



LATE ITEMS ORDINARY MEETING

AGENDA

3 DECEMBER 2019

Your attendance is required at an Ordinary meeting of Council to be held in the Council Chambers, 4 Lagoon Place, Yeppoon on 3 December 2019 commencing at 9.00am for transaction of the enclosed business.

CHIEF EXECUTIVE OFFICER
2 December 2019

Next Meeting Date: 21.01.20

Please note:

In accordance with the *Local Government Regulation 2012*, please be advised that all discussion held during the meeting is recorded for the purpose of verifying the minutes. This will include any discussion involving a Councillor, staff member or a member of the public.

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12 REPORTS

12.10 REQUEST FOR A NEGOTIATED DECISION FOR DEVELOPMENT PERMIT D-29-2019 FOR RECONFIGURING A LOT (TWO LOTS INTO SIX LOTS) LOCATED AT 535 BUNGUNDARRA ROAD AND LOT 100 BUNGUNDARRA ROAD, BUNGUNDARRA

File No: D-29-2019

Attachments:

1. Locality Plan[↓](#)
2. Amended Lot Layout (with Covenants)[↓](#)
3. Agreed Covenant Schedule[↓](#)
4. Decision Notice (with original approved plans)[↓](#)
5. PSM10 Locally Significant Vegetation Overlaid with amended Proposal Plan[↓](#)

Responsible Officer: David Battese - Manager Liveability

Author: Maddie Ward - Co-ordinator Development Assessment

SUMMARY

This report requests a Council resolution in regards to representations made in accordance with section 75 of the Planning Act 2016 for a Negotiated Decision Notice. The nature of the representations pertain largely to conditions requiring an environmental covenant, the wording associated with such covenant schedules and related development applications for Operational works for Clearing Vegetation. The conditions were applied in order to satisfy the requirements of the Livingstone Shire Planning Scheme 2005 in relation to Locally Significant Vegetation as well as explicitly outlining the requirements for future development and successive landowners.

The amended conditions, the layout of the covenant areas and the terms of the covenant schedules as outlined in this report have been determined through agreement with Council officers and the landowners.

OFFICER'S RECOMMENDATIONS

RECOMMENDATION A

That in relation to the request for a Negotiated Decision Notice for Development Permit D-29-2019 for Reconfiguring a Lot (two lots into six lots), made by Capricorn Survey Group (CQ) Pty Ltd, on behalf of C. & M. Roebuck, on land described as Lot 100 on SP280113 and Lot 1 on SP289213 and located at Lot 100 Bungundarra Road and 535 Bungundarra Road, Bungundarra, Council resolves that the following changes be made to the conditions;

1. Item 8 of the Decision Notice (approval) be amended to remove reference to Clearing Vegetation Works.
2. Condition 1.6.1 (ii) be deleted (reference to Clearing Vegetation Works).
3. Condition 2.1 be amended to include reference to the amended lot layout plan being "Reconfiguration Plan 2 lots into 6 lots (with Covenant Layout), Reference 6537-07-ROL Revision E" as shown in Attachment 2 of this report.
4. Condition 9.3 be amended to include the words "generally in accordance with the areas shown on the "Reconfiguration Plan 2 lots into 6 lots (with Covenant Layout) Reference 6537-07-ROL Revision E" (refer to Condition 2.1)".
5. Condition 9.3 (i) be amended to remove the wording "excluding the proposed building location envelope and ancillary internal access with a maximum width of

six (6) metres”.

6. Condition 9.3 (ii) be amended to;

(i) remove the wording “This covenant area must also include the area already within Covenant B on SP289213”; and

(ii) Change the minimum width of 100 metres to 50 metres.

7. Condition 9.3 (iii) be deleted (Reference to covenant over Lot 4 as this is now covered in the revised layout for Lot 2).

8. Condition 9.4.2 be amended to remove the wording “as approved by Council”.

9. Condition 9.5 be amended to delete the reference to Lot 4, (this covenant area is now incorporated into Lot 2).

10. Condition 9.6 be deleted.

RECOMMENDATION B

That Council agree to the proposed covenant layout being generally in accordance with the “Reconfiguration Plan - 2 lots into 6 lots (with Covenant Layout), Reference 6537-07-ROL Revision E” as shown in attachment 2 of this report.

RECOMMENDATION C

That Council agree to the terms of the “Agreed Covenant Schedule” as shown in attachment 3 of this report.

RECOMMENDATION D

That to reflect the above amendments, Capricorn Survey Group (CQ) Pty Ltd, on behalf of C. & M. Roebuck, be issued with a Negotiated Decision Notice for Development Permit D-29-2019 for Reconfiguring a Lot (two lots into six lots):

1.0 ADMINISTRATION

1.1 The Developer is responsible for ensuring compliance with this approval and the Conditions of the approval by an employee, agent, contractor or invitee of the Developer.

1.2 Where these Conditions refer to “Council” in relation to requiring Council to approve or to be satisfied as to any matter, or conferring on the Council a function, power or discretion, that role of the Council may be fulfilled in whole or in part by a delegate appointed for that purpose by the Council.

1.3 All conditions of this approval must be undertaken and completed to the satisfaction of Council, at no cost to Council.

1.4 All conditions, works, or requirements of this approval must be undertaken and completed prior to the approval of a plan of subdivision (survey plan endorsement), unless otherwise stated.

1.5 Where applicable, infrastructure requirements of this approval must be contributed to the relevant authorities, at no cost to Council prior, to the approval of a plan of subdivision (survey plan endorsement), unless otherwise stated.

1.6 The following further Development Permits must be obtained prior to the commencement of any works associated with its purposes:

1.6.1 Operational Works:

(i) Access Works.

1.7 Unless otherwise stated, all works must be designed, constructed and maintained in accordance with the relevant Council policies, guidelines and standards.

1.8 All engineering drawings/specifications, design and construction works must comply with the requirements of the relevant *Australian Standards* and must be approved,

supervised and certified by a Registered Professional Engineer of Queensland.

- 1.9 This approval is for the reconfiguration of Lot 1 on SP289213 and Lot 100 on SP280113 into six (6) separate titles. The approved plan illustrates a Building Location Envelope over proposed Lots 2, 3, 4, 5 and 6, which denotes the location within which a future Dwelling house and ancillary buildings or structures must be located. This approval does not negate the requirement for a future Material Change of Use, Building Works regulated under the Planning Scheme or Operational Works, pursuant to the categorising instrument in effect at the time of development.

2.0 APPROVED PLANS AND DOCUMENTS

- 2.1 The approved development must be completed and maintained generally in accordance with the approved plans and documents, except where amended by the conditions of this permit:

<u>Plan/Document Name</u>	<u>Plan/Document Reference</u>	<u>Dated</u>
Reconfiguration Plan - 2 lots into 6 lots (with Covenant Layout)	6537-07-ROL, Revision E	2 December 2019
Bushfire Hazard Assessment	PR4406-RE, Revision 02	19 July 2019
Bushfire Management Plan	PR4406-RE, Revision 01	19 July 2019
Slope Stability Assessment Report	GEO154779-B	29 June 2017

- 2.2 Where there is any conflict between the conditions of this approval and the details shown on the approved plans and documents, the conditions of approval must prevail.
- 2.3 Where conditions require the above plans or documents to be amended, the revised document(s) must be submitted for approval by Council prior to the submission of a Development Application for Operational Works.

3.0 STAGED DEVELOPMENT

- 3.1 This approval is for a development to be undertaken in three (3) discrete stages, namely:

3.1.1 Stage One: Lot 3 and Lot 4 and balance land; and

3.1.2 Stage Two: Lot 2 and balance land; and

3.1.3 Stage Three: Lot 1, Lot 5 and Lot 6.

Stage One must be completed prior to any other Stage.

- 3.2 Unless otherwise expressly stated, the conditions must be read as being applicable to all stages.
- 3.3 Where expressly stated, the conditions must be read as being applicable only to the particular stages(s) being developed.

4.0 ACCESS AND PARKING WORKS

- 4.1 A Development Permit for Operational Works (access and parking works) must be obtained prior to the commencement of any access and parking works on the site.
- 4.2 All works must be designed and constructed in accordance with the approved plans (refer to condition 2.1), *Capricorn Municipal Development Guidelines, Australian*

Standard AS2890 "Off Street Car Parking" and the provisions of a Development Permit for Operational Works (access and parking works).

- 4.3 As part of Stage Two, a compliant vehicle access crossover must be designed and constructed for proposed Lot 2, within the road reserve, in accordance with the *Capricorn Municipal Development Guidelines*.
- 4.4 As part of Stage Two, an access easement must be registered, burdening Lot 1 and in benefit of Lot 2. The access easement must be shown on the Survey Plan and the respective documentation submitted to Council as part of the approval of a plan of subdivision (survey plan endorsement).
- 4.5 As part of Stage Three, a compliant vehicle access crossover must be designed and constructed for proposed Lots 1, 5 and 6, within the road reserve, in accordance with the *Capricorn Municipal Development Guidelines*.
- 4.6 As part of Stage Three, an access easement must be registered, burdening Lot 1 and in benefit of Lots 5 and 6. The access easement must be shown on the Survey Plan and the respective documentation submitted to Council as part of the approval of a plan of subdivision (survey plan endorsement).
- 4.7 All access easements must be a minimum of twenty (20) metres wide.
- 4.8 The internal accesses (private roads) must be designed, constructed and maintained in accordance with the Bushfire Management Plan (refer to condition 2.1).
- 4.9 The internal access (private road) for proposed Lot 2 must be designed and constructed in accordance with the revised Slope Stability Report (refer to condition 8.4) and Bushfire Management Plan (refer to condition 2.1). Where the gradient of the internal access is greater than 12.5 per cent at any point, the internal access must be sealed with concrete or bitumen.
- 4.10 The internal accesses for proposed Lots 1, 2, 4 and 6 must be provided with a minimum ten (10) per cent Annual Exceedance Probability flood immunity.
- 4.11 Rural addressing must be provided for proposed Lots 1, 2, 5 and 6, in accordance with Council's Rural Addressing Policy and Procedure.

5.0 CLEARING VEGETATION WORKS

- 5.1 Any clearing must comply with the recommendations of the approved Bushfire Hazard Assessment and Bushfire Management Plan (refer to condition 2.1).

6.0 STORMWATER WORKS

- 6.1 All stormwater must achieve demonstrated lawful discharge in accordance with the *Queensland Urban Drainage Manual* and must not adversely affect the upstream or downstream land or damage infrastructure when compared to pre-development condition by way of blocking, altering or diverting existing stormwater runoff patterns or cause an actionable nuisance or damage infrastructure.

7.0 SITE WORKS

- 7.1 All earthworks must be undertaken in accordance with *Australian Standard AS3798 "Guidelines on Earthworks for Commercial and Residential Developments"* and in accordance with the revised Slope Stability Assessment Report (refer to condition 2.1 and condition 8.4).
- 7.2 Site works must be constructed such that they do not, at any time, in any way restrict, impair or change the natural flow of runoff water that causes a nuisance or worsening to adjoining properties or infrastructure.
- 7.3 The Slope Stability Assessment Report (refer to condition 2.1) must be updated to reflect the changed internal access for proposed Lot 2 and be provided to Council with any development application for a Development Permit for Operational Works.

8.0 ASSET MANAGEMENT

- 8.1 Any alteration necessary to electricity, telephone, and/or public utility installations resulting from the development or in connection with the development must be at full cost to the Developer.
- 8.2 Any damage to the existing roadway (including removal of concrete slurry from roads and stormwater gullies and drainage lines) which may occur during any works carried out in association with the approved development must be repaired. This must include the reinstatement of the existing traffic signs and pavement markings, which may have been removed.
- 8.3 'As constructed' information pertaining to assets to be handed over to Council and those which may have an impact on Council's existing and future assets must be provided prior to the approval of a plan of subdivision (survey plan endorsement). This information must be provided in accordance with the Manual for Submission of Digital As Constructed Information.

9.0 ENVIRONMENTAL

- 9.1 The purchaser(s) of each of the proposed lots must be advised by the developer in writing of their responsibility to comply with the requirements of the approved Bushfire Hazard Assessment and Bushfire Management Plan (refer to condition 2.1).
- 9.2 All future buildings and structures must be designed, constructed and certified to satisfy the performance requirements for bushfire ignition risk under the *National Construction Code - Building Code of Australia (Volume 2)*.
- 9.3 An environmental covenant, generally in accordance with the areas shown on the "Reconfiguration Plan - 2 lots into 6 lots (with Covenant Layout), Reference 6537-07-ROL Revision E" (refer to condition 2.1), pursuant to Section 97A of the *Land Title Act 1994*, must be entered into with respect to the extent of vegetation as follows:
- (i) over proposed Lot 2; and
 - (ii) over proposed Lot 1 - being an area with a minimum width of fifty (50) metres that generally covers the Locally Significant Vegetation to the north and south-east of Daly Creek, as shown on Planning Scheme Map PSM 10B, to connect the vegetation covenant on proposed Lot 2 to the existing vegetation Covenant B on SP289213.
- 9.4 The environmental covenant must be entered into to the effect that:
- 9.4.1 the area must be protected as a vegetated flora habitat and all native vegetation must be retained; and
 - 9.4.2 there must be no artificial interference or disturbance of the habitat, except for the following activities:
 - (i) essential management as defined in the *Planning Regulation 2017* (current as at 1 September 2019);
 - (ii) management of an invasive pest plant, in accordance with the requirements of Council;
 - (iii) Bushfire management activities as recommended in the approved Bushfire Hazard Assessment and Bushfire Management Plan under Development Permit D-29-2019 for Reconfiguring a Lot (two lots into six lots) over 535 Bungundarra Road and Lot 100 Bungundarra Road, Bungundarra.
- 9.5 An environmental covenant must be registered over proposed Lots 1 and 2. The above wording (condition 9.4) must be incorporated into the covenant schedule. The covenant area must be shown on the Survey Plan and the respective documentation
-

submitted to Council, prior to the approval of a plan of subdivision (survey plan endorsement).

9.6 Any application for a Development Permit for Operational Works must be accompanied by an Erosion and Sediment Control Plan.

9.7 The Erosion Control and Sediment Control Plan must be implemented and maintained on-site for the duration of the works, and until all exposed soil areas are permanently stabilised (for example, turfed, hydromulched, concreted, and landscaped). The prepared Erosion and Sediment Control Management Plan must be available on-site for inspection by Council Officers during those works.

10.0 OPERATING PROCEDURES

10.1 All construction materials, waste, waste skips, machinery and contractors' vehicles must be located and stored or parked within the site. No storage of materials, parking of construction machinery or contractors' vehicles will be permitted in Bungundarra Road or Madges Road.

ADVISORY NOTES

NOTE 1. Aboriginal Cultural Heritage

It is advised that under Section 23 of the *Aboriginal Cultural Heritage Act 2003*, a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal Cultural Heritage (the "cultural heritage duty of care"). Maximum penalties for breaching the duty of care are listed in the Aboriginal Cultural Heritage legislation. The information on Aboriginal Cultural Heritage is available on the Department of Aboriginal and Torres Strait Islander Partnerships website <https://www.datsip.qld.gov.au/>.

NOTE 2. General Environmental Duty

General environmental duty under the *Environmental Protection Act* prohibits unlawful environmental nuisance caused by noise, aerosols, particles dust, ash, fumes, light, odour or smoke beyond the boundaries of the property during all stages of the development including earthworks, construction and operation.

NOTE 3. General Safety Of Public During Construction

The *Workplace Health and Safety Act* and *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.

NOTE 4. Property Notes

- a. All future buildings on the proposed lots must be constructed in compliance with the *National Construction Code* and the approved Bushfire Hazard Assessment and Bushfire Management Plan.
- b. An environmental covenant applies to Lots 1, 2, and 6 pursuant to Section 97A of the *Land Title Act 1994*.

NOTE 5. Infrastructure Charges Notice

This application is subject to infrastructure charges in accordance with Council resolution. The charges are presented on an Infrastructure Charges Notice, which has been supplied with this decision notice.

BACKGROUND

Council, at its meeting of 17 September 2019, recommended to approve the proposed subdivision subject to appropriate conditions being brought back to the table for ratification by resolution.

Council, at its meeting of 8 October 2019, delegated the deciding of the appropriate conditions to the Chief Executive Order, pursuant to section 257 of the *Local Government Act 2009*. On 11 October 2019, Council approved the Development Permit for Reconfiguring a Lot (two lots into six lots).

The applicant has made representations in accordance with section 75 of the *Planning Act 2016* for a Negotiated Decision Notice.

SITE AND LOCALITY

The subject site is over two allotments. Lot 100 is currently vacant and 535 Bungundarra Road currently contains a Dwelling house and Animal keeping (dog kennels). The site is significantly constrained by a number of environmental features including Locally Significant Vegetation (Planning Scheme Map 10) and state significant vegetation (as per State Planning Policy Mapping). A 41.64-hectare portion of 535 Bungundarra Road is contained within a vegetation protection covenant, registered on the title.

The Locally Significant Vegetation and natural bushland over the site, provides an ecological function by connectivity for fauna, running from the south-east to the north-west through the subject site and linking other significant vegetation communities over a large tract of land.

The topography of the site is characterised by several hills and gullies and is traversed by a waterway which aligns to the current shared property boundary and is located at approximately twenty-five (25) metres Australian Height Datum. The highest point on the land is located within proposed Lot 2 at approximately 145 metres Australian Height Datum. The site exhibits topography in excess of fifteen per cent (15%) in terms of steep land hazards.

The locality is characterised by a range of rural allotment sizes with a mix of agricultural uses including a number of large pineapple plantations approximately three (3) kilometres to the west. Lot sizes vary greatly within the locality as Bungundarra Road forms the boundary between the Capricorn Coast Agricultural Area and the balance of the Shire.

PLANNING ASSESSMENT

The change representations have been assessed by relevant Council planning, engineering, environmental health, natural resource management and growth management officers as required. The assessment has been undertaken in accordance with section 76 of the *Planning Act 2016*.

The representations requested eight (8) conditions be either amended or deleted as follows:

Condition 1.6.1 (ii)

The following further Development Permits must be obtained prior to the commencement of any works associated with its purposes:

Operational Works:

(ii) Access Works;

(iii) Clearing Vegetation Works.

The representations request the removal of the Operational Works (Clearing vegetation works) requirement be removed on the following grounds:

- It is inconsistent with all previous approvals under the superseded *Livingstone Shire Planning Scheme 2005*.
- It was not a condition of approval for previous application D-219-2017.
- The boundaries are already approved, so there is no logical reason for a further approval.
- Clearing for purposes such as the establishment of new boundaries and fence lines is considered exempt by the State, no approval for clearing should be required.

- The requirement to make such an application implies that Council could refuse and therefore this approval could become null and void.
- Operational Works for clearing operations is both costly and have onerous requirements under any new application for clearing, causing both undue delays and substantial unnecessary costs.
- This requirement is therefore unfair and unreasonable and achieves no purpose.

Officers provide the following response in regards to the above items:

As there is not the opportunity to undertake 'accepted' clearing works due to the overlays and any works on the site will need to ensure compliance with the current *Livingstone Planning Scheme 2018*, it can be agreed to remove the reference to the requirement for Operational Works for Clearing vegetation works.

Condition 2.1 states:

The approved development must be completed and maintained generally in accordance with the approved plans and documents, except where amended by the conditions of this permit:

<u>Plan/Document Name</u>	<u>Plan/Document Reference</u>	<u>Dated</u>
<i>Reconfiguration Plan 2 lots into 6 lots (with Ortho Underlay)</i>	<i>6537-07-ROL, Revision C</i>	<i>29 July 2019</i>
<i>Bushfire Hazard Assessment</i>	<i>PR4406-RE, Revision 02</i>	<i>19 July 2019</i>
<i>Bushfire Management Plan</i>	<i>PR4406-RE, Revision 01</i>	<i>19 July 2019</i>
<i>Slope Stability Assessment Report</i>	<i>GEO154779-B</i>	<i>29 June 2017</i>

The representations include a revised proposal plan illustrating a proposed vegetation covenant over proposed Lot 2. It was agreed at the Council meeting that a covenant be applied to seventy (70) per cent of proposed Lot 2 and the covenant proposed covers 75.6 per cent. The representations (under condition 9.3(iii)) state that the boundary for proposed Lot 2 has been amended to take into the north-east corner of proposed Lot 4 and add the area we intended to be outside the covenant on proposed Lot 2, to proposed Lot 4.

Officers are amenable to the proposed boundary change between proposed Lots 2 and 4 to ensure the covenant is contained on one (1) allotment. It does not result in substantially different development.

It is recommended the amended plan be included as an approved plan and the condition be updated.

Condition 9.3(i)

An environmental covenant, pursuant to Section 97A of the Land Title Act 1994, must be entered into with respect to the extent of vegetation as follows:

- (i) over proposed Lot 2 – excluding the proposed building location envelope and ancillary internal access with a maximum width of six (6) metres;**
- (ii) over proposed Lot 1 - being an area with a minimum width of 100 metres that generally covers the Locally Significant Vegetation to the north and south-east of Daly Creek, as shown on Planning Scheme Map PSM 10B, to connect the vegetation covenant on proposed Lot 2 to the existing vegetation Covenant B on SP289213. This covenant area must also include the area already within Covenant B on SP289213; and**

- (iii) *over the north-eastern corner of proposed Lot 4 where mapped as Locally Significant Vegetation on Planning Scheme Map PSM 10B.*

The representations originally requested the condition be amended to reduce the covenant area, which is now shown on the revised proposal plan. This is now addressed by Condition 9.3 including the term “generally in accordance with the areas shown on the “Reconfiguration Plan - 2 lots into 6 lots (with Covenant Layout), Reference 6537-07-ROL Revision E”

Condition 9.3(ii) states:

An environmental covenant, pursuant to Section 97A of the Land Title Act 1994, must be entered into with respect to the extent of vegetation as follows:

- (i) *over proposed Lot 2 – excluding the proposed building location envelope and ancillary internal access with a maximum width of six (6) metres;*
- (ii) ***over proposed Lot 1 - being an area with a minimum width of 100 metres that generally covers the Locally Significant Vegetation to the north and south-east of Daly Creek, as shown on Planning Scheme Map PSM 10B, to connect the vegetation covenant on proposed Lot 2 to the existing vegetation Covenant B on SP289213. This covenant area must also include the area already within Covenant B on SP289213; and***
- (iii) *over the north-eastern corner of proposed Lot 4 where mapped as Locally Significant Vegetation on Planning Scheme Map PSM 10B.*

The representations originally requested that this condition be deleted on the basis the vegetation in this area (over proposed Lot 1) no longer exists, following natural clearing from bushfires and storm. There are various buildings, a driveway and the area is used as the main thoroughfare for moving cattle across the land to the yards. Water tanks are also located on the upper slopes, which provide gravity water supply to the buildings and provide a fire protection, thus would need to be kept clear to protect the tanks from fire.

However, after further negotiation agreement has been reached on an appropriate covenant layout as shown in Attachment 2 of this report and through the covenant terms as shown in Attachment 3 of this report. Further, it has been agreed to reduce the covenant width from 100 metres to fifty (50) metres.

Condition 9.3(iii) states:

An environmental covenant, pursuant to Section 97A of the Land Title Act 1994, must be entered into with respect to the extent of vegetation as follows:

- (i) *over proposed Lot 2 – excluding the proposed building location envelope and ancillary internal access with a maximum width of six (6) metres;*
- (ii) *over proposed Lot 1 - being an area with a minimum width of 100 metres that generally covers the Locally Significant Vegetation to the north and south-east of Daly Creek, as shown on Planning Scheme Map PSM 10B, to connect the vegetation covenant on proposed Lot 2 to the existing vegetation Covenant B on SP289213. This covenant area must also include the area already within Covenant B on SP289213; and*
- (iii) ***over the north-eastern corner of proposed Lot 4 where mapped as Locally Significant Vegetation on Planning Scheme Map PSM 10B.***

The original representations requested this condition be deleted due to the proposed modified lot layout, however, this layout did not capture all of the Locally Significant Vegetation. This has now been addressed in the revised Lot Layout / Covenant Plan (Refer to Attachment 2)

Accordingly, this condition is no longer required.

Condition 9.4.2 states:

there must be no artificial interference or disturbance of the habitat, except as approved by Council for the following activities:

- (iv) essential management as defined in the Planning Regulation 2017 (current as at 1 September 2019);*
- (v) management of an invasive pest plant, in accordance with the requirements of Council;*
- (vi) Bushfire management activities as recommended in the approved Bushfire Hazard Assessment and Bushfire Management Plan under Development Permit D-29-2019 for Reconfiguring a Lot (two lots into six lots) over 535 Bungundarra Road and Lot 100 Bungundarra Road, Bungundarra.*

The representations request this condition be amended to include the covenant area to include agriculture purposes, similar to the schedule registered for existing Covenant B on SP289213.

The Covenant Schedule now provides a condition 4,2 (d) which allows - *"Agriculture, subject to the requirements and relevant permits of the relevant state government agencies and Livingstone Shire Council"*

Condition 9.5 states:

An environmental covenant must be registered over proposed Lots 1, 2 and 4. The above wording (condition 9.4) must be incorporated into the covenant schedule. The covenant area must be shown on the Survey Plan and the respective documentation submitted to Council, prior to the approval of a plan of subdivision (survey plan endorsement).

The representations request this condition be amended to remove reference to the covenants over proposed Lots 1 and 4. The vegetation mapping on Planning Scheme Map 10B compared to what now exists is considerably different. The significant vegetation in Lot 1 no longer exists and there is little connectivity of the vegetation in lot 4 to elsewhere.

However, after further negotiation agreement has been reached on an appropriate covenant layout as shown in Attachment 2 of this report and with covenant terms as shown in Attachment 3 of this report. As a result of this condition 9.5 can now be modified to exclude the reference to Lot 4.

Condition 9.6 states:

As part of Stage Three, Covenant B on SP289213 must be amended to be wholly located on proposed Lot 6. A new covenant must be shown over proposed Lot 1 (refer to conditions 9.3 and 9.4). The amended covenant area must be shown on the Survey Plan and the respective documentation submitted to Council, prior to the approval of a plan of subdivision (survey plan endorsement).

The representations request this condition be deleted. As no new covenant will be provided to proposed Lot 1 (based on the above representations), there is no reason to change the existing covenant. Officers are amenable to Covenant B being retained and not changed, therefore recommend the condition be deleted.

PREVIOUS CORRESPONDENCE

Officers seek to make Councillors aware that officers have negotiated with the consultant (refer to attachment 5) prior to the conditions being tabled at the Council Meeting on 8 October 2019. The conditions were further refined by Officers and the Chief Executive Officer following the decision being delegated to the Chief Executive Officer (refer to attachment 6). The conditions as listed on the Decision Notice (refer to attachment 7) are considered to be relevant and reasonable.

PREVIOUS DECISIONS

It is noted that Council has previously approved development applications for Reconfiguring a Lot within the immediate vicinity of the subject site, which also failed to meet the minimum

lot size stipulated in the *Livingstone Shire Planning Scheme 2005*. These decisions include the following;

- D-Y/2007-519 Reconfiguring a Lot (one lot into six lots) at 817 Bungundarra Road
- D-44-2010 for Reconfiguring a Lot (one lot into three lots) at 487 Bungundarra Road
- D-52-2015 for Reconfiguring a Lot (one lot into three lots) at 487 Bungundarra Road
- D-156-2011 Reconfiguring a Lot (three lots into four lots) at 777 Bungundarra Road
- D-396-2011 for Reconfiguring a Lot (two lots into seven lots) at 777 and 487 Bungundarra Road
- Refusal and currently in appeal - D-17-2017 for Reconfiguring a Lot (two lots into four lots) at 535 Bungundarra Road and Lot 100 Bungundarra Road, Bungundarra

BUDGET IMPLICATIONS

Management of this application has been within the existing budget allocations.

LEGISLATIVE CONTEXT

The application is being assessed pursuant to the *Planning Act 2016* and all subordinate legislation and policies.

LEGAL IMPLICATIONS

Should Council not agree with the change representations, an appeal may be lodged against this Decision. These potential legal implications also bring unknown budget implications.

STAFFING IMPLICATIONS

No staffing implications have been identified in the assessment.

RISK ASSESSMENT

A determination of the change representations contrary to the agreement reached between the applicant and Council Officers may be escalated to appeal by the applicant, should they contend the position by Council is unreasonable.

Council's reputation maybe impacted if it does not support the agreement reached in good faith between Council Officers and the Applicant

CORPORATE/OPERATIONAL PLAN

Strategy GO4 of the Corporate Plan is relevant to the assessment of this application and states: *'Provide transparent and accountable decision making reflecting positive leadership to the community.'*

LOCAL GOVERNMENT PRINCIPLES

The local government principles are –

- (a) Transparent and effective processes, and decision-making in the public interest; and
- (b) Sustainable development and management of assets and infrastructure, and delivery of effective services; and
- (c) Democratic representation, social inclusion and meaningful community engagement; and
- (d) Good governance of, and by, local government; and
- (e) Ethical and legal behaviour of councillors and local government employees.

CONCLUSION

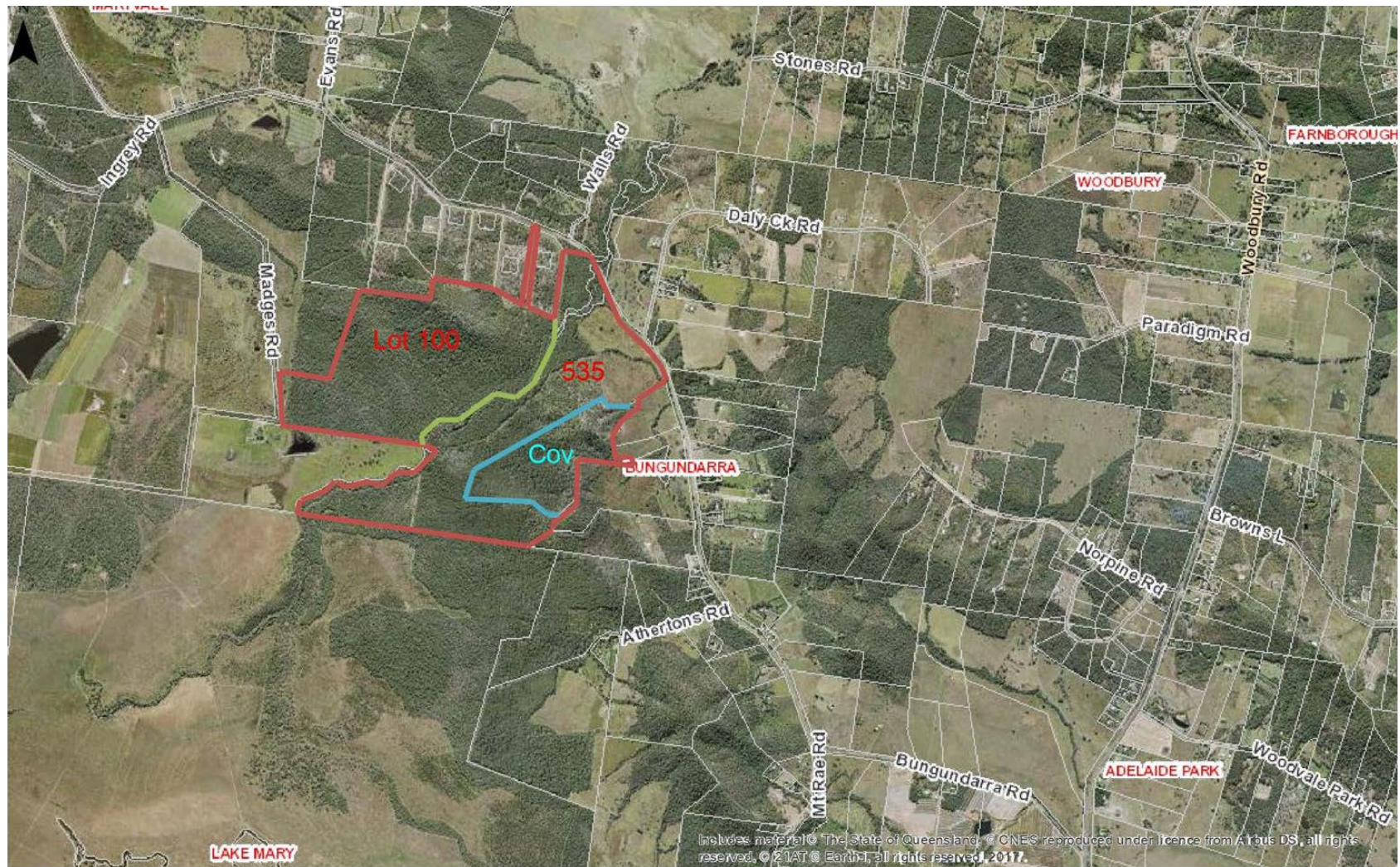
The revised conditions, Covenant Layout and the terms of Covenant Scheduled outlined in this report represent reasonable and relevant conditions for this development.

**12.10 - REQUEST FOR A NEGOTIATED
DECISION FOR DEVELOPMENT
PERMIT D-29-2019 FOR
RECONFIGURING A LOT (TWO LOTS
INTO SIX LOTS) LOCATED AT 535
BUNGUNDARRA ROAD AND LOT 100
BUNGUNDARRA ROAD,
BUNGUNDARRA**

Locality Plan

Meeting Date: 3 December 2019

Attachment No: 1



Locality Plan

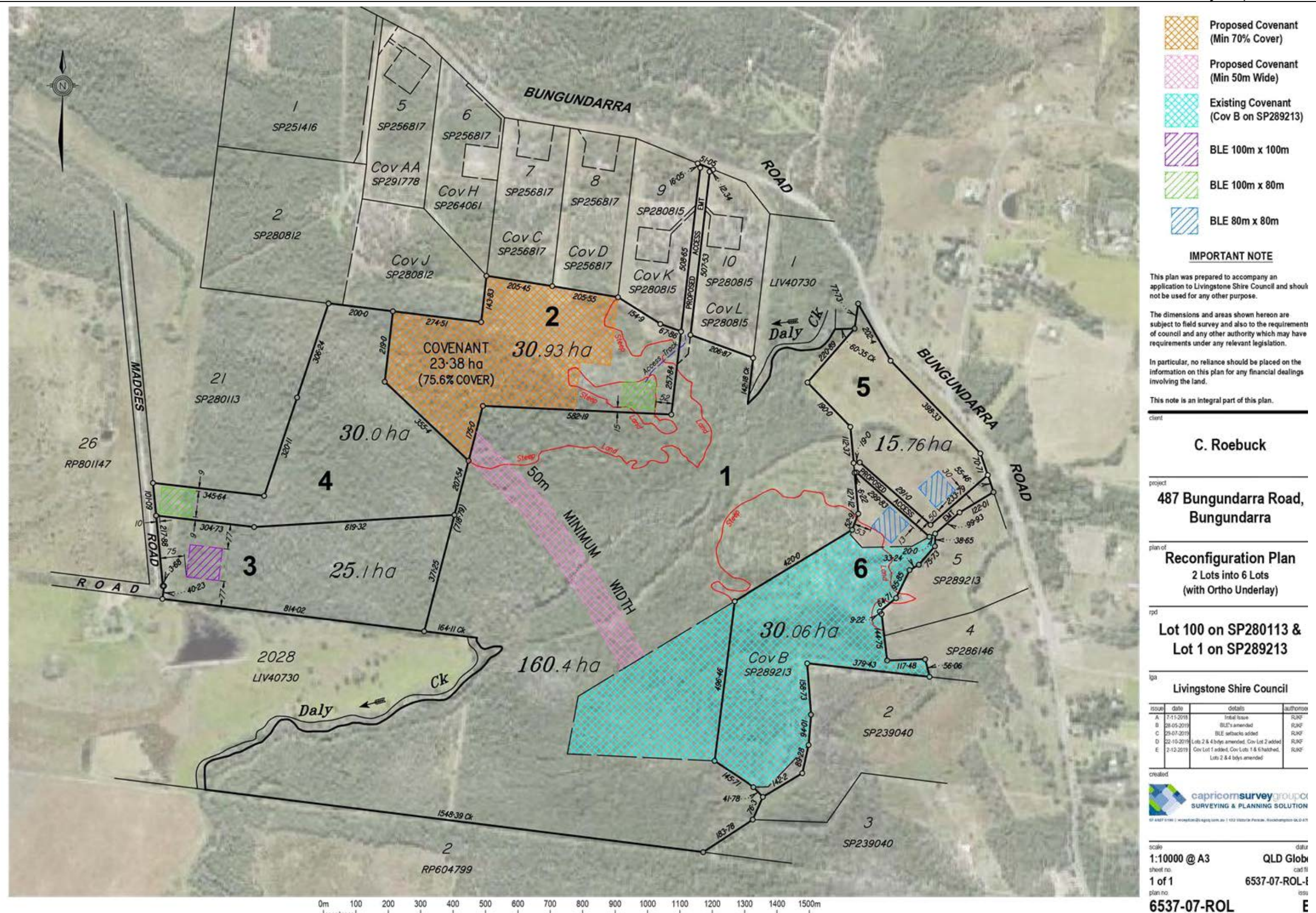
Map Created by: Web AppBuilder for ArcGIS

**12.10 - REQUEST FOR A NEGOTIATED
DECISION FOR DEVELOPMENT
PERMIT D-29-2019 FOR
RECONFIGURING A LOT (TWO LOTS
INTO SIX LOTS) LOCATED AT 535
BUNGUNDARRA ROAD AND LOT 100
BUNGUNDARRA ROAD,
BUNGUNDARRA**

Amended Lot Layout (with Covenants)

Meeting Date: 3 December 2019

Attachment No: 2



**12.10 - REQUEST FOR A NEGOTIATED
DECISION FOR DEVELOPMENT
PERMIT D-29-2019 FOR
RECONFIGURING A LOT (TWO LOTS
INTO SIX LOTS) LOCATED AT 535
BUNGUNDARRA ROAD AND LOT 100
BUNGUNDARRA ROAD,
BUNGUNDARRA**

Agreed Covenant Schedule

Meeting Date: 3 December 2019

Attachment No: 3

QUEENSLAND TITLES REGISTRY
Land Title Act 1994 and Land Act 1994

COVENANT

FORM 31 Version 3
Page 1 of 1

Dealing Number

Lodger (Name, address, E-mail & phone number)

Lodger
Code



OFFICE USE ONLY

Privacy Statement

Collection of information from this form is authorised by legislation and is used to maintain publicly searchable records. For more information see the Department's website.

1. Covenantor

2. Description of Covenant / Lot on Plan

Title Reference

3. Covenantee

LIVINGSTONE SHIRE COUNCIL

4. Description of Covenant (include reference to relevant section of legislation)

Pursuant to Section 97(3)(b)(i) of the *Land Title Act 1994* and the terms of the attached Schedule.

5. Execution

The Covenantor being the registered owner of the lot described in item 2 covenants with the Covenantee in respect of the covenant described in item 4 and:- *the attached schedule; ~~*the attached schedule and document no. _____; document no. _____.~~

*delete if not applicable

Witnessing officer must be aware of his/her obligations under section 162 of the Land Title Act 1994

..... signature

..... full name

..... qualification

Witnessing Officer

(Witnessing officer must be in accordance with Schedule 1 of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

..... signature

..... full name

..... qualification

Witnessing Officer

(Witnessing officer must be in accordance with Schedule 1 of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

/ /
Execution Date

.....
Covenantor's Signature

/ /
Execution Date

.....
Covenantee's Signature

QUEENSLAND TITLES REGISTRY
Land Title Act 1994, Land Act 1994
and Water Act 2000

**SCHEDULE / ENLARGED PANEL /
ADDITIONAL PAGE / DECLARATION**

FORM 20 Version 2
Page 2 of 4

Title Reference **XX**

.....signature

.....full name

.....qualification

Witnessing Officer

(Witnessing officer must be in accordance with Schedule 1
of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

/ /
Execution Date

.....
Covenantor's Signature

.....signature

.....full name

.....qualification

Witnessing Officer

(Witnessing officer must be in accordance with Schedule 1
of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

/ /
Execution Date

.....
Covenantor's Signature

Title Reference XX

THE COVENANT

1. Purpose

- 1.1 This covenant is entered into between the Covenantor and the Covenantee pursuant to section 97A(3)(b)(i) of the *Land Title Act 1994* for the purpose of protecting vegetated flora habitat and all native vegetation (the Covenant Area).

2. Interpretation

- 2.1 In this Covenant:

"Approval" means the Livingstone Shire Council Development Approval dated XX

"Covenant Area" means area described in Item 2 of this Form 31 Covenant;

"Covenantee" means Livingstone Shire Council;

"Covenantor" means the registered proprietor of the Lot and his and each of his successors in title, transferees and assignees;

"Covenantor's Obligations" means all of the obligations set out in this Covenant;

"Vegetation" means the trees, bushes, plants, shrubs, flowers and grasses that exist on the Covenant Area;

"Lot" means a lot referred to in Item 2 of the Form 31;

"The Parties" means the Livingstone Shire Council and the Covenantor.

3. Obligations

- 3.1 The Covenantor covenants and agrees with the Covenantee that the Covenant Area must be preserved by adhering to the conditions of this Covenant (which may be varied by written agreement between the parties).

4. Vegetation

- 4.1 The Covenantor must not artificially interfere or disturb the habitat in the Covenant Area, except in accordance with Clause 4.2.

- 4.2 Notwithstanding Clause 4.1, Vegetation in the Covenant Area may be disturbed for the following:-

- a) Essential management of vegetation including:
- i) for establishing or maintaining a necessary firebreak to protect infrastructure, other than a fence, road or vehicular track, if the maximum width of the firebreak is equal to 1.5 times the height of the tallest vegetation next to the infrastructure, or 20m, whichever is the wider; or
 - ii) for establishing a necessary fire management line, if the maximum width of the clearing for the fire management line is 10m; or
 - iii) necessary to remove or reduce the imminent risk that the vegetation poses of serious personal injury or damage to infrastructure; or
 - iv) by fire under the Fire and Emergency Services Act to reduce hazardous fuel load; or
 - v) necessary to maintain infrastructure (including core airport infrastructure, buildings, fences, helipads, roads, stockyards, vehicular tracks, watering facilities and constructed drains, other than contour banks), unless the clearing is for sourcing construction material; or
 - vi) for maintaining a garden or orchard, other than clearing predominant canopy trees to maintain underplantings established within remnant vegetation; or
 - vii) on land leased under the Land Act for agriculture or grazing purposes, to source construction timber to repair infrastructure on the land, if—
 - A) the infrastructure is in need of immediate repair; and
 - B) the clearing does not cause land degradation; and
 - C) restoration of a similar type to, and to the extent of, the removed trees is ensured; or
 - viii) on freehold land by the owner of the land to source construction timber to maintain infrastructure on any land of the owner, if—
 - A) the clearing does not cause land degradation; and
 - B) restoration of a similar type to, and to the extent of, the removed trees is ensured.;
- b) Management of an invasive pest plant, in accordance with the requirements of Council;

- c) Bushfire management activities as recommended in the approved Bushfire Hazard Assessment and Bushfire Management Plan under Development Permit D-29-2019 for Reconfiguring a Lot (two lots into six lots) over 535 Bungundarra Road and Lot 100 Bungundarra Road, Bungundarra.

QUEENSLAND TITLES REGISTRY

SCHEDULE**FORM 20** Version 2

Land Title Act 1994, Land Act 1994 and Water Act 2000

Page 4 of 4

Title Reference XX

- d) Agriculture, subject to the requirements and relevant permits of the relevant state government agencies and Livingstone Shire Council;
- e) Fences in accordance with existing use rights.

5. No Obligations on Covenantant

- 5.1 The rights given to the Covenantant by this Covenant are permissive only and nothing in this Covenant imposes any duty of any kind on the Covenantant to anyone or obliges the Covenantant to perform any act or to incur any expense for any of the purposes set out in this Covenant.

6. No Effect on Rates and Charges

- 6.1 Nothing in this Covenant of itself affects any obligation of the Covenantant to pay all taxes, rates, charges and levies lawfully imposed in respect of the Covenant Area.

7. Registration

- 7.1 The Covenantant agrees to do everything necessary at the Covenantant's expense to ensure that this Covenant is registered against the title to the Covenant Area.

8. Waiver

- 8.1 Any alleged waiver of any breach of this Covenant is effective only if it is an express waiver in writing of the breach. A waiver of a breach of this Covenant does not operate as a waiver of any other breach of this Covenant.

9. Severance

- 9.1 If any part of this Covenant is held to be invalid, illegal or unenforceable by a court having the jurisdiction to do so, that part is to be considered to have been severed from the rest of this Covenant and the rest of this Covenant remains in force unaffected by that holding or by the severance of that part.

QUEENSLAND LAND REGISTRY
Land Title Act 1994 and Land Act 1994

COVENANT

FORM 31 Version 1
Page 1 of 1



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\$169.00

27/05/2016 14:05

RN 616

Lodger (Name, address, E-mail & phone number)

PAUL WATTS & CO.,
SOLICITORS,
PO BOX 1163,
YEPPON QLD 4703
PH: (07) 4939 8666
EMAIL: paulwattsco@bigpond.com

Lodger

Code
613

1. Covenantor

COLIN ANDREW ROEBUCK
MONICA DEL PILAR ROEBUCK

2. Description of Covenant / Lot on Plan County

COVENANT B IN LOT 1 ON SP 289213

Parish

Title Reference

5039573 mo
60844668 (TO
ISSUE)

3. Covenantee

LIVINGSTONE SHIRE COUNCIL

4. Description of Covenant (include reference to relevant section of legislation)

^N PURSUANT TO SECTION 97A (3)(B) OF THE LAND TITLE ACT AND IN TERMS OF THE ATTACHED SCHEDULE

Pursuant to Section 97A (3)(b)(ii) of the land title Act and in terms of the attached Schedule

5. Execution

The Covenantor being the registered owner of the lot described in item 2 covenants with the Covenantee in respect of the covenant described in item 4 and:- *the attached schedule; *the attached schedule and document no. ; document no.

* delete if not applicable

Witnessing officer must be aware of his/her obligations under section 162 of the Land Title Act 1994

[Signature]
signature

PAUL VIVIAN WATTS full name

Solicitor qualification

Witnessing Officer

17/5/2016
Execution Date

Covenantor's Signature

(Witnessing officer must be in accordance with Schedule 1 of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

[Signature]
signature

PAUL VIVIAN WATTS full name

Solicitor qualification

Witnessing Officer

17/5/2016
Execution Date

Covenantee's Signature

(Witnessing officer must be in accordance with Schedule 1 of Land Title Act 1994 eg Legal Practitioner, JP, C Dec)

[Signature]

Johanne Lillian McLennan
Commissioner for Declarations

27/05/2016
Execution Date

[Signature]
Covenantee's Signature
Erin McCabe Co-Ordinator
Development Assessment
(Delegated Officer)
Livingstone Shire Council



QUEENSLAND LAND REGISTRY
Land Title Act 1994, Land Act 1994
and Water Act 2000

**SCHEDULE / ENLARGED PANEL /
ADDITIONAL PAGE / DECLARATION**

FORM 20 Version 2
Page 2 of 3

Title Reference [51039577 (TO ISSUE)]

COVENANT PROVISIONS

1. INTERPRETATION

1.1 In this Covenant:-

"covenant" means the covenant in the Covenant in Form 31 (to which this Schedule in Form 20 is attached) and this Schedule in Form 20 entered into between the covenantor and the covenantee;

"covenant area" means the part of the lot shown as Covenant B in Lot 1 on SP289213;

"covenantee" means Livingstone Shire Council and its successors;

"covenantor" means the registered owner of the lot;

"covenantor's obligations" means the obligations set out in this Schedule in Form 20;

"covenantee's obligations" means the obligations set out in this Schedule in Form 20;

"erect" includes erect, construct, make or place and also includes commencing or continuing the erection, construction, making or placing;

"lot" means the lot described in Item 2 of the Form 31 (to which this Schedule in Form 20 is attached);

"structure" means any building, wall, swimming pool, fence (other than a dividing fence), pillar, post, roadway or pathway, or other structure or erection;

"vegetation" means any tree or shrub with a trunk diameter over 40mm, whether growing naturally or planted, growing in the covenant area.

2. GENERAL PURPOSE

2.1 This covenant related to the use of the land within the covenant area;

2.2 The purpose of this covenant is:-

- to preserve the natural features of the Lot within the covenant area; and
- to protect the integrity of the land and slope within the covenant area.

3. COVENANT BINDS REGISTERED OWNER

3.1 The covenantor's covenants only bind the covenantor while the covenantor is the registered owner of the lot;

3.2 The covenantor is not liable for any breach of the covenant when the covenantor is not the registered owner of the lot.

4. COVENANTOR'S OBLIGATIONS

4.1 The Covenantor covenants pursuant to Section 97A of the Land Title Act that the covenanted area is a vegetation protection area and flora habitat.

4.2 The covenantor will retain on and within the covenanted area all native flora and vegetation.

4.3 The covenantor covenants that there shall be no artificial interference or disturbance of the habitat, except for the following:-

- Agriculture, subject to the requirements and relevant permits of the relevant state government agencies and Livingstone Shire Council
- Clearing for:-
 - (i) management of a declared pest;

QUEENSLAND LAND REGISTRY
Land Title Act 1994, Land Act 1994
and Water Act 2000

**SCHEDULE / ENLARGED PANEL /
ADDITIONAL PAGE / DECLARATION**

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Title Reference [51039577 (TO ISSUE)]

- (ii) essential management and
- (iii) to carry out bushfire hazard management as per the recommendations of the approved Bushfire Management Plan
- 5. Covenantee's Obligations p
- 5.1 The covenantee's rights are permissive only.
- 5.2 The covenantee is not under a duty to anyone.
- 5.3 The covenantee is not obliged to do an act or incur any costs for purpose of this covenant.

QUEENSLAND LAND REGISTRY
Land Title Act 1994, Land Act 1994 and Water Act 2000

SCHEDULE

FORM 20 Version 2
Page 3 of 12
1 of 14

Title Reference 51039577 (TO ISSUE)

Statement about alteration or minor correction to Land Registry Form

Form being altered or corrected: FORM 31 - COVENANT

Name of authorised person or solicitor: MADELINE STAFFORD

Name of authorised person's firm or employer (legal practice, commercial lender or settlement agency): PAUL
WATTS & CO. SOLICITORS

Item/s being altered or corrected: ITEM 2

Details of alteration or minor correction: AMENDMENT TO TITLE REFERENCE

Party represented (where signed by solicitor):


MADELINE ALLYCE STAFFORD
COMMISSIONER FOR DECLARATIONS NO. 111138
.....
Authorised person's or Solicitor's Signature


Name of authorised person or solicitor:

Name of authorised person's firm or employer (legal practice, commercial lender or settlement agency):

Item/s being altered or corrected:

Details of alteration or minor correction:

Party represented (where signed by solicitor):


.....
Authorised person's or Solicitor's Signature

QUEENSLAND LAND REGISTRY
Land Title Act 1994, Land Act 1994 and Water Act 2000

SCHEDULE

FORM 20 Version 2
Page 2 of 2
10/10

Title Reference 51039577 (TO ISSUE)

Statement about alteration or minor correction to Land Registry Form

Form being altered or corrected: FORM 31 - COVENANT

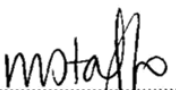
Name of authorised person or solicitor: MADELINE STAFFORD

Name of authorised person's firm or employer (legal practice, commercial lender or settlement agency): PAUL WATTS & CO. SOLICITORS

Item/s being altered or corrected: ITEM 4

Details of alteration or minor correction: CORRECTION TO SECTION 97A (3)(b)(ii)

Party represented (where signed by solicitor):


MADELINE ALLYCE STAFFORD
COMMISSIONER FOR DECLARATIONS NO. 111138
.....
Authorised person's or Solicitor's Signature

Name of authorised person or solicitor: MADELINE STAFFORD

Name of authorised person's firm or employer (legal practice, commercial lender or settlement agency): PAUL WATTS & CO. SOLICITORS

Item/s being altered or corrected: ITEM 5

Details of alteration or minor correction: DELETION OF EXECUTION OF COVENANTEE CLAUSE

Party represented (where signed by solicitor):


MADELINE ALLYCE STAFFORD
COMMISSIONER FOR DECLARATIONS NO. 111138
.....
Authorised person's or Solicitor's Signature

**12.10 - REQUEST FOR A NEGOTIATED
DECISION FOR DEVELOPMENT
PERMIT D-29-2019 FOR
RECONFIGURING A LOT (TWO LOTS
INTO SIX LOTS) LOCATED AT 535
BUNGUNDARRA ROAD AND LOT 100
BUNGUNDARRA ROAD,
BUNGUNDARRA**

**Decision Notice (with original approved
plans)**

Meeting Date: 3 December 2019

Attachment No: 4



Decision Notice (approval)

Planning Act 2016, section 63(2)
Development Assessment Rules, part 5: Decision

Application number:	D-29-2019	Your reference:	6537
Date received:	12 February 2019	Contact:	Jenna Davies
Date of decision:	11 October 2019	Contact number:	1300 790 919

1. APPLICANT DETAILS

Name:	C. & M. Roebuck		
Postal address:	c/- Capricorn Survey Group (CQ) Pty Ltd PO Box 1391 ROCKHAMPTON QUEENSLAND 4700		
Phone:	(07) 4927 5199	Email:	reception@csgcq.com.au

2. PROPERTY DESCRIPTION

Street address:	Lot 100 Bungundarra Road and 535 Bungundarra Road, Bungundarra
Real property description:	Lot 100 on SP280113 and Lot 1 on SP289213

3. OWNER DETAILS

Name:	C A Roebuck and M D P Roebuck
Postal address:	PO Box 1501, Yeppoon Queensland 4703

4. DEVELOPMENT APPROVAL

Development Permit for Reconfiguring a Lot (two lots into six lots)

5. DETAILS OF APPROVAL

The application is **approved in full with conditions** which are included in **attachment one** of this notice and the following approvals are given:

Type of approval/assessable development details	Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Development assessable under the planning scheme, a temporary local planning instrument, a master plan or a preliminary approval which includes a variation approval	Nil	YES	NO

6. SUPERSEDED PLANNING SCHEME

Was the application assessed under a Superseded Planning Scheme?	YES
Livingstone Shire Planning Scheme 2005, reprint 7, in force 10 July 2017	

7. THE APPROVED PLANS

The stamped approved plans are provided with this notice in **attachment three**. The approved development must be completed and maintained generally in accordance with the approved drawings and documents:

Plan/Document Name	Plan Number	Dated
Reconfiguration Plan 2 lots into 6 lots (with Ortho Underlay)	6537-07-ROL, Revision C	29 July 2019
Bushfire Hazard Assessment	PR4406-RE, Revision 02	19 July 2019
Bushfire Management Plan	PR4406-RE, Revision 01	19 July 2019
Slope Stability Assessment Report	GEO154779-B	29 June 2017

8. FURTHER DEVELOPMENT PERMITS

The following development permits are required to be obtained, as detailed in the conditions of approval, before the development can be carried out:

Type of development permit required	Subject of the required development permit
Operational Works	Access Works Clearing Vegetation Works

9. REFERRAL AGENCIES

The following Referral agencies were activated by this application and the Referral agency response is provided with this notice in **attachment four**:

For an application involving	Name of agency	Address
SCHEDULE 10 – PLANNING REGULATION 2017		
RECONFIGURING A LOT THAT IS ASSESSABLE DEVELOPMENT UNDER SECTION 21		
Reconfiguring a lot that is assessable development under section 21, if – (a) a lot that the application relates to is 5ha or larger; and (b) the size of any lot created is 25ha or less; and (c) either – (i) the reconfiguration involves operational work that is assessable development under section 5, other than operational work that is only the clearing of regulated regrowth vegetation; or (ii) on any lot created, accepted operational work, other than operational work that is only the clearing of regulated regrowth vegetation, may be carried out	The chief executive of the department in which the <i>Planning Act 2016</i> is administered (currently the Department of State Development, Manufacturing, Infrastructure and Planning) as concurrence agency	Department of State Development, Manufacturing, Infrastructure and Planning State Assessment and Referral Agency (Fitzroy Central Region) In person: Level 2, 209 Bolsover Street, Rockhampton Post: PO Box 113 Rockhampton Qld 4700 Email: RockhamptonSARA@dsdmip.qld.gov.au Online lodgement using MyDAS2: https://planning.dsdmip.qld.gov.au/planning/spa-system/development-under-spa/development-assessment-under-spa/mydas-and-eda

10. PROPERLY MADE SUBMISSIONS

Not applicable

11. CURRENCY PERIOD FOR THE APPROVAL

Any part of this development approval relating to reconfiguring a lot will lapse if a plan for the reconfiguration that, under the Land Title Act, is required to be given to a local government for approval, is not given to the local government within **four (4) years** after the approval starts to have effect, as per section 85(1)(b) of the *Planning Act 2016*.

12. WHEN THE DEVELOPMENT APPROVAL TAKES EFFECT

This development approval takes effect in accordance with section 71 of the *Planning Act 2016*. Generally, the approval starts to have effect when the approval is given to the applicant unless the following circumstances apply:

- if an appeal about the approval is started, and subject to the outcome of the appeal—the approval starts to have effect when the appeal ends.

13. APPEAL RIGHTS

The rights of an applicant to appeal to a tribunal or the Planning and Environment Court against a decision about a development application are set out in chapter 6, part 1 of the *Planning Act 2016*. For particular applications, there may also be a right to make an application for a declaration by a tribunal (see chapter 6, part 2 of the *Planning Act 2016*).

Appeal by an applicant

An applicant for a development application may appeal to the Planning and Environment Court against the following:

- the refusal of all or part of the development application
- a provision of the development approval
- the decision to give a preliminary approval when a development permit was applied for
- a deemed refusal of the development application.

An applicant may also have a right to appeal to the Development tribunal. For more information, see schedule 1 of the *Planning Act 2016*.

The timeframes for starting an appeal in the Planning and Environment Court are set out in section 229 of the *Planning Act 2016*.

Attachment two is an extract from the *Planning Act 2016* that sets down the appeal rights.

14. ASSESSMENT MANAGER [decision made under delegation].

Chris Murdoch Chief Executive Officer		Date:	11 October 2019
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Attachment 1 - Livingstone Shire Council Conditions

Planning Act 2016, section 65

1.0 ADMINISTRATION

- 1.1 The Developer is responsible for ensuring compliance with this approval and the Conditions of the approval by an employee, agent, contractor or invitee of the Developer.
- 1.2 Where these Conditions refer to "Council" in relation to requiring Council to approve or to be satisfied as to any matter, or conferring on the Council a function, power or discretion, that role of the Council may be fulfilled in whole or in part by a delegate appointed for that purpose by the Council.
- 1.3 All conditions of this approval must be undertaken and completed to the satisfaction of Council, at no cost to Council.
- 1.4 All conditions, works, or requirements of this approval must be undertaken and completed prior to the approval of a plan of subdivision (survey plan endorsement), unless otherwise stated.
- 1.5 Where applicable, infrastructure requirements of this approval must be contributed to the relevant authorities, at no cost to Council prior, to the approval of a plan of subdivision (survey plan endorsement), unless otherwise stated.
- 1.6 The following further Development Permits must be obtained prior to the commencement of any works associated with its purposes:
 - 1.6.1 Operational Works:
 - (i) Access Works;
 - (ii) Clearing Vegetation Works;
- 1.7 Unless otherwise stated, all works must be designed, constructed and maintained in accordance with the relevant Council policies, guidelines and standards.
- 1.8 All engineering drawings/specifications, design and construction works must comply with the requirements of the relevant *Australian Standards* and must be approved, supervised and certified by a Registered Professional Engineer of Queensland.
- 1.9 This approval is for the reconfiguration of Lot 1 on SP289213 and Lot 100 on SP280113 into six (6) separate titles. The approved plan illustrates a Building Location Envelope over proposed Lots 2, 3, 4, 5 and 6, which denotes the location within which a future Dwelling house and ancillary buildings or structures must be located within. This approval does not negate the requirement for a future Material Change of Use, Building Works regulated under the Planning Scheme or Operational Works, pursuant to the categorising instrument in effect at the time of development.

2.0 APPROVED PLANS AND DOCUMENTS

- 2.1 The approved development must be completed and maintained generally in accordance with the approved plans and documents, except where amended by the conditions of this permit:

Plan/Document Name	Plan/Document Reference	Dated
Reconfiguration Plan 2 lots into 6 lots (with Ortho	6537-07-ROL, Revision C	29 July 2019

<u>Plan/Document Name</u>	<u>Plan/Document Reference</u>	<u>Dated</u>
Underlay)		
Bushfire Hazard Assessment	PR4406-RE, Revision 02	19 July 2019
Bushfire Management Plan	PR4406-RE, Revision 01	19 July 2019
Slope Stability Assessment Report	GEO154779-B	29 June 2017

2.2 Where there is any conflict between the conditions of this approval and the details shown on the approved plans and documents, the conditions of approval must prevail.

2.3 Where conditions require the above plans or documents to be amended, the revised document(s) must be submitted for approval by Council prior to the submission of a Development Application for Operational Works.

3.0 STAGED DEVELOPMENT

3.1 This approval is for a development to be undertaken in three (3) discrete stages, namely:

3.1.1 Stage One: Lot 3 and Lot 4 and balance land; and

3.1.2 Stage Two: Lot 2 and balance land; and

3.1.3 Stage Three: Lot 1, Lot 5 and Lot 6.

Stage One must be completed prior to any other Stage.

3.2 Unless otherwise expressly stated, the conditions must be read as being applicable to all stages.

3.3 Where expressly stated, the conditions must be read as being applicable only to the particular stages(s) being developed.

4.0 ACCESS AND PARKING WORKS

4.1 A Development Permit for Operational Works (access and parking works) must be obtained prior to the commencement of any access and parking works on the site.

4.2 All works must be designed and constructed in accordance with the approved plans (refer to condition 2.1), *Capricorn Municipal Development Guidelines*, *Australian Standard AS2890 "Off Street Car Parking"* and the provisions of a Development Permit for Operational Works (access and parking works).

4.3 As part of Stage Two, a compliant vehicle access crossover must be designed and constructed for proposed Lot 2, within the road reserve, in accordance with the *Capricorn Municipal Development Guidelines*.

4.4 As part of Stage Two, an access easement must be registered, burdening Lot 1 and in benefit of Lot 2. The access easement must be shown on the Survey Plan and the respective documentation submitted to Council as part of the approval of a plan of subdivision (survey plan endorsement).

4.5 As part of Stage Three, a compliant vehicle access crossover must be designed and constructed for proposed Lots 1, 5 and 6, within the road reserve, in accordance with the *Capricorn Municipal Development Guidelines*.

4.6 As part of Stage Three, an access easement must be registered, burdening Lot 1 and in benefit of Lots 5 and 6. The access easement must be shown on the Survey Plan and the respective documentation submitted to Council as part of the approval of a plan of subdivision (survey plan endorsement).

- 4.7 All access easements must be a minimum of twenty (20) metres wide.
- 4.8 The internal accesses (private roads) must be designed, constructed and maintained in accordance with the Bushfire Management Plan (refer to condition 2.1).
- 4.9 The internal access (private road) for proposed Lot 2 must be designed and constructed in accordance with the revised Slope Stability Report (refer to condition 8.4) and Bushfire Management Plan (refer to condition 2.1). Where the gradient of the internal access is greater than 12.5 per cent at any point, the internal access must be sealed with concrete or bitumen.
- 4.10 The internal accesses for proposed Lots 1, 2, 4 and 6 must be provided with a minimum ten (10) per cent Annual Exceedance Probability flood immunity.
- 4.11 Rural addressing must be provided for proposed Lots 1, 2, 5 and 6, in accordance with Council's Rural Addressing Policy and Procedure.
- 5.0 CLEARING VEGETATION WORKS
- 5.1 Any clearing must comply with the recommendations of the approved Bushfire Hazard Assessment and Bushfire Management Plan (refer to condition 2.1).
- 6.0 STORMWATER WORKS
- 6.1 All stormwater must achieve demonstrated lawful discharge in accordance with the *Queensland Urban Drainage Manual* and must not adversely affect the upstream or downstream land or damage infrastructure when compared to pre-development condition by way of blocking, altering or diverting existing stormwater runoff patterns or cause an actionable nuisance or damage infrastructure.
- 7.0 SITE WORKS
- 7.1 All earthworks must be undertaken in accordance with *Australian Standard AS3798 "Guidelines on Earthworks for Commercial and Residential Developments"* and in accordance with the revised Slope Stability Assessment Report (refer to condition 2.1 and condition 8.4).
- 7.2 Site works must be constructed such that they do not, at any time, in any way restrict, impair or change the natural flow of runoff water that causes a nuisance or worsening to adjoining properties or infrastructure.
- 7.3 The Slope Stability Assessment Report (refer to condition 2.1) must be updated to reflect the changed internal access for proposed Lot 2 and be provided to Council with any development application for a Development Permit for Operational Works.
- 8.0 ASSET MANAGEMENT
- 8.1 Any alteration necessary to electricity, telephone, and/or public utility installations resulting from the development or in connection with the development, must be at full cost to the Developer.
- 8.2 Any damage to the existing roadway (including removal of concrete slurry from roads and stormwater gullies and drainage lines) which may occur during any works carried out in association with the approved development must be repaired. This must include the reinstatement of the existing traffic signs and pavement markings which may have been removed.
- 8.3 'As constructed' information pertaining to assets to be handed over to Council and those which may have an impact on Council's existing and future assets must be provided prior to the approval of a plan of subdivision (survey plan endorsement). This information must be provided in accordance with the Manual for Submission of Digital As Constructed Information.

9.0 ENVIRONMENTAL

- 9.1 The purchaser(s) of each of the proposed lots must be advised by the developer in writing of their responsibility to comply with the requirements of the approved Bushfire Hazard Assessment and Bushfire Management Plan (refer to condition 2.1).
- 9.2 All future buildings and structures must be designed, constructed and certified to satisfy the performance requirements for bushfire ignition risk under the *National Construction Code Building Code of Australia (Volume 2)*.
- 9.3 An environmental covenant, pursuant to Section 97A of the *Land Title Act 1994*, must be entered into with respect to the extent of vegetation as follows:
- (i) over proposed Lot 2 – excluding the proposed building location envelope and ancillary internal access with a maximum width of six (6) metres;
 - (ii) over proposed Lot 1 - being an area with a minimum width of 100 metres that generally covers the Locally Significant Vegetation to the north and south-east of Daly Creek, as shown on Planning Scheme Map PSM 10B, to connect the vegetation covenant on proposed Lot 2 to the existing vegetation Covenant B on SP289213. This covenant area must also include the area already within Covenant B on SP289213; and
 - (iii) over the north-eastern corner of proposed Lot 4 where mapped as Locally Significant Vegetation on Planning Scheme Map PSM 10B.
- 9.4 The environmental covenant must be entered into to the effect that:
- 9.4.1 the area must be protected as a vegetated flora habitat and all native vegetation must be retained; and
 - 9.4.2 there must be no artificial interference or disturbance of the habitat, except as approved by Council for the following activities:
 - (i) essential management as defined in the *Planning Regulation 2017* (current as at 1 September 2019);
 - (ii) management of an invasive pest plant, in accordance with the requirements of Council;
 - (iii) Bushfire management activities as recommended in the approved Bushfire Hazard Assessment and Bushfire Management Plan under Development Permit D-29-2019 for Reconfiguring a Lot (two lots into six lots) over 535 Bungundarra Road and Lot 100 Bungundarra Road, Bungundarra.
- 9.5 An environmental covenant must be registered over proposed Lots 1, 2 and 4. The above wording (condition 9.4) must be incorporated into the covenant schedule. The covenant area must be shown on the Survey Plan and the respective documentation submitted to Council, prior to the approval of a plan of subdivision (survey plan endorsement).
- 9.6 As part of Stage Three, Covenant B on SP289213 must be amended to be wholly located on proposed Lot 6. A new covenant must be shown over proposed Lot 1 (refer to conditions 9.3 and 9.4). The amended covenant area must be shown on the Survey Plan and the respective documentation submitted to Council, prior to the approval of a plan of subdivision (survey plan endorsement).
- 9.7 Any application for a Development Permit for Operational Works must be accompanied by an Erosion and Sediment Control Plan.
- 9.8 The Erosion Control and Sediment Control Plan must be implemented and maintained on-site for the duration of the works, and until all exposed soil areas are permanently stabilised (for example, turfed, hydromulched, concreted, landscaped). The prepared Erosion and Sediment Control Management Plan must be available on-site for inspection by Council Officers during those works.

10.0 OPERATING PROCEDURES

- 10.1 All construction materials, waste, waste skips, machinery and contractors' vehicles must be located and stored or parked within the site. No storage of materials, parking of construction machinery or contractors' vehicles will be permitted in Bungundarra Road or Madges Road.

ADVISORY NOTES

NOTE 1. Aboriginal Cultural Heritage

It is advised that under Section 23 of the *Aboriginal Cultural Heritage Act 2003*, a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal Cultural Heritage (the "cultural heritage duty of care"). Maximum penalties for breaching the duty of care are listed in the Aboriginal Cultural Heritage legislation. The information on Aboriginal Cultural Heritage is available on the Department of Aboriginal and Torres Strait Islander Partnerships website <https://www.datsip.qld.gov.au/>.

NOTE 2. General Environmental Duty

General environmental duty under the *Environmental Protection Act* prohibits unlawful environmental nuisance caused by noise, aerosols, particles dust, ash, fumes, light, odour or smoke beyond the boundaries of the property during all stages of the development including earthworks, construction and operation.

NOTE 3. General Safety Of Public During Construction

The *Workplace Health and Safety Act* and *Manual of Uniform Traffic Control Devices* must be complied with in carrying out any construction works, and to ensure safe traffic control and safe public access in respect of works being constructed on a road.

NOTE 4. Property Notes

- a. All future buildings on the proposed lots must be constructed in compliance with the *National Construction Code* and the approved Bushfire Hazard Assessment and Bushfire Management Plan.
- b. An environmental covenant applies to Lots 1, 2, 4 and 6 pursuant to Section 97A of the *Land Title Act 1994*.

NOTE 5. Infrastructure Charges Notice

This application is subject to infrastructure charges in accordance with Council resolution. The charges are presented on an Infrastructure Charges Notice which has been supplied with this decision notice.



Attachment 2 – Appeal rights

Planning Act 2016 Extract from schedule 1 - Appeals

The extract is provided for information purposes only. Whilst care is taken to ensure the data is current, Council accepts no responsibility for reliance on this information where amendments to the legislation are not reflected in the information. The applicant must refer to the Act available on the Legislation Queensland website

Schedule 1 Appeals section 229 1 Appeal rights and parties to appeals

- (1) Table 1 states the matters that may be appealed to—
 - (a) the P&E court; or
 - (b) a tribunal.
- (2) Table 2 states the matters that may be appealed only to the P&E Court.
- (3) Table 3 states the matters that may be appealed only to the tribunal.
- (4) In each table—
 - (a) column 1 states the appellant in the appeal; and
 - (b) column 2 states the respondent in the appeal; and
 - (c) column 3 states the co-respondent (if any) in the appeal; and
 - (d) column 4 states the co-respondents by election (if any) in the appeal.
- (5) If the chief executive receives a notice of appeal under section 230(3)(f), the chief executive may elect to be a co-respondent in the appeal.

Table 1
Appeals to the P&E Court and, for certain matters, to a tribunal

1. Development applications
For a development application other than a development application called in by the Minister, an appeal may be made against—
- (a) the refusal of all or part of the development application; or
 - (b) the deemed refusal of the development application; or
 - (c) a provision of the development approval; or
 - (d) if a development permit was applied for—the decision to give a preliminary approval.

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The applicant	The assessment manager	If the appeal is about a concurrence agency's referral response—the concurrence agency	1 A concurrence agency that is not a co-respondent 2 If a chosen assessment manager is the respondent—the prescribed assessment manager 3 Any eligible advice agency for the application 4 Any eligible submitter for the application

Table 2 Appeals to the P&E Court only			
1. Appeals from tribunal An appeal may be made against a decision of a tribunal, other than a decision under section 252, on the ground of— <ol style="list-style-type: none"> (a) an error or mistake in law on the part of the tribunal; or (b) jurisdictional error. 			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A party to the proceedings for the decision	The other party to the proceedings for the decision	—	—



Attachment 3 – Approved Plans

Planning Act 2016, section 63 (3)

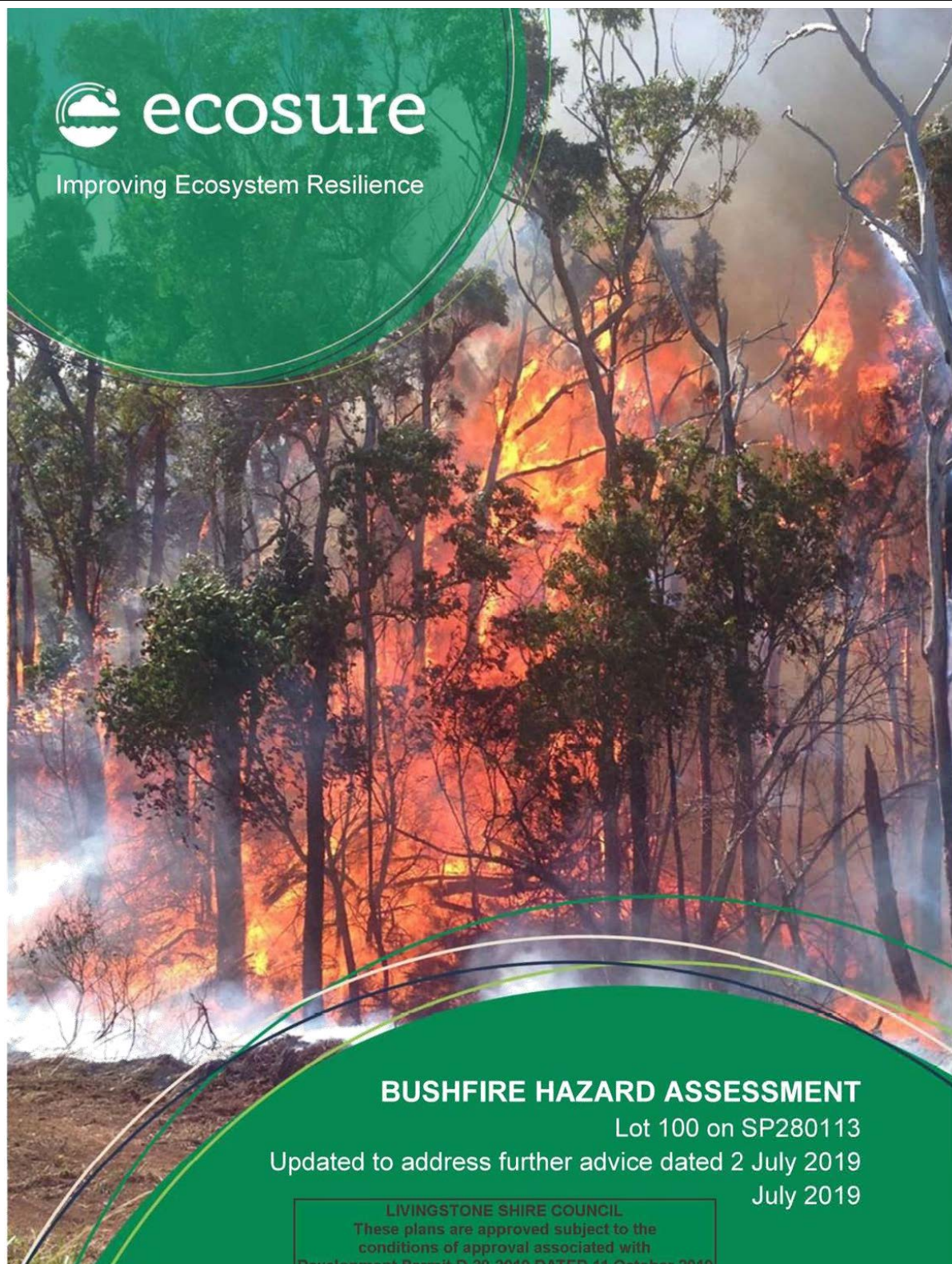
Proposal Plan


Bushfire Hazard Assessment

Bushfire Management Plan

Slope Stability Assessment Report





 **ecosure**
Improving Ecosystem Resilience

BUSHFIRE HAZARD ASSESSMENT
Lot 100 on SP280113
Updated to address further advice dated 2 July 2019
July 2019

LIVINGSTONE SHIRE COUNCIL
These plans are approved subject to the
conditions of approval associated with
Development Permit D-29-2019 DATED 11 October 2019

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1 Introduction

1.1 Background

Ecosure Pty Ltd (Ecosure) was engaged by Colin Roebuck to undertake a site-based bushfire hazard assessment pertaining to a proposed development on Lot 100 on SP280113, Bungundarra Road, Bungundarra.

The subject land is located within the Livingstone Shire Council, who identified that a Bushfire Hazard Assessment was required to advance the Development application (D-29-2019).

All assessment in this report was conducted as per AS 3959 – 2009 *Construction of Buildings in Bushfire-Prone Areas*.

This report has been updated to include issues raised in a further advice dated 2 July 2019, which is covered in section 1.4

FURTHER ADVICE - DEVELOPMENT APPLICATION D-29-2019 FOR RECONFIGURING A LOT (TWO LOTS INTO SIX LOTS) SITUATED AT LOT 100 BUNGUNDARRA ROAD AND 535 BUNGUNDARRA ROAD, BUNGUNDARRA - YOUR REFERENCE: 6537

1.2 Site Details

A summary of the subject site is provided in Table 1 below.

Table 1 Site details

Attribute	Details
Local Government	Livingstone Shire Council (Livingstone Planning Scheme 2018)
Lot/Plans of Subject land	Lot 100 on SP280113 to be subdivided
Fire Authority	Rural Fire Service Queensland (RFSQ)
Proposed land use	Housing



1.3 Requirements for a Bushfire Hazard Assessment Report

The following table (Table 2) outlines the requirements and responses for a Bushfire Hazard Assessment Report as defined by SC7.2.5 of the Livingstone Shire Planning Scheme 2018.

Table 2 Livingstone Shire Planning Scheme requirements for a Bushfire Hazard Assessment

Requirement	Response
Macro Context - The assessment should: <ul style="list-style-type: none"> a. have regard for locality-based bushfire behaviour (including on the basis of fire history); and b. take into account the implications for fire hazard associated with nearby bushland up to ten (10) kilometres away from the site. 	Addressed in section 1.4
Site context - The hazard assessment should: <ul style="list-style-type: none"> a. take into account the following factors which influence bushfire behaviour and place constraints on development: <ul style="list-style-type: none"> I. vegetation II. aspect III. slope IV. overall hazard V. environmentally significant areas b. give due consideration to the following factors: <ul style="list-style-type: none"> I. the ability to site buildings and structures downhill from the hazard to reduce risk II. siting should not place development immediately above a source of bushfire hazard, or where this is unavoidable, siting should ensure adequate mitigation measures can be implemented III. siting should avoid ridge-tops and high hazard locations IV. to establish a building pad, siting should rely on cut – benches rather than fill that cause a development site to extrude towards a down slope hazard source. 	Addressed in sections 1, 2 and a
Expected bushfire behaviour – the hazard assessment should include a consideration of the expected bushfire behaviour, considering both the macro and site contexts.	Addressed in sections 1.7

1.4 Details of response to further advice request

The following section is in response to the request made on the 2 July 2019 for further advice regarding the Bushfire Hazard Assessment and Management Plan.

Table 3: Issue raised in further advice letter dated 2 July 2019

Information request	Response/Details
Council acknowledges the Bushfire Hazard Assessment and Management Plan however, the reports do not provide a succinct recommendation and justification that all proposed building location envelopes are suitable for future development. This has not been demonstrated.	<p>The building location envelopes have been selected to minimize the bushfire attack level of the sites, whilst requiring the least amount of vegetation to be cleared.</p> <p>Further information regarding the individual building location envelopes is provided in section 3.4 of the Bushfire Hazard Assessment.</p>



Information request	Response/Details
The Bushfire Hazard Assessment has not provided individual assessments for each of the proposed lots and Building Location Envelopes. Further, the hazard assessment has not assigned specific Bushfire Attack Levels (BAL) to each envelope which would normally be expected in a Bushfire Hazard Assessment. The Bushfire Management Plan has instead stated in the table on page 7, that there will be no buildings located within a bushfire attack level of 29 (buildings will have a BAL of 12.5) which has not been demonstrated how this will occur without significant clearing of vegetation.	<p>Further details regarding each site are provided in section 3.4 of the Bushfire Hazard Assessment, including surrounding vegetation, slope characteristics and Bushfire Attack Levels. Building envelopes 2, 3 and 4 will require some degree of clearing to fulfil the requirements of AS3959-2009, and the Livingstone Planning Scheme 2018.</p> <p>The building location envelopes outlined in the bushfire hazard assessment and management reports represent an area where construction may take place, however buildings are unlikely to occupy much of these areas, and the actual clearing area will likely be considerably smaller.</p>
Further, a uniform application of thirty-five (35) metres of clearing to the building protection zone has been proposed in the Bushfire Management Plan (section 2.1). This has not been properly justified particularly for proposed Lots 2 and 6, which in another map are showing up as being in areas of 'very high potential bushfire intensity' as per Figure 1: Bushfire Hazard Mapping of Subject Land and Surrounding Area page 13 in the Bushfire Hazard Assessment.	<p>The building protection zone of 35 metres is proposed to meet the requirements outlined in the Livingstone Planning Scheme 2018, section 8.2.4, PO12. Thirty-five metres is required as this is 1.5 times the maximum tree canopy height recorded adjacent to the proposed building envelopes.</p> <p>The proposed building envelope on Lot 6 has an area of high potential bushfire intensity uphill from the site, while the area downhill is made up of open grassland which poses a lower fire risk. The 35 m distance recommended in the Bushfire Management Plan is enough for the BAL of the proposed site to be 12.5, taking the slope and vegetation characteristics into account.</p> <p>The area surrounding the building envelope on Lot 2 is identified as having a high potential bushfire intensity both upslope and downslope from the site. Again, the building protection zone recommended would mitigate the fire risk sufficiently for the BAL of the site to be 12.5. Further details are covered in section 3.4</p>
The table on page 7 has also stated that there is an alternative access escape route which is already built and in use from propose Lot 2 to a gate at the back of adjacent Lot 2 on SP209812. The report has not identified if this is subject to impacts from potential bushfire events and does this need upgrading or maintenance? The safety aspect has not been justified here. Further, proposed Lot 2 does not have lawful access rights over Lot 2 on SP209812 via a proposed access easement.	An alternate escape route has been identified, see the management plan for details.
It is also not clear if site inspections have been undertaken to inspect the vegetation, slope, elevation and bushfire risk of each Building Location Envelope.	<p>Senior Botanist Geoff Sinclair has visited the site on the 20/4/2017 and inspected vegetation, slope, elevation, tree heights for firebreaks.</p> <p>This data was collated with regional ecosystem mapping, shire mapping, lidar analysis, topographic mapping, aerial photographs and satellite imagery to accurately identify the bushfire risk for each Building envelope.</p>
3.1 Therefore, with respect given to the preamble above, Council requests that the Bushfire Hazard Assessment and Bushfire Management Plan be updated to provide additional information and succinct	Further details for the individual building envelopes are provided in section 3.4 of the Bushfire Hazard Assessment, Management Plan.



Information request	Response/Details
recommendations for each proposed Building Location Envelope.	
3.2 Please address the State interest for Safety and resilience to hazards (for Bushfire hazard) in Part E of the State Planning Policy as the application has not addressed the State Planning Policy.	This is addressed in the bushfire management plan.

1.5 Macro Context

Contour data shows the effective slope in relation to bushfire attack being varied between lots. The effective slope for lots 3,4,5 and 6 is classified as "upslope" under AS 3959 – 2009 *Construction of Buildings in Bushfire-Prone Areas*. Meaning a bushfire would be travelling downhill when it reached any of these sites. Lot 2 however has potential for both an upslope or downslope bushfire attack. This is illustrated within Appendix 1, Figure 2. Contour data shows that the effective downslope at Lot 2 averages between 15 to 20 degrees.

Within *Response to Information Request, Report to Colin Roebuck* a report written by Ecosure pertaining to development application D1671-2017 for reconfiguring a lot (two lots into five lots), situated at 535 Bungundarra Road, Bungundarra. (Ecosure, 2017), the on ground assessment identified the Regional Ecosystem (RE) of subject land as being 11.11.4.

RE 11.11.4 is described by the Queensland Government Regional Ecosystem Description Database as being, "*Eucalyptus crebra* woodland on old sedimentary rocks with varying degrees of metamorphism and folding Coastal ranges" (Queensland Government, 2019).

Fire management guidelines for RE 11.11.4 are described as:

"Season: Late wet to early dry season when there is good soil moisture. Early Storm season or after good spring rains.

Intensity: Various.

Interval: 6-15 years (shorter intervals north of bioregion: 5-10 years).

Strategy: Burn less than 30% in any year. Burn under conditions of good soil moisture and when plants are actively growing. All shrubby areas will carry fire after a good season.

Issues: Management of this fire tolerant vegetation type should be based on maintaining vegetation composition, structural diversity, animal habitats and preventing extensive wildlife. Maintaining a fire mosaic will ensure protection of habitat and mitigate against wildfires. Planned burns have traditionally been carried out in the winter dry season, further research required."

(Queensland Government, 2019)

The subject land contains fire supporting flora species in dense populations including:

- *Acacia disparrima* subsp. *Disparrima*
- *Acacia flavescens*



- *Allocasuarina littoralis*
- *Alphitonia excelsa*
- *Corymbia intermedia*
- *Eucalyptus crebra*
- *Eucalyptus exserta*
- *Eucalyptus platyphylla*
- *Eucalyptus tereticornis*
- *Lantana camara*
- *Livistonia decora*
- *Lophostemon confertus*
- *Lophostemon suaveolens*
- *Melaleuca dealbata*
- *Planchonia careya*
- *Sorghum nitidum*
- *Sporobolus pyramidalis*

1.6 Fire history within Subject Land

Fire history was determined via analysis of Qspatial fire scar data, which is derived from all available Landsat 8 (NASA) and Sentinel 2 (EU Copernicus) images acquired over Queensland. Fire scar data was analysed from the years 1988 to 2016. Fires within the subject land are detailed below in Table 4.

Table 4 Fire History Within Subject Land

Year	Month/s	Approx. coverage of subject land	Comments
1993	November	10% of all subject land	Eastern Boundary in proposed lots 5 and 6
1997	November	15% of all subject land	Eastern Boundary in proposed lots 5 and 6
1999	December	5% of all subject land	Eastern boundary
2003	January	25% of proposed lots 3 and 4.	Lots of small burns taking place surrounding subject land throughout 2003.
2012	January, October	15% of all subject land	Eastern boundary
2013	September	15% of all subject land	SE corner of subject land.

Fire scar data for the years 1993, 1997, 1999, 2003, 2012, 2013 is shown in Appendix 1, Figures 3 - 8.

1.7 Expected Bushfire Behaviour

Average wind speed and direction from 23 November 1993 to 11 August 2018 (Bureau of Meteorology 2018) is shown in Appendix 1. The data suggests that the subject site is exposed to predominant SE and E winds in the morning and E winds by the afternoon for the majority of the year. Data also suggests the NE prevailing winds to be more predominant seasonally both in the morning and afternoon (Bureau of Meteorology 2019).

Figure 1 below shows a comparison of median rainfall data (1994 to 2018) and 2003 rainfall for the Yeppoon weather station. Median rainfall is compared with 2003 due to 2003 being the largest year of fire activity within the subject land since 1988.

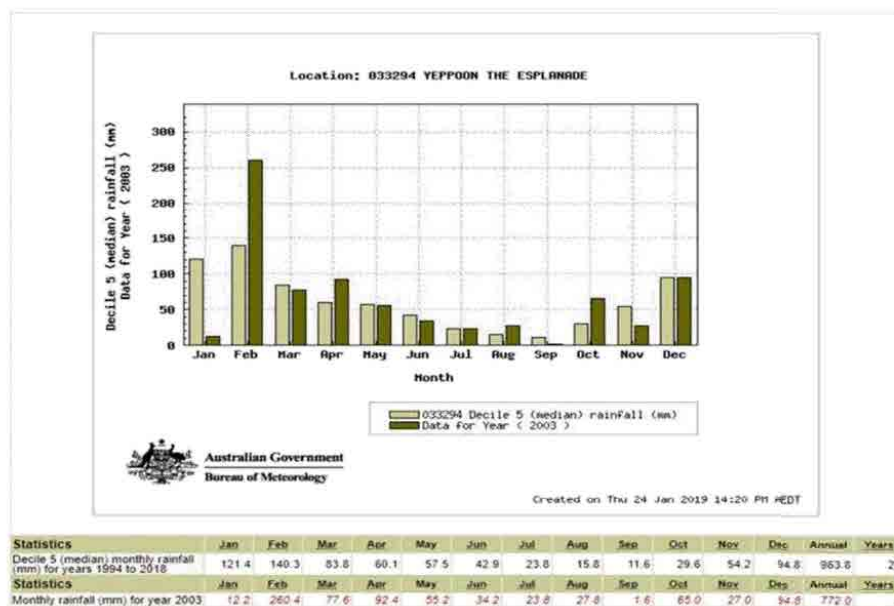


Figure 1 Median (1994 to 2018) and 2003 Rainfall for Yeppoon
(Source: <http://www.bom.gov.au/jsp/ncc/cdio/cvg/av>, accessed 24/01/2019)

As shown in Figure 1, the months from June to September recorded the lowest rainfall and December, January and February (wet season) recorded the highest rainfall in the area. The data suggests that during the wet season there is a high growth in vegetation, leading to a large amount of dieback and cured vegetation during the drier months (March to November).

Analysis of vegetation, fire history, wind direction and rainfall would suggest that peak periods of fire danger to the subject land would be the months from October to February.



1.7.1 Macro

Yeppoon Fire Brigade, Bungundarra Rural Fire Brigade and Adelaide Park Rural Fire Brigade are all located in close proximity to the subject land. Based on the authors experience it is anticipated that response times to any fire incident on the subject land would be less than 35 minutes from first call to 000.

Whilst an east, or southeast fire direction are the most likely scenarios due to predominant wind direction, it is possible that a west or south fire direction could occur and cause a potentially far more destructive and active fire front.

1.7.2 Site Context

The sites main concern for potential bushfire risk are assessed for Bushfire Attack Level (BAL) in Section 3 of this report.

2 Methodology

All assessment is conducted in accordance with AS 3959-2009 *Australian Standard for Construction of buildings in Bushfire-prone areas*. All fuel hazard ratings are conducted as per the Department of Sustainability and Environment Victoria Overall Fuel Hazard Assessment Guide (DSE 2010).

2.1 Desktop assessment

As part of the bushfire hazard assessment, a desktop assessment was conducted which included analysis of the following information and data sets:

- Livingstone Shire Council Planning Scheme Bushfire Hazard Overlay 2018
- Queensland Government Bushfire Hazard Mapping
- Queensland Government Regional Ecosystem mapping
- Queensland Government Wildlife online data
- QSpatial topographic data for site
- QSpatial LANDSAT 8 and SENTINEL 2 Firescar data
- SLATS data
- BOM data.

The relevant Fire Danger Index (FDI) was calculated during the desktop review as per AS3959-2009. Jurisdictional and regional values for FDI can be seen below in Table 5.

Table 5 Jurisdictional and regional values for FDI

State/region	FDI
Australian Capital Territory	100
New South Wales	
a. Greater Hunter, Greater Sydney, Illawarra/Shoalhaven, Far South Coast and Southern Ranges fire weather districts	100
b. NSW alpine areas	50
c. NSW general (excluding alpine areas, Greater Hunter, Greater Sydney, Illawarra/Shoalhaven, Far South Coast and Southern Ranges fire weather districts)	80
Northern Territory	40
Queensland	40
Tasmania	50
Victoria	



State/region	FDI
a. Victoria alpine areas	50
b. Victoria general (excluding alpine areas)	100
a. Western Australia	80

2.2 Site Visit

Senior Botanist Geoff Sinclair visited the site on the 20/4/2017 and inspected vegetation, slope, elevation, tree heights for firebreaks.

This data was collated with regional ecosystem mapping, shire mapping, lidar analysis, topographic mapping, aerial photographs and satellite imagery to accurately identify the bushfire risk for each Building envelope.

3 Results

3.1 Vegetation

Vegetation within subject land is described as RE 11.11.4 (Ecosure, 2017). This is described as "*Eucalyptus crebra* woodland on old sedimentary rock". Likely fire behaviour is subject to fluctuation of various contributing factors including;

- Biocondition
 - % of colonising weeds
 - Fuel layer distribution
 - Biomass distribution
- Time of year
 - Rainfall
 - Temperature
 - Prevailing wind direction.

Differences in these factors will greatly affect fire intensity and behaviour.

3.2 Explanation of Bushfire Attack Levels

Bushfire attack level (BAL) is a measure of expected heat flux exposure. Further descriptions are provided below.

BAL	Risk	Classified Vegetation within 100m of the site and heat flux exposure thresholds	Description of predicted bushfire attack and levels of exposure
BAL -12.5	The risk is considered to be low	$\leq 12.5 \text{ kW/m}^2$	Ember attack
BAL – 19	The risk is considered to be moderate	$> 12.5 \text{ kW/m}^2$ $\leq 19 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux
BAL – 29	The risk is considered to be high	$> 19 \text{ kW/m}^2$ $\leq 29 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux
BAL – 40	The risk is considered to be very high	$> 29 \text{ kW/m}^2$ $\leq 40 \text{ kW/m}^2$	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with likelihood of exposure to flames
BAL – FZ	The risk is considered to be extreme	$> 40 \text{ kW/m}^2$	Direct exposure to flames from fire front in addition to heat flux and ember attack

3.3 Bushfire Attack Levels

The following tables have calculated bushfire attack level as distance from vegetation areas. BAL was calculated as a function of effective slope, vegetation classification and FDI as per AS3959-2009.

A map of the bushfire attack levels with the proposed layout is included in Appendix 1.

Table 6 Determination of Bushfire Attack Level in Open Woodland FDI 40 for all upslopes and flat land

BAL	BAL – FZ	BAL – 40	BAL – 29	BAL – 19	BAL-12.5
Distance (m) of the site from the vegetation	<6	6-<9	9-<13	13-<19	19-<100

Table 7 Determination for Bushfire Attack Level in Open Woodland FDI 40 for downslope >10 to 15 degrees

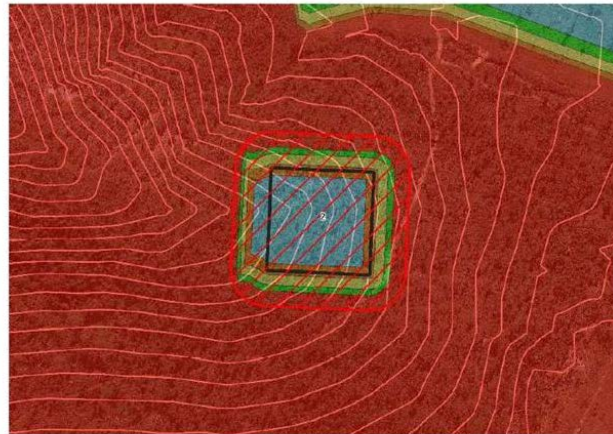
BAL	BAL – FZ	BAL – 40	BAL – 29	BAL – 19	BAL-12.5
Distance (m) of the site from the vegetation	<12	12-<16	16-<24	24-<35	35-<100

3.4 Fire attack level assessment for building envelopes

3.4.1 Building Location Envelope 2

Vegetation	Vegetation surrounding envelope 2 is assessed as being consistent with Regional Ecosystem 11.11.4 (<i>Eucalyptus crebra</i> woodland on old sedimentary rocks), or woodland/open woodland for the purposes of AS 3959-2009. Maximum canopy height observed adjacent to the envelopes is 23 m. The location of the building envelope for lot 2 was selected as this location avoids the clearing of locally significant vegetation (refer to section 1.3 of the Ecological Assessment Report).
Slope	Envelope 2 was assessed as having the potential for either an upslope or downslope bushfire attack. The effective downslope at the site averages between 15-20 degrees.
Bushfire Attack Level	Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m ² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 16-24 m downslope, and 9-13 m upslope is recommended by AS3959-2009. The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to allow for a bushfire attack level of 12.5 at the site. Clearing will be required to achieve this distance between the building area and vegetation.

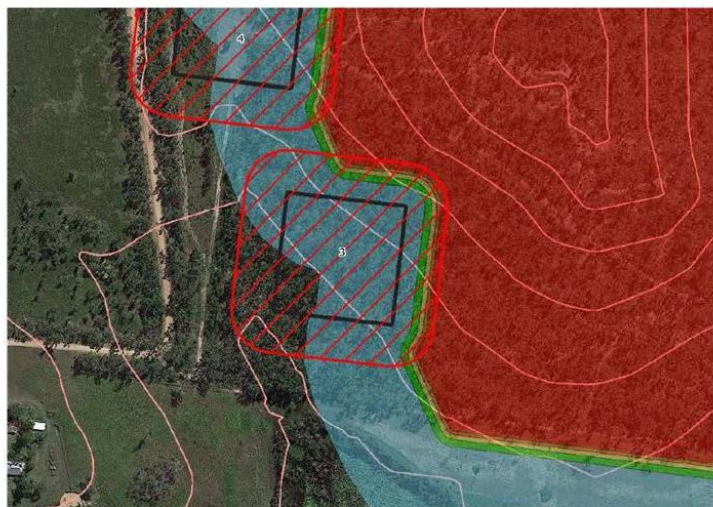
Site Map



3.4.2 Building Location Envelope 3

Vegetation	Vegetation surrounding envelope 3 is assessed as being consistent with Regional Ecosystem 11.11.4 (<i>Eucalyptus crebra</i> woodland on old sedimentary rocks), or woodland/open woodland for the purposes of AS 3959-2009. Maximum canopy height observed adjacent to the envelopes is 23 m.
Slope	The slope downhill from the site is gradual, while uphill it becomes progressively steeper. The effective slope for the site is classified as 'upslope' under AS 3959-2009, meaning that a bushfire would likely be travelling downhill if it reached this site.
Bushfire Attack Level	<p>Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 9-13 m is recommended by AS3959-2009.</p> <p>The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to allow for a bushfire attack level of 12.5 at the site. Clearing will be required to achieve this distance between the building area and vegetation.</p>

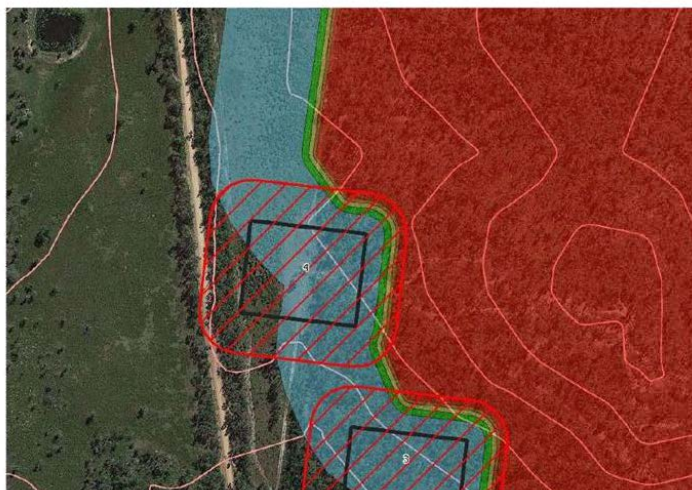
Site Map



3.4.3 Building Location Envelope 4

Vegetation	Vegetation surrounding envelope 4 is assessed as being consistent with Regional Ecosystem 11.11.4 (<i>Eucalyptus crebra</i> woodland on old sedimentary rocks), or woodland/open woodland for the purposes of AS 3959-2009. Downhill from the site vegetation is sparser between the building envelope and Madges Road. Maximum canopy height observed adjacent to the envelopes is 23 m.
Slope	The slope downhill from the site is gradual, while uphill it becomes progressively steeper. The effective slope for the site is classified as 'upslope' under AS 3959-2009, meaning that a bushfire would likely be travelling downhill if it reached this site.
Bushfire Attack Level	<p>Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 9-13 m is recommended by AS3959-2009.</p> <p>The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to allow for a bushfire attack level of 12.5 at the site. Clearing will be required to achieve this distance between the building area and vegetation.</p>

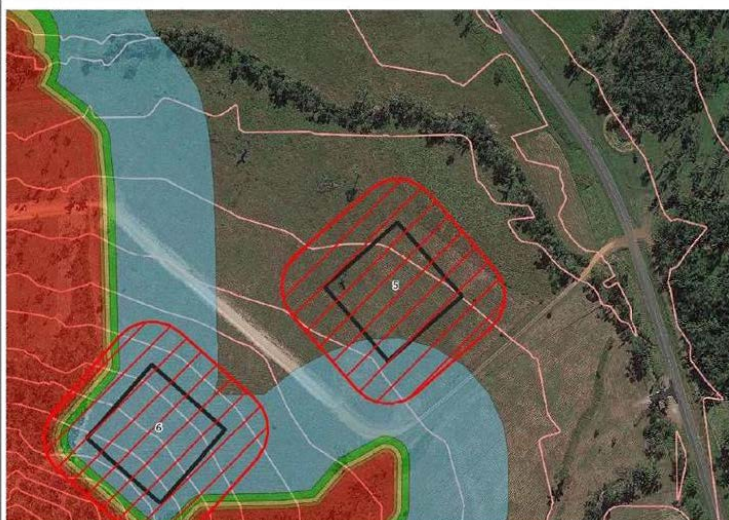
Site Map




3.4.4 Building Location Envelope 5

Vegetation	Building envelope 5 is in an area which has previously been cleared and is classified as open tussock grassland per AS3959-2009.
Slope	The location of the building envelope for lot 5 is a relatively flat area.
Bushfire Attack Level	The building location envelope is in a grassland area, and the distance from the building envelope to any woodland vegetation is already enough for the site BAL to be determined as 12.5 without additional clearing.

Site Map



3.4.5 Building Location Envelope 6

Vegetation	The area downhill from building envelope 6 is previously cleared, while uphill is a wooded area consistent with Regional Ecosystem 11.11.4 (<i>Eucalyptus crebra</i> woodland on old sedimentary rocks), or woodland/open woodland for the purposes of AS 3959-2009. Maximum canopy height observed adjacent to the envelopes is 23 m.
Slope	The area of the building envelope is relatively flat, with the slope increasing uphill to the southwest in the wooded area. The effective slope for the site is classified as 'upslope' under AS 3959-2009, meaning that a bushfire would likely be travelling downhill if it reached this site.
Bushfire Level	Attack Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m ² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 9-13m is recommended by AS3959-2009. The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to allow for a bushfire attack level of 12.5 at the site. No or minimal clearing will be required as there is already a significant buffer to any woodland vegetation.
Site Map	

4 Summary and Building Recommendations

This section of the report should be read in conjunction with Bushfire Hazard Mapping in Appendix 1.

BAL Level	Recommendations
12.5	None
19	None
29	Clear a building protection zone around structures on site so they are separated from the edge of the bushfire hazard source as per the most achievable of the following: <ul style="list-style-type: none">• Sufficient distance to achieve a bushfire attack level no greater than 29 kW/m²• A distance of twenty (20) metres or• No less than 1.5 times the mature tree canopy height in the hazardous vegetation
40	Clear a building protection zone around structures on site so as they are separated from the edge of the bushfire hazard source as per the most achievable following: <ul style="list-style-type: none">• Sufficient distance to achieve a bushfire attack level no greater than 29 kW/m²• A distance of twenty (20) metres or• No less than 1.5 times the mature tree canopy height in the hazardous vegetation
FZ	Clear a building protection zone around structures on site so as they are separated from the edge of the bushfire hazard source as per the most achievable of the following: <ul style="list-style-type: none">• Sufficient distance to achieve a bushfire attack level no greater than 29 kW/m²• A distance of twenty (20) metres or• No less than 1.5 times the mature tree canopy height in the hazardous vegetation

To reduce bushfire hazard, as per SC7.2.5 of the Livingstone Planning Scheme, give due consideration to the following:

- If possible, site buildings and structures downhill in lots with defined bushfire hazard to reduce risk
- If possible, siting should not place development immediately above a source of bushfire hazard, or where this is unavoidable, siting should ensure adequate mitigation measures can be implemented
- If possible, siting should avoid ridge-tops and high hazard locations
- If possible, to establish a building pad, siting should rely on 'cut-in benches', rather than fill that will likely cause a development site to extrude towards a down-slope hazard source.



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Appendix 1 Mapping

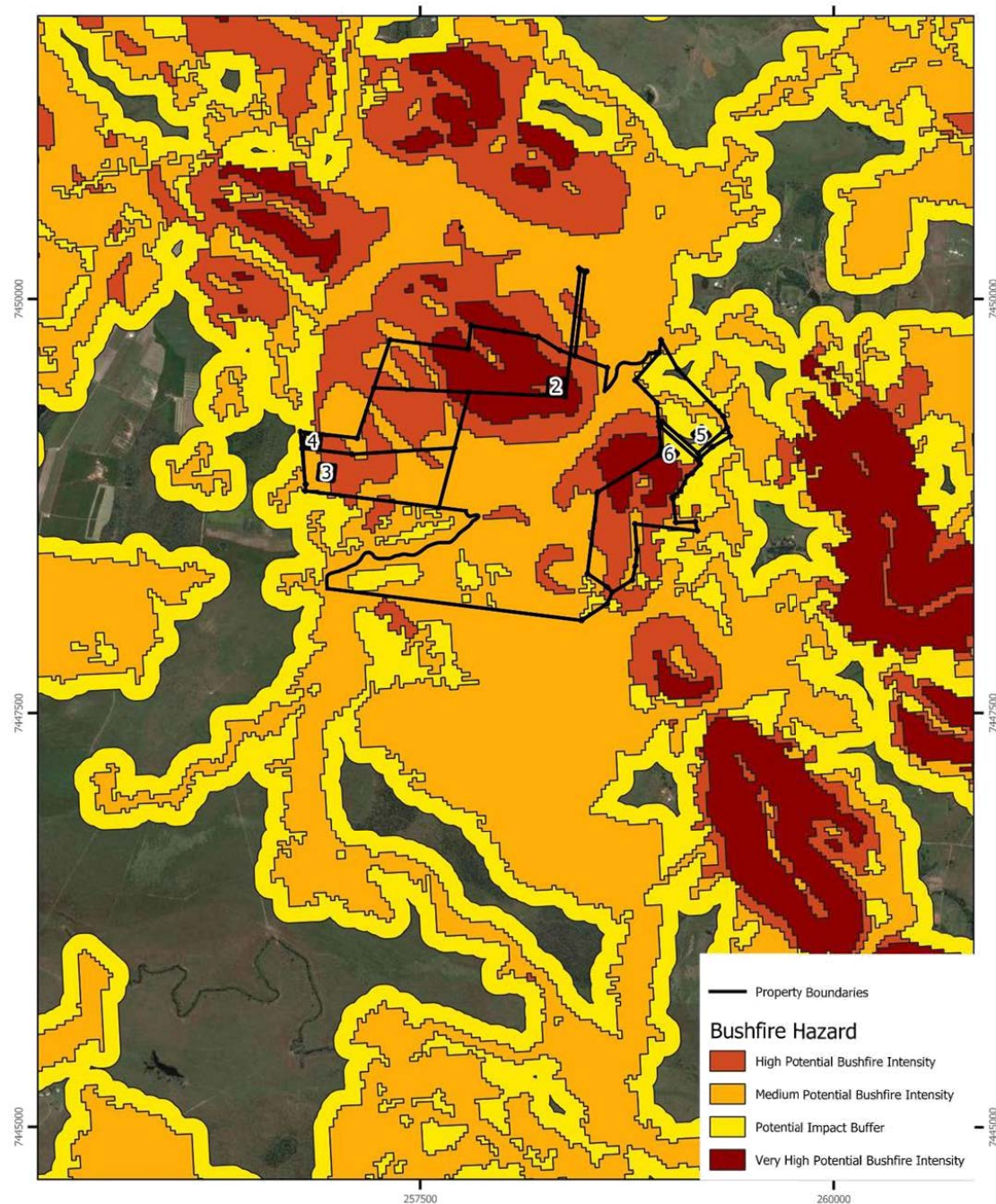


Figure 1: Bushfire Hazard Mapping of Subject Land and Surrounding Area



Job number: PR4406
Revision: 0
Author: PGK
Date: 13/05/2019



0 500 1000 1500 2000 m

GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter

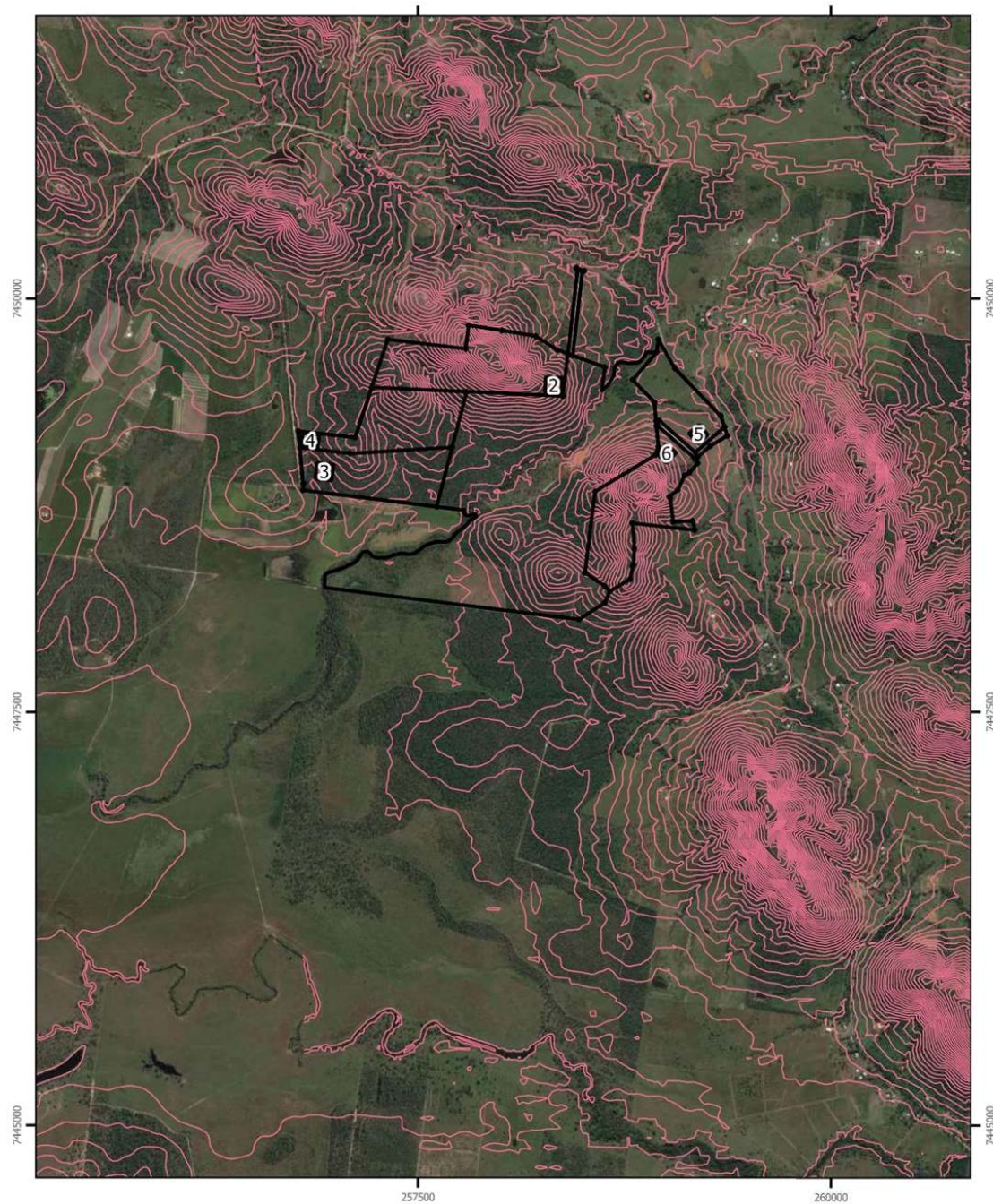


Figure 2: Topography of Subject Land and Surrounding Area

— 5M Contours
— Property Boundaries



Job number: PR4406
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Date: 13/05/2019



GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter

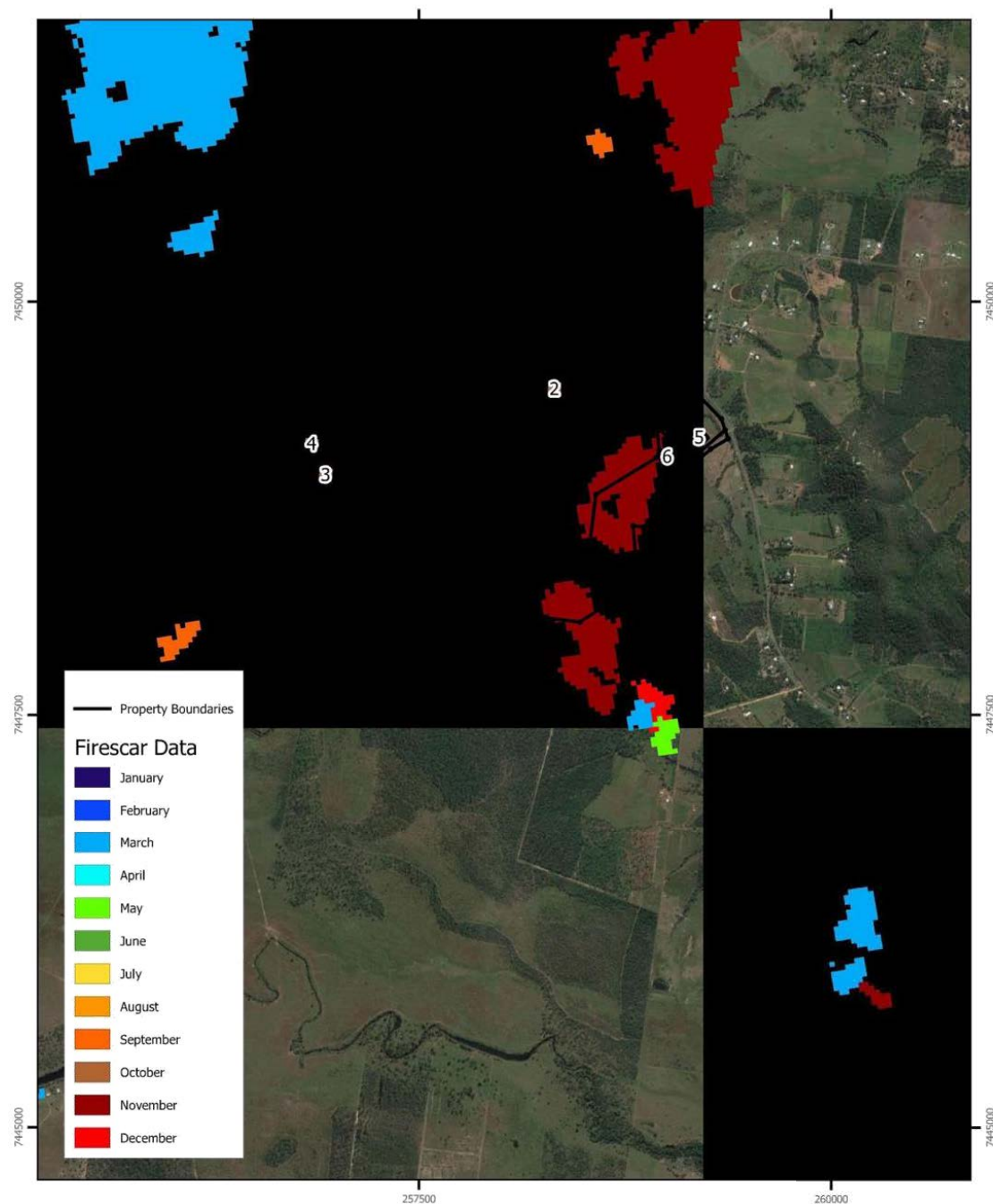


Figure 3: Firescar Data 1993



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Revision: 0
Author: PGK
Date: 13/05/2019



0 500 1000 1500 2000 m

GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter

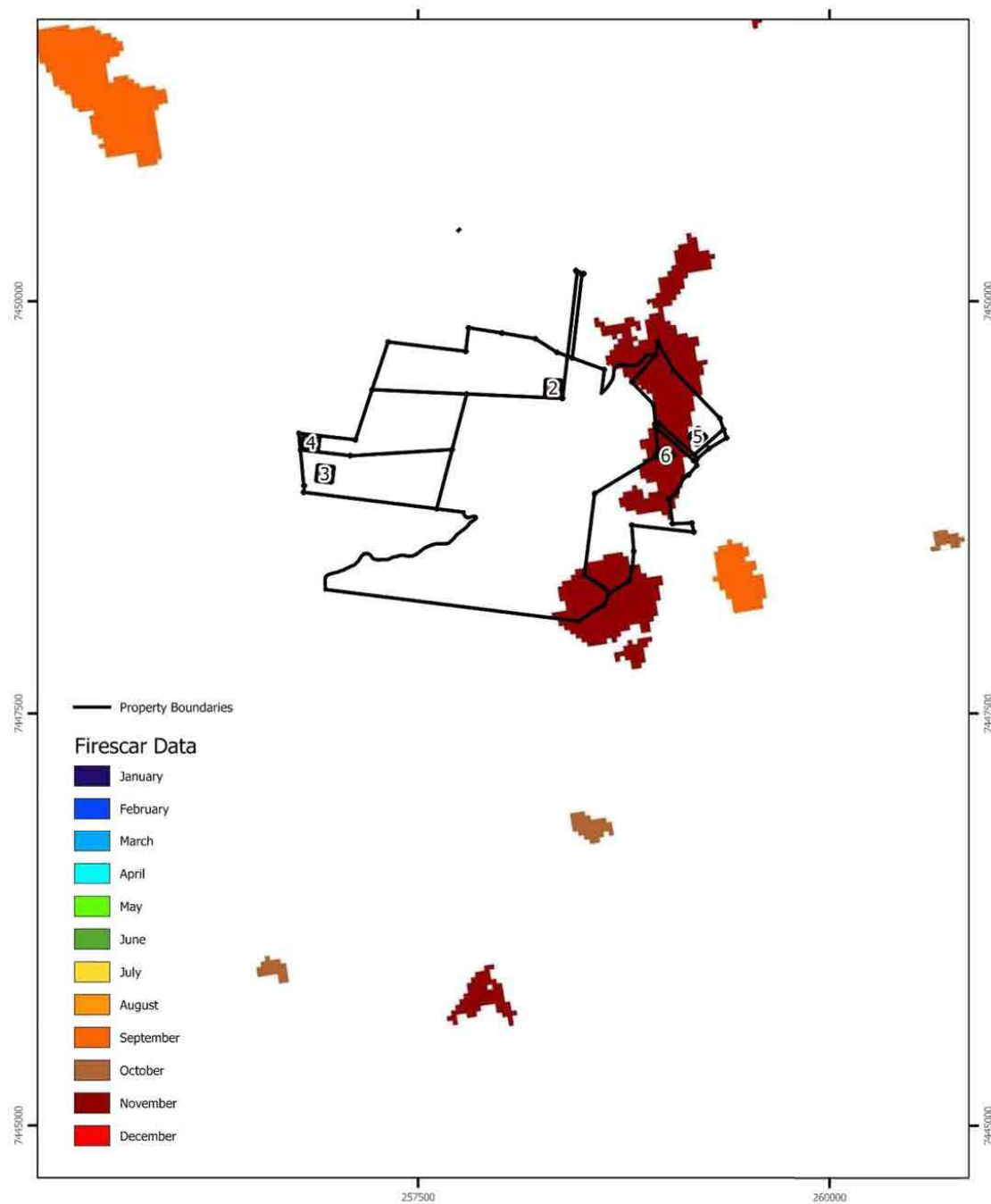


Figure 3: Firescar Data 1997



Job number: PR4406
Revision: 0
Author: PGK
Date: 13/05/2019



GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

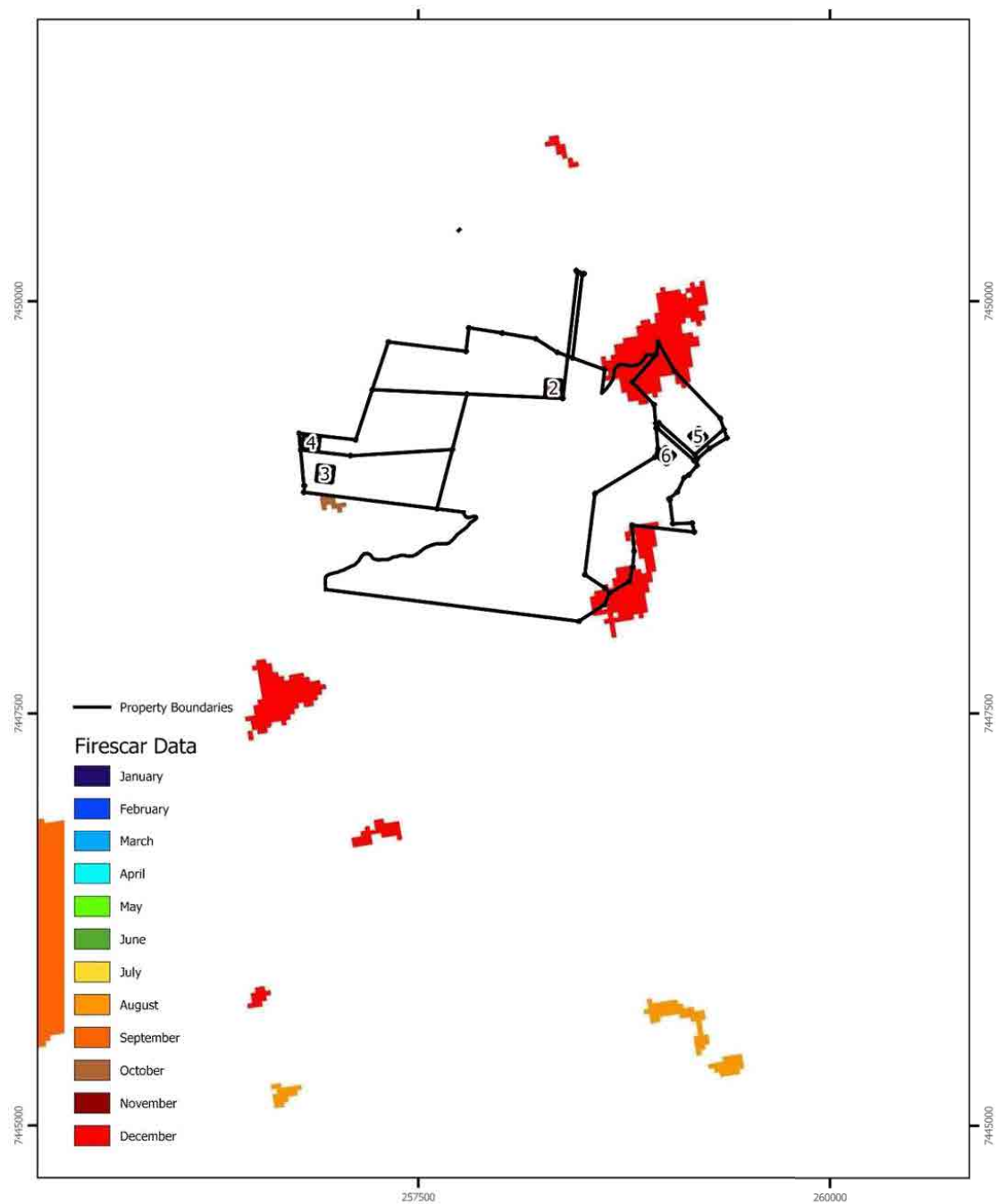


Figure 3: Firescar Data 1999



Job number: PR4406
Revision: 0
Author: PGK
Date: 13/05/2019



GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter

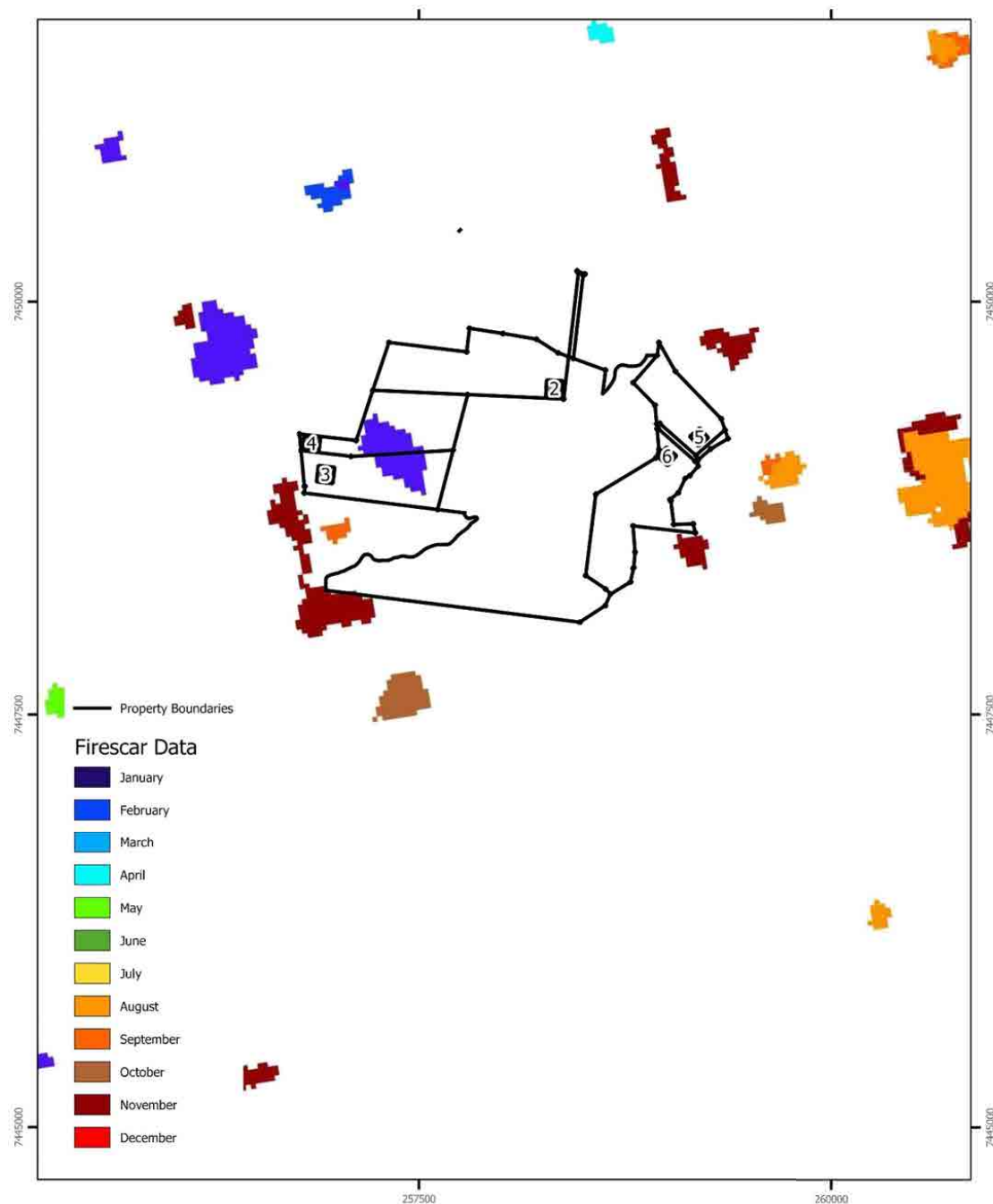


Figure 6: Firescar Data 2003



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Author: PGK
Date: 13/05/2019



GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

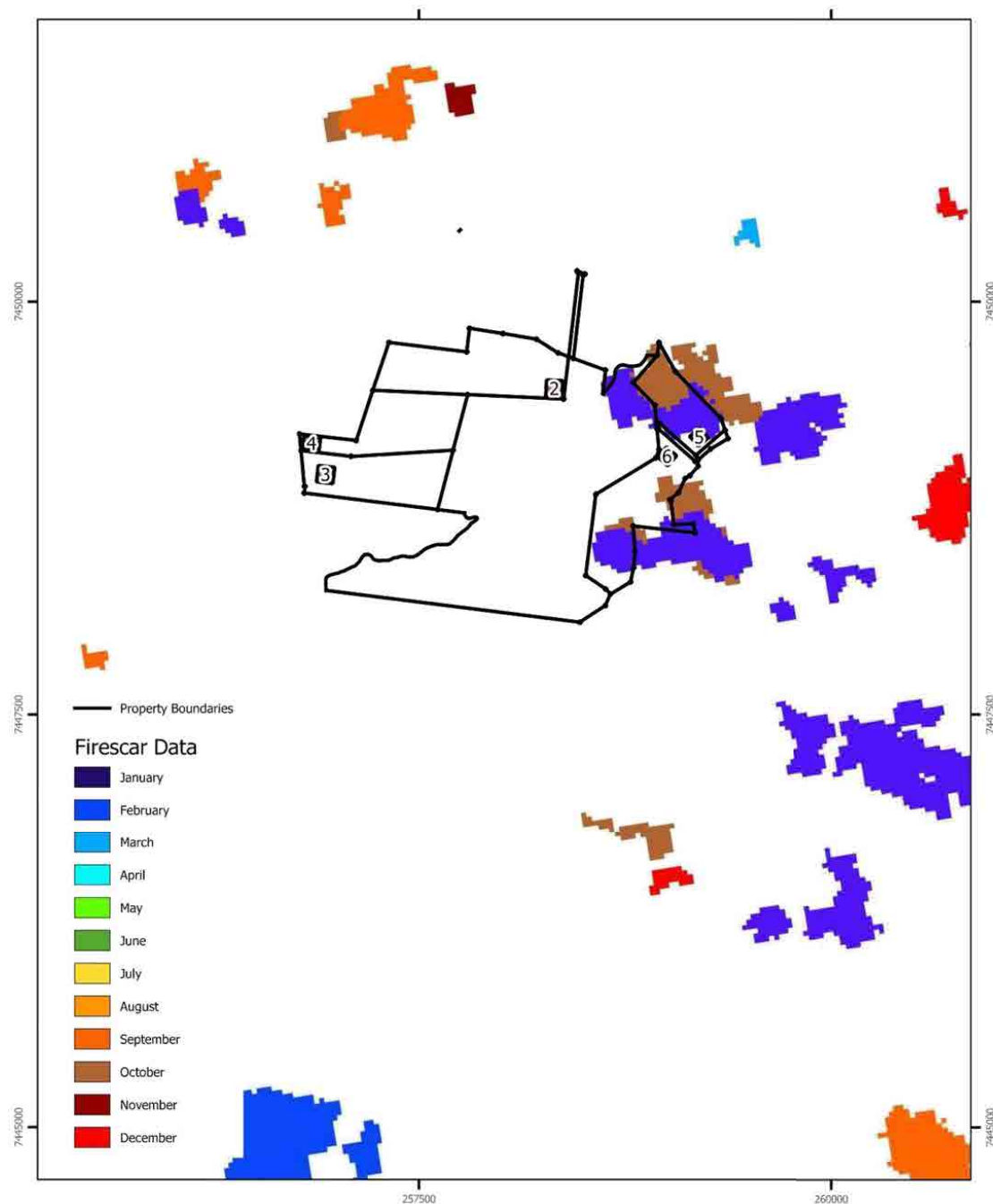


Figure 7: Firescar Data 2012



Job number: PR4406
Revision: 0
Author: PGK
Date: 13/05/2019



0 500 1000 1500 2000 m

GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
Units: Meter

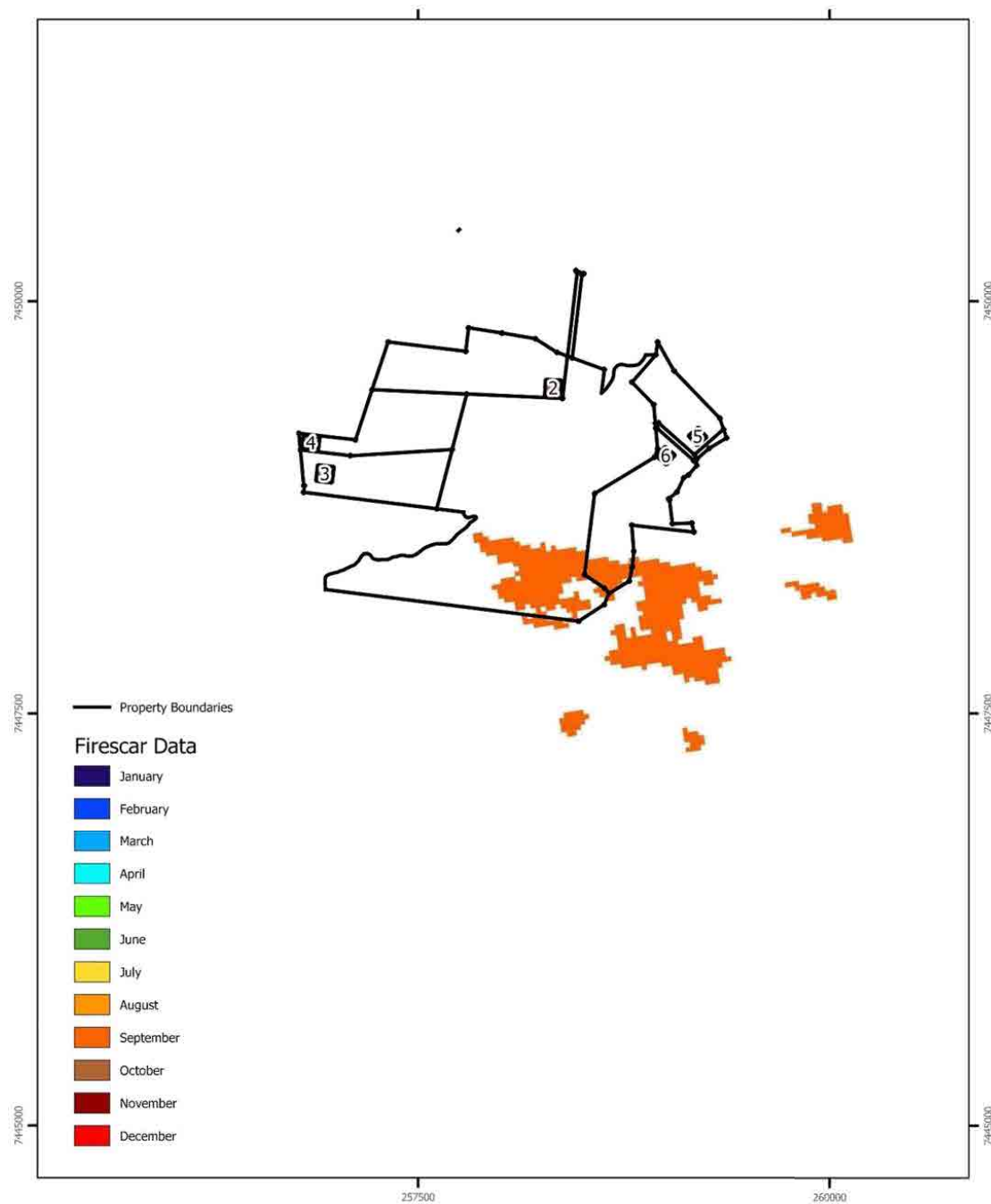


Figure 8: Firescar Data 2013



Job number: PR4406
Revision: 0
Author: PGK
Date: 13/05/2019



GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter

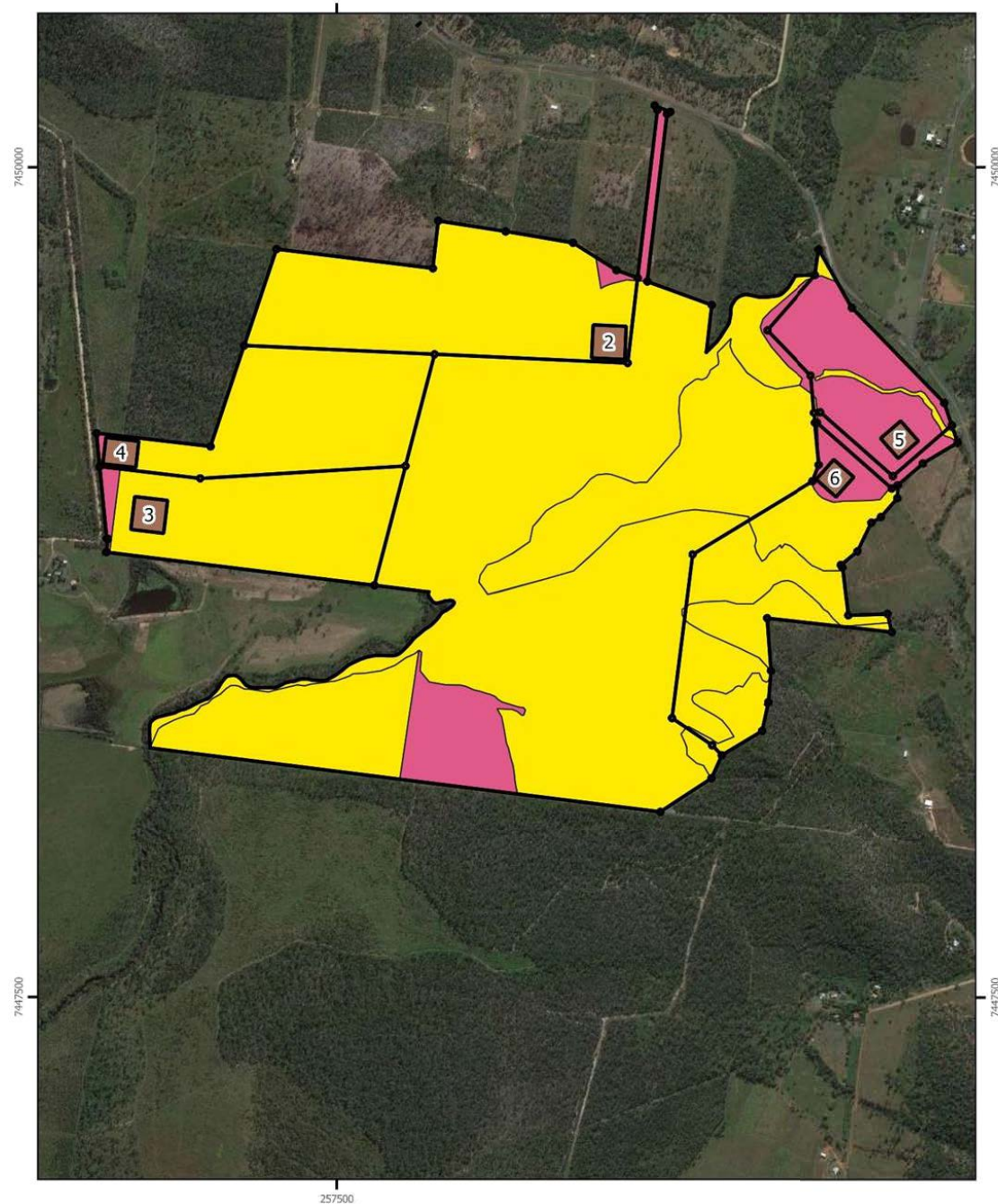


Figure 9: Vegetation Classifications as per AS 3959- 2009

- Property Boundaries
- Woodland / Open Woodland
- Tussock Grassland / Open Tussock Grassland

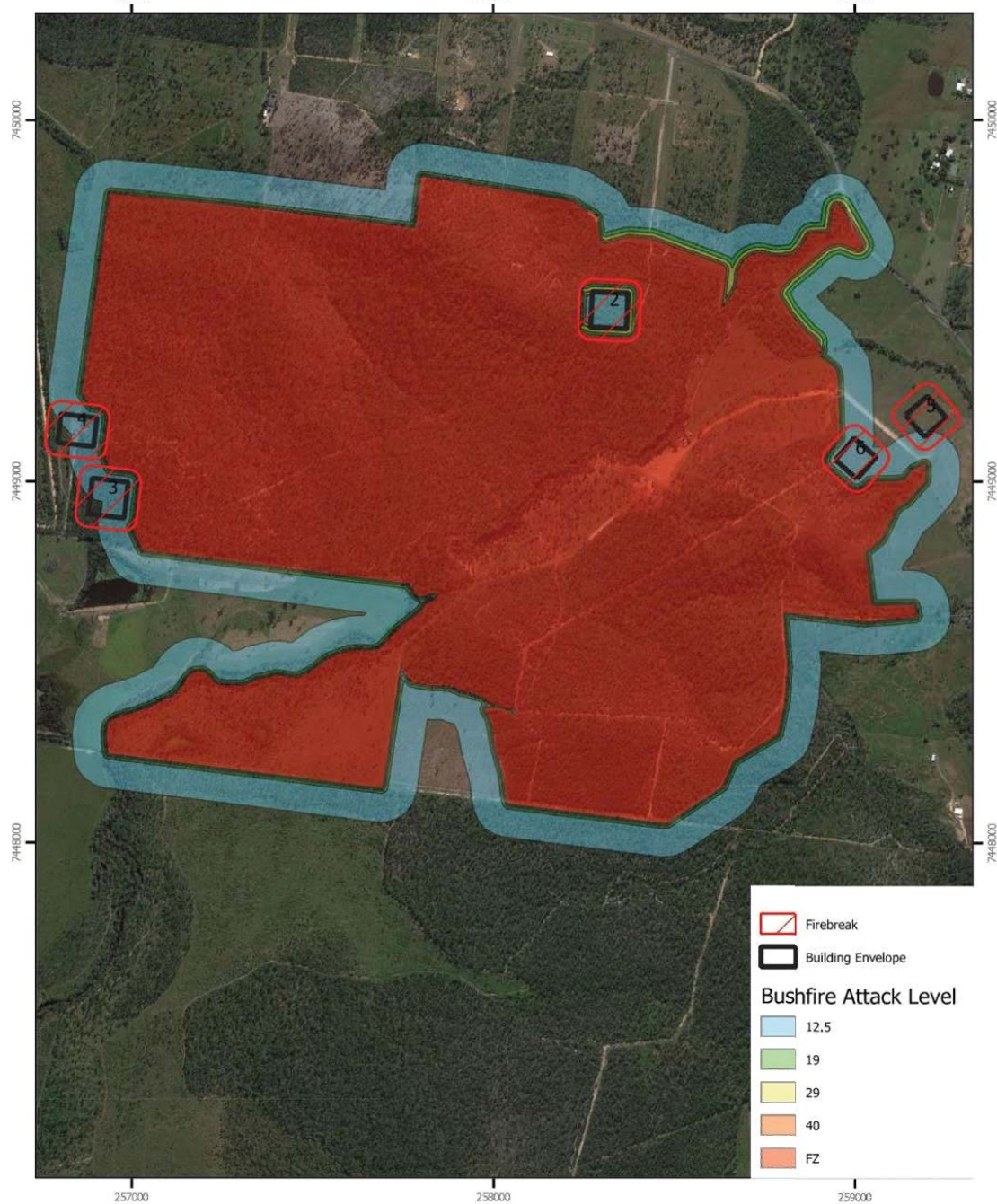


Job number: PR4406
Revision: 0
Author: PGK
Date: 13/05/2019



0 500 1000 1500 2000 m

GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter



Job number:
Revision: 0
Author: PGK
Date: 10/05/2019



0 150 300 450 600 m

GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter



Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed & Approved by
01	14/05/2019	Bushfire Hazard Assessment Report Lot 100 SP280114	Patrick Kehoe, Environmental Scientist	Heather Richards, CQ Regional Manager
02	19/7/2019	Bushfire Hazard Assessment Report Lot 100 SP280114	Colin Rainbird, Graduate Environmental Scientist Geoffrey Sinclair, Senior Botanist	Heather Richards, CQ Regional Manager

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 **ecosure**
Improving Ecosystem Resilience

LIVINGSTONE SHIRE COUNCIL
These plans are approved subject to the
conditions of approval associated with
Development Permit D-29-2019 DATED 11 October 2019

BUSHFIRE MANAGEMENT PLAN
Lots 100SP280113 and 1SP289213
Updated to address further advice dated 2 July 2019
July 2019



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1 Introduction

This Bushfire Management Plan (BMP) has been prepared as per requirements of sections SC7.2.3. and SC7.2.4 of the Livingstone Shire Council (LSC) Planning Scheme 2018 for a reconfiguration of lots 100SP280113 and 1SP289213 Bungundarra Road, Bungundarra.

The proposed lot layout of the reconfiguration is shown in Appendix 1.

This report has been updated to include issues raised in a further advice dated 2 July 2019, which is covered in section 1.4.

FURTHER ADVICE - DEVELOPMENT APPLICATION D-29-2019 FOR RECONFIGURING A LOT (TWO LOTS INTO SIX LOTS) SITUATED AT LOT 100 BUNGUNDARRA ROAD AND 535 BUNGUNDARRA ROAD, BUNGUNDARRA - YOUR REFERENCE: 6537

1.1 Background details

Attribute	Details
Local Government	Livingstone Shire Council (Livingstone Planning Scheme 2018)
Real property description	100 Bungundarra Road
Tenure	Freehold
Fire Authority	Rural Fire Service Queensland (RFSQ) Bungundarra Rural Fire Brigade
Current Land Use	Vacant
Proposed Land Use	Approved rural residential subdivision (two lots into six lots)

1.2 Checklist for gauging compliance with the Bushfire Planning Scheme Policy

Table 1: Summarised components of bushfire planning scheme policy

Assessment	Yes	No	If no, justiciaries
Macro context considered	Refer to BHA		
Site context (vegetation, aspect, slope, overall hazard, ecologically significant areas) addressed	Refer to BHA		
Mitigation measures			
Site chosen to minimise risk or keep risk within tolerable limits	Section 3		



Assessment	Yes	No	If no, justiciaries
Site chosen to minimise detrimental impact on significant environmental features	Section 1.3		
Appropriately sized setbacks/building protection zones recommended	Section 2.1		
Management requirements for setback areas specified	Section 2.1		
Landscaping limitations for setback areas specified	Section 2.1		
Minimum distance between non-habitable structures and hazardous vegetation specified.	Section 2.1		
Access requirements specified	Section 3		
Water supply and pressure requirements (including materials, fittings, etc.) specified	Section 3		
Additional building requirements specified (if any)		No	Not required, not developing in BAL FZ, 40 or 29
Community Management Scheme requirements outlined (if applicable)		No	Not a community management scheme
Fire trail requirements addressed (if applicable)		No	No fire trials proposed
Bushfire Hazard Overlay Code adequately considered and addressed	Section 3		
Pre-certification checklist prepared (for ease of use by certifiers to evaluate compliance with Bushfire Management Plan)	Section 1.2		
Limitation of Bushfire Management Plan identified	Section 2.2		
Maintenance requirements			
On-going maintenance requirements for occupants clearly specified	Section 4		

1.3 Responses to SC7.2.5 – Guidance for the preparation of a bushfire hazard assessment report and bushfire hazard management plan

Table 2: SC7.2.5 – Requirement of the bushfire management plan

Requirement	Response
State the purpose, aim and objectives of the bushfire management plan;	<p>The primary objective of this BMP is the protection of life from bushfire. As such this plan is written in a manner which should be easily understood by all stakeholders. This plan will define the level of hazard on land and identify actions and responsibilities for the management and mitigation of the hazard.</p> <p>This plan will provide mapping which will indicate development sites that would avoid or minimise bushfire hazard. Mapping will indicate areas with</p>



Requirement	Response
	enough separation between the hazard source and newly created lots to ensure that the expected radiant heat exposure is no greater than 29 kW/m ² – Bushfire Attack Level 29 (BAL 29) as per the <i>Australian Standard 3959 Construction of Buildings in Bushfire Prone Areas</i> . In areas where this is unfeasible, recommendations will be detailed as to a building protection zone (BPZ), which will take into consideration any protected matters.
Define the level of hazard on the land and identify actions and responsibilities for the management and mitigation of the hazard.	The level of hazard on the land is defined in the BHA – section 3.5. Actions and responsibilities for management and mitigation of hazard are identified in section 3 and 4.
Minimise risk to persons and property by identifying an appropriate location or options for development, taking into account the location and severity of bushfire hazard.	This is addressed in the responses to the overlay code – section 3
Ensure that the site choice accounts for environmentally significant features and areas that need to be protected.	<p>The development has ensured that the environmentally significant values have been protected by</p> <ul style="list-style-type: none"> creating a fire buffer from the vegetation, so that no regulated vegetation on the lot will be cleared. <p>A map of the retained vegetation and buffers from the Vegetation Plan is included in Appendix 2</p>
For reconfiguring a lot, address the need for perimeter roads, open space, and other such arrangements	This is addressed in the responses to the overlay code – section 3
Identify any specific requirements for the management of setback areas/building protection zones.	This is addressed in the building protection zone, outlined in section 2.1
Identify limitations on the extent to which landscaping can be undertaken within the setback areas and include guidance or requirements for species choice.	This is addressed in the building protection zone, outlined in section 2.1
Recommend the minimum distance to be maintained between non-habitable structures and the hazard source(s).	This is addressed in the building protection zone, outlined in section 2.1
Provide access of an appropriate standard,	This is addressed in the responses to the overlay code – section 3
Specify the minimum requirements for water supply and pressure, as well as materials, fittings, and construction arrangements associated with the provision of water supply.	This is addressed in the responses to the overlay code – section 3
Identify any restrictions for building elements, such as the minimum distance between gas cylinders and water tanks.	This is addressed in the responses to the overlay code – section 3



Requirement	Response
Take into account all requirements of the Bushfire Hazard Overlay Code	This is addressed in the responses to the overlay code – section 3
Include clearly articulated requirements for the on-going maintenance of the premises.	This is addressed in the responses to the overlay code – section 3
The need for a Bushfire Survival Plan to be prepared by future occupants;	Occupants to fill out Bushfire Survival Plan template provided by QFES. Link provided below; https://www.ruralfire.qld.gov.au/BushFire_Safety/Pages/create-your-bushfire-survival-plan.aspx

1.4 Details of response to information request

The following section is in response to the request made on the 2 July 2019 for further advice regarding the Bushfire Hazard Assessment and Management Plan.

Table 3: Issues raised in further advice letter dated 2 July 2019

Information request	Response/Details
Council acknowledges the Bushfire Hazard Assessment and Management Plan however, the reports do not provide a succinct recommendation and justification that all proposed building location envelopes are suitable for future development. This has not been demonstrated.	Further information regarding the individual building location envelopes is provided in the Bushfire Hazard Assessment, and section 4 of this report.
The Bushfire Hazard Assessment has not provided individual assessments for each of the proposed lots and Building Location Envelopes. Further, the hazard assessment has not assigned specific Bushfire Attack Levels (BAL) to each envelope which would normally be expected in a Bushfire Hazard Assessment. The Bushfire Management Plan has instead stated in the table on page 7, that there will be no buildings located within a bushfire attack level of 29 (buildings will have a BAL of 12.5) which has not been demonstrated how this will occur without significant clearing of vegetation.	Further details regarding each site are provided in the Bushfire Hazard Assessment, which provides details showing that no buildings will be located within a BAL 29
Further, a uniform application of thirty-five (35) metres of clearing to the building protection zone has been proposed in the Bushfire Management Plan (section 2.1). This has not been properly justified particularly for proposed Lots 2 and 6, which in another map are showing up as being in areas of 'very high potential bushfire intensity' as per Figure 1: Bushfire Hazard Mapping of Subject Land and Surrounding Area page 13 in the Bushfire Hazard Assessment.	This is addressed in the Bushfire Hazard Assessment.
The table on page 7 has also stated that there is an alternative access escape route which is already built and in use from propose Lot 2 to a gate at the back of adjacent Lot 2 on SP209812. The report has not identified if this is subject to impacts from potential bushfire events and does this need upgrading or maintenance? The safety aspect has not been justified here. Further, proposed Lot 2 does not have lawful	An alternate escape route has been identified for proposed lots 2, including lawful rights. This is addressed in PO14 in section 3



Information request	Response/Details
access rights over Lot 2 on SP209812 via a proposed access easement.	
It is also not clear if site inspections have been undertaken to inspect the vegetation, slope, elevation and bushfire risk of each Building Location Envelope.	Site inspections have been undertaken, this is addressed in the Bushfire Hazard Assessment.
3.1 Therefore, with respect given to the preamble above, Council requests that the Bushfire Hazard Assessment and Bushfire Management Plan be updated to provide additional information and succinct recommendations for each proposed Building Location Envelope.	Further details for the individual building envelopes are provided in the Bushfire Hazard Assessment, and section 4 of this report.
3.2 Please address the State interest for Safety and resilience to hazards (for Bushfire hazard) in Part E of the State Planning Policy as the application has not addressed the State Planning Policy.	<p>The State interest for safety resilience to hazards (for bushfire hazard) has been addressed by:</p> <ul style="list-style-type: none"> Ensuring the bushfire plan meets AS3959-2009 Ensuring the bushfire plan meets the Livingstone Planning Scheme 2018 Ensuring the bushfire plan meets the firebreak requirements under the <i>Vegetation Management Act 1999</i>

2 Bushfire management

2.1 Building protection zone

For this development the building protection zone is defined as:

- A total distance of 35 metres, based on a maximum canopy height of 23 metres that was recorded on the property adjacent to a building envelope, which is a sufficient distance to achieve a bushfire attack level of no greater than BAL 29.
 - With a width of ten (10) metres.
 - With a maximum tree canopy of then (10) percent.
 - Tree canopy more than 2 metres from any part of the roofline building.
- An outer zone
 - With a width of fourteen (14) metres; based on the maximum slope within the zone of 4 degrees.
 - Having a tree canopy cover less than thirty (30) percent.
- The building protection zone is only required for proposed lots where development will occur within an area defined as having BAL 29 or higher.

2.2 Bushfire Management Plan Limitations.

This BMP reduces the risk from the bushfire hazard to a tolerable level of risk, however it is not guaranteed to prevent loss of life or property.

A bushfire survival plan must be prepared by future occupants using the Queensland Fire and Emergency Service template and guidance material available at:

https://www.ruralfire.qld.gov.au/BushFire_Safety/Pages/create-your-bushfire-survival-plan.aspx




3 Assessment of proposed development against Bushfire Hazard Overlay Code

Performance Outcomes	Acceptable Outcomes	Responses
Reconfiguring a lot where located in bushfire hazard areas identified as potential impact buffer, or medium potential bushfire intensity, or very high potential bushfire intensity		
Bushfire planning		
PO11 The lot layout is designed as a consequence of, and in accordance with the recommendations of a bushfire hazard assessment and management plan.	No acceptable outcome is nominated.	The application meets PO11, in that the lot layout has been designed in accordance with this bushfire management plan.
PO12 A bushfire hazard assessment and management plan demonstrates that all future buildings are able to be separated from the bushfire hazard by a distance which is greater than the following: <ol style="list-style-type: none"> a sufficient distance to achieve a bushfire attack level no greater than 29kW/m² no less than 1.5 times the mature tree canopy height in the hazard hazardous vegetation; or for forest or woodland vegetation, a sufficient area to create a building protection zone which achieves the following: <ol style="list-style-type: none"> the inner zone and outer zone of the building protection zone have slopes under thirty – three (33) per cent; and the inner zone has the following characteristics: <ol style="list-style-type: none"> it has a minimum distance of ten (10) metres, or a distance sufficient to achieve a bushfire attack level no greater than 29kW/m²; and 	No acceptable outcome is nominated.	This application meets PO12 in that: <ul style="list-style-type: none"> There will be no buildings located with an attack level of 29 (buildings with have a BAL of 12.5) There will be no building located within 35 metres of the mature tree canopy (measured a maximum height of 23 metres) There will be a building protection zone, shown in appendix 2.2, which meets the requirements, details outline in section 2.1.



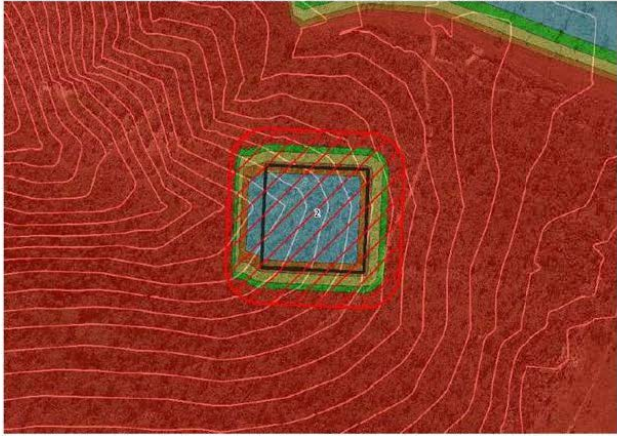
Performance Outcomes	Acceptable Outcomes	Responses
<p>A tree canopy cover in the zone is less than ten (10) per cent; and</p> <p>A tree canopy is located greater than two (2) metres from any part of the roofline</p> <p>iii the outer zone has the following characteristics:</p> <p>A it has a minimum distance of ten (10) metres plus one (1) metre for every degree of downslope vegetation; and</p> <p>A tree canopy cover in the zone is less than thirty (30) per cent</p>		
<p>PO13</p> <p>Lot design minimises the number of lots which have a direct interface with a bushfire hazard.</p>	<p>AO13.1</p> <p>No more than twenty (20) per cent of the total number of lots in the development interface directly with the fire hazard.</p>	<p>This development meets PO13 in that the lot design:</p> <ul style="list-style-type: none"> Has minimised direct interface with the bushfire hazard by, where possible, not placing lots directly within the fire hazard, and retaining a bushfire protection zone around all lots.
<p>PO14</p> <p>The reconfiguring design ensures that the road network, future driveways and access routes:</p> <ol style="list-style-type: none"> avoid potential for entrapment during a bushfire; provide safe and efficient movement of residents, workers and visitors out of the subdivision and away from an approaching bushfire; provides alternative access and egress considering the most likely bushfire scenarios; ensures that the location, siting, and design of development and associated driveways and access routes enables safe and efficient access for emergency services vehicles during and after a bushfire. 	<p>AO14.1</p> <p>Where creating lots having an area less than two (2) hectares:</p> <ol style="list-style-type: none"> all lots are separated from hazardous vegetation by a constructed all-weather, public road; the road layout provides for at least one alternative access route connecting all lots in the development to a public road that meets the requirements in Table 8.2.4.4.2 and which is connects to a collector road; and cul-de-sacs are avoided except where: <ul style="list-style-type: none"> (i) a perimeter road with a cleared width of twenty (20) metres separates the lots at the head of the cul-de-sac from hazardous vegetation; and (ii) the cul-de-sac is no longer than seventy (70) metres from the intersection with another road to the furthest future building. 	<p>This development meets PO14 in that:</p> <p>For lots 3, 4, 5 and 6</p> <ul style="list-style-type: none"> There are no entrapment issues as the BEs are located adjacent to open cleared paddocks that have minimal fire risk, and adequate escape routes are available <p>For lot 2</p> <ul style="list-style-type: none"> The main access to the BE is located less than 200 m (approximately 160 m) from open cleared paddocks that have minimal fire risk. There is an alternative access escape route (already built and in use) from lot 2 through proposed lot 1 and lot 3. This escape route will be certified by a note on title for proposed lots 1 and 3.



Performance Outcomes	Acceptable Outcomes	Responses
	<p>AO14.2 Where creating lots having an area greater than two (2) hectares: (a) all lots have a driveway or private road access which connects directly to a constructed all weather public road; (b) dead-end roads are a maximum length of 200 metres and an alternative emergency evacuation route is provided away from the most likely source of bushfire risk.</p> <p>AO14.3 For all lots, private roads and access driveways comply with the requirements specified in Table 8.2.4.4.2.</p> <p>AO14.4 Where the lots: (a) are required to be supplied with reticulated municipal water supply, private roads and access driveways have a maximum length of seventy (70) metres from an all-weather public road designed with culverts and bridges constructed with a minimum load bearing of fifteen (15) tonnes; or (b) are not required to be supplied with reticulated municipal water supply, private roads and access driveways have a maximum length of 200 metres from an all-weather public road designed with culverts and bridges constructed with a minimum load bearing of eight (8) tonnes.</p>	<p>Map of alternate escape route – red dashed line</p> 
Water for firefighting purposes		
<p>PO15 Development involving new premises provides adequate infrastructure to support firefighting.</p>	<p>AO15.1 Where the development is connected to a reticulated water supply, lots are provided with water supply and pressure in accordance with Australian Standard AS2419 Fire Hydrant Installations.</p>	<p>Where property is not connected to reticulated water supply, development involving new premises will provide adequate infrastructure to support firefighting. Including all conditions specified in section 4.</p>

4 Building Location Envelopes

4.1 Building Location Envelope 2

Recommendations	<p>Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 16-24 m downslope, and 9-13 m upslope is recommended by AS3959-2009.</p> <p>The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to allow for a bushfire attack level of 12.5 at the site. Clearing will be required to achieve this distance between the building area and vegetation.</p>
Site Map	

4.2 Building Location Envelope 3

Recommendations	<p>Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 9-13 m is recommended by AS3959-2009.</p> <p>The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to for a bushfire attack level of 12.5 at the site. Clearing will be required to achieve this distance between the building area and vegetation.</p>
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Site Map



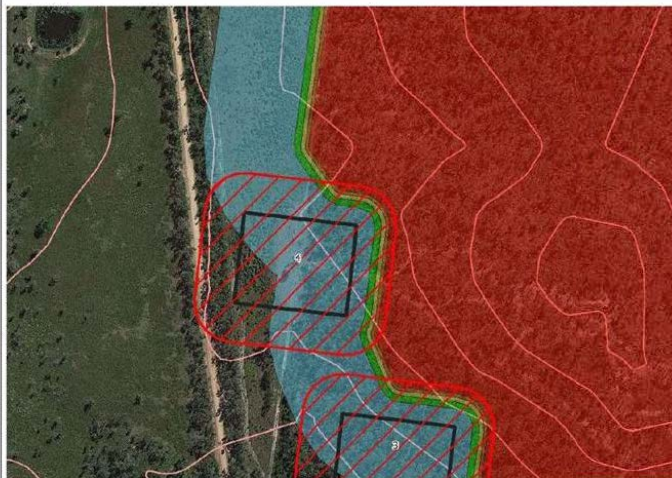
4.3 Building Location Envelope 4

Recommendations


Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 9-13 m is recommended by AS3959-2009.

The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to allow for a bushfire attack level of 12.5 at the site. Clearing will be required to achieve this distance between the building area and vegetation.

Site Map



4.4 Building Location Envelope 5

Recommendations	The building location envelope is in a grassland area, and the distance from the building envelope to any woodland vegetation is already enough for the site BAL to be determined as 12.5 without additional clearing.
Site Map	

4.5 Building Location Envelope 6

Recommendations	<p>Given the site characteristics, to achieve a bushfire attack level of no greater than 29 kW/m² (in compliance with Livingstone Planning Scheme 2018, section 8.2.4, PO12), a distance between the site and the vegetation of 9-13 m is recommended by AS3959-2009.</p> <p>The Livingstone Planning Scheme 2018 further requires a distance of no less than the mature tree canopy height (23 m) times 1.5 between the site and vegetation. This 35-meter distance is enough to for a bushfire attack level of 12.5 at the site.</p> <p>No or minimal clearing will be required as there is already a significant buffer to any woodland vegetation.</p>
-----------------	---

Site Map



5 Conditions to meet bushfire requirements within the Livingstone Shire Planning Scheme

1. Public roads are constructed to the minimum standards:
 - a. Two-wheel drive, all weather roads, accommodating two-way traffic;
 - b. Perimeter roads are connected to internal road networks at regular intervals;
 - c. A minimum formed width of 7.5 metres;
 - d. A minimum six (6) metres clear of standing flammable vegetation (excluding street trees);
 - e. A minimum cleared height of 4.8 metres;
 - f. Curves have a minimum inner radius of six (6) metres and they are not excessive in number to allow for rapid access and egress
 - g. The minimum distance between inner and outer curves is six (6) metres;
 - h. Maximum grades for sealed roads do not exceed twenty-five (25) per cent and an average grade of not more than eighteen (18) per cent, or other gradient specified by road design standards, whichever is the greater;
 - i. Capacity to carry a fully loaded firefighting vehicle (approximately fifteen (15) tonnes for areas with municipal reticulated water supply, or eight (8) tonnes in other areas), with load limits clearly marked on any bridges.
2. Private roads and fire trails are constructed to the following minimum standards:
 - a. A width of four (4) metres including any gates;
 - b. A minimum six (6) metres clear of standing flammable vegetation;
 - c. A minimum cleared height of 4.8 metres
 - d. Where less than six (6) metres formed width and greater than 200 metres in length, passing bays twenty (20) metres long by three (3) metres wide, or turning facilities every 200 metres;
 - e. Adequate drainage and erosion control devices;
 - f. A gradient no greater than 12.5 per cent and a cross fall of no greater than eighteen (18) per cent;
 - g. Access at each end of the private road or the fire trail from a public road;
 - h. Access point signed, and direction of travel identified;
 - i. Suitable arrangements in place to ensure maintenance in perpetuity;
 - j. For private roads, capacity to carry a fully loaded firefighting vehicles (approximately fifteen (15) tonnes for areas with municipal reticulated water



supply, or eight (8) tonnes in other areas), with load limits clearly marked on any bridges.

3. Landholders must maintain building protection zones as an effective firebreak, keeping areas free from vegetation that may serve as a fuel hazard.
4. An emergency alternative access for proposed Lot 2 needs to be noted on title passing through proposed lots 1 and 4.
5. Landholders must create a survival plan using the template provided by QFES at: https://www.ruralfire.qld.gov.au/BushFire_Safety/Pages/create-your-bushfire-survival-plan.aspx
6. Development involving existing or new buildings having a gross floor area greater than fifty (50) square metres must be located within ten (10) metres of a water tank, which:
 - a. Is constructed with fire-proof material or is located underground with above-ground access points;
 - b. Has a minimum capacity of 25,000 litres
 - c. Is located more than nine (9) metres from any potential fire hazards (such as venting gas bottles and combustible structures)
 - d. Is located within six (6) metres of a hardstand area allowing access for a heavy rigid appliance
 - e. Is fitted with fire brigade tank fittings consisting of:
 - i. For above ground tanks, a fifty (50) millimetre ball valve and male camlock coupling and metal pipe fittings; or
 - ii. For underground tanks, an access hole having a minimum diameter of 200 millimetres to allow access for suction lines; and
 - iii. Is identified by directional signage clearly provided at the street access point.

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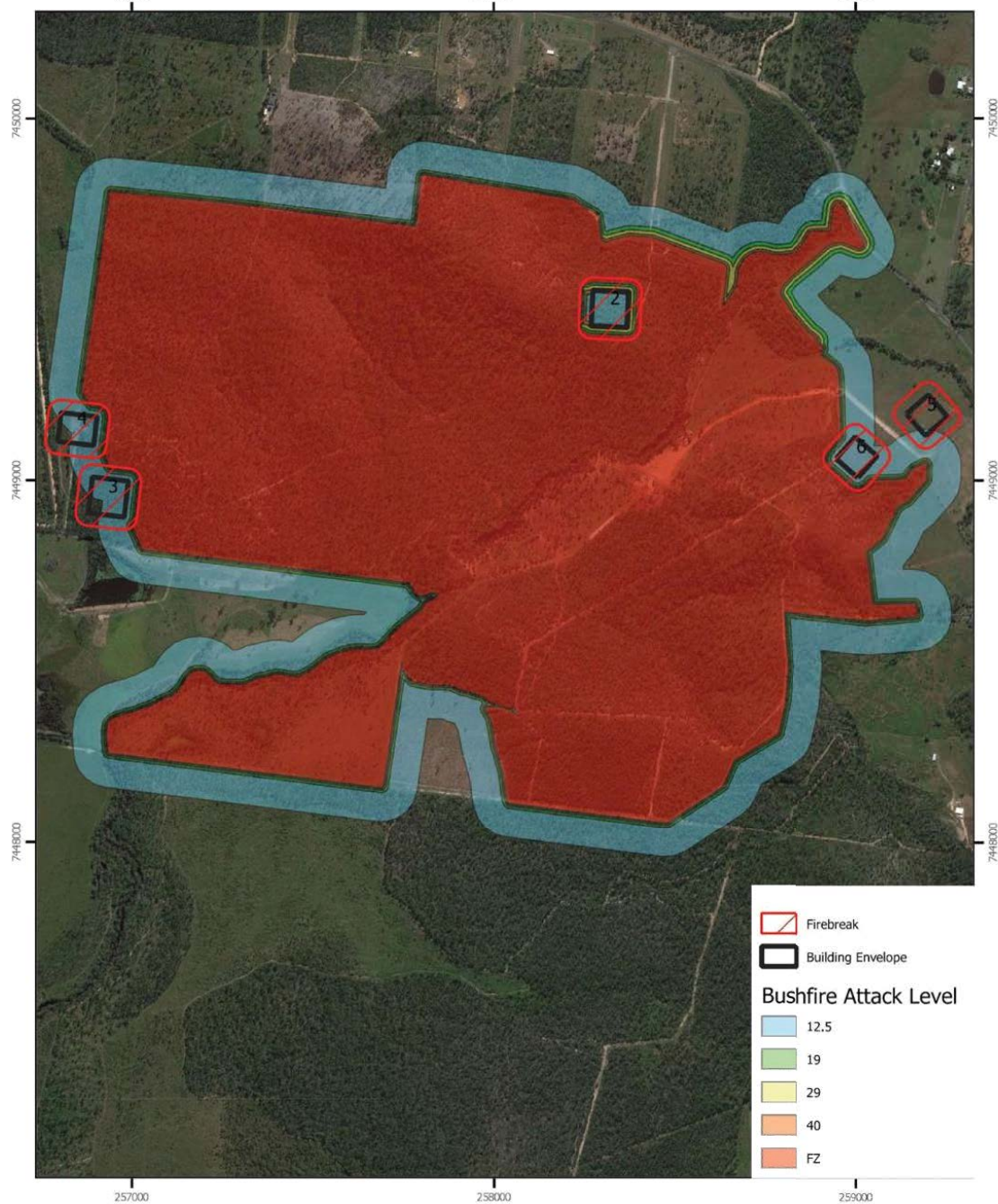


Appendix 1 Plan layout





Appendix 2 BAL Mapping



PR4406 Figure 10: BAL Map

*BAL Calculated to firebreak buffer



Job number:
Revision: 0
Author: PGK
Date: 10/05/2019



0 150 300 450 600 m

GDA 1994 MGA Zone 56
Projection: Traverse Mercator
Datum: GDA 1994
Units: Meter



Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed & Approved by
00	13/05/2019	Bushfire Management Plan Lot 100 Bungundarra Road	Patrick Kehoe, Environmental Scientist	Heather Richards, CQ Regional Manager
01	19/7/2019	Bushfire Management Plan Lot 100 Bungundarra Road	Colin Rainbird, Graduate Environmental Scientist; Geoffrey Sinclair, Senior Botanist	Heather Richards, CQ Regional Manager

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Slope Stability Assessment Report

DATE: 29th of June, 2017

YOUR REF: N/A
OUR PROJECT JOB NUMBER: GEO154779-B

For
CQ Commercial
PO Box 1501
Yeppoon Qld 4703

SITE ADDRESS - Proposed Lot 2 from Existing Lot 100 on SP280815 Bungundarra Road,
Bungundarra

LIVINGSTONE SHIRE COUNCIL
These plans are approved subject to the
conditions of approval associated with
Development Permit D-29-2019 DATED 11 October 2019



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1.0 INTRODUCTION

This report represents the results of a geotechnical walk over assessment of stability investigation carried out by STA Consulting Engineers on the 14th of June, 2017 at Proposed Lot 2 from Existing Lot 100 on SP280815 Bungundarra Road, Bungundarra.

2.0 SCOPE AND METHOD OF INVESTIGATIONS

The aim of this report was to assess the potential risk of slope instability or Landslide risk for the proposed residential development in it's existing and post developed state.

The methodology adopted by STA Consulting Engineers in order to determine the Landslide risk for this site was obtained incorporating the following criteria :-

- Guidelines developed by the Australian Geomechanics Society (AGS), Landslide Risk Management, Volume 42 No. 1, March 2007.
- Landslide Frequency Assessment in accordance with the report "A Method of Zoning Landslide Hazards", prepared by MacGregor and Taylor 2001.
- A review of existing Hazard mapping (where available), aerial photographs and various published information to assist in identifying past activity.
- A Field investigation in order to determine subsurface conditions.
- A walkover survey to record surface indicators of slope instability and to assess the ground slope/s and general site conditions.

2.1 Qualifications of Responsible Firm

This report is prepared by a Registered Professional Engineer of Queensland (RPEQ) specialising in geotechnical engineering.

3.0 PROPOSED DEVELOPMENT

It is understood the proposed development at Proposed Lot 2 from Existing Lot 100 on SP280815 Bungundarra Road, Bungundarra is to consist of a residential type construction to be positioned within the nominated building envelope. No further details had been provided at the time of writing this report.

4.0 GEOTECHNICAL SITE INVESTIGATION

4.1 Site Description

At the time of the investigation the block was vacant. The vegetation on and surrounding the building envelope consisted of grass, scrub and trees, the tested area had a moderate to steep slope and the drainage was moderate.

4.2 Fieldwork & Laboratory Testing

Three bore holes were undertaken across the site using a power auger drill rig mounted at the rear of a four wheel drive ute to a maximum depth of 1000 mm. Dynamic Cone Penetrometer (D.C.P) tests and Pocket Penetrometer (P.P) tests were not undertaken at the time of the site investigation due to the high gravel content throughout the soil strata. The bore holes were drilled using solid flight augers fitted with a steel 'V' shaped bit or tungsten carbide bit.

An authorised representative from STA Consulting Engineers set out the bore holes locations from existing site features, directed sampling and logged bore hole profiles. Engineering logs of the bore holes are presented in Appendix A, together with Explanation Sheets defining the terms and symbols used in the preparation of the logs.

Representative samples of residual soil was collected for the purpose of Laboratory testing. These tests include the following :-

- Moisture Contents
- Liquid Limit (LL)
- Linear Shrinkage (LS)
- Shrink /Swell (Iss)

Results of the Laboratory tests are indicated under Appendix A - Soil Profile and Laboratory Results.

4.3 Subsurface Conditions

Reference to the Department of Natural Resources and Mines 1 : 100,000 Series indicates that the site is predominately underlain by the Wandilla Formation of the Late Devonian - Carboniferous period comprising of mudstone, lithic sandstone (locally containing silicified oolites), siltstone, jasper, chert, slate; local schist.

The natural ground conditions observed across the intended development area remained fairly consistent at the time of the site investigation. The sequence encountered by the bore holes typically included a dry and dense gravelly silt overlying a moderately strong weathered rock.

The following table is a summary of the subsurface profiles observed :-

Bore Hole Summary

Bore Hole #	Location (Approximate)	Silty Gravel (Topsoil)	Residual Clay (m)	Weathered Rock	Termination Depth (m)
BH # 1	As indicated on site sketch	0.0 - 1.0	-	1.0 - 1.1 m	1.1 m Refusal
BH # 2	As indicated on site sketch	0.0 - 1.0	-	1.0 - 1.1 m	1.1 m Refusal
BH # 3	As indicated on site sketch	0.0 - 1.0	-	1.0 - 1.1 m	1.1 m Refusal

Where the drill rig was unable to penetrate the rock (refusal), it is anticipated that the bearing capacity of the rock is in excess of 400 kPa.

4.4 Groundwater

Groundwater was not identified at the time of the subsurface investigation. However seepage is likely at the soil/ rock interface during and after prolonged periods of rain.

4.5 Site Classification

After assessing the laboratory test results, on site conditions and surrounding conditions in accordance with AS 2870. This site has been classified: **Class "P"**.

This site has been classified as a **Class P** due to the following :-

- The disturbed ground caused by the removal of trees and vegetation from within the proposed building footprint and the potential influence on the proposed foundation performance.

This report has been classified as a Class "P" due to that described , however the site characteristics are similar to that of a **Class S**.

5.0 SLOPE STABILITY ASSESSMENT

5.1 Stability Walkover & Desk Top Assessment Findings

As requested a visual walk over inspection for assessment of stability was undertaken at Proposed Lot 2 from Existing Lot 100 on SP280815 Bungundarra Road, Bungundarra .

The site under review was identified as being a rural property 25.1 hectares on overall area. The block is regionally located approximately 14 kilometres West of the coast and approximately 15 kilometres North West of the Yeppoon township. The area assessed, forming the basis of this report is one of five proposed allotments to be subdivided from a much larger land holding, with the balance to the South, South East of the site. A designated building envelope has been nominated for the site, this building envelope encompasses an area of approximately 10 000 square metres or 100 m x 100 m.

Access to the nominated building envelope is via an easement track/ road, entering the site from the North East.

The topography of the general area consist of low to moderate rounded hills and ridge lines falling to intervening alluvial flats.

Note, Due to the overall size of the property, it must be said that the focus of this report is restricted to the proposed access road, intended building envelope and direct surrounds only. Conditions may vary to that described on other areas of the property and would be subject to a separate investigation where and development works are intended.

At the time of the site assessment, the following observations were made :-

- Topographically the nominated building envelope is position at the crest of a prominent hill forming a majority of the site.
- The land shape is largely planar/ convex grading to concave around natural drainage lines traversing off the hillside.
- The natural slope across the intended development area is considered gentle to moderate up to approximately 10 to 12 degrees becoming steep with falls up to 25 degrees observed on the flanks of the hillside below the building envelope area.
- Access to the building envelope area is via a track fairly recently cut into the site. The access road crosses two main seasonal gully/ creek lines at the end of the easement driveway to the very North Eastern corner of the block. At the time of the inspection large steel pipes approximately 1.0 metre in diameter had been installed in the base of the creek enabling flows to be maintained during periods of rain. These pipes have been backfilled, forming a sub grade over the pipes. Cuts up to 1.0 metre have been undertaken in order to achieve an acceptable grade for the access road exiting the creek. It was however noted, that the creek/ gully lines themselves are quite heavily choked with vegetation and timber debris, both natural and man made due to clearing of the access track.
- No ground water or surface water seepage was observed during the site inspection, nor were was any vegetation such as reeds/ sedge grasses typically associated with wet areas identified.

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5.1 Stability Walkover & Desk Top Assessment Findings Cont.

- Vegetation on and surrounding the site consists of grasses, scrub and mature trees. Whilst a number of trees were observed with Basel curvature or misshapen tree trunks, they do not appear to be of any particular pattern or consistently orientated, therefore are not considered indicative of significant soil movements, rather minor creep within the overlying soils.
- No Tension cracks were observed on or across the slope.
- Hummocky or bulging soils were not identified on or at the base of the slope.
- The site is outside that of a serviced area, therefore on site effluent treatment and disposal will be required.
- Potable water supply to be via rain water harvested and stored on site. The site is not connected to the mains water supply.
- STA Consulting Engineers is not aware of any slope stability hazard map for this local area, therefore we have been unable to compare our interpretation of our findings with that of others.

5.2 Hazard Identification

A Hazard is defined as a condition with the potential for causing an undesirable consequence (the landslide).

The hazard assessment given in this report is consistent with the procedures outlined in the report, "A Method of Zoning Landslide Hazards" by MacGregor and Taylor, 2001. The following major site features have been considered in determining a likelihood estimate or Frequency Analysis in turn, the potential Hazard of the site in order of undertaking the final risk assessment for the proposed building zone and immediate surrounds :

- The Natural Slope Angle
- Local Area Geology
- Concentration of Surface Water
- Evidence of Past Forms of Instability
- The Natural Slope Shape/ Formation
- Material Strength
- Evidence of Groundwater

From the results of studies undertaken by SMEC in similar terrain a correlation between relative frequency and potential Hazard Rating has been determined as presented in the following table :-

RELATIVE FREQUENCY	HAZARD RATING	DESCRIPTION
> 6.0	VH (Very High Hazard)	The event is expected to occur.
2.0 - 6.0	H (High Hazard)	The event will probably occur under adverse conditions.
0.6 - 2.0	M (Moderate Hazard)	The event could occur under adverse conditions.
0.2 - 0.6	L (Low Hazard)	The event might occur under very adverse conditions.
< 0.2	VL (Very Low Hazard)	The event is conceivable but only under exceptional circumstances.

We have completed a Landslide Frequency Analysis and as an opinion, the hazard of such is provisionally considered as being " **Low** ".

5.3 Risk Assessment

Reviewing the intended development for this site , the elements considered within the risk assessment are as follows :

- The intended/ proposed buildings and associated out buildings.
- Persons or Occupants on site.

Taking into consideration the potential landslide hazard for the property incorporating the Guidelines developed by the Australian Geomechanics Society (AGS), Landslide Risk Management, Volume 42 No. 1, March 2007 and the potential impacts to persons and or property within or directly adjoining the boundaries of the area assessed, based on our findings the final risk level determined for this site is considered "LOW" .

The residual risk level given is conditional on the risk mitigation measures outlined within this report being fully implemented and maintained for the expected life of the structure.

The potential implications for the associated risk level are outlined within the table below :-

Risk Level	Implications
VH (Very High Risk)	Extensive investigation, planning and implementation of treatment options essential to reduce risk to acceptable levels.
H (High Risk)	Detailed investigation, planning and implementation of treatment options essential to reduce risk to acceptable levels.
M (Moderate Risk)	May be acceptable provided treatment plan is implemented to maintain or reduce risk levels.
L (Low Risk)	Can be accepted. Treatment to maintain or reduce risk levels should be defined.
VL (Very Low Risk)	Accepted. Managed by routine procedures.

Table 2. Implications of Risk Level Classification Australian Geomechanics Society (AGS 2007).

6.0 RECOMMENDATIONS & RISK MITIGATION MEASURES

The area of the proposed structure has been defined as a Low Risk providing the following recommendations are implemented, managed and maintained for the expected life of the structure :-

6.1 House Design

As indicated by the client, the proposed development is to consist of a residential type construction to be positioned within the nominated building envelope. No further details had been provided at the time of writing this report.

- STA Consulting Engineers are satisfied that each of the individual allotments and nominated building envelopes proposed are considered suitable for a typical form of residential type construction as prescribed within AS2870-2011 "Residential Slabs and Footings". Construction types outside of this standard would require a site specific review.

6.2 Earthworks

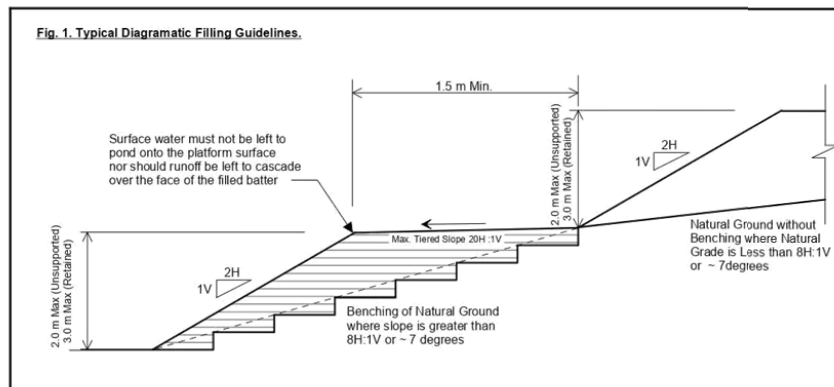
- Retain the existing natural contours wherever possible.
- All earthworks to be carried out in accordance with the requirements of Australian Standard AS 3798 - 2007 Guidelines on Earthworks for Commercial and Residential Developments.

Cuts Minimise depth.

- Support cut batters with engineered retaining walls or profile to an appropriate slope. For this site, exposed cut batters are to be profiled no greater than the following :-
- Silts/ Sands - 2H : 1V (or ~ 26 degrees)
- Low Strength Rock - 1V : 1H (or ~ 45 Degrees).
- Drainage measures MUST be installed immediately up slope and behind all cut batters to capture both surface and subsurface water movements and divert waters to a suitable, controlled outflow below and clear of the building envelope. All drains must be maintained for the life of the structure.

Fills Minimise height.

- Support all Filled batters equal to or greater than 2.0 metres with engineered retaining walls.
- Unsupported fill batters less than 2.0 metres in depth are to be profiled no greater than 2H : 1V (or ~ 26 degrees).
- Strip vegetation and topsoil key/ bench the natural slope prior to filling.
- Use clean fill materials and compact to engineering standards. Fill should be placed in maximum 200 mm deep layers and be compacted to a minimum of 98 % Standard Maximum Dry Density for cohesive (clay) material or 70 - 90 % Relative Density for non cohesive (sand) materials.
- The finished platform must not slope towards the filled embankment which will allow water to flow/ cascade over the exposed face. Ponding water on the platform must also be avoided.



6.3 Foundations

- Found footings to the natural weathered rock profile. Final design parameters to be determined by the designing engineer.
- On site foundation inspections including footing, slab & retaining walls must be undertaken by a suitably qualified and experienced Geotechnical Engineer.

6.4 Access Road

- Earthworks for the access road are to undertaken in accordance with the requirements set out within section 6.2 of this report.
- Where cut or filled, the finished road surface must not slope towards the filled/ lower embankment which will allow water to flow/ cascade over the exposed face. It is recommended that the road surface fall into the toe of the cut where a spoon drain is to be installed to collect and divert water to a suitable controlled outflow.
- The exposed soil face surrounding the existing pipe culvert crossing the seasonal creek lines entering the site must be suitable protected from scour and erosion. This can be done via a number of methods including but not limited too stone pitching, concreting, gabion rock cages etc..

6.5 Drainage

The control of surface and subsurface water is critical to the overall performance of this site. All surface and subsurface water must be captured and directed off site via a suitable outflow. Water MUST not be left to pond on site, nor is water to be left to cascade over any cut or fill batter. Some basic guidelines include but are not limited :-

Surface

- Provide drains at the top of all cut and fill slopes, including those retained.
- Discharge under controlled conditions below and clear of the building footprint.
- Provide and maintain general falls within drains to prevent blockage by siltation.
- Line spoon drains to minimise the infiltration of surface water and make drains flexible where possible.

Subsurface

- Provide filters around all subsurface drainage.
- Provide appropriate drainage behind ALL retaining structures.
- Use flexible pipelines with access for long-term maintenance.
- Prevent the inflow of surface water.

Waste Water & Storage Tanks

- The site is located outside of a serviced area, therefore on site effluent treatment and disposal for waste water will be required. From a stability perspective only, absorption trenches would be considered acceptable providing they are located well clear of the proposed building footprint. The preferred method of disposal is via surface irrigation or shallow sub surface drip irrigation. Any intended disposal area is to be located a min of 6 metres from the toe of any filled batter and kept clear of any seepage zones. Final design will need to be determined by a suitably qualified site and soil evaluator taking the above into consideration. STA Consulting has not been supplied with a disposal design to review or make reference to.
- Storage tanks should be watertight and adequately founded. Overflows are to be piped to a suitable outflow. Do not allow to simply dump onto ground surface at base of storage tanks. Overflow to be fanned onto the slope not concentrated to a single outflow.

6.6 Erosion Control & Landscape

- Control erosion as this may lead to instability.
- Re-vegetate exposed areas including unsupported cut and fill batters with shrubs, grasses and ground covers preferably with plants indigenous to the local area.

7.0 CONCLUSION

In conclusion, it is our considered opinion, from a geotechnical viewpoint that the nominated building envelope is suitable for a typical form of residential construction.

This recommendation is subject to the implementation of the measures specified within this report. On site foundation inspections including footing, slab & retaining walls must be undertaken by a suitably qualified and experienced Geotechnical Engineer.

Thank you for entrusting us with this work, if we can be of any further assistance in this matter, please let us know.

For and on behalf of
STA Consulting Group Pty Ltd



Justin J Williamson
A.D., Civil Eng. Cert. Mining Eng



Angelo Iancu
B.Sc., (Civil) R.P.E.Q # 4425

APPENDICES

APPENDIX A

Soil Profile and Laboratory Results

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Project Job No. GEO154779-E

Section 3 - Bore Logs

Bore Log Sheet

Bore Hole # 1										Bore Hole # 2										Bore Hole # 3									
Project Job No. Client:		Date Drilled: Drill Method: Power Auger		SOIL DESCRIPTION		Depth (m)	Sample Location	Groundwater	Graphic Log	Extent of Fill	Symbols	SOIL DESCRIPTION	PP Value (kPa)	D.C.P. Blows/ 100 mm	Nq (kPa)	Depth (m)	Sample Location	Groundwater	Graphic Log	Extent of Fill	Symbols	SOIL DESCRIPTION	PP Value (kPa)	D.C.P. Blows/ 100 mm	Nq (kPa)				
				<p>VERY FINE SILT (White Red) Dry and Dense Fine to Medium Gravels Tending Weathered Rock</p> <p>WEATHERED ROCK U.T.P.</p>		0						<p>VERY FINE SILT (White Red) Dry and Dense Fine to Medium Gravels Tending Weathered Rock</p> <p>WEATHERED ROCK U.T.P.</p>				0						<p>VERY FINE SILT (White Red) Dry and Dense Fine to Medium Gravels Tending Weathered Rock</p> <p>WEATHERED ROCK U.T.P.</p>							
						0.5										0.5													
						1.0										1.0													
						1.5										1.5													
						2.0										2.0													
						2.5										2.5													
						3.0										3.0													
						3.5										3.5													
						4.0										4.0													
						4.5										4.5													
						5.0										5.0													

This line represents the anticipated base level of the borehole. It is not to be used as a gauge only.

Terms:-
D.C.P. - Dynamic Cone Penetrometer
PP - Pocket Penetration
U.T.P. - Unable to Penetrate
Slope Direction

Note: kPa value is allowable bearing pressure calculated in accordance with the Australian Standard AS 2875-2006 'Methods for determining the allowable bearing pressure under small structures' by W.J. Birchfield (June 1977)



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Townsville (07) 4708 8741, Rockhampton (07) 4994 8910, Newcastle (02) 4333 4459
Email: sta@staconsulting.com.au, Website: www.staconsulting.com.au

Client
CO Commercial
PO Box 1501 Yeppoon Qld 4703

Site Address
Proposed Lot 2 - Bungundarra Road, Bungundarra
STDCON/2014-14-05

Project Job No. <<sta-site-id>>

Site Identification



Site Identification



Laboratory Test Results

Sample Location:-	N/A
Depth of Sample:-	N/A
Liquid Limit:-	N/A
Linear Shrinkage:-	N/A
log:-	N/A

WIND CLASSIFICATION

An authorised representative of STA Consulting Engineers has visited the above site and classified the area by using AS 4055.

WIND LOADING ASSESSMENT

Not Requested

Calculated Ys Value:-	0 - 20 mm	Ys - characteristic surface movement determined on soil properties only, does NOT include the effects of trees (refer Design Ys Range)
Calculated Yt Value:-	0 mm	Yt - the calculated potential surface movement due to the tree induced suction change in addition to the normal design suction change
Est. Differential Settlement:-	N/A	Calculated differential settlement due to the tree induced suction change in addition to the normal design suction change
Age of Controlled Fill:-	N/A	As per supplied Level 1 documentation

Design Ys Range

Ys + W:-	N/A	Note:- Not applicable due to tree removal from within the proposed building footprint location.
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Classification by characteristic surface movement as per AS2780-2011

SITE CLASSIFICATION SYMBOLS	DESIGN Ys RANGE	GENERALISED DESCRIPTION (Guide Only)
'A'	0 < Ys	Most sand and rock sites with little or no ground movement from moisture changes.
'S'	0 < Ys ≤ 20	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
'M'	20 < Ys ≤ 40	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
'H1'	40 < Ys ≤ 60	Highly reactive clay sites, which may experience high ground movement from moisture changes
'H2'	60 < Ys ≤ 75	Highly reactive clay sites, which may experience very high ground movement from moisture changes
'E'	Ys > 75	Extremely reactive clay sites, which may experience extreme ground movement from moisture changes
'P'	N/A	Problem sites which generally have soils associated with uncontrolled fill, abnormal moisture conditions (trees), soft or collapsing soils, landslip etc.
'D'	N/A	For classes M, H1, H2 and E this further classification may be required, based on the depth of expected moisture change. Applied to sites with deep-seated moisture changes characteristic of dry climates and corresponding to a design depth of suction change (DS), equal to or greater than 3 metres.

Test Methods: AS1289 3.1.2 (liquid limit), 3.4.1 (linear shrinkage), 7.1.1 (shrink-swell)



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Townsville (07) 4766 2741, Rockhampton (07) 4994 3810, Newcastle (02) 4332 6420
Email: sta@staconsulting.com.au Website: www.staconsulting.com.au

Client
<<sta-client-name>>
<<sta-client-address>>Site Address
<<sta-site-address>>
STC/2019-2024-14-06

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r.1, Version Date: 28/10/2019

APPENDIX B

Landslide Frequency Analysis

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GEOLOGY: Wandilla Formation

Location: Proposed Lot 2 from Existing Lot 100 on
SP280815 Bungundarra Road, Bungundarra

1. Basic Frequency 0.0004

2. Slope Angle

Area	Level	Factor
Less than 5 degrees	L	0.1
x Between 5 and 15 Degrees	M	0.5
Between 15 and 30 degrees	M	0.8
Between 30 and 45 degrees	H	1.2
More than 45 Degrees	M	0.8

3. Slope Shape

Area	Level	Factor
Crest or ridge	L	0.7
x Planar	M	0.9
Convex	M	0.9
Concave	H	1.5

4. Area Geology

Area	Level	Factor
Volcanic Rock	H	1.1
Sedimentary Rock	M	1
x Low Grade Metamorphic rock	M	1
High Grade Metamorphic rock	L	0.9
Granite rock	M	1

5. Material Strength

Area	Level	Factor
Rock at Surface	VL	0.1
Residual Soil < 1m deep	L	0.5
x Residual Soil 1 - 3m deep	M	0.9
Residual Soil > 3m deep	H	1.5
Colluvial Soil < 1m deep	H	1.5
Colluvial Soil 1 - 3m deep	VH	2
Colluvial Soil > 3m deep	VH	4

*The numerical factors allocation to these site features are based on judgement and experience

Relative Frequency	Hazard Rating
< 0.2	Very Low
0.2 - 0.6	Low
0.6 - 2.0	Moderate
2.0 - 6.0	High
> 6	Very High

GEOMORPHOLOGY:

6. Concentration of Surface water

Area	Level	Factor
Ridge	L	0.7
x Crest	M	0.8
Upper Slope	M	0.9
Mid Slope	H	1.2
Lower Slope	H	1.5

7. Evidence of Groundwater

Area	Level	Factor
x None Apparent	L	0.7
Minor Moistness	M	0.9
Generally Wet	H	1.5
Subsurface Springs	VH	3

8. Evidence of Instability

Area	Level	Factor
No sign of instability	L	0.8
x Minor Irregularity	VH	2
Major Irregularity	VH	5
Active Instability	VH	10

Summary

2	Slope Angle	0.5
3	Slope Shape	0.9
4	Area Geology	1
5	Material Strength	0.9
6	Concentration of surface water	0.8
7	Evidence of ground water	0.7
8	Evidence of Instability	2
9	Relative Frequency (2x3x4x5x6x7x8)	0.45

Relative Frequency = 0.45

Area Frequency = 0.00018

Hazard Rating = Low

APPENDIX C

Site Photographs

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Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



Figure 6.

APPENDIX D

Site Maps

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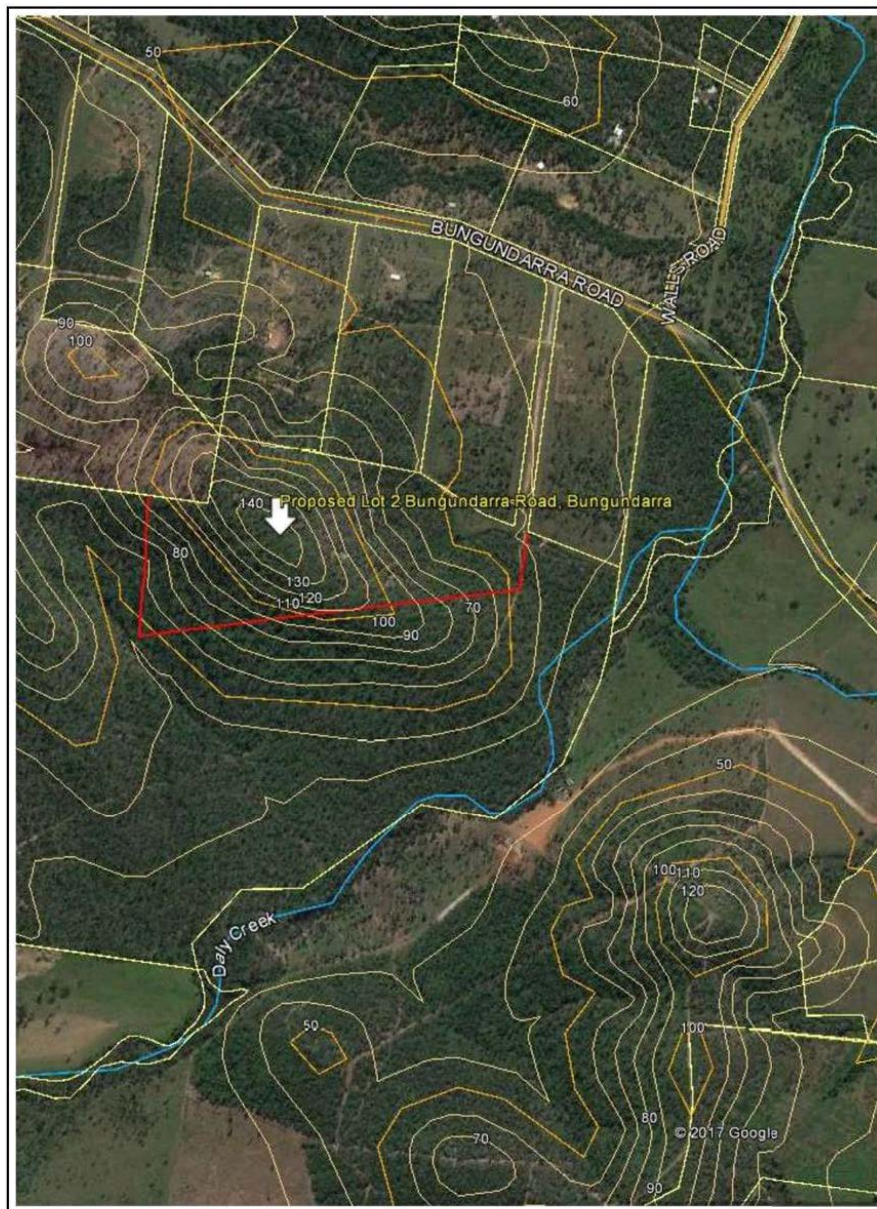


Figure 7. Google Earth Image.

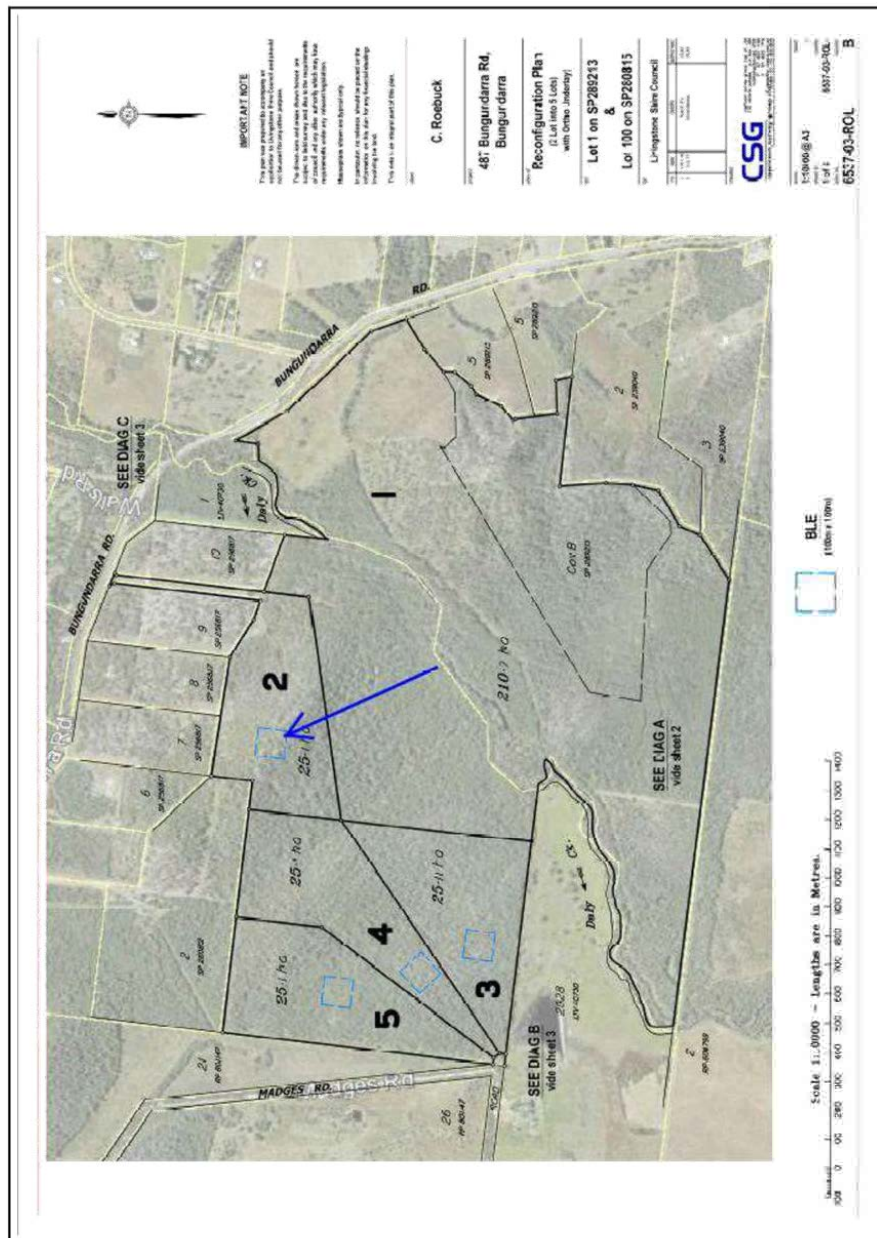
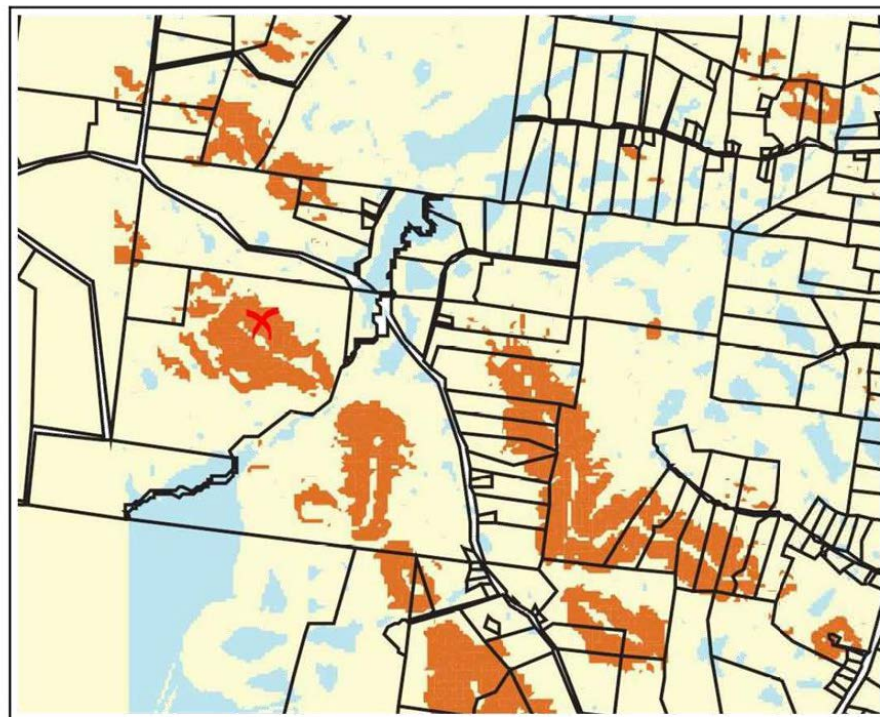


Figure 8. Proposed Subdivision Plan.



Special Management Areas

Known areas of:

-  Drainage Problem
-  Erosion Prone Land
-  Steep Land

Areas in which data is unavailable:


-  In these areas land may be subject to drainage problem, excessive steepness or prone to erosion. Determination of these constraints would have to be confirmed through site survey.

Figure 9. Special Management Area Map O2A - Livingstone Shire Council.

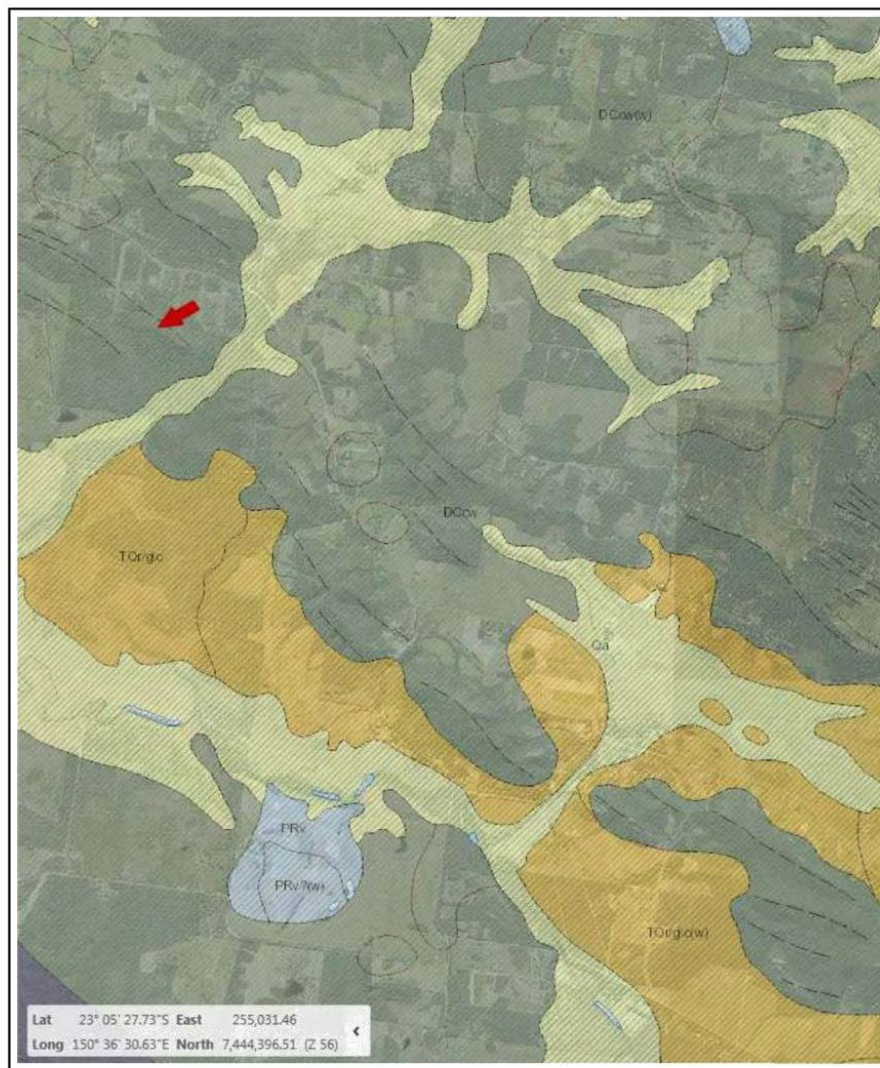


Figure 10. Regional Geology - Department of Natural Resources and Mines, Qld Government.

APPENDIX E

Qualitative Terminology for use in Assessing Risk to Property

(Appendix C AGS2007)

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PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007
APPENDIX C: LANDSLIDE RISK ASSESSMENT
QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY

QUALITATIVE MEASURES OF LIKELIHOOD

Approximate Annual Probability Indicative Value	Approximate Annual Probability		Implied Indicative Landslide Recurrence Interval	Description	Descriptor	Level
	Notional Boundary					
10 ⁻¹		5x10 ⁻²	10 years	The event is expected to occur over the design life.	ALMOST CERTAIN	A
10 ⁻²		5x10 ⁻³	100 years	The event will probably occur under adverse conditions over the design life.	LIKELY	B
10 ⁻³		5x10 ⁻⁴	1000 years	The event could occur under adverse conditions over the design life.	POSSIBLE	C
10 ⁻⁴		5x10 ⁻⁵	10,000 years	The event might occur under very adverse circumstances over the design life.	UNLIKELY	D
10 ⁻⁵			100,000 years	The event is conceivable but only under exceptional circumstances over the design life.	RARE	E
10 ⁻⁶			1,000,000 years	The event is inconceivable or fanciful over the design life.	BARELY CREDIBLE	F

Note: (1) The table should be used from left to right; use Approximate Annual Probability or Description to assign Descriptor, not vice versa.

QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY

Approximate Cost of Damage Indicative Value	Approximate Cost of Damage		Description	Descriptor	Level
	Notional Boundary				
200%		100%	Structure(s) completely destroyed and/or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.	CATASTROPHIC	1
60%		40%	Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage.	MAJOR	2
20%		10%	Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.	MEDIUM	3
5%		1%	Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works.	MINOR	4
0.5%			Little damage. (Note for high probability event (Almost Certain), this category may be subdivided at a notional boundary of 0.1%. See Risk Matrix.)	INSIGNIFICANT	5

Notes: (2) The Approximate Cost of Damage is expressed as a percentage of market value, being the cost of the improved value of the unaffected property which includes the land plus the unaffected structures.
(3) The Approximate Cost is to be an estimate of the direct cost of the damage, such as the cost of reinstatement of the damaged portion of the property (land plus structures), stabilisation works required to render the site to tolerable risk level for the landslide which has occurred and professional design fees, and consequential costs such as legal fees, temporary accommodation. It does not include additional stabilisation works to address other landslides which may affect the property.
(4) The table should be used from left to right; use Approximate Cost of Damage or Description to assign Descriptor, not vice versa

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PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007
APPENDIX C: – QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY (CONTINUED)

QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

LIKELIHOOD	Indicative Value of Approximate Annual Probability	CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
		1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A - ALMOST CERTAIN	10^{-1}	VH	VH	VH	H	M or L (5)
B - LIKELY	10^{-2}	VH	VH	H	M	L
C - POSSIBLE	10^{-3}	VH	H	M	M	VL
D - UNLIKELY	10^{-4}	H	M	L	L	VL
E - RARE	10^{-5}	M	L	L	VL	VL
F - BARELY CREDIBLE	10^{-6}	L	VL	VL	VL	VL

Notes: (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.

(6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

RISK LEVEL IMPLICATIONS

Risk Level		Example Implications (7)
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Note: (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide.

AUSTRALIAN GEOGUIDE LR7 (LANDSLIDE RISK)

LANDSLIDE RISK**Concept of Risk**

Risk is a familiar term, but what does it really mean? It can be defined as "a measure of the probability and severity of an adverse effect to health, property, or the environment." This definition may seem a bit complicated. In relation to landslides, geotechnical practitioners (GeoGuide LR1) are required to assess risk in terms of the likelihood that a particular landslide will occur and the possible consequences. This is called landslide risk assessment. The consequences of a landslide are many and varied, but our concerns normally focus on loss of, or damage to, property and loss of life.

Landslide Risk Assessment

Some local councils in Australia are aware of the potential for landslides within their jurisdiction and have responded by designating specific "landslide hazard zones". Development in these areas is often covered by special regulations. If you are contemplating building, or buying an existing house, particularly in a hilly area, or near cliffs, go first for information to your local council.

Landslide risk assessment must be undertaken by a geotechnical practitioner. It may involve visual inspection, geological mapping, geotechnical investigation and monitoring to identify:

- potential landslides (there may be more than one that could impact on your site)
- the likelihood that they will occur
- the damage that could result
- the cost of disruption and repairs and
- the extent to which lives could be lost.

Risk assessment is a predictive exercise, but since the ground and the processes involved are complex, prediction tends to lack precision. If you commission a

landslide risk assessment for a particular site you should expect to receive a report prepared in accordance with current professional guidelines and in a form that is acceptable to your local council, or planning authority.

Risk to Property

Table 1 indicates the terms used to describe risk to property. Each risk level depends on an assessment of how likely a landslide is to occur and its consequences in dollar terms. "Likelihood" is the chance of it happening in any one year, as indicated in Table 2. "Consequences" are related to the cost of repairs and temporary loss of use if a landslide occurs. These two factors are combined by the geotechnical practitioner to determine the Qualitative Risk.

TABLE 2: LIKELIHOOD

Likelihood	Annual Probability
Almost Certain	1:10
Likely	1:100
Possible	1:1,000
Unlikely	1:10,000
Rare	1:100,000
Barely credible	1:1,000,000

The terms "unacceptable", "may be tolerated", etc. in Table 1 indicate how most people react to an assessed risk level. However, some people will always be more prepared, or better able, to tolerate a higher risk level than others.

Some local councils and planning authorities stipulate a maximum tolerable level of risk to property for developments within their jurisdictions. In these situations the risk must be assessed by a geotechnical practitioner. If stabilisation works are needed to meet the stipulated requirements these will normally have to be carried out as part of the development, or consent will be withheld.

TABLE 1: RISK TO PROPERTY

Qualitative Risk	Significance - Geotechnical engineering requirements
Very high	VH Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low. May be too expensive and not practical. Work likely to cost more than the value of the property.
High	H Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to acceptable level. Work would cost a substantial sum in relation to the value of the property.
Moderate	M May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as possible.
Low	L Usually acceptable to regulators. Where treatment has been needed to reduce the risk to this level, ongoing maintenance is required.
Very Low	VL Acceptable . Manage by normal slope maintenance procedures.

AUSTRALIAN GEOGUIDE LR7 (LANDSLIDE RISK)

Risk to Life

Most of us have some difficulty grappling with the concept of risk and deciding whether, or not, we are prepared to accept it. However, without doing any sort of analysis, or commissioning a report from an "expert", we all take risks every day. One of them is the risk of being killed in an accident. This is worth thinking about, because it tells us a lot about ourselves and can help to put an assessed risk into a meaningful context. By identifying activities that we either are, or are not, prepared to engage in we can get some indication of the maximum level of risk that we are prepared to take. This knowledge can help us to decide whether we really are able to accept a particular risk, or to tolerate a particular likelihood of loss, or damage, to our property (Table 2).

In Table 3, data from NSW for the years 1998 to 2002, and other sources, is presented. A risk of 1 in 100,000 means that, in any one year, 1 person is killed for every 100,000 people undertaking that particular activity. The NSW data assumes that the whole population undertakes the activity. That is, we are all at risk of being killed in a fire, or of choking on our food, but it is reasonable to assume that only people who go deep sea fishing run a risk of being killed while doing it.

It can be seen that the risks of dying as a result of falling, using a motor vehicle, or engaging in water-related activities (including bathing) are all greater than 1:100,000 and yet few people actively avoid situations where these risks are present. Some people are averse to flying and yet it represents a lower risk than choking to death on food. Importantly, the data also indicate that, even when the risk of dying as a consequence of a particular event is very small, it could still happen to any one of us any day. If this were not so, no one would ever be struck by lightning.

Most local councils and planning authorities that stipulate a tolerable risk to property also stipulate a tolerable risk to life. The AGS Practice Note Guideline recommends that 1:100,000 is tolerable in newly

developed areas, where works can be carried out as part of the development to limit risk. The tolerable level is raised to 1:10,000 in established areas, where specific landslide hazards may have existed for many years. The distinction is deliberate and intended to prevent the concept of landslide risk management, for its own sake, becoming an unreasonable financial burden on existing communities. Acceptable risk is usually taken to be one tenth of the tolerable risk (1:1,000,000 for new developments and 1:100,000 for established areas) and efforts should be made to attain these where it is practicable and financially realistic to do so.

TABLE 3: RISK TO LIFE

Risk (deaths per participant per year)	Activity/Event Leading to Death (NSW data unless noted)
1:1,000	Deep sea fishing (UK)
1:1,000 to 1:10,000	Motor cycling, horse riding, ultra-light flying (Canada)
1:23,000	Motor vehicle use
1:30,000	Fall
1:70,000	Drowning
1:180,000	Fire/burn
1:660,000	Choking on food
1:1,000,000	Scheduled airlines (Canada)
1:2,300,000	Train travel
1:32,000,000	Lightning strike

More information relevant to your particular situation may be found in other AUSTRALIAN GEOGUIDES:

- GeoGuide LR1 - Introduction
- GeoGuide LR2 - Landslides
- GeoGuide LR3 - Landslides in Soil
- GeoGuide LR4 - Landslides in Rock
- GeoGuide LR5 - Water & Drainage
- GeoGuide LR6 - Retaining Walls
- GeoGuide LR8 - Hillside Construction
- GeoGuide LR9 - Effluent & Surface Water Disposal
- GeoGuide LR10 - Coastal Landslides
- GeoGuide LR11 - Record Keeping

The Australian GeoGuides (LR series) are a set of publications intended for property owners, local councils, planning authorities, developers, insurers, lawyers and, in fact, anyone who lives with, or has an interest in, a natural or engineered slope, a cutting, or an excavation. They are intended to help you understand why slopes and retaining structures can be a hazard and what can be done with appropriate professional advice and local council approval (if required) to remove, reduce, or minimise the risk they represent. The GeoGuides have been prepared by the Australian Geomechanics Society, a specialist technical society within Engineers Australia, the national peak body for all engineering disciplines in Australia, whose members are professional geotechnical engineers and engineering geologists with a particular interest in ground engineering. The GeoGuides have been funded under the Australian governments' National Disaster Mitigation Program.

APPENDIX F

Stability of Retaining Structures

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Stability of Retaining Structures

Geotechnical stability of all proposed retaining structures must be carried out against sliding, overturning and global slope instability. The retaining structures must also be stable against bearing capacity failure (or excessive base settlements). Moreover, the retaining structure itself must be adequately designed against any potential structural failures such as flexural failure or shear failure.

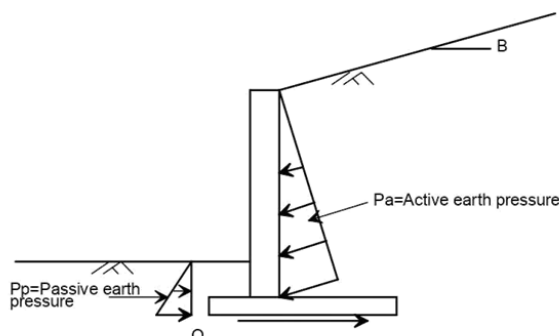


Fig. 7: Typical retaining structure and the lateral earth pressure distributions

Figure 7 shows a typical retaining structure including lateral earth pressure distributions. The retained soil behind the retaining structure will exert active lateral earth pressure if the retaining structure allows some lateral movement; otherwise lateral earth pressure at rest (K_0 condition) should be used during design and stability assessments. The soil in front of the wall will cause passive earth pressure, as shown in Fig. 7.

All development applications involving retaining structures must assess the geotechnical stability and factor of safety against the following:

- Sliding caused by the active earth pressure and resistance by passive earth pressure and frictional force at the base the retaining structure;
- Overturning about the toe (point O in Fig. 7) as a result of driving moment caused by the active earth pressure and resisting moment caused by the passive earth pressure, the self-weight of the retaining structure and weight of the retained soils behind the structure; and
- Global slope instability considering a large slip circle passing through the underneath of the retaining structure and the retained soils.

The stability assessment shall ensure that all retaining structures will achieve a factor of safety (FOS) > 1.5 against sliding, overturning and global slope instability.

Referenced "Geotechnical Stability Assessment Guidelines JUNE 2007: Version 1.0 Gold Coast City Council" Section 5.2 Page 19.

APPENDIX G

Hillside Construction

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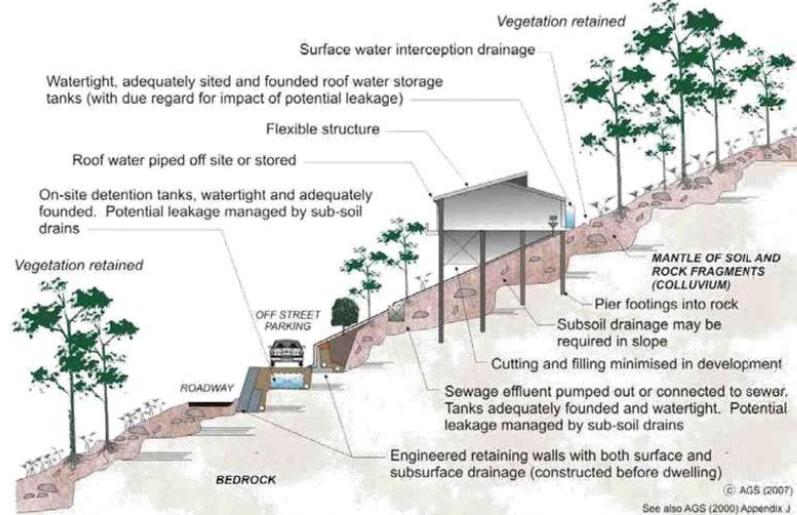
Good Hillside Construction Practice

AUSTRALIAN GEOGUIDE LR8 (CONSTRUCTION PRACTICE)

HILLSIDE CONSTRUCTION PRACTICE

Sensible development practices are required when building on hillsides, particularly if the hillside has more than a low risk of instability (GeoGuide LR7). Only building techniques intended to maintain, or reduce, the overall level of landslide risk should be considered. Examples of good hillside construction practice are illustrated below.

EXAMPLES OF GOOD HILLSIDE CONSTRUCTION PRACTICE



WHY ARE THESE PRACTICES GOOD?

Roadways and parking areas -are paved and incorporate kerbs which prevent water discharging straight into the hillside (GeoGuide LR5).

Cuttings -are supported by retaining walls (GeoGuide LR6). **Retaining walls** -are engineer designed to withstand the lateral earth pressures and surcharges expected, and include drains to prevent water pressures developing in the backfill. Where the ground slopes steeply down towards the high side of a retaining wall, the disturbing force (see GeoGuide LR6) can be two or more times that in level ground. Retaining walls must be designed taking these forces into account.

Sewage -whether treated or not is either taken away in pipes or contained in properly founded tanks so it cannot soak into the ground. **Surface water** -from roofs and other hard surfaces is piped away to a suitable discharge point rather than being allowed to infiltrate into the ground. Preferably, the discharge point will be in a natural creek where ground water exits, rather than enters, the ground. Shallow, lined, drains on the surface can fulfil the same purpose (GeoGuide LR5).

Surface loads -are minimised. No fill embankments have been built. The house is a lightweight structure. Foundation loads have been taken down below the level at which a landslide is likely to occur and, preferably, to rock. This sort of construction is probably not applicable to soil slopes (GeoGuide LR3). If you are uncertain whether your site has rock near the surface, or is essentially a soil slope, you should engage a geotechnical practitioner to find out.

Flexible structures -have been used because they can tolerate a certain amount of movement with minimal signs of distress and maintain their functionality. **Vegetation clearance** -on soil slopes has been kept to a reasonable minimum. Trees, and to a lesser extent smaller vegetation, take large quantities of water out of the ground every day. This lowers the ground water table, which in turn helps to maintain the stability of the slope. Large scale clearing can result in a rise in water table with a consequent increase in the likelihood of a landslide (GeoGuide LR5). An exception may have to be made to this rule on steep rock slopes where trees have little effect on the water table, but their roots pose a landslide hazard by dislodging boulders.

Possible effects of ignoring good construction practices are illustrated on page 2. Unfortunately, these poor construction practices are not as unusual as you might think and are often chosen because, on the face of it, they will save the developer, or owner, money. You should not lose sight of the fact that the cost and anguish associated with any one of the disasters illustrated, is likely to more than wipe out any apparent savings at the outset.

ADOPT GOOD PRACTICE ON HILLSIDE SITES

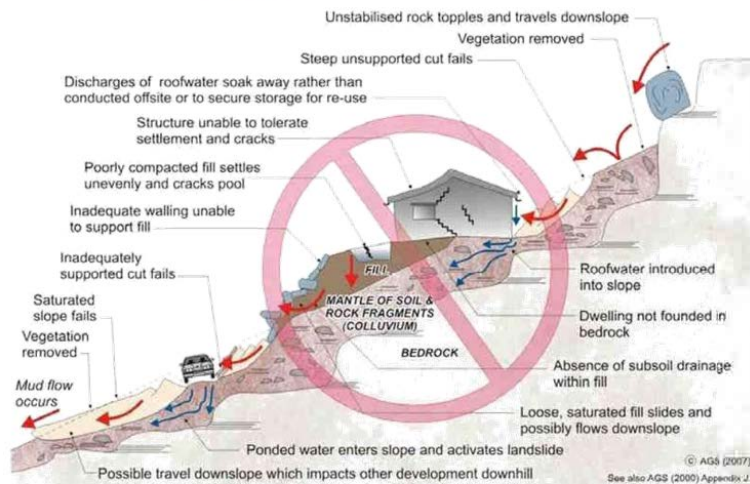
Australian Geomechanics Vol 42 No 1 March 2007

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Poor Hillside Construction Practice

AUSTRALIAN GEOGUIDE LR8 (CONSTRUCTION PRACTICE)

EXAMPLES OF **POOR** HILLSIDE CONSTRUCTION PRACTICE



WHY ARE THESE PRACTICES POOR?

Roadways and parking areas -are unsurfaced and lack proper table drains (gutters) causing surface water to pond and soak into the ground.

Cut and fill -has been used to balance earthworks quantities and level the site leaving unstable cut faces and added large surface loads to the ground. Failure to compact the fill properly has led to settlement, which will probably continue for several years after completion. The house and pool have been built on the fill and have settled with it and cracked.

Leakage from the cracked pool and the applied surface loads from the fill have combined to cause landslides.

Retaining walls -have been avoided, to minimise cost, and hand placed rock walls used instead. Without applying engineering design principles, the walls have failed to provide the required support to the ground and have failed, creating a very dangerous situation.

A heavy, rigid, house -has been built on shallow, conventional, footings. Not only has the brickwork cracked because of the resulting ground movements, but it has also become involved in a man-made landslide. **Soak-away drainage** -has been used for sewage and surface water run-off from roofs and pavements. This water soaks into the ground and raises the water table (GeoGuide LR5). Subsoil drains that run along the contours should be avoided for the same reason. If felt necessary, subsoil drains should run steeply downhill in a chevron, or herring bone, pattern. This may conflict with the requirements for effluent and surface water disposal (GeoGuide LR9) and if so, you will need to seek professional advice.

Rock debris -from landslides higher up on the slope seems likely to pass through the site. Such locations are often referred to by geotechnical practitioners as "debris flow paths". Rock is normally even denser than ordinary fill, so even quite modest boulders are likely to weigh many tonnes and do a lot of damage once they start to roll. Boulders have been known to travel hundreds of metres downhill leaving behind a trail of destruction.

Vegetation -has been completely cleared, leading to a possible rise in the water table and increased landslide risk (GeoGuide LR5).

DON'T CUT CORNERS ON HILLSIDE SITES -OBTAIN ADVICE FROM A GEOTECHNICAL PRACTITIONER

More information relevant to your particular situation may be found in other Australian GeoGuides:

The Australian GeoGuides (LR series) are a set of publications intended for property owners; local councils; planning authorities; developers; insurers; lawyers and, in fact, anyone who lives with, or has an interest in, a natural or engineered slope, a cutting, or an excavation. They are intended to help you understand why slopes and retaining structures can be a hazard and what can be done with appropriate professional advice and local council approval (if required) to remove, reduce, or minimise the risk they represent. The GeoGuides have been prepared by the Australian Geomechanics Society, a specialist technical society within Engineers Australia, the national peak body for all engineering disciplines in Australia, whose members are professional geotechnical engineers and engineering geologists with a particular interest in ground engineering. The GeoGuides have been funded under the Australian governments' National Disaster Mitigation Program.

Australian Geomechanics Vol 42 No 1 March 2007



Attachment 4 – Referral agency response

Department of State Development, Manufacturing, Infrastructure, and Planning

RA9-N



Department of
**State Development,
Manufacturing,
Infrastructure and Planning**

Our reference: 1902-9964 SRA
Your reference: D-29-2019

8 April 2019

The Chief Executive Officer
Livingstone Shire Council
PO Box 2292
Yeppoon Qld 4703
enquiries@livingstone.qld.gov.au

Attention: Tara Norley

Dear Sir/Madam

Referral agency response—no requirements
(Given under section 56 of the *Planning Act 2016*)

The development application described below was properly referred to the Department of State Development, Manufacturing, Infrastructure and Planning on 7 March 2019.

Applicant details

Applicant name:	C & M Roebuck
Applicant contact details:	c/- Capricorn Survey Group (CQ) Pty Ltd PO Box 1391 Rockhampton QLD 4700 reception@csgcq.com.au

Location details

Street address:	Bungundarra Road, Bungundarra; 487 Bungundarra Road, Bungundarra
Real property description:	Lot 100 on SP280113; Lot 1 on SP289213
Local government area:	Livingstone Shire Council

Application details

Development permit	Reconfiguring a lot for two lots into six lots and access easements
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Referral triggers

The development application was referred to the department under the following provisions of the Planning Regulation 2017:

- Schedule 10, part 3, division 4, table 2, item 1 Clearing native vegetation

No requirements

Under section 56(1)(a) of the *Planning Act 2016*, the department advises it has no requirements relating to the application.

A copy of this response has been sent to the applicant for their information.

For further information please contact Tracey Beath, Senior Planning Officer, on (07) 4924 2917 or via email RockhamptonSARA@dsdmip.qld.gov.au who will be pleased to assist.

Yours sincerely



Anthony Walsh
Manager Planning

cc C & M Roebuck c/- Capricorn Survey Group (CQ) Pty Ltd, reception@csgcq.com.au

GE78-N



Department of
**State Development,
Manufacturing,
Infrastructure and Planning**

Department of State Development, Manufacturing, Infrastructure and Planning

Statement of reasons for application 1902-9964 SRA

(Given under section 56 of the *Planning Act 2016*)

Departmental role: Referral agency

Applicant details

Applicant name: C & M Roebuck
Applicant contact details: c/- Capricorn Survey Group (CQ) Pty Ltd
PO Box 1391
Rockhampton QLD 4700
reception@csgcq.com.au

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Bungundarra
Real property description: Lot 100 on SP280113; lot 1 on SP289213
Local government area: Livingstone Shire Council

Development details

Development permit Reconfiguring a lot for two lots into six lots and access easements

Assessment matters

Aspect of development requiring code assessment	State Development Assessment Provisions, version 2.4 Applicable codes
Reconfiguring a lot	<ul style="list-style-type: none">State code 16: Native vegetation clearing

Reasons for the department's decision

The reasons for the response are:

- will allow clearing of 'least concern' regional ecosystems to occur, however the clearing is not considered to threaten ecological processes
- the development complies with state code 16.

Response:

Nature of approval	Response details	Date of response
Development approval	No requirements	8 April 2019

Relevant material

- Development application
- State Development Assessment Provisions published by the Department of State Development, Manufacturing, Infrastructure and Planning
- Planning Act 2016*
- Planning Regulation 2017

Page 1 of 2

Fitzroy/Central regional office
Level 2, 209 Bolsover Street, Rockhampton
PO Box 113, Rockhampton QLD 4700

- Development Assessment Rules

**12.10 - REQUEST FOR A NEGOTIATED
DECISION FOR DEVELOPMENT
PERMIT D-29-2019 FOR
RECONFIGURING A LOT (TWO LOTS
INTO SIX LOTS) LOCATED AT 535
BUNGUNDARRA ROAD AND LOT 100
BUNGUNDARRA ROAD,
BUNGUNDARRA**

**PSM10 Locally Significant Vegetation
Overlayed with amended Proposal Plan**

Meeting Date: 3 December 2019

Attachment No: 5



16 CONFIDENTIAL REPORTS

16.8 WORKS FOR QUEENSLAND 2019-21

File No: GS15.2.7-1

Attachments: 1. Schematic Plans

Responsible Officer: Chris Murdoch - Chief Executive Officer

Author: Brett Bacon - Executive Director Liveability and Wellbeing

This report is considered confidential in accordance with section 275(1)(h), of the *Local Government Regulation 2012*, as it contains information relating to other business for which a public discussion would be likely to prejudice the interests of the local government or someone else, or enable a person to gain a financial advantage.

SUMMARY

This report discusses the Works for Queensland and proposed allocation of project funding.