *G. smithii*. Furthermore, invasive pasture grasses can produce high fuel loads resulting in more intense bushfire events. These bushfire events alter the vegetation composition and are a source of mortality for *G. smithii*. The Proposed weed management measures have been described in detail in Chapter 4.1.3.3 of this Report.

The NT EPA does not necessarily agree with the Proponent's assertion that the species will no longer persist within the Project area. Recent observations of *G. smithii* from the Berry Springs/Darwin River region suggest that the species does persist in a rural residential environment. The proposed combination of weed control and bushfire management over the life of the Project may improve the quality of the remaining habitat for *G. smithii*.

4.1.10.4 NT EPA conclusion

The NT EPA acknowledges that suitable habitat for the species will be cleared over the life of the Project. Despite this, the land clearing restrictions proposed to be included in the Specific Use Zone will limit clearing within lots over 2 ha in size.

The NT EPA acknowledges that there would be initial impacts to this species. The ongoing requirements for weed and bushfire management are likely to reduce the level of threat to the species and potentially improve habitat quality in undisturbed habitat. The NT EPA considers that the objective for this factor is likely to be met.

4.2 Hydrological processes

4.2.1 NT EPA objective

To maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.

4.2.2 Surface hydrology

4.2.2.1 Environmental values

The Project area straddles the catchment boundary for the Elizabeth River and the Adelaide River. Most of the site is within the Elizabeth River catchment (~63%) with the site containing a significant proportion (22%) of the Elizabeth River catchment upstream of the Stuart Highway.

The water courses on the site are ephemeral first and second order streams and are heavily influenced by rainfall events during the Wet season. During the Dry season, water courses within the Project area are largely dry except for the occasional pool.

The Project contains areas that are seasonally inundated during the Wet season and early Dry season from surface and sub-surface flows. These flows provide habitat requirements for significant or sensitive vegetation types and for two threatened species.

4.2.2.2 Potential impacts

Surface hydrology of the site is likely to change as a result of the clearance of 1570 ha of vegetation and the construction of 880 ha of impervious surfaces (bitumen, concrete, rooftops etc.). The removal of vegetation and construction of impervious surfaces will facilitate surface runoff and reduce infiltration of water into the soils. Changes to surface hydrology have the potential to increase the risk of flooding, erosion and scouring watercourses.

4.2.2.3 NT EPA assessment

The Proponent has committed to designing each stage of the Project so that it maintains the pre-development hydrology and does not increase the flooding of adjacent areas offsite.

To meet this commitment, the Proponent is proposing to construct Water Sensitive Urban Design (WSUD) infrastructure and sediment detention basins along the main drainage lines.

The Proponent has provided preliminary estimates of the hydrology of the site in its EIS and acknowledged that detailed hydrological modelling informed by monitoring data from stations along the major watercourses would inform the type, design and placement of stormwater infrastructure for each stage. Decisions about the design and location of WSUD infrastructure must be made in accordance with the framework described in Recommendation 4 to ensure that the values of the **agreed integrated conservation zone** and hydrology of those areas are retained as close to pre-development as possible.

The Proponent has committed to preparing a Water Management Plan to manage the hydrology of each stage of the Project. The development of the Water Management Plan should be considered in context of Recommendation 4 of this Report. In addition, the Water Management Plan should include provisions for feedback on the performance of the WSUD measures/detention basins. This feedback would contribute to better informing the design of WSUD and stormwater infrastructure for later stages.

The potential impacts of changing the hydrology of the site have not been discussed in detail in the EIS with the main focus being on the Proponent's commitment to maintain pre-development hydrology and the mitigation of flood events. The capture of peak flows within the detention basins will remove the flushing flows which are an important part of the hydrology for maintaining riverine processes. The NT EPA acknowledges that the capture of the peak flows needs to occur to address the risks of flooding and that the changes to riverine processes are largely unavoidable. Changes to the hydrograph of streams in the Project area and removal of peak flow events (flushing flows) will alter the physical attributes of the stream. In particular, flushing flows are important for removing fine sediment, detritus and periphyton growth. The NT EPA considers that these impacts are unavoidable once the Project has been constructed with the detention basins installed.

4.2.2.4 NT EPA conclusion

The NT EPA considers that the Project would change the pre-development hydrology with respect to the hydrograph and rate that flows are discharged. This is likely to be unavoidable given the significant increase in runoff that is expected from the Project. The proposed stormwater management measures will contain peak flow events and allow significant amounts of water to be discharged at a slower rate.

The NT EPA acknowledges that some WSUD infrastructure would potentially be constructed within the agreed conservation network. Decisions about the design and location of such infrastructure must be made in accordance with the framework identified in Recommendation 4.

Provided the stormwater infrastructure operates as intended and manages peak flows, the NT EPA considers that the Project is likely to meet the environmental objective for Hydrological Processes.

4.2.3 Groundwater hydrology

4.2.3.1 Environmental values

The major geological feature of this site which influences groundwater is the Noonamah fault. The Noonamah fault runs north-west through the site and is associated with fractured quartzite ridges (Acacia Gap Quartzite). Drilling was undertaken as part of a groundwater sustainability study targeted at understanding the groundwater pathways across the site.

The study found that there are at least three types of aquifer underlying the site. The first aquifer is dolomitic and consists of a porous, high yielding sandstone aquifer adjacent to the major fault zone. This aquifer appears to be relatively limited in area. North and south of the Noonamah fault zone aquifers occur in fractured fresh and weathered shales and siltstones associated with the Acacia Gap Quartzite and the phyllitic interbeds.

4.2.3.2 Potential impacts

The Project has the potential to impact the hydrology of groundwater on the site through extraction and changes to local recharge.

4.2.3.3 NT EPA assessment

The Proponent proposes to service 300 lots in Stage 1 by establishing a bore-field within the Project area. Water from the bore-field would be extracted and pumped to a holding tank for piping to individual properties. A further 100 lots in Stage 1 would not be connected to the holding tank due to lot size or location and subsequently would have their own, or share adjoining bores in the event that there is insufficient groundwater.

The Proponent has applied for a Water Extraction Licence under the *Water Act* to take 571 ML/annum of groundwater from the Wildman Siltstone Formation for the purposes of supplying Stage 1. In the Northern Territory, the issuing of a Water Extraction Licence is by the Controller of Water Resources.

In deciding whether to grant a Water Extraction Licence, the Controller of Water Resources will consider the Northern Territory Water Allocation Planning Framework. This framework sets out a precautionary threshold for annual extraction based on the area in question and knowledge about the aquifer.

The Project overlies several groundwater management zones with the majority of overlying the Mount Partridge resource (upper Elizabeth River zone). This management zone is estimated to be 35% utilised with an estimated sustainable yield of 1236 ML/year. The existing annual use is estimated to be 438 ML/year. The DENR advises that provided water use for stage 1 is restricted to 1.4 ML/block/year, then the resource would have the capacity to supply the stage. The DENR notes that a full hydrogeological study would still be required to confirm the groundwater resource(s) for the Project. This information would inform the Water Controller's consideration of any current or future Water Extraction Licence application. The Proponent has committed to a thorough groundwater investigation to inform sustainable yields of groundwater extraction.

The source of potable water for future stages of the Project has not yet been confirmed. The Proponent acknowledges that there is likely to be insufficient groundwater available within the Project area to service the entire development and that additional sources would need to be identified for later stages. The identification of sufficient water to service future stages has the potential to limit the rate and scale

of future growth of the Project, and the delivery of social and economic benefits of the Project.

The location of the recreational lake was clarified by the Proponent in its response to further information in August 2017. The response noted that the operation of the lake would be filled using Wet season flows diverted from a nearby creek. During the Dry season, high rates of evaporation would require 'topping up' using groundwater. The Proponent estimates that the annual extraction volume for topping up the lake over a 12-month period would be 83 ML. This value does not consider the effects of water loss through soil seepage or additional flows entering the lake from surface run-off.

The Proponent has acknowledged that more detailed investigations need to be completed for the detailed design process. The NT EPA recommends that the investigations are designed and implemented in a manner which informs the management framework in Recommendation 4 of this Report. The study should consider the proposed location of the lake in relation to the **agreed integrated conservation network** and validate its appropriateness through a detailed environmental and economic cost-benefit analysis. The cost-benefit analysis should fully consider the use of a significant component of the groundwater allocation for stage 1.

4.2.3.4 NT EPA conclusion

The NT EPA is satisfied that the potential impacts and risks to groundwater and groundwater dependent ecosystems from Stage 1 can be managed through the implementation of the Northern Territory Water Allocation Planning Framework and the requirement for a water extraction licence under the *Water Act*.

The NT EPA notes that the approval of subsequent stages of the project will be dependent on demonstration of the sustainable availability of potable water to service the development.

The NT EPA has formed the view that its objective for Hydrological Process is therefore likely to be met.

4.3 Inland water environmental quality

4.3.1 NT EPA objective

To maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.

4.3.1.1 Environmental values

The Project area is located at the headwaters of the Elizabeth River, which contributes significant flows to the Darwin Harbour Site of Conservation Significance.

Water quality sampling was undertaken at six sites over the 2014-2015 Wet season. The results found that water quality leaving the Project area was described as being generally very good with samples varying little from reference sites. The waterways on the site generally have low turbidity as well as low concentrations of suspended solids, dissolved ions and heavy metals. Concentrations of nutrients were found to be slightly elevated at some sampling sites.

Macroinvertebrate surveys were undertaken at three locations in accordance with the AUSRIVAS protocols for the Darwin/Daly region (Lamche, 2007). The results suggest that two of the sites were similar to the reference site. A third site was consistent with

a ‘significantly impaired’ waterway. This result from the third sampling site was assumed to be due to poor habitat availability at the sampling site and/or the recent hydrological conditions at that location.

4.3.1.2 Potential impacts

The development of the Project has the potential to impact on the quality and quantity of water draining off the site and into the Elizabeth River. Increasing the density of human populations increases the risk that activities (such as effluent disposal, pollutants spills, fertiliser application and construction of drainage systems) will impact on the values associated with inland water environmental quality.

Residential developments have the potential to increase the concentration and pollutant loadings of gross pollutants, nutrients and sediment in receiving waters. Concentrated loads of pollutants in stormwater have the potential to have significant adverse impacts on receiving waters. Sources of water quality pollutants that must be appropriately managed include:

- sediment loading from surface erosion and construction sites
- nutrient from organic matter, fertilisers, sewage and detergents
- toxic organics such as pesticides, herbicides
- heavy metals from corrosion of buildings/fittings, transport and industrial activities/accidental spills
- surfactants from households, asphalt pavements, car washing, vehicle leakages
- water temperature increases from run-off from impervious surfaces and the removal of riparian vegetation
- spillage and illegal discharges to water ways and catchments.

4.3.1.3 NT EPA assessment

The NT EPA recognises that management of water quality on the site will benefit downstream systems, including the Elizabeth River and potentially Darwin Harbour. Given this, it is important that details of the management of stormwater and industrial waste waters are considered early in the planning stage of any future subdivision.

The NT EPA expects that through all stages of the development, there will be clear differentiation between stormwater and industrial waste water as distinct waste streams requiring different management approaches and headworks. Stormwater is to be prevented, as far as possible, from entraining any contaminants before it flows to the natural environment. Contaminated or industrial waste water however, should be managed through:

- capture and recycling
- capture and removal by an appropriately licensed collector/transporter, or
- discharge of contaminated wastes to the sewerage system under a trade waste agreement with the sewerage provider.

The Proponent has committed to ensuring that the Project does not significantly change the pre-development surface water quality being discharged from the site. To meet this objective, the Project will include a range of WSUD and stormwater detention basins which will receive flows and potentially capture any contaminants, nutrients and pollutants that have inadvertently become entrained in stormwater or overland flows. Furthermore, the Proponent has committed to protecting ~91.83 ha of riparian vegetation within the **agreed integrated conservation network**. The inclusion of the riparian vegetation will provide ecosystem services to filter contaminants, nutrients and pollutants from entering watercourses and being discharged from the site.

To monitor the success of the mitigation and management measures, the Proponent will monitor water quality at six monitoring sites (one control, five treatment sites). The water quality data would be collected prior to any construction occurring and will be compared to site-specific trigger values which have been determined using baseline data collected over a 24-month period in accordance with the ANZECC Guidelines for 95% species protection. The Proponent proposes to monitor water quality on an annual basis during the late Wet season recessional flow period in accordance with the Stormwater Monitoring Plan.

The NT EPA considers that investing in the design and implementation of appropriate headworks and avoidance measures in accordance with the framework identified in Recommendation 4 will be critical to achieving an acceptable development. The implementation of a water quality monitoring plan will confirm if the avoidance/mitigation measures are adequate to maintain the pre-development water quality. In the event of a water quality exceedance, the inclusion of follow up investigation and contingency measures into the Water Quality Monitoring Plan would ensure that the Proponent is meeting its commitment over the life of the Project. The Water Quality Monitoring Plan should be prepared to address the requirements identified in Recommendation 4.

While the NT EPA supports the Proponent's commitment to maintain the pre-development water quality, it considers that this needs to be demonstrated through designing and delivering appropriate infrastructure as the Proponent will not have ongoing control of activities occurring within individual lots. The results of the water quality monitoring plan should inform the design of subsequent stages of the Project for maintaining or improving the quality of stormwater from the site.

Recommendation 8

In accordance with Recommendation 4, the Proponent shall design and implement a Water Quality Monitoring Plan. The Water Quality Monitoring Plan shall include provisions to monitor the performance of WSUD and stormwater basins during the first stages of the Project. The results of the monitoring shall be used to inform the design of subsequent stages to improve the management of stormwater and improve the quality of run-off from the site.

The NT EPA has identified an increased risk of erosion where the gradient of the Project site exceeds 5%. The Proponent will need to develop a best practice Erosion and Sediment Control Plan (ESCP) and works will require significant engineering with a high level of on-going land management. Where possible, areas at very high risk of erosion should be protected from disturbance. For land with a gradient of 0.75-5%, the NT EPA considers that disturbance will be acceptable with the implementation of a best practice ESCP.

The land suitability assessment for the Project area identified ~1754 ha of the site has a gradient of between 0.75-5% and is considered to be a moderate to high risk of having erosion/sediment control issues. Approximately 259 ha is considered to be a very high erosion risk with a gradient of >5%. Erosion and sedimentation from soils that have been mobilised from the site can significantly degrade the quality of receiving waters.

To manage the risks and potential impacts associated with the soil mobilisation and deposition into watercourses, the Proponent has committed to preparing stage specific ESCPs as part of the Environmental Management Plan for each stage of the development. Each ESCP will be prepared with reference to the IECA Guideline (IECA, 2008) and will be provided to the consent authority for review and comment. The endorsed ESCP will be submitted to the consent authority with each subdivision application. The construction contractor will be responsible for implementing the ESCP during construction activities.

Recommendation 9

The Proponent shall prepare and implement an Erosion and Sediment Control Plan (ESCP) for each stage of the Project. Each ESCP should:

- **be prepared by a suitably qualified and experienced professional in erosion and sediment control planning; and be reviewed and approved by a Certified Professional in Erosion and Sediment Control**
- **be prepared in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines 2008, as amended from time to time (or higher standard)**
- **be the final environmental management plan to be prepared (as it relies on completion of final design) and be a stand-alone document which contains all necessary information to facilitate its implementation without requiring the user to reference other documents**
- **be cross-referenced with other relevant environmental management plans to ensure consistency (e.g. plans relating to water management, stormwater management, site rehabilitation, etc.)**
- **include details of both temporary and permanent erosion and sediment control methods and treatments to be implemented for all stages of the project (pre, during and post works)**
- **comprise an over-arching strategic document outlining the principles, practices and methods to be implemented, as well as site-specific dimensioned plans identifying the location of works and prescribed controls; and be accompanied by relevant Standard Drawings and Construction Notes**
- **include information regarding proposed timing and staging of works, site manager contact details, maintenance and monitoring requirements, and reporting procedures.**

Implementation of the ESCP should be regularly monitored by a suitably qualified third party auditor, to the satisfaction of the Consent Authority.

4.3.1.4 NT EPA conclusion

The NT EPA considers that the commitment to have no significant change in the pre-development water quality will require investment in WSUD design and the implementation of adequate and appropriate infrastructure. The performance of the WSUD and stormwater infrastructure should be evaluated during the early stages of the Project with the results and learnings improving the design of future stages.

The inclusion of riparian vegetation into the **agreed integrated conservation network** will provide an important filter for any contaminants, pollutants and nutrients from being discharged into waterways. Furthermore, the NT EPA acknowledges that the use of WSUD and stormwater detention basins will contribute to capturing and improving the quality of run-off from the site.

The NT EPA considers that the Project has the potential to degrade the quality of water leaving the site to some extent. The inclusion of WSUD measures, protection of riparian vegetation and follow up monitoring/contingency measures will ensure that the extent of the degradation is identified, investigated and responded to when necessary. The NT EPA is satisfied that the environmental objective for this factor is likely to be met.

4.4 Social, economic and cultural surroundings

4.4.1 NT EPA objective

To protect the rich social, economic, cultural and heritage values of the Northern Territory.

4.4.2 Local amenity and construction noise

4.4.2.1 Environmental values

Existing residents in Darwin's rural area consider the rural character of the area to hold particular value.

The Project is located in a rural locality within Litchfield Municipality. The major land uses of the surrounding land are associated with rural residential living, horticulture/agriculture uses, undeveloped land and existing extractive mining operations.

Submissions received on the draft EIS identified that the rural 'lifestyle' of residents is the most significant social value. In particular, commenters noted that they chose to live in the area due to the low population density and 'personal space'. In addition, submitters noted that the low traffic and noise, wildlife and recreational opportunities were other reasons for living in the region.

4.4.2.2 Potential impacts

The Project will significantly increase the population size of the region through the creation of 4200 new lots and 11 000 additional residents. The changes to the region will increase the population density resulting in more traffic, noise, and potential for and segregation between the existing and future residents in the region.

4.4.2.3 NT EPA assessment

The addition of 11 000 new residents, village centres and commercial areas is expected to significantly change the character of the Lloyd Creek area from one that is dominated by rural residential properties to a more 'urbanised' environment with

higher density housing close to the village centres. The increase in population would be gradual, with the Project being developed over 30 years.

The Project is intended to be a 'rural character' style development which seeks to retain some of the existing character of the region. To achieve this, the Proponent has committed to replicating the existing development pattern used in the region which includes smaller lots close to the village centres with larger lots radiating outwards.

The Proponent is planning to buffer existing residents from higher density areas of the site by designing relevant stages to have larger 'rural' blocks next to adjacent existing large residential properties that border the Project site. The placement of larger lots in these areas will reduce the visual impacts of the Project as well as protecting some of the pre-development amenity for existing residents in the region.

The Project has the potential to introduce significant benefits to the local community including new community facilities for the region and provide future business and employment opportunities for existing and new residents. Furthermore, the Proponent has committed to introducing a range of social and community measures to help transition the existing and future residents of Lloyd Creek/Noonamah to the future land use of the site.

Construction noise has the potential to impact on some existing residents. Construction noise and vibration impacts are expected as a result of machinery and equipment operation, blasting and other earthworks techniques and from construction traffic.

Construction activities on the site should be outlined in the Development Application and prescribed in the CEMP for each stage. The construction activities should be undertaken in a manner that is consistent with the NT EPA's guidelines for construction related noise (NT EPA, 2014).

4.4.2.4 NT EPA conclusion

The NT EPA acknowledges that the Project will alter the character of the local region by introducing 11 000 new residents as well as a range of new land uses. The incremental rate of change is likely to mitigate the impacts associated with the increase of residents by providing a gradual transition to higher density living.

The Proponent has considered the existing amenity of the region and has proposed a range of measures to reduce the adverse impacts on the amenity of existing residents in the region, including by buffering the neighbours by developing large blocks on the Project boundaries.

The NT EPA considers that construction noise can be appropriately addressed through requiring the Proponent or developer to adopt appropriate construction noise guidelines. The NT EPA is satisfied that the environmental objective for this factor is likely to be met.

4.4.3 Cultural heritage - wreck of B-25D Mitchell bomber

4.4.3.1 Environmental values

The wreck of a B-25D Mitchell bomber is located in the southern half of the Project area. The Proponent engaged a heritage expert to undertake an archaeological survey of the site. The survey identified and mapped out debris from the crash and identified the site as being highly significant from a historical and scientific perspective.

4.4.3.2 Potential impacts

The B-25 crash site is not currently listed on the Northern Territory Heritage Register and is being considered for listing under the *Heritage Act*. While the site does not have formal protection under the *Heritage Act*, the site has heritage values which may be degraded or lost if the development of the Project proceeds without appropriate avoidance, mitigation or management measures.

4.4.3.3 NT EPA assessment

The NT EPA has considered the principles and processes outlined in the Burra Charter (ICOMOS, 2013) to fully consider the Project's risks to the fabric and cultural significance of the crash site. The adequacy of the conservation and management measures proposed for the Project have also been considered in line with the principles, processes and practices outlined in the Burra Charter.

The Environmental Management Plan has identified an objective for high significance site reserves which is to '[c]*onserve, preserve and manage sites of high significance in their original conditions (pre-development)'*. To achieve this, the Proponent is proposing to undertake the following mitigation and management actions:

- install interpretive signage to explain the significance and meaning of the reserves
- establish bollards to restrict vehicle access in vicinity of sites and objects
- maintain the reserves to preserve their fabric from weeds and fires
- investigate listing the aircraft wreck on the NT Heritage Register.

In accordance with the Burra Charter, the process for managing the cultural significance of a place first requires that the place or items cultural heritage significance is understood. This should comprise an investigation into its history, use, association and the fabric. With regards to the wreck site, the archaeological survey has documented much of the history of the site but acknowledges that there were still unknowns and information gaps that could be addressed through further investigation. In particular, additional information could include the history of the plane, its crew and the circumstances around the crash. This information would contribute to the preparation of a significance statement and a full assessment of the cultural significance of the site.

The development and occupation of the Project will increase visitation of the site. In other locations, increased visitation of WWII aircraft and shipwrecks were found to result in direct and indirect impacts, including vandalism, looting, collection of souvenirs and moving artefacts. Disturbance of the site can impact the historical and archaeological context and make understanding the site more difficult.

Maintaining a heritage place (such as an aircraft wreckage) is difficult due to the likely public interest in the site and the potential for visitors to take souvenirs from the site. The Proponent has identified this as a potential risk in its EIS and is proposing to create a 'protection zone' of 200 m around the centre of the debris field. The intent of the protection zone is to stop contamination of the site and limit souveniring or relocation of heritage fabric.

4.4.3.4 NT EPA conclusion

The NT EPA acknowledges that it will be difficult for the Proponent to ensure that the fabric of the site remains intact due to the large increase of residents to the site. The

adoption of a buffer of 200 m around the centroid of the debris will reduce the risk that the site will be disturbed and/or fabric removed.

Recommendation 10

The Proponent shall include the historical aircraft wreckage within a conservation reserve with a 200 m buffer around the centroid of the debris.

Recommendation 11

Prior to the commencement of the first subdivision, the Proponent must undertake a full archival photographic record of the WWII aircraft wreck. The full archival photographic record must be consistent with the Queensland Government's 'Guideline: Archival Recording of Heritage Places'.

The full archival photographic record must be undertaken by a suitably qualified professional with experience in the preparation of archival recordings. The archival record must be submitted to the Department responsible for administering the *Heritage Act* within three months of commencing construction.

4.4.4 Aboriginal heritage

4.4.4.1 Environmental values

A search on the NT Heritage database indicates that there are no heritage items/places registered under the *Heritage Act* on the Project site. The Proponent engaged an archaeologist to survey the site for items and places that may have heritage significance (Jung, 2014). The report identified 14 sites/items that may have heritage importance. The majority of the sites/items are Aboriginal heritage with six stone artefact isoliths and seven stone artefact scatters identified.

Jung (2014) noted the rock shelter (NRS07) may have high significance. The report acknowledged that the shelter is significant from a regional perspective as there are no other rock shelter sites are known to occur this close to Darwin. The rock shelter comprises a laterite cap which has eroded to form a shelter. The archaeological survey found a range of artefacts on the surface, including quartzite cores, flakes and quartz flakes. Jung (2014) concluded that the shelter is likely to be of high significance due to potential for further archaeological material in deposits beneath the occupation floor.

4.4.4.2 Potential impacts

Construction and occupation of the site has the potential to result in the following potential impacts on Aboriginal heritage items:

- The removal of Aboriginal relics will impact on the understanding of those items in the landscape.
- The disturbance of archaeological material related to the traditional use of the rock shelter by Aboriginals.

4.4.4.3 NT EPA assessment

A contractor will be required to develop a CEMP for each of the subdivisions which will include a specific Heritage Management Plan. The Heritage Management Plan will outline the requirements for site avoidance and procedures to follow, in the event that an unknown site is identified. Heritage items in the Northern Territory with cultural significance are protected under the *Heritage Act*. Under the *Heritage Act*, it

is an offence to disturb/remove items with heritage significance without prior approval.

The Proponent has acknowledged the significance of the rock shelter and has proposed to incorporate the site and the adjacent area of monsoon rainforest into the **agreed integrated conservation network**. The identification of the area for protection would provide sufficient certainty that the site will be protected from directly being impacted by the Project.

4.4.4.4 NT EPA conclusion

The NT EPA considers that the Proponent has adequately identified the cultural heritage items (Aboriginal relics) and documented the location and archaeological significance. The ongoing protection of heritage items is the responsibility of the Department of Tourism and Culture (Heritage Branch). The Proponent will require approvals under the *Heritage Act* prior to relocating or removing any Aboriginal relics.

4.4.5 Registered sacred sites

4.4.5.1 Environmental values

Sacred sites are places that have special meaning or significance under Aboriginal tradition. These places can be hills, rocks, waterholes, trees, plains, waterways and other natural features in the landscape. A registered sacred site (5172-61) is located along the eastern boundary of the Project area. The sacred site is described as a spring with the extent of the sacred site extending east and south from the Project area. Part of the Restricted Works Area for the sacred site is located within the Project area.

4.4.5.2 Potential impacts

Construction and occupation of the site has the potential to result in the following potential impacts on Registered Sacred Sites:

- changes to the hydrology of a Registered Sacred Site
- potential for impacts to the ‘Restricted Works Area’.

4.4.5.3 NT EPA assessment

The NT EPA is satisfied that the Proponent has engaged with Aboriginal Areas Protection Authority (AAPA) to identify the registered sacred sites that could be impacted by the Project. The AAPA has issued an Authority Certificate which establishes a Restricted Works Area around the registered site. The inclusion of the Restricted Works Area into the **agreed integrated conservation network** meets the conditions on AAPA’s certificate and hence the NT EPA’s environmental objective for this environmental factor is likely to be met.

4.4.5.4 NT EPA conclusion

The ongoing protection of registered sacred sites is the responsibility of AAPA under the *Northern Territory Aboriginal Sacred Sites Act*. Provided the Project is constructed in a manner consistent with the conditions of the AAPA certificate - C2015/111, the NT EPA is satisfied that the environmental objective for this factor is likely to be met.

5 Conclusion

In making this Report, the NT EPA had regard to the information provided by the Proponent, submissions on the draft EIS and Supplement, advice from specialists from across the NT Government, and relevant guidelines and standards. The NT EPA assessed the Project against the NT EPA's objectives for the key environmental factors of: Terrestrial Flora and Fauna, Hydrological Processes, Inland Water Environmental Quality, Air Quality and Greenhouse Gases and Social, Economic and Cultural.

Occurring before the Planning Scheme Amendment, this assessment has been strategic in nature, in that it has identified site constraints and significant environmental values across the entire site, and has conceptualised a master planned development accordingly. In doing so, the Proponent has established a systematic basis for sequential subdivision. As a staged development, the Project would be developed incrementally, providing a gradual, buffered transition of land use both spatially and temporally.

The proponent's EIS presents aspirational goals for the development to protect and maintain areas of high conservation value, including areas that support significant populations of threatened species that are found only in Darwin's surrounds. While the Proponent has presented its aspirational goals as commitments, there is uncertainty about how these goals will be achieved, with the NT EPA noting that the protection and management arrangements for environmental values still need to be finalised. In particular, there is residual uncertainty relating to:

- the surface and groundwater hydrology of the Project area
- the surface and sub-surface hydrology of the sandsheet heath and habitat for *Cleome insolata* and *Uperoleia daviesae*
- the dispersal distance and Dry season habitat use by *U. daviesae*
- initial and ongoing management arrangements for protection of significant environmental values
- the source and sustainability of potable water for the Project
- long-term effects of on-site and community sewage discharges
- the risks associated with the recreational lake.

These uncertainties are largely due to the strategic and conceptual nature of the development and the need for additional time to undertake technical/scientific studies and negotiate/finalise management arrangements. The Proponent has committed to undertaking further investigations, and to further develop arrangements to implement its commitments to address these residual uncertainties.

The NT EPA recommends that the Planning Scheme amendment includes the requirement for the development and implementation of a management framework. The management framework should detail how the results of the above investigations will be incorporated into the Masterplan, and the subsequent development of management arrangements that are to be detailed in each Development Application.

The management framework is to provide for the finalisation of funding provisions, person(s) or entity responsible, management actions and monitoring provisions, prior to the submission of each Development Application. The inclusion of feedback

mechanisms into the management framework for Water Sensitive Urban Design (WSUD) would introduce further checks and balances that the design of each stage is meeting the Proponent's commitments. The inclusion of the feedback mechanisms into subsequent stages of the Project would facilitate continual improvement and progressively better environmental outcomes.

The NT EPA considers that this assessment provides a reasonable basis for the Project to proceed in a manner in which potentially significant environmental impacts are acceptable. The NT EPA emphasises that the environmental commitments, safeguards and recommendations detailed in the EIS, this Assessment Report and in the final management plans, must be implemented to deliver acceptable environmental outcomes. Furthermore, the Proponent will be required to monitor the performance of safeguards and management actions against agreed objectives, and ensure that this information informs the design and management of future stages.

The NT EPA makes 11 recommendations as an outcome of the EIA of the Project. These recommendations are for the Proponent and decision-makers to consider in future approval processes and for the execution of the proposed action.

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Appendix 1

Table 1. Coordinates for the Project Area

Point	Latitude	Longitude
1	12° 37' 41.195" S	131° 8' 2.277" E
2	12° 37' 41.630" S	131° 7' 7.749" E
3	12° 38' 35.184" S	131° 7' 7.803" E
4	12° 42' 5.220" S	131° 7' 8.379" E
5	12° 42' 5.124" S	131° 8' 54.766" E
6	12° 38' 49.147" S	131° 8' 53.896" E
7	12° 38' 47.239" S	131° 8' 55.041" E
8	12° 38' 33.940" S	131° 8' 55.703" E
9	12° 37' 47.603" S	131° 8' 55.703" E
10	12° 37' 42.678" S	131° 8' 54.114" E
11	12° 36' 48.748" S	131° 8' 53.664" E
12	12° 36' 48.882" S	131° 8' 37.036" E
13	12° 36' 51.917" S	131° 8' 37.448" E
14	12° 36' 52.579" S	131° 8' 2.261" E

Appendix 2

Environmental Factor	Description of the Project's likely impacts on the environmental factor	Evaluation of why the factor is not a key environmental factor
Air quality and Greenhouse Gases	Potential impacts to air quality and greenhouse gas (GHG) emissions would occur through the following construction related activities: • clearing of 1570 ha of vegetation • construction of built infrastructure • transport of building materials to and around the site • dust generated through clearing and transport of materials around the site. The occupation of the site will generate GHG emissions through the following activities: • energy usage by households, businesses and industry • use of vehicles to transport residents around the site and to/from the greater Darwin region.	Air Quality and Greenhouse Gases were not identified as a preliminary key environmental factor in the NT EPA's decision that the Project required assessment at the level of an EIS. Having regard to: • the clearing of 1570 ha of vegetation is unlikely to result in GHG emissions that are significant on a national scale • incorporation of architectural design guidelines which will meet a standard of energy efficiency and reduce energy usage and avoid GHG emissions • the possible use of public transport to connect the site to other areas in the greater Darwin region will reduce vehicle trips and GHG emissions • the implementation of a Dust Management Plan during construction will control the mobilisation of dust and impacts on sensitive receptors. The NT EPA considers that it is unlikely that the proposal would have a significant impact on Air Quality and Greenhouse Gases and can be managed to meet the NT EPA's environmental objective. The NT EPA does not consider that Air Quality and Greenhouse Gases is a key environmental factor at the conclusion of its assessment.

Appendix 3

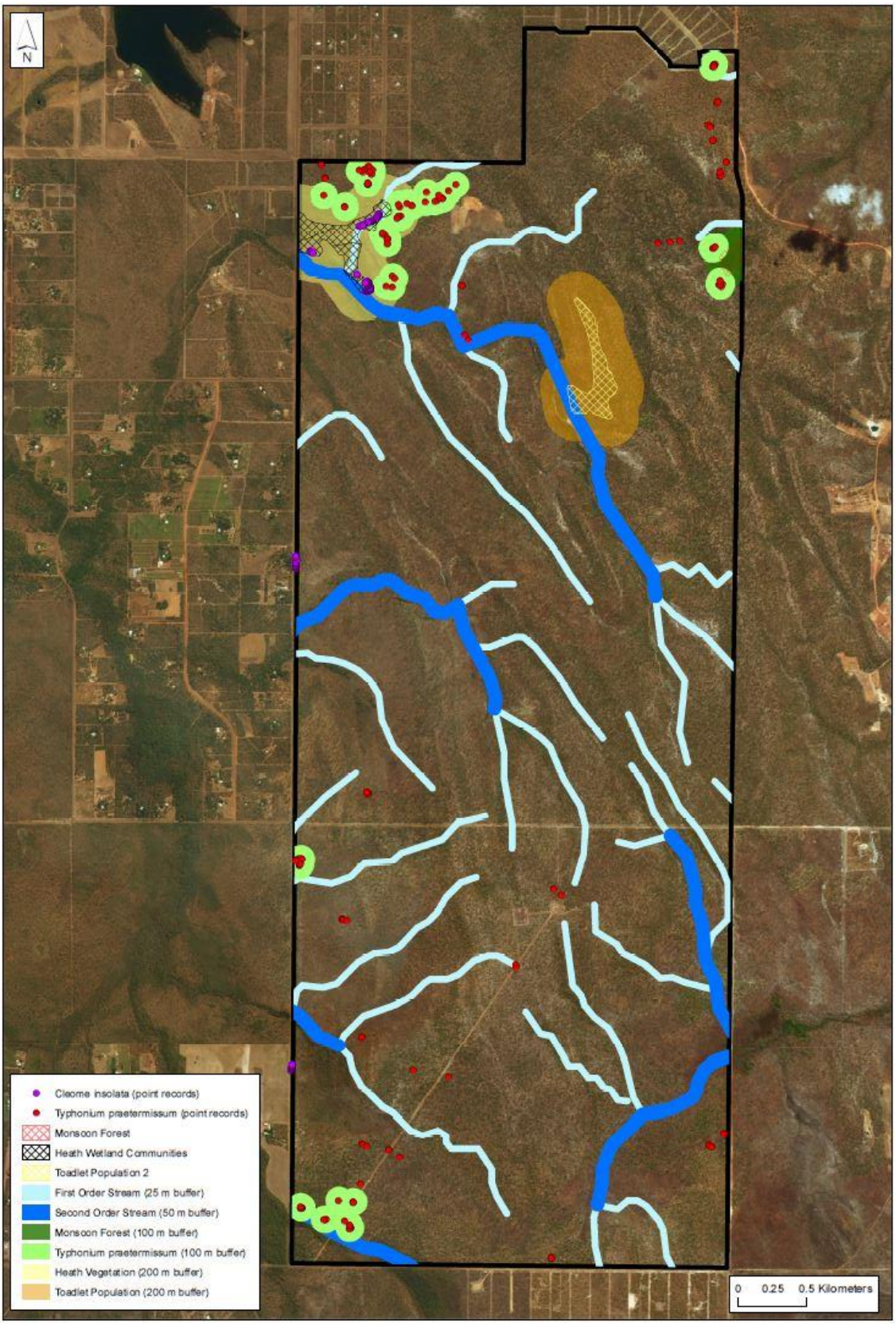

Figure 4. Conservation areas and buffers proposed by DENR

B Response to Submissions

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27 June 2016

Del Batton
Project Manager, Lands Planning
Department of Lands, Planning and the Environment
GPO Box 1680
DARWIN NT 0801

Dear Del

PA2015/0763 – Noonamah Ridge Planning Scheme Amendment – Response to Submissions

I refer to the above application.

Noonamah Ridge comprises a proposed rural character estate in Darwin's Hinterland that will provide approximately 4,200 new allotments at a density of 1.62 dwellings per hectare, two new rural activity centres, extensive open space and natural areas, and the provision of social infrastructure including schools, child care facilities, community centres and community gardens. A range of lot sizes and housing typologies, including retirement living close to the proposed rural activity centre, will be delivered within a rural setting.

The Planning Scheme Amendment seeks to introduce a Specific Use Zone for the site, introduce an Area Plan and principles, and amend certain clauses within the NT Planning Scheme to facilitate future normalisation of the zoning.

The application was placed on public exhibition for 28 days between 29 April 2016 and 27 May 2016. 369 public submissions were receive, including:

» 331 Identical form letters.

» 27 Individual submissions

» 11 Identical form letters, with individual comments.

The submissions received have been analysed, categorised, and responded to in **Appendix A – Table 1** to this letter.

Comments have also been received from the various service authorities and Litchfield Council, and these have been summarised and responded to in **Appendix A – Table 2** to this letter.

The Development Proposal versus Community Perception

We note that the majority of submissions are form letters, obtained through active canvassing of the community. The content of the letters reveal that there are some misconceptions of the proposed development, and that the full detail contained in the Planning Scheme Amendment has not been understood or considered.

By way of introduction to our detailed response to the community comments, we therefore wish to highlight the intent of the application, and the extent of proposed development in order to clarify any confusion caused by the concurrent processing of the Government's Draft Litchfield Subregional Land Use Plan and other, higher intensity, private rezonings in close proximity to the site.

Density

Community concern is primarily focussed on the density of the proposed development, and the perceived impact this may have on the existing rural character of the area. The proposed

development has been compared with the density of Palmerston and the character of Coolalinga Activity Centre.

The intent of the development is however not a suburban or urban development, but rather a rural character development largely perpetuating the existing development pattern in the rural area, and then smaller lots around and near the proposed rural activity centre. By way of comparison, the density of an urban / suburban development such as Palmerston and the proposed City of Weddell is density of between 14 dwellings per hectare, and in places as high as 25 dwellings per hectare. The Noonamah Ridge proposal has capped the development as a maximum density of 1.62 dwellings per hectare. Noting that this includes two rural activity centres, with a range of smaller lots, the majority of the site will comprise lots larger than 1ha in extent.

Noonamah Ridge is therefore clearly rural in character and lot size.

Relationship to the City of Weddell

Related to the issue of density, is community sentiment that urban development should occur at the proposed City of Weddell.

We support this sentiment, and acknowledge that the City of Weddell is the intended future urban development growth area in the greater Darwin region.

As outlined above, the proposed Noonamah Ridge development will comprise a development of 1.62 dwellings per hectare, as opposed to an urban density of between 14 and 25 dwellings units per hectare that can be expected at the City of Weddell.

The intent of Noonamah Ridge is to provide a master planned rural community, and this is not considered to be in competition with, or as a substitution for, the City of Weddell.

Existing land use rights versus the proposed development

The site is currently zoned RL (Rural Living) and R (Rural), permitting subdivision to 2ha and 8ha respectively, with a total potential yield in the region of 1,500 to 2,000 dwellings. Development in accordance with existing rights could occur through piecemeal subdivision, as has been the trend in the rural area to date. This development would include impacts such as increased traffic, impacts on environmental lands, increased population and demands on services and social facilities.

While the proposed development incorporates a higher density, this is primarily due to the provision of two new rural activity centres. It should be noted that the potential increase in population, as well as the outcomes of the stakeholder and community consultation process confirmed the need for a new rural activity centre, with the subject site providing the ideal location for the new rural activity centre.

The benefits of the master planning a site of this size for a rural development are substantial, and include:

» Co-ordinated delivery of physical and social infrastructure.

» Co-ordinated transport planning to ensure upgrades to the road network occur, and to facilitate the distribution of the traffic through the network using multiple roads and an integrated network.

» The ability to forward plan services infrastructure at a regional level.

» Improved environmental outcomes, including master planned stormwater management across the site to improve and mitigate existing stormwater issues.

» Improved protection of natural environmental features and threatened species.

Rationale for the Planning Scheme Amendment

We wish to emphasise that the primary purpose of the proposed Planning Scheme Amendment is to put in place a robust planning instrument to facilitate the development of the estate as rural character development, and to ensure that all the environmental commitments from the project EIS are complied with.

The rezoning will not grant the rights to develop the site for urban / sub-urban development, but will rather facilitate the co-ordinated and master planned expansion of the rural area. The rezoning will also allow the landowner and developer to invest more resources and finance to undertake detailed work to inform strategies, master planning and the first stage subdivision.

Conclusion

In conclusion, we contend that the proposed Planning Scheme Amendment will result in a well-considered, master planned and co-ordinated development of a rural character estate, with due consideration for social and environmental impacts.

The proposed Specific Use Zone and related planning scheme amendments will provide a robust assessment tool to facilitate the future subdivision of the land as a rural character estate, with the co-ordinated provision of services and social infrastructure.

We look forward to the Minister's favourable response to the Planning Scheme Amendment Application.

Yours sincerely

Jenny Rudolph
Director and Manager Northern Territory
jennyr@elton.com.au

C Community Consultation Outcomes

G Community Consultation Outcomes

G-1 Background to Community Consultation

Once sufficient technical data had been compiled to satisfy Intrapac Projects that from a land capability perspective, and service availability perspective, there was merit in pursuing the development of the site, Intrapac Projects embarked on comprehensive community consultation.

G-1-1 Consultation Aims

The aims of the consultation was to:

- Introduce the project and vision, and gauge community sentiment and concerns in relation to the proposal.
- Understand the values and aspirations of the rural community.
- Understand the aspirations of the broader Darwin community in relation to rural living.
- Understand the gaps in service delivery and amenity in the area, and where the development could benefit existing and future residents of the region.
- Determine community vision in relation to land use mix, and lot sizes.

G-1-2 Consultation tools

The following consultation tools were utilised to achieve the consultation aims:

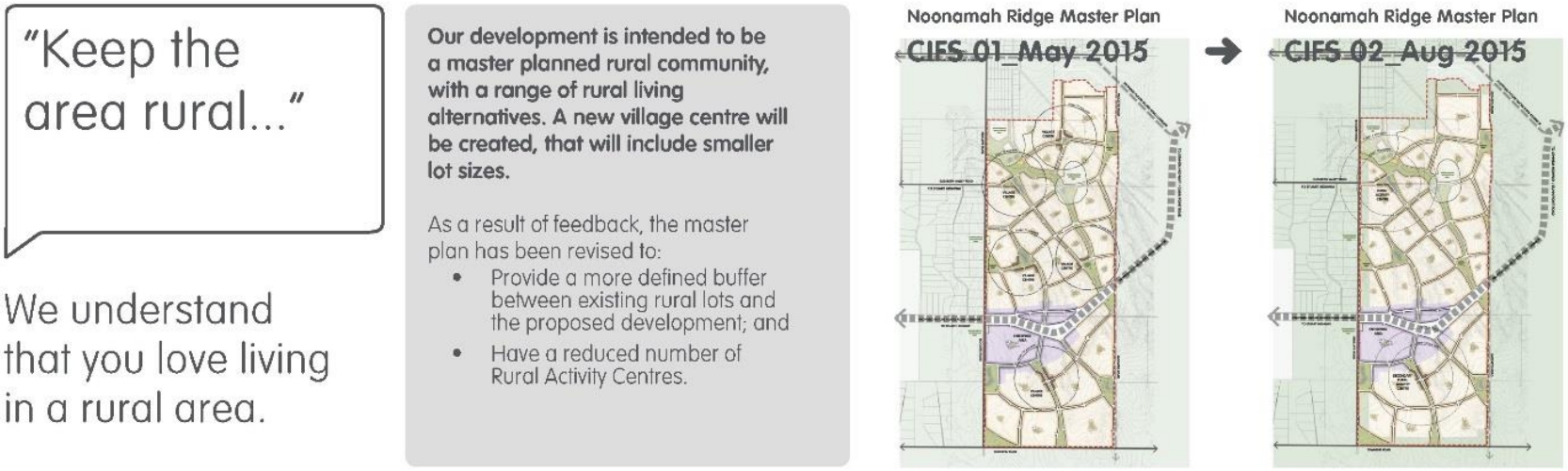
- A project website was established at an early stage, and all technical documents and consultation material were made available through this website, to ensure the transparency of the process. The website allowed for people to register their interest and provide comment. To date approximately 145 registrations have been received, of which approximately 70% are interested in land release, or expressed support for the proposal.
- Direct, one-on-one consultation was undertaken with key community members, on request.
- Two Community Information and Feedback Sessions were held:
  - Session one was held in May 2015, and introduced the project vision and concept, and sought feedback from the community. Approximately 250 people attended this session, the majority residents from the area. Forty Five feedback forms were completed.
  - Session two was held in August 2015, outlining changes made to the proposal based on community feedback, the revised project vision, provided technical information on services and environmental issues, and sought feedback from the community. Approximately 20 feedback forms were received.

G-1-3 Consultation Outcomes

Key concerns

The following four diagrams outline the main concerns raised during the consultation process, as well as the resultant changes made to the development proposal.

Figure 3 The area should retain its rural character

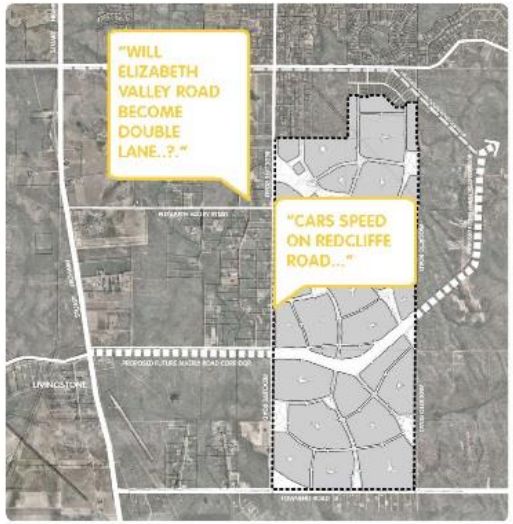


Source: Roberts Day

Figure 4 Traffic will increase

"This will create more traffic..."

We understand the assumption that there will be traffic congestion caused by this development.



Our proposal is:

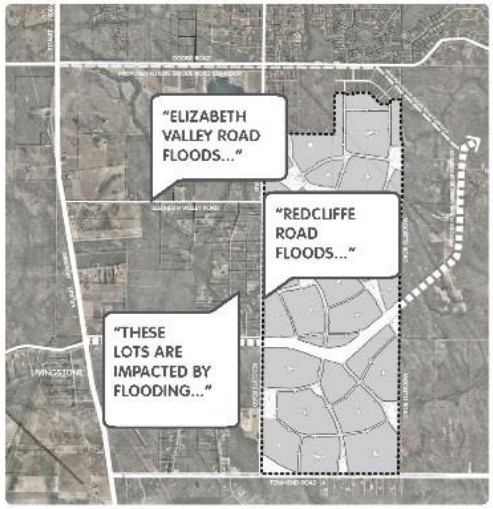
- Distribute traffic through the road network;
- To improve local roads and intersections to handle the gradual increase in traffic;
- To extend the public bus and school bus network, including a possible park and ride facility; and
- To provide areas for local employment to reduce the amount of people who need to travel to Darwin / Palmerston daily.

Source: Roberts Day

Figure 5 Will the development result in more flooding?

"We get flooded now..."

We understand that some of the existing Noonamah residents + Redcliffe Road are impacted by flooding at certain times.



Our proposal is:

- To manage stormwater on our site through appropriate detention ponds and lakes that will slow water flows;
- To collect stormwater on the site, and where possible improve flooding conditions in the area; and
- To improve road connections where flooding currently occurs.

Source: Roberts Day

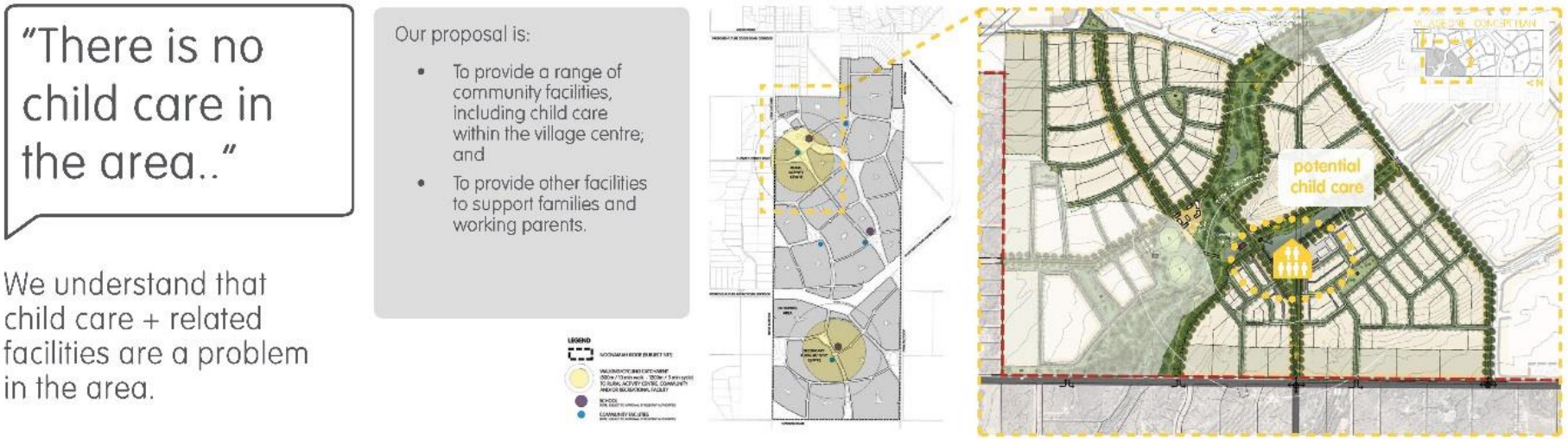
Figure 6 How will water be provided to the development?

Source: Roberts Day

Ideas and benefits of the development

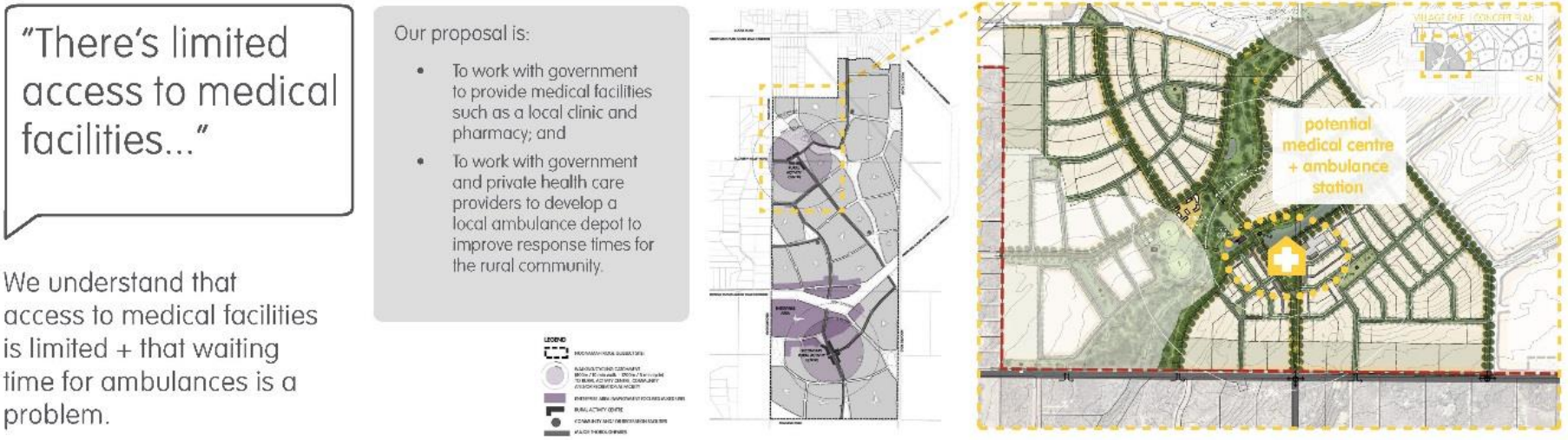
The following four diagrams outline some of the perceived benefits, ideas and additional facilities raised by the community that Noonamah Ridge can provide.

Figure 7 Providing child care facilities



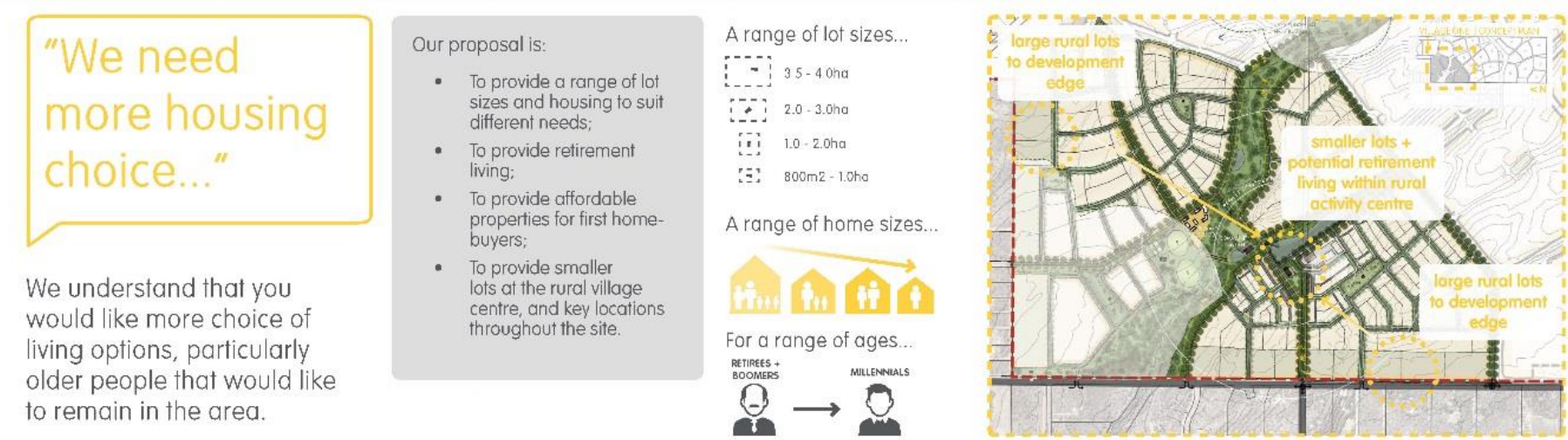
Source: Roberts Day

Figure 8 Access to medical facilities



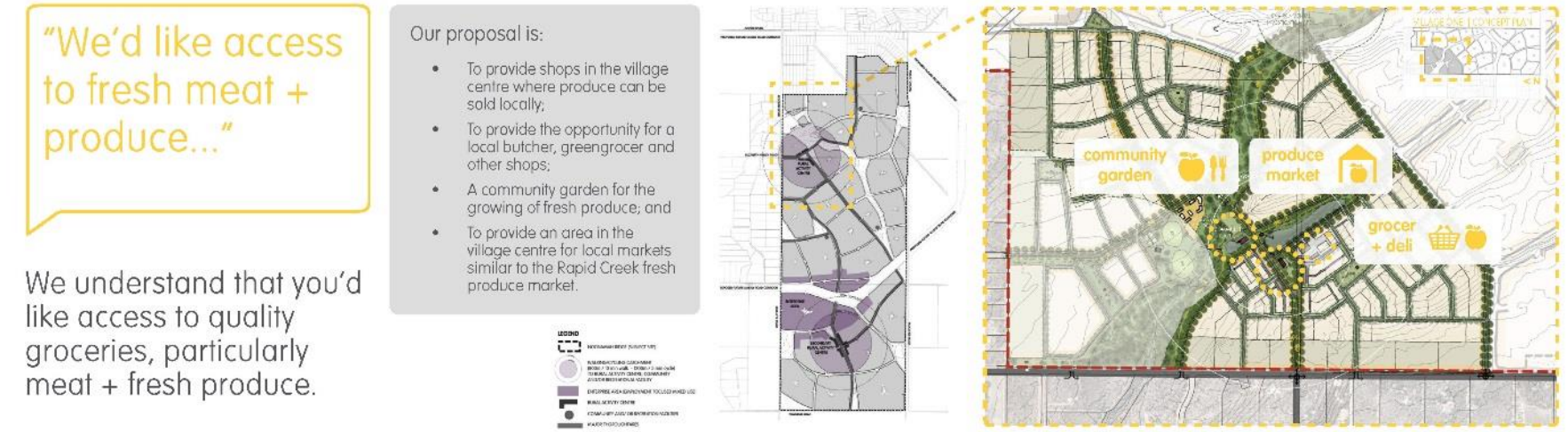
Source: Roberts Day

Figure 9 Greater housing choice and affordability



Source: Roberts Day

Figure 10 Access to fresh produce



Source: Roberts Day

The following table outlines key comments received, and the development changes made as a result:

Table 3 Summary of outcomes & changes made to development comments

Comments	Changes / Response
Lots should be no smaller than 2ha	» The aim is a rural development, with a range in lot sizes, with smaller lots structured around a rural village(s) and at key locations. The majority of the site will comprise larger rural lots.
There needs to be more opportunities for first home buyers, and people wanting to downsize as well as for retirement living	» A range in lot sizes in proposed, with smaller lots and retirement living to be provided at the rural village, and other key locations.
Existing lots should be buffered	» A larger buffer has been included along all boundaries that abut or are opposite existing larger lots, to ensure that the visual amenity and character is protected.
There are too many rural villages	» The amount of villages has been reduced from five to two.
Concern relating to ground water	» Water quality testing is underway, and will be dealt with in accordance with approval agency requirements.
Concern relating to stormwater	» A range of stormwater management devices will be utilised to ensure that stormwater management is controlled. » The aim is to improve stormwater management in the broader region.
Need better access to shops and quality produce	» The rural village will provide opportunity for new shops. » A local fresh produce community garden will be provided.
Need better access to medical facilities	» The developer will work with the Department of Health to identify opportunities to improve medical facilities in the region.
Need better access to community facilities, including schools, child care, and for ageing residents	» The rural village will provide childcare, a site for a new school, and other amenities and community facilities as required.
The environment should be protected (fauna and flora)	» The proposal incorporates the retention of existing open space and natural areas as environmental corridors. » Key sites of environmental concern have been identified to be retained or investigated further.

G-2 Summary & Implications

Based on the stakeholder and community consultation, the following conclusions are drawn:

- Comments received from key stakeholders in response to the technical studies have been **supportive**, indicating a high level of support for the principle as well as **technical ability of the land to accommodate development**.
- While a vocal community response **are not in favour of the development of lots smaller than 2ha** in extent in the rural area, a strong response was received that **support the need for the creation of a new rural village, and a range of lot sizes**.
- In particular, respondents have noted **affordability** as a barrier to entry in the market, and a desire to have smaller properties for **first home buyers, and the ageing population** to downsize.
- The need for a **variety of community facilities** in the area was raised, in particular:
  - Retirement living
  - Day care
  - Improved shops, particularly for good quality fresh produce
  - Schooling
  - Medical / health care facilities and in particularly improved ambulance services
  - Amenity / recreation for youth
- The main concerns to be addressed at a technical level by the development are:
  - Impact on **groundwater** (quality and quantity)
  - Impact on **stormwater** – is there opportunity to improve the existing situation?
  - **Traffic** and **roads** – noise, traffic volume and need for local road upgrades
  - **Light pollution** – need to limit street lights.
  - **Safety** and **security** – impact of the development on existing rural lifestyle

D Proposed Specific Use Zone

SLXX	Sections 0507, 5827, 5758 and 5761, Hundred of Strangways.

1. PURPOSE

1. The purpose of this zone is to:

   (a) inform detailed planning for the future subdivision, use and development of the land as a rural character estate in a manner which will facilitate integration with development on adjoining land and the broader locality;

   (b) establish a framework for sustainable water supply to support the overall development;

   (c) ensure that future development responds to the physical attributes of the land and protects areas of environmental sensitivity; and

   (d) facilitate the delivery of the necessary service infrastructure required to support each stage of the intended development within the context of the strategy for infrastructure for the overall site.

2. DEVELOPMENT DESIGN AND PHILOSOPHY

1. Subdivision and development is to be designed to respond to:

   (a) the land form and the suitability of the land for the intended future use;

   (b) areas of environmental and heritage significance including the recommendations within the Assessment Report No. 82 prepared by the NT EPA;

   (c) natural drainage and the potential impacts of development;

   (d) Darwin's tropical climate; and

   (e) the regional context of the locality and the existing amenity of the area.

2. The overarching design principles are to:

   (a) create a rural character estate providing amenity for residents via a range of residential options, two rural activity centres, an employment area, social infrastructure, an open space network incorporating public open space, areas of environmental and historical significance and natural areas;

   (b) complement and reflect the existing character of the broader locality by providing for urban / peri-urban development transitioning to existing rural lifestyle areas;

   (c) structure development around two rural activity centres, that provide a range of retail, commercial, community facilities and residential uses to create a high quality community focused environment;

   (d) facilitate a range of residential lots including an appropriate transition of densities from urban lots within the activity centres through rural residential to larger lots on the boundaries of the development to create an appropriate interface with established rural lifestyle areas;

   (e) provide a hierarchy of roads and an efficient movement network to facilitate integration with the immediate and broader road network; and

   (f) facilitate the provision of sustainable infrastructure options for water supply, wastewater treatment and disposal and power supply.

3. MASTER PLAN

i. Future development or subdivision within this zone is to be generally consistent with an endorsed master plan for the land; and

ii. An application for subdivision or development cannot be considered by the consent authority until it has endorsed a master plan for the land, however the first stage subdivision application and master plan can be considered simultaneously.

iii. The owner of land within this zone, or a person authorised by the owner may request the consent authority to endorse a master plan.

iv. A request under sub clause 3 is to be accompanied by a fee equivalent to that required to be paid for Planning Scheme Amendment.

v. If the consent authority is of the opinion that the masterplan may have strategic planning implications it may ask the Minister to request the Northern territory Planning Commission to provide a significant development report in relation to the masterplan under section 50B(5) of the *Planning Act.*

vi. Following lodgment of the master plan, the consent authority shall determine an appropriate consultation program consisting of, at a minimum:

   a. Public notification and exhibition of the draft master plan for 28 days, including referral to relevant government agencies inviting written submissions;

   b. Provision of the opportunity for those who have made submissions to be heard in relation to the issues raised.

vii. The consent authority is to endorse the master plan as a framework for future development, only if it is satisfied, on the advice of the relevant government agencies, service authorities and (if relevant) the NT Planning Commission, that the master plan establishes an appropriate framework to guide future development, provides the information required by clause 3.11 and that development will not:

   a. detrimentally impact on opportunities for integrated development of the broader locality particularly with respect to the provision of appropriate infrastructure and services to meet the needs of future residents of the overall development

   b. result in unreasonable costs to Government or service authorities; and

   c. detrimentally impact on the environment.

viii. The Development Consent Authority may endorse an amendment to the master plan endorsed in accordance with clause 3.7 without further exhibition if it is satisfied that the proposed amendment is not so significant as to require exhibition.

ix. If the consent authority considers that the amendment is significant it must re-exhibit the amendment in accordance with clause 3.5 prior to endorsement of the amendment in accordance with 3.7.

x. An amendment to the master plan must be endorsed by the Development Consent Authority prior to the lodgement of any development or subdivision

application that relies on the amendments to the master plan.

xi. The master plan required at clause 3.1 is to:

xii. respond to the design principles identified in Clause 2 above;

xiii. identify the principles and the likely future layout and distribution of land uses including:

a. two rural activity centres that provide a range of retail, commercial and community uses to meet the needs of future residents of the development and the broader locality;

b. a core development area surrounding the activity centres with lots a minimum size of 800m² to provide a population to support the viability of the centre;

c. transition areas around the activity centres with lots a minimum size of 1ha

d. A rural area with lots of 1ha or larger

e. Lots of 2 ha or larger as a transition to established rural living areas;

f. an employment area; and

g. the likely staging of the intended development.

xiv. illustrate how the proposed development will integrate with the broader locality with a focus on the measures to be utilised to buffer established adjoining rural lifestyle areas;

xv. establish local road networks to facilitate interconnectivity and convenient access to local facilities and services;

xvi. identify the principles that will ensure future development of areas identified as being of Environmental Significance on Diagram A to this clause;

a. will not detrimentally impact on environmental values that informed the identification of these areas as significant in the EIS;

b. preserve and enhance drainage areas within the context of the protection of environmental significance to facilitate an interconnected open space network providing for passive and active recreation.

xvii. Be accompanied by high level principles to provide a framework for the consideration of future applications for consent to ensure future development responds to the outcomes of detailed investigations including (but not necessarily limited to):

xviii. an assessment of the ability of the land to accommodate the intended development;

xix. information included in the Environmental Impact Statement;

xx. an assessment by a suitably qualified person, experienced in the investigation and assessment of contaminated land, that provides clearance that the site is free from contaminants;

xxi. a flood and inundation study that demonstrates that land intended to be developed for residential purposes is not constrained by riverine or local stormwater flooding, waterlogging or seasonal inundation;

xxii. a concept stormwater management plan demonstrating that the master planned development will not adversely impact on stormwater management within the site or on neighbouring land and roads including upstream and downstream flows identifying, where appropriate, mitigation measures that

will require detailed design at the subdivision stage of the development. The study shall be completed to the satisfaction of Litchfield Council;

xxiii. a Transport Impact Assessment, within the context of the Strategic Traffic Model for Darwin and to the satisfaction of the Department of Transport and the Litchfield Council, which assesses:

xxiv. the impacts of development on both the regional and local road network;

xxv. the public transport infrastructure requirement; and

xxvi. the staging of the road infrastructure;

xxvii. a Social infrastructure and Open Space Strategy which includes, but is not limited to, the following:

xxviii. identification of the range of facilities and services required to meet the need of the future residents and the broader community; and

xxix. the principles that will guide the future provision (including staging), ownership and management of suitable sites to accommodate the required facilities and / or protect and manage the natural environment and wildlife corridors;

xxx. A water supply plan that includes technical investigations outlining:

a. The continuity of the aquifers, groundwater flow regime and discharge areas.

b. Quantitative information establishing the sustainability of the groundwater resource.

c. Baseline monitoring data assessing resource behaviour, including the recharge and discharge processes and the resource response to rainfall quantifying recharge.

d. Quantifying recharge for each of the groundwater compartments in which the production bores will be located.

e. Modelling predictions of pumping impact on the environmental assets.

f. An on-going monitoring scheme designed to inform possible impacts on areas of concern.

g. Analytical modelling outlining the seasonal and long-term (100-year) impact on the resource and sustainability of supply.

xxxi. A sewerage servicing plan established within the context of regional infrastructure strategy, and a long-term sustainable strategy for the provision of sewerage infrastructure (private, public or communal) necessary to support development in the broader Hughes / Noonamah locality and ensure coordination and staging of sewerage infrastructure.

xxxii. An electricity network plan established within the context of regional infrastructure strategies, and a long-term sustainable strategy for the provision of infrastructure (private, public or communal) necessary to support development in the broader Hughes / Noonamah locality, and ensure coordination and staging of electricity infrastructure.

xxxiii. a biting insect management strategy for managing biting insects within the site as well as to manage the impact of identified biting insect breeding sites within 1.6 km of the site.

PART 2 – SUBDIVISION REQUIREMENTS

4. SUBDIVISION APPLICATIONS

1. With **consent** land within this zone may be subdivided if the application:
   (a) accords with the overall master plan and associated strategies and reports referred to in Clause 3.1; and
   (b) is accompanied by a detailed land use plan that identifies:
      i. the intended future use of land including the intended zone that will apply and the distribution of the various residential and rural densities;
      ii. the boundaries of the activity centres and associated rural residential transition zones;
      iii. the maximum building envelope for each residential lot as outlined in Clause 6 of this zone; and
      iv. forms part of any development permit for subdivision.

5. SUBDIVISION DESIGN

1. The subdivision design shall accord with Part 5 of the NT Planning Scheme and the following provisions:
   (a) Provide a network of corridors incorporating:
      i. all areas with significant conservation values and appropriate buffers within Zone CN (Conservation) to the satisfaction of NT EPA and the relevant government agencies;
      ii. identified cultural heritage sites, including the identified aircraft wreck and the restricted works area in the south-east of the project area, as identified by the Aboriginal Areas Protection Authority Certificate; and
      iii. a minimum of 15% of the site area for an open space network and associated linkages (public open space, creeks, drainage, wetland, environmental lands), of which 10% of the site is unconstrained and available for public open space purposes (active and passive space);
   (b) incorporate a rural activity centre within Stage One of the development, reserving land for residential, community facilities, retail, education and commercial purposes;
   (c) demonstrate that the principles of 'Crime Prevention Through Environmental Design' have been applied;
   (d) manage noise sensitive development adjacent to the proposed arterial road by considering the NT Department of Transport's "Road Traffic Noise on Controlled Roads" Policy;
   (e) provide an interconnected road network and hierarchy of roads within the site and to the surrounding area to the satisfaction of the relevant Government agencies and the Litchfield Council; and
   (f) Provide reticulated services (water and sewerage) and appropriate trunk corridors to enable future integration of interim infrastructure in accordance with the regional infrastructure strategies, and to the satisfaction of the relevant agencies and service authorities.

6. LOT SIZES AND CONFIGURATION

1. The purpose of this clause is to ensure that the size, configuration and orientation of lots are suitable for urban and rural residential purposes within the context of the proposed future development and characteristics of the broader locality and provide:

   (a) up to a total of 4 200 residential, rural residential, rural living and rural lots, at a Gross Dwelling Density of 1.62 dwellings per hectare.

   (b) Opportunities for a variety of housing types on a range of lot sizes and including:

      i. Areas of lots of a minimum size of 800m²

      ii. Areas of lots of a minimum size of 4,000m²

      iii. Areas of lots of a minimum size of 1ha

   (c) Lots on the subdivision plan shall provide a maximum building envelope plan, that will:

      i. create appropriate setbacks and separation from adjacent lot boundaries and buildings, to enhance the rural character of the development;

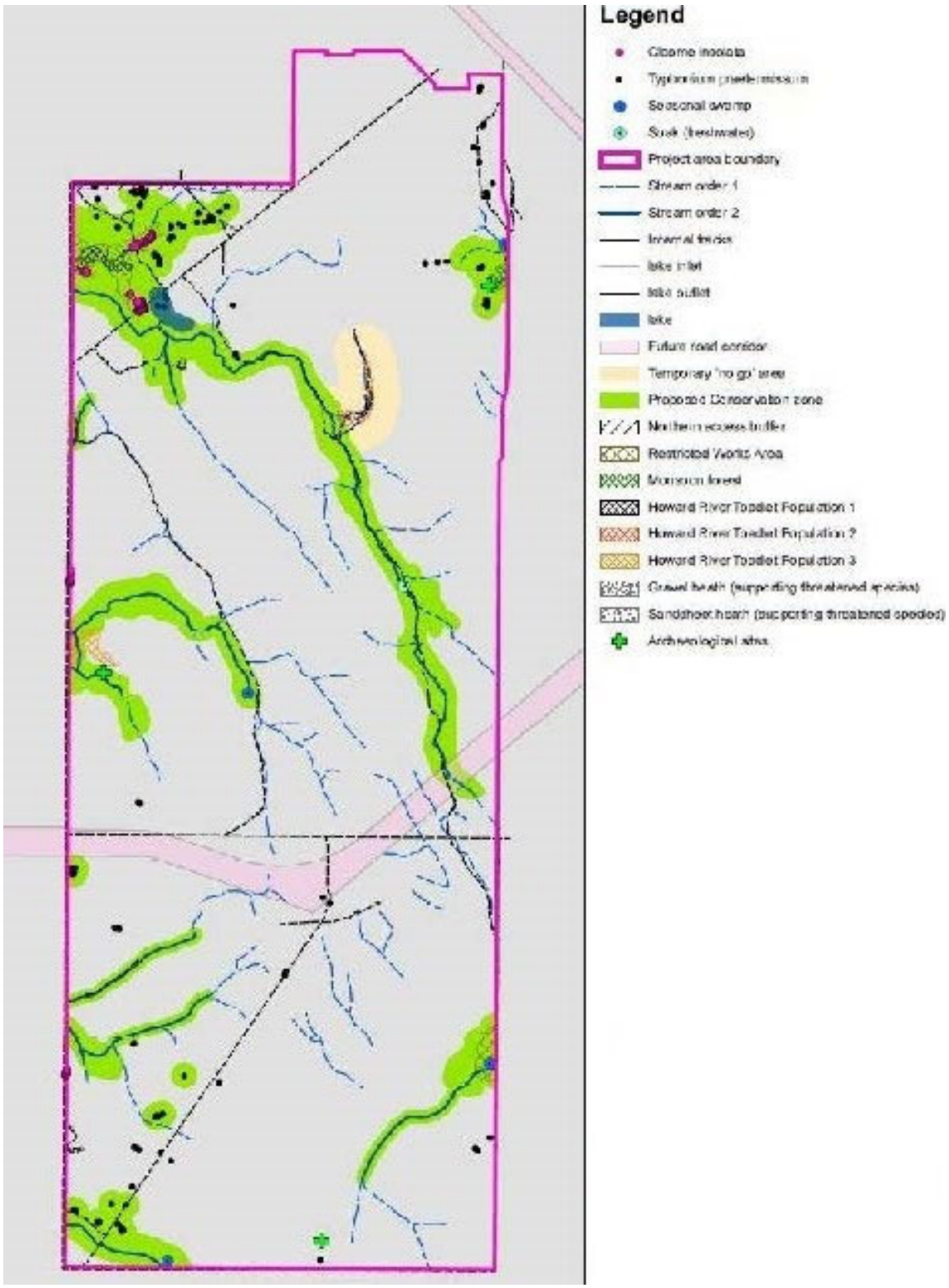
      ii. limit native vegetation clearing to those areas set aside for residential development and ancillary uses (outbuildings, private amenity space, bushfire protection, etc.); and

      iii. establish a building envelope for lots greater than 2 000 m² for the construction of dwellings, outbuildings, driveway and associated infrastructure that is no more than 25% of the lot area with a further area, being not more than 15% of a lot, that can be cleared, without a permit, for the creation of a formal landscaped garden, bushfire protection and private amenity.

7. DEVELOPMENT

Development of land subject to this zone shall be in accordance with the provisions applicable to the intended zone identified on the land use plan required at clause 4.1(b) and the building envelope requirements at clause 6.1 (c).

DIAGRAM A


Legend
Project area boundary
Stream order 1
Stream order 2
Future road corridor
Temporary 'no go' area
Proposed Conservation zone
Restricted Works Area
Howard River Toadlet Population 1
Howard River Toadlet Population 2
Howard River Toadlet Population 3
Archaeological site

E AAPA Certificate

Our File: 2015/158
In reply please quote: 201502441

Aboriginal Areas Protection Authority
protecting sacred sites across the territory

Intrapac Projects
Level 6, 580 St Kilda Rd,
Melbourne VIC 3004

ATTENTION: Maxwell Shifman

RE: ISSUE OF AUTHORITY CERTIFICATE FOR REZONING SUBDIVISION AND DEVELOPMENT OF SECTIONS 507, 5827, 3476 AND 3477 HUNDRED OF STRANGWAYS

I refer to your application for Authority Certificate received on the 26th February 2015 for the above location.

Accordingly, under the powers delegated to me under Section 19 of the *Northern Territory Aboriginal Sacred Sites Act 1989* I am pleased to issue the attached Authority Certificate.

Please read carefully the conditions outlined in the Certificate. In particular, you should note that it has been issued for an indefinite period of time, providing that the works covered by the Certificate start within the period stipulated in condition 3.

You should also note that the Authority has issued you with two identical copies of digitised maps attached. One copy should be retained with your original Certificate. The second is supplied for use by contractors to avoid unnecessary photocopying of a colour coded document.

Please note that the cost of this Authority Certificate will be $9,259 inclusive of GST and an invoice will be issued to you by the Department of Corporate and Information Services. An application fee of 57 revenue units ($65) will also apply. The terms and conditions of the invoice will require you to make payment within 30 days of receipt.

If you have any further queries regarding this Authority Certificate please email enquiries.aapa@nt.gov.au or ring (08) 8999 5511.

Yours faithfully

MR MATTHEW DEAN
Director of Policy and Governance
(Delegated Officer)

31 JULY 2015

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P: +61 (08) 8999 5511
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enquiries.aapa@nt.gov.au
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enquiries.aapa@nt.gov.au
Ground Floor, Belvedere House
Cnr Bath & Parsons Streets Alice Springs NT
All mail to Darwin GPO

ABORIGINAL AREAS PROTECTION AUTHORITY
AUTHORITY CERTIFICATE

Issued in accordance with Section 22 of the *Northern Territory Aboriginal Sacred Sites Act 1989.*

REFERENCE: **2015/158** **(Doc: 201502441)** **C2015/111**

APPLICANT: Intrapac Projects
Level 6, 580 St Kilda Rd,
Melbourne VIC 3004

SUBJECT LAND: Rezoning Subdivision and Development of Sections 507, 5827, 3476 and 3477 Hundred of Strangways, as shown on the map which is Annexure 'A' hereto.

PROPOSED WORK OR USE: All works associated with rezoning of land, subdivision of land parcels and the construction of infrastructure to create a new local town centre:
- The site of the development proposal spans an area of approximately 2700 ha.
- Approximately 3500 residential and rural lots that range in size from 800 m2 to 8 ha
- A range of residential allotment types including single dwelling residential and multiple dwelling residential
- Water supply infrastructure including potable water supply and appropriate water storage and reticulation
- Wastewater management infrastructure including effluent treatment and disposal
- Stormwater drainage infrastructure, including mitigation and treatment features such as swales silt traps and drainage basins
- An internal road network providing access to existing and proposed arterial and collector roads
- Electricity supply lighting and telecommunications infrastructure

CONDITIONS:

1. The applicant shall ensure that the conditions of this Certificate are included in any subsequent contract or tender documents for the works or use described herein.
2. The applicant shall ensure any agent, contractor or employee is aware of the conditions of this Certificate and the obligations of all persons (who enter on, or carry out works or use land on which there is a sacred site) under Part IV of the *Northern Territory Aboriginal Sacred Sites Act 1989*.
3. This Certificate shall lapse and be null and void if the works in question or the proposed use is not commenced within 24 months of this Certificate.
4. The applicant shall ensure any agent, contractor or employee is aware of the content of section 40(1) of the *Northern Territory Aboriginal Sacred Sites Act 1989* which provides that this Certificate does not negate the need for consent, approval or permission for the subject works or use of the land which may be required under another statute.
5. Within the area marked Restricted Works Area 1 (RWA1) on Annexure 'A', associated with sacred site 5172-61, no work shall take place or no damage shall occur.

   The features of sacred site 5172-61 include a spring.

The COMMON SEAL of the
ABORIGINAL AREAS PROTECTION AUTHORITY
was hereto affixed on the day
of 31 JULY. 2015

MR MATTHEW DEAN
Director of Policy and Governance
(Delegated Officer)

Rezoning, Subdivision and Development of Sections 507, 5827, 3476 & 3477 Hundred of Strangways

ANNEXURE "A" MAP FORMING PART OF

AUTHORITY CERTIFICATE C2015/111

ISSUED TO: Intrapac Projects

AUTHORISED COPY: NUMBER.....1.....OF 4

CHECKED BY:.....DATE 30/07/2015

B OLIVER - LAND INFORMATION OFFICER

J2015-0062

Prepared and produced by Aboriginal Areas Protection Authority (AAPA), Darwin, Northern Territory of Australia 03/03/2015

This map forms part of a Certificate issued by the Authority under section 22 of the *Northern Territory Aboriginal Sacred Sites Act 1989*. No reliance should be put on the accuracy of the information on the map except as it relates to the land the subject of the Certificate and the fact that sites are not shown in other areas shall not be taken as a definitive indication of the existence or lack of existence of sites.

SCALE 1 : 30,000

0 600 1,200

metres

Projection: MGA Zone 52
Horizontal Datum: GDA94

KEY

- Subject Land
- Extent of Recorded Sacred Site
- Recorded Sacred Site
- Restricted Works Area

** The Sacred Site point is not indicative of the specific site location and does not represent the location of any features of the site.*

Rezoning, Subdivision and Development of Sections 507, 5827, 3476 & 3477 Hundred of Strangways

ANNEXURE "A" MAP FORMING PART OF

AUTHORITY CERTIFICATE C2015/111

ISSUED TO: Intrapac Projects

AUTHORISED COPY: NUMBER 2 OF 4

CHECKED BY: bd DATE 30/07/2015

B OLIVER - LAND INFORMATION OFFICER

J2015-0062

Prepared and produced by Aboriginal Areas Protection Authority (AAPA), Darwin, Northern Territory of Australia 03/03/2015

This map forms part of a Certificate issued by the Authority under section 22 of the *Northern Territory Aboriginal Sacred Sites Act 1989*. No reliance should be put on the accuracy of the information on the map except as it relates to the land the subject of the Certificate and the fact that sites are not shown in other areas shall not be taken as a definitive indication of the existence or lack of existence of sites.

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0 600 1,200

metres

Projection: MGA Zone 52
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KEY

- Subject Land
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- Restricted Works Area

** The Sacred Site point is not indicative of the specific site location and does not represent the location of any features of the site.*

elton consulting

www.elton.com.au